Transient and lightning protection systems

TBS | Master catalogue 2016

OBO BETTERMANN

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Planning software

When a building protected by a lightning conductor is struck directly by lightning, then dangerous fires and damage may be caused between the building and the systems leading into it (power supply, data cables) due to large differences in potential. This online tool aids you in the selection and connection of suitable surge protection systems for your individual project and provides you with information on the OBO surge protection systems.

You can create your personal materials list, connection diagram and invitation to tender text quickly, efficiently and in a targeted manner for the complete surge protection in the fields of energy technology, photovoltaics, telecommunication, MSR, TV, HF and data technology,and export them easily into the Excel format for further processing.
System requirements:
Up-to-date standard browser
Internet access

Benefits

- Generation of materials lists, circuit diagrams and invitations to tender
- For quick and easy application
- Platform-independent
- Easy export function to the Excel format

Lightning protection guide. Safely routed.

Reference work and planning aid for electrical installation engineers and technical planners
At OBO Bettermann, we can look back on more than 90 years of experience in the field of lightning and surge protection. This experience and, of course, the latest standards and technical innovations have flowed into the company's new lightning protection guide. The brochure allows you to plan installations in the field of lightning and surge protection faster and more easily.

It contains a balanced mixture of basic knowledge and expert knowledge, as well as planning and selection aids for the protection of buildings and systems.

The new lightning protection guide can be requested by calling +49 (0)2373 89-1500 and is also available for download.

Topics

- Basic principles
- The external lightning protection system
- Air-termination and down-conductor systems
- Examples and selection aids for wind load calculation conform with Eurocode 1+3
- Earthing systems with foundation earther to current DIN 18014
- The internal lightning protection system
- Equipotential bonding systems
- Overvoltage protection systems
- Current standards
- New selection and planning aids
- Examples

OBO

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OBO TBS seminars: First-hand knowledge
With a comprehensive programme of training courses and seminars on the subject of surge voltage and lightning protection systems, OBO is able to support its customers with specialist knowledge from a single source. Alongside the basic theoretical principles, the programme also deals with practical implementation in everyday applications. Special calculation and application examples round off the comprehensive programme of knowledge transfer.

Invitations to tender on the Internet at www.ausschreiben.de
More than 10,000 entries from the KTS, BSS, VBS, TBS, LFS, EGS and UFS ranges can be called up free of charge. Regular updates and extensions mean that you always have a comprehensive overview of the OBO products. All the current file formats (PDF, DOC, GAEB, HTML, TEXT, XML, ÖNORM) are available.
www.ausschreiben.de

Invitations to tender, product information and data sheets
We can make life easier for you, with our comprehensive selection of materials designed for practical applications, which provide you with effective support with the planning and calculation of a project. These include:

- Invitations to tender
- Product information
- Information sheets
- Data sheets

Invitations to tender for lightning protection/earthing at the highest level: OBO manufacturers products to RAL GZ642-5 and is dedicated to compliance with the RAL directives. Lightning protection and earthing products can be used for invitations to tender according to RAL.

These documents are continually updated and can be downloaded at no charge at any time from the Internet download area at www.obo-bettermann.com.

Customer service and credibility
Friendliness, reliability and competence create acceptance, credibility and lasting working relationships. These shared values arise from OBO's consistent orientation around the wishes and needs of its customers. Close partnerships with customers is OBO's foremost priority.

Help and advice
Answers to questions about products and installation, planning advice for complex projects – OBO's staff will help you through every phase of your project, no matter what field it is in. We are constantly improving the support we provide in every phase of collaboration, laying the foundations for genuine partnerships.

Speed and reliability
Optimised procedures and highly developed logistics ensure that OBO products are in the right place at the right time, anywhere in the world. OBO offers comprehensive support for large-scale projects, from planning all the way to installation.

Lightning protection guide
Free order
and download from
www.obo.de

- Production location
- Subsidiary
- Representative

Minor cause, major effect: Damage caused by surge voltages

Our dependency on electrical and electronic equipment continues to increase, in both our professional or private lives. Data networks in companies or emergency facilities such as hospitals and fire stations are lifelines for an essential real time information exchange. Sensitive databases, e.g. in banks or media publishers, need reliable transmission paths.

It is not only lightning strikes that pose a latent threat to these systems. More and more frequently, today's electronic aids are damaged by surge voltages caused by remote lightning discharges or switching operations in large electrical systems. During thunderstorms too, high volumes of energy are instantaneously released. These voltage peaks can penetrate a building though all manner of conductive connections and cause enormous damage.

Financial implications of lightning and surge voltage damage

Financial loss can only be considered in isolation in cases where no legal or insurance requirements relating to personal safety apply.

Substantial losses result from the destruction of electrical devices, notably:

- Computers and servers
- Telephone systems
- Fire alarm systems
- Monitoring systems
- Lift, garage door and roller shutter drives
- Consumer electronics
- Kitchen appliances

Further costs can also be incurred due to outages and consequential damage in relation to:

- Loss of data
- Production outage
- Loss of contactability (Internet, telephone, fax)
- Defective heating systems
- Costs due to faults and false alarms in fire and burglar alarm systems

Financial losses are on the rise

Current statistics and estimates of insurance companies show: Damage levels caused by surges – excluding consequential or outage costs – long since reached drastic levels due to the growing dependency on electronic "aids". It's no surprise, then, that property insurers are checking more and more claims and stipulating the use of devices to protect against surges. Information on protection measures can be found in e.g. the German Directive VDS 2010.

Year	Amount of lightning and surge voltage damage	Paid damages for lightning and surge voltage damage
1999	490,000	€310 million
2006	550,000	€340 million
2007	520,000	€330 million
2008	480,000	€350 million
2009	490,000	€340 million
2010	330,000	€220 million
2011	440,000	€330 million
2012	410,000	€330 million
2013	340,000	€240 million
2014	410,000	€340 million

Number of instances of damage from lightning and surge voltages and amounts paid out by home and contents insurance companies; source: GDV · Extrapolation based on industry and risk statistics; numbers rounded to the nearest 10,000 or €10 million.

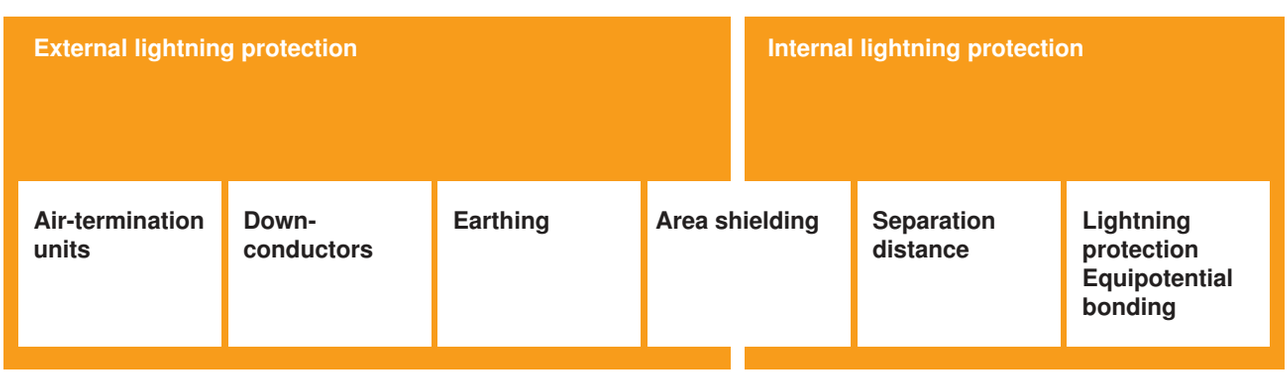
Lightning and surge protection standards

When planning and executing a lightning protection system, it is necessary to observe all relevant national annexes and take account of any special circumstances or applications and the safety stipulations in the relevant country-specific supplements.
A lightning and surge protection system consists of several systems, each tailored to each of the others. At its most basic, a lightning and surge protection system consists of one internal and one external lightning protection system.

These, in turn, can be categorised as follows:
- Air-termination devices
- Down-conductors
- Earthing systems
- Area shielding
- Separation distance
- Lightning protection equipotential bonding system

These systems must be carefully selected for the application at hand, and used in a coordinated way. Installation of the systems takes place according to various application and product standards. The supplements to the international IEC guidelines and harmonised European versions of the various country-specific translations often contain additional informative information specific to the country in question.

Product standards
To ensure that the components can withstand the loads to which they are likely to be exposed in application, they must be checked against the respective product standard for external and internal lightning protection.



External and internal lightning protection systems

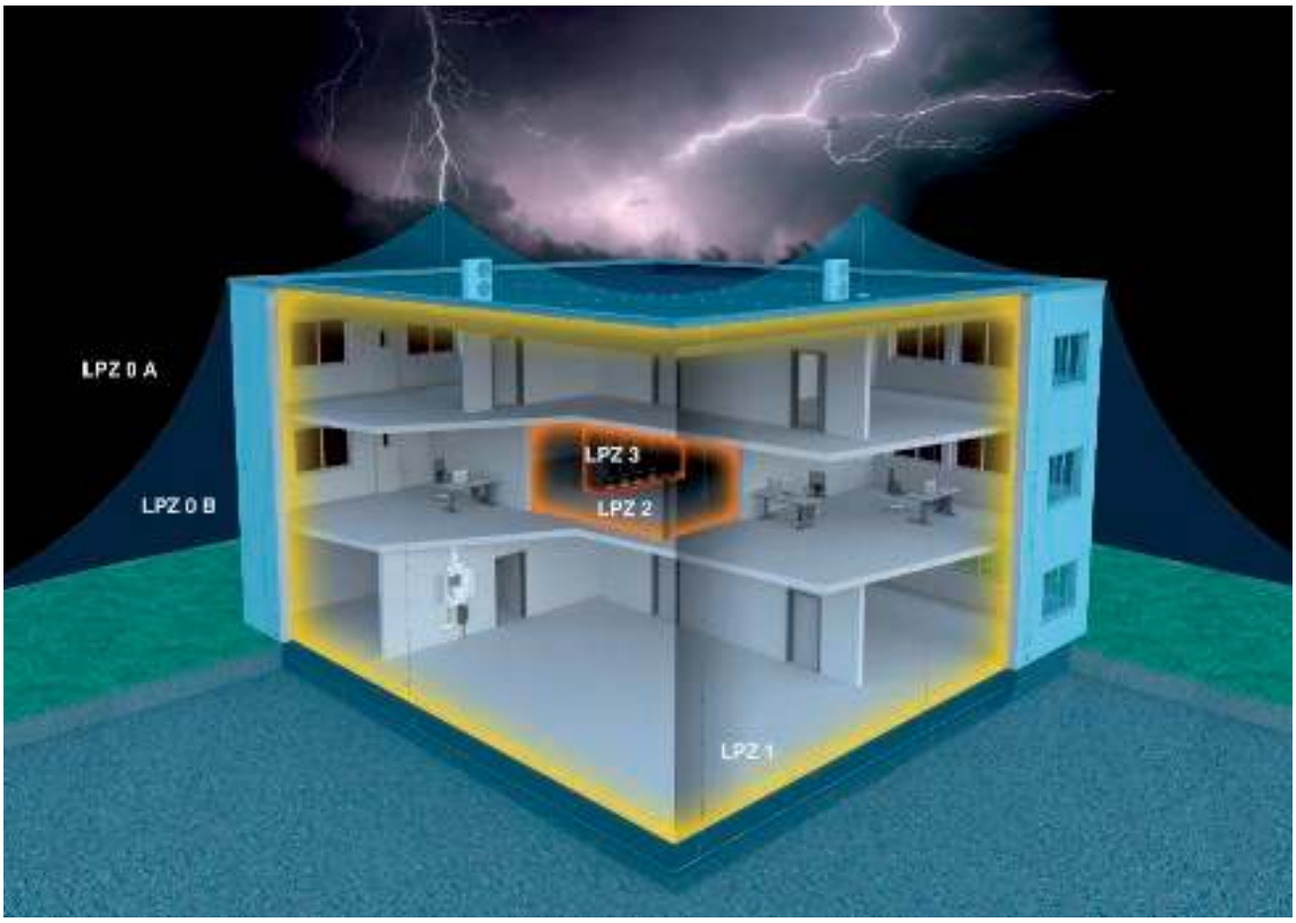
Standard	German supplement	Contents
VDE 0185-305-1 (IEC 62305-1)		Protection against lightning – Part 1: General principles
VDE 0185-305-2 (IEC 62305-2)		Protection against lightning – Part 2: Risk management
	1	Lightning risk in Germany
	2	Calculation aids for estimating the risk of damage for buildings
	3	Additional information on use of EN 62305-2
VDE 0185-305-3 (IEC 62305-3)		Protection against lightning – Part 3: Protection of structures and people
	1	Additional information on use of EN 62305-3
	2	Additional information for building structures
	3	Additional information for the testing and servicing of lightning protection systems
	4	Use of metal roofs in lightning protection systems
	5	Lightning and surge protection in PV power supply systems
VDE 0185-305-4 (IEC 62305-4)		Protection against lightning – Part 4: Electrical and electronic systems within structures
	1	Distribution of the lightning current
VDE 0675-6-11 (IEC 0675-6-11)		Low-voltage surge protection devices – Part 11: Surge protection devices connected to low-voltage power systems
VDE 0100-534 (IEC 60364-5-53)		Low-voltage electrical installations - Part 5-53: Selection and erection of electrical equipment – Isolation, switching and control – Clause 534: Devices for protection against surge voltages
VDE 0100-443 (IEC 60364-4-44)		Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances – Clause 443: Protection against surge voltages of atmospheric origin or due to switching
VDE 0100-712 (IEC 60364-7-712)		Requirements for operational premises, special rooms and systems – Solar photovoltaic (PV) power supply systems

Key lightning protection standards and specifications

Product standards	Contents
VDE 0185-561-1 (IEC 62561-1)	Lightning protection system components – Requirements for connection components
VDE 0185-561-2 (IEC 62561-2)	Lightning protection system components – Requirements for conductors and earthers
VDE 0185-561-3 (IEC 62561-3)	Lightning protection system components – Requirements for spark gaps
VDE 0185-561-4 (IEC 62561-4)	Lightning protection system components – Requirements for holders
VDE 0185-561-5 (IEC 62561-5)	Lightning protection system components – Requirements for inspection boxes and earther penetrations
VDE 0185-561-6 (IEC 62561-6)	Lightning protection system components – Requirements for lightning strike counters
VDE 0185-561-7 (IEC 62561-7)	Lightning protection system components – Requirements for earthing enhancing compounds
VDE 0675-6-11 (IEC 61643-11)	Surge protective devices connected to low-voltage power systems – Requirements and test methods
VDE 0845-3-1 (IEC 61643-21)	Surge protective devices connected to telecommunications and signalling networks

Lightning protection and surge protection components

Gradual surge reduction with lightning protection zones



Lightning protection zone concept
The lightning protection zone concept described in international standard IEC 62305-4 (DIN VDE 0185 Part 4) has proved to be practical and efficient. This concept is based on the principle of gradually reducing surges to a safe level before they reach the terminal device and cause damage. In order to achieve this situation, a building's entire energy network is split into lightning protection zones (LPZ = Lightning Protection Zone). Installed at each transition from one zone to another is a surge arrestor for equipotential bonding. These arrestors correspond to the requirement class in question.

Lightning protection zone

LPZ 0 A		Unprotected zone outside the building. Direct lightning strike, no shielding against electromagnetic interference pulses LEMP (Lightning Electromagnetic Pulse).
LPZ 0 B		Through the area protected by the external lightning protection system. No shielding against LEMP.
LPZ 1		Zone inside the building. Low partial lightning energies possible.
LPZ 2		Zone inside the building. Low surges possible.
LPZ 3		Zone inside the building (can also be the metal housing of a consumer). No interference pulses through LEMP or surges present.

Choosing the right surge protection devices

The classification of surge protection devices into types means they can be matched to different requirements with regard to location, protection level and current-carrying capacity. The table provides an overview of the zone transitions. It also shows which OBO surge protection devices can be installed in the energy supply network and their respective function.

Zone transition	Protection device and device type	Product example	Product figure
LPZ 0 B to LPZ 1	Protection device for lightning protection equipotential bonding in accordance with VDE 0185-305 (IEC 62305) for direct or close lightning strikes. Devices: Type 1 (Class I), e.g. MCD50-B Max. protection level according to standard: 4 kV OBO protection level: < 1.3 kV Installation e.g. in the main distributor/at building entry	MCD Item no.: 5096879	
LPZ 1 to LPZ 2	Protection device for lightning protection equipotential bonding in accordance with VDE 0185-305 (IEC 62305) for direct or close lightning strikes. Devices: Type 2 (Class II), e.g. V20 Max. protection level according to standard: 1.5 kV OBO protection level: < 1.3 kV Installation e.g. in the main distributor/at building entry	V20 Item no.: 5095253	
LPZ 2 to LPZ 3	Protection device, designed for surge protection of portable consumers at sockets and power supplies. Devices: Type 3 (Class III), e.g. ÜSM-A Max. protection level according to standard: 1.5 kV OBO protection level: < 1.3 kV Installation e.g. on the end consumer	ÜSM-A Art. no.: 5092451	

BET – testing centre for lightning protection, electrical engineering and support systems

Lightning current generator

BET with countless tasks

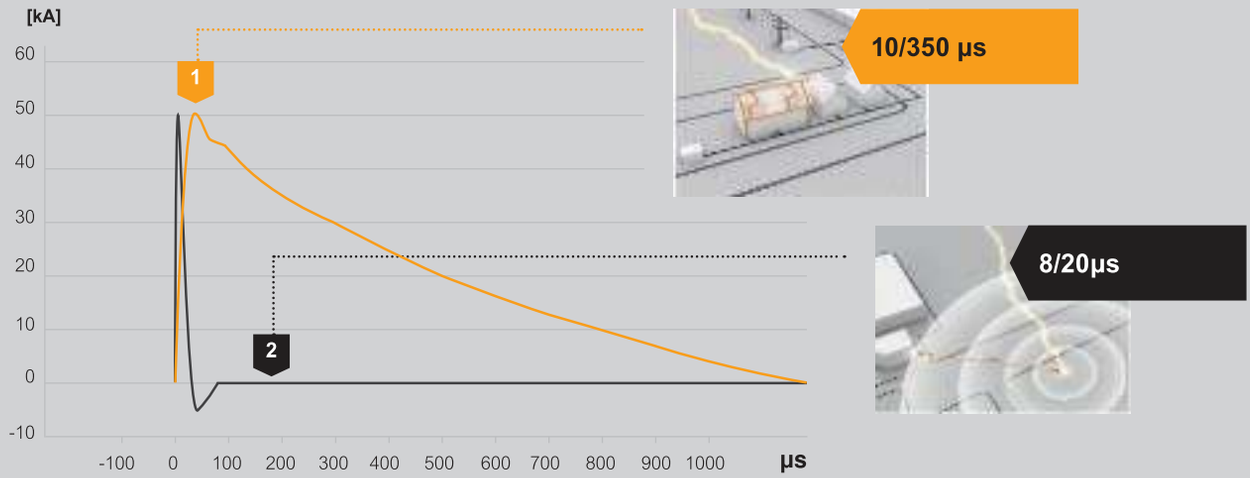
Whereas previously only lightning current, environmental and electrical testing had been possible at BET, the BET Test Centre is now also a competent partner for the testing of cable support systems. This combination has made it necessary to revise the meaning of the name. If BET previously stood for "Blitzschutz- und EMV-Technologiezentrum" (Lightning protection and EMC technology centre), since 2009 these letters have meant BET Test Centre for lightning protection, electrical engineering and support systems.

Test generator for lightning current tests

The test generator planned in 1994 and completed in 1996 makes it possible to carry out lightning current tests at up to 200 kA. The generator was planned and constructed in cooperation with Soest Technical College. Due to the intensive planning and scientific support in the construction of the test system, it has worked for 20 years without errors and meets current standardised test requirements.

Testing tasks

The main load of the testing generator is generated through the testing of products from the TBS product division. For this, developmental tests of new developments, modifications to existing OBO products and also comparison tests with competitive products are carried out. These include lightning protection components, surge protection devices and lightning arrestors. Tests for lightning protection components are carried out according to IEC 62561, for spark gaps according to IEC 62561 and for lightning and surge protection devices according to IEC 61643-11. This is only a small amount of the testing standards used for tests in the BET Test Centre.



1	Pulse shape 1: Direct lightning strike, 10/350 µs simulated lightning pulse
2	Pulse shape 2: Remote lightning strike or switching operation, 8/20 µs simulated current pulse (surge voltage)

Types of pulse and their characteristics

Testing types for lightning and surge protection

Both lightning current tests and surge voltage tests can be carried out at up to 20 kV. A hybrid generator is used for these tests, which was also developed as part of a cooperation with the Soest Technical College. EMC testing of cable support systems can also be carried out using this test generator. All kinds of cable routing and cable support systems of up to 8 m length can be tested without any difficulties. Tests for electrical conductivity according to IEC 61537 are also carried out.

Simulation of real environmental conditions

To carry out standardised tests on components intended for external use, they must be pretreated under real environmental conditions. This takes place in a salt spray trough and a sulphur dioxide testing chamber. Depending on the test, the test length and the concentration of the salt spray or sulphur dioxide in the testing chambers may vary. This means that it is possible to conduct tests according to IEC 60068-2-52, ISO 7253, ISO 9227 and EN ISO 6988.

Testing cable support systems

The well-known KTS testing system, newly installed in the BET Test Centre, allows the investigation of the load capacities of any cable support system manufactured by OBO. The basis for this is IEC 61537 and VDE 0639.

In the BET Test Centre, OBO Bettermann has a testing department in which products can be tested according to standards, even during the development phase.

Surge protection
Energy technology,
Arrestor, type 1 (industry)

Planning aids, surge protection energy technology

Selection aid, energy technology 20

Selection aid, energy technology
AC combination arrester and surge protection; type 1, type 1+2, type 2 and type 3

		Installation location 1 **Installation in the main distributor box / combined distributor** **Basic protection / type 1, type 2**				
Initial situation	Building type	Description	Type	Item no.	Test mark	Product figure
• No external lightning protection system • Earthing cable connection 	Private building	TN-/TT Type 2 + 3 2.5 Division Secondary counter zone	V10 Compact	**5093 38 0** Page: 251		
		TN-/TT Type 2 + 3 4 Division Secondary counter zone	V10-C 3+NPE	**5093 39 1** Page: 253		
	Multiple dwelling/ industry, commerce	TN-/TT Type 2 4 Division Secondary counter zone	V20 3+NPE	**5095 25 3** Page: 210	VDE ÖVE UL	
			V20 3+NPE+FS with remote signalling	**5095 33 3** Page: 211	VDE ÖVE UL	
• External lightning protection system (according to IEC 62305) 	Buildings of lightning protection classes III and IV (e.g. housing, offices and commercial buildings)	TN-/TT Type 1 + 2 4 Division Secondary counter zone	V50 3+NPE	**5093 52 6** Page: 144	VDE ÖVE UL	
			V50 3+NPE+FS with remote signalling	**5093 53 3** Page: 145	VDE ÖVE UL	
• Outdoor connection 	Buildings of lightning protection classes I to IV (e.g. industry)	TN-C Type 1 6 Division Pre-metered or secondary counter zone	MCD 50-B 3	**5096 87 7** Page: 100		
		TN-S Type 1 8 Division Pre-metered or secondary counter zone	MCD 50-B 3+1	**5096 87 9** Page: 98		

Installation location 2
Installation in the sub-distributor
Medium protection / type 2
Only required if distance ≥ 10m

Description	Type	Item no.	Test mark	Product figure
TN/TT Type 2 + 3 2.5 Division	V10 Compact	**5093380** Page: 251		
	V10 Compact FS, with remote signalling	**5093382** Page: 254		
TN/TT Type 2 4 Division	V20 3+NPE	**5095253** Page: 210	VDE ÖVE UL	
	V20 3+NPE+FS with remote signalling	**5095333** Page: 211	VDE ÖVE UL	
TN/TT Type 2 4 Division	V20 3+NPE	**5095253** Page: 210	VDE ÖVE UL	
	V20 3+NPE+FS with remote signalling	**5095333** Page: 211	VDE ÖVE UL	
TN/TT Type 2 4 Division	V20 3+NPE	**5095253** Page: 210	VDE ÖVE UL	
	V20 3+NPE+FS with remote signalling	**5095333** Page: 211	VDE ÖVE UL	

Installation location 2
Installation before the terminal
Fine protection / type 3

Description	Type	Item no.	Product figure
Plug-in	FC-D	**5092 80 0** Page: 270	
	FC-TV-D	**5092 80 8** Page: 271	
	FS-SAT-D	**5092 81 6** Page: 272	
	FC-TAE-D	**5092 82 4** Page: 273	
	FC-ISDN-D	**5092 81 2** Page: 274	
	FC-RJ-D	**5092 82 8** Page: 275	
	CNS-3-D-D	**5092 70 1** Page: 276	
Fixed installation	ÜSM-A	**5092 45 1** Page: 278	
	ÜSM-A ST-230 1P+PE	**5092 44 1** Page: 281	
	ÜSS 45-o-RW	**6117 47 3** Page: 282	
Series installation in distributor	V10 Compact L1/L2/L3/N	**5093 38 0** Page: 251	
	VF230-AC/DC	**5097 65 0** Page: 289	
	VF230-AC-FS with remote signalling	**5097 85 8** Page: 291	

Surge protection
Photovoltaics,
Arrestor type 1+2, type 2

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Coordinated protection. The ProtectPlus system kit.

A well-thought-out system for the whole electrical infrastructure of a photovoltaic system – that's ProtectPlus. Different components provide comprehensive protection, which allows both the erection engineer and the system operator to sleep in peace.

External lightning protection systems
Lightning currents are intercepted and run safely to the earth with the following systems:
- Air-termination rods and masts
- Insulated lightning protection
- Insulated isCon® conductor
- Flat and round conductors
- Cable brackets
- Connection clamps and connection terminals

Earthing systems
Our products for perfect earthing:
- Flat and round conductors
- Connectors
- Connection terminals
- Earth entries
- Deep, ring and foundation earthers
- Corrosion protection

Equipotential bonding systems
Equipotential bonding systems are the link between external lightning protection, surge protection and earthing. They are available in the following variants:
- For indoor use
- For outdoor use
- For industrial use

Overvoltage protection systems
A product range for any application:
- Lightning arrestor/combination arrestor
- Surge protection for energy and data technology
- Complete system solutions, terminated and premounted in the housing
- Combination and surge arrestor for photovoltaics, DC side

Cable support systems
Quick-mounting, safe cable routing with:
- Cable trays
- Mesh cable trays
- Cable ladders
- Vertical ladders
- Suspended supports
- Wall and support brackets

Cable routing systems
Tidy cable routing within the building can be achieved using
- Wall and ceiling ducts
- Cable and pipe fastening systems made of plastic and metal
- Screw-in and knock-in systems
- Rail systems

Fire protection systems
Our fire protection system consists of the following components:
- Insulation
- Weatherproof fire protection bandages
- Systems for emergency and escape routes

Four steps to comprehensive protection

Step 1:
Check the separation distance
If the required separation distance cannot be complied with, then the metallic parts must be interconnected to be able to carry lightning current.

Step 2:
Check the protection measures
Example: measures for lightning protection equipotential bonding are used on the DC and AC side, e.g. lightning arrestor (type 1).

Step 3:
Include data cables
Data cables must be included in the protection concept.

Step 4:
Carrying out the equipotential bonding
Local equipotential bonding must be provided on the inverter.

Overview of protection measures

Initial situation	Measure	Separation distance according to IEC 62305 maintained	Equipotential bonding	Surge protection	Sample product picture
• External lightning protection system (according to IEC 62305) 	Adapt the lightning protection system according to IEC 62305	Yes	min. 6 mm²	DC: Type 2	
				AC: Type 1	
		No	min. 16 mm²	DC: Type 1	
				AC: Type 1	
• No outside lightning protection system • Earthing cable connection 	Requirements' testing: LBO, Vds 2010, risk analysis, ...	-	min. 6 mm²	DC: Type 2	
				AC: Type 2	

Selection aid
Photovoltaic system solutions

Energy technology, type 2, protection of the DC side								
Initial situation	Max. DC voltage	Max. number of MPP per inverter	Max. number of strings per MPP terminal	Connection (DC side)	Version	Type	Item no.	Product figure
• No external lightning protection system • Earthing cable connection The following are required: • Surge voltage protection, type 2 • Lightning protection equipotential bonding 6.5 mm²	600 V	1	1In/1Out	MC 4 connector		VG-C DCPH-Y1000	**5088 67 0**	
	1000 V	1	1In/1Out	MC 4 connector		VG-C DCPH-Y1000	**5088 67 2**	
		1	2	Terminals	Circuit breaker	VG-C DC-TS1000	**5088 66 0** Page: 321	
		1	4	Terminals	4 fuse holders, unequipped	VG-C PV1000KS4	**5088 65 4** Page: 318	
		1	8	Terminals		VG-C DCPH1000-4K	**5088 65 0** Page: 323	
		1	1 0	Terminals		VG-C DCPH-MS1000	**5088 69 1**	
		2	4	Terminals		VG-CPV1000K 22	**5088 56 8** Page: 313	
		2	6	Terminals		VG-CPV 1000K 330	**5088 58 2** Page: 308	
		3	6	Terminals		VG-CPV 1000K 333	**5088 58 5** Page: 309	
		2	6	Terminals		VG-CPV 1000K 330	**5088 58 2** Page: 308	
		3	2In/1Out	MC 4 connector		VG-C DCPH1000-31	**5088 64 8**	
		3	6	Terminals		VG-CPV 1000K 333	**5088 58 5** Page: 309	

You can find the selection aid for AC combination arrestors and surge protection in the chapter Surge Protection in Energy Technology.

Energy technology, type 1+2, protection of the DC side

Initial situation	Max. DC voltage	Max. number of MPP per inverter	Max. number of strings per MPP terminal	Connection (DC side)	Version	Type	Item no.	Product figure
• External lightning protection system according to DIN EN 0185-305 The following are required: • Lightning and surge protection Type 1+2 • Lightning protection equipotential bonding 16 mm² • Separating distance could not be maintained 	600 V	1	1 0	Terminal		VG-BC DCPH-MS600	**5088 69 3**	
	900 V	1	1In/1Out	MC 4 connector		VG-BC DCPH-Y900	**5088 67 8**	
		1	2	Terminals	Circuit breaker	VG-BC DC-TS900	**5088 63 5** Page: 320	
		1	8	Terminals		VG-BC DCPH900-4K	**5088 63 2** Page: 322	
		1	1 0	Terminals		VG-BC DCPH-MS900	**5088 69 2**	
		2	4	Terminals		VG-BCPV900K 22	**5088 56 6** Page: 312	
		2	6	Terminals		VG-BCPV 900K 330	**5088 57 6** Page: 306	
		3	2In/1Out	MC 4 connector		VG-BC DCPH900-31	**5088 62 9**	
		3	6	Terminals		VG-BCPV 900K 333	**5088 57 9** Page: 307	

Data technology

Initial situation		RJ 45	Terminal	Type	Item no.	Product figure
	• No external lightning protection system • Earthing cable connection	●		ND-CAT6A/EA	**5081 80 0** Page: 366	
	• External lightning protection system (according to DIN EN 62305)		●	FRD 24 HF	**5098 57 5** Page: 395	

Surge protection
Data and information technology

Planning aids, surge protection device for data and information technology

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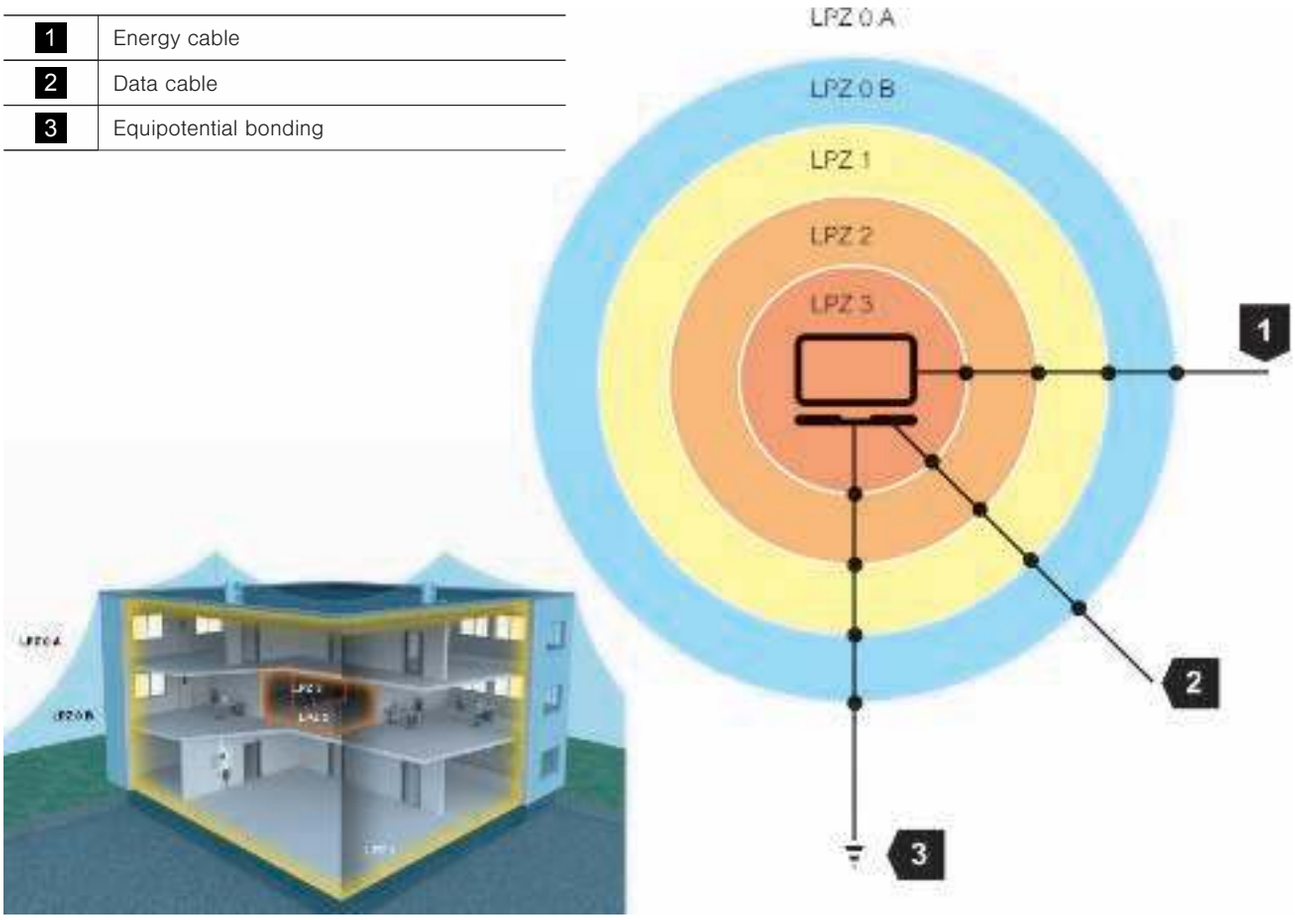
Surge protection systems for data and information technology

1	Energy cable
2	Data cable
3	Equipotential bonding



Protection principle based on lightning protection zone concept

Data and information technology systems are used in many different applications. Almost every electronic system used to process information is considered extremely important. Ever increasing volumes of data are being stored and must be accessible at all times at very short notice. It has become even more important to protect these systems too against dangerous surges. In order to prevent failure or even destruction of these systems, they must be integrated into the lightning and surge protection concept.

Planning methods – Basic principles

These days, communication and IT systems are the lifelines of almost every company. In the worst-case scenario, surge voltages, caused by galvanic, capacitive or inductive couplings in data cables, can destroy IT equipment and communication technology. To avoid such failures, suitable protection measures have to be taken.

In practice, the wide range of standard information, telecommunication and measurement systems often makes the selection of the right surge protection device complex. The following factors must be taken into account:

- The connection system of the protection device must fit the device to be protected.
- Parameters such as the highest signal level, highest frequency, maximum protection level and the installation environment must be taken into account.
- The protection device may only exert the minimum of impacts, such as attenuation and reflection, on the transmission path.

Data cable protection devices and labelling

1	Unprotected side
2	Protection class, basic protection
3	Protected side/device

LPZ 0 B - 2, final code B = basic protection, red colour coding

Basic protection
Basic protection devices are lightning arrestors of class 1 that can directly arrest lightning currents and surge voltages. The single-stage protection circuit contains gas arresters. These devices are installed where the lines enter the buildings. They serve to arrest lightning current with waveform 10/350 µs coupled from outside the building via the data cables.

1	Unprotected side
2	Protection class, combination protection
3	Protected side/device

LPZ 0 B - 3, final code C = Combi Protection, blue colour coding

Combined protection
The combined protection devices limit the transients with gas-discharge protectors or transzorb diodes, which are decoupled through resistors. These correspond to classes 1, 2 and 3 or categories D1 and C2 as defined in the standard DIN EN 61643-21. The devices can be installed as basic protection where the lines enter the building, or as fine protection directly before the terminal device. In the latter case it should be noted that the distance to the device needing protection should not exceed 10 metres. If it does, then a further fine protection device should be installed before the device.

1	Unprotected side
2	Protection class, fine protection
3	Protected side/device

LPZ 1 - 3, final code: F = fine protection, green colour coding

Fine protection
The fine protection devices use transzorb diodes to limit surge impulses. The devices are earthed with powerful gas discharge protectors. The decoupling required for basic and fine protection is achieved when the line section between basic and fine protection device is at least five metres. Fine protection devices should always be installed on the device to be protected itself.

Selection aid, HF, video and satellite TV

Technology	Connection	Protected wires	Frequency range	Type	Gender	Item no.	Protection rating
CATV	F	1	0 - 863 MHz	DS-F	plug/connector	5093 27 5	Combined protection
					connector/ connector	5093 27 2	Combined protection
DCF 77	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	BNC	1	0 - 2.2 GHz	DS-BNC	plug/connector	5093 25 2	Combined protection
					connector/ connector	5093 23 6	Combined protection
					plug/plug	5093 26 0	Combined protection
DCS 1800	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	N	1	0 - 3 GHz	DS-N	plug/connector	5093 99 6	Combined protection
					connector/ connector	5093 98 8	Combined protection
	BNC	1	0 - 2.2 GHz	DS-BNC	plug/connector	5093 25 2	Combined protection
					connector/ connector	5093 23 6	Combined protection
					plug/plug	5093 26 0	Combined protection
	7/16	1	0 - 3 GHz	DS-7 16	plug/connector	5093 17 1	Combined protection
DOCSIS	F	1	0 - 863 MHz	DS-F	plug/connector	5093 27 5	Combined protection
					connector/ connector	5093 27 2	Combined protection
DVB-T / terrestrial	F	1	0 - 863 MHz	DS-F	plug/connector	5093 27 5	Combined protection
					connector/ connector	5093 27 2	Combined protection
	F	1	0.5 - 2.8 GHz	TV4+1	connector	5083 40 0	Fine protection
Radio installations	UHF	1	0 - 1.3 GHz	S-UHF	plug/connector	5093 02 3	Combined protection
					connector/ connector	5093 01 5	Combined protection
	BNC	1	0 - 2.2 GHz	DS-BNC	plug/connector	5093 25 2	Combined protection
					connector/ connector	5093 23 6	Combined protection
					plug/plug	5093 26 0	Combined protection
	N	1	0 - 3 GHz	DS-N	plug/connector	5093 99 6	Combined protection
					connector/ connector	5093 98 8	Combined protection
	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	7/16	1	0 - 3 GHz	DS-7 16	plug/connector	5093 17 1	Combined protection
	F	1	0 - 863 MHz	DS-F	plug/connector	5093 27 5	Combined protection
					connector/ connector	5093 27 2	Combined protection
	TNC	1	0 - 4 GHz	DS-TNC	plug/connector	5093 27 0	Combined protection
GPS	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	BNC	1	0 - 2.2 GHz	DS-BNC	plug/connector	5093 25 2	Combined protection
					connector/ connector	5093 23 6	Combined protection
					plug/plug	5093 26 0	Combined protection
	N	1	0 - 3 GHz	DS-N	plug/connector	5093 99 6	Combined protection
					connector/ connector	5093 98 8	Combined protection
	7/16	1	0 - 3 GHz	DS-7 16	plug/connector	5093 17 1	Combined protection
	TNC	1	0 - 4 GHz	DS-TNC	plug/connector	5093 27 0	Combined protection

Selection aid, HF, video and satellite TV

Technology	Connection	Protected wires	Frequency range	Type	Gender	Item no.	Protection rating
GSM 900 / 1800	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	BNC	1	0 - 2.2 GHz	DS-BNC	plug/connector	5093 25 2	Combined protection
					connector/ connector	5093 23 6	Combined protection
					plug/plug	5093 26 0	Combined protection
	N	1	0 - 3 GHz	DS-N	plug/connector	5093 99 6	Combined protection
					connector/ connector	5093 98 8	Combined protection
	TNC	1	0 - 4 GHz	DS-TNC	plug/connector	5093 27 0	Combined protection
	7/16	1	0 - 3 GHz	DS-7 16	plug/connector	5093 17 1	Combined protection
LTE	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	N	1	0 - 3 GHz	DS-N	plug/connector	5093 99 6	Combined protection
					connector/ connector	5093 98 8	Combined protection
	TNC	1	0 - 4 GHz	DS-TNC	plug/connector	5093 27 0	Combined protection
	7/16	1	0 - 3 GHz	DS-7 16	plug/connector	5093 17 1	Combined protection
PCS 1900	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	BNC	1	0 - 2.2 GHz	DS-BNC	plug/connector	5093 25 2	Combined protection
					connector/ connector	5093 23 6	Combined protection
					plug/plug	5093 26 0	Combined protection
	N	1	0 - 3 GHz	DS-N	plug/connector	5093 99 6	Combined protection
					connector/ connector	5093 98 8	Combined protection
	7/16	1	0 - 3 GHz	DS-7 16	plug/connector	5093 17 1	Combined protection
Satellite TV	F	1	0 - 863 MHz	DS-F	plug/connector	5093 27 5	Combined protection
					connector/ connector	5093 27 2	Combined protection
	F	1	0.5 - 2.8 GHz	TV4+1	connector	5083 40 0	Fine protection
	F	3	0 - 863 MHz	FC-SAT-D	plug/connector	5092 81 6	Fine protection
C band	N	1	0 - 6 GHz	DS-N-6	plug/connector	5093 98 8	Combined protection
Sky DSL	F	1	0 - 863 MHz	DS-F	plug/connector	5093 27 5	Combined protection
					connector/ connector	5093 27 2	Combined protection
TETRA / BOS	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	BNC	1	0 - 2.2 GHz	DS-BNC	plug/connector	5093 25 2	Combined protection
					connector/ connector	5093 23 6	Combined protection
					plug/plug	5093 26 0	Combined protection
	N	1	0 - 3 GHz	DS-N	plug/connector	5093 99 6	Combined protection
					connector/ connector	5093 98 8	Combined protection
	7/16	1	0 - 3 GHz	DS-7 16	plug/connector	5093 17 1	Combined protection

Selection aid, HF, video and satellite TV

Technology	Connection	Protected wires	Frequency range	Type	Gender	Item no.	Protection rating
TV	F	1	0 - 863 MHz	DS-F	plug/connector	5093 27 5	Combined protection
					connector/ connector	5093 27 2	Combined protection
	F	3	0 - 863 MHz	FC-TV-D	plug/connector	5092 80 8	Fine protection
UMTS	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	BNC	1	0 - 2.2 GHz	DS-BNC	plug/connector	5093 25 2	Combined protection
					connector/ connector	5093 23 6	Combined protection
					plug/plug	5093 26 0	Combined protection
	N	1	0 - 3 GHz	DS-N	plug/connector	5093 99 6	Combined protection
					connector/ connector	5093 98 8	Combined protection
	TNC	1	0 - 4 GHz	DS-TNC	plug/connector	5093 27 0	Combined protection
	7/16	1	0 - 3 GHz	DS-7 16	plug/connector	5093 17 1	Combined protection
Video/CCTV	BNC	1	0 - 65 MHz	Coax B-E2 MF-F	plug/connector	5082 43 2	Fine protection
				Coax B-E2 MF-C	plug/connector	5082 43 0	Combined protection
	BNC	1	0 - 160 MHz	Koax B-E2 FF-F	plug/plug	5082 43 4	Fine protection
WLAN (2.4 GHz)	SMA	1	0 - 3.7 GHz	DS-SMA	connector/ connector	5093 27 7	Combined protection
	N	1	0 - 3 GHz	DS-N	plug/connector	5093 99 6	Combined protection
					connector/ connector	5093 98 8	Combined protection
	TNC	1	0 - 4 GHz	DS-TNC	plug/connector	5093 27 0	Combined protection
WLAN (> 5 GHz) standard: a/h, n, ac	N	1	0 - 6 GHz	DS-N-6	plug/connector	5093 98 8	Combined protection
WiMAX	N	1	0 - 6 GHz	DS-N-6	plug/connector	5093 98 8	Combined protection

Selection aid, data technology

Technology		Connection	Protected wires	Type	Item no.	Protection rating
Arcnet		BNC	1	CoaxB-E2 FF-F	5082 43 4	Fine protection
		BNC	1	CoaxB-E2 MF-F	5082 43 2	Fine protection
		BNC	1	CoaxB-E2 MF-C	5082 43 0	Combined protection
ATM		RJ45	8	ND-CAT6A/EA	5081 80 0	Fine protection
		RJ45	8	RJ45 S-ATM 8-F	5081 99 0	Fine protection
Ethernet	up to class 6A / EA	RJ45	8	ND-CAT6A/EA	5081 80 0	Fine protection
	up to class 5 / D	RJ45	8	RJ45 S-ATM 8-F	5081 99 0	Fine protection
	10 Base 2 / 10 Base 5	BNC	1	CoaxB-E2 FF-F	5082 43 4	Fine protection
		BNC	1	CoaxB-E2 MF-F	5082 43 2	Fine protection
		BNC	1	CoaxB-E2 MF-C	5082 43 0	Combined protection
FDDI, CDDI		RJ45	8	ND-CAT6A/EA	5081 80 0	Fine protection
		RJ45	8	RJ45 S-ATM 8-F	5081 99 0	Fine protection
Industrial Ethernet		RJ45	8	ND-CAT6A/EA	5081 80 0	Fine protection
		RJ45	8	RJ45 S-ATM 8-F	5081 99 0	Fine protection
		Wire-to-terminal connection	20	LSA-B-MAG	5084 02 0	Basic protection
		Wire-to-terminal connection	2	LSA-BF-180	5084 02 4	Combined protection
		Wire-to-terminal connection	2	LSA-BF-24	5084 02 8	Combined protection
Power over Ethernet		RJ45	8	ND-CAT6A/EA	5081 80 0	Fine protection
Token Ring		RJ45	8	ND-CAT6A/EA	5081 80 0	Fine protection
		RJ45	8	RJ45 S-ATM 8-F	5081 99 0	Fine protection
		BNC	1	CoaxB-E2 FF-F	5082 43 4	Fine protection
		BNC	1	CoaxB-E2 MF-F	5082 43 2	Fine protection
		BNC	1	CoaxB-E2 MF-C	5082 43 0	Combined protection
RS232, V24		Wire-to-terminal connection	2	MDP-2 D-24-T	5098 42 2	Combined protection
		Wire-to-terminal connection	4	MDP-4 D-24-EX	5098 43 2	Combined protection
		Wire-to-terminal connection	2	FDB-2 24-M	5098 38 0	Combined protection
		Wire-to-terminal connection	2	FDB-2 24-N	5098 39 0	Combined protection
		Wire-to-terminal connection	2	FRD 24 HF	5098 57 5	Fine protection
		Wire-to-terminal connection	4	MDP-4 D-24-T	5098 43 1	Combined protection
		Wire-to-terminal connection	4	MDP-4 D-24-EX	5098 43 2	Combined protection
		Wire-to-terminal connection	4	ASP-V24T 4	5083 06 0	Fine protection
		Connector	9	SD09-V24 9	5080 05 3	Fine protection
		Connector	15	SD15-V24 15	5080 15 0	Fine protection
VG AnyLAN		RJ45	8	ND-CAT6A/EA	5081 80 0	Fine protection
Voice over IP		RJ45	8	ND-CAT6A/EA	5081 80 0	Fine protection
4-wire information technology systems		RJ45	4	RJ45 S-E100 4-B	5081 00 1	Basic protection
		RJ45	4	RJ45 S-E100 4-C	5081 00 3	Combined protection
		RJ45	4	RJ45 S-E100 4-F	5081 00 5	Fine protection

Selection aid, telecommunications

Technology	Connection	Protected wires	Mounting / Note	Type	Item no.	Protection rating
a/b - analogue	RJ11	4	Various	RJ11-TELE 4-C	5081 97 5	Combined protection
	RJ11	4	Various	RJ11-TELE 4-F	5081 97 7	Fine protection
	RJ45	4	Various	RJ45-TELE 4-C	5081 98 2	Combined protection
	RJ45	4	Various	RJ45-TELE 4-F	5081 98 4	Fine protection
	Wire-to-terminal connection	2	Hat rail	TD-2/D-HS	5081 69 4	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I	5081 69 0	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I-TAE-F	5081 69 2	Combined protection
	Wire-to-terminal connection	2	Wall mounting	TD-2D-V	5081 69 8	Combined protection
	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	Hat rail	TKS-B	5097 97 6	Basic protection
	TAE / RJ11 / connector	2	Socket	FC-TAE-D	5092 82 4	Fine protection
ADSL	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	Hat rail	TD-2/D-HS	5081 69 4	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I	5081 69 0	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I-TAE-F	5081 69 2	Combined protection
	Wire-to-terminal connection	2	Wall mounting	TD-2D-V	5081 69 8	Combined protection
	Wire-to-terminal connection	2	Hat rail	TKS-B	5097 97 6	Basic protection
ADSL2+	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	Wall mounting	TD-2D-V	5081 69 8	Combined protection
	Wire-to-terminal connection	2	Hat rail	TKS-B	5097 97 6	Basic protection
SDSL / SHDSL	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	Wall mounting	TD-2D-V	5081 69 8	Combined protection
	Wire-to-terminal connection	2	Hat rail	TKS-B	5097 97 6	Basic protection
VDSL	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	Wall mounting	TD-2D-V	5081 69 8	Combined protection
	Wire-to-terminal connection	2	Hat rail	TKS-B	5097 97 6	Basic protection

Selection aid, telecommunications

Technology	Connection	Protected wires	Mounting / Note	Type	Item no.	Protection rating
VDSL2	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	Wall mounting	TD-2D-V	5081 69 8	Combined protection
	Wire-to-terminal connection	2	Hat rail	TKS-B	5097 97 6	Basic protection
ISDN basic connection (U_{k0})	Wire-to-terminal connection	2	Hat rail	TD-2/D-HS	5081 69 4	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I	5081 69 0	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I-TAE-F	5081 69 2	Combined protection
	Wire-to-terminal connection	20	LSA / can only be used WITH LSA-A-LEI or LSA-T-LEI	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA / can only be used WITH LSA-A-LEI or LSA-T-LEI	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	Hat rail	TKS-B	5097 97 6	Basic protection
	RJ11	4	Various	RJ11-TELE 4-C	5081 97 5	Combined protection
ISDN basic connection (U_{k0})	RJ11	4	Various	RJ11-TELE 4-F	5081 97 7	Fine protection
	RJ45	4	Various	RJ45-TELE 4-C	5081 98 2	Combined protection
	RJ45	4	Various	RJ45-TELE 4-F	5081 98 4	Fine protection
ISDN basic connection (S_0)	RJ45	8	Various	ND-CAT6A/EA	5081 80 0	Fine protection
	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	LSA	LSA-BF-24	5084 02 8	Combined protection
	RJ11 / connector	4	Socket	FC-ISDN-D	5092 81 2	Fine protection
ISDN Primary Rate Interface (S_{2m}/ U_{2m})	RJ11	4	Various	RJ11-TELE 4-C	5081 97 5	Combined protection
	RJ11	4	Various	RJ11-TELE 4-F	5081 97 7	Fine protection
	RJ45	4	Various	RJ45-TELE 4-C	5081 98 2	Combined protection
	RJ45	4	Various	RJ45-TELE 4-F	5081 98 4	Fine protection
	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
Datex-P	Spring terminal	4	Hat rail	MDP-4 D-24-T-10	5098 43 3	Combined protection
G.703 / G.704	RJ45	8	Various	RJ45 S-ATM 8-F	5081 99 0	Fine protection
	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	LSA	LSA-BF-24	5084 02 8	Combined protection
	Wire-to-terminal connection	2	Hat rail	TKS-B	5097 97 6	Basic protection
	Wire-to-terminal connection	2	Hat rail	TD-2/D-HS	5081 69 4	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I	5081 69 0	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I-TAE-F	5081 69 2	Combined protection

Selection aid, telecommunications

Technology	Connection	Protected wires	Mounting / Note	Type	Item no.	Protection rating
E1	RJ45	8	Various	RJ45 S-ATM 8-F	5081 99 0	Fine protection
	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	LSA	LSA-BF-24	5084 02 8	Combined protection
Various telecom systems	Wire-to-terminal connection	20	LSA	LSA-B-MAG	5084 02 0	Basic protection
	Wire-to-terminal connection	2	LSA	LSA-BF-180	5084 02 4	Combined protection
	Wire-to-terminal connection	2	LSA	LSA-BF-24	5084 02 8	Combined protection
	Wire-to-terminal connection	2	Hat rail	TKS-B	5097 97 6	Basic protection
	Wire-to-terminal connection	2	Hat rail	TD-2/D-HS	5081 69 4	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I	5081 69 0	Combined protection
	Wire-to-terminal connection	4	Wall mounting	TD-4/I-TAE-F	5081 69 2	Combined protection
	RJ11	4	Various	RJ11-TELE 4-C	5081 97 5	Combined protection
	RJ11	4	Various	RJ11-TELE 4-F	5081 97 7	Fine protection
	RJ45	4	Various	RJ45-TELE 4-C	5081 98 2	Combined protection
	RJ45	4	Various	RJ45-TELE 4-F	5081 98 4	Fine protection
	RJ45	8	Various	RJ45 S-ATM 8-F	5081 99 0	Fine protection
	RJ45	8	Various	ND-CAT6A/EA	5081 80 0	Fine protection
	RJ11 / connector	4	Socket	RC-RJ-D	5092 82 8	Fine protection

Selection aid, measurement and control systems

Interface		Connection	Protected wires	Mounting	EX	FS[1]	Type	Item no.	Protection rating
(0)4 - 20 mA		Spring terminal	2	Hat rail			MDP-2 D-24-T	5098 42 2	Combined protection
		Spring terminal	2	Hat rail	✓		MDP-4 D-24-EX	5098 43 2	Combined protection
		Spring terminal	4	Hat rail			MDP-4 D-24-T	5098 43 1	Combined protection
		Spring terminal	4	Hat rail	✓		MDP-4 D-24-EX	5098 43 2	Combined protection
		Wire-to-terminal connection	2	Thread – metric	✓		FDB-2 24-M	5098 38 0	Fine protection
		Wire-to-terminal connection	2	Thread – NPT	✓		FDB-2 24-N	5098 39 0	Fine protection
		Wire-to-terminal connection	2	LSA			LSA-B-MAG	5084 02 0	Basic protection
		Wire-to-terminal connection	2	LSA			LSA-BF-24	5084 02 8	Combined protection
		Screw terminal	2	Hat rail			FLD 24	5098 61 1	Fine protection
0-10 V		Spring terminal	2	Hat rail			MDP-2 D-24-T	5098 42 2	Combined protection
		Spring terminal	2	Hat rail	✓		MDP-4 D-24-EX	5098 43 2	Combined protection
		Wire-to-terminal connection	2	Thread – metric	✓		FDB-2 24-M	5098 38 0	Fine protection
		Wire-to-terminal connection	2	Thread – NPT	✓		FDB-2 24-N	5098 39 0	Fine protection
		Screw terminal	2	Hat rail			FLD 24	5098 61 1	Combined protection
Various DC circuits	Earth potential-free	Spring terminal	2	Hat rail			FLD 5	5098 60 0	Combined protection
		Spring terminal	2	Hat rail			FLD 12	5098 60 3	Combined protection
		Spring terminal	2	Hat rail			FLD 24	5098 61 1	Combined protection
		Spring terminal	2	Hat rail			FLD 48	5098 63 0	Combined protection
		Spring terminal	2	Hat rail			FLD 60	5098 63 8	Combined protection
		Spring terminal	2	Hat rail			FLD 110	5098 64 6	Combined protection
	Common reference potential	Spring terminal	2	Hat rail			FLD 2-5	5098 86 7	Combined protection
		Spring terminal	2	Hat rail			FLD 2-12	5098 80 8	Combined protection
		Spring terminal	2	Hat rail			FLD 2-24	5098 81 6	Combined protection
		Spring terminal	2	Hat rail			FLD 2-48	5098 82 4	Combined protection
		Spring terminal	2	Hat rail			FLD 2-110	5098 85 9	Combined protection
Various frequency-dependent circuits	Earth potential-free	Spring terminal	2	Hat rail			FRD 5 HF	5098 57 1	Combined protection
		Spring terminal	2	Hat rail			FRD 24 HF	5098 57 5	Combined protection
		Spring terminal	2	Hat rail			FRD 5	5098 49 2	Combined protection
		Spring terminal	2	Hat rail			FRD 12	5098 50 6	Combined protection
		Spring terminal	2	Hat rail			FRD 24	5098 51 4	Combined protection
		Spring terminal	2	Hat rail			FRD 48	5098 52 2	Combined protection
		Spring terminal	2	Hat rail			FRD 110	5098 55 7	Combined protection
Various frequency-dependent circuits	Common reference potential	Spring terminal	2	Hat rail			FRD 2-24	5098 72 7	Combined protection

[1] *Remote signalling*

Selection aid, measurement and control systems

Interface	Connection	Protected wires	Mounting	Ex	FS[1]	Type	Item no.	Protection rating
RS232, V24	Spring terminal	2	Hat rail			MDP-2 D-24-T	5098 42 2	Combined protection
	Spring terminal	4	Hat rail	✓		MDP-4 D-24-EX	5098 43 2	Combined protection
	Spring terminal	4	Hat rail			MDP-4 D-24-T	5098 43 1	Combined protection
	Spring terminal	4	Hat rail	✓		MDP-4 D-24-EX	5098 43 2	Combined protection
	Wire-to-terminal connection	2	Thread – metric	✓		FDB-2 24-M	5098 38 0	Fine protection
RS232, V24	Wire-to-terminal connection	2	Thread – NPT	✓		FDB-2 24-N	5098 39 0	Fine protection
	Screw terminal	2	Hat rail			FRD 24 HF	5098 57 5	Fine protection
	Screwless terminal	4	Miscellaneous			ASP-V24T 4	5083 06 0	Fine protection
	SUB-D-9	9	Connector			SD09-V24 9	5080 05 3	Fine protection
	SUB-D-15	15	Connector			SD15-V24 15	5080 15 0	Fine protection
RS422, V11	Wire-to-terminal connection	2	Thread – metric	✓		FDB-2 24-M	5098 38 0	Fine protection
	Wire-to-terminal connection	2	Thread – NPT	✓		FDB-2 24-N	5098 39 0	Fine protection
	Screw terminal	2	Hat rail			FRD 24	5098 51 4	Combined protection
	Spring terminal	2	Hat rail			MDP-2 D-24-T	5098 42 2	Combined protection
	Spring terminal	2	Hat rail	✓		MDP-4 D-24-EX	5098 43 2	Combined protection
	Spring terminal	4	Hat rail			MDP-4 D-24-T	5098 43 1	Combined protection
	Spring terminal	4	Hat rail	✓		MDP-4 D-24-EX	5098 43 2	Combined protection
RS485	Spring terminal	2	Hat rail			MDP-2 D-5-T	5098 40 4	Combined protection
	Spring terminal	2	Hat rail	✓		MDP-4 D-5-EX	5098 43 2	Combined protection
	Spring terminal	4	Hat rail			MDP-4 D-5-T	5098 41 1	Combined protection
	Spring terminal	4	Hat rail	✓		MDP-4 D-5-EX	5098 43 2	Combined protection
	Screw terminal	2	Hat rail			FRD 5 HF	5098 57 1	Combined protection
	SUB-D-9	9	Connector			SD-09-V11 9	5080 06 1	Fine protection
Binary signals, earth potential-free	Spring terminal	2	Hat rail			MDP-2 D-24-T	5098 42 2	Combined protection
	Spring terminal	2	Hat rail	✓		MDP-4 D-24-EX	5098 43 2	Combined protection
	Wire-to-terminal connection	2	Thread – metric			FDB-2 24-M	5098 38 0	Combined protection
Binary signals, earth potential-free	Wire-to-terminal connection	2	Thread – NPT			FDB-2 24-N	5098 39 0	Combined protection
	Screw terminal	2	Hat rail			FRD 5 HF	5098 57 1	Combined protection
	Screw terminal	2	Hat rail			FRD 5	5098 49 2	Combined protection
	Screw terminal	2	Hat rail			FLD 5	5098 60 0	Combined protection
Binary signals, common reference potential	Screw terminal	2	Hat rail			FRD 2-24	5098 72 7	Combined protection
	Screw terminal	2	Hat rail			FLD 2-24	5098 81 6	Combined protection

[1] *Remote signalling*

Selection aid, measurement and control systems

Interface	Connection	Protected wires	Mounting	EX	FS[1]	Type	Item no.	Protection rating
2-pin power supplies 5V	Spring terminal	4	Hat rail			MDP-4 D-5-T-10	5098 41 3	Combined protection
2-pin power supplies 12 V	Screw terminal	2	Hat rail			VF12-AC-DC	5097 45 3	Fine protection
	Screw terminal	2	Hat rail		✓	VF12-AC/DC-FS	5097 45 4	Fine protection
2-pin power supplies 24 V	Screw terminal	2	Hat rail			VF24-AC/DC	5097 60 7	Fine protection
	Screw terminal	2	Hat rail		✓	VF24-AC/DC-FS	5097 82 0	Fine protection
2-pin power supplies 48 V	Screw terminal	2	Hat rail			VF48-AC/DC	5097 61 5	Fine protection
	Screw terminal	2	Hat rail		✓	VF48-AC/DC-FS	5097 82 2	Fine protection
2-pin power supplies 60 V	Screw terminal	2	Hat rail			VF60-AC/DC	5097 62 3	Fine protection
	Screw terminal	2	Hat rail		✓	VF60-AC/DC-FS	5097 82 4	Fine protection
2-pin power supplies 110 V	Screw terminal	2	Hat rail			VF110-AC/DC	5097 63 1	Fine protection
2-pin power supplies 230 V	Screw terminal	2	Hat rail			VF230-AC/DC	5097 65 0	Fine protection
	Screw terminal	2	Hat rail		✓	VF230-AC-FS	5097 85 8	Fine protection
	Screw terminal	2	Hat rail		✓[2]	VF2-230-AC/DC-FS	5097 93 9	Fine protection
PT 100	Spring terminal	2	Hat rail			FLD 5	5 98 60 0	Combined protection
	Spring terminal	2	Hat rail			FLD 2-5	5098 79 4	Combined protection
	Spring terminal	4	Hat rail			MDP-4 D-5-T-10	5098 41 3	Combined protection
PT 1000	Spring terminal	2	Hat rail			FLD 5	5098 60 0	Combined protection
	Spring terminal	2	Hat rail			FLD 2-5	5098 79 4	Combined protection
	Spring terminal	4	Hat rail			MDP-4 D-5-T-10	5098 41 3	Combined protection
TTL	Spring terminal	2	Hat rail			FRD 12	5098 60 3	Combined protection
	Spring terminal	2	Hat rail			MDP-2 D-24-T	5098 42 2	Combined protection
	SUB-D-9	9	Connector			SD09-V24 9	5080 05 3	Fine protection
	SUB-D-15	15	Connector			SD15-V24 15	5080 15 0	Fine protection

[1] Remote signalling, [2] leakage current-free

Selection aid, bus systems

Interface		Connection	Protected wires	Mounting	Ex	Testable	FS[1]	Type	Item no.	Protection rating
ADVANT		Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
ARCNET		RJ45	8	Hat rail				ND-CAT6A/EA	5081 80 0	Fine protection
AS-I	Data cable	Spring terminal	2	Hat rail		✓		MDP-2 D-24-T-10	5098 42 5	Combined protection
	Supply voltage	Spring terminal	2	Hat rail		✓		VF24-AC/DC	5097 60 7	Fine protection
		Spring terminal	2	Hat rail		✓	✓	VF24-AC/DC-FS	5097 82 0	Fine protection
BITBUS		Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
BLN		Spring terminal	2	Hat rail		✓		MDP-2 D-24-T	5098 42 2	Combined protection
		Spring terminal	2	Hat rail				FRD 24 HF	5098 57 5	Fine protection
CAN bus	Data cable	Spring terminal	3	Hat rail		✓		MDP-3 D-5-T	5098 40 7	Combined protection
	Power supply	Spring terminal	2	Hat rail		✓		VF24-AC/DC	5097 60 7	Fine protection
		Spring terminal	2	Hat rail		✓	✓	VF24-AC/DC-FS	5097 82 0	Fine protection
CAN open	Data cable	Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
	Supply voltage	Spring terminal	2	Hat rail		✓		VF24-AC/DC	5097 60 7	Fine protection
		Spring terminal	2	Hat rail		✓	✓	VF24-AC/DC-FS	5097 82 0	Fine protection
C-BUS		Spring terminal	2	Hat rail				MDP-2 D-24-T	5098 42 2	Combined protection
		Spring terminal	2	Hat rail				FRD 24 HF	5098 57 5	Combined protection
CC-Link	Data cable	Spring terminal	4	Hat rail		✓		MDP-4-D-24-T	5098 43 1	Combined protection
	Supply voltage	Spring terminal	2	Hat rail		✓		VF24-AC/DC	5097 60 7	Fine protection
		Spring terminal	2	Hat rail		✓	✓	VF24-AC/DC-FS	5097 82 0	Fine protection
Data Highway Plus		Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
Device Net	Data cable	Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
	Supply voltage	Spring terminal	2	Hat rail		✓		VF24-AC/DC	5097 60 7	Fine protection
		Spring terminal	2	Hat rail		✓	✓	VF24-AC/DC-FS	5097 82 0	Fine protection
Dupline		Spring terminal	2	Hat rail		✓		MDP-2 D-24-T	5098 42 2	Combined protection
		Spring terminal	2	Hat rail				FRD 24 HF	5098 57 5	Combined protection
eBUS		Spring terminal	2	Hat rail		✓		MDP-2 D-48-T	5098 44 2	Combined protection
		Spring terminal	2	Hat rail				FRD 48	5098 52 2	Fine protection
EIB		Spring terminal	2	Hat rail		✓		MDP-2 D-24-T-10	5098 42 5	Combined protection
		Spring terminal	4	Hat rail		✓		MDP-4 D-24-T-10	5098 43 3	Combined protection
		Spring terminal	2	Hat rail				TKS-B	5097 97 6	Basic protection
ET 200		Spring terminal	2	Hat rail				FRD 5	5098 49 2	Fine protection
		Spring terminal	2	Hat rail		✓		MDP-2 D-5-T	5098 40 4	Combined protection
		Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
FIPIO / FIPWAY		Spring terminal	4	Hat rail		✓		MDP-4 D-5-T	5098 41 1	Combined protection
Foundation Fieldbus		Spring terminal	2	Hat rail		✓		MDP-2 D-48-T	5098 45 0	Combined protection
		Spring terminal	2	Hat rail	✓	✓		MDP-4 D-48-EX	5098 45 2	Combined protection
		Spring terminal	2	Thread – metric	✓			FDB-2 24-M	5098 38 0	Combined protection
		Spring terminal	2	Thread – NPT	✓			FDB-2 24-N	5098 39 0	Combined protection

[1] *Remote signalling*

Selection aid, bus systems

Interface	Connection	Protected wires	Mounting	Ex	Testable	Surge voltage protection	Item number	Protection rating
FSK	Spring terminal	2	Hat rail			FRD 5	5098 49 2	Fine protection
	Spring terminal	2	Hat rail	✓		MDP-2 D-5-T	5098 40 4	Combined protection
Genius	Spring terminal	4	Hat rail	✓		MDP-4 D-24-T	5098 43 1	Combined protection
HARD	Spring terminal	2	Hat rail			FRD 24	5098 51 4	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-2 D-24-T	5098 42 2	Combined protection
	Spring terminal	4	Hat rail		✓	MDP-4 D-24-T	5098 43 1	Combined protection
	Spring terminal	4	Hat rail	✓		MDP-4 D-24-EX	5098 43 2	Combined protection
	Wire-to-terminal connection	4	Thread – metric	✓		FDB-2 24-M	5098 38 0	Fine protection
	Wire-to-terminal connection	4	Thread – NPT	✓		FDB-2 24-N	5098 39 0	Fine protection
IEC bus	Spring terminal	4	Hat rail		✓	MDP-4 D-5-T	5098 41 1	Combined protection
Interbus Inline (I/O)s	Spring terminal	4	Hat rail		✓	MDP-4 D-24-T	5098 42 2	Combined protection
Interbus (Loop)	Spring terminal	2	Hat rail		✓	MDP-4 D-24-T-10	5098 43 3	Combined protection
KNX	Spring terminal	2	Hat rail		✓	MDP-2 D-24-T-10	5098 42 5	Combined protection
	Spring terminal	4	Hat rail		✓	MDP-4 D-24-T-10	5098 43 3	Combined protection
	Spring terminal	2	Hat rail			TKS-B	5097 97 6	Basc protection
LON	Spring terminal	2	Hat rail			FRD 48	5098 52 2	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-2 D-48-T	5098 44 2	Combined protection
LRE	Spring terminal	2	Hat rail			FRD 5	5098 49 2	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-2 D-5-T	5098 40 4	Combined protection
LUXMATE	Spring terminal	4	Hat rail			MDP-4 D-5-T	5098 41 1	Combined protection
M-BUS	Spring terminal	2	Hat rail			FRD 24	5098 51 4	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-2 D-24-T	5098 42 2	Combined protection
Melsec Net 2	BNC	1	Miscellaneous			DS-BNC m/f	5093 25 2	Basic protection
	BNC	1	Miscellaneous			DS-BNC f/f	5093 23 6	Basic protection
	BNC	1	Miscellaneous			DS-BNC f/m	5093 26 0	Basic protection
MODBUS	Spring terminal	4	Hat rail		✓	MDP-4 D-24-T	5098 43 1	Combined protection
MPI bus	Spring terminal	2	Hat rail			FRD 5	5098 49 2	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-2 D-5-T	5098 40 4	Combined protection
	Spring terminal	4	Hat rail		✓	MDP-4 D-5-T	5098 41 1	Combined protection
N1 LAN	Spring terminal	2	Hat rail			FRD 5	5098 49 2	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-2 D-5-T	5098 40 4	Combined protection
	Spring terminal	20	Hat rail			LSA-B-MAG	5084 02 0	Basic protection
	Spring terminal	2	Hat rail			LSA-BF-24	5084 02 8	Combined protection
N2 bus	Spring terminal	2	Hat rail			FRD 2-5	5098 79 4	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-2 D-5-T	5098 40 4	Combined protection
novaNet	Spring terminal	2	Hat rail			FRD 12	5098 60 3	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-2 D-24-T	5098 42 2	Combined protection

Selection aid, bus systems

Interface		Connection	Protected wires	Mounting	Ex	Testable	FS[1]	Surge protection	Item number	Protection rating
P bus, process Bus, Panel Bus	Data cable	Spring terminal	2	Hat rail				FRD 24 HF	5098 57 5	Combined protection
		Spring terminal	2	Hat rail		✓		MDP-2 D-24-T	5098 42 2	Combined protection
	Supply voltage	Spring terminal	2	Hat rail		✓		VF24-AC/DC	5097 60 7	Fine protection
		Spring terminal	2	Hat rail		✓	✓	VF24-AC/DC-FS	5097 82 0	Fine protection
P-NET		Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
Procontic CS31		Spring terminal	2	Hat rail				FRD 12	5098 60 3	Combined protection
		Spring terminal	2	Hat rail		✓		MDP-2 D-24-T	5098 42 2	Combined protection
Procontic T200		Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
Profibus DP		Spring terminal	2	Hat rail		✓		MDP-2 D-5-T	5098 40 4	Combined protection
		Screw terminal	2	Hat rail				FRD 5 HF	5098 57 1	Combined protection
		SUB-D-9	9	Connector				SD09-V24 9	5080 05 3	Fine protection
Profibus PA		Spring terminal	2	Hat rail		✓		MDP-2 D-48-T	5098 44 2	Combined protection
		Spring terminal	4	Hat rail	✓			MDP-4 D-48-EX	5098 45 2	Combined protection
		Wire-to-terminal connection	2	Thread – metric	✓			FDB-2 24-M	5098 38 0	Fine protection
		Wire-to-terminal connection	2	Thread – NPT	✓			FDB-2 24-N	5098 39 0	Fine protection
Profinet		Spring terminal	8	Hat rail				ND-CAT6A/EA	5081 80 0	Fine protection
SafetyBUS p		Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
SDLC		Spring terminal	4	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
SIGMALOOP (SIGMASYS)		Spring terminal	2	Hat rail				FRD 24	5098 51 4	Combined protection
		Spring terminal	2	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
SIGMANET (SIGMASYS)		Spring terminal	2	Hat rail				FRD 24	5098 51 4	Combined protection
		Spring terminal	2	Hat rail		✓		MDP-4 D-24-T	5098 43 1	Combined protection
SINEC L1		Spring terminal	4	Hat rail		✓		MDP-4 D-5-T	5098 41 1	Combined protection

[1] *Remote signalling*

Selection aid, bus systems

Interface	Connection	Protected wires	Mounting	Ex	Testable	Type	Item no.	Protection rating
SINEC L2	Spring terminal	2	Hat rail			FRD 5 HF	5098 57 1	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-4 D-5-T	5098 41 1	Combined protection
	SUB-D-9	9	Connector			SD09-V24 9	5080 05 3	Fine protection
SS97 SINIX	Spring terminal	4	Hat rail		✓	MDP-4 D-24-T	5098 43 1	Combined protection
SUCONET	Spring terminal	4	Hat rail		✓	MDP-4 D-24-T	5098 43 1	Combined protection
	Crimp clamp	20	LSA			LSA-B-MAG	5084 02 0	Basic protection
	Crimp clamp	2	LSA			LSA-BF-24	5084 02 8	Fine protection
TTL	Spring terminal	2	Hat rail			FRD 24	5098 51 4	Combined protection
	Spring terminal	2	Hat rail		✓	MDP-2 D-24-T	5098 42 2	Combined protection
	SUB-D-9	9	Connector			SD09-V24 9	5080 05 3	Fine protection
	SUB-D-15	15	Connector			SD15-V24 15	5080 15 0	Fine protection
U bus	Spring terminal	4	Hat rail			2x TKS-B	5097 97 6	Basic protection

Protection and spark gaps
Ex approval

Protection and spark gaps/ATEX approval 48

Installation principle for protection and spark gaps 49

Protection and spark gaps/ATEX approval

Task
OBO isolating and protective spark gaps are designed to isolate electrical system components, which under normal operating conditions are not connected together. If lightning strikes cause a potential increase in one of the electrical system components, the isolating spark gap guarantees a conductive connection and therefore equipotential bonding.

Function
As their name suggests, isolating and protective spark gaps comprise a spark gap. This gap transfers from the insulating to the current-permeable condition when an electric arc is ignited by a surge voltage. An isolating spark gap differs from a protective spark gap in its purpose for use. Isolating spark gaps isolate varying earth potentials, while the protective spark gaps are used only in roof standard open-wire lines.

Applications
- For producing an indirect connection between insulating flanges (cathodic corrosion protection).
- For bridging insulating flanges, also in ex-protected areas (tested in accordance with ATEX Directive 94/9/EC).
- Avoidance of drag in residual voltages, especially TT systems.
- For lightning protection equipotential bonding according to DIN VDE 0185-305 (IEC 62305).
- For connecting different earthing systems, the aim being to make optimum use of all earthers for lightning protection equipotential bonding.
- As a measure that saves isolating connections for measuring and test purposes.

Installation principle for protection and spark gaps

Overview				
Application	Description	Type	Item no.	Product figure
Isolating spark gaps for insulating flange	• e.g. in a gas pressure control station • Particularly for Ex areas • For bridging of insulating flanges or insulating threaded joints which can carry lightning currents	Type 480	**5240034** **5240077** **5240069** Page: 442	
Isolating spark gaps for potential isolation	• Several earthing systems in one building, e.g. foundation earther and deep earther • Connection via spark gap • N electrochemical corrosion • Entire earther surface is effective in the event of a direct lightning strike	Type 481	**5240085** Page: 443	
Open-wire connection	• Roof stand spark gap for insulation • Largest possible distance between the roof stand of a low voltage free cable and a lightning protection system • Distance < 0.5 m: encapsulated spark gap in agreement with the power supply company	Type 482	**5240050** Page: 443	
Coupling of earthing systems	• Several earthing systems on one building • If the operation of special electronic equipment requires a separate earthing system, then this functional earth must be connected to the operating earth • Prevention of dangerously high voltage differences • An additional throttle is fitted to keep high-frequency voltages away from the functional earthing	Type FS-V20	**5099803** Page: 443	

Measuring and testing systems

Measuring and testing systems 52

Life Control testing unit

ISOLAB testing device

Testing surge protection devices within data cables
Often, it is necessary to check the functionality of the surge protection devices within the data cable. Of particular importance is that the actual testing of the protection devices has no negative impact on the data signal.

Testing of the arrestor upper parts V50, V25, V20 and V10
The ISOLAB testing unit allows the checking of the arrestor upper parts V50, V25, V20 and V10. A rotary controller allows the selection of the appropriate OBO Bettermann arrestor. Then, the upper part of the appropriate combination and/or surge arrestor is placed in the appropriate opening in the device. The function of the varistor is then checked by pressing the test button. Besides arrestor testing, the ISOLAB also allows insulation testing according to VDE 0100-610.

The Life Control testing unit, developed by OBO Bettermann, allows testing of the protection devices when installed, without influencing the data signal. A thin testing pin creates the contact with the integrated lightning barrier. The integrated microprocessor displays the test result on the OLED display and also emphasises it with acoustic signals. A connectable LED within the testing pin is an additional feature, allowing orientation, even in the darkest switchgear cabinet.
A high-quality testing case for safe transport and the documentation of the testing results are a component part of this innovation from OBO Bettermann.

The LSC I+II lightning strike and surge counter measures and permanently saves lightning and pulse currents (10/350, 8/20) and saves this event together with the date and time.

Testing of lightning protection systems with the PCS system

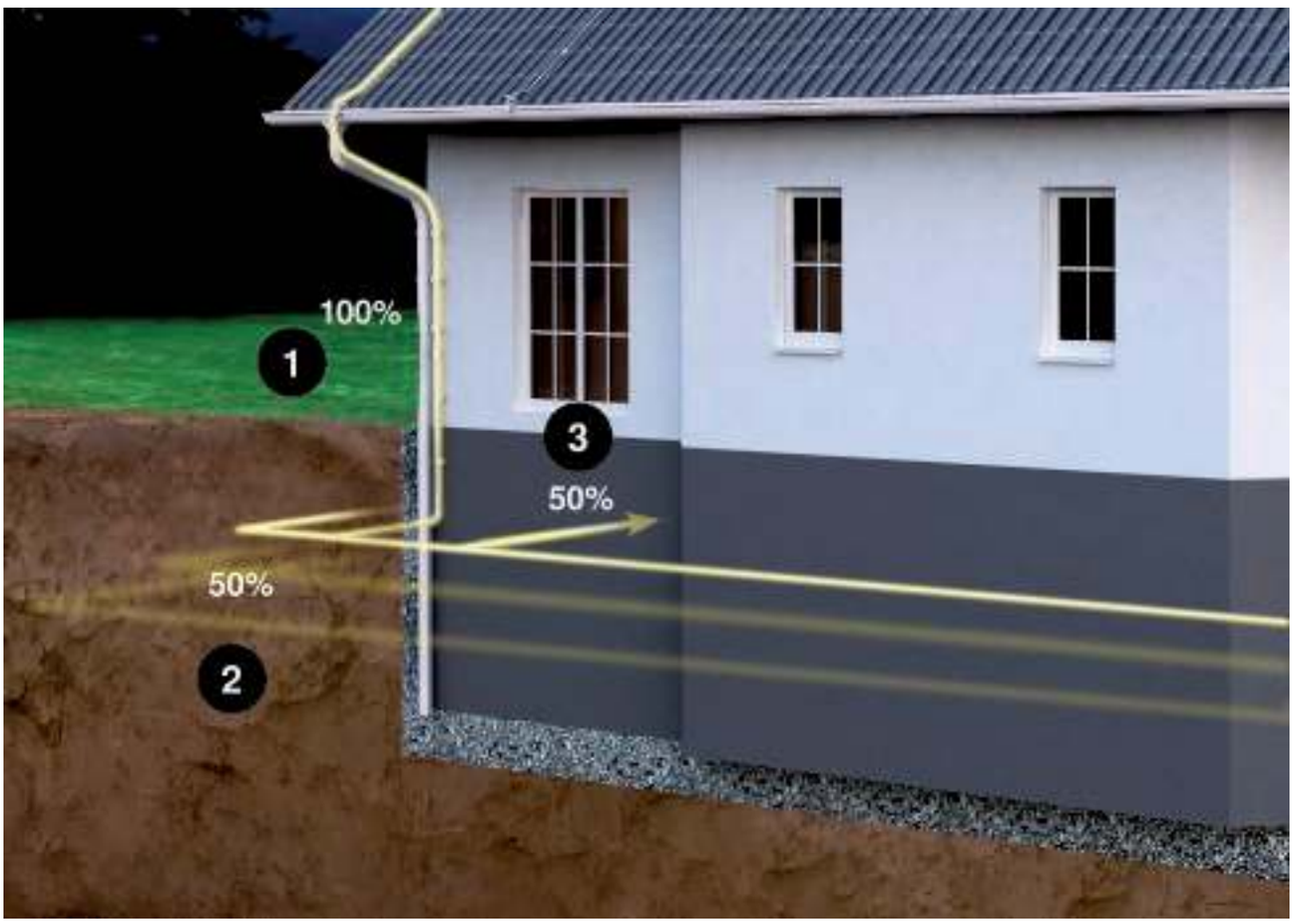
The peak current sensor (PCS) records and stores pulsed currents in the form of a magnetic card. This is a method of monitoring whether lightning has hit the lightning protection and which maximum lightning current has occurred.

If the PCS system is mounted between the interface from equipotential bonding to earthing system, the coupled lightning current in a building can also be measured. The results can provide information on potential damage in the electrical installation. The PCS card is mounted by snapping a card holder onto the round conductor at a defined distance. The measuring range of the card is between 3 and 120 kA. The magnetic card reader offers the option of evaluating peak current sensors. The appropriate peak current value is shown on the display. Alternatively, OBO Bettermann can read it off for you. In this case please contact your OBO Bettermann agency or subsidiary.

Equipotential bonding systems
Indoors and outdoors
Industrial area and Ex area

Planning aids, equipotential bonding systems

Equipotential bonding planning 56



Path of the lightning current: 1 = 100%, 2 = 50%, 3 = max. 50%

Tasks and function of internal lightning protection

The task of an internal lightning protection system is to prevent dangerous sparking within the building to be protected. Sparking can occur especially when high potential differences with metallic or electrically operated system components occur due to a conductor (arrestor) passing from the lightning current. Electrical energy and information technology systems in particular require special protection, as a direct connection between the external lightning protection system and the building installation exists via the earthing system and the equipotential bonding. In order to avoid damage inside the building, a lightning protection equipotential bonding in accordance with DIN EN 62305 (IEC 62305) is necessary.

System components to be connected

In addition, the following system components must be connected to the equipotential bonding:

- Metal carcass of the structure
- Metal installations
- External conductive components
- Electrical energy and information technology systems

Installing the equipotential bonding

The equipotential bonding should be installed at the basement or at ground level. The electrical energy and information technology lines must be connected to the equipotential bonding via type 1 lightning current arrestors. The arrestors must be connected to the equipotential bonding as close as possible to where the lines enter the building. The surge arrestor connection must comply with DIN VDE 0100-534. The following cross-sections apply as minimum dimensions for connections in the lightning protection equipotential bonding (unless larger cross-sections are specified in other standards):

- Copper: 16 mm²
- Aluminium: 25 mm²
- Steel: 50 mm²

Minimum dimensions of cables, protection class I to IV

Material	Cross-section of cables, which interconnect different equipotential bonding busbars or which connect to the earthing system	Cross-section of cables, which connect the internal metallic installations with the equipotential bonding busbar
Copper	16 mm²	6 mm²
Aluminium	25 mm²	10 mm²
Steel	50 mm²	16 mm²

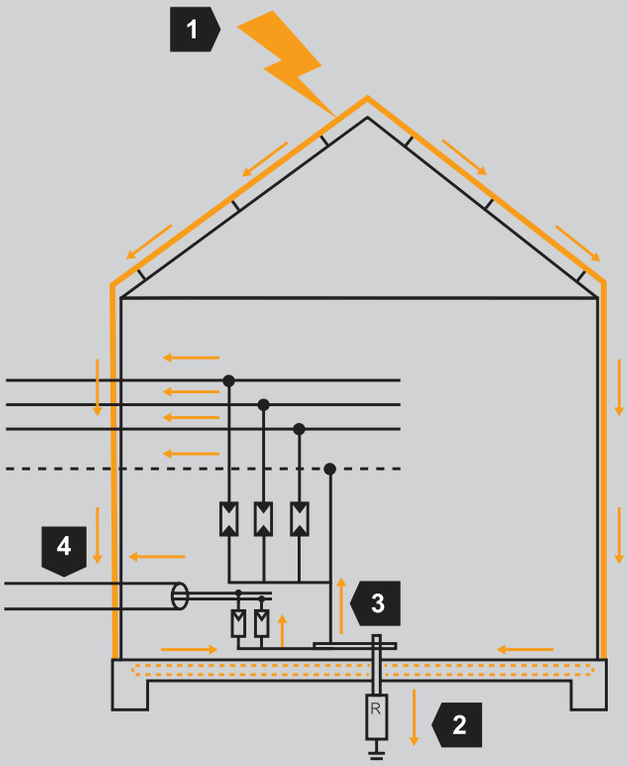
Equipotential bonding systems

Very large surge voltages are caused mainly by lightning strikes on or close to energy systems. Even from several hundred metres away, lightning currents can also cause impermissible surge voltages in conductor loops, through either capacitive, inductive or galvanic coupling. Large surge voltages are coupled over a radius of up to 2 km. Switching operations involving inductive loads create dangerous surge voltages in the medium and low-voltage power networks.

Lightning discharges (LEMP: Lightning Electro Magnetic Impulse)

The international lightning protection standard IEC 62305 describes how direct lightning strikes of up to 200 kA are safely arrested. The current is coupled into the earthing system and, due to the voltage drop at the earthing resistor, half of the lightning current is coupled into the internal installation. The partial lightning current then divides itself among the power lines entering the building (number of cores of power line entering building), while around 5% enters data cables.

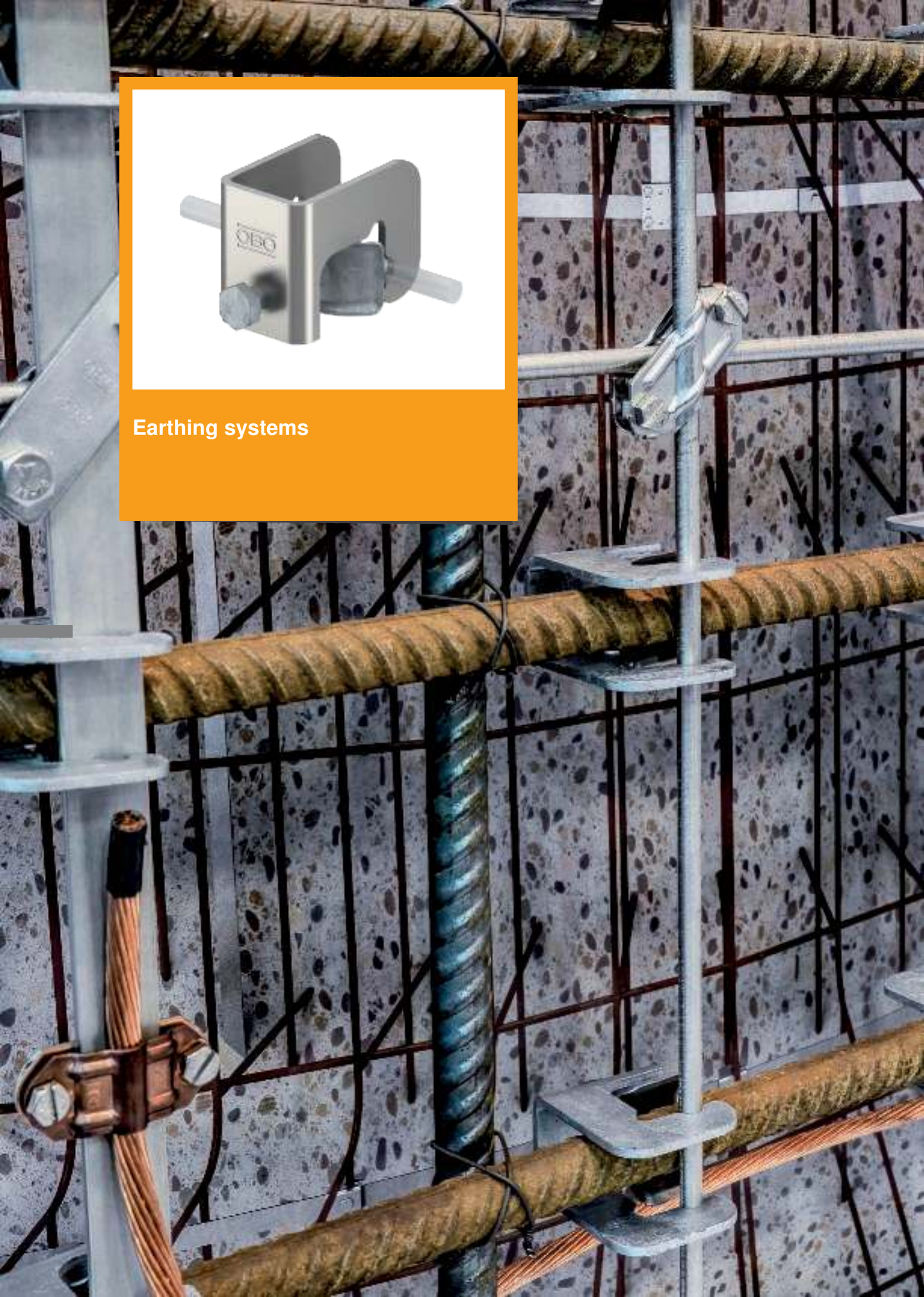
The voltage drop at the earthing resistor is calculated from the product of the partial lightning current (i) and the earthing resistance (R). This is then the potential difference between the local earth (equipotential bonding) and the live cables, which are earthed some distance away.



The highest surges are caused by lightning strikes. According to VDE 0185-305 (IEC 62305), lightning strikes are simulated with lightning surge currents of up to 200 kA (10/350 µs).

1	Lightning strike	100 %	limp = max 200 kA (IEC 62305)
2	Earthing system	~ 50%	I = 100 kA (50%)
3	Electrical installation	~ 50%	I = 100 kA (50%)
4	Data cable	~ 5%	I = 5 kA (5%)

Typical distribution of lightning current



Earthing systems

Planning aids, earthing systems

Basic principles of earthing	60
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Selection aid, foundation earth electrodes	63
Selection aid, ring earth electrodes	65

Decision aid for determining the grid width of ring or foundation earthers

Installing a foundation earther

The standards specify that each system must include an earthing system.

What do we mean by an "earthing system"?
We can find the required definitions in DIN VDE 0100-200 (IEC 60050-826) – Low-voltage electrical installations: Terms.

- "Totality of the electrical connections and equipment used to earth a network, a system or a resource." Also:
- "Conductive element, embedded in the earth or in another specific conductive medium in electrical contact with the earth."

The tasks of an earthing system are:

- Arresting of the lightning current into the earth
- Equipotential bonding between the down-conductor
- Equipotential bonding near conductive walls of the building structure

Consequences of an improperly created earthing system:

- Dangerous surge voltages at the equipotential bonding
- No even potential course on the earthing system
- Destruction of the foundation through insufficient arresting area of the energy-rich lightning current.
- Destruction of the foundation through improperly made connections (no terminal connection)
- Electrical decoupling of high amounts of lightning energy

Earther arrangement to VDE 0185-305-3 (IEC 62305)

Type A
- Horizontal earther
- Vertical earther (deep earther or earthing rod)

Type B
- Ring earthers (surface earthers)
- Foundation earthers

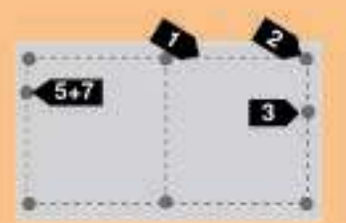
External and internal lightning protection systems

Planning methods

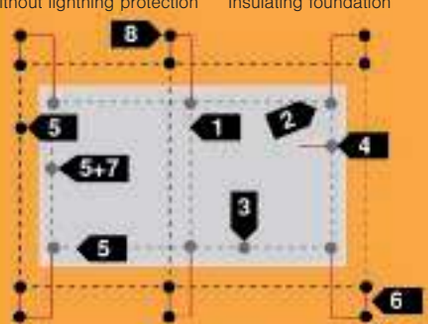
VDE 0185-305-3 (IEC 62305-3) demands continuous lightning protection equipotential bonding. This means individual earthing systems must be connected together to create a global earthing system.

The standard differentiates between type A and type B earthing systems. Type A earthers are vertical or horizontal earthers (deep earthers, earthing rods). A type B earther is any surface earther (ring earthers, foundation earthers).

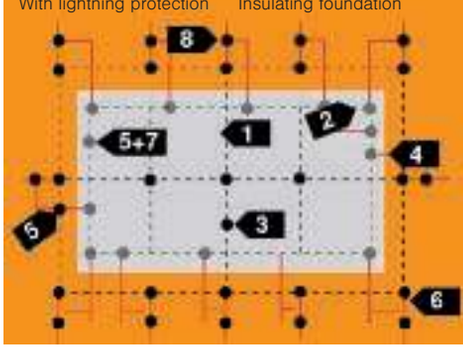
Foundation earther – without lightning protection



Functional equipotential bonding conductor and ring earth electrodes
Without lightning protection Insulating foundation



Functional equipotential bonding conductor and ring earth electrodes
With lightning protection Insulating foundation



Earthing material, for use in concrete:

- Surrounded by min. 5 cm of concrete on all sides; ≤ 2 m connect to reinforcement
- Grid width max. 20 x 20 m; with EMC protection to VDE 0185-305-4: 5 x 5 m
- Unreinforced foundation: Material no. 1.4571/1.4404, V4A

		Type	Item no.	Description
1		5052	5019 34 7	Strip steel 30x3.5 mm FT
2		250 A-FT	5313 01 5	Connector, strip steel with reinforcement FT
3		1814 FT	5014 46 8	Terminal on reinforcement to Ø 14 mm
3		1814 FT D37	5014 46 9	For reinforcements Ø 16–37 mm
4		205 B-M10 VA	5420 00 8	Fixed earthing terminal M10
8		ProtectionBall	5018 01 4	Protective cap for connection straps

Earthing and connection material, for use in the earth or cleanliness layer

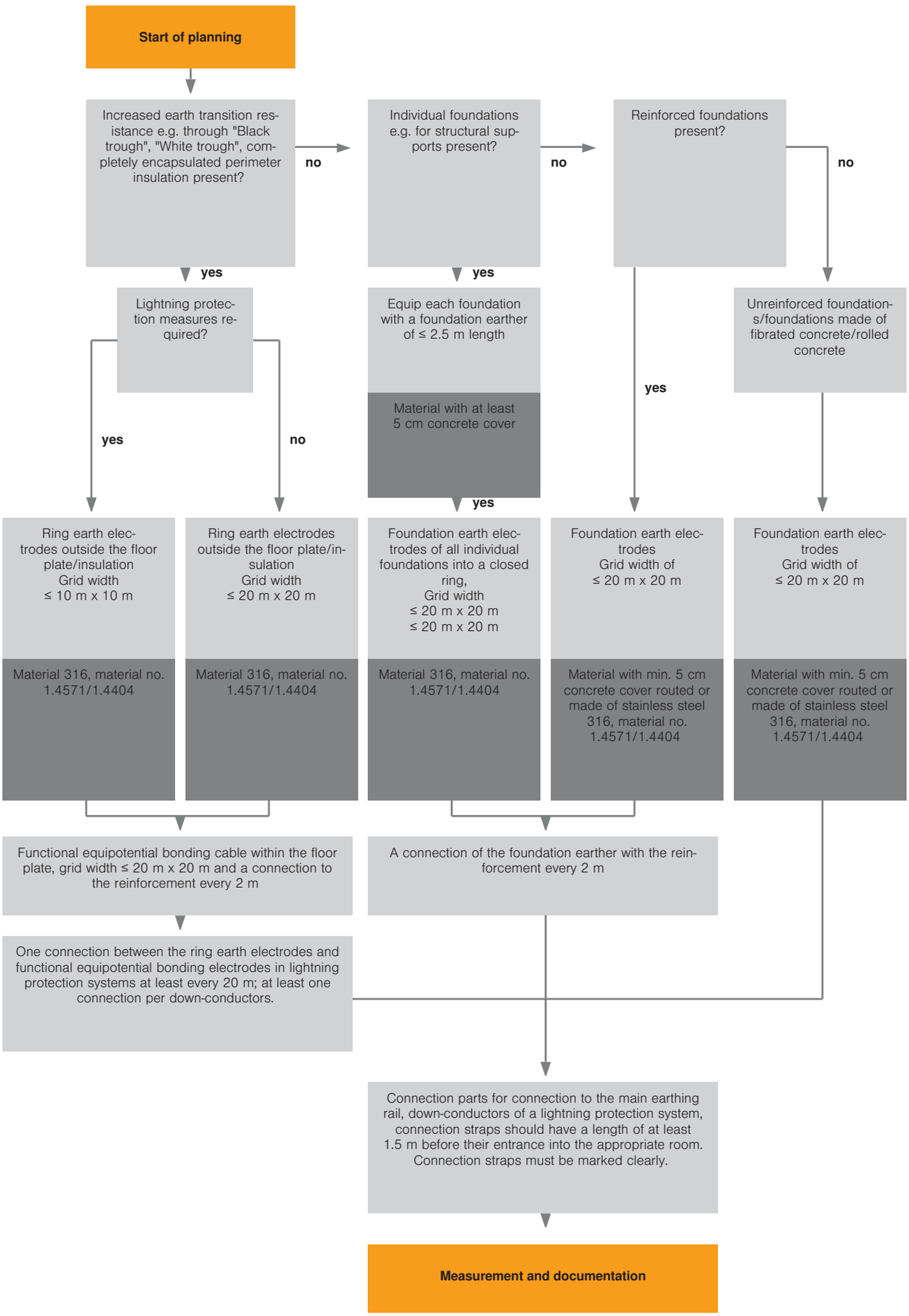
- Material no. 1.4571/ 1.4404, V4A; clamps in earth with corrosion protection strip
- Min. 0.8 m deep, routing outside drainage shaft, frost apron (moist area)
- Grid: Without lightning protection: 20 x 20 m, connection between earth and concrete: Every 20 m, with lightning protection: 10 x 10 m, connection between earth and concrete: Every down-conductor

		Type	Item no.	Description
5		RD 10 V4A	5021 64 2	Round conductor Ø10 mm V4A
6		250 V4A	5312 92 5	Terminal for round conductor and strip steel

Material for equipotential bonding

		Type	Item no.	Description
7		1801 VDE	5015 65 0	Equipotential busbar, industrial

Decision aid for determining the grid width of ring or foundation earthers



Selection aid, foundation earthers

Foundation earthers				
Application	Designation	Type	Item no.	Product figure
Foundation earthers for lightning protection measures according to VDE 0185-305-3 (IEC 62305) and for protection measures against electric shocks according to DIN 18014	Flat conductor, galvanised steel, 30 m	5052 DIN 30X3.5	**5019 34 5** Page: 480	
	Round conductor, galvanised steel, 80 m	RD 10	**5021 10 3** Page: 481	
	Spacer, 250 mm long, galvanised steel	1 81 1	**5014 01 8** Page: 501	
	Spacer, 400 mm long, galvanised steel	1811 I	**5014 02 6** Page: 501	
	Cross-connector for flat conductors and round conductors, galvanised steel	25 0	**5312 90 6** Page: 497	
	Cross-connector for flat conductor, galvanised steel	256 A-DIN 30 FT	**5314 65 8** Page: 494	
	Parallel clamp, galvanised steel	259 A FT	**5315 51 4** Page: 499	
	Connection terminal for reinforcing steels, galvanised steel	1814 FT	**5014 46 8** Page: 500	
	Round conductor, galvanised steel with PVC jacketing, 75 m	RD 10-PVC	**5021 16 2** Page: 481	
	Wall penetration, sealed against pressurised water	DW RD10	**2360 04 1** Page: 500	
	Wall penetration, sealed against pressurised water	DW FL30x3.5	**2360 04 3** Page: 500	

Selection aid, ring earthers for lightning protection measures

Ring earther				
Application	Designation	Type	Item no.	Product figure
Ring earther for lightning protection measures according to VDE 0185-305-3 (IEC 62305) Not suitable for loamy or wet soil!	Flat conductor, galvanised steel, 30 m	5052 DIN 30X3.5	**5019 34 5** Page: 480	
	Flat conductor, galvanised steel, 60 m	5052 DIN 30X3.5	**5019 34 7** Page: 480	
	Round conductor, galvanised steel, 80 m	RD 10	**5021 10 3** Page: 481	
	Cross-connector for flat conductors and round conductors, galvanised steel	252 8-10 FT	**5312 31 0** Page: 495	
	Cross-connector for flat conductor, galvanised steel	256 A-DIN 30 FT	**5314 65 8** Page: 494	
Ring earther for lightning protection measures according to VDE 0185-305-3 (IEC 62305) Usable universally in many environments.	Flat conductor, stainless steel V4A, 25 m	5052 V4A 30X3.5	**5018 73 0** Page: 480	
	Flat conductor, stainless steel V4A, 50 m	5052 V4A 30X3.5	**5018 70 6** Page: 480	
	V4A stainless steel round conductor, 50 m	RD 10-V4A	**5021 64 2** Page: 482	
	V4A stainless steel round conductor, 80 m	RD 10-V4A	**5021 64 7** Page: 482	
	Cross-connector for flat conductors and round conductors, V4A	252 8-10 V4A	**5312 31 8** Page: 495	
	Cross-connector for flat conductor, V4A	256 A-DIN 30 V4A	**5314 65 9** Page: 494	
	Plastic corrosion protection strip, 10 m	356 50	**2360 05 5** Page: 505	

Selection aid, ring earthers for protection measures against electric shocks

Ring earther				
Application	Designation	Type	Item no.	Product figure
Ring earthers for protection measures against electric shocks according to DIN 18014	Flat conductor, stainless steel V4A, 25 m	5052 V4A 30X3.5	**5018 73 0** Page: 480	
	Flat conductor, stainless steel V4A, 50 m	5052 V4A 30X3.5	**5018 70 6** Page: 480	
	V4A stainless steel round conductor, 50 m	RD 10-V4A	**5021 64 2** Page: 482	
	V4A stainless steel round conductor, 80 m	RD 10-V4A	**5021 64 7** Page: 482	
	Cross-connector for flat conductors and round conductors, V4A	252 8-10 V4A	**5312 31 8** Page: 495	
	Cross-connector for flat conductor, V4A	256 A-DIN 30 V4A	**5314 65 9** Page: 494	
	Plastic corrosion protection strip, 10 m	356 50	**2360 05 5** Page: 505	

Air-termination and down-conductor systems

Planning aids, air-termination and down-conductor systems

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Lightning protection classes

Lightning protection classes and allocation

Before a lightning protection system is planned, the object to be protected must be assigned to one of four lightning protection classes. Efficiency in lightning protection class I is the highest at 98% and in lightning protection class IV the lowest at 81% (see table of hazard parameters). The cost of erecting a lightning protection system (e.g. necessary protection angles, distances from loops, protection profiles, distances from down-conductors) is more involved for lightning protection class I systems than for lightning protection class IV systems.

VdS Directive

The required lightning protection class is determined by assessing the damage risk in accordance with DIN EN 62305-2 (IEC 62305-2), unless specified in regulations. Directive VdS 2010 (risk-oriented lightning and surge protection), published by Gesamtverband der Deutschen Versicherungswirtschaft e. V. (GDV) offers alternative method of determining the lightning protection class.

You can obtain further information under www.vds.de, via the OBO Hotline +49 (0)2373 89-1700 or at www.obo-bettermann.com.

Hazard parameters in dependence of lightning protection classes

Lightning protection class	Peak lightning current value min.	Peak lightning current value max.	Capture probability
I	3 kA	200 kA	98%
II	5 kA	150 kA	95%
II	10 kA	100 kA	88%
IV	16 kA	100 kA	81%

Lightning protection classes based on Directive VdS 2010

Application	Lightning protection class
Computer centres, military applications, nuclear power stations	I
Ex zones in industry and the chemicals sector	II
Photovoltaic systems > 10 kW	III
Museums, schools, hotels with more than 60 beds	III
Hospitals, churches, storage facilities, meeting places accommodating more than 100 to 200 people	III
Administrative buildings, sales points, offices and bank buildings of over 2,000 m²	III
Residential buildings with more than 20 apartments, multi-storey buildings over 22 m high	III
Photovoltaics (< 10 KW)	III

Materials for external lightning protection

Substances and material
The following materials are preferred for use in external lightning protection systems: hot galvanised steel, rust-proof steel (VA), copper and aluminium.

Corrosion
A risk of corrosion occurs especially when joining different material types. Therefore, no copper parts may be installed above galvanised surfaces or above aluminium parts as copper particles worn away by rain or other environmental influences can penetrate the galvanised surface. In addition, a galvanic element occurs, which accelerates corrosion of the contact surface.

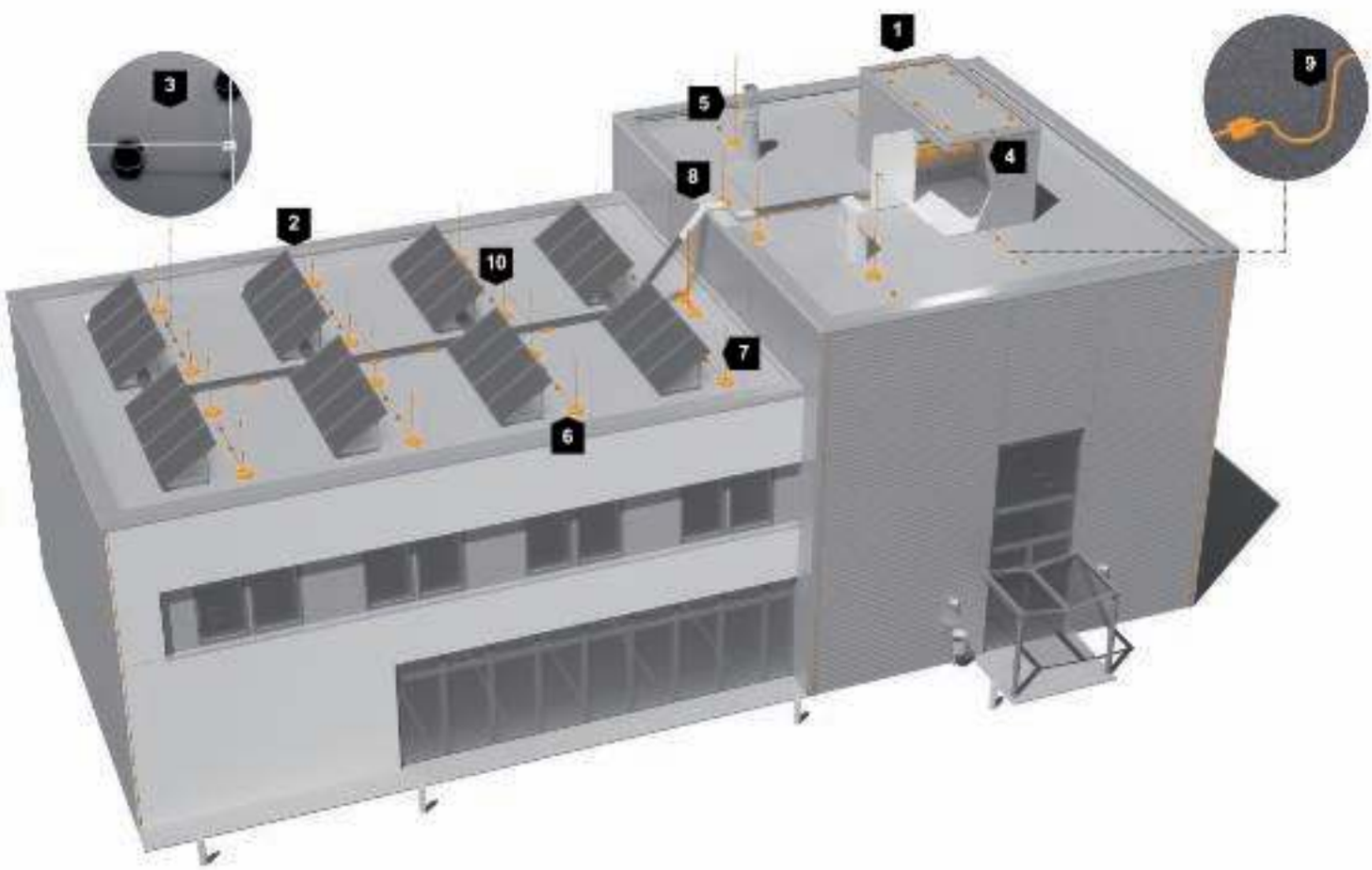
Examples
As you can see from the examples, the copper connection on the steel water pipe is corroded and could become detached. If two different materials that are not recommended need to be joined, bi-metal connectors can be used. The example shows the use of bi-metal connectors on a copper gutter to which an aluminium round conductor is attached. Points at increased risk of corrosion, such as insertion points into the concrete or soil, must be corrosion-protected. A suitable coating must be applied as corrosion protection to connection points in the ground. Aluminium must not be placed directly (without a distance) on, in or under plaster, mortar or concrete or in the earth – the potential consequences of doing so are shown in our example. In the "Material combinations" table, possible metal combinations are evaluated with regard to contact corrosion in air.

Material combinations without increased risk of corrosion

	Steel, galvanised	Aluminium	Copper	Stainless steel	Titanium	Tin
Steel, galvanised	Yes	Yes	No	Yes	Yes	Yes
Aluminium	Yes	Yes	No	Yes	Yes	Yes
Copper	No	No	Yes	Yes	No	Yes
Stainless steel	Yes	Yes	Yes	Yes	Yes	Yes
Titanium	Yes	Yes	No	Yes	Yes	Yes
Tin	Yes	Yes	Yes	Yes	Yes	Yes

Installation principle, building with flat roof

In buildings with flat roofs, the grid method is generally used. Roof structures such as PV systems, air-conditioning units, roof dome lights and ventilators are protected with additional air-termination rods.



1	Terminal block
2	Bridging component
3	Roof conductor holder
4	Cable bracket
5	Insulated spacer
6	Air-termination system stand
7	Air-termination rod
8	Fire protection bandage over insulated parapet cover
9	Expansion piece
10	Vario quick connector

Installation principle, building with a pitched/gabled roof

The exposed points, e.g. the ridge, chimneys and any roof structures, must be protected with air-termination systems.

1	Roof conductor holder for ridge tiles
2	Vario quick connector
3	Roof conductor holder
4	Round conductor
5	Air-termination rod
6	Cable bracket
7	Gutter clamp

The wind load describes how wind will affect the buildings and installed systems. It must be taken into account during planning.

Determining the wind load

For decades, wind load has been an important consideration for OBO Bettermann in relation to external lightning protection. Today's calculation models and air-termination rod systems are the result of numerous studies and years of R&D experience.

The previous German standards in this area – DIN 1055:2005 Part 4: Wind loads and Part 5: Snow and ice loads, and DIN 4131: Steel antenna mounts – dealt with all load assumptions for mounts in Germany.

The Eurocodes (EC) are the result of European standardisation in the construction field. EC 0 to EC 9 cover the documents in the series DIN EN 1990 to 1999. These are supplemented by the various national annexes (NA). The NAs contain provisions that go beyond the Eurocode rules, i.e. the provisions that were previously part of the national standards.

Following the publication of the national annexes to the ECs, the old standards became invalid, following appropriate coexistence phases.

Old standard	New standard
DIN 1055:2005-03 Part 4: Wind loads	Eurocode 1: DIN EN 1991-1-4:2010-12: Parts 1-4: General effects; wind loads + DIN EN 1991-1-4/NA: 2010-12
DIN 1055:2005-03 Part 5: Snow and ice loads	DIN EN 1991-1-3: 2010-12 -; Parts 1–3: General effects; snow loads + DIN EN 1991-1-3/NA: 2010-12
DIN V 4131:2008-09 Steel antenna mounts	Eurocode 3: DIN EN 1993-3-1: 2010-12: Parts 3-1: Towers, masts and chimneys – Towers and masts + DIN EN 1993-3-1/NA: 2010-12

Example of German national standards for the calculation of wind load

1st step: Determining the wind zone
The second factor that needs to be known when determining the wind load is the wind load zone in which the object is located.

The standards contain no statements regarding the following aspects:
- Framework masts and towers with non-parallel main legs,
- Guyed masts and chimneys,
- Cable-stayed and suspension bridges,
- Torsional vibrations.

Zone	Wind speed in m/s	Speed pressure in kN/m²
1	22.5	0.32
2	25.0	0.39
3	27.5	0.47
4	30.0	0.56

Basic speeds and speed pressures

Wind zones in Germany according to DIN EN 1991-1-4 NA

2nd step: Determining the terrain category (TC)
Terrain-specific loads and dynamic pressures are an important element in calculating wind loads.

Terrain category (TC)	Definition
Terrain category I	Open sea; lakes with at least 5 km of open water in the wind direction; even, flat land without obstacles
Terrain category II	Terrain with hedges, individual farmsteads, buildings or trees, e.g. agricultural area
Terrain category III	Suburbs, industrial or commercial areas; forests
Terrain category IV	Urban areas in which at least 15% of the area is built up with buildings whose average height is higher than 15 m

Terrain categories according to DIN EN 1991-1-4

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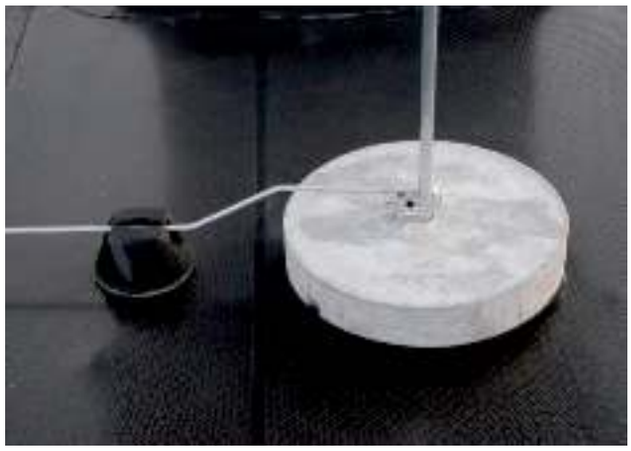
3rd step: Determining the maximum gust speed

The tilt and slip resistance of air-termination rods must always be determined on a project-by-project basis. The reference height is the building height and two thirds of the length of the air-termination rod. The maximum gust speed at the project location must be determined.



Air-termination rod with stand

Gust speed in wind zone I				
Reference height in metres	**TC I in kph**	**TC II in kph**	**TC III in kph**	**TC IV in kph**
0	112	105	100	93
5	122	108	100	93
10	136	124	103	93
16	136	124	111	93
20	139	128	115	98
30	145	134	122	106
40	149	139	128	112
70	157	148	139	126
100	162	155	147	135

Gust speeds, wind zone I

Gust speed in wind zone II				
Reference height in metres	**TC I in kph**	**TC II in kph**	**TC III in kph**	**TC IV in kph**
0	124	117	111	104
5	136	120	111	104
10	145	131	114	104
16	152	138	123	104
20	155	142	127	109
30	161	149	136	118
40	165	154	142	125
70	174	165	155	139
100	180	172	163	150

Gust speeds, wind zone II

Gust speed in wind zone III				
Reference height in metres	**TC I in kph**	**TC II in kph**	**TC III in kph**	**TC IV in kph**
0	137	129	122	114
5	149	132	122	114
10	159	144	126	114
16	167	152	135	114
20	170	156	140	119
30	177	164	149	129
40	182	170	156	137
70	192	181	170	153
100	198	189	180	165

Gust speeds, wind zone III

Gust speed in wind zone I				
Reference height in metres	**TC I in kph**	**TC II in kph**	**TC III in kph**	**TC IV in kph**
0	149	140	133	124
5	163	144	133	124
10	174	157	137	124
16	182	166	148	125
20	186	170	153	130
30	193	179	163	141
40	198	185	170	150
70	209	198	185	167
100	216	206	196	180

Gust speeds, wind zone IV

4th step: Determining what concrete blocks are required
Based on the maximum gust speed, the number and size (10 or 16 kg) of concrete blocks required can be determined for the air-termination rod used. The value in the tables must lie above the maximum gust speed for the location.

An example
The maximum gust speed at the location is 142 km/h.

A tapered pipe air-termination rod of type 101 VL2500 and height 2.5 m is used.

Because the value in Table 2.15 must be higher than the maximum gust speed at the location (i.e. in this case more than 142 km/h), the next possible value is 164. Three concrete blocks, each of weight 16 kg, must therefore be used.

Number of concrete blocks for tapered pipe air-termination rods

Air-termination rod height in m	1.5	2	2.5	3	3.5	4	**Concrete blocks required**
Type	101 VL1500	101 VL2000	101 VL2500	101 VL3000	101 VL3500	101 VL4000	
Item no.	5401 98 0	5401 98 3	5401 98 6	5401 98 9	5401 99 3	5401 99 5	
Wind speed kph	117	-	-	-	-	-	**1 x 10 kg**
	164	120	95	-	-	-	**2 x 10 kg**
	165	122	96	-	-	-	**1 x 16 kg**
	-	170	135	111	95	-	**2 x 16 kg**
	-	208	164	136	116	102	**3 x 16 kg**

Number of concrete blocks for air-termination rod, one end rounded

Air-termination rod height in m	1	1.5	2	2.5	3	**Concrete blocks required**
Type	101 ALU-1000	101 ALU-1500	101 ALU-2000	101 ALU-2500	101 ALU-3000	
Item no.	5401 77 1	5401 80 1	5401 83 6	5401 85 2	5401 87 9	
Wind speed kph	97	-	-	-	-	**1 x 10 kg**
	196	133	103	-	-	**1 x 16 kg**
	-	186	143	117	100	**2 x 16 kg**
	-	-	173	142	121	**3 x 16 kg**

Number of concrete blocks for air-termination rod, one end rounded with connection strap

Air-termination rod height in m	1	1.5	**Concrete blocks required**
Type	101 A-L 100	101 A-L 150	
Item no.	5401 80 8	5401 85 9	
Wind speed kph	100	-	**1 x 10 kg**
	192	129	**1 x 16 kg**
	-	177	**2 x 16 kg**
	-	214	**3 x 16 kg**

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Number of concrete blocks for insulated VA and Al air-termination rods

Air-termination rod height in m	4	6	4	6	**Concrete blocks required**
Material	VA	VA	Al	Al	
Item no.	5408 94 2	5408 94 6	5408 94 3	5408 94 7	
Item no. of appropriate air-termination rod stand	5408 96 8	5408 96 9	5408 96 6	5408 96 7	
Wind speed kph	120	94	120	92	**3 x 16 kg**
	161	122	163	122	**6 x 16 kg**
	194	145	197	147	**9 x 16 kg**
	222	165	227	168	**12 x 16 kg**
	246	182	252	187	**15 x 16 kg**

Number of concrete blocks for insulated air-termination rods with exit

Air-termination rod height in m	4	6	8	10	**Concrete blocks required**
Item no.	5408 93 8	5408 94 0	5408 88 8	5408 89 0	
Item no. of appropriate air-termination rod stand	5408 93 0	5408 93 2	5408 90 2	5408 90 2	
Wind speed kph	110	85	93	82	**3 x 16 kg**
	148	111	116	102	**6 x 16 kg**
	178	132	134	119	**9 x 16 kg**
	204	151	151	133	**12 x 16 kg**
	227	167	166	146	**15 x 16 kg**

Number of concrete blocks for isFang air-termination rod with VA tripod

Air-termination rod height in m	4	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	**Concrete blocks required**
Air-termination rod item no.	5402 86 4	5402 86 6	5402 86 8	5402 87 0	5402 87 2	5402 87 4	5402 87 6	5402 87 8	5402 88 0	
Item no. of appropriate air-termination rod stand	5408 96 8	5408 96 8	5408 96 8	5408 96 8	5408 96 9	5408 96 9	5408 96 9	5408 96 9	5408 96 9	
Wind speed kph	143	124	110	99	104	96	89	83	78	**3 x 16 kg**
	193	168	148	133	138	127	117	109	102	**6 x 16 kg**
	232	202	178	159	165	151	139	129	121	**9 x 16 kg**
	266	231	203	182	188	172	159	147	138	**12 x 16 kg**
	296	257	226	202	208	191	176	163	152	**15 x 16 kg**

OBO isCon® system
Insulated lightning protection

Planning aids, insulated lightning protection

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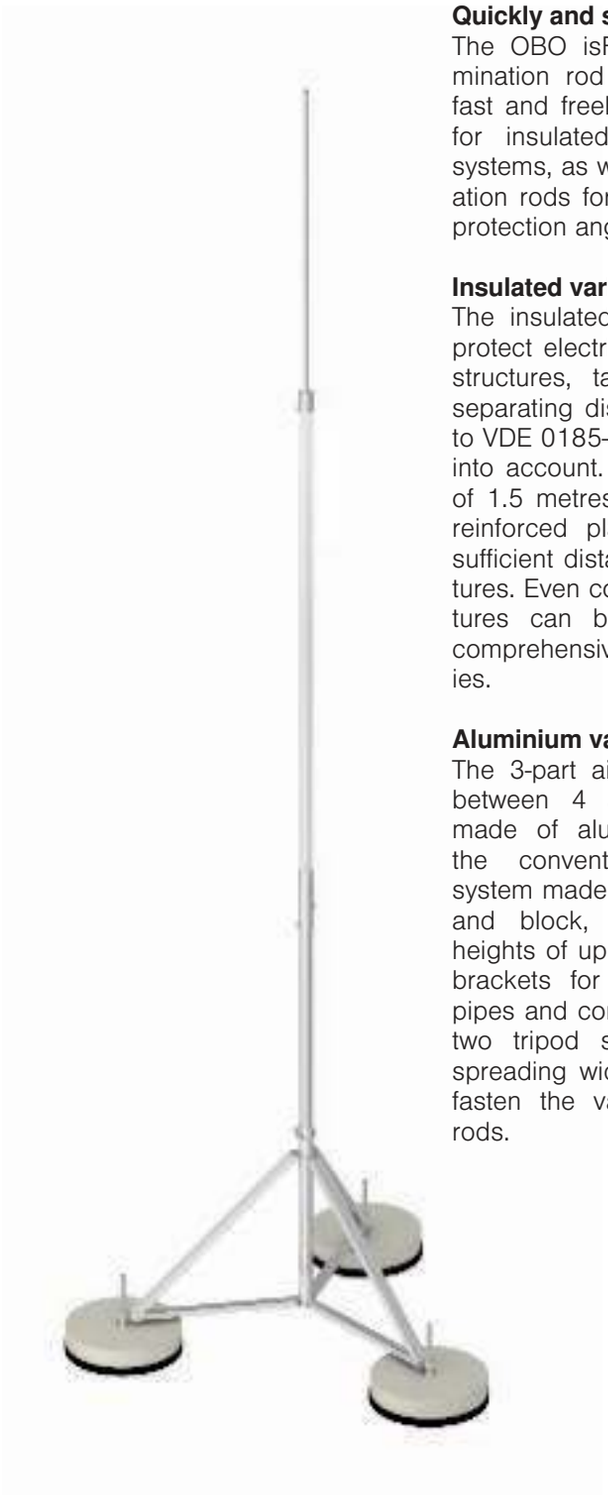
isFang air-termination rod system



Quickly and simply installed
The OBO isFang modular air-termination rod system can offer a fast and freely terminable solution for insulated air-termination rod systems, as well as high air-termination rods for the largest possible protection angle.

Insulated variant
The insulated air-termination rods protect electrical and metallic roof structures, taking the calculated separating distance (s), according to VDE 0185-305-3 (IEC 62305-3), into account. An insulated section of 1.5 metres made of fibre-glass reinforced plastic (GFK) ensures sufficient distance to all roof structures. Even complex building structures can be protected by the comprehensive system accessories.

Aluminium variant
The 3-part air-termination rods of between 4 and 8 metres and made of aluminium complement the conventional air-termination system made of air-termination rod and block, which is used for heights of up to 4 metres. Various brackets for mounting on walls, pipes and corner pipes, as well as two tripod stands with different spreading widths, are available to fasten the various air-termination rods.

OBO isCon® system

1	Weakly conductive EVA (ethylene vinyl acetate copolymer), UV-resistant
2	Conductive PEX (cross-linked polyethylene)
3	Insulating PEX (cross-linked polyethylene)
4	35 mm² copper cable

Structure of the high-voltage-resistant OBO isCon® insulated down-conductor

In complex installations, the required separating distance can often no longer be implemented with conventional down-conductors, as the structural conditions do not permit the required distances between the air-termination systems and the electrical installations. Insulated lightning protection systems, such as the OBO isCon® conductor, are used to maintain the required separating distance.

Tested: 0.75 m separation distance and up to 150 kA lightning current

After first potential connection behind the connection element, the isCon® cable reflects an equivalent separation distance of up to 0.75 metres in the air according to VDE 0185-305-3 (IEC 62305). This means that installation is possible directly on metallic and electrical structures. There is no direct arcing between the down-conductor and the building to be protected.

Total flexibility on the construction site

The OBO isCon® conductor can be used flexibly. The isCon® conductor is delivered on disposable cable rolls. This means that the user can cut them to the exact size they require and terminate them as necessary. This means: no ordering of pre-terminated conductors, but rather flexible working according to actual conditions on the construction site. Special knowledge is required to be able carry out the planning and routing of the isCon® correctly. This knowledge is imparted by the current installation instructions, but can also be deepened in special OBO workshops.

OBO isCon®-System: air-termination system and down-conductor

The air-termination system
The routing of the air-termination system is planned taking DIN EN 62305-3 (VDE 0185-305-3) Section 5.2 into account. The area to be protected must be designed specially according to the height and arrangement of the air-termination system.

The down-conductor
Only the connection element may be connected to the air-termination or forwarding down-conductor of the external lightning protection. The cable must be located in the protection area of the air-termination system and be fastened at a maximum distance of one metre using the installation material indicated. If cables are routed in the building, then specified protection measures, such as fire insulation, must be taken into account.

Separation distance
Calculation of the separating distance according to DIN EN 62305-3 (VDE 0185-305-3) Section 6.3 at the point the isCon® conductor is connected. The length (l) should be measured from the connection point of the isCon® conductor to the next level of the lightning protection equipotential bonding (e.g. earthing system). Check whether the calculated separating distance (s) is less than the specified equivalent separating distance of the isCon® conductor. If the specified separating distance is exceeded, then additional down-conductors must be installed.

Maximum lengths of the isCon conductor at s = 0.75 m

LPS – lightning protection class	Number of down-conductors	Length at s=0.75 m
I	1	-
	2	14.20
	3 and more	21.30
II	1	12.50
	2	18.94
	3 and more	28.40
III	1	18.75
	2	28.40
	3 and more	42.61

An exact calculation of the separating distance proves the possible use of the isCon conductor.

COMMENT: The values in the table apply to all type B earthers and to those type A earthers in which the earth resistance of the neighbouring earther electrodes does not differ by more than a factor of 2. If the earther resistance of individual electrodes deviates by more than a factor of 2, kc = 1 should be assumed.
Source: Table 12 DIN EN 62305-3:2011

Installation principle, isCon in potentially explosive areas

In the Ex zones 1 and 21, after the first potential connection, the OBO isCon® conductor should be connected at regular distances (0.5 metres) using a metallic cable bracket (e.g. isCon H VA or PAE) to the equipotential bonding. If there is a lightning strike, lightning current may not flow through the equipotential bonding and it must be in the protection angle of the lightning protection system.

1	isCon® conductor
2	4 m isFang air-termination rod with external isCon® conductor
3	6 m isFang air-termination rod with external isCon® conductor
4	Potential connection

OBO isCon® system: Ex areas

Installation in potentially explosive areas
When planning and running a lightning protection system through Ex zones, the following rules must particularly be taken into account:

- DIN EN 62305-3 – Appendix D – "Additional information for lightning protection systems for structure in areas with the risk of explosion"
- VDE 0185-305-3 – Supplementary sheet 2 – "Additional information for special structures"

For Ex systems with Ex zone 2 and 22, supplementary sheet 2 (VDE 0185-305-3, Point 4.3) states that an Ex atmosphere will only occur in rare, unforeseen circumstances. Therefore, it is possible to position interception units in Ex zone 2 and 22, taking Appendix D in DIN EN 62305-3 (VDE 0185-305-3) into account.

In the Ex zones 1 and 21, after the first potential connection, the OBO isCon® conductor should be connected at regular distances (0.5 metres) using a metallic conductor bracket (e.g. isCon H VA or PAE) to the equipotential bonding. If there is a lightning strike, lightning current may not flow through the equipotential bonding and it must be in the protection angle of the lightning protection system.

Secure screw connectors against loosening.

OBO isCon® system: application examples

Application example: soft-covered roofs
Soft-covered roofs, for example with straw, thatch or reeds, require increased protection against lightning strikes and the resulting risk of fire.
In order to meet the aesthetic requirements of the client, a lightning protection system using an isCon® conductor is recommended. The air-termination system is implemented using interception rods, which allow the conductor to be routed in their interior (type isFang IN). The grey variant of the isCon® conductor guarantees a high degree of protection and should be used for soft roofs. In this way, the conductor can be routed under the soft roof.

Observe the OBO isCon® system manual for detailed mounting instructions.

Application example: mobile telecommunications system
Installations such as mobile telecommunications systems must be included in the lightning protection concept, particularly in the case of refitting work.
Spatial restrictions, as well as the influence of transmission signals, can be overcome by constructing the lightning protection system using an isCon® conductor. Simple inclusion in the existing lightning protection system as well as separate lightning protection can be implemented simply and in accordance with the standards.

Aesthetic aspects
In easily visible areas, as well as wherever aesthetics are important, we recommend routing the isCon® conductor in air-termination rods. Equipotential bonding after the first 1.5 metres takes place in the rod. The entire retaining pipe is earthed, guaranteeing comprehensive equipotential bonding. A simple and visually perfect installation solution.

	Lightning current-tested
	Lightning current-tested, Class H (100 kA)
	ELEKTROTECHNICKÝ ZKUŠEBNÌ ÚSTAV, Czech Republic
	ATEX certificate for explosive areas
	Russia, GOST The State Committee for Standards
	KEMA-KEUR, Netherlands
	Indication of metric products
	MAGYAR ELEKTROTECHNIKAI ELLENŐRZŐ INTÉZET Budapest, Hungary
	Österreichischer Verband für Elektrotechnik, Austria
	Underwriters Laboratories Inc., USA
	Eidgenössisches Starkstrominspektorat, Switzerland
	Underwriters Laboratories Inc., USA
	Verband der Elektrotechnik, Elektronik, Informationstechnik e.V., Germany
	German Association of Electricians, tested safety
	5-year warranty
	Halogen-free; without chlorine, fluorine and bromine
	INMETRO, Brazil

Lightning protection classes

Type 1	Protection device to DIN EN 61643-11 or IEC 61643-11
Type 1+2	Combination protection device made of type 1 and type 2
Type 2	Protection device to DIN EN 61643-11 or IEC 61643-11
Type 2+3	Protection device to DIN EN 61643-11 or IEC 61643-11
Type 3	Protection device to DIN EN 61643-11 or IEC 61643-11

Lightning protection zone

LPZ 0→1	Transition from LPZ 0 to LPZ 1
LPZ 0→2	Transition from LPZ 0 to LPZ 2
LPZ 0→3	Transition from LPZ 0 to LPZ 3
LPZ 1→2	Transition from LPZ 1 to LPZ 2
LPZ 1→3	Transition from LPZ 1 to LPZ 3
LPZ 2→3	Transition from LPZ 2 to LPZ 3

Applications

FS	Remote signalling
AS	Acoustic signalling
ISDN	Integrated Service Digital Network, ISDN applications
DSL	Digital Subscriber Line, DSL applications
Analog TK	Analogue telecommunication
Cat 5	Category 5 TwisterPair
Cat 6_A	Channel Performance to American EIA/TIA standard
MSR	Measuring, controlling and regulating systems
TV	TV applications
SAT	SAT-TV applications
Mu	MultiBase base
	LifeControl
EX	Intrinsically safe protection device for areas with a risk of explosions
Class E_A	Channel Performance to ISO / IEC 11801
PoE	Power over Ethernet
230/ 400 V System	230/400 V system
IP 54	Protection rating IP 54
IP 65	Protection rating IP 65

Metals

Alu	Aluminium
VA	Stainless steel, grade 304
VA	Stainless steel, grade 316
VA	Stainless steel, grade 316 L
VA	Stainless steel, grade 316 Ti
Cu	Copper
CuZn 37	Brass
St	Steel
TG	Cast iron
Zn	Die-cast zinc

Plastics

GFK	Fibre-glass-reinforced plastic
P	Petrolatum
PA	Polyamide
PC	Polycarbonate
PE	Polyethylene
PP	Polypropylene
PS	Polystyrene

Surfaces

FS	Strip-galvanised
F	Hot galvanised
G	Electro-galvanised
FT	Hot-dip galvanised
Cu	Copper-plated
N	Nickel-plated
ZD	Galvanised, Deltatone 500

Alu — Aluminium

VA (1.4301) — Stainless steel, grade 304

VA (1.4401) — Stainless steel, grade 316

VA (1.4404) — Stainless steel, grade 316 L

VA (1.4571) — Stainless steel, grade 316 Ti

Cu — Copper

CuZn — Brass

St — Steel

TG — Cast iron
Electro-galvanised

Zn — Die-cast zinc

GFK — Fibre-glass-reinforced plastic

Temperature resistance:
-50 to 130 °C.

Resistant to

High chemical resistance
Corrosion resistance
UV light resistance

PETR — Petrolatum

PA — Polyamide

Temperature resistance:
permanently up to approx. 90 °C, briefly up to about 130 °C and to about minus 40 °C*.
Chem. resistance generally as for polyethylene.

Resistant to

Petrol, benzene, diesel oil, acetone, solvents for paints and lacquers, oils and greases.

Unstable with

Bleach, most acids, chlorine.

Risk of tension cracking

Low in air-humid conditions; only with some aqueous salt solutions. Highly desiccated parts (high temperature and extremely low air humidity) are highly sensitive to fuels and various solvents.

PA/PP — Polyamide/Polyethylene

PC — Polycarbonate

Temperature resistance:
permanently up to approx. 110 °C (in water 60 °C), briefly up to 125 °C, and to below minus 35 °C.

Resistant to

Petrol, turpentine, most weak acids.

Unstable with

Acetone, benzene, chlorine, methylene chloride, most concentrated acids.

Risk of tension cracking

Relatively low.
Media which can cause tension cracking include benzene, aromatic hydrocarbons, methanol, butanol, acetone, turpentine.

PE — Polyethylene

Temperature resistance:
hard types permanently up to about 90 °C, briefly up to about 105 °C, soft types permanently up to about 80 °C, briefly up to about 100 °C and to about minus 40 °C*.

Resistant to

Alkalis and inorganic acids.

Conditionally resistant to

Acetone, organic acids, petrol, benzene, diesel oil, most oils.

Unstable with

Chlorine, hydrocarbons, oxidising acids.

Risk of tension cracking

Relatively high.
Stress cracks can be caused by, among other things, acetone, various alcohols, formic acid, ethanol, petrol, benzene, butyric acid, acetic acid, formaldehyde, various oils, petroleum, propanol, nitric acid, hydrochloric acid, sulphuric acid, soap solutions, turpentine, trichloroethylene, citric acid.

PP — Polypropylene

Temperature resistance:
permanently up to approx. 90 °C, briefly up to about 110 °C and to about minus 30 °C*.
Chem. resistance generally as for polyethylene.

Resistant to

Alkalis and inorganic acids.

Conditionally resistant to

Acetone, organic acids, petrol, benzene, diesel oil, most oils.

Unstable with

Chlorine, hydrocarbons, oxidising acids.

Risk of tension cracking

Low, only with some acids such as chromic acid, hydrofluoric acid and hydrochloric acid, as well as nitrogen oxide.

PS — Polystyrene

Temperature resistance:
Because of its relatively high sensitivity to the effects of chemicals, its use is not recommended at temperatures above normal room temperature, about 25 °C.
Resistance to cold: to about minus 40 °C*.

Resistant to

Alkalis, most acids, alcohol.

Conditionally resistant to

Oils and greases.

Unstable with

Butyric acid, concentrated nitric acid, concentrated acetic acid, acetone, ether, petrol and benzene, solvents for paints and lacquers, chlorine, diesel fuel.

Risk of tension cracking

Relatively high.
Stress cracks can be caused by, amongst other things, acetone, ether, petrol, cyclohexane, heptane, methanol, propanol and the softeners used in some PVC cable mixes.

*The minus values apply only for parts in the quiescent condition with no severe impact stress.
There is no plastic that is resistant to every chemical. The agents listed are only a small selection. Plastic parts are especially at risk in the presence of chemicals and high temperatures. Stress cracks may occur. If in doubt, please consult us and/or ask for a detailed chemical resistance table.
Stress crack formation: stress cracks may occur if plastic parts under tension are exposed to chemicals at the same time. Parts made of polystyrene and polyethylene are particularly susceptible. Stress cracks may even be caused by agents to which the plastic in question is resistant in the absence of stress. Typical examples of parts under constant stress when used as intended: grip clips, intermediate supports of cable glands, ribbon clips.

Tightening torques

M5 = 4 Nm

M6 = 6 Nm

M8 = 12 Nm

M10 = 20 Nm

Detailed data can be provided on request.

100% response lightning impulse voltage

The 100% response lightning impulse voltage is the value of the lightning impulse voltage 1.2/50 µs, causing the arrestor to switch. With this testing voltage, the surge protection device must respond ten times to ten loads.

Arrestor

Arrestors are resources, which primarily consist of voltage-dependent resistors and/or spark gaps. Both elements can be switched in series or in parallel or used individually.
Arrestors are used to protect other electrical resources and electrical systems against surge voltages.

Arrestor measured voltage Vc

For arrestors without a spark gap, the measured voltage is the maximum permitted effective value of the mains voltage on the arrestor terminals. The measured voltage may constantly be applied to the arrestor without changing its operational characteristics.

Back-up fuse before the arrestors

There must be a back-up fuse before the arrestors. If the upstream fuse is greater than the maximum approved back-up fuse of the arrestor elements (see technical data of the device), the arrestor must be protected selectively with the required value.

Cut-off unit

The cut-off unit cuts the arrestor off from the mains or the earthing system if it is overloaded, thus preventing a fire risk and also signalling the switch-off of the protection device.

Equipotential bonding

Electrical connection, which brings the bodies of electrical resources and other conductive parts to the same or almost the same potential.

Equipotential busbar (PAS)

A terminal or rail, intended to connect the protective conductor, the equipotential bonding conductor and, if necessary, the conductor for function earthing with the earthing cable and the earthers.

Error current protection unit (RCD)

Resource for protection against electric shocks and fire protection (e.g. FI protection switches).

Lightning protection equipotential bonding system

The lightning protection equipotential bonding is a key measure in reducing the risk of fire and explosion on the room or building to be protected. The lightning protection equipotential bonding is achieved using equipotential bonding cables or arrestors, which connect the external lightning protection system, metallic parts of the building or room, the installation, the other conductive parts and the electrical energy and telecommunications systems.

Lightning protection system (LPS)

A lightning protection system (LPS) is considered as the entire system used to protect a room or building against the impact of a lightning strike. This includes both internal and external lightning protection.

Lightning protection zone (LPZ)

Lightning protection zones are those areas in which the electromagnetic environment of the lightning is to be defined and mastered. At the zone transitions, all cables and metallic parts must be integrated into the equipotential bonding system.

Lightning surge current (limp)

A lightning surge current (lightning current carrying capacity per path) is a standardised surge current curve of the shape 10/350 µs. With its parameters
- Peak value
- Charge
- Specific energy

it represents the load from natural lightning currents. Type 1 lightning current arrestors (previously requirement class B) must be able to arrest such lightning currents without being destroyed.

Line follow current quenching (If)

The follow current – also called network follow current – is the current which flows through the surge protection device after an arresting operation and is supplied by the network. The follow current is considerably different from the continuous operating current. The level of the network follow current is dependent on the feed line from the transformer to the arrestor.

Nominal current (In)

The nominal current is the maximum permitted operating current which may be run continually through the appropriately labelled connection terminals.

Nominal discharge surge current (In)

Peak value of the current flowing through the arrestor with the wave shape 8/20. It is used to classify the testing of surge arrestors of type 2 (formerly requirements Class C).

Nominal frequency (fn)

The nominal frequency is that frequency for which a resource is measured, by which it is called and upon which other nominal parameters refer.

Nominal voltage (Vn)

The rated voltage is the voltage value for which a resource is designed. In so doing it might be a direct voltage value or the effective value of a sine-form alternating voltage.

Surge protection device (SPD)

A device intended for the limitation of transient surge voltages and arresting of surge voltages. It contains at least one non-linear construction element. In general speech, surge protection devices are also termed arrestors.

Protection level (Up)

The protection level is the highest current voltage value on the terminals of the surge protection device before response.

Residual voltage (Vres)

The peak voltage value, occurring via the terminals of the surge protection device during or immediately after the arresting surge current has flowed.

Short-circuit resistance

The surge protection device must be able to conduct the short-circuit current, until it is either interrupted by the device itself or by an internal or external cut-off unit or by mains-side over-current protection (e.g. back-up fuse).

Response time (ta)

The response time primarily characterises the response behaviour of the individual protection elements used in arrestors. Depending on the slope du/dt of the surge voltage or di/dt of the surge current, the response times may vary within specific limits.

SPD

Surge protection device.

Surge arrestor, type 1

Arrestors, which, due to their special structure, are able to arrest lightning currents or partial lightning currents during direct strikes.

Surge arrestor, type 2

Arrestors, which are able to arrest surge voltages cause by remote or nearby strikes or switching actions.

Surge arrestor, type 3

Arrestors, used for surge protection of individual consumers or consumer groups and are employed directly on sockets.

Surge voltage

A surge voltage is a voltage occurring briefly between conductors or between a conductor and the earth, which exceeds the highest permissible operating voltage value by a long way, but does not have the operating frequency. It can be created by storms or by earthing or short-circuits.

Temperature range

The operating temperature specifies within which temperature limits the perfect function of the surge protection device is guaranteed.

Transmission frequency (fg)

The transmission frequency specifies up to which frequency the insertion damping of the employed resource is less than 3 dB.

Volume resistance per path, series resistance

The volume resistance per path specifies the ohmic resistance increase of the conductor path per wire caused by the use of the surge protection device.

Surge protection
Energy technology, Arrestor, type 1 (industry)

Always indicate the item number when ordering.

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Surge protection device for energy technology, arrestor, type 1 (industry)

	Combination arrestor	98
	Combination arrestor in VG housing	106
	Lightning current arrestor	110
	Lightning current arrestors for 400/690 V networks	119
	Accessories, upper parts and bases	115

MCF 35-1+FS-440
MCF 35-1+FS-440
MCF 35-1+FS-440

Surge protection device for energy technology, arrestor, type 1 (industry)

+ Connectable lightning current and surge arrestors
+ High arresting capacity up to 50 kA (10/350) per pole
+ Combination arrestors for buildings with lightning protection system
+ Simple standard hat rail mounting
+ Labelled connections
+ Usable in systems with lightning protection class 1-4

Combination arrestors and lightning arrestors

Function and areas of use
The combination lightning current arrestors MCD 50 meet the type 1 requirement class according to IEC 61643-11. These devices protect low-voltage consumer systems from overvoltages of all types and are available in single-pole to four-pole versions. The voltage-limiting, high-performance spark gaps provide several benefits. A short response time, a low protection level and high current leakage capability with long service life.

Type 1, combination arrestor MCD

1-pole

Volts	Item no.	Page
255	5096 84 9	102

3-pole

Volts	Item no.	Page
255	5096 87 7	100

3-pole + NPE

Volts	Item no.	Page
255	5096 87 9	98

NPE

Volts	Item no.	Page
255	5096 86 5	104

Type 1, combination arrestor MCD with function display

1-pole with OS

Volts	Item no.	Page
255	5096 85 2	103

3-pole with OS

Volts	Item no.	Page
255	5096 83 5	101

3-pole + NPE with OS

Volts	Item no.	Page
255	5096 83 6	99

Type 1, combination arrestor MCD, upper parts

Upper part

Volts	Item no.	Page
255	5096 82 2	115

Upper part with OS

Volts	Item no.	Page
255	5096 82 7	115

Type 1, combination arrestor MCD in VG housing

3-pole in VG housing

Volts	Item no.	Page
255	5096 87 4	108

3-pole + NPE, in VG housing

Volts	Item no.	Page
255	5096 87 5	107

Always indicate the item number when ordering.

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Type 1, combination arrestor MC

1-pole

Volts	Item no.	Page
255	5096 84 7	113

3-pole

Volts	Item no.	Page
255	5096 87 6	111

3-pole + NPE

Volts	Item no.	Page
255	5096 87 8	110

NPE

Volts	Item no.	Page
255	5096 86 3	112

Type 1, lightning arrestor MC with function display

1-pole with OS

Volts	Item no.	Page
255	5096 85 1	114

Type 1, lightning current arrestor MC, upper parts

Upper part

Volts	Item no.	Page
255	5096 82 0	115

Upper part with OS

Volts	Item no.	Page
255	5096 82 5	115

Type 1, lightning arrestor MC in VG housing

3-pole in VG housing

Volts	Item no.	Page
255	5089 21 2	109

3-pole + NPE in VG housing

Volts	Item no.	Page
255	5089 20 0	106

Type 1, lightning arrestor MCF 35

1-pole with FS

Volts	Item no.	Page
440	5096 97 4	119

3-pole with FS

Volts	Item no.	Page
440	5096 97 6	120

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Always indicate the item number when ordering.

Combination arrestor MCD, 255 V for TN and TT networks

Combination arrestor, 3-pole + NPE

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B 3+1	255	3 + NPE	1	168,000	**5096879**

/pc.

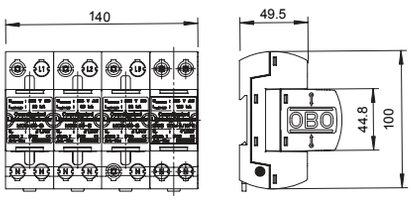
Combination arrestor, 4-pole, for use in TN-S and TT networks.

Completely pre-terminated and ready for connection, consisting of:
MCD 50-B: Coordinated lightning current arrestor, type 1 (Class B) to EN 61643-11 and
MCD 125-B/NPE: Coordinated N-PE spark gap, type 1 (Class B) to EN 61643-11 for use in TN- and TT systems. Interface 0 to 1 according to lightning protection zone concept according to IEC 61312-1 and VDE 0185-305 (IEC 62305).

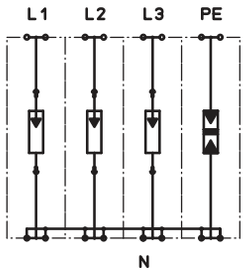
- Arresting capacity 50 kA (10/350 µs) per pole (L-N)
- Arresting capacity 125 kA (10/350 µs) per pole (N-PE)
- Conforms to VDN Directive 2nd Edition 2004
- Protection level < 1.3 kV
- Line follow current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap

Application: Lightning protection equipotential bonding in buildings with external lightning protection of Class I to IV and in standard distributor housings.

Dimensions



Connection options



MCD 50-B 3+1

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	125 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	125 kA
Voltage protection level	U_p	1,3 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 °C
Division unit TE (17.5 mm)		8
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Combination arrestor, 3-pole + NPE with function display

230/ 400 V System | Type 1 | LPZ 0→2

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B 3+1-OS	255	3 + NPE	1	172,000	**5096836**

/pc.

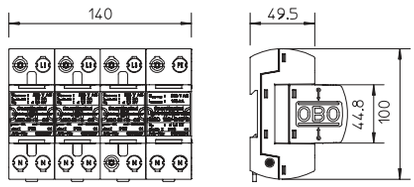
Combination arrestor, 4-pole, with visual function display, for use in TN-S and TT networks.

Completely pre-terminated and ready for connection, consisting of:
MCD 50-B_OS: Type 1 (Class B) coordinated lightning current arrestor to DIN EN 61643-11.
MCD 125-B/NPE: Coordinated N-PE spark gap, type 1 (Class B) to EN 61643-11 for use in TN-S and TT systems. Interface 0 to 1 according to lightning protection zone concept according to IEC 61312-1 and DIN VDE 0185-305.

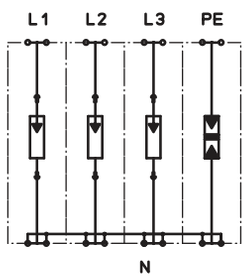
- Arresting capacity 50 kA (10/350 µs) per pole (L-N)
- Arresting capacity 125 kA (10/350 µs) per pole (N-PE)
- Power consumption < 26 mW/pole
- Protection level < 1.3 kV
- Line follow current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap
- Can be used in standard distributor housings.

Application: Lightning protection equipotential bonding for buildings, even with external lightning protection of classes I to IV in standard distribution housings.

Dimensions



Connection options



MCD 50-B 3+1-OS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	125 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	125 kA
Voltage protection level	U_p	1,3 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 °C
Division unit TE (17.5 mm)		8
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Combination arrestor MCD, 255 V for TN and TT networks

Combination arrestor, 3-pole

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B 3	255	3-pole	1	117,000	**5096877**

/pc.

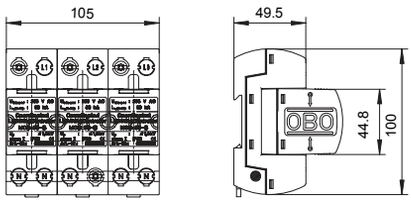
Combination arrestor, 3-pole, for use in TN-C networks.

Completely pre-terminated and ready for connection, consisting of:
MCD 50-B: Type 1 (Class B) coordinated lightning current arrestor to DIN EN 61643-11. For interface 0 to 2 (LPZ) in accordance with lightning protection zone concept to IEC 61312-1 and DIN VDE 0185-305.

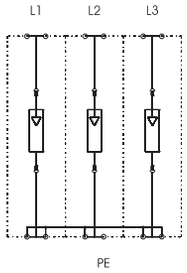
- Arresting capacity 50 kA 10/350 µs per pole
- Conforms to VDN Directive 2nd Edition 2004
- Protection level < 1.3 kV
- Line follow current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap
- Can be used in standard distributor housings.

Application example: Compact surge protection concepts and installations of requirement class B+C arrestors in a distributor without decoupling inductances and/or line lengths, e.g. direct on mobile radio system.

Dimensions



Connection options



MCD 50-B 3

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	150 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	150 kA
Voltage protection level	U_p	1,3 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 °C
Division unit TE (17.5 mm)		6
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Combination arrestor, 3-pole with function display

230/ 400 V System | Type 1 | LPZ 0→2

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B 3-OS	255	3-pole	1	118,000	**5096835**

/pc.

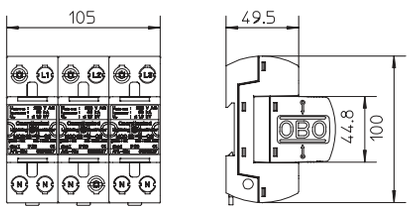
Combination arrestor set, 3-pole, with visual function display, for use in TN-C networks:

Completely pre-terminated and ready for connection, consisting of:
MCD 50-B-OS: Type 1 (Class B) coordinated lightning current arrestors to DIN EN 61643-11. For interface 0 to 2 (LPZ) in accordance with lightning protection zone concept to IEC 61312-1 and/or DIN VDE 0185-305.

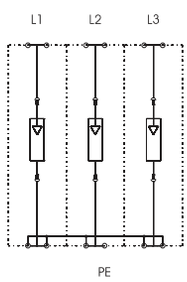
- Arresting capacity 50 kA 10/350 µs per pole
- Power consumption < 26 mW/pole
- Protection level < 1.3 kV
- Line follow current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap
- Can be used in standard distributor housings

Application example: Compact surge protection concepts and installations of arrestors of requirements Class B+C in a distributor without decoupling inductances or cable lengths, e.g. directly on the mobile radio transmission system technology.

Dimensions



Connection options



MCD 50-B 3-OS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	150 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	150 kA
Voltage protection level	U_p	1,3 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 °C
Division unit TE (17.5 mm)		6
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Combination arrestor MCD, 255 V for TN and TT networks

Combination arrestor, 1-pole

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B	255	1-pole	1	34,400	**5096849**

/pc.

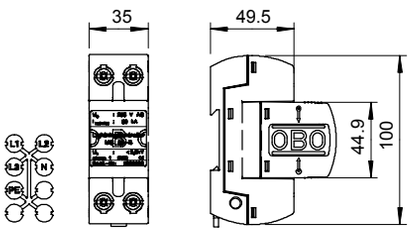
Combination arrestor, 1-pole, for use in TN-S and TT networks:

MCD 50-B: Type 1 (Class B) coordinated lightning current arrestors to DIN EN 61643-11. For interface 0 to 2 (LPZ) in accordance with lightning protection zone concept to IEC 61312-1 and/or DIN VDE 0185-305.

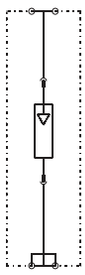
- Arresting capacity 50 kA (10/350 µs) per pole
- Conforms to VDN Directive 2nd Edition 2004
- Protection level < 1.3 kV
- Line follow current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap: Can be used in standard distributor housings.

Application example: Compact surge protection concepts in a separate housing. Installation of requirement class B+C arrestors in a distributor without decoupling inductances and/or line lengths, e.g. direct on mobile radio system.

Dimensions



Connection options



MCD 50-B		
Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	50 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	50 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		2
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

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Always indicate the item number when ordering.

Combination arrestor, 1-pole with function display

230/ 400 V System | Type 1 | LPZ 0→2

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B-OS	255	1-pole	1	34,800	**5096852**

/pc.

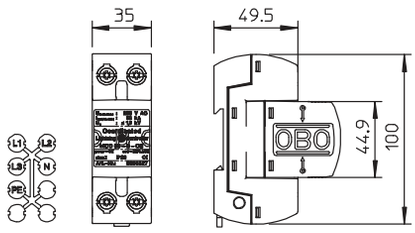
Combination arrestor, 1-pole, for use in TN and TT networks:

MCD 50-B-OS: Coordinated lightning current arrestor, Type 1 (Class B) to EN 61643-11 with visual function display. For interface 0 to 2 (LPZ) in accordance with lightning protection zone concept to IEC 61312-1 and/or DIN VDE 0185-305.

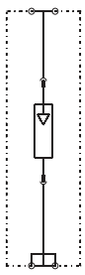
- Arresting capacity 50 kA (10/350 µs) per pole
- Power consumption < 26 mW/pole
- Protection level < 1.3 kV
- Line follow current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap
- Can be used in standard distributor housings.

Application example: Compact surge protection concepts and installations of requirement class B+C arrestors in a distributor without decoupling inductances and/or line lengths, e.g. direct on mobile radio system.

Dimensions



Connection options



MCD 50-B-OS		
Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	50 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	50 kA
Voltage protection level	U_p	1,3 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 °C
Division unit TE (17.5 mm)		2
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Combination arrestor MCD, 255 V for TN and TT networks

Combination arrestor, 1-pole NPE

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 125-B NPE	255	NPE	1	46,500	**5096865**

/pc.

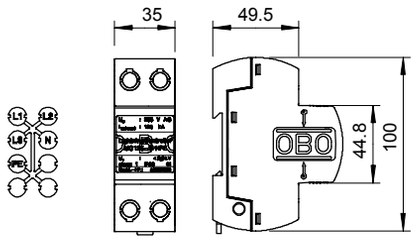
arrestor for use in TN-S and TT systems.

MCD 125-B/NPE: as coordinated N-PE discharge gap, Type 1 (Class B) IEC 61643. For interface 0 to 1 (LPZ) according to lightning protection zone concept to IEC 61312-1 and/or DIN VDE 0185-305 for use as discharge gap between N and PE.

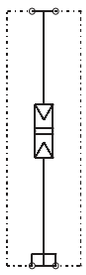
- Protection capability 125 kA 10/350 µs
- Conforms to VDN Directive, 2nd Edition 2004
- Including plug caps for identifying the connections
- Protection level < 1.3 kV
- Enclosed, non-extinguishing discharge gap: can be used in normal commercial distributor housings

Application example: compact overvoltage protection concepts in a separate housing. Installation of arrestors of requirement Class B+C in a distributor without decoupling inductivity and/or line lengths, e.g. direct on mobile radio system.

Dimensions



Connection options



MCD 125-B NPE

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	125 kA
Total discharge current (10/350)	I_{total}	125 kA
Nominal discharge current (8/20)	I_n	125 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	125 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	0.1 kA
Maximum back-up fuse		— A
Temperature range	ϑ	-40 °C
Division unit TE (17.5 mm)		2
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Combination arrestor in VG housing for TN-S and TT network systems

VG housing with MC 50-B/3+1

IP 65 | 230/400 V System | Type 1 | LPZ 0→1

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG 4-B TNS+TT	255	3 + NPE	1	290,000	**5089200**

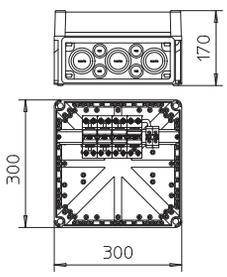
/pc.

VG...: Lightning arrestor system solution Type 1 (Class B) to DIN EN 61643-11.

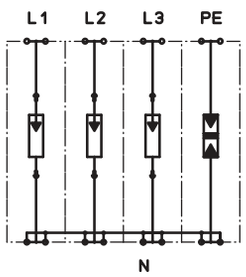
- LightningController MC 50-B/VDE and MC 125-B/NPE installed in insulating housing IP 65, sealable housing
- Pulsed current 100 kA 10/350 µs BET-tested
- Conforms to requirements of VDN Directive, 2nd Edition 2004
- Protection level < 2.0 kV
- Enclosed, non-extinguishing discharge gap
- Suitable for TNS and TT network systems

Application example: the system solution is used in the pre-meter area according to VDN Directive, 2nd Edition 2004.

Dimensions



Connection options



VG 4-B TNS+TT

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→1
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	125 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	125 kA
Voltage protection level	U_p	<2,0 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		8
Protection rating		IP54
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

VG housing with MCD 50-B/3+1

IP 65 | 230/400 V System | Type 1 | LPZ 0→2

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B 3+1-VG	255	3 + NPE	1	290,000	**5096875**

/pc.

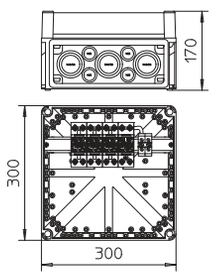
Combination arrestor, pre-installed in IP65 housing for use in TN-S and TT networks.

VG...: Lightning arrestor system solution type 1 (Class B) according to DIN EN 61643-11.

- LightningController MCD 50-B and MC 125-B/NPE installed in insulating housing IP 65, sealable housing
- Pulsed current 125 kA 10/350 µs BET-tested
- Conforms to requirements of VDN Directive, 2nd Edition 2004
- Protection level < 1.3 kV
- Enclosed, non-extinguishing spark gap
- Suitable for TN-S and TT network systems

Application example: the system solution is used in the pre-meter area according to VDN Directive, 2nd Edition 2004.

Dimensions



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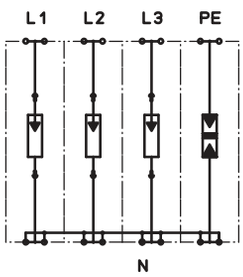


MCD 50-B 3+1-VG

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	125 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	125 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		8
Protection rating		IP54
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Combination arrestor in VG housing for TN-S and TT network systems

VG housing with MCD 50-B/3

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B 3-VG	255	3-pole	1	315,000	**5096874**

/pc.

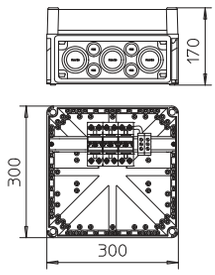
Combination arrestor, pre-installed in IP65 housing for use in TN-C networks.

VG...: Lightning arrestor system solution type 1 (Class B) according to EN 61643-11.

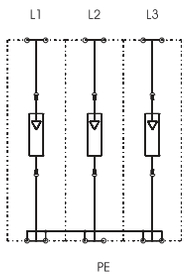
- LightningController MCD 50-B installed in insulating housing IP 65, sealable housing
- Pulsed current 150 kA 10/350 µs BET-tested
- Protection level < 1.3 kV
- Enclosed, non-extinguishing spark gaps
- Suitable for TN-C network systems

Application example: the system solution is used in the pre-meter area according to VDN Directive 2nd Edition 2004.

Dimensions



Connection options



MCD 50-B 3-VG

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	150 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	150 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		6
Protection rating		IP54
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

VG housing with MC 50-B/3

IP 65 | 230/400 V System | Type 1 | LPZ 0→1

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG 3-B TNC	255	3-pole	1	315,000	**5089212**

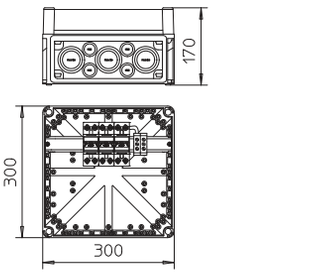
/pc.

VG...: Lightning arrestor system solution Type 1 (Class B) to DIN EN 61643-11.

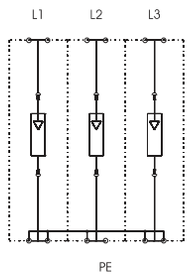
- LightningController MC 50-B/VDE installed in insulating housing IP 65, sealable housing
- Pulsed current 100 kA 10/350 µs BET-tested
- Conforms to requirements of VDN Directive, 2nd Edition 2004
- Protection level < 2.0 kV
- Enclosed, non-extinguishing discharge gap
- Suitable for TNC network systems

Application example: the system solution is used in the pre-meter area according to VDN Directive, 2nd Edition 2004.

Dimensions



Connection options



VG 3-B TNC

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→1
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	150 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	150 kA
Voltage protection level	U_p	<2,0 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		6
Protection rating		IP54
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Lightning current arrestor, 3-pole + NPE

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MC 50-B 3+1	255	3 + NPE	1	168,000	**5096878**

/pc.

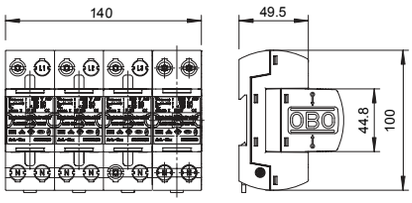
LightningController-Set, 4-pole, for use in TN-S and TT networks:

Completely pre-terminated and ready for connection, consisting of:
MC 50-B VDE: Lightning current arrestor, type 1 (Class B) to EN 61643-11 for interface 0 to 1 (LPZ) according to lightning protection zone concept to IEC 61313-1 and DIN VDE 0185-305.
MC 125-B/NPE: N-PE spark gap, type 1 (Class B) to IEC 61643 for use in TN-S and TT systems.

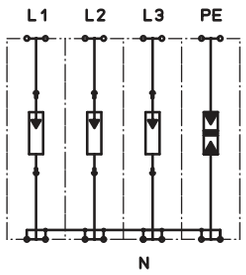
- VDE test marks
- Conforms to VDN Directive 2nd Edition 2004
- Cover and base, plug-in cover
- Arresting capacity 125 kA 10/350 µs
- Voltage protection level < 2,0 kV
- Line following current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap: can be used in standard distributor housings

Application example: Lightning current arrestor in accordance with VDN Directive 2nd Edition 2004 for pre-meter area.
Note: Required as decoupling length for surge voltage protection of 5 m of cable.

Dimensions



Connection options



MC 50-B 3+1

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→1
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	125 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	125 kA
Voltage protection level	U_p	< 2,0 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		8
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Lightning current arrestor, 3-pole

230/ 400 V System | Type 1 | LPZ 0→1

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MC 50-B 3	255	3-pole	1	117,000	**5096876**

/pc.

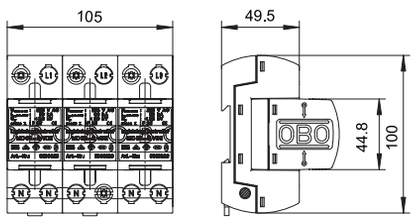
LightningController set, 3-pole, for use in TN-C networks:

Completely pre-terminated and ready for connection, consisting of:
MC 50-B VDE: Type 1 (Class B) lightning current arrestor in accordance with DIN EN 61643-11 for interface 0 to 1 (LPZ) to and/or in accordance with lightning protection concept to IEC 61312-1 and/or DIN V VDE V 0185-305 (IEC 62305)

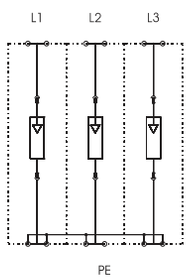
- VDE test marks
- Conforms to VDN Directive 2nd Edition 2004
- Cover and base, plug-in cover
- Arresting capacity 50 kA (10/350 µs) per pole
- Voltage protection level < 2,0 kV
- Line following current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap: can be used in standard distributor housings

Application example: Industrial plants; lightning current arrestor in accordance with VDN Directive 2nd Edition 2004 for pre-meter area.
Note: Required as decoupling length for surge voltage protection of 5 m of cable.

Dimensions



Connection options



MC 50-B 3

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→1
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	150 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	150 kA
Voltage protection level	U_p	< 2,0 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		6
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Lightning current arrestor, 1-pole NPE

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MC 125-B NPE	255	NPE	1	52,000	**5096863**

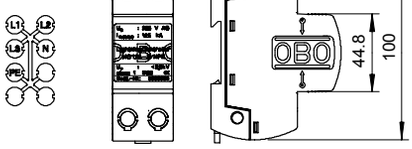
/pc.

MC 125-B/NPE: For use in TN-S and TT systems as N-PE discharge gap, type 1 (Class B) IEC 61643, for interface 0 to 1 (LPZ) according to lightning protection zone concept to IEC 61312-1 and/or DIN V VDE V 0185 Part 4 for use as discharge gap between N and PE.

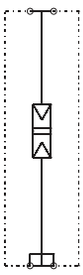
- VDE test mark
- Conforms to VDN Directive, 2nd Edition 2004
- Protection capability 125 kA 10/350 µs
- Including plug caps for identifying the connections
- Protection level <2.5 kV
- Enclosed, non-extinguishing discharge gap: can be used in normal commercial distributor housings

Application example: lightning arrestor in accordance with VDN Directive for pre-meter area.
Note: required as de-coupling length for overvoltage protection of 5 m of cable.

Dimensions



Connection options



MC 125-B NPE

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→1
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	125 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	125 kA
Voltage protection level	U_p	< 2,5 kV
Response time	t_A	< 100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	0.1 kA
Maximum back-up fuse		— A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		2
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Lightning current arrestor, 1-pole

230/ 400 V System | Type 1 | LPZ 0→1

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MC 50-B VDE	255	1-pole	1	34,400	**5096847**

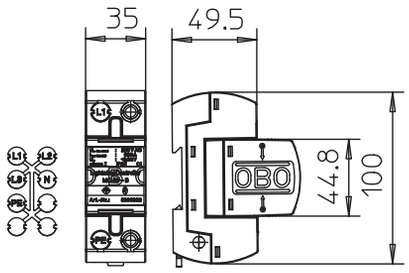
/pc.

MC 50-B VDE: Type 1 (Class B) lightning current arrestor in accordance with DIN EN 61643-11 for interface 0 to 1 (LPZ) to and/or in accordance with lightning protection concept to IEC 61312-1 and/or DIN V VDE V 0185-305 (IEC 62305)

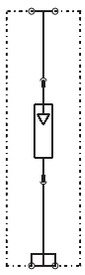
- VDE test marks
- Conforms to VDN Directive 2nd Edition 2004
- Cover and base, plug-in cover
- Arresting capacity 50 kA (10/350 µs) per pole
- Protection level < 2.0 kV
- Line following current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap: can be used in standard distributor housings

Application example: Industrial plants; lightning current arrestor in accordance with VDN Directive 2nd Edition 2004 for pre-meter area.
Note: Required as decoupling length for surge voltage protection of 5 m of cable.

Dimensions



Connection options



MC 50-B VDE		
Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→1
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	50 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	50 kA
Voltage protection level	U_p	< 2,0 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		2
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Lightning current arrestor, 1-pole with function display

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MC 50-B-OS	255	1-pole	1	34,800	**5096851**

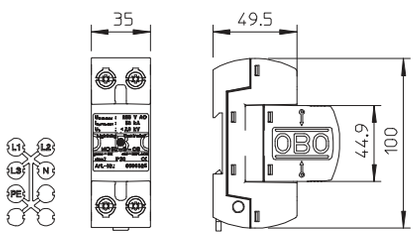
/pc.

MC 50-B:OS: Type 1 (Class B) lightning current arrestor with visual function display in accordance with DIN EN 61643-11 for interface 0 to 1 (LPZ) in accordance with lightning protection concept to IEC 61313-1 and VDE 0185-305 (IEC 62305)

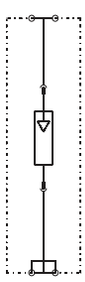
- Cover and base, plug-in base
- Arresting capacity 50 kA (10/350 µs) per pole
- Protection level < 2.0 kV
- Power consumption < 26 mW/pole
- Line following current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap: Can be used in standard distributor housings

Application example: Industrial systems.
Note: Required as decoupling length for surge voltage protection of 5 m of cable.

Dimensions



Connection options



MC 50-B-OS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→1
Impulse discharge current (10/350)	I_{imp}	50 kA
Total discharge current (10/350)	I_{total}	50 kA
Nominal discharge current (8/20)	I_n	50 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	50 kA
Voltage protection level	U_p	< 2,0 kV
Response time	t_A	<100 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		500 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		2
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

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Combination arrestor upper part

230/400 V System | Type 1 | LPZ 0→2

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B 0	255	1-pole	1	19,200	**5096822**

/pc.

MCD 50-B/0: Coordinated LightningController, cover.

Upper part, combination arrestor with function display

230/400 V System | Type 1 | LPZ 0→2

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCD 50-B 0-OS	255	1-pole	1	19,500	**5096827**

/pc.

MCD 50-B/0 OS: Coordinated LightningController, upper part with optical function indication

Upper part, lightning current arrestor

230/400 V System | Type 1 | LPZ 0→1

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MC 50-B 0 VDE	255	1-pole	1	24,000	**5096820**

/pc.

MC 50-B/0: LightningController, upper part

Upper part, lightning current arrestor with function display

230/400 V System | Type 1 | LPZ 0→1

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MC 50-B 0-OS	255	1-pole	1	19,500	**5096825**

/pc.

MC 50-B/0 OS: LightningController, upper part
Capacity: < 1mW

Lightning arrestor/combination arrestor base

Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MC 50-B U VDE	1-pole	1	18,000	**5096839**

/pc.

MC 50-B/U: LightningController bottom section fit type:

- MC 50-B VDE
- MCD 50-B
- Including plug caps for identifying the connections

Decoupling inductivity

Type	Rated current A	Version	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
LC 63	63	1-pole	63 A	1	43,500	**5096970**

/pc.

LC 63: Decoupling inductivity.

- Compact design in a 35 mm housing
- Two connection options for input and output
- Nominal load current 63 A
- Nominal inductivity 5 µH

Application example: in combination with MC 50-B VDE and V 20-C for line lengths of less than 5 m.

Accessories for lightning current arrestor

Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MC V3	3-pole	10	1,700	**5096884**
MC V4	4-pole	10	2,300	**5096886**

Cu Copper

/pc.

MC-V...: Copper bridge 16 mm², suitable for bridging MC arrestors in side channel.

- V3 for 3-pole circuits
- V4 for 4-pole circuits

Always indicate the item number when ordering.

Surge protection device for energy technology, arrestor, type 1 (industry)

+ Lightning current and surge arrestors
+ High arresting capacity up to 35 kA (10/350) per pole
+ Arrestors for buildings with lightning protection system
+ Visual status display
+ With remote signalling
+ Simple standard DIN rail mounting
+ Labelled connections
+ Usable in systems with lightning protection class I-IV

Lightning current and surge arrestor MCF 35

Function and areas of use
The MCF lightning current arrestors meet the type 1 requirement class according to IEC 61643-11. These devices protect low-voltage systems against any kind of surge voltages.The voltage-limiting carbon spark gap provides multiple benefits. A short response time, a low protection level and high current leakage capability with long service life. In addition, the devices do not produce any line follow current. If circumstances are uncertain and there is a risk of fire from overloads, the cut-off unit disconnects the arrestor safely from the mains.

Lightning arrestor MCF 35, 400/690 V, 1-pole with IR

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCF 35-1+FS-440	440	1-pole	1	98,000	**5096974**

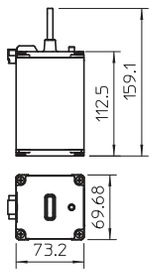
AIG Cast aluminium /pc.

Lightning arrestor type 1

- For lightning protection equipotential bonding to DIN EN 62305 (IEC 62305)
- Lightning current arresting capacity 35 kA (10/350) per pole
- Follow current extinguishing 50 kAeff, arrestor back-up fuse up to 400 A gL/gG
- Encapsulated, non-extinguishing spark gap arrestor for use in distributor housings
- Cut-off unit with visual indicator
- Remote signalling with potential-free changeover contact

Application: Without exception for 400/690 V network systems

Dimensions



Connection options

MCF 35-1+FS-440

Nominal voltage	U_N	400 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Impulse discharge current (10/350)	I_{imp}	35 kA
Voltage protection level	U_p	2,5 kV
Protection rating		IP20
Follow current quenching capacity (eff) [N-PE]	I_{fi}	50 kA
Maximum back-up fuse		400 A
Temperature range	ϑ	-40 - +85 °C

Always indicate the item number when ordering.

Lightning arrestor MCF 35, 400/690 V, 3-pole with IR

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCF 35-P3+FS-440	440	3-pole	1	400,000	**5096976**

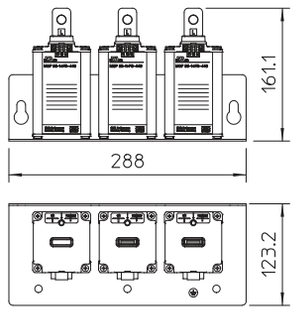
AIG Cast aluminium /pc.

Lightning arrestor type 1

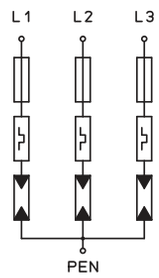
- Fully assembled 3-pole connection unit
- For lightning protection equipotential bonding according to DIN EN 62305 (IEC 62305)
- Lightning current arresting capacity 35 kA (10/350) per pole
- Line following current quenching 50 kAeff, arrestor back-up fuse up to 400 A gL/gG
- Encapsulated, non-extinguishing spark gap arrestor for use in distributor housings
- Cut-off unit with visual indicator
- Remote signalling with potential-free changeover contact
- For finished mounting on bonding rails and walls

Application: Without exception for 400/690 V power systems

Dimensions



Connection options



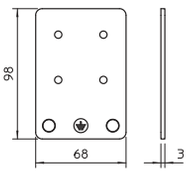
MCF 35-P3+FS-440

Nominal voltage	U_N	400 V
SPD to EN 61643-11		Type 1
SPD to IEC 61643-11		Class I
Impulse discharge current (10/350)	I_{imp}	35 kA
Voltage protection level	U_p	2,5 kV
Protection rating		IP20
Follow current quenching capacity (eff) [N-PE]	I_{fi}	50 kA
Maximum back-up fuse		400 A
Temperature range	ϑ	-40 - +85 °C

Always indicate the item number when ordering.

Mounting plate, 1-pole

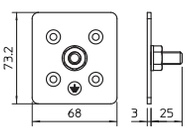
Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCF-MS-P1	1-pole	1	19,600	**5096992**
V2A	Stainless steel, grade 304			/pc.



Mounting plate 1-pole
- Mounting plate for installation of the arrestor MCF 35-1+FS-440
- Prefabricated hole pattern for mounting the arrestor on busbars
- Required screws for installation the arrestor enclosed

Mounting plate, 1-pole, M10

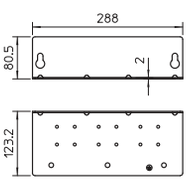
Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCF-MS-M10	1-pole	1	14,200	**5096990**
V2A	Stainless steel, grade 304			/pc.



Mounting plate with threaded connector M10
- Mounting plate with threaded M10 connector to install the arrestor MCF 35-1+FS-440
- M10 bolts for direct installation of the arrestor on busbars
- Required screws for installation enclosed

Mounting plate, 3-pole

Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MCF-MS-P3	3-pole	1	99,800	**5096994**
V2A	Stainless steel, grade 304			/pc.



Mounting plate 3-pole
- Mounting plate 3-pole for installation of the arrestor MCF 35-1+FS-440
- Prefabricated hole pattern for mounting the arrestor on busbars
- Suitable for wall mounting
- Required screws for installation enclosed

Always indicate the item number when ordering.

Surge protection
Energy technology
Arrestor type 1+2

Always indicate the item number when ordering.
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Surge protection device for energy technology, arrestor, type 1+2 (office and housing)

	Combination arrestor	128
	Upper parts V50	164
	Combination arrestor, protection set for TN and TT network systems	167
	Combination arrestor V50 in housing	178

Always indicate the item number when ordering.

Surge protection energy technology, arrestor, type 1+2: The plus of the V50 family

+ Connectable lightning current and surge arrestors
+ High arresting capacity up to 50 kA (10/350)
+ Visual status display
+ Available with optional remote signalling
+ Vibration-proof
+ Type 1+2, for buildings with lightning protection
+ Simple standard DIN rail mounting
+ Labelled connections
+ Usable in systems with lightning protection class III + IV
+ Connectable NPE module
+ Voltage encoding

Surge arrestor V50

Function and areas of use
The combination lightning current and surge arrestors V50 meet the type 1+2 requirement class according to IEC 61643-11. These devices protect low-voltage consumer systems from overvoltages of all types and are available in single-pole to four-pole versions. The use of high-performance varistors permits a rapid response time and a low protection level, without any line follow current. If circumstances are uncertain and there is a risk of fire from an overload, the internal cut-off unit disconnects the arrestor from the mains if necessary. In addition, the QR code printed on the arrestor allows direct access to the online installation instructions.

Diese Anlage ist mit Überspannungsschutzgeräten ausgerüstet.
OBO BETTERMANN
Bei Isolationsmessungen bitte die OBO Schutzmodule herausziehen bzw. abklemmen.
System contains overvoltage protection devices. Please remove or disconnect the OBO protectors during isolation tests.
Mat.-Nr. 4100 8383
Doepke
V50
V50
V50
C50
T1 T2
Q2
FI-Schutzschalter
F4
Überspannungsableiter Typ 1+2
Zähler 1.OG
B16
ON
F3.1
F3.2
F3.3
F3.4
F3.5
F3.6
F3.7
F3.8
F3.9

Overview, type 1+2 V50, MCD

Type 1+2, combination arrestor V50

1-pole

Volts	Item no.	Page
150	5093 44 0	128
280	5093 50 0	136
320	5093 54 0	148
385	5093 57 2	156

3-pole

Volts	Item no.	Page
150	5093 44 2	130
280	5093 51 1	138
320	5093 54 2	150
385	5093 57 4	158

4-pole

Volts	Item no.	Page
280	5093 51 3	140

Type 1+2, combination arrestor V50 with remote signalling

1-pole

Volts	Item no.	Page
150	5093 44 6	129
280	5093 50 2	137
320	5093 54 6	149
385	5093 57 8	157

3-pole + FS

Volts	Item no.	Page
150	5093 44 8	131
280	5093 51 6	139
320	5093 54 8	151
385	5093 58 0	159

4-pole + FS

Volts	Item no.	Page
280	5093 51 8	141

Protection set MCD

3-pole

Volts	Item no.	Page
255	5089 75 4	170
320	5089 75 5	172

3-pole, leakage current-free

Volts	Item no.	Page
255	5089 76 8	176

Protection set MCD with remote signalling

3-pole + FS

Volts	Item no.	Page
255	5089 75 6	171
320	5089 75 7	173

3-pole, leakage current-free + FS

Volts	Item no.	Page
255	5089 77 5	177

Type 1+2, combination arrestor V50 + NPE

1-pole + NPE

Volts	Item no.	Page
150	5093 45 2	132
280	5093 52 2	142
320	5093 55 2	152
385	5093 58 4	160

2-pole + NPE

Volts	Item no.	Page
280	5093 52 4	146

3-pole + NPE

Volts	Item no.	Page
150	5093 45 4	134
280	5093 52 6	144
320	5093 55 4	154
385	5093 58 6	162

V50 in the housing

Volts	Item no.	Page
280	5093 59 4	178
280	5093 59 6	179

Type 1+2, combination arrestor V50 + NPE with remote signalling

1-pole + NPE + FS

Volts	Item no.	Page
150	5093 46 0	133
280	5093 53 1	143
320	5093 56 0	153
385	5093 59 0	161

3-pole + NPE + FS

Volts	Item no.	Page
150	5093 46 2	135
280	5093 53 3	145
320	5093 56 2	155
385	5093 59 2	163

Upper part

Volts	Item no.	Page
150	5093 50 5	164
280	5093 50 8	164
320	5093 50 9	164
385	5093 51 0	165

Cover NPE-C50

Volts	Item no.	Page
255	5095 60 9	165

Protection set MCD + NPE

1-pole + NPE

Volts	Item no.	Page
255	5089 74 8	167

3-pole + NPE

Volts	Item no.	Page
255	5089 76 1	168

3-pole, leakage current-free + NPE

Volts	Item no.	Page
255	5089 77 0	174

Protection set MCD + NPE with remote signalling

3-pole + NPE + FS

Volts	Item no.	Page
255	5089 76 3	169

3-pole, leakage current-free + NPE + FS

Volts	Item no.	Page
255	5089 77 7	175

Always indicate the item number when ordering.

Combination arrestor V50 in 150 V, type 1+2

Combination arrestor V50, 1-pole 150 V

LPZ 0→2 | Type 1+2

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1-150	150	1	IP20	1	15,400	**5093440**

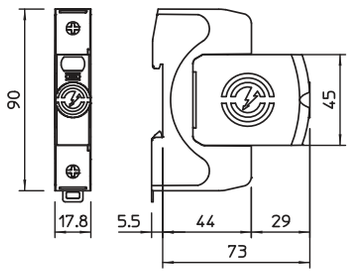
PA Polyamide /pc.

Lightning current combination arrestor, type 2

- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options

V50-1-150

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	130 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	— kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,4 kV
Protection level [L-N] @ 5 kA	U_{res}	0,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Combination arrestor V50, 1-pole with FS 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+FS-150	150	1	IP20	1	15,600	**5093446**

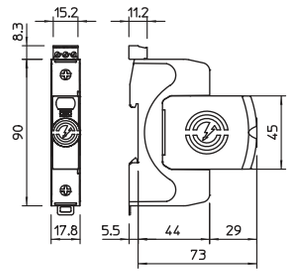
PA Polyamide /pc.

Lightning current combination arrestor, type 2

- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options

V50-1+FS-150

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	130 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	— kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,4 kV
Protection level [L-N] @ 5 kA	U_{res}	0,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 150 V, type 1+2

Combination arrestor V50, 3-pole 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3-150	150	3	IP20	1	43,500	**5093442**

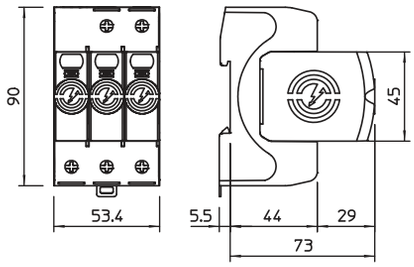
PA Polyamide /pc.

Lightning current combination arrestor, type 2

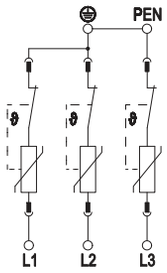
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3-150		
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	130 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	37.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,4 kV
Protection level [L-N] @ 5 kA	U_{res}	0,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Combination arrestor V50, 3-pole with FS 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+FS-150	150	3	IP20	1	43,900	**5093448**

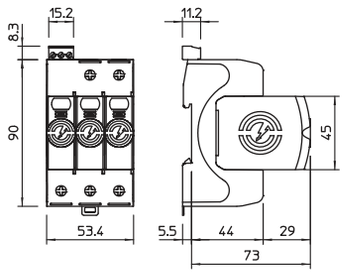
PA Polyamide /pc.

Lightning current combination arrestor, type 2

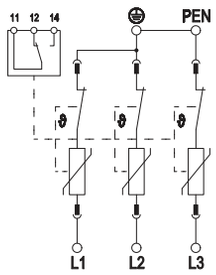
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+FS-150

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	130 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	37.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,4 kV
Protection level [L-N] @ 5 kA	U_{res}	0,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 150 V with NPE, type 1+2

Combination arrestor V50, 1-pole + NPE 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE-150	150	1+N/PE	IP20	1	29,300	**5093452**

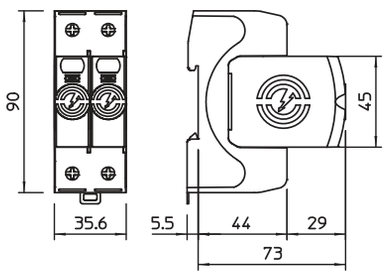
PA Polyamide /pc.

Lightning current combination arrestor, type 2

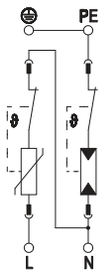
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-1+NPE-150

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	130 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	25 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	– kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,4 kV
Protection level [L-N] @ 5 kA	U_{res}	0,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Combination arrestor V50, 1-pole + NPE with FS 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE+FS-150	150	1+N/PE	IP20	1	29,600	**5093460**

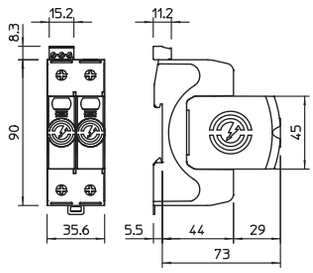
PA Polyamide /pc.

Lightning current combination arrestor, type 2

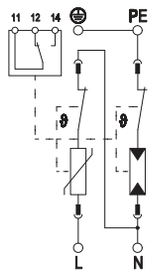
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-1+NPE+FS-150

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	130 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	12.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,4 kV
Protection level [L-N] @ 5 kA	U_{res}	0,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 150 V with NPE, type 1+2

Combination arrestor V50, 3-pole + NPE 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+NPE-150	150	3+N/PE	IP20	1	55,800	**5093454**

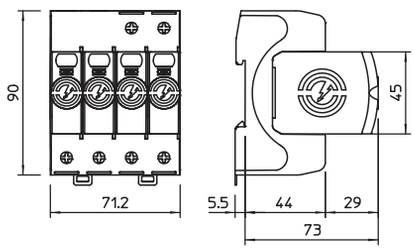
PA Polyamide /pc.

Lightning current combination arrestor, type 2

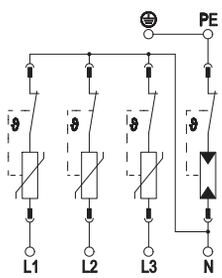
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+NPE-150

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	130 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,4 kV
Protection level [L-N] @ 5 kA	U_{res}	0,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Combination arrestor V50, 3-pole + NPE with FS 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+NPE+FS-150	150	3+N/PE	IP20	1	56,300	**5093462**

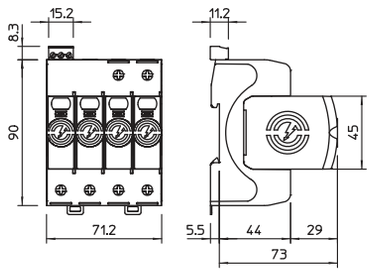
PA Polyamide /pc.

Lightning current combination arrestor, type 2

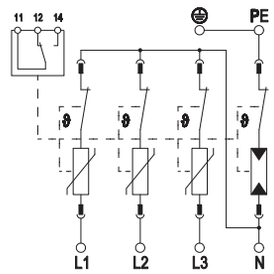
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+NPE+FS-150

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	130 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,4 kV
Protection level [L-N] @ 5 kA	U_{res}	0,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 280 V, type 1+2

Combination arrestor V50, 1-pole 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1-280	280	1	IP20	1	16,400	**5093500**

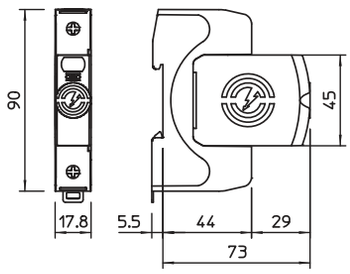
PA Polyamide /pc.

Lightning current combination arrestor, type 2

- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options

V50-1-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	— kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Combination arrestor V50, 1-pole with FS 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+FS-280	280	1	IP20	1	16,600	**5093502**

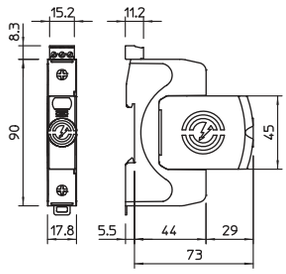
PA Polyamide /pc.

Lightning current combination arrestor, type 2

- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options

V50-1+FS-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	— kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50, 3-pole 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3-280	280	3	IP20	1	46,500	**5093511**

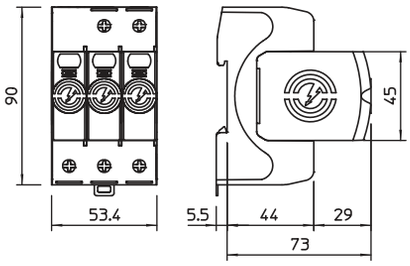
/pc.

Lightning current combination arrestor, type 2

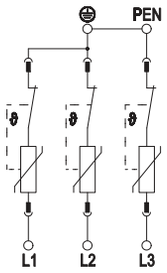
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	37.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Combination arrestor V50, 3-pole with FS 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+FS-280	280	3	IP20	1	46,900	**5093516**

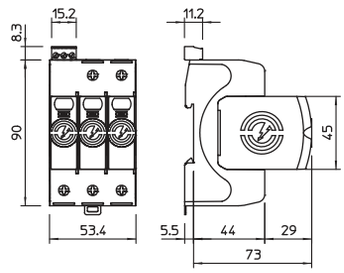
/pc.

Lightning current combination arrestor, type 2

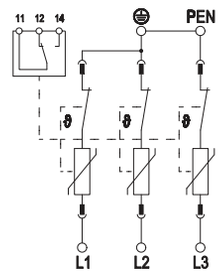
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+FS-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	37.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50, 4-pole 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-4-280	280	4	IP20	1	61,000	**5093513**

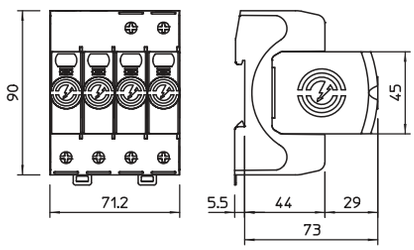
/pc.

Lightning current combination arrestor, type 2

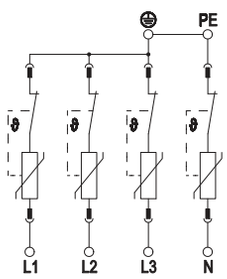
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-4-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	160 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Combination arrestor V50, 4-pole with FS 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-4+FS-280	280	4	IP20	1	61,500	**5093518**

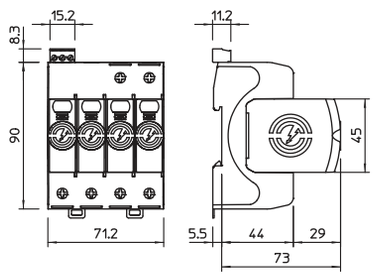
/pc.

Lightning current combination arrestor, type 2

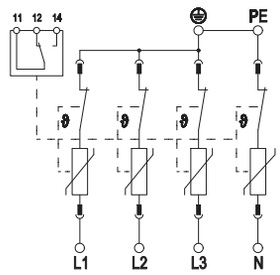
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-4+FS-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	160 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50, 1-pole + NPE 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE-280	280	1+N/PE	IP20	1	30,300	**5093522**

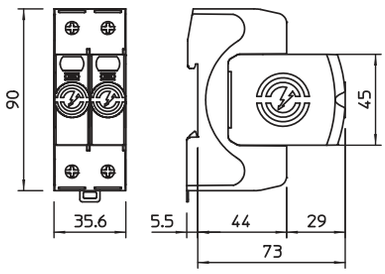
/pc.

Lightning current combination arrestor, type 2

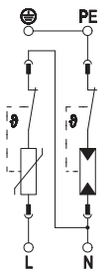
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-1+NPE-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	25 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	– kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50, 1-pole + NPE with FS 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE+FS-280	280	1+N/PE	IP20	1	30,600	**5093531**

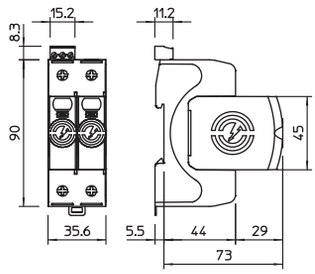
/pc.

Lightning current combination arrestor, type 2

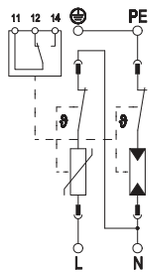
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-1+NPE+FS-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	12.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50, 3-pole + NPE 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+NPE-280	280	3+N/PE	IP20	1	58,800	**5093526**

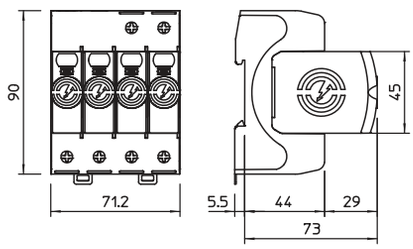
/pc.

Lightning current combination arrestor, type 2

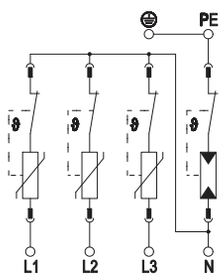
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+NPE-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Combination arrestor V50, 3-pole + NPE with FS 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+NPE+FS-280	280	3+N/PE	IP20	1	59,300	**5093533**

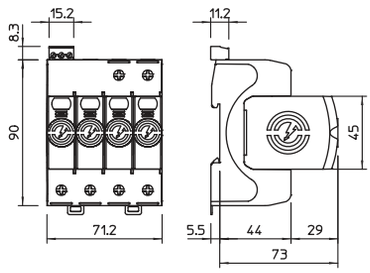
/pc.

Lightning current combination arrestor, type 2

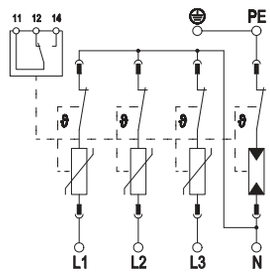
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+NPE+FS-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 280 V with NPE, type 1+2

Combination arrestor V50, 2-pole + NPE 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-2+NPE-280	280	2+N/PE	IP20	1	44,300	**5093524**

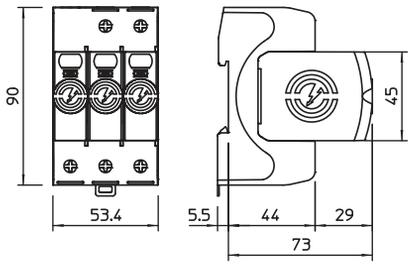
/pc.

Lightning current combination arrestor, type 2

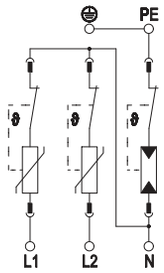
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-2+NPE-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	37.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Combination arrestor V50 in 320 V, type 1+2

Combination arrestor V50, 1-pole 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1-320	320	1	IP20	1	17,200	**5093540**

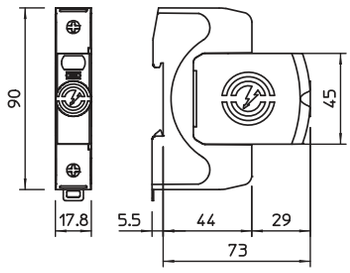
PA Polyamide /pc.

Lightning current combination arrestor, type 2

- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options

V50-1-320

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	300 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	— kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	0,85 kV
Protection level [L-N] @ 5 kA	U_{res}	0,95 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Combination arrestor V50, 1-pole with FS 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+FS-320	320	1	IP20	1	17,200	**5093546**

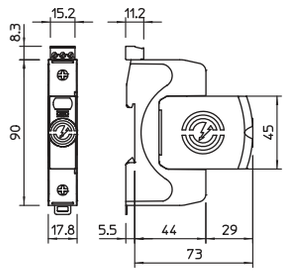
PA Polyamide /pc.

Lightning current combination arrestor, type 2

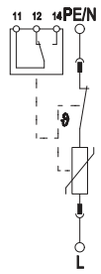
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-1+FS-320

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	300 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	— kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	0,85 kV
Protection level [L-N] @ 5 kA	U_{res}	0,95 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50, 3-pole 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3-320	320	3	IP20	1	48,900	**5093542**

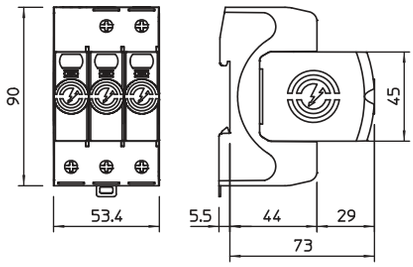
PA Polyamide /pc.

Lightning current combination arrestor, type 2

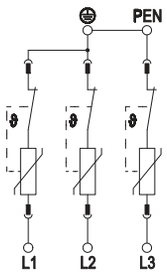
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3-320

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	300 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	37.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	0,85 kV
Protection level [L-N] @ 5 kA	U_{res}	0,95 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Always indicate the item number when ordering.

Combination arrestor V50, 3-pole with FS 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+FS-320	320	3	IP20	1	49,300	**5093548**

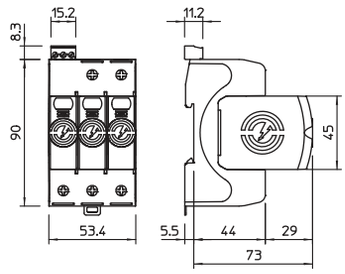
PA Polyamide /pc.

Lightning current combination arrestor, type 2

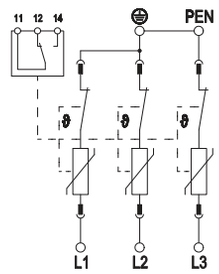
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+FS-320

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	300 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	37.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	0,85 kV
Protection level [L-N] @ 5 kA	U_{res}	0,95 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50, 1-pole + NPE 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE-320	320	1+N/PE	IP20	1	31,100	**5093552**

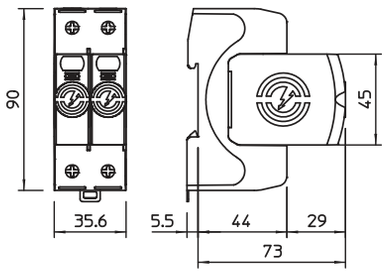
PA Polyamide /pc.

Lightning current combination arrestor, type 2

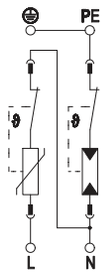
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-1+NPE-320

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	300 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	– kA
Arrestor surge current (8/20 µs) [total]	I_{total}	– kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	0,85 kV
Protection level [L-N] @ 5 kA	U_{res}	0,95 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Combination arrestor V50, 1-pole + NPE with FS 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE+FS-320	320	1+N/PE	IP20	1	31,100	**5093560**

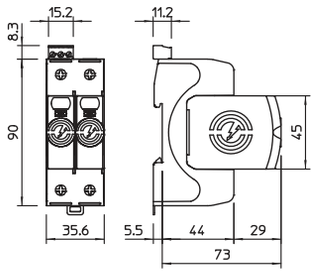
PA Polyamide /pc.

Lightning current combination arrestor, type 2

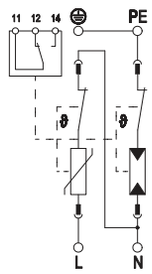
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-1+NPE+FS-320

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	300 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	12.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	0,85 kV
Protection level [L-N] @ 5 kA	U_{res}	0,95 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 320 V with NPE, type 1+2

Combination arrestor V50, 3-pole + NPE 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+NPE-320	320	3+N/PE	IP20	1	61,200	**5093554**

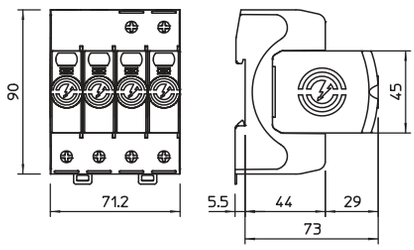
PA Polyamide /pc.

Lightning current combination arrestor, type 2

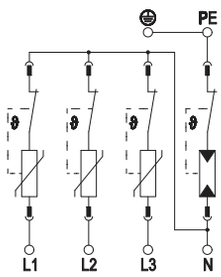
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+NPE-320

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	300 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	0,85 kV
Protection level [L-N] @ 5 kA	U_{res}	0,95 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Combination arrestor V50, 3-pole + NPE with FS 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+NPE+FS-320	320	3+N/PE	IP20	1	61,700	**5093562**

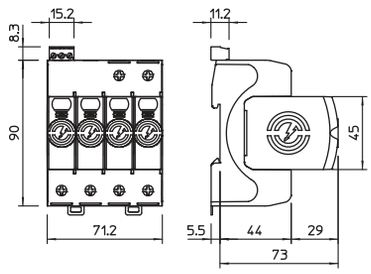
PA Polyamide /pc.

Lightning current combination arrestor, type 2

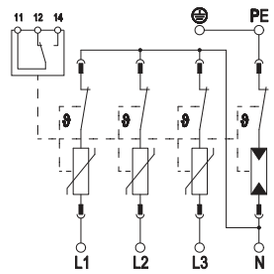
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+NPE+FS-320

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	300 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	0,85 kV
Protection level [L-N] @ 5 kA	U_{res}	0,95 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 385 V, type 1+2

Combination arrestor V50, 1-pole 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1-385	385	1	IP20	1	18,300	**5093572**

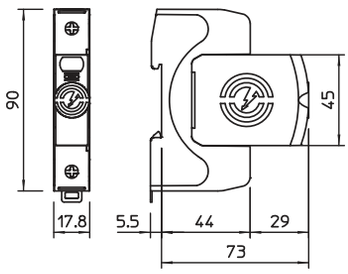
PA Polyamide /pc.

Lightning current combination arrestor, type 2

- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options

V50-1-385

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	350 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	— kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.8 kV
Protection level [L-N] @ 1 kA	U_{res}	1,1 kV
Protection level [L-N] @ 5 kA	U_{res}	1,2 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Combination arrestor V50, 1-pole with FS 385 V

LPZ 0→2 | Type 1+2 | FS

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+FS-385	385	1	IP20	1	18,500	**5093578**

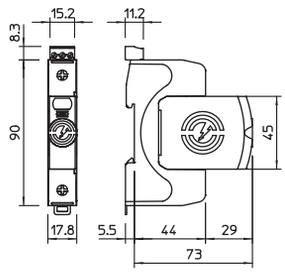
PA Polyamide /pc.

Lightning current combination arrestor, type 2

- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options

V50-1+FS-385

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	— V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	— kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.8 kV
Protection level [L-N] @ 1 kA	U_{res}	1,1 kV
Protection level [L-N] @ 5 kA	U_{res}	1,2 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 385 V, type 1+2

Combination arrestor V50, 3-pole 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3-385	385	3	IP20	1	52,200	**5093574**

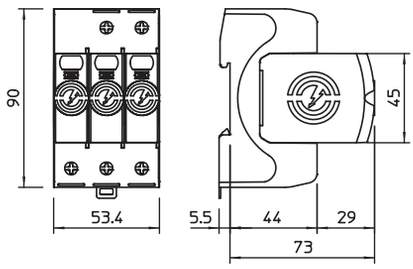
PA Polyamide /pc.

Lightning current combination arrestor, type 2

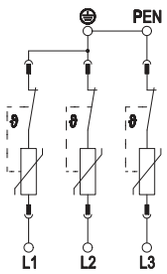
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3-385		
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	350 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	37.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.8 kV
Protection level [L-N] @ 1 kA	U_{res}	1,1 kV
Protection level [L-N] @ 5 kA	U_{res}	1,2 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Combination arrestor V50, 3-pole with FS 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+FS-385	385	3	IP20	1	52,600	**5093580**

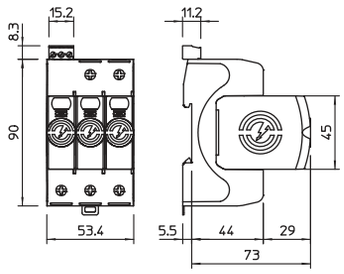
PA Polyamide /pc.

Lightning current combination arrestor, type 2

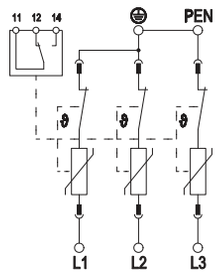
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+FS-385

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	— V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	37.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.8 kV
Protection level [L-N] @ 1 kA	U_{res}	1,1 kV
Protection level [L-N] @ 5 kA	U_{res}	1,2 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 385 V with NPE, type 1+2

Combination arrestor V50, 1-pole + NPE 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE-385	385	1+N/PE	IP20	1	32,200	**5093584**

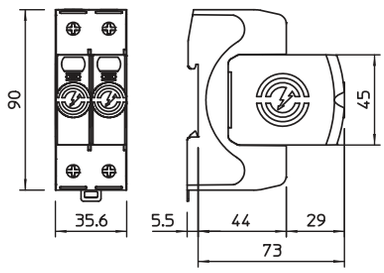
PA Polyamide /pc.

Lightning current combination arrestor, type 2

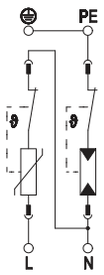
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-1+NPE-385

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	350 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	— kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.8 kV
Protection level [L-N] @ 1 kA	U_{res}	1,1 kV
Protection level [L-N] @ 5 kA	U_{res}	1,2 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Combination arrestor V50, 1-pole + NPE with FS 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE+FS-385	385	1+N/PE	IP20	1	32,500	**5093590**

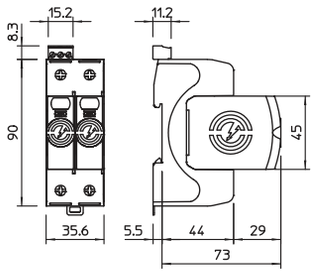
PA Polyamide /pc.

Lightning current combination arrestor, type 2

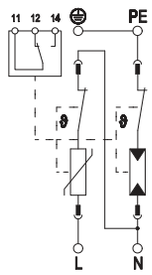
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-1+NPE+FS-385

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	350 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	12.5 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	— kA
Protection level [L-N]	U_p	1.8 kV
Protection level [L-N] @ 1 kA	U_{res}	1,1 kV
Protection level [L-N] @ 5 kA	U_{res}	1,2 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 in 385 V with NPE, type 1+2

Combination arrestor V50, 3-pole + NPE 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+NPE-385	385	3+N/PE	IP20	1	64,500	**5093586**

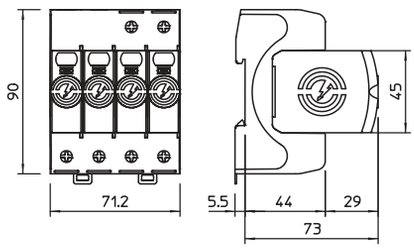
PA Polyamide /pc.

Lightning current combination arrestor, type 2

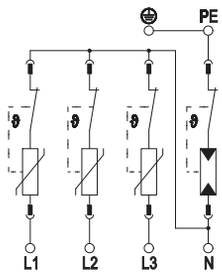
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+NPE-385

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	350 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.8 kV
Protection level [L-N] @ 1 kA	U_{res}	1,1 kV
Protection level [L-N] @ 5 kA	U_{res}	1,2 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Combination arrestor V50, 3-pole + NPE with FS 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+NPE+FS-385	385	3+N/PE	IP20	1	65,000	**5093592**

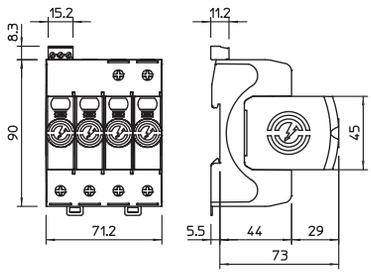
PA Polyamide /pc.

Lightning current combination arrestor, type 2

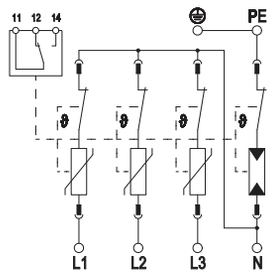
- For the equipotential bonding of lightning current to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

Dimensions



Connection options



V50-3+NPE+FS-385

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	350 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.8 kV
Protection level [L-N] @ 1 kA	U_{res}	1,1 kV
Protection level [L-N] @ 5 kA	U_{res}	1,2 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Combination arrestor V50 upper part, type 1+2

Upper part V50 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-0-150	150	—	IP20	1	7,660	**5093505**

/pc.

Upper part, lightning current combination arrestor, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Upper part V50 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-0-280	280	—	IP20	1	8,500	**5093508**

/pc.

Upper part, lightning current combination arrestor, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Upper part V50 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-0-320	320	—	IP20	1	9,160	**5093509**

/pc.

Upper part, lightning current combination arrestor, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Upper part V50 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-0-385	385	—	IP20	1	10,260	**5093510**

/pc.

Upper part, lightning current combination arrestor, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole
- Modular, plug-in arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Upper part NPE-C50

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
C50-0-255	255	N/PE	IP20	1	6,000	**5095609**

/pc.

Combination arrestor, lightning current and surge arrestor, type 1+2
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Arrestor, plug-in, with dynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrestor for use in distributor housings

Application: Residential building with external lightning protection of Class III and IV.

Always indicate the item number when ordering.

The plus of the Protection Set MCD

Combination arrestor, protection set, energy technology, type 1+2

+ Connectable arrestor combination, type 1+2
+ High arresting capacity of 100 kA (10/350)
+ Visual status display on surge protection device
+ Available with optional remote signalling
+ Labelled connections
+ Encapsulated, non-extinguishing arrestor

Protection set MCD
Combination arrestors

Function and areas of use
The lightning current and surge arrestor combination and protection set meet the type 1+2 requirement class according to IEC 61643-11. The arrestor combination protects low-voltage consumer systems from lightning currents and surge voltages of all types and is available in single-pole to two-pole versions. The separate structure fulfils the requirements for a separate surge protection device and provides optimum protection of the electronic components. The arrestor combination is pre-mounted for DIN rail mounting.

Protection set MCD + V20 1-pole + NPE

230/400 V System | Type 1+2 | LPZ 0→2

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS 2-B+C/TT+TNS	255	1 + NPE	1	101,000	**5089748**

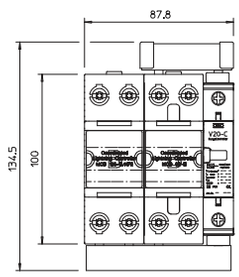
/pc.

Protection set, lightning and surge arrestor combination, type 1+2

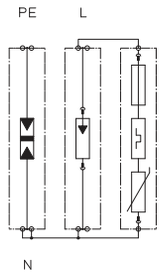
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: Mobile telecommunications systems and industrial systems with special requirements.

Dimensions



Connection options



PS 2-B+C/TT+TNS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		5
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Combination arrestor, protection set for TN and TT network systems

Protection set MCD + V20 3-pole + NPE

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS4-B+C TT+TNS	255	3 + NPE	1	206,000	**5089761**

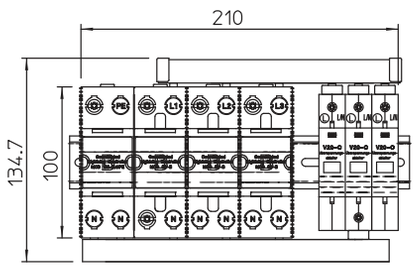
/pc.

Protection set, lightning and surge arrestor combination, type 1+2

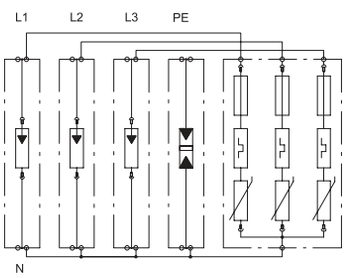
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: Mobile telecommunications systems and industrial systems with special requirements.

Dimensions



Connection options



PS4-B+C TT+TNS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		12
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

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Always indicate the item number when ordering.

Protection set MCD + V20 3-pole + NPE with remote signalling

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS4-B+C TNS+FS	255	3 + NPE	1	211,000	**5089763**

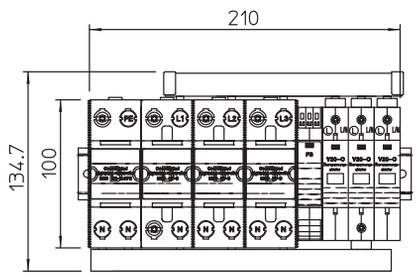
/pc.

Series PS...: Protection Set, Type 1+2 (Class B+C) lightning and surge arrestor to VDE 0675 Part 6-11 (DIN EN 61643-11).

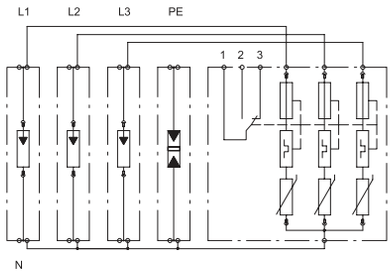
- Arresting capacity 100 kA 10/350 µs BET tested
- Pre-mounted and ready for connection, including connecting bridges, connection terminals marked
- With remote signalling, potential-free NO contact, for function monitoring
- For use in TN-C network system

Note: Max. backup fuse (required only if not already fitted in network) 125 A gL/gG.

Dimensions



Connection options



PS4-B+C TNS+FS		
Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		12
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Combination arrestor, protection set for TN-C network systems

Protection set MCD + V20 3-pole

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS3-B+C TNC	255	3-pole	1	158,000	**5089754**

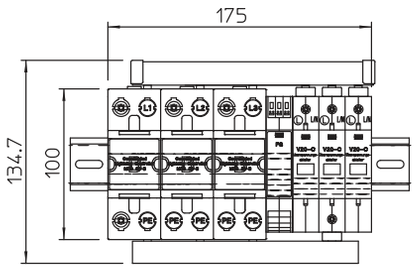
/pc.

Protection set, lightning and surge arrestor combination, type 1+2

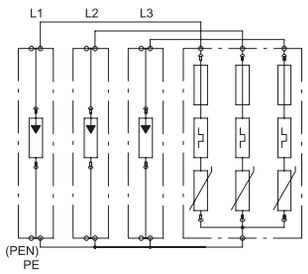
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: Mobile telecommunications systems and industrial systems with special requirements.

Dimensions



Connection options



PS3-B+C TNC

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	< 1,3 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		10
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Protection set MCD + V20 3-pole with remote signalling

230/400 V System | Type 1+2 | LPZ 0→2 | FS

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS3-B+C TNC+FS	255	3-pole	1	163,000	**5089756**

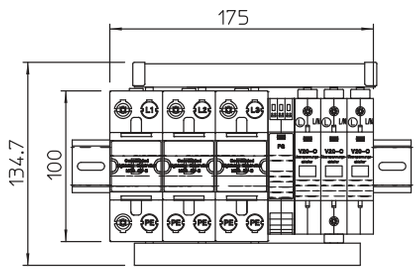
/pc.

Series PS...: Protection Set,, Type 1+2 (Class B+C) lightning and surge arrestor to VDE 0675 Part 6-11 (DIN EN 61643-11).

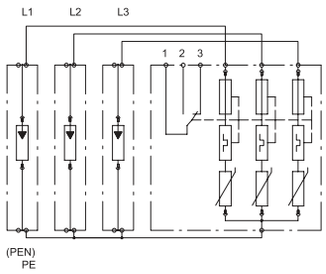
- Arresting capacity 100 kA 10/350 µs BET tested
- Pre-mounted and ready for connection, including connecting bridges, connection terminals marked
- With remote signalling, potential-free NO contact, for function monitoring
- For use in TN-C network system

Note: Max. backup fuse (required only if not already fitted in network) 125 A gL/gG.

Dimensions



Connection options



PS3-B+C TNC+FS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		10
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Combination arrestor, protection set for TN-C network systems

Protection set MCD + V20 3-pole

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS3-B+C-320	320	3-pole	1	160,000	**5089755**

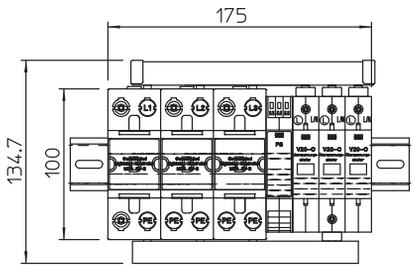
/pc.

Protection set, lightning and surge arrestor combination, type 1+2

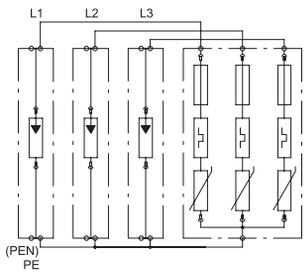
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: Mobile telecommunications systems and industrial systems with special requirements.

Dimensions



Connection options



PS3-B+C-320

Nominal voltage	U_N	320 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	< 1,7 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		10
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

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Always indicate the item number when ordering.

Protection set MCD + V20 3-pole with remote signalling

Type 1+2 | LPZ 0→2 | 230/400 V System | Type 1+2 | LPZ 0→2 | FS

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS3-B+C-320+FS	320	3-pole	1	170,000	**5089757**

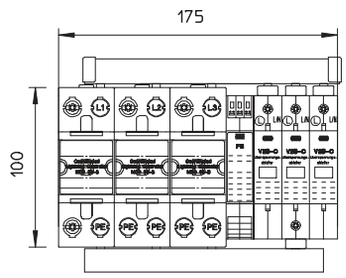
/pc.

Protection set, lightning and surge arrestor combination, type 1+2

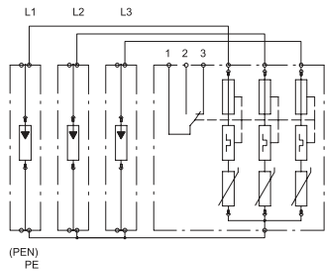
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: Mobile telecommunications systems and industrial systems with special requirements.

Dimensions



Connection options



PS3-B+C-320+FS

Nominal voltage	U_N	320 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	<1,7 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		10
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Protection set MCD + V20, leakage current-free, 3-pole + NPE

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS4-VA TT+TNS	255	3 + NPE	1	210,000	**5089770**

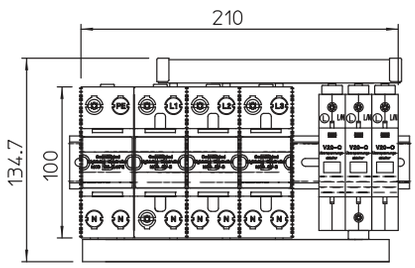
/pc.

Protection set VA, lightning and surge arrestor combination, type 1+2

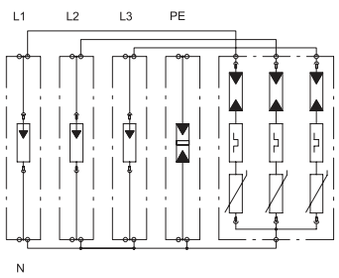
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Free of leak current and suitable for use in pre-meter area according to the VDEW directive
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: pre-meter area and industrial systems with special requirements.

Dimensions



Connection options



PS4-VA TT+TNS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		12
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

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Always indicate the item number when ordering.

Protection set MCD + V20, leakage current-free, 3-pole + NPE with remote signalling

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS4-VA TT+FS	255	3 + NPE	1	215,000	**5089777**

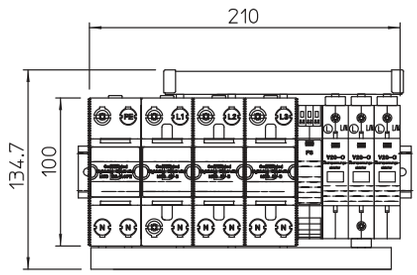
/pc.

Protection set VA, lightning and surge arrestor combination, type 1+2

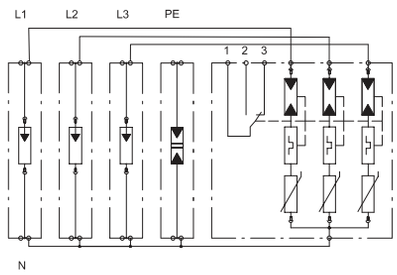
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Free of leak current and suitable for use in pre-meter area according to the VDEW directive
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: pre-meter area and industrial systems with special requirements.

Dimensions



Connection options



PS4-VA TT+FS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		12
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Combination arrestor, protection set VA for TN and TT network systems

Protection set MCD + V20, leakage current-free, 3-pole

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS3-VA TNC	255	3-pole	1	162,000	**5089768**

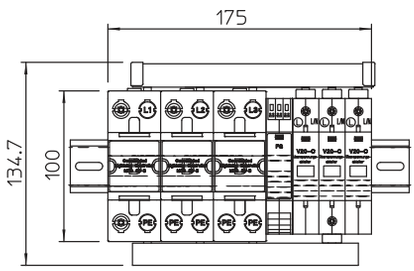
/pc.

Protection set VA, lightning and surge arrestor combination, type 1+2

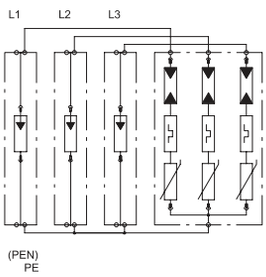
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Free of leak current and suitable for use in pre-meter area according to the VDEW directive
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: pre-meter area and industrial systems with special requirements.

Dimensions



Connection options



PS3-VA TNC

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		10
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Protection set MCD + V20, leakage current-free, 3-pole with remote signalling

230/400 V System | Type 1+2 | LPZ 0→2

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
PS3-VA TNC+FS	255	3-pole	1	167,000	**5089775**

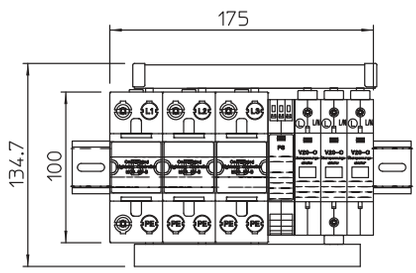
/pc.

Protection set VA, lightning and surge arrestor combination, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Free of leak current and suitable for use in pre-meter area according to the VDEW directive
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: pre-meter area and industrial systems with special requirements.

Dimensions



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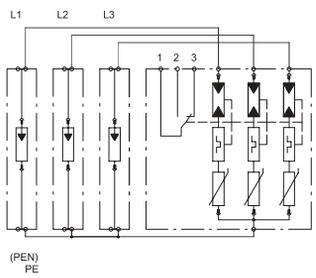


PS3-VA TNC+FS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	100 kA
Total discharge current (10/350)	I_{total}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	100 kA
Maximum discharge current (8/20 µs)	I_{max}	100 kA
Voltage protection level	U_p	<1,3 kV
Response time	t_A	<25 ns
Follow current quenching capacity (eff) [N-PE]	I_{fi}	25 kA
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +85 °C
Division unit TE (17.5 mm)		10
Protection rating		IP20
Connection cross-section rigid		10 - 50 mm²
Connection cross-section, multi-wire		10 - 35 mm²
Connection cross-section, flexible		10 - 25 mm²

Always indicate the item number when ordering.

Combination arrestor V50, 1-pole + NPE 280 V

LPZ 0→2 | Type 1+2 | Fluor Green | 5

Type	Highest continuous voltage AC V	Pole version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-V50-1+NPE-280	280	1+N/PE	1	80,635	**5093594**

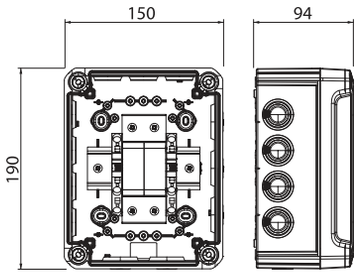
/pc.

Lightning current combination arrestor, type 1+2 to DIN EN 61643-11

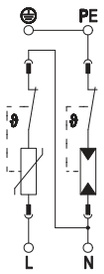
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Complete unit, pre-mounted and ready for connection in polycarbonate housing (IP66)
- Lightning current arresting capacity 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total

Application: Lightning protection equipotential bonding for buildings of Class III and IV.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-V50-1+NPE-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	25 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	50 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP66
Approvals		UL, ÖVE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Combination arrestor V50, 3-pole + NPE 280 V

LPZ 0→2 | Type 1+2

Type	Highest continuous voltage AC V	Pole version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-V50-3+NPE-280	280	3+N/PE	1	108,900	**5093596**

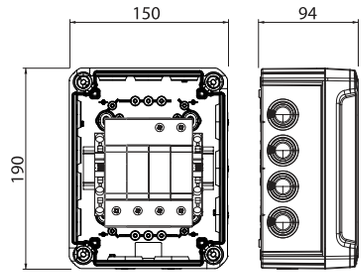
/pc.

Lightning current combination arrestor, type 1+2 to DIN EN 61643-11

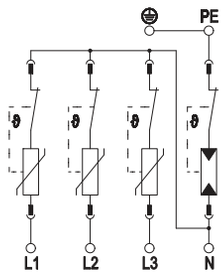
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Complete unit, pre-mounted and ready for connection in polycarbonate housing (IP66)
- Lightning current arresting capacity 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total

Application: Lightning protection equipotential bonding for buildings of Class III and IV.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-V50-3+NPE-280

SPD to EN 61643-11		Type 1+2
SPD to IEC 61643-11		Class I+II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Lightning surge current (10/350 µs)	I_{imp}	12.5 kA
Total discharge current (10/350)	I_{total}	50 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	50 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP66
Approvals		UL, ÖVE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge protection
Energy technology
Arrestor type 2

Always indicate the item number when ordering.

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Surge protection
Energy technology, type 2 arrestor

	Surge arrestor V20, 75 V	186
	Surge arrestor V20, 150 V	190
	Surge arrestor V20, 280 V	198
	Surge arrestor V20, 320 V	212
	Surge arrestor V20, 385 V	220
	Surge arrestor V20, 440 V	230
	Surge arrestor V20, 550 V	231
	System solution, surge arrestor V20 in housing	238
	Accessories, upper parts and bases V20	240

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Always indicate the item number when ordering.

Surge protection energy technology, arrestor, type 2
The plus of the V20 family

+ Connectable surge arrestor
+ High arresting capacity
+ Visual status display
+ Available with optional remote signalling
+ Vibration-proof
+ Simple standard DIN rail mounting
+ Labelled connections
+ Voltage encoding

Surge arrestor V20

Function and areas of use
The surge arrestors V20 meet the type 2 requirement class according to IEC 61643-11. These devices protect low-voltage consumer systems from overvoltages of all types and are available in single-pole to four-pole versions. The use of high-performance varistors permits a rapid response time and a low protection level, without any line follow current. If circumstances are uncertain and there is a risk of fire from an overload, the internal cut-off unit disconnects the arrester from the mains if necessary. In addition, the QR code printed on the arrestor allows direct access to the online installation instructions.

Diese Anlage ist mit Überspannungsschutzgeräten ausgerüstet.
Bei Isolationsmessungen bitte die OBO Schutzmodule herausziehen bzw. abklemmen.
System contains overvoltage protection devices. Please remove or disconnect the OBO protectors during isolation tests.
OBO
PE
PE
V20
V20
V20
C20
V20
V20
V20
C20
L1
L2
L3
N
L1
L2
L3
N
V20, Typ 2 Überspannun
-2X1
-3X1

Type 2, surge arrestor V20

1-pole

Volts	Item no.	Page
75	5095 14 1	186
150	5095 15 1	190
280	5095 16 1	198
320	5095 17 1	212
385	5095 19 1	220
440	5095 20 1	230
550	5095 21 1	231

2-pole

Volts	Item no.	Page
75	5095 14 2	188
150	5095 15 2	192
280	5095 16 2	200
385	5095 19 2	222
550	5095 21 2	232

3-pole

Volts	Item no.	Page
150	5095 15 3	193
280	5095 16 3	202
320	5095 17 3	214
385	5095 19 3	224
550	5095 21 3	234

4-pole

Volts	Item no.	Page
280	5095 16 4	204
385	5095 19 4	228
550	5095 21 4	236

Type 2, surge arrestor V20 with remote signalling

1-pole + FS

Volts	Item no.	Page
280	5095 28 1	199
320	5095 29 1	213

2-pole + FS

Volts	Item no.	Page
280	5095 28 2	201
385	5095 30 2	223
550	5095 31 2	233

3-pole + FS

Volts	Item no.	Page
280	5095 28 3	203
320	5095 29 3	215
385	5095 30 3	225
550	5095 31 3	235

4-pole + FS

Volts	Item no.	Page
280	5095 28 4	205
385	5095 30 4	229
550	5095 31 4	237

Always indicate the item number when ordering.

Type 2, surge arrestor V20 + NPE

1-pole + NPE

Volts	Item no.	Page
75	5095 22 1	187
150	5095 23 1	191
280	5095 25 1	206
320	5095 26 1	216
385	5095 27 1	221

2-pole + NPE

Volts	Item no.	Page
150	5095 23 2	194
280	5095 25 2	208

3-pole + NPE

Volts	Item no.	Page
150	5095 23 3	196
280	5095 25 3	210
320	5095 26 3	218
385	5095 27 3	226

Cover - V20

Volts	Item no.	Page
75	5095 36 0	240
150	5095 36 2	240
280	5095 36 4	240
320	5095 36 6	241
385	5095 36 8	242
440	5095 37 0	242
550	5095 37 2	242

Type 2, surge arrestor V20 + NPE with remote signalling

1-pole + NPE + FS

Volts	Item no.	Page
280	5095 33 1	207
320	5095 34 1	217

2-pole + NPE + FS

Volts	Item no.	Page
150	5095 32 2	195
280	5095 33 2	209

3-pole + NPE + FS

Volts	Item no.	Page
150	5095 32 1	197
280	5095 33 3	211
320	5095 34 3	219
385	5095 35 3	227

Cover NPE - C20

Volts	Item no.	Page
255	5095 60 0	243

Type 2, surge arrestor V20 in housing

1-pole + NPE

Volts	Item no.	Page
280	5095 38 1	238

3-pole + NPE

Volts	Item no.	Page
280	5095 38 3	239

Always indicate the item number when ordering.

Surge arrestor V20, 1-pole 75 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1-75	75	1	IP20	1	11,500	**5095141**

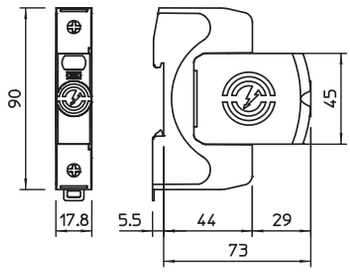
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options

V20-1-75

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	60 V
Maximum continuous voltage AC	U_C	75 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	40 kA
Protection level [L-N]	U_p	0.5 kV
Protection level [L-N] @ 1 kA	U_{res}	0,3 kV
Protection level [L-N] @ 5 kA	U_{res}	0,35 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		25 kA
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Surge arrestor V20, 1-pole + NPE, 75 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+NPE-75	75	1+N/PE	IP20	1	22,900	**5095221**

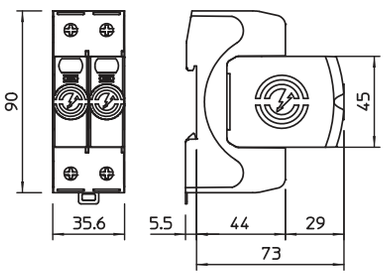
/pc.

Surge arrestor, type 2

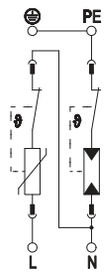
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-1+NPE-75

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	60 V
Maximum continuous voltage AC	U_C	75 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	0.5 kV
Protection level [L-N] @ 1 kA	U_{res}	0,3 kV
Protection level [L-N] @ 5 kA	U_{res}	0,35 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 2-pole, 75 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2-75	75	2	IP20	1	22,800	**5095142**

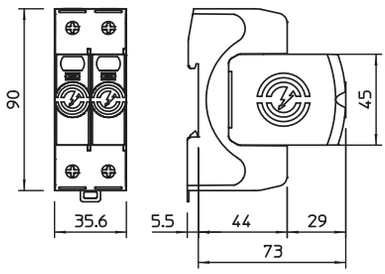
/pc.

Surge arrestor, type 2

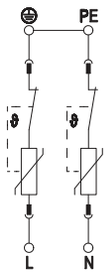
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2-75

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	60 V
Maximum continuous voltage AC	U_C	75 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	0.5 kV
Protection level [L-N] @ 1 kA	U_{res}	0,3 kV
Protection level [L-N] @ 5 kA	U_{res}	0,35 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Surge arrestor V20, 1-pole, 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1-150	150	1	IP20	1	11,900	**5095151**

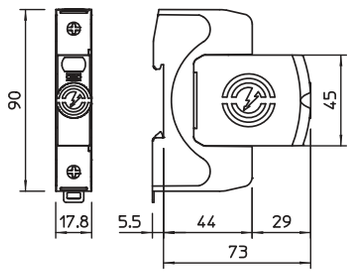
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options

V20-1-150

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	120 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	40 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,5 kV
Protection level [L-N] @ 5 kA	U_{res}	0,65 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Surge arrestor V20, 1-pole+ NPE, 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+NPE-150	150	1+N/PE	IP20	1	23,300	**5095231**

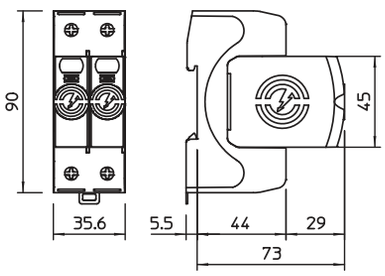
/pc.

Surge arrestor, type 2

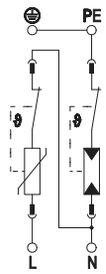
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-1+NPE-150		
SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	120 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,5 kV
Protection level [L-N] @ 5 kA	U_{res}	0,65 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 2-pole, 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2-150	150	2	IP20	1	23,600	**5095152**

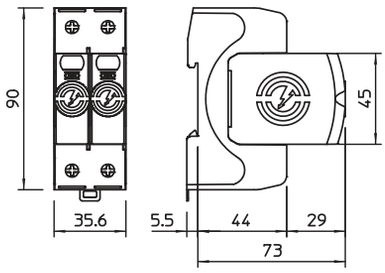
/pc.

Surge arrestor, type 2

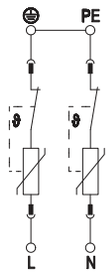
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2-150

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	120 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,5 kV
Protection level [L-N] @ 5 kA	U_{res}	0,65 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Surge arrestor V20, 3-pole, 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3-150	150	3	IP20	1	33,000	**5095153**

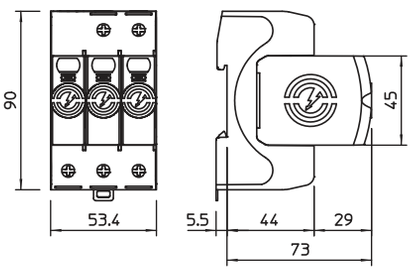
/pc.

Surge arrestor, type 2

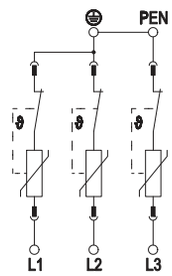
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3-150		
SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	120 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,5 kV
Protection level [L-N] @ 5 kA	U_{res}	0,65 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 2-pole + NPE, 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2+NPE-150	150	2+N/PE	IP20	1	32,800	**5095232**

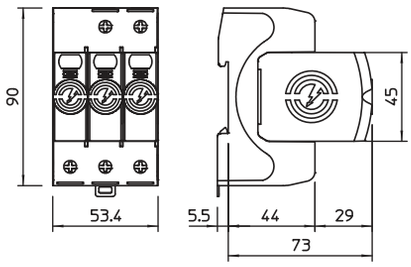
/pc.

Surge arrestor, type 2

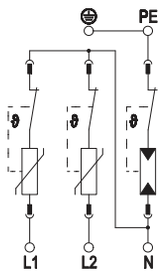
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2+NPE-150

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	120 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,5 kV
Protection level [L-N] @ 5 kA	U_{res}	0,65 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Surge arrestor V20, 2-pole + NPE and FS, 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2+NPE+FS-150	150	2+N/PE	IP20	1	33,200	**5095322**

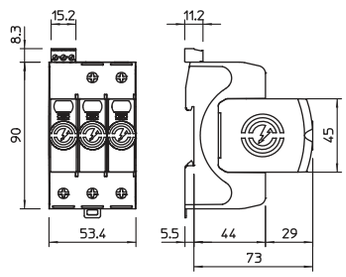
/pc.

Surge arrestor, type 2

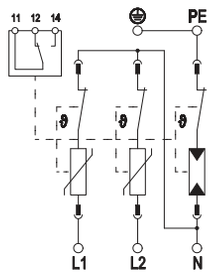
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2+NPE+FS-150

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	120 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,5 kV
Protection level [L-N] @ 5 kA	U_{res}	0,65 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 3-pole + NPE, 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE-150	150	3+N/PE	IP20	1	42,700	**5095233**

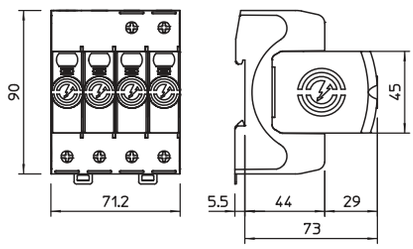
/pc.

Surge arrestor, type 2

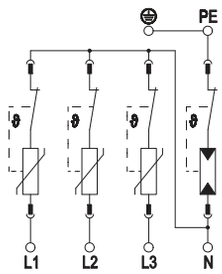
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+NPE-150

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	120 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,5 kV
Protection level [L-N] @ 5 kA	U_{res}	0,65 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Surge arrestor V20, 3-pole+ NPE and FS, 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE+FS-150	150	3+N/PE	IP20	1	43,300	**5095321**

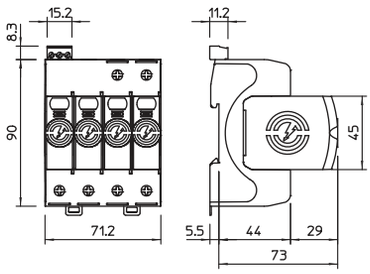
/pc.

Surge arrestor, type 2

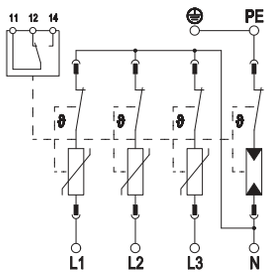
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+NPE+FS-150

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	120 V
Maximum continuous voltage AC	U_C	150 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	0.8 kV
Protection level [L-N] @ 1 kA	U_{res}	0,5 kV
Protection level [L-N] @ 5 kA	U_{res}	0,65 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 1-pole, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1-280	280	1	IP20	1	12,900	**5095161**

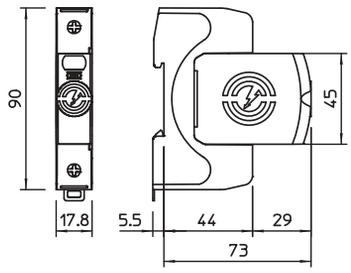
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options

V20-1-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	40 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 1-pole with remote signalling, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+FS-280	280	1	IP20	1	13,100	**5095281**

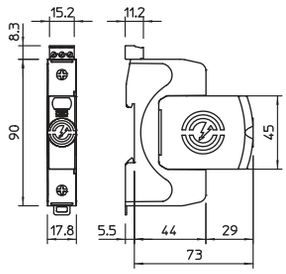
/pc.

Surge arrestor, type 2

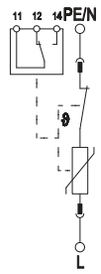
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-1+FS-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	40 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 2-pole, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2-280	280	2	IP20	1	25,600	**5095162**

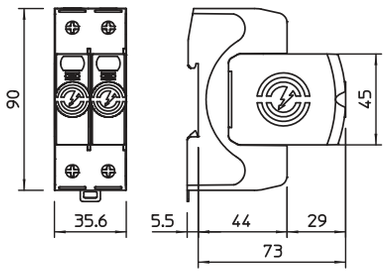
/pc.

Surge arrestor, type 2

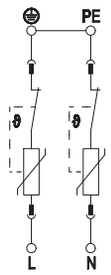
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Surge arrestor V20, 2-pole with remote signalling, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2+FS-280	280	2	IP20	1	25,900	**5095282**

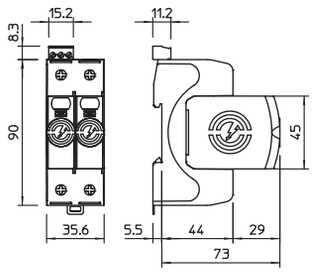
/pc.

Surge arrestor, type 2

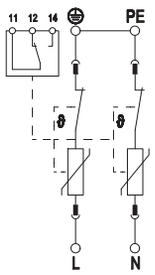
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2+FS-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 3-pole, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3-280	280	3	IP20	1	36,000	**5095163**

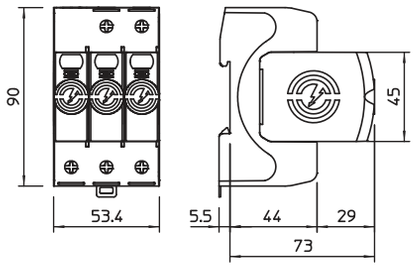
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



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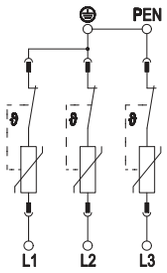

V20-3-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Surge arrestor V20, 3-pole with remote signalling, 280 V

Type 2 | LPZ 1→2 | FS

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+FS-280	280	3	IP20	1	36,400	**5095283**

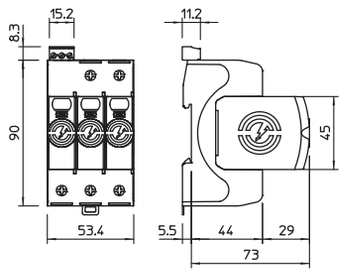
/pc.

Surge arrestor, type 2

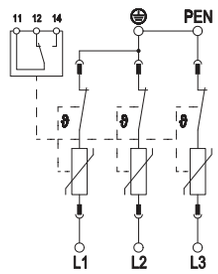
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+FS-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 4-pole, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-4-280	280	4	IP20	1	47,000	**5095164**

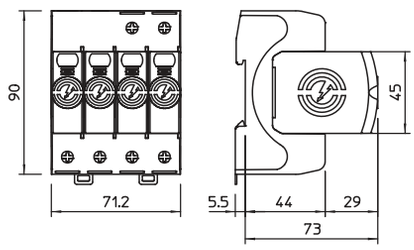
/pc.

Surge arrestor, type 2

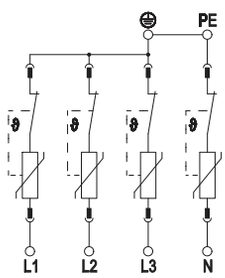
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-4-280		
SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	160 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Surge arrestor V20, 4-pole with remote signalling, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-4+FS-280	280	4	IP20	1	47,500	**5095284**

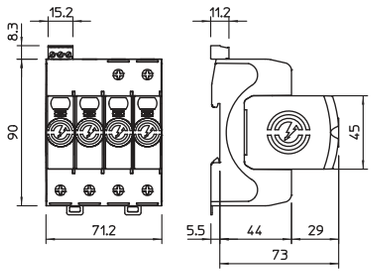
/pc.

Surge arrestor, type 2

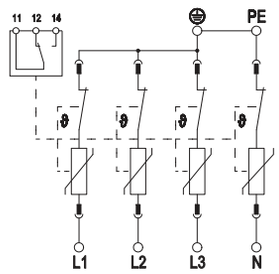
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-4+FS-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	160 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 1-pole + NPE, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+NPE-280	280	1+N/PE	IP20	1	24,300	**5095251**

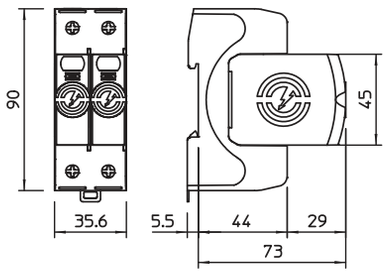
/pc.

Surge arrestor, type 2

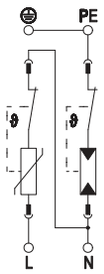
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-1+NPE-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Surge arrestor V20, 1-pole + NPE and remote signalling, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+NPE+FS-280	280	1+N/PE	IP20	1	24,600	**5095331**

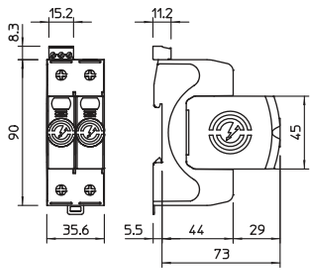
/pc.

Surge arrestor, type 2

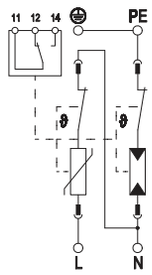
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-1+NPE+FS-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 2-pole + NPE, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2+NPE-280	280	2+N/PE	IP20	1	34,600	**5095252**

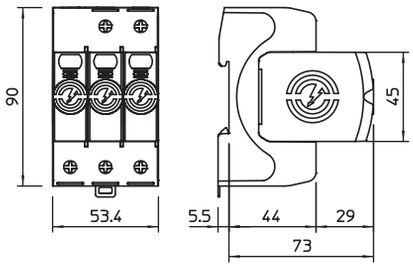
/pc.

Surge arrestor, type 2

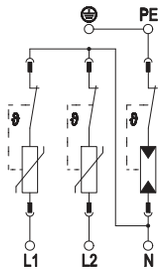
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2+NPE-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Surge arrestor V20, 2-pole + NPE and remote signalling, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2+NPE+FS-280	280	2+N/PE	IP20	1	34,800	**5095332**

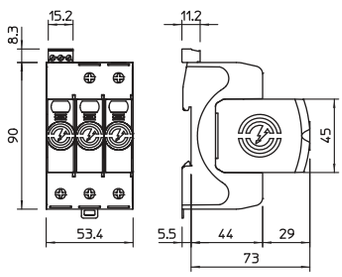
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



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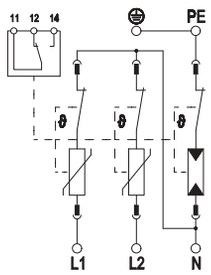


V20-2+NPE+FS-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 3-pole + NPE, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE-280	280	3+N/PE	IP20	1	45,800	**5095253**

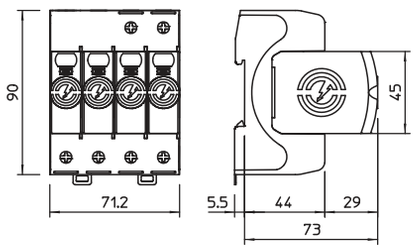
/pc.

Surge arrestor, type 2

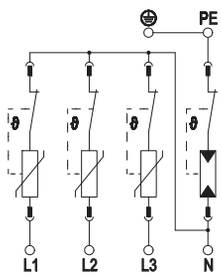
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+NPE-280		
SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Surge arrestor V20, 3-pole + NPE and remote signalling, 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE+FS-280	280	3+N/PE	IP20	1	46,300	**5095333**

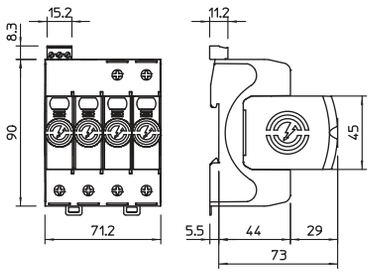
/pc.

Surge arrestor, type 2

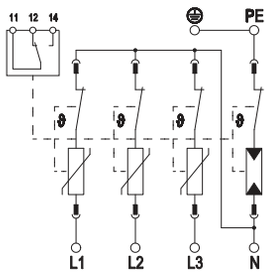
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+NPE+FS-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 1-pole, 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1-320	320	1	IP20	1	13,000	**5095171**

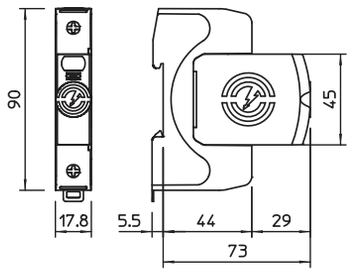
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options

V20-1-320

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	40 kA
Protection level [L-N]	U_p	1.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,0 kV
Protection level [L-N] @ 5 kA	U_{res}	1,3 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 1-pole with remote signalling, 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+FS-320	320	1	IP20	1	13,200	**5095291**

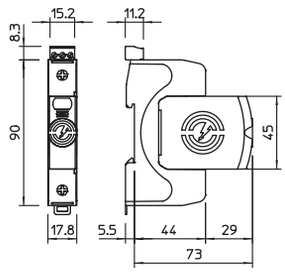
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options

V20-1+FS-320

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	40 kA
Protection level [L-N]	U_p	1.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,0 kV
Protection level [L-N] @ 5 kA	U_{res}	1,3 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 3-pole, 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3-320	320	3	IP20	1	36,300	**5095173**

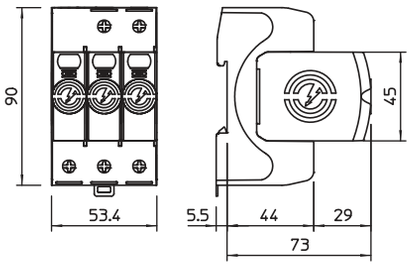
/pc.

Surge arrestor, type 2

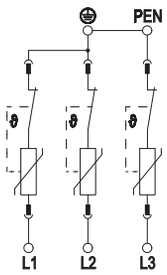
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3-320

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,0 kV
Protection level [L-N] @ 5 kA	U_{res}	1,3 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Surge arrestor V20, 3-pole with remote signalling, 320 V

Type 2 | LPZ 1→2 | FS

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+FS-320	320	3	IP20	1	36,700	**5095293**

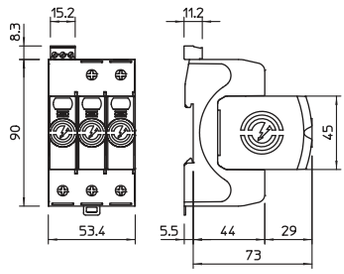
/pc.

Surge arrestor, type 2

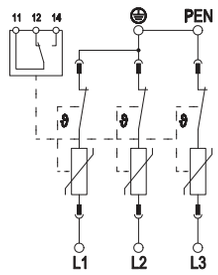
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+FS-320

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,0 kV
Protection level [L-N] @ 5 kA	U_{res}	1,3 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 1-pole + NPE, 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+NPE-320	320	1+N/PE	IP20	1	24,400	**5095261**

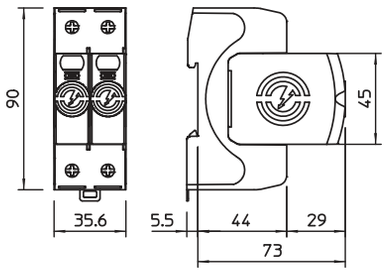
/pc.

Surge arrestor, type 2

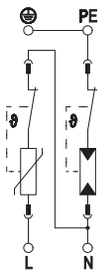
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-1+NPE-320

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,0 kV
Protection level [L-N] @ 5 kA	U_{res}	1,3 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Surge arrestor V20, 1-pole + NPE and remote signalling, 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+NPE+FS-320	320	1+N/PE	IP20	1	24,700	**5095341**

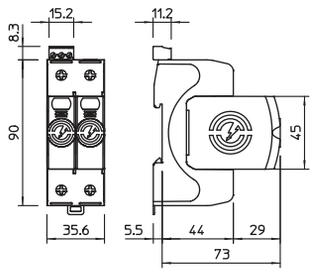
/pc.

Surge arrestor, type 2

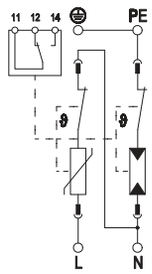
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-1+NPE+FS-320

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	1,0 kV
Protection level [L-N] @ 5 kA	U_{res}	1,3 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 3-pole + NPE, 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE-320	320	3+N/PE	IP20	1	46,100	**5095263**

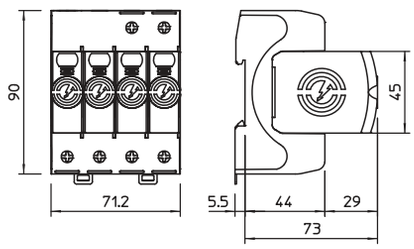
/pc.

Surge arrestor, type 2

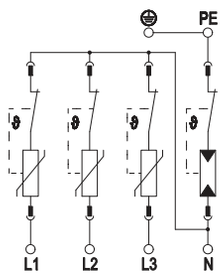
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+NPE-320

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,0 kV
Protection level [L-N] @ 5 kA	U_{res}	1,3 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Surge arrestor V20, 3-pole + NPE and remote signalling, 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE+FS-320	320	3+N/PE	IP20	1	46,600	**5095343**

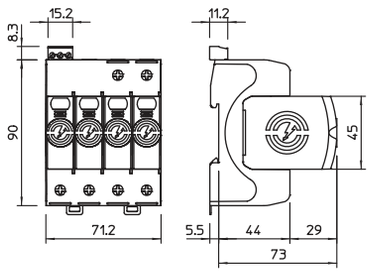
/pc.

Surge arrestor, type 2

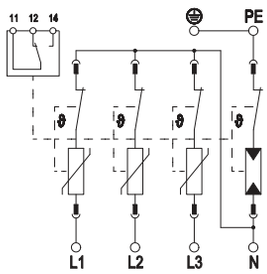
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+NPE+FS-320

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	320 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.6 kV
Protection level [L-N] @ 1 kA	U_{res}	1,0 kV
Protection level [L-N] @ 5 kA	U_{res}	1,3 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 1-pole, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1-385	385	1	IP20	1	13,300	**5095191**

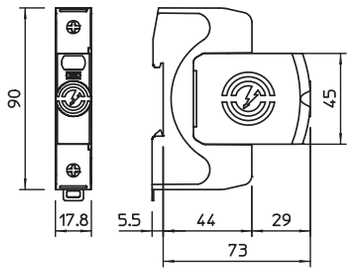
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options

V20-1-385

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	40 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Surge arrestor V20, 1-pole + NPE, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+NPE-385	385	1+N/PE	IP20	1	24,700	**5095271**

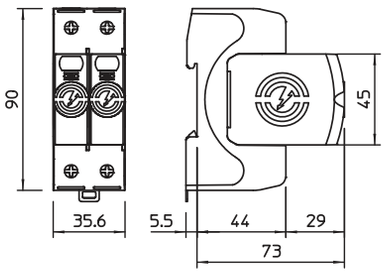
/pc.

Surge arrestor, type 2

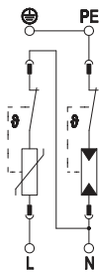
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-1+NPE-385		
SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 2-pole, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2-385	385	2	IP20	1	26,400	**5095192**

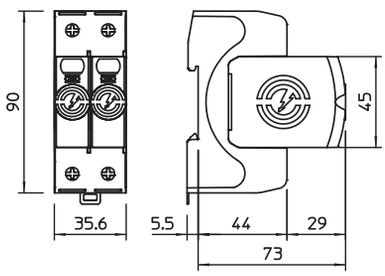
/pc.

Surge arrestor, type 2

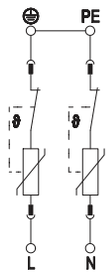
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2-385

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Surge arrestor V20, 2-pole with remote signalling, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2+FS-385	385	2	IP20	1	26,700	**5095302**

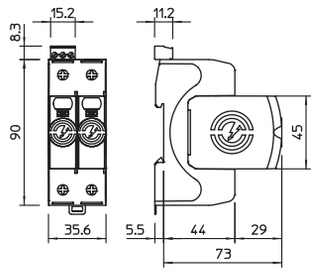
/pc.

Surge arrestor, type 2

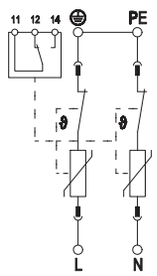
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2+FS-385

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 3-pole, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3-385	385	3	IP20	1	35,600	**5095193**

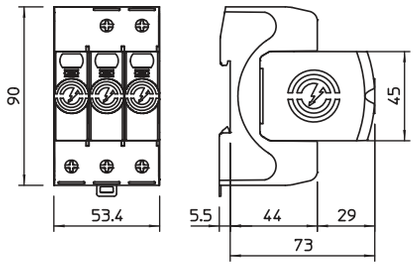
/pc.

Surge arrestor, type 2

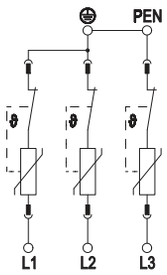
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3-385

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 3-pole with remote signalling, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+FS-385	385	3	IP20	1	37,600	**5095303**

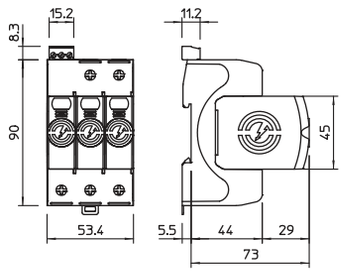
/pc.

Surge arrestor, type 2

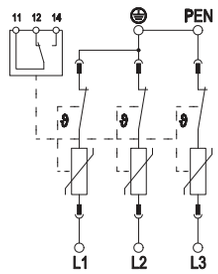
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+FS-385

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 3-pole + NPE, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE-385	385	3+N/PE	IP20	1	47,000	**5095273**

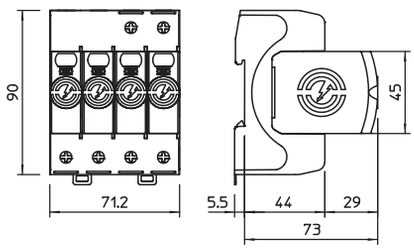
/pc.

Surge arrestor, type 2

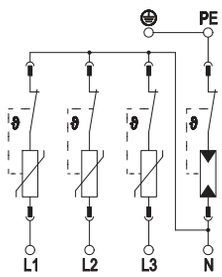
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+NPE-385

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Surge arrestor V20, 3-pole + NPE and remote signalling, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE+FS-385	385	3+N/PE	IP20	1	47,500	**5095353**

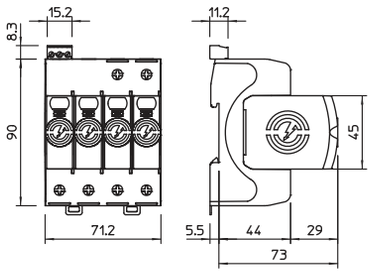
/pc.

Surge arrestor, type 2

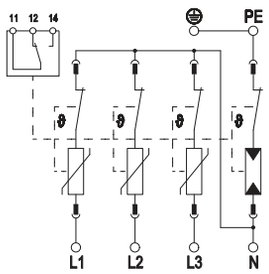
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+NPE+FS-385

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 4-pole, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-4-385	385	4	IP20	1	48,600	**5095194**

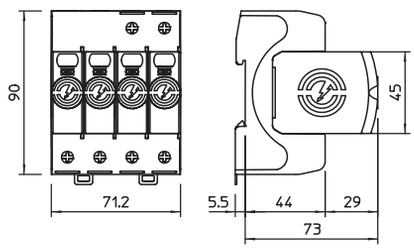
/pc.

Surge arrestor, type 2

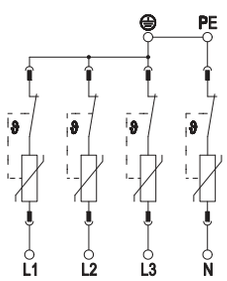
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-4-385		
SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	160 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Surge arrestor V20, 1-pole with remote signalling, 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-4+FS-385	385	4	IP20	1	49,100	**5095304**

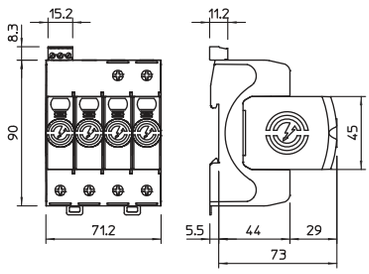
/pc.

Surge arrestor, type 2

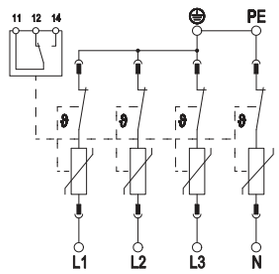
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-4+FS-385

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	385 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	160 kA
Protection level [L-N]	U_p	1.7 kV
Protection level [L-N] @ 1 kA	U_{res}	1,2 kV
Protection level [L-N] @ 5 kA	U_{res}	1,5 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL, ÖVE, VDE
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 1-pole, 440 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1-440	440	1	IP20	1	13,600	**5095201**

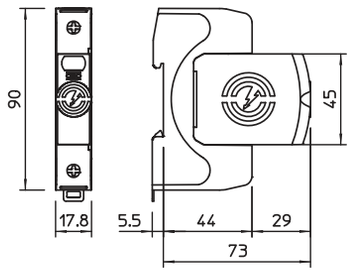
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options

V20-1-440

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	400 V
Maximum continuous voltage AC	U_C	440 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	40 kA
Protection level [L-N]	U_p	2 kV
Protection level [L-N] @ 1 kA	U_{res}	1,5 kV
Protection level [L-N] @ 5 kA	U_{res}	1,8 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Surge arrestor V20, 1-pole, 550 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1-550	550	1	IP20	1	14,300	**5095211**

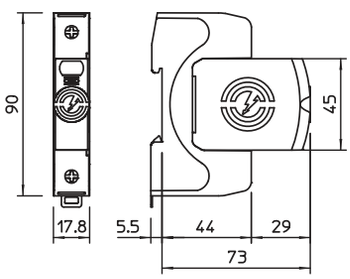
/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options

V20-1-550

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	480 V
Maximum continuous voltage AC	U_C	550 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	40 kA
Protection level [L-N]	U_p	2.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,7 kV
Protection level [L-N] @ 5 kA	U_{res}	2,1 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 2-pole, 550 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2-550	550	2	IP20	1	27,000	**5095212**

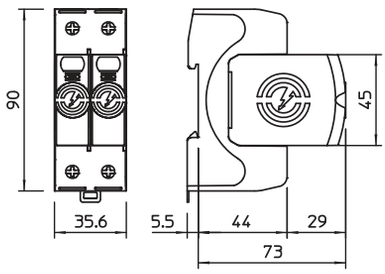
/pc.

Surge arrestor, type 2

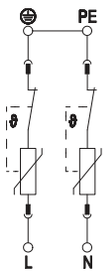
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2-550

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	480 V
Maximum continuous voltage AC	U_C	550 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	2.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,7 kV
Protection level [L-N] @ 5 kA	U_{res}	2,1 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Surge arrestor V20, 2-pole with remote signalling, 550 V

Type 2 | LPZ 1→2 | FS

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-2+FS-550	550	2	IP20	1	27,300	**5095312**

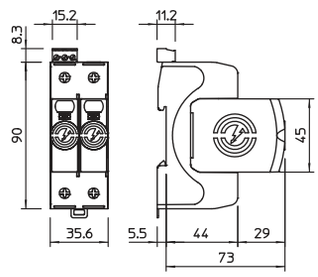
/pc.

Surge arrestor, type 2

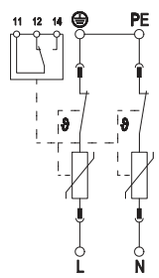
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-2+FS-550

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	480 V
Maximum continuous voltage AC	U_C	550 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	80 kA
Protection level [L-N]	U_p	2.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,7 kV
Protection level [L-N] @ 5 kA	U_{res}	2,1 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 3-pole, 550 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3-550	550	3	IP20	1	38,100	**5095213**

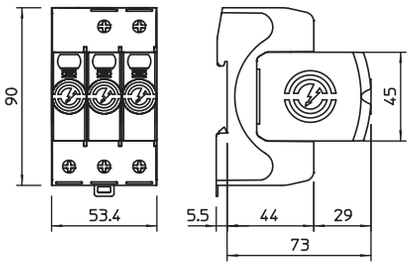
/pc.

Surge arrestor, type 2

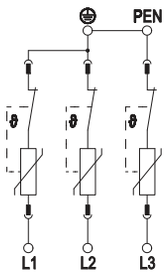
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3-550

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	480 V
Maximum continuous voltage AC	U_C	550 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	2.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,7 kV
Protection level [L-N] @ 5 kA	U_{res}	2,1 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Surge arrestor V20, 3-pole with remote signalling, 550 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+FS-550	550	3	IP20	1	38,500	**5095313**

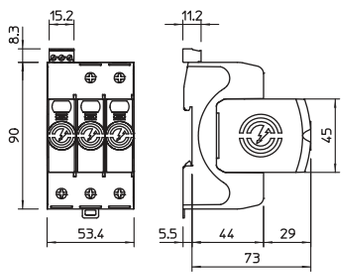
/pc.

Surge arrestor, type 2

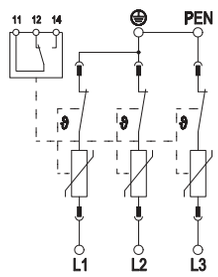
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-3+FS-550

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	480 V
Maximum continuous voltage AC	U_C	550 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	120 kA
Protection level [L-N]	U_p	2.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,7 kV
Protection level [L-N] @ 5 kA	U_{res}	2,1 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Surge arrestor V20, 4-pole, 550 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-4-550	550	4	IP20	1	49,800	**5095214**

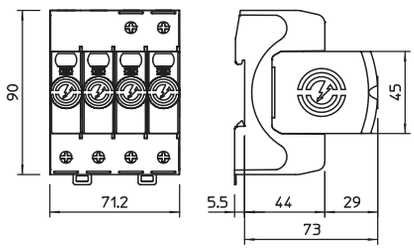
/pc.

Surge arrestor, type 2

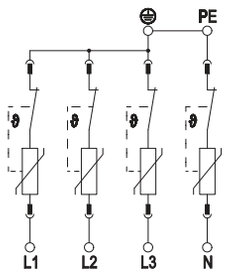
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-4-550

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	480 V
Maximum continuous voltage AC	U_C	550 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	160 kA
Protection level [L-N]	U_p	2.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,7 kV
Protection level [L-N] @ 5 kA	U_{res}	2,1 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

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Always indicate the item number when ordering.

Surge arrestor V20, 4-pole with remote signalling, 550 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-4+FS-550	550	4	IP20	1	50,300	**5095314**

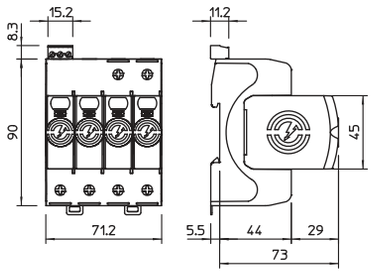
/pc.

Surge arrestor, type 2

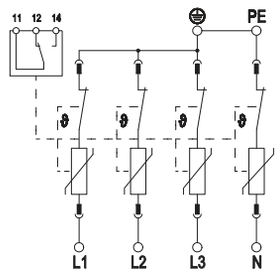
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions



Connection options



V20-4+FS-550

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	480 V
Maximum continuous voltage AC	U_C	550 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	15 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	160 kA
Protection level [L-N]	U_p	2.4 kV
Protection level [L-N] @ 1 kA	U_{res}	1,7 kV
Protection level [L-N] @ 5 kA	U_{res}	2,1 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP20
Approvals		UL
FM contacts		Changeover
Switching power AC		230 V; 0,5 A
Switching power DC		230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals		0,5 - 1,5 mm²
Connection cross-section, FM terminals		21 - 16 AWG
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

System solution, surge arrestor V20 in housing, 1-pole + NPE, 280 V

Type	Highest continuous voltage AC V	Pole version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-V20-1+NPE-280	280	1+N/PE	1	74,000	**5095381**

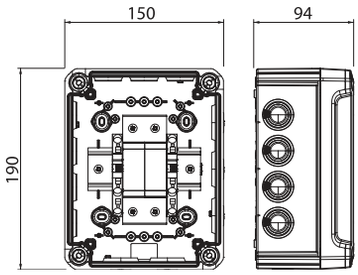
/pc.

Surge arrestor, type 2, according DIN EN 61643-11

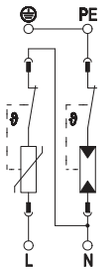
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Complete unit, pre-mounted and ready for connection in polycarbonate housing (IP66)
- Arresting capacity to 40 kA (8/20) per pole through high-performance varistors

Application: Equipotential bonding in main and sub-distributors.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-V20-1+NPE-280		
SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP66
Approvals		ÖVE, UL
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

System solution, surge arrestor V20 in housing, 3-pole + NPE, 280 V

Type 2 | LPZ 1→2

Type	Highest continuous voltage AC V	Pole version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-V20-3+NPE-280	280	3+N/PE	1	96,000	**5095383**

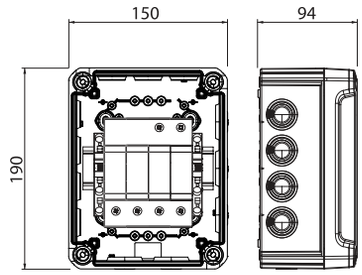
/pc.

Surge arrestor, type 2, according DIN EN 61643-11

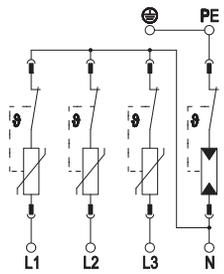
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Complete unit, pre-mounted and ready for connection in polycarbonate housing (IP66)
- Arresting capacity to 40 kA (8/20) per pole through high-performance varistors

Application: Equipotential bonding in main and sub-distributors.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-V20-3+NPE-280

SPD to EN 61643-11		Type 2
SPD to IEC 61643-11		Class II
SPD to UL 1449		Type 4
Nominal voltage AC (50 / 60 Hz)	U_n	230 V
Maximum continuous voltage AC	U_C	280 V
Nominal discharge current (8/20 µs)	$I_{n\ /\ L\text{-}N}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Arrestor surge current (8/20 µs) [total]	I_{total}	60 kA
Protection level [L-N]	U_p	1.3 kV
Protection level [L-N] @ 1 kA	U_{res}	0,7 kV
Protection level [L-N] @ 5 kA	U_{res}	0,9 kV
Max. mains-side overcurrent protection		160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection		50 kA eff
Operating temperature range	T_u	-40 - +80 °C
Protection rating		IP66
Approvals		ÖVE, UL
Cable cross-section, flexible (fine-wire)		1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire)		1.5 - 35 mm²
Cable cross-section, flexible (fine-wire)		16 - 2 AWG
Rigid cable cross-section (single wire/multiwire)		16 - 2 AWG

Always indicate the item number when ordering.

Upper part V20 75 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-0-75	75	1	IP20	1	3,660	**5095360**

/pc.

Upper parts, surge arrestor, type 2

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Upper part V20 150 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-0-150	150	1	IP20	1	4,160	**5095362**

/pc.

Upper parts, surge arrestor, type 2

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Upper part V20 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-0-280	280	1	IP20	1	5,000	**5095364**

/pc.

Upper parts, surge arrestor, type 2

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Always indicate the item number when ordering.

Upper part V20 320 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-0-320	320	1	IP20	1	5,100	**5095366**

/pc.

Upper parts, surge arrestor, type 2

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Always indicate the item number when ordering.

Upper part V20 385 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-0-385	385	1	IP20	1	5,360	**5095368**

/pc.

Upper parts, surge arrestor, type 2

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Upper part V20 440 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-0-440	440	1	IP20	1	5,660	**5095370**

/pc.

Upper parts, surge arrestor, type 2

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

Upper part V20 550 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-0-550	550	1	IP20	1	6,360	**5095372**

/pc.

Upper parts, surge arrestor, type 2

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)

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Always indicate the item number when ordering.

Upper part C20 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
C20-0-255	255	N/PE	IP20	1	3,680	**5095600**

/pc.

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Halogen-free plastic (UL 94 V-0)
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Connection terminal for through-wiring

Type	Colour	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
AS 3x16	Light grey	3x16mm²	5	2,474	**5012010**

/100 pc.

Connection terminal type: AS 3 x 16

Connection cross-section: 3 x 1.5 - 16 sq mm rigid/ multiple strands
3 x 1.5 - 10 sq mm fine-wire/with wire end sleeve
Stripping length: 16 mm
Rec. tightening torque: 1.2 Nm
Nominal current: 50 A
Width: 17.5 mm (1 TE)

For EMV-optimised V through-wiring to IEC 60364-5-53 (VDE 0100-534).

Surge protection
Energy technology
Arrestor 2+3

Always indicate the item number when ordering.

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Surge protection
Energy technology, type 2+3 arrestor

	Surge arrestor V10 Compact, 150, 255, 385 V	250
	Surge arrestor V10, 280 V	256
	Surge arrestor V10, 320 V	259
	Accessories, upper parts and bases V10	260
	Surge arrestor LED	263

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Type 2+3, surge arrestor V10

1-pole + NPE

Volts	Item no.	Page
280	5093 41 8	258

3-pole + NPE

Volts	Item no.	Page
280	5094 92 0	256
320	5094 92 4	259

Type 2+3, surge arrestor V10 with remote signalling

3-pole + NPE + FS

Volts	Item no.	Page
280	5094 93 1	257

Type 2+3, surge arrestor V10 covers

Upper part

Volts	Item no.	Page
150	5093 40 0	260
280	5093 40 2	260
320	5093 40 4	260
385	5093 40 6	261

Always indicate the item number when ordering.

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Type 2+3, surge arrestor V10 Compact

3-pole + NPE

Volts	Item no.	Page
150	5093 37 8	250
255	5093 38 0	251
385	5093 38 4	252

Type 2+3, surge arrestor V10 Compact with remote/acoustic signalling

3-pole + NPE + FS

Volts	Item no.	Page
255	5093 38 2	254

3-pole + NPE + AS

Volts	Item no.	Page
255	5093 39 1	253

Type 2+3, surge arrestor ÜSM-LED

IP20

Volts	Item no.	Page
230	5092 48 0	263
440	5092 48 2	263

IP65

Volts	Item no.	Page
230	5092 47 8	264

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Always indicate the item number when ordering.

Surge arrestor Compact 150 V

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10 COMPACT 150	150	3 + NPE	1	15,800	**5093378**

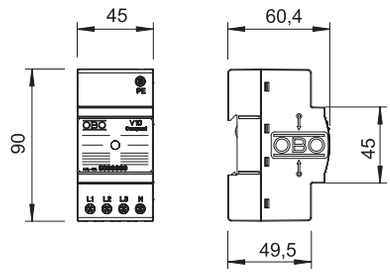
/pc.

Surge protection device, compact module type 2+3

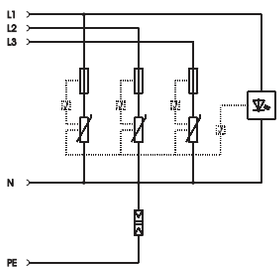
- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- Optionally with acoustic signalling (-AS) or remote signalling (-FS)

Application: Industry, residential buildings as well as for device protection in alternating current systems.

Dimensions



Connection options



V10 COMPACT 150

Nominal voltage	U_N	130 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	60 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	< 0,7 kV
Response time	t_A	< 25 ns
Maximum back-up fuse		63 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		2.5
Protection rating		IP20
Connection cross-section rigid		2.5 - 10 mm²
Connection cross-section, multi-wire		2.5 - 10 mm²
Connection cross-section, flexible		2.5 - 10 mm²

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Always indicate the item number when ordering.

Surge arrestor Compact 255 V

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10 COMPACT 255	255	3 + NPE	1	15,800	**5093380**

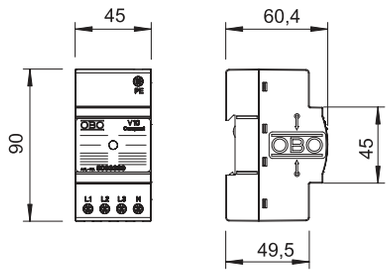
/pc.

Surge protection device, compact module type 2+3

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- Optionally with acoustic signalling (-AS) or remote signalling (-FS)

Application: Industry, residential buildings as well as for device protection in alternating current systems.

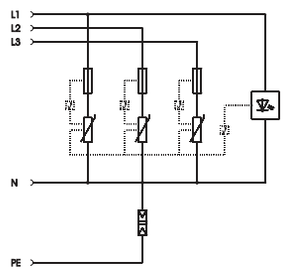
Dimensions



V10 COMPACT 255

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	60 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	< 1,1 kV
Response time	t_A	< 25 ns
Maximum back-up fuse		63 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		2.5
Protection rating		IP20
Connection cross-section rigid		2.5 - 10 mm²
Connection cross-section, multi-wire		2.5 - 10 mm²
Connection cross-section, flexible		2.5 - 10 mm²

Connection options



Always indicate the item number when ordering.

Surge arrestor Compact 385 V

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10 COMPACT 385	385	3 + NPE	1	16,800	**5093384**

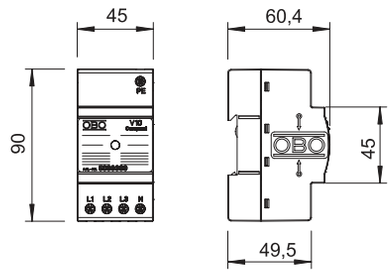
/pc.

Surge protection device, compact module type 2+3

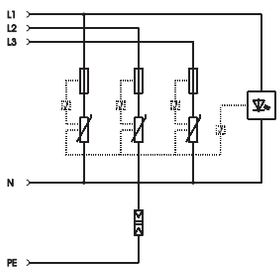
- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- Optionally with acoustic signalling (-AS) or remote signalling (-FS)

Application: Industry, residential buildings as well as for device protection in alternating current systems.

Dimensions



Connection options



V10 COMPACT 385

Nominal voltage	U_N	385 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	60 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	< 1,5 kV
Response time	t_A	< 25 ns
Maximum back-up fuse		63 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		2.5
Protection rating		IP20
Connection cross-section rigid		2.5 - 10 mm²
Connection cross-section, multi-wire		2.5 - 10 mm²
Connection cross-section, flexible		2.5 - 10 mm²

Always indicate the item number when ordering.

Surge arrestor Compact with acoustic signalling

Type	Highest continuous voltage V	Version	Designation	Pack. pcs	Weight kg/100 pcs.	Item No.
V10 COMPACT-AS	255	3 + NPE	with acoustic signalling	1	15,800	**5093391**

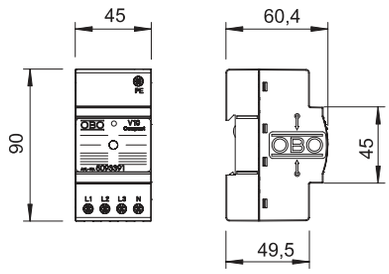
/pc.

Surge protection device, compact module type 2+3

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- With visual and acoustic signalling
- ...-AS version with additional acoustic defect signalling (switchable)

Application: Industry, residential buildings as well as for device protection in rotational current systems.

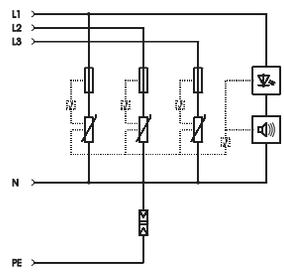
Dimensions



V10 COMPACT-AS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	60 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	< 1,1 kV
Response time	t_A	< 25 ns
Maximum back-up fuse		63 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		2.5
Protection rating		IP20
Connection cross-section rigid		2.5 - 10 mm²
Connection cross-section, multi-wire		2.5 - 10 mm²
Connection cross-section, flexible		2.5 - 10 mm²

Connection options



Always indicate the item number when ordering.

Surge arrestor Compact with remote signalling

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10 COMPACT-FS	255	3 + NPE	1	17,300	**5093382**

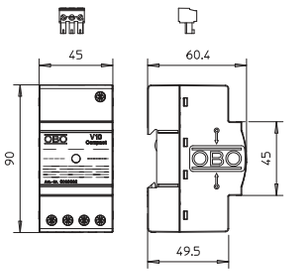
/pc.

Surge protection device, compact module type 2+3

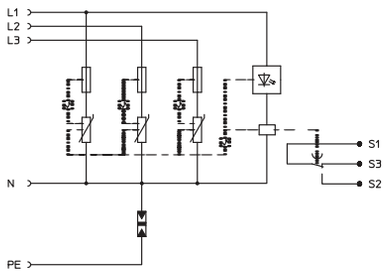
- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off mechanism and visual function display
- ...-FS (remote signalling) version with potential-free changeover contact for remote signalling

Application: Industry, residential buildings as well as for device protection in alternating current systems.

Dimensions



Connection options



V10 COMPACT-FS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	60 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	< 1,1 kV
Response time	t_A	< 25 ns
Maximum back-up fuse		63 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		2.5
Protection rating		IP20
Connection cross-section rigid		2.5 - 10 mm²
Connection cross-section, multi-wire		2.5 - 10 mm²
Connection cross-section, flexible		2.5 - 10 mm²

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Connecting bridge for V10 Compact 200 mm

230/ 400 V System | Type 1 | LPZ 0→1

Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VB-V10 COMPACT-2	200 mm	1	5,300	**5089650**

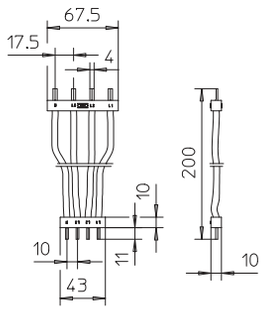
/pc.

Connecting bridge for V10 Compact:

The VB-V10 Compact connecting bridge allows quick and easy bridging to other series-mounted devices such as residual-current circuit-breaker.

• Available in two different lengths.

Dimensions



Connection options

Connecting bridge for V10 Compact 400 mm

230/ 400 V System | Type 1 | LPZ 0→1

Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VB-V10 COMPACT-4	400 mm	1	8,900	**5089652**

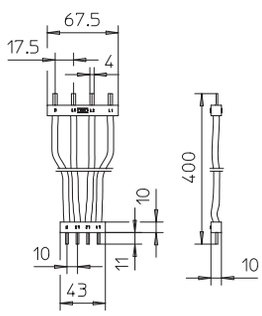
/pc.

Connecting bridge for V10 Compact:

The VB-V10 Compact connecting bridge allows quick and easy bridging to other series-mounted devices such as residual-current circuit-breaker.

• Available in two different lengths.

Dimensions



Connection options

Always indicate the item number when ordering.

Surge arrestor, 3-pole + NPE

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10-C 3+NPE	280	3 + NPE	1	37,800	**5094920**

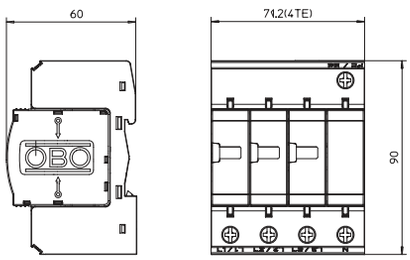
/pc.

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) to overvoltage protection to DIN VDE 0100 part 443.

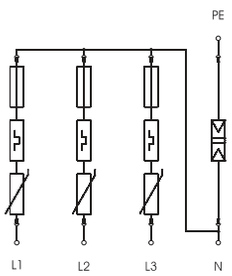
- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- Suitable for any TN and TT network systems
- Plug-in arrestor with dynamic separating device
- With visual function display
- Version FS with remote signalling, potential-free changeover contact, for function monitoring
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

Dimensions



Connection options



V10-C 3+NPE

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	40 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	< 1,1 kV
Response time	t_A	<25 ns
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		4
Protection rating		IP20
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Surge arrestor, 3-pole + NPE with remote signalling

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10-C 3+NPE+FS	280	3 + NPE	1	37,900	**5094931**

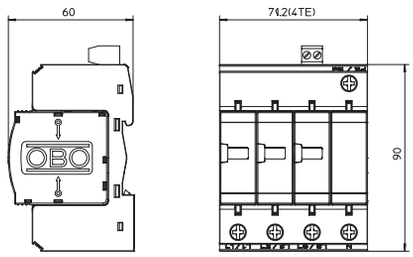
/pc.

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) to overvoltage protection to DIN VDE 0100 part 443.

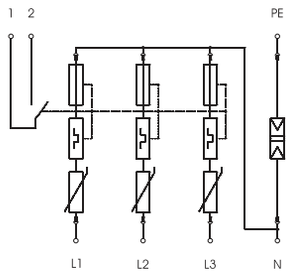
- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- Suitable for any TN and TT network systems
- Plug-in arrestor with dynamic separating device
- With visual function display
- Version FS with remote signalling, potential-free changeover contact, for function monitoring
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

Dimensions



Connection options



V10-C 3+NPE+FS

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	40 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	< 1,1 kV
Response time	t_A	<25 ns
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		4
Protection rating		IP20
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Always indicate the item number when ordering.

Surge arrestor, 1-pole + NPE

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10-C 1+NPE-280	280	1 + NPE	1	22,200	**5093418**

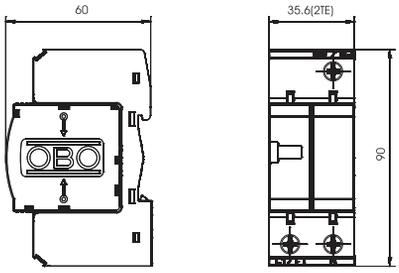
/pc.

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) to overvoltage protection to DIN VDE 0100 part 443.

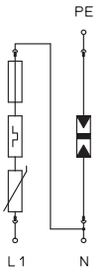
- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- Suitable for any TN and TT network systems
- Plug-in arrestor with dynamic separating device
- With visual function display
- Version FS with remote signalling, potential-free changeover contact, for function monitoring
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

Dimensions



Connection options



V10-C 1+NPE-280

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	40 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	< 1,1 kV
Response time	t_A	< 25 ns
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		2
Protection rating		IP20
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 35 mm²

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Always indicate the item number when ordering.

Surge arrestor, 3-pole + NPE

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10-C 3+NPE-320	320	3 + NPE	1	39,000	**5094924**

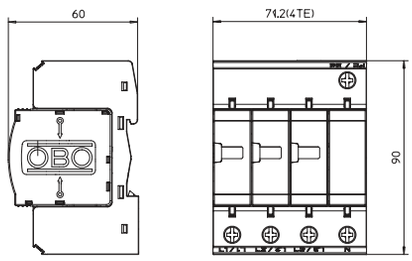
/pc.

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) to overvoltage protection to DIN VDE 0100 part 443.

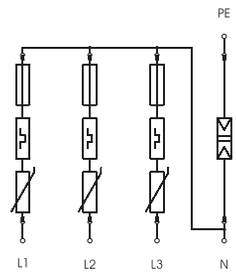
- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- Suitable for any TN and TT network systems
- Plug-in arrestor with dynamic separating device
- With visual function display
- Version FS with remote signalling, potential-free changeover contact, for function monitoring
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

Dimensions



Connection options



V10-C 3+NPE-320

Nominal voltage	U_N	320 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	40 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	< 1,2 kV
Response time	t_A	<25 ns
Maximum back-up fuse		125 A
Temperature range	ϑ	-40 - +80 °C
Division unit TE (17.5 mm)		4
Protection rating		IP20
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Always indicate the item number when ordering.

Upper part, surge arrestor 150 V

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10-C 0-150	150	1-pole	1	2,900	**5093400**

/pc.

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) for overvoltage protection to DIN VDE 0100 part 443.

- Plug-in upper part; upper part can be separated from lower part without tools
- Including thermal and dynamic separating device
- High current conductivity and long service life
- 3+NPE is suitable for any TN and TT network system

Application example: Industrial and residential buildings in every normal commercially available distributor housing.
Other variants with FS (with remote signalling), AS (with audible signalling), FS-SÜ and housing are described on the following pages.

Upper part, surge arrestor 280 V

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10-C 0-280	280	1-pole	1	3,360	**5093402**

/pc.

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) for overvoltage protection to DIN VDE 0100 part 443.

- Plug-in upper part; upper part can be separated from lower part without tools
- Including thermal and dynamic separating device
- High current conductivity and long service life
- 3+NPE is suitable for any TN and TT network system

Application example: Industrial and residential buildings in every normal commercially available distributor housing.
Other variants with FS (with remote signalling), AS (with audible signalling), FS-SÜ and housing are described on the following pages.

Upper part, surge arrestor 320 V

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10-C 0-320	320	1-pole	1	3,510	**5093404**

/pc.

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) for overvoltage protection to DIN VDE 0100 part 443.

- Plug-in upper part; upper part can be separated from lower part without tools
- Including thermal and dynamic separating device
- High current conductivity and long service life
- 3+NPE is suitable for any TN and TT network system

Application example: Industrial and residential buildings in every normal commercially available distributor housing.
Other variants with FS (with remote signalling), AS (with audible signalling), FS-SÜ and housing are described on the following pages.

Upper part, surge arrestor 385 V

LPZ 1→3 Type 2+3

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V10-C 0-385	385	1-pole	30	3,630	**5093406**

/pc.

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) for overvoltage protection to DIN VDE 0100 part 443.

- Plug-in upper part; upper part can be separated from lower part without tools
- Including thermal and dynamic separating device
- High current conductivity and long service life
- 3+NPE is suitable for any TN and TT network system

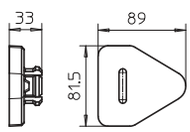
Application example: Industrial and residential buildings in every normal commercially available distributor housing.
Other variants with FS (with remote signalling), AS (with audible signalling), FS-SÜ and housing are described on the following pages.

Shock Guard locking

Type	Colour	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MB-SG	Blue	Locking system for upper parts	100	0,060	**5096695**

PA Polyamide /pc.

Shock Guard: Locking for connector technology on MultiBase bases

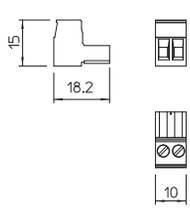


- Locking system for the plug-in modules/upper parts
- Vibration and shock-tested
- Use in housing hole of the connection terminals
- Upper parts can be removed without tools

Remote signalling replacement connector for MultiBase

Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MB-FS	2-pole	25	0,310	**5096693**

/pc.

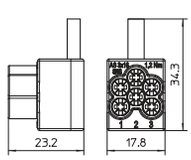


Replacement telephony connector, 2-pole version, for MultiBase base

Connection terminal for through-wiring

Type	Colour	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
AS 3x16	Light grey	3x16mm²	5	2,474	**5012010**

/100 pc.



Connection terminal type: AS 3 x 16

Connection cross-section: 3 x 1.5 - 16 sq mm rigid/ multiple strands
3 x 1.5 - 10 sq mm fine-wire/with wire end sleeve
Stripping length: 16 mm
Rec. tightening torque: 1.2 Nm
Nominal current: 50 A
Width: 17.5 mm (1 TE)

For EMV-optimised V through-wiring to IEC 60364-5-53 (VDE 0100-534).

Always indicate the item number when ordering.

Surge protection energy technology, arrestor, type 2+3: The plus for LED street lighting

+ Surge arrestors with high arresting capacity
+ High arresting capacity of 10 kA (max. 20 kA)
+ Visual status display
+ Labelled connections
+ Optional switch-off of the LED luminaires after surge protection fails

Surge protection for LED systems

Function and areas of use
The surge arrestor ÜSM-LED 230 meets the type 2 requirement class according to IEC 61643-11. This device protects lighting systems against any kind of surge voltages. The voltage-limiting, high-performance zinc oxide varistor provides several benefits. An extremely short response time, a low protection level and high current leakage capability with long service life. It can be used in the mast connection box or in LED luminaires.

Always indicate the item number when ordering.

Surge protection for LED systems

LPZ 1→3 Type 2+3

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
ÜSM-LED 230	255	1 + NPE	1	3,500	**5092480**
ÜSM-LED 440	440	1 + NPE	1	4,500	**5092482**

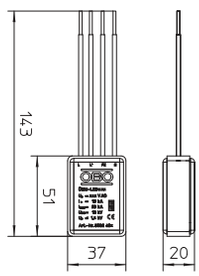
/pc.

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids.
Appropriate for the protection of LED lighting.

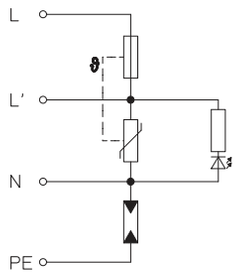
- With visual function display
- Small size for the installation in the pole or in the LED lamp head
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Surge limitation under 1,300 V or 1,000 V @ 5 kA
- Available with or without cut-off function of the lamp in case of malfunction

Application: Universally deployable in all lighting systems

Dimensions



Connection options



ÜSM-LED 230		
Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	1,3 kV
Response time	t_A	< 25 ns
Maximum back-up fuse		16 A
Temperature range	ϑ	-15 - +60 °C
Division unit TE (17.5 mm)		Other
Protection rating		IP20
Connecting cable length		0.092 m
ÜSM-LED 440		
Nominal voltage	U_N	440 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		1→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	1,8 kV
Response time	t_A	< 25 ns
Maximum back-up fuse		20 A
Temperature range	ϑ	-15 - +60 °C
Division unit TE (17.5 mm)		–
Protection rating		IP20
Connecting cable length		0.092 m

Always indicate the item number when ordering.

Surge protection for LED systems

LPZ 1→3 | Type 2+3 | 5 years

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
ÜSM-LED 230-65	255	1 + NPE	25	7,500	**5092478**

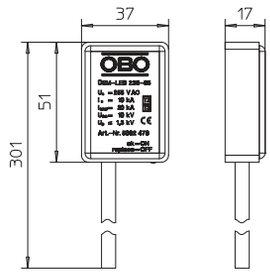
/pc.

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids.
Appropriate for the protection of LED lighting and the LED driver.

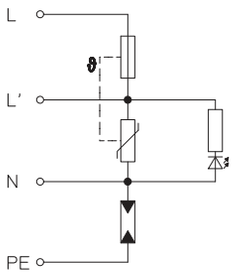
- With visual function display
- Small size for the installation in the mast connection box
- IP65 and with 25 cm connection cable
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Surge limitation under 1,300 V or 1,000 V @ 5 kA
- Available with or without cut-off function of the lamp in case of malfunction

Application: Universally deployable in all lighting systems

Dimensions



Connection options



ÜSM-LED 230-65

Nominal voltage	U_N	230 V
SPD to EN 61643-11		Type 2+3
SPD to IEC 61643-11		Class II+III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	10 kA
Arrestor surge current (8/20) [total]	$I_{Total\ 8/20}$	20 kA
Maximum discharge current (8/20 µs)	I_{max}	20 kA
Voltage protection level	U_p	1,3 kV
Response time	t_A	< 25 ns
Maximum back-up fuse		16 A
Temperature range	ϑ	-15 - +60 °C
Division unit TE (17.5 mm)		Other
Protection rating		IP65
Connecting cable length		0.25 m

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Surge protection
Energy technology
Arrestor 3

Always indicate the item number when ordering.

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Surge protection
Energy technology, type 3 arrestor

Fine power protection, connectable 270

Fine power protection, fixed installation 278

Fine power protection, series installation 284

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Type 3, fine power protection FC, connectable

SchuKo

Volts	Item no.	Page
230	5092 80 0	270

SchuKo + TV

Volts	Item no.	Page
230	5092 80 8	271

SchuKo + SAT

Volts	Item no.	Page
230	5092 81 6	272

SchuKo + TAE

Volts	Item no.	Page
230	5092 82 4	273

SchuKo + ISDN

Volts	Item no.	Page
230	5092 81 2	274

SchuKo + RJ

Volts	Item no.	Page
230	5092 82 8	275

Socket bar

Volts	Item no.	Page
230	5092 70 1	276

Cold device connector

Volts	Item no.	Page
230	5092 60 4	277

Type 3, fine power protection ÜSM, fixed installation

Direct connection

Volts	Item no.	Page
150	5092 45 1	278
230	5092 46 6	278

V connection

Volts	Item no.	Page
230	5092 46 0	279

For GB2 and GB3 mounting boxes

Volts	Item no.	Page
230	5092 47 2	280

SchuKo

Volts	Item no.	Page
230	5092 44 1	281

Type 3, fine power protection ÜSS, Modul 45

Visual signalling

Volts	Item no.	Page
230	6117 47 3	282

Acoustic signalling

Volts	Item no.	Page
230	6117 46 5	283

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Type 3, fine power protection VF, series installation

2-pole

Volts	Item no.	Page
12	5097 45 3	284
24	5097 60 7	285
48	5097 61 5	286
60	5097 62 3	287
110	5097 63 1	288
230	5097 65 0	289

Type 3, fine power protection VF, series installation with remote signalling

2-pole + FS

Volts	Item no.	Page
24	5097 82 0	290
230	5097 85 8	291

Type 3, fine power protection VF, series installation with leakage current-free signalling

2-pole + FS leakage current-free

Volts	Item no.	Page
230	5097 93 9	292

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Always indicate the item number when ordering.

FineController for protective contact socket

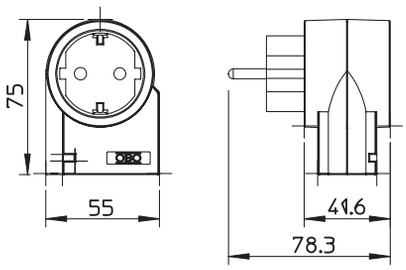
Type	Country version	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
FC-D	EN	Pure white	1	12,000	**5092800**

/pc.

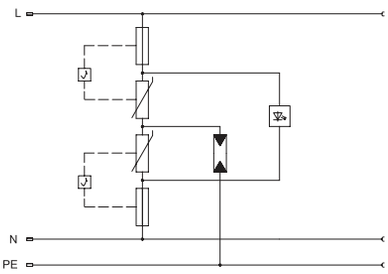
Type 3 surge protection device to EN 61643-11, intended for use in protective contact sockets.

- Adapter
- Disconnection device and function display
- Child lock through increased finger touch protection

Dimensions



Connection options



FC-D

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	275 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Protection level (L-N)		< 1,2 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	<25 ns

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

FineController for video, TV and hi-fi systems

Type	Country version	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
FC-TV-D	EN	Pure white	1	18,000	**5092808**

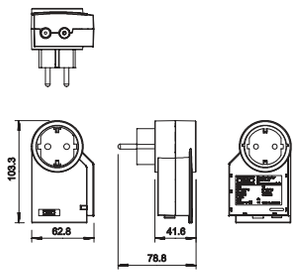
/pc.

Type 3 combined surge protection to EN 61643-11, designed for use on Schuko sockets and video, TV and hi-fi systems with IEC adapter.

- Adapter
- Disconnection device and function display
- Child lock through increased finger contact protection
- Incl. 0.5 m connection cable in white (double screen)
- Maximum continuous voltage, TV connection 72 V DC / 1.5 A (25 °C)
- Limit frequency: 2.5 GHz (75 Ohm system)

Note: The technical data in the table below refer to the power supply.

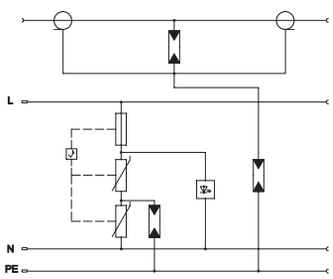
Dimensions



FC-TV-D

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	275 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Protection level (L-N)		< 1,2 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	<25 ns

Connection options



Always indicate the item number when ordering.

FineController for SAT systems and receivers

Type 3 | LPZ 2→3 | SAT

Type	Country version	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
FC-SAT-D	EN	Pure white	1	18,000	**5092816**

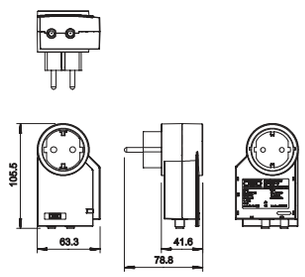
/pc.

Type 3 combined surge protection to EN 61643-11, designed for use on satellite systems and receivers.

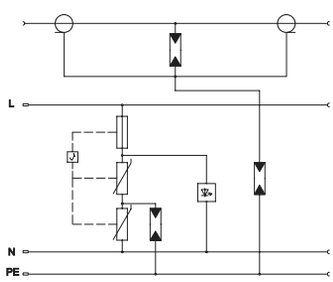
- Adapter
- Disconnection device and function display
- Child lock through increased finger contact protection
- Incl. 0.5 m connection cable in white (double screen)
- Maximum continuous voltage, TV connection 72 V DC / 1.5 A (25 °C)
- Limit frequency: 2.5 GHz (75 Ohm system)

Note: The technical data in the table below refer to the power supply.

Dimensions



Connection options



FC-SAT-D

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	275 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Protection level (L-N)		< 1,2 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	<25 ns

Always indicate the item number when ordering.

FineController for telephone systems and terminals

Type	Country version	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
FC-TAE-D	EN	Pure white	1	18,000	**5092824**

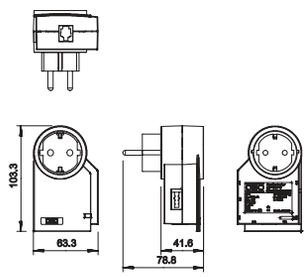
/pc.

Type 3 combined surge protection to EN 61643-11, designed for use in telephone systems with TAE connection (telephones upstream of the NTBA/DSL splitter).

- Adapter
- Disconnection device and function display
- Child lock through increased finger contact protection
- Incl. 0.5 m connection cable TAE / RJ11
- Maximum continuous voltage, TAE connection 200 V DC / 1.5 A (25 °C)
- Limit frequency: Typ. 4 MHz / DSL-compatible

Note: The technical data in the table below refer to the power supply.

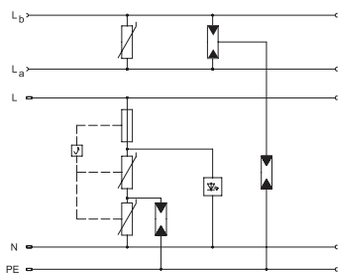
Dimensions



FC-TAE-D

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	275 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Protection level (L-N)		< 1,2 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	<25 ns

Connection options



Always indicate the item number when ordering.

FineController for ISDN telephone systems and terminals

Type 3 | LPZ 2→3 | ISDN | DSL

Type	Country version	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
FC-ISDN-D	EN	Pure white	1	18,000	**5092812**

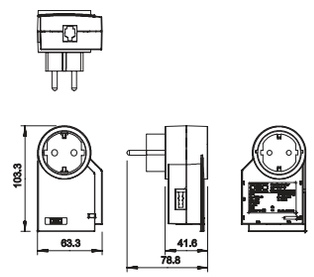
/pc.

Type 3 combined surge protection to EN 61643-11
designed for use in ISDN / DSS 1 telephone systems and terminals.

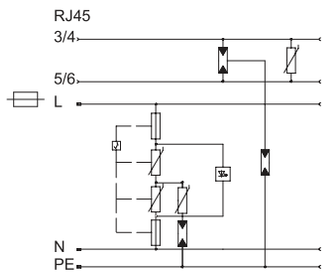
- Adapter
- Disconnection device and function display
- Child lock through increased finger contact protection
- Incl. 0.5 m connection cable RJ12
- Maximum continuous voltage, ISDN connection 6 V DC / 1.5 A (25 °C)
- Limit frequency: Type 300 kHz

Note: The technical data in the table below refer to the power supply.

Dimensions



Connection options



FC-ISDN-D

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	275 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Protection level (L-N)		< 1,2 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	<25 ns

FineController for telephone systems with RJ11

Type 3 | LPZ 2→3 | Analog TK | ISDN | DSL

Type	Country version	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
FC-RJ-D	EN	Pure white	1	18,000	**5092828**

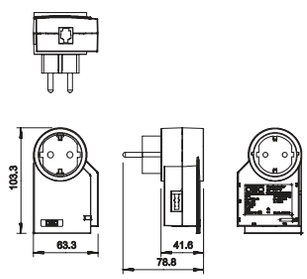
/pc.

Type 3 combined surge protection to EN 61643-11
designed for use in telephone systems and terminals with RJ12 connection.

- Adapter
- Disconnection device and function display
- Child lock through increased finger contact protection
- Incl. 0.5 m connection cable RJ12
- Maximum continuous voltage, RJ connection 200 V DC / 1.5 A (25 °C)
- Limit frequency: Typ. 4 MHz / DSL-compatible

Note: The technical data in the table below refer to the power supply.

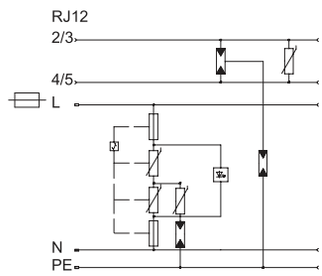
Dimensions



FC-RJ-D

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	275 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Protection level (L-N)		< 1,2 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	<25 ns

Connection options



Always indicate the item number when ordering.

Fine power protection / socket bar

Type	Country version	Colour	Connection cable length m	Pack. pcs	Weight kg/100 pcs.	Item No.
CNS 3-D-D	EN	Black	2	1	65,000	**5092701**

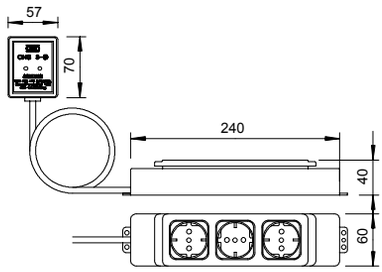
/pc.

CNS 3-D: Type 3 surge protection device to DIN EN 61643-11, intended for use in protective contact sockets.

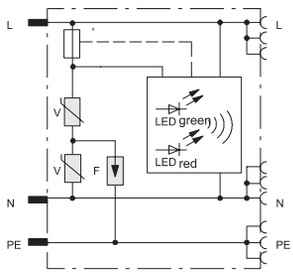
- With visual and audible signalling, function display
- 3-way socket
- Length of connection cable: 2 m
- Y circuit for high electrical safety

Application: For example, the protection of PCs, printers, copiers, fax machines, etc.

Dimensions



Connection options



CNS 3-D-D

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	255 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2.5 kA
Protection level (L-N)		< 1,0 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	<25 ns

Fine power protection / adapter with cold device connector

Type	Country version	Colour	Connection cable length m	Pack. pcs	Weight kg/100 pcs.	Item No.
CNS-D-D	EN	Light grey	1.5	1	30,000	**5092604**

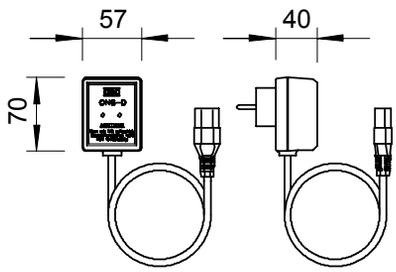
/pc.

CNS-D: Type 3 surge protection device to EN 61643-11, designed for use in protective contact sockets

- With visual and audible signalling, function display
- With cold unit connector
- Length of connection cable: 1.5 m
- Y circuit for high electrical safety

Application: For example, the protection of PCs, printers, copiers, fax machines, etc.

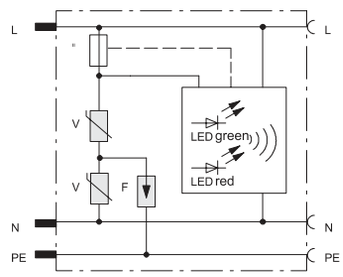
Dimensions



CNS-D-D

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	255 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2.5 kA
Protection level (L-N)		< 1,0 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	< 25 ns

Connection options



Always indicate the item number when ordering.

Fine power protection for all installation systems

Type	Signalling on device	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
ÜSM-A	Audible	Acoustic function display	1	1,500	**5092451**
ÜSM-A-150	Audible	Acoustic function display	1	1,500	**5092466**

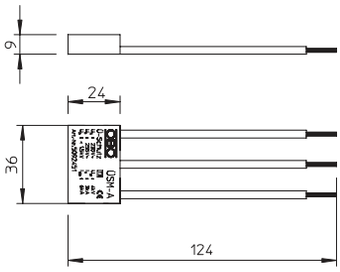
/pc.

Surge protection module type 3 to DIN EN 61643-11 for 230 V power grids.

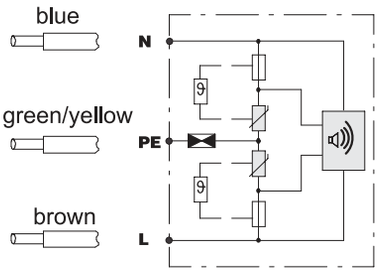
- With acoustic defect signal
- With low construction height
- Y circuit

Application: Universally applicable for all installation systems.

Dimensions



Connection options



ÜSM-A		
Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	255 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Protection level (L-N)		< 1,3 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	< 25 ns
Temperature range	ϑ	-15 - +60 °C
Maximum discharge current (8/20 µs)	I_{max}	6 kA
Rated current	I_L	16 A

ÜSM-A-150		
Nominal voltage	U_N	150 V
Max. continuous operating voltage	U_C	170 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Protection level (L-N)		< 1,3 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	< 25 ns
Temperature range	ϑ	-15 - +60 °C
Maximum discharge current (8/20 µs)	I_{max}	6 kA
Rated current	I_L	16 A

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Always indicate the item number when ordering.

Fine power protection for through wiring

Type	Signalling on device	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
ÜSM-A-2	Audible	V connection	1	2,200	**5092460**

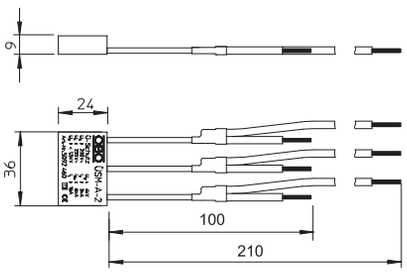
/pc.

Surge protection device type 3 to DIN EN 61643-11 for 230 V networks.

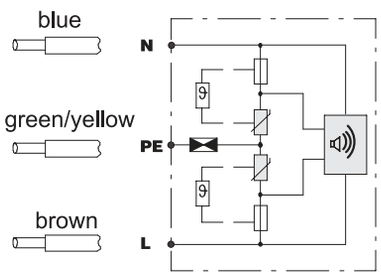
- With acoustic defect signal
- With 2 strands for continuous wiring
- With low construction height
- Y circuit

Application: Universally applicable for all installation systems.

Dimensions



Connection options



ÜSM-A-2

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	255 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Protection level (L-N)		< 1,3 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	< 25 ns
Temperature range	ϑ	-15 - +60 °C
Maximum discharge current (8/20 µs)	I_{max}	6 kA
Rated current	I_L	16 A

Always indicate the item number when ordering.

Fine power protection with holder for GB2 and GB3 mounting boxes

Type	Signalling on device	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
ÜSM-A-4	Audible	Incl. holder with partition function	1	2,000	**5092472**

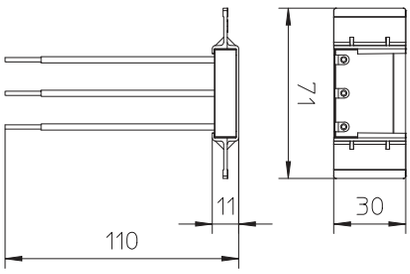
/pc.

Surge protection module type 3 to DIN EN 61643-11 for 230 V power grids.

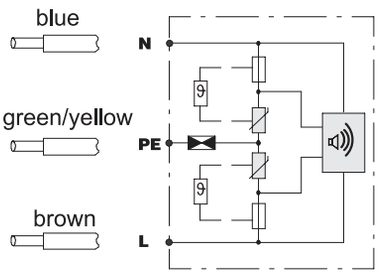
- With acoustic defect signal
- With low construction height and Y circuit
- Holder (separating retainer function) for installation in GB2 and GB3 mounting boxes

Application: Universally applicable for all installation systems.

Dimensions



Connection options



ÜSM-A-4

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	255 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Maximum discharge current (8/20 µs)	I_{max}	6 kA
Protection level (L-N)		< 1,3 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	< 25 ns
Temperature range	ϑ	-15 - +60 °C

Always indicate the item number when ordering.

Fine power protection, protective contact sockets

Type	Signalling on device	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
ÜSM-ST-230-1P+PE	Audible	Acoustic function display	1	1,770	**5092441**

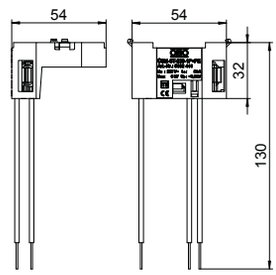
/pc.

Surge protection / fine power protection, type 3, to EN 61643-11 for protective contact sockets.

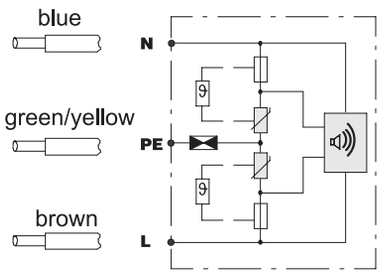
- Thermal cut-off unit with acoustic defect signalling
- Y protection circuit for increased safety
- Mounting through snapping onto the support ring of the socket
- Labelling of the socket with supplied sign

Application: For retrofitting on standard Schuko sockets.

Dimensions



Connection options



ÜSM-ST-230-1P+PE

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	255 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	3 kA
Maximum discharge current (8/20 µs)	I_{max}	5 kA
Protection level (L-N)		< 1,5 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	25 ns
Temperature range	ϑ	-5 - +40 °C

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Always indicate the item number when ordering.

Fine power protection / dado duct installation Modul 45

Type 3 | LPZ 2→3

Type	Signalling on device	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
ÜSS 45-O-RW	Visual	Optical function display	1	2,411	**6117473**

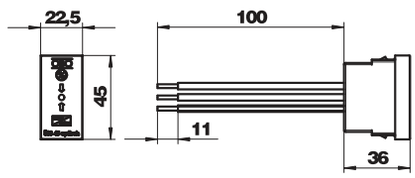
/pc.

Surge protection / network fine protection, type 3, according to EN 61643-11 for installation in Rapid 45 ducts, device installation ducts and underfloor systems.

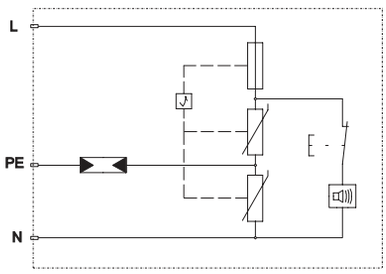
- Version-O with acoustic function display
- Quick and easy mounting
- Low construction width of 22.5 mm

Application: The surge protection device secures downstream and nearby sockets.

Dimensions



Connection options



ÜSS 45-O-RW

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	255 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2.5 kA
Protection level (L-N)		< 1,5 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	25 ns
Temperature range	ϑ	-25 - +45 °C

Always indicate the item number when ordering.

Fine power protection / dado duct installation Modul 45

Type	Signalling on device	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
ÜSS 45-A-RW	Audible	Acoustic function display	1	2,800	**6117465**

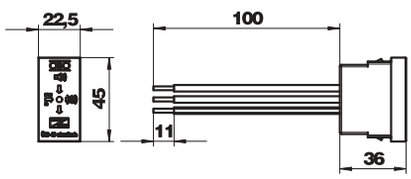
/pc.

Surge protection / network fine protection, type 3, according to EN 61643-11 for installation in Rapid 45 ducts, device installation ducts and underfloor systems.

- Version-A with acoustic function display (switchable signal tone)
- Quick and easy mounting
- Low construction width of 22.5 mm

Application: The surge protection device secures downstream and nearby sockets.

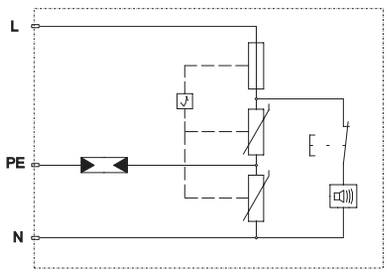
Dimensions



ÜSS 45-A-RW

Nominal voltage	U_N	230 V
Max. continuous operating voltage	U_C	255 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2.5 kA
Protection level (L-N)		< 1,5 kV
Protection level (N-PE)		< 1,5 kV
Maximum back-up fuse		16 A
Response time	t_A	25 ns
Temperature range	ϑ	-25 - +45 °C

Connection options



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Always indicate the item number when ordering.

Protection for 2-pole for power supply, 12 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF12-AC DC	13.5	1	9,000	**5097453**

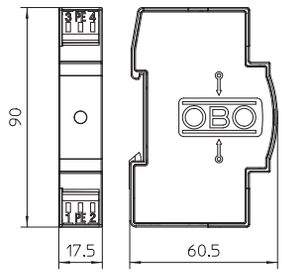
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

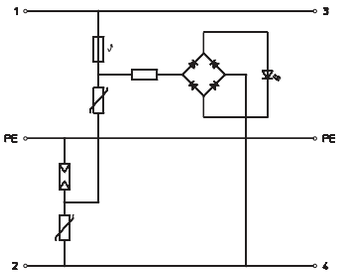
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF12-AC DC

U max AC	U_c AC	13.5 V
U max DC	U_c DC	18 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<110 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

Protection for 2-pole for power supply, 24 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF24-AC/DC	34	1	8,000	**5097607**

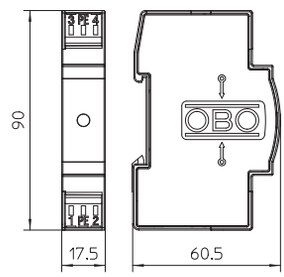
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

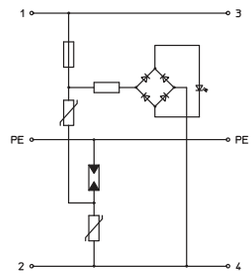
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF24-AC/DC		
U max AC	U_c AC	34 V
U max DC	U_c DC	46 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<130 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

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Always indicate the item number when ordering.

Protection for 2-pole for power supply, 48 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF48-AC/DC	60	1	8,000	**5097615**

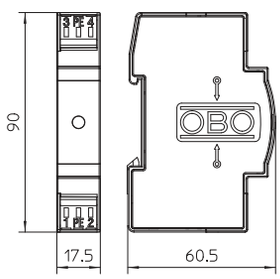
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

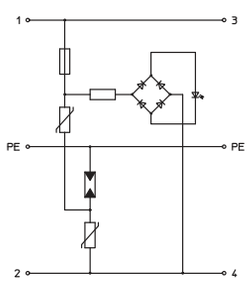
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF48-AC/DC

U max AC	U_c AC	60 V
U max DC	U_c DC	80 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<220 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

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Protection for 2-pole for power supply, 60 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF60-AC/DC	80	1	8,000	**5097623**

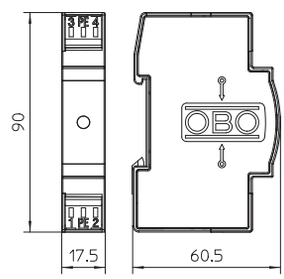
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

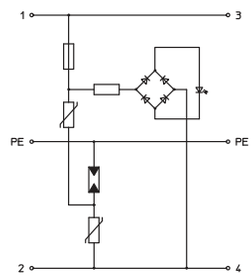
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF60-AC/DC		
U max AC	U_c AC	80 V
U max DC	U_c DC	110 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<280 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

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Always indicate the item number when ordering.

Protection for 2-pole for power supply, 110 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF110-AC DC	150	1	8,000	**5097631**

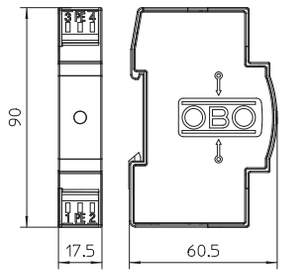
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

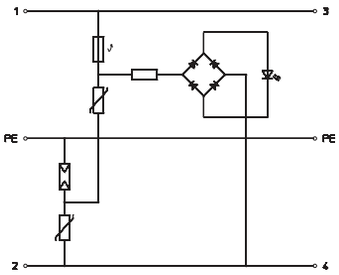
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF110-AC DC

U max AC	U_c AC	150 V
U max DC	U_c DC	200 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2 kA
Rated current	I_L	20 A
Protection level wire-wire		<500 V
Protection level wire-earth		<1400 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

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Always indicate the item number when ordering.

Protection for 2-pole for power supply, 230 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF230-AC/DC	255	1	8,000	**5097650**

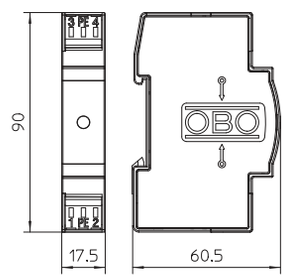
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

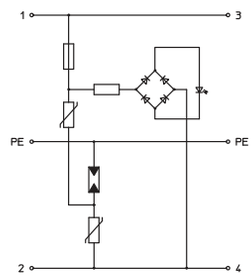
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF230-AC/DC

U max AC	U_c AC	255 V
U max DC	U_c DC	350 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2.5 kA
Rated current	I_L	20 A
Protection level wire-wire		<1000 V
Protection level wire-earth		<1400 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

Always indicate the item number when ordering.

Protection for 2-pole power supply with remote signalling, 24 V AC/DC

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF24-AC/DC-FS	34	1	6,620	**5097820**

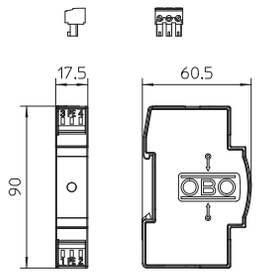
/pc.

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

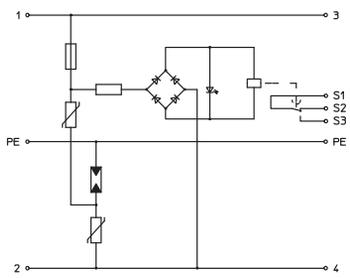
- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for DC and AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

Dimensions



Connection options



VF24-AC/DC-FS

U max AC	U_c AC	34 V
U max DC	U_c DC	46 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<160 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Protection for 2-pole power supply with remote signalling, 230 V AC

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF230-AC-FS	255	1	6,910	**5097858**

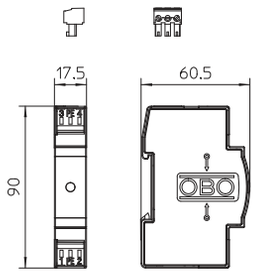
/pc.

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

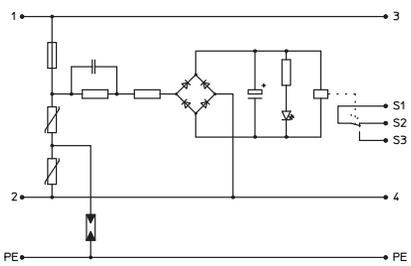
- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

Dimensions



Connection options



VF230-AC-FS

U max AC	U_c AC	255 V
U max DC	U_c DC	— V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2,5 kA
Rated current	I_L	20 A
Protection level wire-wire		<1060 V
Protection level wire-earth		<1400 V
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Always indicate the item number when ordering.

MCR protection for 2-pin for power supply with leak current-free remote signalling, 230 V AC/DC

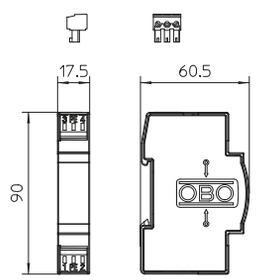
Type	U max AC V	U max DC V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF2-230-AC/DC-FS	255	350	1	6,000	**5097939**

/pc.

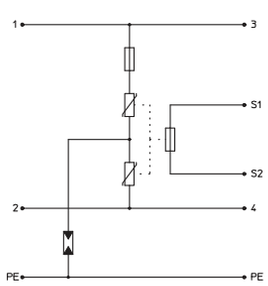
Type 3 surge protection/fine network protection to EN 61643-11 with leak current-free remote signalling
- With remote signalling: potential-free NC contact for function monitoring
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

Dimensions



Connection options



VF2-230-AC/DC-FS

U max AC	U_c AC	255 V
U max DC	U_c DC	350 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2,5 kA
Rated current	I_L	20 A
Protection level wire-wire		< 1000 V
Protection level wire-earth		< 1400 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Surge protection Photovoltaics, Arrestor type 1+2, type 2

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Photovoltaic systems

	Lightning current and surge arrestor, type 1+2, photovoltaic systems 600 V DC	298
	Lightning current and surge arrestor, type 1+2, photovoltaic systems 900 V DC	300
	Surge arrestor, type 2, photovoltaics 600 V DC	302
	Surge arrestor, type 2, photovoltaics 1,000 V DC	304
	Photovoltaic system solution with 2/3 MPP trackers	306
	Photovoltaic system solution with 1 MPP tracker	311
	Photovoltaic system solution with fuses	317
	Photovoltaic system solution with circuit breaker	320
	Photovoltaic covers	324
	Photovoltaic bases	326

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Type 1+2, combination arrestor, PV system

Y circuit

Volts	Item no.	Page
600	5093 62 3	298
900	5097 44 7	300

Type 1+2, combination arrestor with remote signalling, PV system

Y circuit + FS

Volts	Item no.	Page
600	5093 62 5	299
900	5097 44 8	301

Type 2, surge arrestor, PV system

Y circuit

Volts	Item no.	Page
600	5094 60 5	302
1,000	5094 60 8	304

Type 2, surge arrestor with remote signalling, PV system

Y circuit + FS

Volts	Item no.	Page
600	5094 57 6	303
1,000	5094 57 4	305

Always indicate the item number when ordering.

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Type 1+2, PV system solution

WR with 1 MPP

Volts	Item no.	Page
900	5088 59 1	310
900	5088 63 2	322

WR with 2 MPPs

Volts	Item no.	Page
900	5088 56 6	312

WR with 2 MPPs

Volts	Item no.	Page
900	5088 57 6	306

WR with 3 MPPs

Volts	Item no.	Page
900	5088 57 9	307

Type 2, PV system solution

WR with 1 MPP

Volts	Item no.	Page
1,000	5088 59 3	311
1,000	5088 65 0	323

WR with 2 MPPs

Volts	Item no.	Page
1,000	5088 56 8	313

WR with 2 MPPs

Volts	Item no.	Page
1,000	5088 58 2	308

WR with 3 MPPs

Volts	Item no.	Page
1,000	5088 58 5	309

Type 2, PV system solution with fuse

Unequipped 1 MPP

Volts	Item no.	Page
900	5088 58 0	314

Unequipped 2 MPP

Volts	Item no.	Page
900	5088 58 1	315

Unequipped holder

Volts	Item no.	Page
900	5088 64 0	319
1,000	5088 65 4	318

PV system solution with circuit breaker

Type 1+2

Volts	Item no.	Page
900	5088 63 5	320

Type 2

Volts	Item no.	Page
900	5088 66 0	321

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Always indicate the item number when ordering.

PV combination arrestor V50, 600 V DC

Type 1+2 | LPZ 0→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-B+C 3-PH600	600	3-pole for PV systems	1	41,000	**5093623**

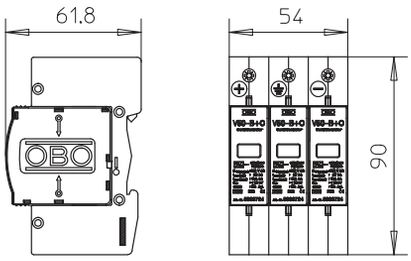
/pc.

V50 combination arrestor, type 1+2, for photovoltaic systems

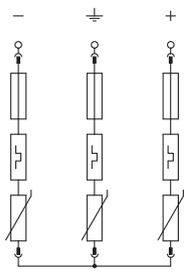
- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 12.5 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 2.6 kV and Voc max = 600 V DC
- With visual function display for use in distributor housings

Application: PV systems with lightning protection system

Dimensions



Connection options



V50-B+C 3-PH600

U max DC	U_c DC	600 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	12.5 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Voltage protection level	U_p	< 2,6 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		3
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

PV combination arrestor V50, 600 V DC with remote signalling

Type 1+2 LPZ 0→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-B+C 3PHFS600	600	3-pole for PV systems with FS	1	49,600	**5093625**

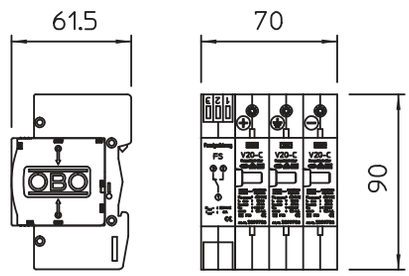
/pc.

V50 combination arrestor, type 1+2, for photovoltaic systems

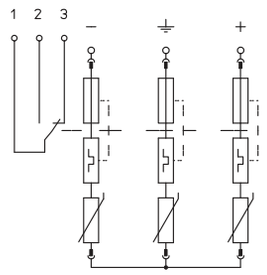
- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 12.5 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 2.6 kV and Voc max = 600 V DC
- With visual function display for use in distributor housings

Application: PV systems with lightning protection system

Dimensions



Connection options



V50-B+C 3PHFS600

U max DC	U_c DC	600 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	12.5 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Voltage protection level	U_p	< 2,6 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		4
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Always indicate the item number when ordering.

PV combination arrestor V25, 900 V DC

Type 1+2 | LPZ 0→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V25-B+C 3-PH900	900	3-pole for PV systems	1	42,200	**5097447**

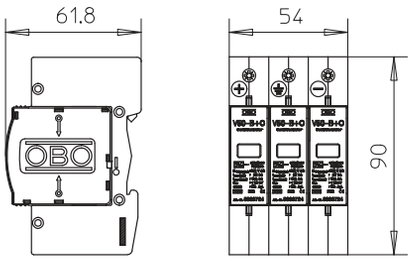
/pc.

V25 combination arrestor, type 1+2, for photovoltaic systems

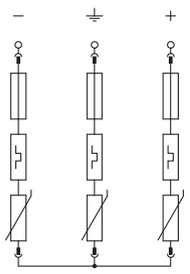
- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 7 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 3.0 kV and Voc max = 900 V DC
- With visual function display for use in distributor housings

Application: PV systems with lightning protection system

Dimensions



Connection options



V25-B+C 3-PH900

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		3
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Always indicate the item number when ordering.

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PV combination arrestor V25, 900 V DC with remote signalling

Type 1+2 | LPZ 0→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V25-B+C 3PHFS900	900	3-pole for PV systems with FS	1	53,500	**5097448**

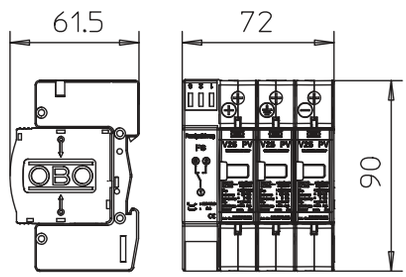
/pc.

V25 combination arrestor, type 1+2, for photovoltaic systems

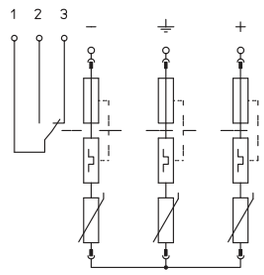
- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 7 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 3.0 kV and Voc max = 900 V DC
- With visual function display for use in distributor housings

Application: PV systems with lightning protection system

Dimensions



Connection options



V25-B+C 3PHFS900

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		4
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Always indicate the item number when ordering.

PV surge protection V20, 600 V DC

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-C 3PH-600	600	3-pole for PV systems	1	33,500	**5094605**

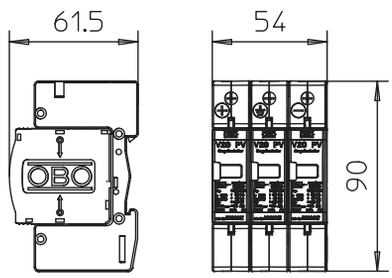
/pc.

V20 surge arrestor, type 2, for PV systems

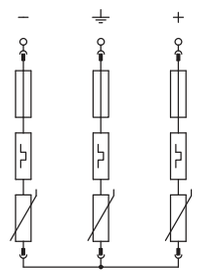
- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit for use according to VDE 0100-712 (EN 50539-12)
- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pole
- Low DC protection level: < 2.6 kV (Voc max = 600 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, zinc oxide varistor arrestor for use in distributor housings

Application: PV systems with or without separate lightning protection system

Dimensions



Connection options



V20-C 3PH-600

U max DC	U_c DC	600 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 2,6 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		3
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Always indicate the item number when ordering.

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PV surge protection V20, 600 V DC with remote signalling

Type 2 | LPZ 1→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-C 3PHFS-600	600	3-pole for PV systems with FS	1	41,500	**5094576**

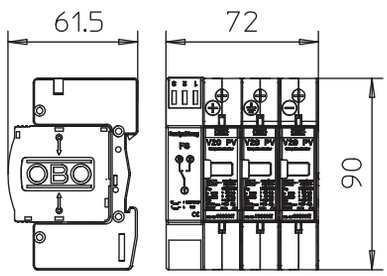
/pc.

V20 surge arrestor, type 2, for PV systems

- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit for use according to VDE 0100-712 (EN 50539-12)
- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pole
- Low DC protection level: < 2.6 kV (Voc max = 600 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, zinc oxide varistor arrestor for use in distributor housings

Application: PV systems with or without separate lightning protection system

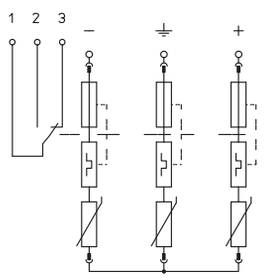
Dimensions



V20-C 3PHFS-600

U max DC	U_c DC	600 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 2,6 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		4
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Connection options



Always indicate the item number when ordering.

PV surge protection V20, 1,000 V DC

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-C 3-PH-1000	1000	3-pole for PV systems	1	36,500	**5094608**

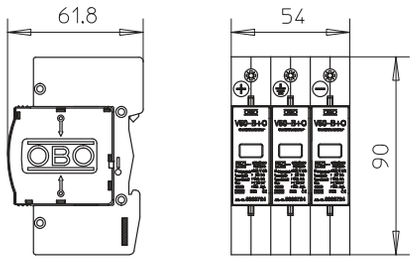
/pc.

V20 surge arrestor, type 2, for photovoltaic systems

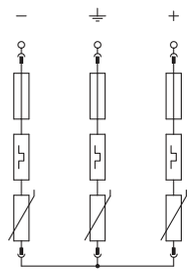
- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- V20-C 3-PH-1000 tested to EN 50539-11 (VDE / KEMA)
- Arresting capacity to 40 kA (8/20) per pole
- Low DC protection level: < 4.0 kV and Voc max = 1,000 V DC
- With visual function display for use in distributor housings

Application: PV systems with or without separate lightning protection system

Dimensions



Connection options



V20-C 3-PH-1000

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		3
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

PV surge protection V20, 1,000 V DC with remote signalling

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-C 3PHFS-1000	1000	3-pole for PV systems with FS	1	44,500	**5094574**

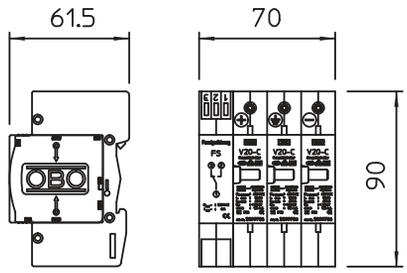
/pc.

V20 surge arrestor, type 2, for photovoltaic systems

- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- V20-C 3-PH-1000 tested to EN 50539-11 (VDE / KEMA)
- Arresting capacity to 40 kA (8/20) per pole
- Low DC protection level: < 4.0 kV and Voc max = 1,000 V DC
- With visual function display for use in distributor housings

Application: PV systems with or without separate lightning protection system

Dimensions



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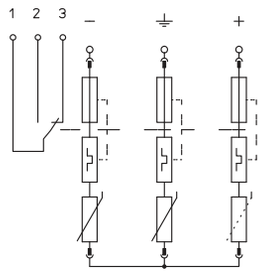


V20-C 3PHFS-1000

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		4
Connection cross-section rigid		2.5 - 35 mm²
Connection cross-section, multi-wire		2.5 - 35 mm²
Connection cross-section, flexible		2.5 - 25 mm²

Always indicate the item number when ordering.

PV system solution, type 1+2, for inverter with 2 MPP trackers, 900 V DC

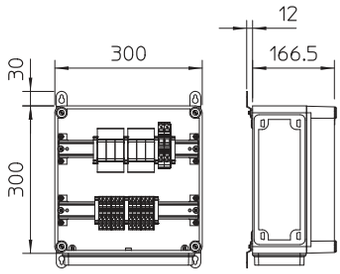
Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-BCPV 900K 330	900	For two MPP and with terminal connection	1	478,000	**5088576**

/pc.

System solution for photovoltaic inverter with 2 separate MPP trackers
- Varistor arrestor, connectable with disconnecting device in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



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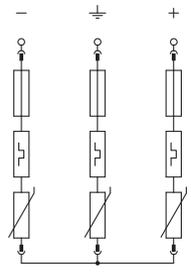

VG-BCPV 900K 330

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	60 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP65

Always indicate the item number when ordering.

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PV system solution, type 1+2, for inverter with 3 MPP trackers, 900 V DC

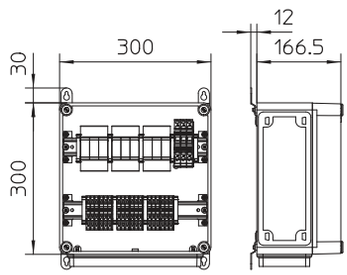
Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-BCPV 900K 333	900	For three MPP and with terminal connection	1	546,000	**5088579**

/pc.

System solution for photovoltaic inverter with 3 separate MPP trackers
- Varistor arrestor, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



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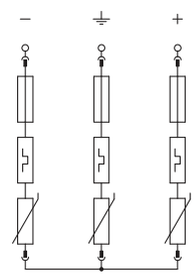


VG-BCPV 900K 333

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	60 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP65

Always indicate the item number when ordering.

PV system solution, type 2, for inverter with 2 MPP trackers, 1,000 V DC

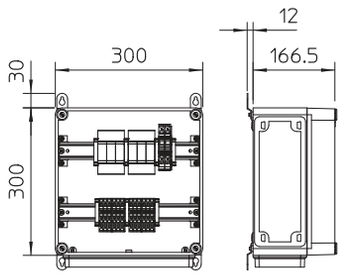
Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-CPV 1000K 330	1000	For two MPP and with terminal connection	1	468,000	**5088582**

/pc.

System solution for photovoltaic inverter with 2 separate MPP trackers
- Varistor arrestor, connectable with disconnecting device in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



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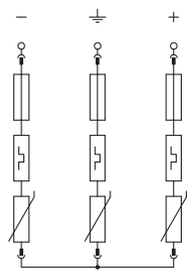

VG-CPV 1000K 330

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	– kA
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP65

Always indicate the item number when ordering.

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PV system solution, type 2, for inverter with 3 MPP trackers, 1,000 V DC

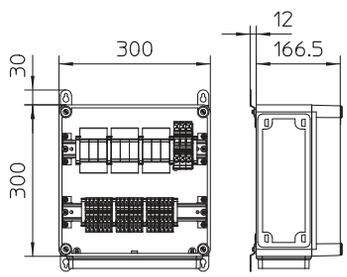
Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-CPV 1000K 333	1000	For three MPP and with terminal connection	1	528,000	**5088585**

/pc.

System solution for photovoltaic inverter with 3 separate MPP trackers
- Varistor arrestor, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



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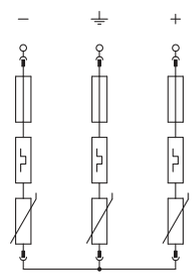


VG-CPV 1000K 333

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	— kA
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP65

Always indicate the item number when ordering.

PV system solution, type 1+2, for inverter with 1 MPP trackers, 900 V DC

Type 1+2 | Type 2 | LPZ 0→1 | LPZ 1→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-V25-BC3-PH900	900	Type 1+2 in housing with terminals	1	93,000	**5088591**

/pc.

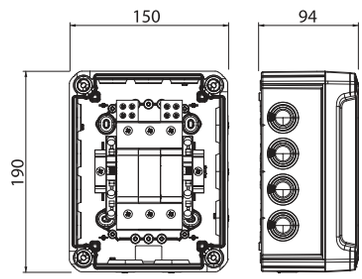
System solution for photovoltaic inverter with 1 separate MPP tracker

- Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- For each protection devices, there are 3 terminal points up to 16 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Low DC protection level: < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-450PV)

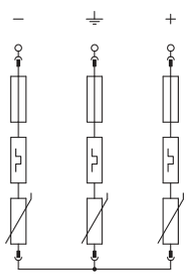
- Pre-mounted in polycarbonate housing (IP66), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-V25-BC3-PH900

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Connection cross-section rigid		1.5 - 16 mm²
Connection cross-section, flexible		1.5 - 10 mm²
Temperature range	ϑ	-40-+80 °C
Protection rating		IP66

Always indicate the item number when ordering.

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PV system solution, type 2, for inverter with 1 MPP trackers, 1,000 V DC

Type			Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-V20-C3-PH1000	—	—	IP66	1	87,000	**5088593**

/pc.

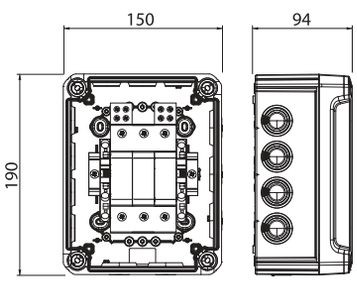
System solution for photovoltaic inverter with 1 separate MPP tracker

• Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
• For each protection devices, there are 3 terminal points up to 16 mm² pre-mounted in the housing, up to 30 A DC per terminal
• Low DC protection level: < 4.0 kV (Uoc max = 1,000 V DC with V20-B/0-500PV)

• Pre-mounted in polycarbonate housing (IP66), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



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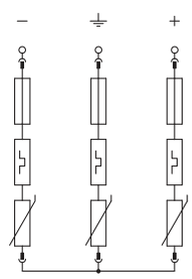


VG-V20-C3-PH1000

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	— kA
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Connection cross-section rigid		1.5 - 16 mm²
Connection cross-section, flexible		1.5 - 10 mm²
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP66

Always indicate the item number when ordering.

PV system solution, type 1+2, for inverter with 2 MPP trackers, 900 V DC

Type			Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-BCPV900K 22	—	—	IP66	1	220,000	**5088566**

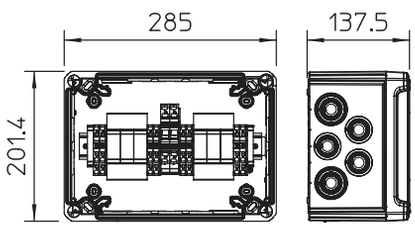
/pc.

System solution for photovoltaic inverter with 2 separate MPP trackers

- Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device, there are 4 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP66), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



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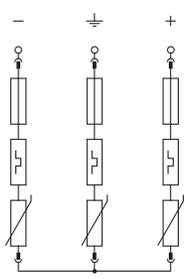

VG-BCPV900K 22

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	60 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-30 - 90 °C
Protection rating		IP66

Always indicate the item number when ordering.

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PV system solution, type 2, for inverter with 2 MPP trackers, 1,000 V DC

Type 2 | LPZ 1→2

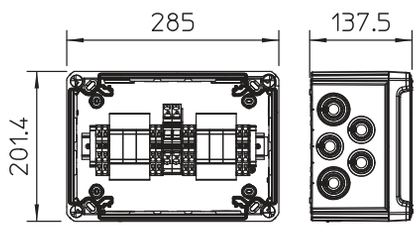
Type			Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-CPV1000K 22	—	—	IP65	1 /pc.	216,600	**5088568**

System solution for photovoltaic inverter with 2 separate MPP trackers

- Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-500PV)
- Per protection device, there are 4 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP66), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

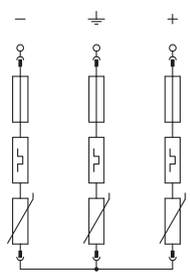
Dimensions



VG-CPV1000K 22

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	— kA
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP65

Connection options



Always indicate the item number when ordering.

PV system solution, type 2, for inverter with 1 MPP tracker, 900 V DC

Type	U max DC V		Weight kg/100 pcs.	Item No.
VG-BCPV 900KS 1	900	–	85,000	**5088580**

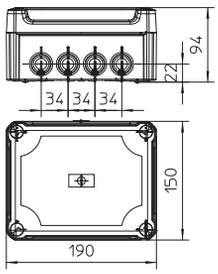
/pc.

System solution for photovoltaic fuses (unequipped) for photovoltaic inverters with 1 MPP tracker

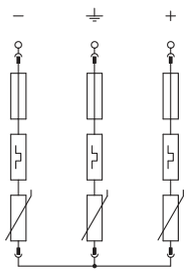
- Error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V50-C/0-450PV)
- (+) poles protected via 1 photovoltaic fuses 10x38 mm (unequipped), 900 V DC protected
- 1 (-) pole via terminal up 6 mm² switched in parallel in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP66), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-BCPV 900KS 1

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	60 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Connection cross-section rigid		0.5 - 10 mm²
Connection cross-section, flexible		0.5 - 6 mm²
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP66

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PV system solution, type 2, for inverter with 2 MPP trackers, 900 V DC

Type	U max DC V		Weight kg/100 pcs.	Item No.
VG-BCPV 900KS 11	900	–	230,000	**5088581**

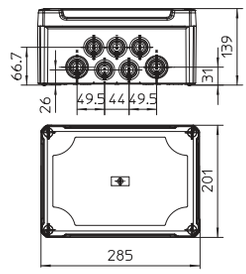
/pc.

System solution for photovoltaic fuses (unequipped) for photovoltaic inverters with 2 MPP tracker

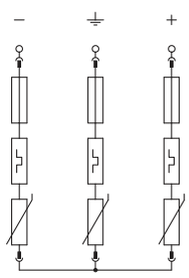
- Error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V50-C/0-450PV)
- (+) poles protected via 1 photovoltaic fuses 10x38 mm (unequipped), 900 V DC protected
- 1 (-) pole via terminal up 6 mm² switched in parallel in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP66), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-BCPV 900KS 11

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	60 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Connection cross-section rigid		0.5 - 10 mm²
Connection cross-section, flexible		0.5 - 6 mm²
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP66

Always indicate the item number when ordering.

PV system solution, type 2, for inverter with 2 MPP trackers, 1,000 V DC

Type 2 | LPZ 1→2

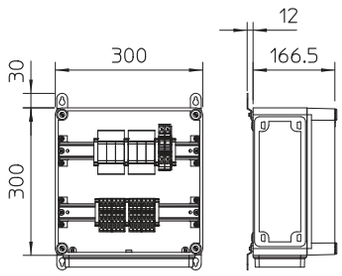
Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-CPV 1000K 330	1000	For two MPP and with terminal connection	1	468,000	**5088582**

/pc.

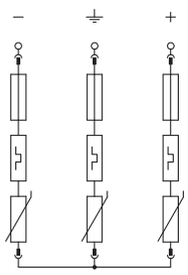
System solution for photovoltaic inverter with 2 separate MPP trackers
- Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1000 V DC with V20-B+C/0-500PV)
- Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-CPV 1000K 330

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	– kA
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP65

Always indicate the item number when ordering.

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Photovoltaic housing with 4 fuses 10 A

Type 2 | LPZ 1→2 | Type 1+2 | LPZ 0→2

Type	U max DC V		Weight kg/100 pcs.	Item No.
VG-C DCPH1000-4S	1000	–	200,000	**5088651**

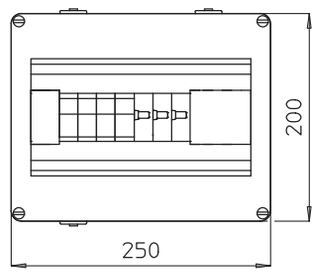
/pc.

System solution for photovoltaic fuses for photovoltaic inverters with 1 MPP tracker

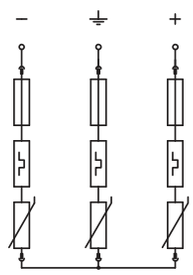
- Error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1000 V DC with V20-C/0-500PV)
- (+) poles protected via 4 photovoltaic fuses 10x38 mm 10 A, 1000 V DC protected
- 4 (-) poles via terminal up 6 mm² switched in parallel in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-C DCPH1000-4S

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Connection cross-section rigid		0.5 - 6 mm²
Connection cross-section, flexible		0.5 - 6 mm²
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 65

Always indicate the item number when ordering.

Photovoltaic housing with 4 fuse holders, unequipped

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-C PV1000KS4	1000	Type 2 in housing with fuse holder (unequipped)	1	190,000	**5088654**

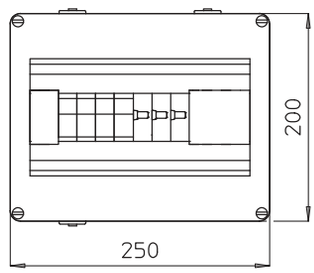
/pc.

System solution for photovoltaic fuses (unequipped) for photovoltaic inverters with 1 MPP tracker

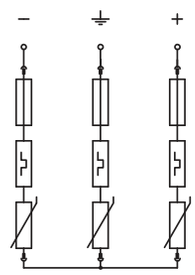
- Error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1000 V DC with V20-C/0-500PV)
- (+) poles protected via 4 photovoltaic fuses 10x38 mm (unequipped), 1000 V DC protected
- 4 (-) poles via terminal up 6 mm² switched in parallel in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-C PV1000KS4

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	— kA
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Connection cross-section rigid		0.5 - 6 mm²
Connection cross-section, flexible		0.5 - 6 mm²
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 65

Always indicate the item number when ordering.

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Photovoltaic housing with 4 fuse holders, V25, 900 V

Type 2 | LPZ 1→2 | Type 1+2 | LPZ 0→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-BC PV900KS4	900	Type 1+2 in housing with fuse holder (unequipped)	1	205,000	**5088640**

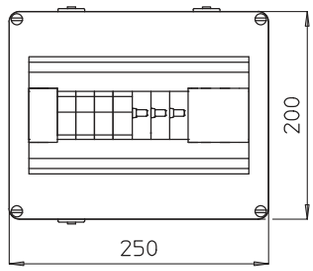
/pc.

System solution for photovoltaic fuses (unequipped) for photovoltaic inverters with 1 MPP tracker

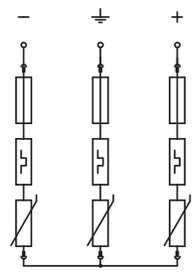
- Error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- (+) poles protected via 4 photovoltaic fuses 10x38 mm (unequipped), 900 V DC protected
- 4 (-) poles via terminal up 6 mm² switched in parallel in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-BC PV900KS4

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	60 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Connection cross-section rigid		0.5 - 6 mm²
Connection cross-section, flexible		0.5 - 6 mm²
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 65

Always indicate the item number when ordering.

PV system solution, type 1+2, to 900 V DC with circuit breaker (32 A)

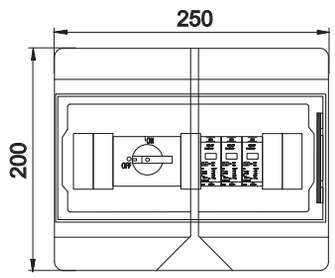
Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-BC DC-TS900	900	Type 1+2 and Benedikt LS32-SMA-A4 DC isolator	1	182,500	**5088635**

/pc.

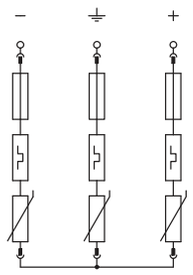
System solution for circuit breaker photovoltaic inverter with 1 MPP tracker
• Varistor arrestor, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
• Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
• Circuit breaker (1000 V; 32 A) for secure switch-off of the DC string cable
• Per protection device there is 1 terminal up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
• Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-BC DC-TS900

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP65
Connection cross-section String		0.5 - 10
Connection cross-section PE		0.5 - 10

Always indicate the item number when ordering.

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PV system solution, type 2, to 1,000 V DC with circuit breaker (32 A)

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-C DC-TS1000	1000	Type 2 and Benedikt LS32-SMA-A4 DC isolator	1	182,500	**5088660**

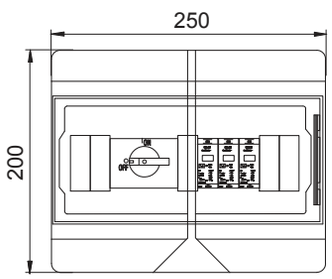
/pc.

System solution for circuit breaker photovoltaic inverter with 1 MPP tracker

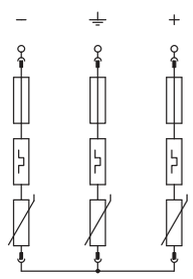
- Varistor arrestor, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-B+C/0-500PV)
- Circuit breaker (1,000 V; 32 A) for secure switch-off of the DC string cable
- Per protection device, there is 1 terminal up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-C DC-TS1000

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	— kA
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP65
Connection cross-section String		0.5 - 10
Connection cross-section PE		2.5 - 35

Always indicate the item number when ordering.

PV system solution with connection terminals, type 1+2, 900 V DC, incl. V-Tec entry set

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-BC DCPH900-4K	900	Type 1+2 in housing with terminals	1	171,000	**5088632**

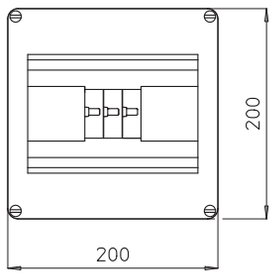
/pc.

System solution for photovoltaic inverter with 1 MPP tracker

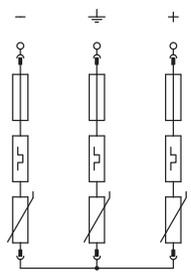
- Varistor arrestor, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 2.6 kV (Voc max = 600 V DC with V50-B+C/0-300PV / V20-C/0-300PV)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- Low DC protection level: < 4.0 kV (Voc max = 1000 V DC with V20-C/0-500PV)
- For each protection device, there are 10 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions



Connection options



VG-BC DCPH900-4K

U max DC	U_c DC	900 V
SPD to EN 61643-11		Type 1+2
Lightning protection zone LPZ		0→2
Impulse discharge current (10/350)	I_{imp}	7 kA
Nominal discharge current (8/20)	I_n	30 kA
Maximum discharge current (8/20 µs)	I_{max}	50 kA
Voltage protection level	U_p	< 3,0 kV
Response time	t_A	< 25 ns
Connection cross-section rigid		0.5 - 6 mm²
Connection cross-section, flexible		0.5 - 6 mm²
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 65

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PV system solution with connection terminals, type 2, 1,000 V DC, incl. V-Tec entry set

Type 2 | LPZ 1→2 | Type 1+2 | LPZ 0→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VG-C DCPH1000-4K	1000	Type 2 in housing, incl. V-Tec Set	1	162,000	**5088650**

/pc.

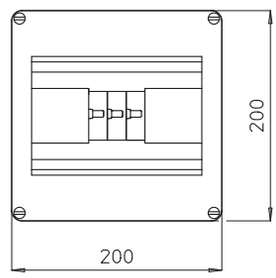
System solution for photovoltaic systems with connection terminals and entry set

- Error-resistant Y circuit with 3 varistors for use according to VDE 0100-712
- Low DC protection level: < 4.0 kV (Voc max = 1000 V DC with V20-C/0-500PV)
- 5 parallel connection terminals to 6 mm² per polarity (+ and -)
- V-Tec entries set included
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated zinc oxide varistor arrestor for use in distributor housings
- Polycarbonate housing, weatherproof for outdoor use.

Note: 5 PV strings can be switched in parallel on the terminals. The technical data (string voltage, etc.) and the conditions of the converter (number of MPP trackers) must be taken into account.

Note: If there is a danger of condensation formation, wind, ice formation, temperatures and direct sunlight, additional measures may be necessary!

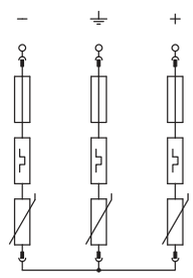
Dimensions



VG-C DCPH1000-4K

U max DC	U_c DC	1000 V
SPD to EN 61643-11		Type 2
Lightning protection zone LPZ		1→2
Impulse discharge current (10/350)	I_{imp}	— kA
Nominal discharge current (8/20)	I_n	20 kA
Maximum discharge current (8/20 µs)	I_{max}	40 kA
Voltage protection level	U_p	< 4,0 kV
Response time	t_A	< 25 ns
Connection cross-section rigid		0.5 - 6 mm²
Connection cross-section, flexible		0.5 - 6 mm²
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 65

Connection options



Always indicate the item number when ordering.

PV upper part - lightning and surge arrestor, type 1+2

CE Type 1+2 LPZ 0→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-B+C 0-300PV	300	1-pole, PV upper part with Y base to 600 V DC	1	8,200	**5093726**

/pc.

V50-B+C/...PV: CombiController upper part, type 1+2, combination arrestor for photovoltaic systems

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 12.5 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 1.3 kV per pole (Y circuit: 2.6 kV and Voc max = 600 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, zinc oxide varistor arrestor for use in distributor housings
- High current carrying capacity with long lifespan

Application: PV systems with or without separated insulated lightning protection system

PV upper part - lightning and surge arrestor, type 1+2

CE Type 1+2 LPZ 0→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V25-B+C 0-450PV	450	1-pole, PV upper part with Y base to 900 V DC	1	9,500	**5097065**

/pc.

V25-B+C/...PV: CombiController upper part, type 1+2, combination arrestor for photovoltaic systems

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 7 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 1.5 kV per pole (Y circuit: 3.0 kV and Voc max = 900 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, zinc oxide varistor arrestor for use in distributor housings
- High current carrying capacity with long lifespan

Application: PV systems with or without separated insulated lightning protection system

PV upper part - surge arrestor, type 2

CE Type 2 LPZ 1→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-C 0-300PV	300	1-pole, PV upper part with Y base to 600 V DC	1	5,500	**5099611**

/pc.

V20-C/...PV: SurgeController upper part, type 2, surge arrestor for photovoltaic systems

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin

- Low DC protection level: < 1.3 kV per pole (Y circuit: 2.6 kV and Voc max = 600 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrestor for use in distributor housings
- High current carrying capacity with long lifespan

Application example: PV systems with or without separated insulated lightning protection system

PV upper part - surge arrestor, type 2

Type 2 | LPZ 1→2

Type	U max DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-C 0-500PV	500	1-pole, PV upper part with Y base to 1,000 V DC	1	6,500	**5099708**

/pc.

V20-C/...PV: SurgeController upper part, type 2, surge arrestor for photovoltaic systems

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin

- Low DC protection level: < 1.3 kV per pole (Y circuit: 2.6 kV and Voc max = 600 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrestor for use in distributor housings
- High current carrying capacity with long lifespan

Application example: PV systems with or without separated insulated lightning protection system

Always indicate the item number when ordering.

PV base, 3-pole in Y circuit

CE Type 1+2 Type 2 LPZ 0→1 LPZ 1→2 FS

Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-C U-3PH-Y	3-pole Y circuit for PV	1	17,000	**5096647**

/pc.

V 20-C/3-PH-Y: Bottom part for photovoltaic systems up to Uoc = 1,000 V (Y-circuit)

- Suitable for V 25-B+C upper parts type 1+2 combination arrestor
- Suitable for V 20-C upper parts type 2 surge arrestor
- Protection circuit against transverse and longitudinal voltages
- Y-protection circuit
- Low protection level < 4.0 kV (Uoc max = 1,000 V DC with V20-C/0-440)
- Low protection level < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-385)
- Low protection level < 2.6 kV (Uoc max = 600 V DC with V50-C/0-280)

Indicated connectors
Application: In photovoltaic systems between PH modules and inverters.

PV base, 3-pole in Y circuit with remote signalling

CE Type 1+2 Type 2 LPZ 0→1 LPZ 1→2 FS

Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-C U-3PH-Y-FS	3-pole Y circuit for photovoltaic systems with FS	1	25,000	**5096646**

/pc.

V 20-C/U-3-PH-Y-FS: Base for photovoltaic systems up to Voc=1,000 V (Y circuit)

- Suitable for V 50-B+C and V25-B+C upper parts, type 1+2 combination arrestor
- Suitable for V 20-C upper parts, type 2, surge arrestor
- Protection circuit against transverse and longitudinal voltages
- Y circuit
- Low protection level < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-440)
- Low protection level < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-385)

Low protection level < 2.6 kV (Voc max = 600 V DC with V50-C/0-280)
- -FS with remote signalling, potential-free changeover contact, for function monitoring
- Labelled connections

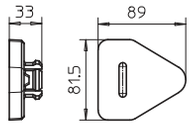
Application: In photovoltaic systems between PH modules and inverters.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Shock Guard locking for strong vibrations

Type	Colour	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
MB-SG	Blue	Locking system for upper parts	100	0,060	**5096695**

PA Polyamide /pc.



Shock Guard: Locking for connector technology on MultiBase bases

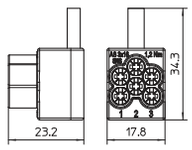
- Locking system for the plug-in modules/upper parts
- Vibration and shock-tested
- Use in housing hole of the connection terminals
- Upper parts can be removed without tools

Connection terminal for V wiring

CE

Type	Colour	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
AS 3x16	Light grey	3x16mm²	5	2,474	**5012010**

/100 pc.



Connection terminal type: AS 3 x 16

Connection cross-section: 3 x 1.5 - 16 sq mm rigid/ multiple strands
3 x 1.5 - 10 sq mm fine-wire/with wire end sleeve
Stripping length: 16 mm
Rec. tightening torque: 1.2 Nm
Nominal current: 50 A
Width: 17.5 mm (1 TE)

For EMV-optimised V through-wiring to IEC 60364-5-53 (VDE 0100-534).

Always indicate the item number when ordering.

Surge protection
Data and information technology

Always indicate the item number when ordering.

02 TBS Kostenkatalog Länder en / 30/112016 (LLE part 04408) / 30/112016

Surge protection, data and information technology

	Surge protection for telecommunication systems	333
	Surge protection for LSA-Plus systems	345
	Coaxial protection devices for high-frequency applications	351
	Surge protection for network technology	366
	Surge protection for data technology	373
	Surge protection for serial interfaces	377
	MCR protection 2-pole power supply	381
	MCR protection FRD/FLD/TKS-B lightning protection barriers	393
	MCR protection MDP, in series terminal format	413

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Telecommunications, fixed mounting

VDSL

MHz	Item no.	Page
0–225	5081 69 8	333

ISDN + Analogue

MHz	Item no.	Page
0–100	5081 69 0	334

TAE

MHz	Item no.	Page
0–100	5081 69 2	335

Hat rail

MHz	Item no.	Page
0–75	5081 69 4	336

Telecommunications, cable adapter

Combination arrestors

Type	Item no.	Page
RJ11	5081 97 5	339
RJ45	5081 98 2	341

Fine protection

Type	Item no.	Page
RJ11	5081 97 7	340
RJ45	5081 98 4	342

LSA basic protection

Volts	Item no.	Page
180	5084 02 0	345

LSA basic + fine protection

Volts	Item no.	Page
24	5084 02 8	347
180	5084 02 4	346

High-frequency technology, coaxial arrestors

S-UHF

Type	Item no.	Page
M/F	5093 02 3	351
W/W	5093 01 5	352

BNC

Type	Item no.	Page
M/F	5093 25 2	353
W/W	5093 23 6	354
M/M	5093 26 0	355

N

Type	Item no.	Page
M/F	5093 99 8	358
M/F	5093 99 6	356
W/W	5093 98 8	357

TNC

Type	Item no.	Page
M/F	5093 27 0	359

7/16

Type	Item no.	Page
M/F	5093 17 1	362

F

Type	Item no.	Page
M/F	5093 27 5	361
W/W	5093 27 2	362

SMA

Type	Item no.	Page
W/W	5093 27 7	363

F/SAT

Type	Item no.	Page
W/W	5083 40 0	364

Always indicate the item number when ordering.

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Data and network technology

Eth. RJ45

Type	Item no.	Page
CAT6A/EA	5081 80 0	366
CAT5e	5081 99 0	367

BNC/CCTV

Type	Item no.	Page
Combination	5082 43 0	368
Fine	5082 43 2	369
Fine	5082 43 4	370

RJ45/4-pole

Type	Item no.	Page
Combination	5081 00 3	374
Fine	5081 00 5	375
Basic	5081 00 1	373

Sub-D

Type	Item no.	Page
SD09-V24	5080 05 3	377
SD15-V24	5080 15 0	378
SD09-V11	5080 06 1	379

Measurement and control technology

FRD

Volts	Item no.	Page
5	5098 49 2	396
12	5098 50 6	397
24	5098 51 4	398
48	5098 52 2	399
110	5098 55 7	400

FRD-2

Volts	Item no.	Page
24	5098 72 7	407

FLD

Volts	Item no.	Page
5	5098 60 0	402
12	5098 60 3	403
24	5098 61 1	404
48	5098 63 0	405
60	5098 63 8	406
110	5098 64 6	407

FLD-2

Volts	Item no.	Page
5	5098 86 7	408
12	5098 80 8	409
24	5098 81 6	410
110	5098 85 9	411

MDP 2-pole

Volts	Item no.	Page
5	5098 40 4	413
24	5098 42 2	416
48	5098 44 2	419

MDP 3-pole

Volts	Item no.	Page
5	5098 40 7	414
24	5098 42 7	417
48	5098 44 6	420

MDP 4-pole

Volts	Item no.	Page
5	5098 41 1	415
24	5098 43 1	418
48	5098 45 0	421

MDP, 10 A, 2-pole

Volts	Item no.	Page
12	5098 41 5	423
24	5098 42 5	425

MDP, 10 A, 4-pole

Volts	Item no.	Page
5	5098 41 3	422
12	5098 41 9	424
24	5098 43 3	426

MDP EX 4-pole

Volts	Item no.	Page
5	5098 41 2	431
24	5098 43 2	432
48	5098 45 2	433

FDB 2-pole 24 V

Type	Item no.	Page
Metric	5098 38 0	435
NPT	5098 39 0	437

FDB 3-pole 24 V

Type	Item no.	Page
Metric	5098 38 2	436
NPT	5098 39 2	438

Always indicate the item number when ordering.

Surge protection devices for telecommunications applications: The plus of the combination protection devices

+ Simple installation
+ Low protection level
+ High arresting capability
+ High bandwidth
+ Wide range of uses

Combined protection device for VDSL, ISDN and DSL systems

Function and areas of use

The data cable protection devices for telecommunications applications are available as combination protection and fine protection.

Depending on the application, from DSL through to analogue communication, the devices are used for direct intermediate switching into the data cable, meaning that they can easily be retrofitted in existing installations.

The devices differ in their connection technology and transmission cable and are thus optimised for their appropriate applications, in order to cause the lowest attenuation level possible.

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Combination protection device for VDSL systems

IP 54 | LPZ 0→3 | ISDN | DSL | Analog TK

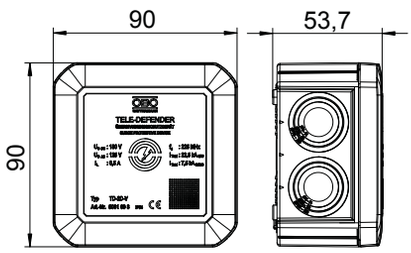
Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
TD-2D-V	125	180	2	Terminal	1	9,500	**5081698**
Plastic							/pc.

Data cable protection device for telecommunications equipment

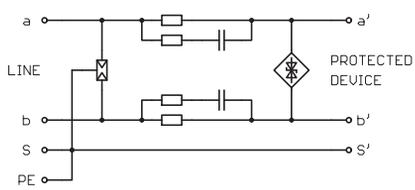
- Low protection level at a high current load
- "Push-in" clamps for quick installation
- Bandwidth-optimised for secure transmission up to 225 MHz
- Surface mounting

Application: Ideal for all DSL systems, IP connections, ISDN or analogue telecommunications

Dimensions



Connection options



TD-2D-V

Maximum continuous voltage AC	U_C	125 V
Maximum continuous voltage DC	U_C	180 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.5 A
Capacity (wire-wire)		<10 pF
Capacity (wire-earth)		<20 pF
Series resistance per wire		2,2 Ω ± 5 %
Impulse current resistance wire-wire		C2: 15 kV / 7,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 15 kV / 7,5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		22,5 kA
Total arrester surge current (10/350)		D1: 7,5 kA
Protection level wire-wire		<350 V
Protection level wire-earth		<600 V
Protection level shield-earth (S-PE)		— V
Frequency range		0 - 225 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Surface-mounted
Connection system		Terminal
Protection rating		IP54
Shielding connection available		Yes
Connection cross-section, flexible		0.14 - 1 mm²
Connection cross-section, multi-wire		0.14 - 1 mm²
Connection cross-section rigid		0.08 - 1.5 mm²
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Combination protection device for ISDN and DSL systems

IP 54 | LPZ 0→3 | ISDN | DSL | Analog TK

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
TD-4/I	120	170	4	Terminal	1	11,000	**5081690**

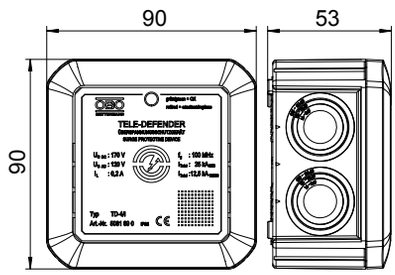
Plastic /pc.

Data cable protection device for telecommunications equipment

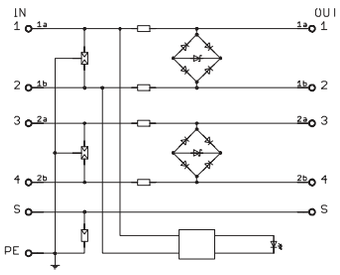
- Low protection level at a high current load
- "Push-in" terminals for quick installation
- Bandwidth-optimised for secure transmission
- Surface mounting
- Visual function display

Application: DSL systems, IP connections, ISDN or analogue telecommunications

Dimensions



Connection options



TD-4/I

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	170 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	0.2 A
Capacity (wire-wire)		<50 pF
Capacity (wire-earth)		<10 pF
Series resistance per wire		9 Ω ± 10 %
Impulse current resistance wire-wire		C2: 18 kV / 9 kA (8/20µs)
Impulse current resistance wire-earth		C2: 18 kV / 9 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		25 kA
Total arrester surge current (10/350)		D1: 12,5 kA
Protection level wire-wire		<300 V
Protection level wire-earth		<650 V
Protection level shield-earth (S-PE)		850 V
Frequency range		0 - 100 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Surface-mounted
Connection system		Terminal
Protection rating		IP54
Shielding connection available		Yes
Connection cross-section, flexible		0.14 - 0.75 mm²
Connection cross-section, multi-wire		0.14 - 0.75 mm²
Connection cross-section rigid		0.14 - 0.75 mm²
Testing standard		IEC 61643-21

Combination protection device for ISDN and DSL systems

IP 20 | LPZ 0→3 | ISDN | DSL | Analog TK

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
TD-4/I-TAE-F	120	170	4	Terminal	1	12,300	**5081692**

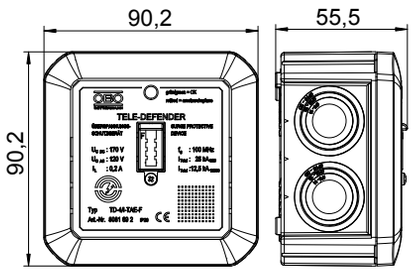
Plastic /pc.

Data cable protection device for telecommunications equipment

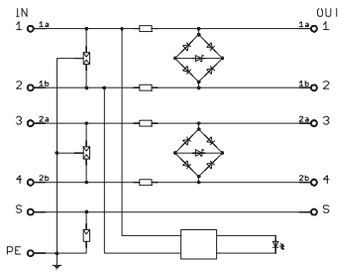
- Low protection level at a high current load
- "Push-in" terminals for quick installation
- Bandwidth-optimised for secure transmission
- Preinstalled TAE socket for Plug & Play
- Surface mounting
- Visual function display

Application: DSL systems, IP connections, ISDN or analogue telecommunications

Dimensions



Connection options



TD-4/I-TAE-F

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	170 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	0.2 A
Capacity (wire-wire)		<50 pF
Capacity (wire-earth)		<10 pF
Series resistance per wire		9 Ω ± 10 %
Impulse current resistance wire-wire		C2: 18 kV / 9 kA (8/20µs)
Impulse current resistance wire-earth		C2: 18 kV / 9 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		25 kA
Total arrester surge current (10/350)		D1: 12,5 kA
Protection level wire-wire		<300 V
Protection level wire-earth		<650 V
Protection level shield-earth (S-PE)		850 V
Frequency range		0 - 100 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Surface-mounted
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Connection cross-section, flexible		0.14 - 0.75 mm²
Connection cross-section, multi-wire		0.14 - 0.75 mm²
Connection cross-section rigid		0.14 - 0.75 mm²
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Combination protection device for ISDN and DSL systems

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
TD-2/D-HS	120	170	2	Terminal	1	4,800	**5081694**

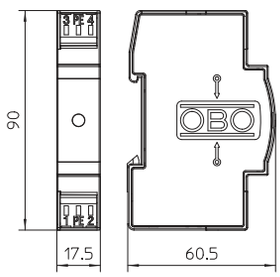
Plastic /pc.

Data cable protection devices for telecommunication systems

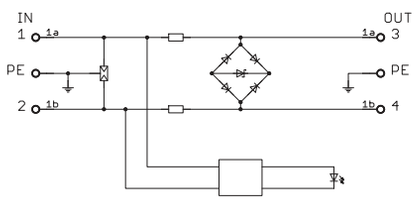
- Low protection level at high current load
- Screwless terminals or connectable
- Bandwidth-optimised for secure transmission
- Quick mounting onto DIN rail for a telephone line
- Visual function display

Application: DSL systems, ISDN or analogue telecommunication

Dimensions



Connection options



TD-2/D-HS

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	170 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.2 A
Capacity (wire-wire)		<50 pF
Capacity (wire-earth)		<50 pF
Series resistance per wire		9 Ω ± 10 %
Impulse current resistance wire-wire		C2: 18 kV / 9 kA (8/20µs)
Impulse current resistance wire-earth		C2: 18 kV / 9 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 5 kA kA
Protection level wire-wire		<300 V
Protection level wire-earth		<650 V
Protection level shield-earth (S-PE)		— V
Frequency range		0 - 75 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		No
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Testing standard		IEC 61643-21

Surge protection devices for telecommunications applications: The plus of the fine protection devices RJ11-Tele and RJ45 Tele

+ Simple installation
+ Low protection level
+ High arresting capability
+ High bandwidth
+ Wide range of uses

Combination and fine protection device for analogue cables

Function and applications
The data cable protection devices for telecommunications applications are available as combination protection and fine protection.
Depending on the application, from DSL through to analogue communication, the devices are used for direct intermediate switching into the data cable, meaning that they can easily be retrofitted in existing installations.
The devices differ in their connection technology and transmission cable and are thus optimised for their appropriate applications, in order to cause the lowest attenuation level possible.

Always indicate the item number when ordering.

Combination protection device for ISDN RJ11

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
RJ11-TELE 4-C	Combi protection, 4 wires	RJ11	1	14,000	**5081975**

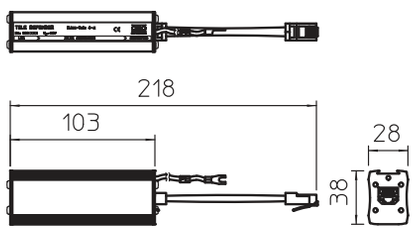
/pc.

Data line protection device for analogue telecommunications systems

- In aluminium housing
- With 2-stage protection circuit
- Simple mounting
- Incl. 150 mm connection cable with RJ11 and/or RJ45 connectors
- Optimised bandwidth for TC systems
- Hat rail mounting with DLS-BS accessories (5082 38 2)

Application: For analogue telecommunication systems

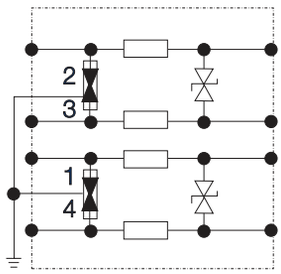
Dimensions



RJ11-TELE 4-C

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	170 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Series resistance per wire		8,2 Ω ± 10 %
Total arrester surge current (8/20)		4 kA
Total arrester surge current (10/350)		1,5 kA
Protection level wire-wire		<300 V
Protection level wire-earth		<600 V
Protection level, wire-earth at 1 kV/µs (C3)	U_p	<245 V
Frequency range		0 - 12 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		RJ11
Protection rating		IP40
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Connection options



Always indicate the item number when ordering.

Fine protection device for ISDN RJ11

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
RJ11-TELE 4-F	Fine protection, 4 wires	RJ11	1	14,000	**5081977**

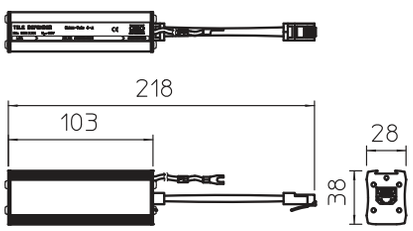
/pc.

Data line protection device for analogue telecommunications systems

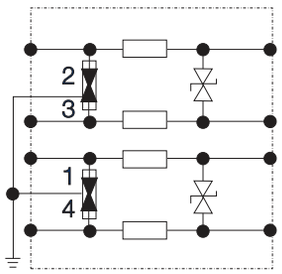
- In aluminium housing
- With 2-stage protection circuit
- Simple mounting
- Incl. 150 mm connection cable with RJ11 and/or RJ45 connectors
- Optimised bandwidth for TC systems
- Hat rail mounting with DLS-BS accessories (5082 38 2)

Application: For analogue telecommunication systems

Dimensions



Connection options



RJ11-TELE 4-F

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	170 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		4
Series resistance per wire		2,2 ± 10 %
Total arrester surge current (8/20)		4 kA
Total arrester surge current (10/350)		- kA
Protection level wire-wire		<300 V
Protection level wire-earth		<600 V
Protection level, wire-earth at 1 kV/µs (C3)	U_p	<245 V
Frequency range		0 - 18 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		RJ11
Protection rating		IP40
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Combination protection device for ISDN RJ45

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
RJ45-TELE 4-C	Combi protection, 4 wires	RJ45	1	14,000	**5081982**

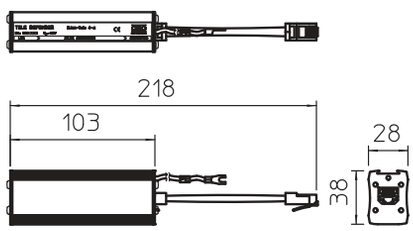
/pc.

Data line protection device for analogue telecommunications systems

- In aluminium housing
- With 2-stage protection circuit
- Simple mounting
- Incl. 150 mm connection cable with RJ11 and/or RJ45 connectors
- Optimised bandwidth for TC systems
- Hat rail mounting with DLS-BS accessories (5082 38 2)

Application: For analogue telecommunication systems

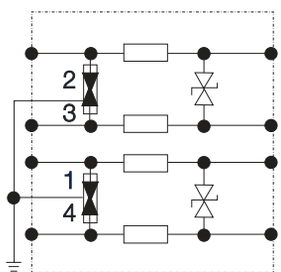
Dimensions



RJ45-TELE 4-C

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	170 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Series resistance per wire		8,2 Ω ± 10 %
Total arrester surge current (8/20)		4 kA
Total arrester surge current (10/350)		1,5 kA
Protection level wire-wire		<300 V
Protection level wire-earth		<600 V
Protection level, wire-earth at 1 kV/µs (C3)	U_p	<245 V
Frequency range		0 - 12 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		RJ45
Protection rating		IP40
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Connection options



Always indicate the item number when ordering.

Fine protection device for ISDN RJ45

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
RJ45-TELE 4-F	Fine protection, 4 wires	RJ45	1	14,000	**5081984**

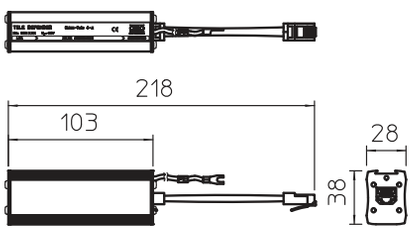
/pc.

Data line protection device for analogue telecommunications systems

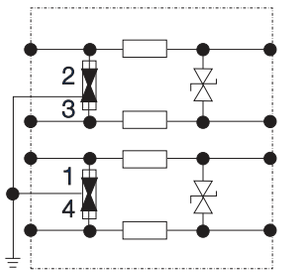
- In aluminium housing
- With 2-stage protection circuit
- Simple mounting
- Incl. 150 mm connection cable with RJ11 and/or RJ45 connectors
- Optimised bandwidth for TC systems
- Hat rail mounting with DLS-BS accessories (5082 38 2)

Application: For analogue telecommunication systems

Dimensions



Connection options



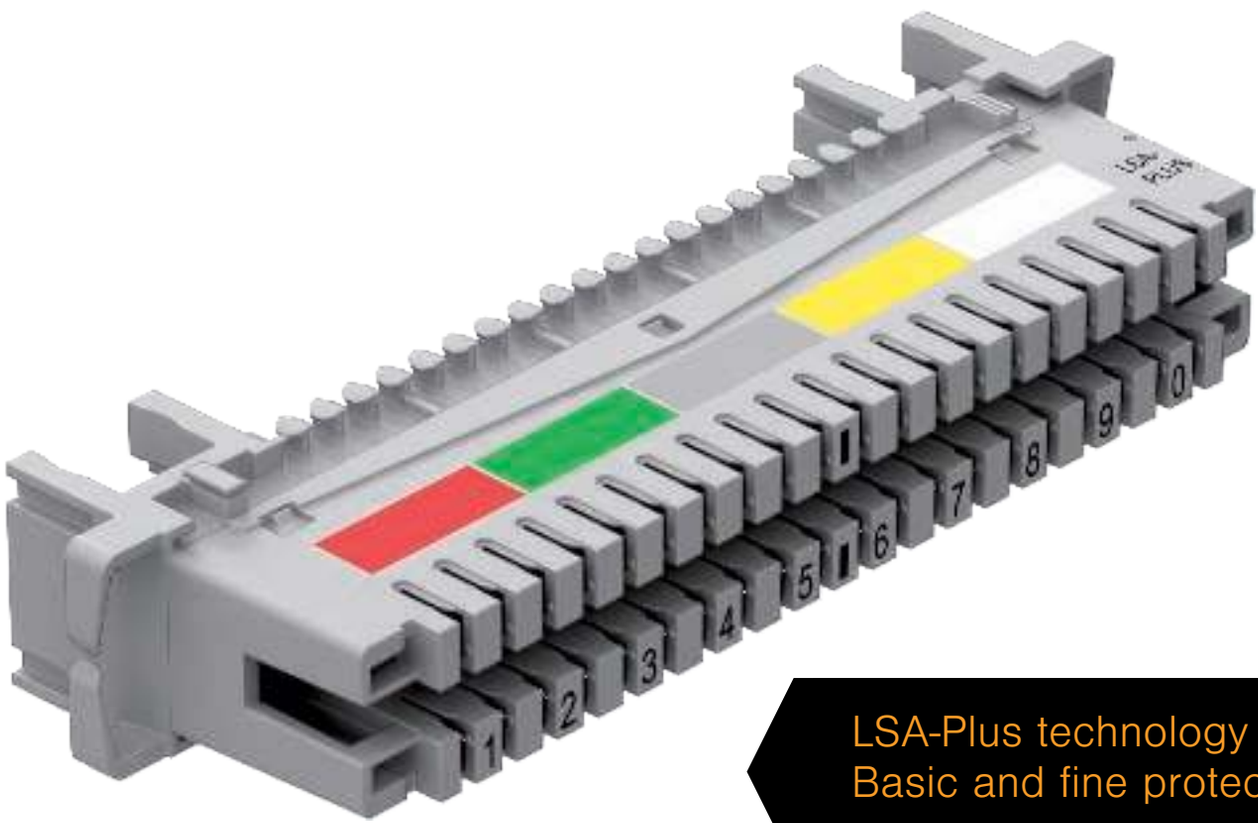
RJ45-TELE 4-F		
Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	170 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		4
Series resistance per wire		2,2 ± 10 %
Total arrester surge current (8/20)		4 kA
Total arrester surge current (10/350)		- kA
Protection level wire-wire		<300 V
Protection level wire-earth		<600 V
Protection level, wire-earth at 1 kV/µs (C3)	U_p	<245 V
Frequency range		0 - 18 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		RJ45
Protection rating		IP40
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Surge protection devices for industrial telecommunications applications

+ Simple installation
+ Protection up to 10 two-core wires
+ Low protection level
+ High arresting capacity
+ High broadband in basic protection
+ Wide range of uses



LSA-Plus technology
Basic and fine protection

In particular with multi-wire cable systems, such as telecommunications distribution systems, the LSA surge voltage components offer rapid, adequate protection. The LSA system offers both basic protection modules and fine protection modules to protect up to ten two-core wires per connection strip. These are split up into separating and connection strips and must be selected according to the application.

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

LSA-Plus technology / LSA basic protection

Type	Installation type	Number of poles	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-B-MAG	LSA-Plus, connectable	20	1	8,600	**5084020**

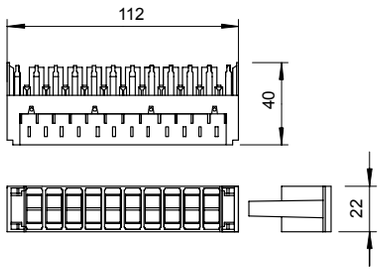
/pc.

LSA-B-MAG: LSA basic protection magazine for use in multi-core data cable systems, MCR systems and telephone switchboards.

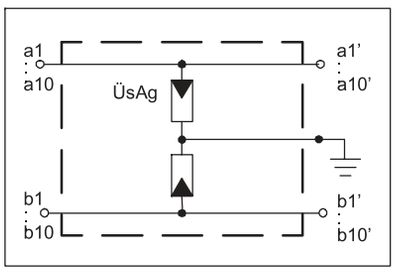
- Basic protection
- Equipped with 20 gas charge tubes
- Max. voltage: 180 V

Application: Directly on LSA-Plus separating strips or connection strips (e.g. OBO LSA-A-LEI (5084 00 8) or OBO LSA-T-LEI (5084 01 2).

Dimensions



Connection options



LSA-B-MAG

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	180 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		20
Rated current	I_L	1 A
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		1 kA
Protection level @ C1		<750 V
Temperature range	ϑ	-40 - +80 °C
Installation type		LSA-Plus, connectable
Connection system		Other
Protection rating		IP20
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

LSA-Plus technology/LSA basic and fine protection

Type	Installation type	Number of poles	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-BF-180	LSA-Plus, connectable	2	1	0,500	**5084024**

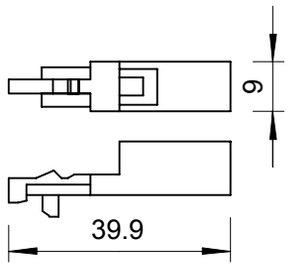
/pc.

LSA-BF 24: LSA basic and fine protection, for application in MCR systems

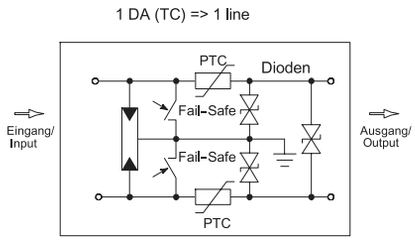
- Basic and fine protection
- Rough protection using fail-safe technology.
- With PTC protection components against overcurrent.
- Max. voltage: 24 V

Application: Directly on LSA-Plus barrier strip or connection rails with earthing rail (e.g. OBO LSA-A-LEI (5084 00 8) or OBO LSA-T-LEI (5084 01 2), and OBO LSA-E (5084 03 2))

Dimensions



Connection options



LSA-BF-180

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	180 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.12 A
Impulse current resistance wire-wire		C2: 5 kV / 2,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		5 kA
Total arrester surge current (10/350)		0,5 kA
Protection level wire-wire		<300 V
Protection level wire-earth		<300 V
Temperature range	ϑ	-40 - +80 °C
Installation type		LSA-Plus, connectable
Connection system		Other
Protection rating		IP20
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

LSA-Plus technology/LSA basic and fine protection

Type	Installation type	Number of poles	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-BF-24	LSA-Plus, connectable	2	1	0,500	**5084028**

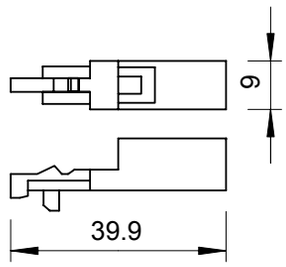
/pc.

LSA-BF 24: LSA basic and fine protection, for application in MCR systems

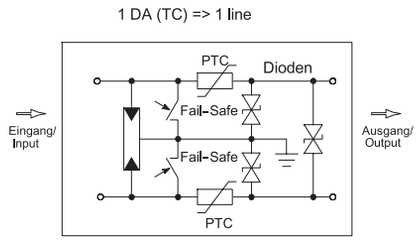
- Basic and fine protection
- Rough protection using fail-safe technology.
- With PTC protection components against overcurrent.
- Max. voltage: 24 V

Application: Directly on LSA-Plus barrier strip or connection rails with earthing rail (e.g. OBO LSA-A-LEI (5084 00 8) or OBO LSA-T-LEI (5084 01 2), and OBO LSA-E (5084 03 2))

Dimensions



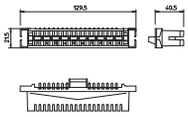
Connection options



LSA-BF-24		
Maximum continuous voltage AC	U_C	15 V
Maximum continuous voltage DC	U_C	24 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.12 A
Impulse current resistance wire-wire		C2: 5 kV / 2,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		5 kA
Total arrester surge current (10/350)		0,5 kA
Protection level wire-wire		<70 V
Protection level wire-earth		<70 V
Temperature range	ϑ	-40 - +80 °C
Installation type		LSA-Plus, connectable
Connection system		Other
Protection rating		IP20
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

LSA-Plus technology / LSA connection strip



CE LPZ 0→2 ISDN DSL Analog TK 5 PG

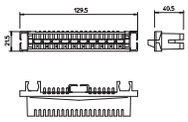
Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-A-LEI	Grey	1	5,100	**5084008**

/pc.

LSA-A-LEI: LSA attaching strip 2/10 for attaching ten double-cores.

- For use with protection element LSA-B-MAG
- Fastening to mounting trough LSA-M
- Colour: grey
- Clampable cross-sections 0.14-0.5 (AWG 26 to 20)

LSA-Plus technology / LSA separating strip



CE LPZ 0→2 ISDN DSL Analog TK 5 PG

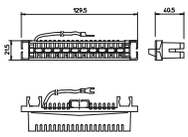
Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-T-LEI	White	1	5,400	**5084012**

/pc.

LSA-T-LEI: LSA separating strip 2/10 for attaching up to ten double-cores.

- For use with protection element LSA-BF-180, LSA-BF-24, LSA-B-MAG
- Fastening to mounting trough LSA-M
- Colour: white
- Clampable cross-sections 0.14-0.5 (AWG 26 to 20)

LSA-Plus technology / LSA earthing strip



CE LPZ 0→2 ISDN DSL Analog TK 5 PG

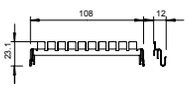
Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-E-LEI	Red	1	6,500	**5084016**

/pc.

LSA-E-LEI: LSA earthing strip, 40-pin for attaching earth lines or screens to the earth connection.

- Complete with connection line, green-yellow, 1.5 mm²
- Colour: red

LSA-Plus technology / LSA earthing rail for LSA-BF



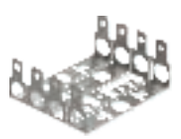
CE LPZ 0→2 ISDN DSL Analog TK 5 PG

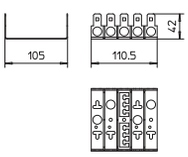
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-E	1	1,000	**5084032**

/pc.

LSA-E: Earth rail as earth connection between overvoltage protectors LFS-BF… (1 DA) and distributor connector LSA-...-LEI.

LSA-Plus technology / LSA installation trough





CE LPZ 0→2 ISDN DSL Analog TK 5 PG

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-M	1	7,800	**5084036**

St Steel

/pc.

LSA-M: Installation trough for 5 connection or separating strips. Grid 22.5 mm.
Depth: 22 mm; 30 mm; 50 mm

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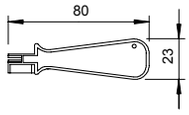
LSA-Plus technology / LSA simple tool

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-TOOL	1	0,600	**5084040**

/pc.



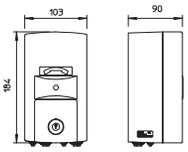
LSA-TOOL: Simple tool for soldering, bolting and stripping-free connection of cores, without cutter.

LSA-Plus technology / protective housing

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
LSA-G	Light grey	1	57,500	**5084048**

PA Polyamide

/pc.



Protective housing for a LSA 10 DA bar

- Protective housing for 10 wire pairs
- Housing can be locked
- Incl. key
- 4x cable fixing
- Light grey

Always indicate the item number when ordering.

Surge protection for high frequency applications: the plus of the DS family

+ Coaxial protection devices
+ Optimum protection for sensitive systems
+ Low insertion attenuation and low return loss at different wave resistances
+ High bandwidth

Coaxial protection devices for S-UHF, BNC, N, TNC, F and SMA connection

The coaxial protection devices of type DS offer optimum protection of sensitive systems, based on coaxial plug connections. The low insertion attenuation and low return attenuation at different wave resistances offer ideal protection for any application. In accordance with their structure, the protection devices are switched into the application in series, and are connected to the local equipotential bonding. The direct shield earthing avoids reducing of the shield performance.

Coaxial protection devices for S-UHF connection: male/female

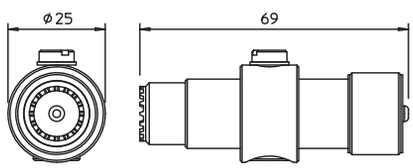
Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
S-UHF M/W	UHF	0 - 1.3 GHz	1	7,000	**5093023**

/pc.

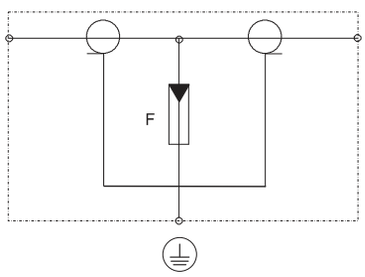
Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = male/f = female connector
- Various plug combinations
- With UHF connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Dimensions



Connection options



S-UHF M/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 1.3 GHz
Insertion loss	S_{21}	≤0,2 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		UHF
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Coaxial protection devices for S-UHF connection: female/female

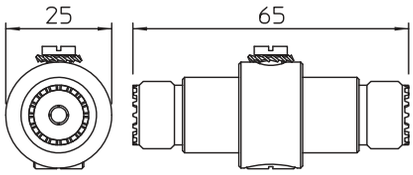
Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
S-UHF W/W	UHF	0 - 1.3 GHz	1	7,000	**5093015**

/pc.

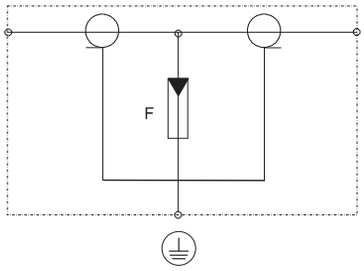
Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = male/f = female connector
- Various plug combinations
- With UHF connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Dimensions



Connection options



S-UHF W/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 1.3 GHz
Insertion loss	S_{21}	≤0,2 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		UHF
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

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Coaxial protection device for BNC connection: male/female

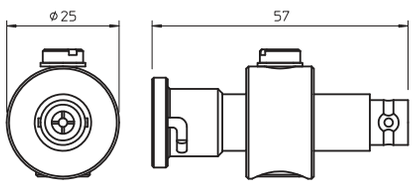
Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-BNC M/W	BNC	0 - 2.2 GHz	1	6,500	**5093252**

/pc.

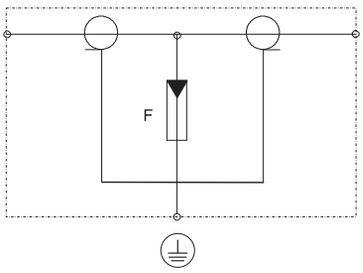
Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug/f = female connector
- Various plug combinations
- With BNC connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Dimensions



Connection options



DS-BNC M/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 2.2 GHz
Insertion loss	S_{21}	≤0,95 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		BNC
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Coaxial protection device for BNC connection: female/female

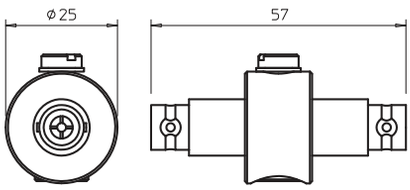
Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-BNC W/W	BNC	0 - 2.2 GHz	1	6,000	**5093236**

/pc.

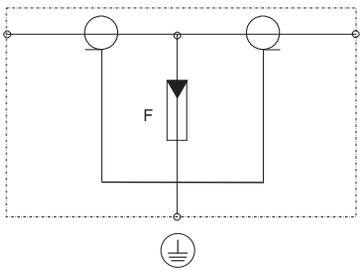
Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug/f = female connector
- Various plug combinations
- With BNC connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Dimensions



Connection options



DS-BNC W/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 2.2 GHz
Insertion loss	S_{21}	≤0,95 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		BNC
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Coaxial protection device for BNC connection: male/male

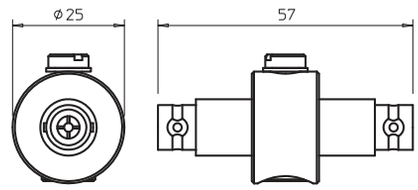
Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-BNC M/M	BNC	0 - 2.2 GHz	1	7,000	**5093260**

/pc.

Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug/f = female connector
- Various plug combinations
- With BNC connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

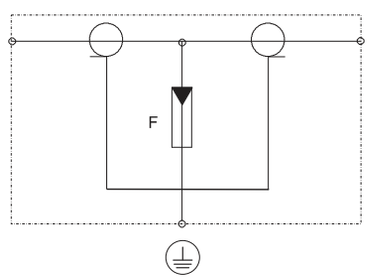
Dimensions



DS-BNC M/M

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 2.2 GHz
Insertion loss	S_{21}	≤0,95 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		BNC
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Connection options



Always indicate the item number when ordering.

Coaxial protection device for N connection: male/female

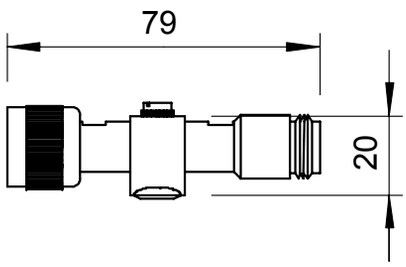
Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-N M/W	N	0 - 3 GHz	1	12,200	**5093996**

/pc.

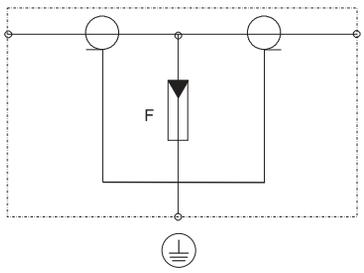
Coaxial data cable protection devices

- High pulsed current carrying capacity 2 x 2.5 kA (10/350)
- Simple mounting (adapter plug), m = plug/f = female connector
- Optimised transmission behaviour
- 5-year guarantee
- With N connector
- Including OBO M25 Quick clip for simple installation

Dimensions



Connection options



DS-N M/W		
Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 3 GHz
Insertion loss	S_{21}	≤0,62 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		N
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

Coaxial protection device for N connection: female/female

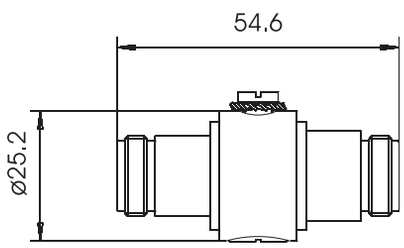
Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-N W/W	N	0 - 3 GHz	1	11,500	**5093988**

/pc.

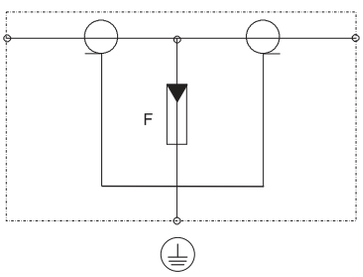
Coaxial data cable protection devices

- High pulsed current carrying capacity 2 x 2.5 kA (10/350)
- Simple mounting (adapter plug), m = plug/f = female connector
- Optimised transmission behaviour
- 5-year guarantee
- With N connector
- Including OBO M25 Quick clip for simple installation

Dimensions



Connection options



DS-N W/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 3 GHz
Insertion loss	S_{21}	≤0,62 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		N
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Coaxial protection device for N connection up to 6 GHz: Male/female

LPZ 0→2 | TV | SAT | 5 years

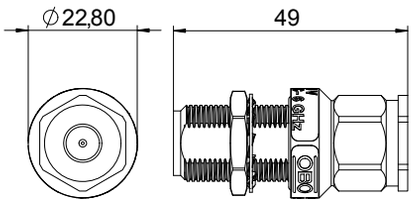
Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-N-6 M/W	N	0 - 6 GHz	1	7,830	**5093998**

/pc.

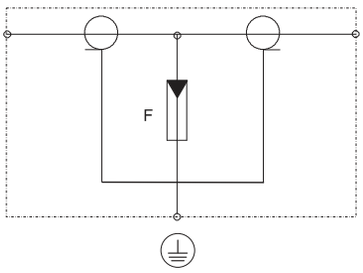
Coaxial data cable protection devices for transmission and reception technology
- With N-Connector, male/female
- High impulse current load capacity: 2.5 kA (10/350)
- Simple mounting (adapter), m = connector, w = socket
- Low protection level at high current loads
- Optimum transmission behaviour:
  - Low reflection behaviour
  - Bandwidth-optimised for secure transmission up to 6 GHz
- Available in 50 Ω technology

Application: For example: SAT-TV C band, WiMAX, WLAN applications, DVB-T2

Dimensions



Connection options



DS-N-6 M/W

Maximum continuous voltage AC	U_C	50 V
Maximum continuous voltage DC	U_C	70 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Protection level		<750 V
Frequency range		0 - 6 GHz
Insertion loss	S_{21}	≤0,1 dB
Return loss	S_{11}	≥22 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		N
Protection rating		IP65/67
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

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Coaxial protection device for TNC connection: male/female

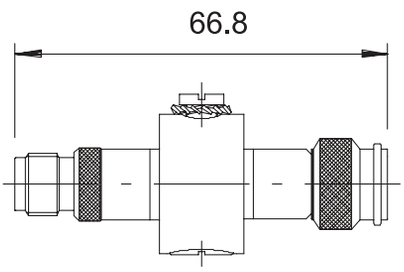
Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-TNC M/W	TNC	0 - 4 GHz	1	9,000	**5093270**

/pc.

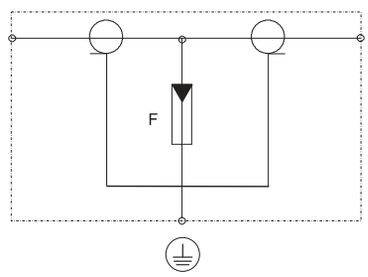
Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug/f = female connector
- Various plug combinations
- With TNC connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Dimensions



Connection options



DS-TNC M/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 4 GHz
Insertion loss	S_{21}	≤0,5 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		TNC
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Coaxial protection device for 7/16 connection: male/female

Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-7 16 M/W	7/16	0 - 3 GHz	1	35,500	**5093171**

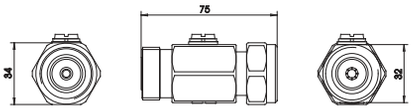
/pc.

Coaxial data protection device

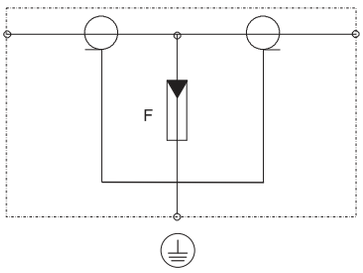
- Basic protection
- Simple mounting (adapter)
- Optimum transmission
- High pulse load capacity
- With 7/16 connector

Application: to protect mobile telephony applications.

Dimensions



Connection options



DS-7 16 M/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 3 GHz
Insertion loss	S_{21}	≤0,95 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		7/16
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

Coaxial protection device for F connection: male/female

Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-F M/W	F	0 - 3.4 GHz	1	9,000	**5093275**

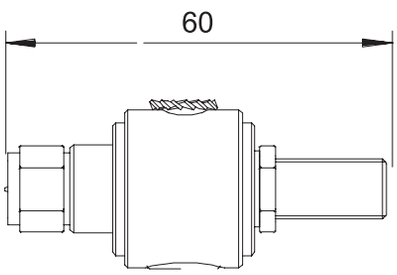
/pc.

Coaxial data cable protection devices

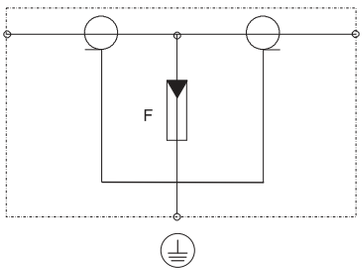
- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug/f = female connector
- Various plug combinations
- With F connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Application: Protection of TV and SAT systems, multi-switches, receivers and DVB-T(2)

Dimensions



Connection options



DS-F M/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	5 A
Wave resistance	Z_L	75 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	1 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		2 kA
Protection level		<800 V
Frequency range		0 - 3.4 GHz
Insertion loss	S_{21}	≤0,9 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		F
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Coaxial protection device for F connection: female/female

Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-F W/W	F	0 - 3.4 GHz	1	9,000	**5093272**

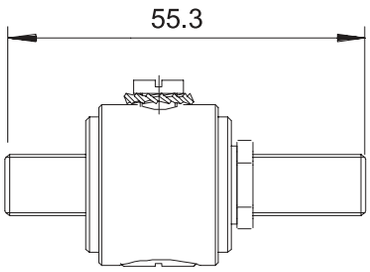
/pc.

Coaxial data cable protection devices

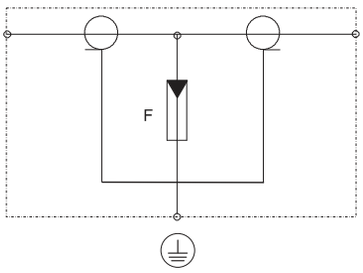
- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug/f = female connector
- Various plug combinations
- With F connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Application: Protection of TV and SAT systems, multi-switches, receivers and DVB-T(2)

Dimensions



Connection options



DS-F W/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	5 A
Wave resistance	Z_L	75 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	1 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		2 kA
Protection level		<800 V
Frequency range		0 - 3.4 GHz
Insertion loss	S_{21}	≤0,9 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		F
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

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Coaxial protection device for SMA connection: female/female

LPZ 0→2 | TV | SAT | 5 YEARS GUARANTEE

Type	Connection system	Frequency range	Pack. pcs	Weight kg/100 pcs.	Item No.
DS-SMA W/W	SMA	0 - 3.7 GHz	1	7,500	**5093277**

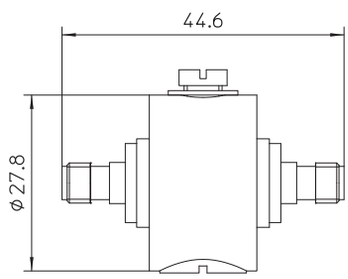
/pc.

Coaxial data cable protection devices

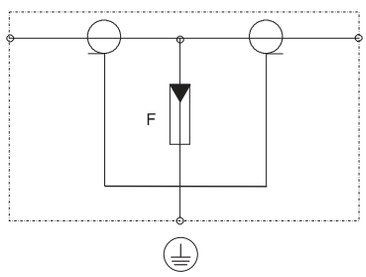
- High pulsed current carrying capacity 2 x 2.5 kA (10/350)
- Simple mounting (adapter plug), m = plug/f = female connector
- Optimised transmission behaviour
- 5-year guarantee
- With SMA connector
- Including OBO M25 Quick clip for simple installation
- 50 Ω technology

Application: Radio and data technology with SMA connector

Dimensions



Connection options



DS-SMA W/W

Maximum continuous voltage AC	U_C	130 V
Maximum continuous voltage DC	U_C	185 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		1
Rated current	I_L	10 A
Wave resistance	Z_L	50 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	2.5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		5 kA
Protection level		<800 V
Frequency range		0 - 3.7 GHz
Insertion loss	S_{21}	≤0,2 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		SMA
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Coaxial protection device for SAT and cable multiswitch

Type	Connection system	Frequency range	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
TV 4+1	F	0.5 - 2.8 GHz	F	1	37,000	**5083400**

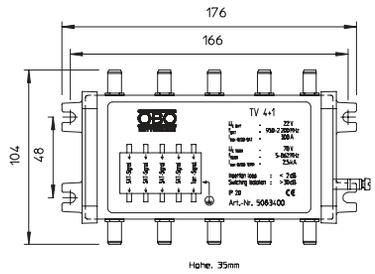
/pc.

Coaxial data line protection for TV reception systems

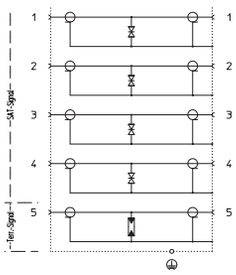
- Protects up to four SAT lines
- Protects one terrestrial line, e.g. DVB-T.
- Simple mounting using screws and holder
- With F-connector
- Optimum transmission behaviour with 75 Ohm technology.

Application: Protection of TV and SAT systems, multi-switches, receivers and DVB-T receivers

Dimensions



Connection options



TV 4+1

Maximum continuous voltage Vc | SAT inputs	U_C	22 V
Maximum continuous voltage Vc | terrestrial input	U_C	70 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		5
Rated current	I_L	2 A
Wave resistance	Z_L	75 Ω
Nominal discharge current | SAT inputs	I_n	300 A
Lightning impulse current | terrestrial input	I_{imp}	1 kA
Protection level | SAT inputs at In	U_p	<45 V
Protection level | terrestrial input at In		<500 V
Frequency range		0.5 - 2.8 GHz
Insertion loss	S_{21}	≤3 dB
Return loss	S_{11}	>30 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Surface-mounted
Connection system		F
Protection rating		IP10
Shielding connection available		Yes
Shield connection		Direct
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Surge protection devices for network technology

+ Connectable protection device
+ High-performance surge protection
+ Usable in the "Channel Link" up to 10 GBit
+ Supports Power over Ethernet to 1 A
+ Testing protocol available

Surge protection for data and network technology

The "Net Defender" permits the use of Power over Ethernet with nominal currents of up to 1 A and optimised surge protection in the channel up to 10 GBit/s. This corresponds to a Channel Performance according to ISO/IEC 11801 Amd. 2 of Class EA or CAT 6A to TIA/ANSI. Of course, reverse compatibility is also guaranteed. To ensure easy installation, the "Net Defender" can be snapped directly onto the DIN rail and uses it to create the necessary equipotential bonding. Alternatively, terminal protection using a separately connectable earthing line is possible.

Always indicate the item number when ordering.

Surge protection for high-speed networks up to 10 GBit (Class EA/CAT6A)

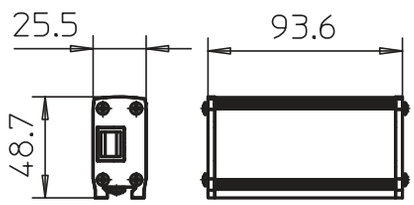
Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
ND-CAT6A/EA	Fine protection, 8 wires + shield	RJ45 8(8)	1	16,600	**5081800**

/pc.

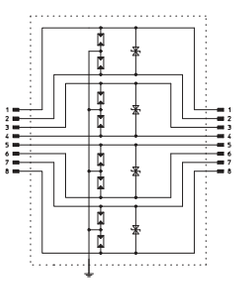
Data cable protection device for high-speed networks
- High-quality RJ45 sockets
- Low protection level at high current load
- Earthing via DIN rail or connection cable
- Support of Power over Ethernet + to 1 A
- Tested transmission quality in networks up to 10 GBit (Class EA) or CAT6A
- Rapid installation through plug-in version
- Incl. DIN rail fastening set and earthing cable

Application example: 10 GBit Ethernet, 10/100 MBit Ethernet, PoE applications, IP camera systems, ISDN S0 interfaces

Dimensions



Connection options



ND-CAT6A/EA

Maximum continuous voltage AC	U_C	41 V
Maximum continuous voltage DC	U_C	58 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Channel performance ISO/IEC		Class EA
Channel performance Ansi/EA		CAT 6A
Number of poles		8
Rated current	I_L	1 A
Impulse current resistance wire-wire		C1: 0,3 kV / 0,15 kA (8/20µs)
Impulse current resistance wire-earth		C2: 2 kV / 1 kA (8/20µs)
Total arrester surge current (8/20)		7 kA
Protection level wire-wire		<120 V
Protection level wire-earth		<700 V
Frequency range		>500 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		RJ45 8(8)
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

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Fine protection for Ethernet networks (Class D/CAT 5)

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
RJ45 S-ATM 8-F	Fine protection, 8 wires + shield	RJ45 8(8)	1	14,000	**5081990**

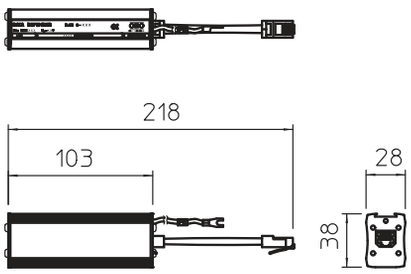
/pc.

Universal data cable protection device for network technology and telecommunication systems

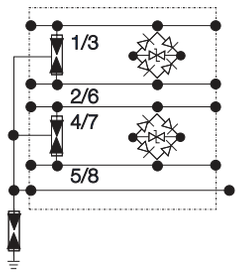
- In aluminium housing
- Protection for 8 cores
- With two-stage protective circuit
- Simple mounting
- With RJ45 Western connector
- Incl. 150 mm connection cable with RJ45 connectors
- Cat 5e network technology, 10BaseT, 100BaseT, 1000BaseT
- DIN rail mounting with accessories DLS-BS (5082 38 2)

Application: For analogue, ISDN, DSL systems, Ethernet Twisted Pair.

Dimensions



Connection options



RJ45 S-ATM 8-F

Maximum continuous voltage AC	U_C	4.2 V
Maximum continuous voltage DC	U_C	6.2 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Channel performance ISO/IEC		Class D
Channel performance Ansi/EA		CAT 5e
Number of poles		8
Rated current	I_L	1 A
Impulse current resistance wire-wire		C2: 3 kV / 1,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 3 kV / 1,5 kA (8/20µs)
Total arrester surge current (8/20)		7,5 kA
Protection level wire-wire		<40 V
Protection level wire-earth		<900 V
Frequency range		>155 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		RJ45 8(8)
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Combination arrestor for 10Base2-/10Base5 networks

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
KOAX B-E2 MF-C	Combi protection	BNC	1	10,300	**5082430**

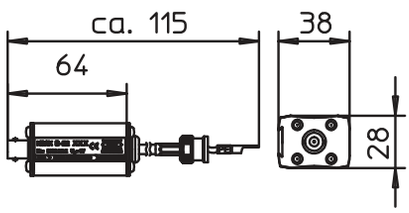
/pc.

Data line protection device for coaxial Ethernet network systems

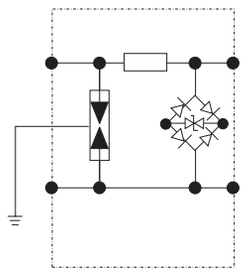
- In aluminium housing
- BNC connector m/f
- Simple mounting with adapter plug
- Two-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: Protecting video signals; cameras and/or CCTV units, Cheapernet, 10BASE2, 10BASE5

Dimensions



Connection options



KOAX B-E2 MF-C		
Maximum continuous voltage AC	U_C	4.2 V
Maximum continuous voltage DC	U_C	6.2 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		1
Rated current	I_L	0.3 A
Series resistance per wire		4,7 Ω ± 10%
Wave resistance	Z_L	75 Ω
Impulse current resistance wire-wire		C2: 10 kV / 5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	1 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		2 kA
Protection level wire-wire		<75 V
Protection level wire-earth		<600 V
Frequency range		0 - 68 MHz
Insertion loss	S_{21}	≤1,7 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-20 - +80 °C
Installation type		Connector/cable adapter
Connection system		BNC
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

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Fine protection for 10Base2-/10Base5 networks

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
KOAX B-E2 MF-F	Fine protection	BNC	1	9,800	**5082432**

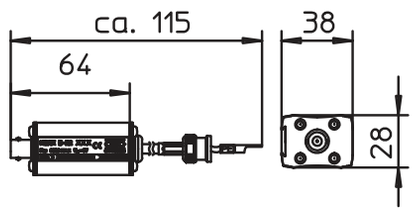
/pc.

Data line protection device for coaxial Ethernet network systems

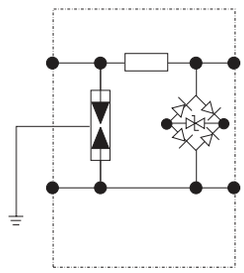
- In aluminium housing
- BNC connector m/f
- Simple mounting with adapter plug
- Two-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: Protecting video signals; cameras and/or CCTV units, Cheapernet, 10BASE2, 10BASE5

Dimensions



Connection options



KOAX B-E2 MF-F		
Maximum continuous voltage AC	U_C	4.2 V
Maximum continuous voltage DC	U_C	6.2 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		1
Rated current	I_L	1 A
Series resistance per wire		—
Wave resistance	Z_L	75 Ω
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	— kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		— kA
Protection level wire-wire		<40 V
Protection level wire-earth		<600 V
Frequency range		0 - 70 MHz
Insertion loss	S_{21}	≤1 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-20 - +80 °C
Installation type		Connector/cable adapter
Connection system		BNC
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Data cable protection device for coaxial TV / camera systems

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
KOAX B-E2 FF-F	Fine protection	BNC	1	14,400	**5082434**

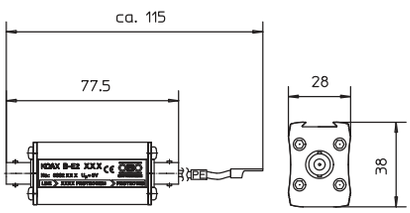
/pc.

Data cable protection device for coaxial TV / camera systems

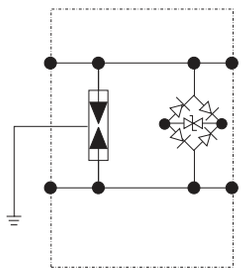
- In aluminium housing
- BNC connector socket/socket
- Simple mounting with adapter plug
- Two-stage protection circuit
- Hat rail mounting with DLS-BS accessories (5082 38 2)

Application: Protection of CCTV, video signals; cameras and/or TV systems

Dimensions



Connection options



KOAX B-E2 FF-F

Maximum continuous voltage AC	U_C	4.2 V
Maximum continuous voltage DC	U_C	6.2 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		1
Rated current	I_L	1 A
Series resistance per wire		—
Wave resistance	Z_L	75 Ω
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	— kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		— kA
Protection level wire-wire		<40 V
Protection level wire-earth		<600 V
Frequency range		0 - 160 MHz
Insertion loss	S_{21}	≤1,7 dB
Return loss	S_{11}	≥14 dB
Temperature range	ϑ	-20 - +80 °C
Installation type		Connector/cable adapter
Connection system		BNC
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Earthing via:		—
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

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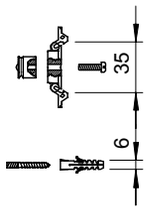
Fastening set for DIN profile rail

Cat 5 | PoE | LPZ 0→3 | LPZ 1→3 | Cat 6A | Class EA



Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
DLS-BS	For mounting: • Coax B-E2/... • Coax N-E5/... • RJ 11-Tele/4... • RJ 45 S-...	1	5,000	**5082382**

/pc.

DLS-BS: The attachment set is designed for DIN profile rail and wall mounting and can be used for the data cable protection devices listed below:

- Coax B-E2/...
- RJ 11-Tele/4...
- RJ 45 S-...

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Always indicate the item number when ordering.

Surge protection devices for data technology: The plus of the arrestors for IT systems

+ Plug-in protective devices
+ Labelled connections
+ Basic Protection = red = lightning protection
+ Fine Protection = green = surge protection
+ Combi Protection = blue = combined protection

Basic protection
Combination arrestors
Fine protection

Data cable protection device for data technology, e.g. Ethernet network systems, Twisted Pair and control circuits. The two-level protection circuit permits transmission frequencies of up to 155 MHz. The protection devices are mounted in an aluminium housing with Sub RJ45 connector and can be mounted simply as an adapter connector. The supplied, 150 mm-long connection cable allows rapid refitting.

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Always indicate the item number when ordering.

Basic protection for 4-wire information technology systems with RJ45

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
RJ45 S-E100 4-B	Basic protection, 4 wires + shield	RJ45	1	14,000	**5081001**

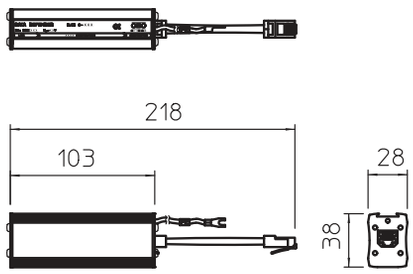
/pc.

Data line protection device for IT systems

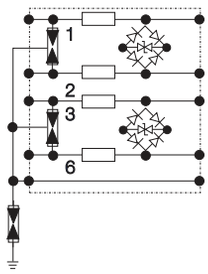
- In aluminium housing
- RJ45 connector
- Incl. 150 mm connection cable with RJ45 connectors
- Simple mounting using adapter
- 2-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: Twisted Pair, control circuits, RJ45 communication cables

Dimensions



Connection options



RJ45 S-E100 4-B

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	170 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		4
Rated current	I_L	1 A
Series resistance per wire		—
Impulse current resistance wire-wire		C2: 3 kV / 1,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 3 kV / 1,5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	0.5 kA
Total arrester surge current (8/20)		7,5 kA
Total arrester surge current (10/350)		2,5 kA
Protection level wire-wire		<700 V
Protection level wire-earth		<850 V
Frequency range		0 - 463 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		RJ45
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Indirect
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Combination arrestor for 4-wire information technology systems with RJ45

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
RJ45 S-E100 4-C	Combined protection, 4 wires + shield	RJ45	1	14,000	**5081003**

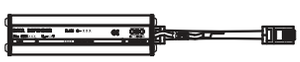
/pc.

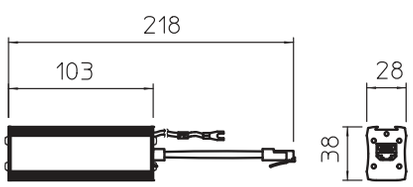
Data line protection device for IT systems

- In aluminium housing
- RJ45 connector
- Incl. 150 mm connection cable with RJ45 connectors
- Simple mounting using adapter
- 2-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

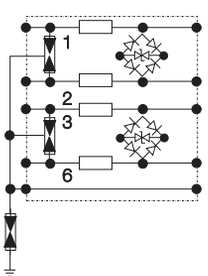
Application: Twisted Pair, control circuits, RJ45 communication cables

Dimensions





Connection options



RJ45 S-E100 4-C

Maximum continuous voltage AC	U_C	4.2 V
Maximum continuous voltage DC	U_C	6.2 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→2
Number of poles		4
Rated current	I_L	0.3 A
Series resistance per wire		4,7 Ω ± 10%
Impulse current resistance wire-wire		C2: 3 kV / 1,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 3 kV / 1,5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	1.5 kA
Total arrester surge current (8/20)		7,5 kA
Total arrester surge current (10/350)		2,5 kA
Protection level wire-wire		<70 V
Protection level wire-earth		<850 V
Frequency range		0 - 109 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		RJ45
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Indirect
Earthing via:		Connection cable
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

Fine protection for 4-wire information technology systems with RJ45

Type	Version	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
RJ45 S-E100 4-F	Fine protection, 4 wires + shield	RJ45	1	14,000	**5081005**

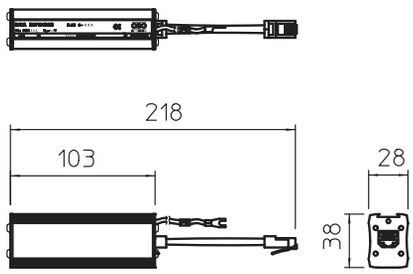
/pc.

Data line protection device for IT systems

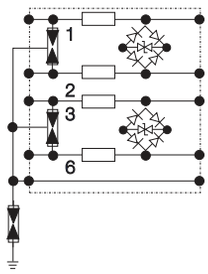
- In aluminium housing
- RJ45 connector
- Incl. 150 mm connection cable with RJ45 connectors
- Simple mounting using adapter
- 2-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: Twisted Pair, control circuits, RJ45 communication cables

Dimensions



Connection options



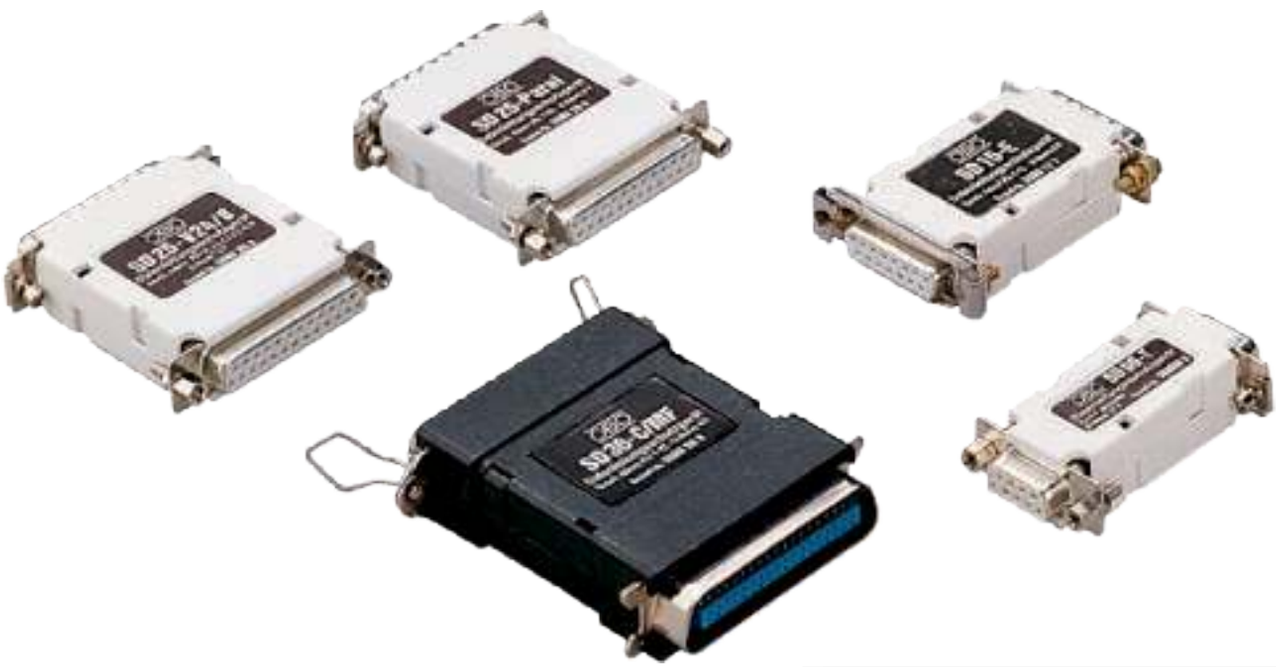
RJ45 S-E100 4-F

Maximum continuous voltage AC	U_C	4.2 V
Maximum continuous voltage DC	U_C	6.2 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		2→3
Number of poles		4
Rated current	I_L	1 A
Series resistance per wire		—
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C1: 1 kV / 0,5 kA (8/20µs)
Impulse discharge current (10/350)	I_{imp}	— kA
Total arrester surge current (8/20)		2,5 kA
Total arrester surge current (10/350)		— kA
Protection level wire-wire		<40 V
Protection level wire-earth		<750 V
Frequency range		0 - 100 MHz
Insertion loss	S_{21}	≤3 dB
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		RJ45
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Indirect
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Product family, surge protection for serial interfaces

+ Connectable protection device
+ High-performance surge protection
+ Various interfaces available
+ Low protection level



Fine protection for serial interfaces

Serial interfaces are regularly found in industrial applications. Whether RS-232 or RS-422, depending on the connection system, OBO Bettermann can offer easy to install surge protection. Depending on the interface, these components are switched into the appropriate system in series, thus offering protection against the coupling of surge voltages between data cables.

Fine protection for 9-pole RS232 interface

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
SD09-V24 9	18	SUB-D-9; V24 RS232	1	6,000	**5080053**

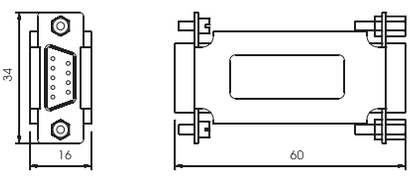
/pc.

Data cable protection devices, serial interfaces

- Various connection technologies available
- Low protection level

Application: PLC, alarm systems, controllers

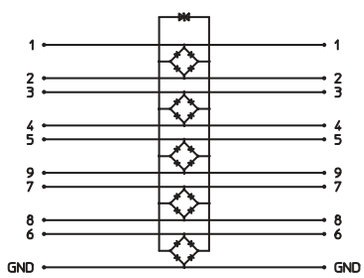
Dimensions



SD09-V24 9

Max. continuous operating voltage	U_C	18 V
Category		Type 3 / C1
Lightning protection zone LPZ		2→3
Number of poles		9
Impulse current resistance wire-wire		0,34 kA (8/20µs)
Impulse current resistance wire-earth		0.34 kA (8/20 µs)
Protection level wire-wire		<50 V
Protection level wire-earth		<50 V
Protection level, wire-earth at 1 kV/µs (C3)	U_p	<25 V
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		D-Sub 9 pole
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Connection options



Always indicate the item number when ordering.

Fine protection for 15-pole RS232 interface

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
SD15-V24 15	18	SUB-D-15; V24 RS232	1	7,000	**5080150**

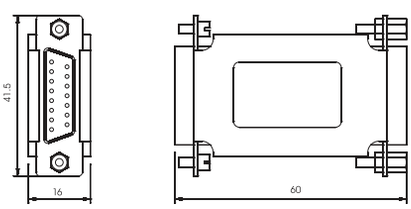
/pc.

Data cable protection devices, serial interfaces

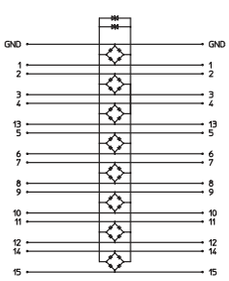
- Various connection technologies available
- Low protection level

Application: PLC, alarm systems, controllers

Dimensions



Connection options



SD15-V24 15

Max. continuous operating voltage	U_C	18 V
Category		Type 3 / C1
Lightning protection zone LPZ		2→3
Number of poles		15
Impulse current resistance wire-wire		0,34 kA (8/20µs)
Impulse current resistance wire-earth		0.34 kA (8/20 µs)
Protection level wire-wire		<50 V
Protection level wire-earth		<50 V
Protection level, wire-earth at 1 kV/µs (C3)	U_p	<25 V
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		D-Sub 15 pole
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

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Fine protection for 9-pole RS485 interface

Type	Highest continuous voltage V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
SD09-V11 9	7.5	SUB-D-9; V11 RS485	1	6,000	**5080061**

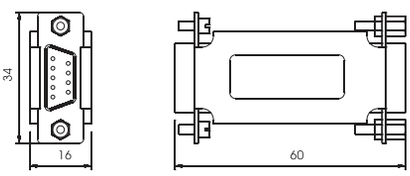
/pc.

Data cable protection devices, serial interfaces

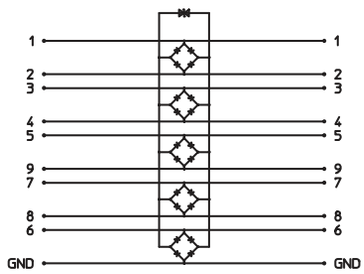
- Various connection technologies available
- Low protection level

Application: PLC, alarm systems, controllers

Dimensions



Connection options



SD09-V11 9

Max. continuous operating voltage	U_C	7.5 V
Category		Type 3 / C1
Lightning protection zone LPZ		2→3
Number of poles		9
Impulse current resistance wire-wire		0,75 kA (8/20µs)
Impulse current resistance wire-earth		0.75 kA (8/20µs)
Protection level wire-wire		<100 V
Protection level wire-earth		<100 V
Protection level, wire-earth at 1 kV/µs (C3)	U_p	<10 V
Temperature range	ϑ	-40 - +80 °C
Installation type		Connector/cable adapter
Connection system		D-Sub 9 pole
Protection rating		IP40
Shielding connection available		Yes
Shield connection		Direct
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

Fine protection for energy systems, series installation: the plus of the VF family

+ High arresting capacity
+ Low protection level
+ Usable in AC/DC applications
+ Simple mounting using screwless terminals
+ UL-listed

Protection for 2-pole power supplies

The lightning barriers of type VF are fine protection devices, used for single-phase energy technology systems. Besides the low protection level, these devices also have a visual display, which will indicate defective surge protection. If required, remote signalling is also available using a changeover contact and an NC contact.

Always indicate the item number when ordering.

MCR protection for 2-pole power supply, 12 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF12-AC DC	13.5	1	9,000	**5097453**

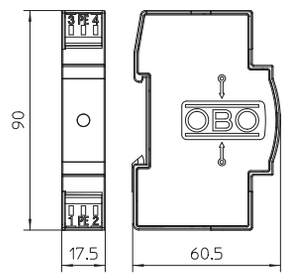
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

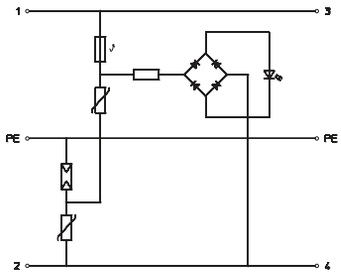
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF12-AC DC

U max AC	U_c AC	13.5 V
U max DC	U_c DC	18 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<110 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

Always indicate the item number when ordering.

MCR protection for 2-pole for power supply, 24 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF24-AC/DC	34	1	8,000	**5097607**

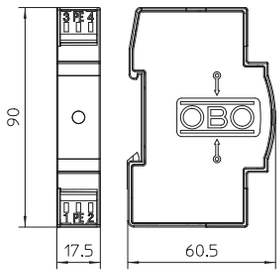
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

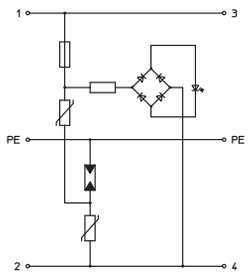
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF24-AC/DC

U max AC	U_c AC	34 V
U max DC	U_c DC	46 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<130 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

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MCR protection for 2-pole for power supply, 48 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF48-AC/DC	60	1	8,000	**5097615**

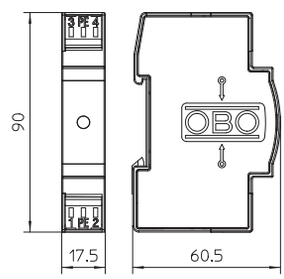
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

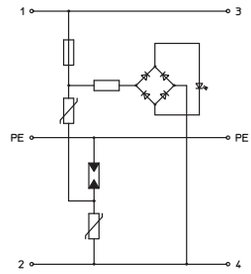
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF48-AC/DC

U max AC	U_c AC	60 V
U max DC	U_c DC	80 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<220 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

Always indicate the item number when ordering.

MCR protection for 2-pole for power supply, 60 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF60-AC/DC	80	1	8,000	**5097623**

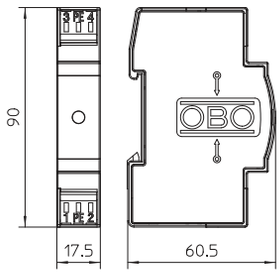
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

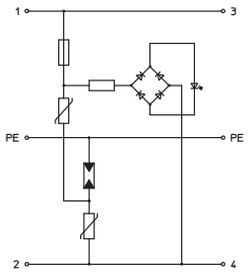
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF60-AC/DC

U max AC	U_c AC	80 V
U max DC	U_c DC	110 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<280 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

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Always indicate the item number when ordering.

MCR protection for 2-pole for power supply, 110 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF110-AC DC	150	1	8,000	**5097631**

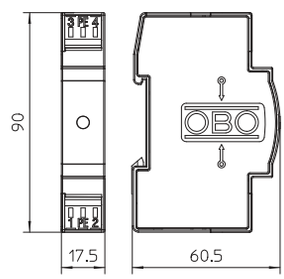
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

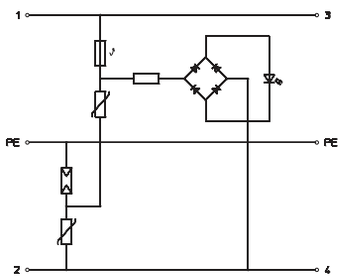
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF110-AC DC

U max AC	U_c AC	150 V
U max DC	U_c DC	200 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2 kA
Rated current	I_L	20 A
Protection level wire-wire		<500 V
Protection level wire-earth		<1400 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

Always indicate the item number when ordering.

MCR protection for 2-pole for power supply, 230 V

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF230-AC/DC	255	1	8,000	**5097650**

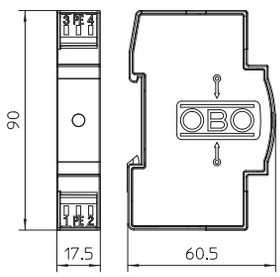
/pc.

Surge protection device / fine protection type 3 to EN 61643-11

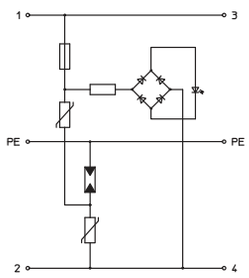
- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions



Connection options



VF230-AC/DC

U max AC	U_c AC	255 V
U max DC	U_c DC	350 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2.5 kA
Rated current	I_L	20 A
Protection level wire-wire		<1000 V
Protection level wire-earth		<1400 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

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MCR protection for 2-pole for power supply with remote signalling, 12 V AC/DC

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF12-AC/DC-FS	13.5	1	6,400	**5097454**

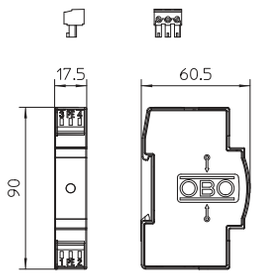
/pc.

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

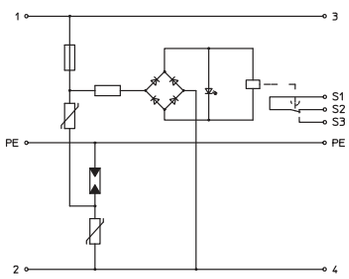
- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for DC and AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

Dimensions



Connection options



VF12-AC/DC-FS

U max AC	U_c AC	13.5 V
U max DC	U_c DC	18 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<110 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

Always indicate the item number when ordering.

MCR protection for 2-pole power supply with remote signalling, 24 V AC/DC

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF24-AC/DC-FS	34	1	6,620	**5097820**

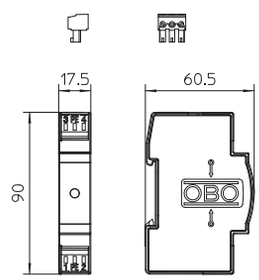
/pc.

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

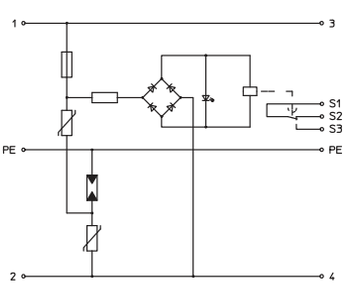
- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for DC and AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

Dimensions



Connection options



VF24-AC/DC-FS

U max AC	U_c AC	34 V
U max DC	U_c DC	46 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<160 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

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Always indicate the item number when ordering.

MCR protection for 2-pole power supply with remote signalling, 48 V AC/DC

Type 3 | LPZ 2→3 | FS

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF48-AC/DC-FS	60	1	6,630	**5097822**

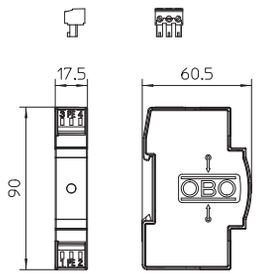
/pc.

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

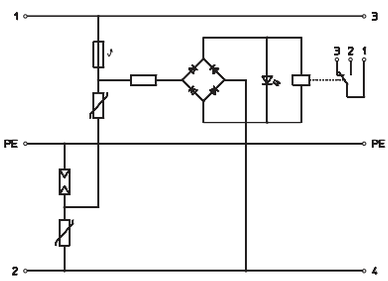
- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for DC and AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

Dimensions



Connection options



VF48-AC/DC-FS

U max AC	U_c AC	60 V
U max DC	U_c DC	80 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	0,7 kA
Rated current	I_L	20 A
Protection level wire-wire		<220 V
Protection level wire-earth		<1200 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

Always indicate the item number when ordering.

MCR protection for 2-pole power supply with remote signalling, 230 V AC

Type	Highest continuous voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF230-AC-FS	255	1	6,910	**5097858**

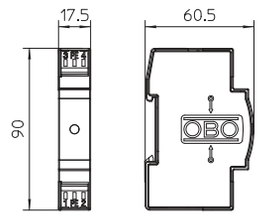
/pc.

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

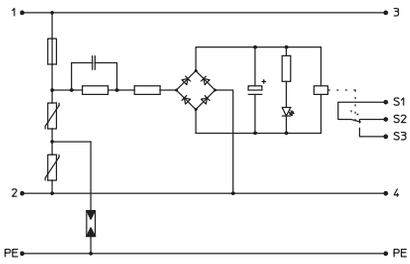
- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

Dimensions



Connection options



VF230-AC-FS

U max AC	U_c AC	255 V
U max DC	U_c DC	– V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2,5 kA
Rated current	I_L	20 A
Protection level wire-wire		<1060 V
Protection level wire-earth		<1400 V
Response time	t_A	< 25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

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MCR protection for 2-pole power supply with leak current-free remote signalling, 230 V AC/DC

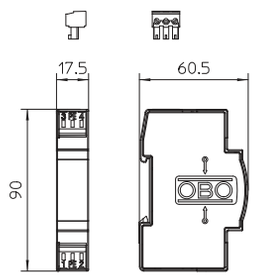
Type	U max AC V	U max DC V	Pack. pcs	Weight kg/100 pcs.	Item No.
VF2-230-AC/DC-FS	255	350	1	6,000	**5097939**

/pc.

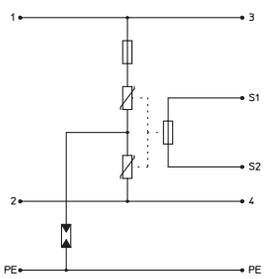
Type 3 surge protection/fine network protection to EN 61643-11 with leak current-free remote signalling
- With remote signalling: potential-free NC contact for function monitoring
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

Dimensions



Connection options



VF2-230-AC/DC-FS

U max AC	U_c AC	255 V
U max DC	U_c DC	350 V
SPD to EN 61643-11		Type 3
SPD to IEC 61643-11		Class III
Lightning protection zone LPZ		2→3
Nominal discharge current (8/20)	I_n	2,5 kA
Rated current	I_L	20 A
Protection level wire-wire		< 1000 V
Protection level wire-earth		< 1400 V
Response time	t_A	<25 ns
Temperature range	ϑ	-40 - +80 °C
Protection rating		IP 20
Division unit TE (17.5 mm)		1
Connection cross-section rigid		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section, flexible		0.14 - 2.5 mm²

Always indicate the item number when ordering.

MCR protection for two-core systems: the plus of the FRD/FLD family

+ High arresting capability
+ Low protection level
+ Universally usable
+ Simple mounting using screwless terminals
+ High bandwidth
+ UL-listed

Basic and combination protection for two-core systems

The use of lightning barriers in two-core wire systems is commonplace. These surge protection devices are used from telecommunication cables through bus systems up to measurement and control technology. Surge protection technology allows flexible protection for all kinds of applications. All the devices have both a low protection level and a high arresting capacity.

Always indicate the item number when ordering.

Basic protection for two-core systems with HF applications 120 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
TKS-B	120	170	2	Terminal	1	4,400	**5097976**

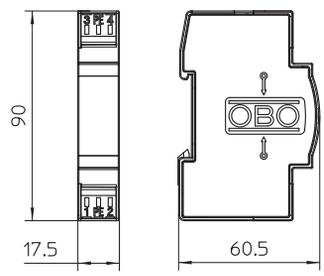
/pc.

Basic protection for measuring, control and regulation technology and telecommunication systems.

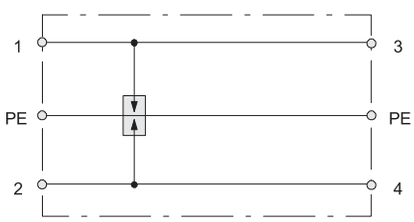
- Basic protection for lightning protection equipotential bonding
- High impulse arresting capacity 6 kA (10/350)
- With easy-to-mount, screwless connection terminals
- In a space-saving 17.5 mm grid

Application: Universal use on 35 mm DIN rails in standard distributor housings.

Dimensions



Connection options



TKS-B

Maximum continuous voltage AC	U_C	120 V
Maximum continuous voltage DC	U_C	170 V
Category		Type 1+2 / D1+C2
Lightning protection zone LPZ		0→2
Number of poles		2
Rated current	I_L	20 A
Series resistance per wire		–
Impulse current resistance wire-wire		C2: 18 kV / 9 kA
Impulse current resistance wire-earth		C2: 18 kV / 9 kA
Total arrester surge current (8/20)		18 kA
Total arrester surge current (10/350)		D1: 6 kA
Protection level wire-wire		<950 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Connection cable
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Combination protection for two-core systems with HF applications 5 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FRD 5 HF	4	6	2	Terminal	1	4,400	**5098571**

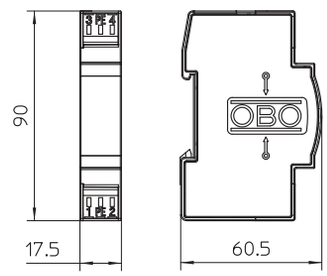
/pc.

Surge protection for use in measuring, control and regulation systems.

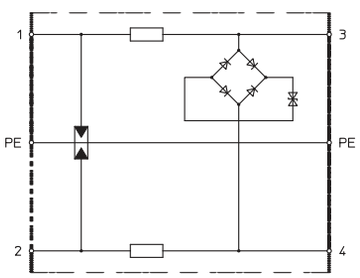
- Basic, medium and fine protection
- Two-stage protection circuit with high lightning current carrying capacity
- High transmission frequency up to 100 MHz
- Suitable for all bus systems (e.g. Profibus)
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid

Application: Multipurpose use on any 35 mm DIN profile rail in every commercially available distribution housing.

Dimensions



Connection options



FRD 5 HF		
Maximum continuous voltage AC	U_C	4 V
Maximum continuous voltage DC	U_C	6 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.45 A
Series resistance per wire		2,2 Ω ± 10 %
Impulse current resistance wire-wire		C2: 18 kV / 9 kA (8/20µs)
Impulse current resistance wire-earth		C2: 18 kV / 9 kA (8/20µs)
Total arrester surge current (8/20)		18 kA
Total arrester surge current (10/350)		D1: 6 kA
Protection level wire-wire		<90 V
Protection level wire-earth		<650 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

Combination protection for two-core systems with HF applications 24 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FRD 24 HF	19	28	2	Terminal	1	4,400	**5098575**

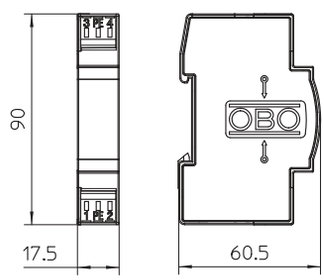
/pc.

Surge protection for use in measuring, control and regulation systems.

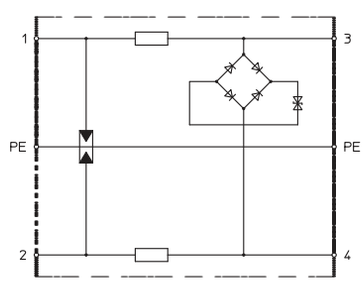
- Basic, medium and fine protection
- Two-stage protection circuit with high lightning current carrying capacity
- High transmission frequency up to 100 MHz
- Suitable for all bus systems (e.g. Profibus)
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid

Application: Multipurpose use on any 35 mm DIN profile rail in every commercially available distribution housing.

Dimensions



Connection options



FRD 24 HF

Maximum continuous voltage AC	U_C	19 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.45 A
Series resistance per wire		2,2 Ω ± 10 %
Impulse current resistance wire-wire		C2: 18 kV / 9 kA (8/20µs)
Impulse current resistance wire-earth		C2: 18 kV / 9 kA (8/20µs)
Total arrester surge current (8/20)		18 kA
Total arrester surge current (10/350)		D1: 6 kA
Protection level wire-wire		<120 V
Protection level wire-earth		<650 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Medium and fine protection for two-core systems 5 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FRD 5	5	8	2	Terminal	1	5,100	**5098492**

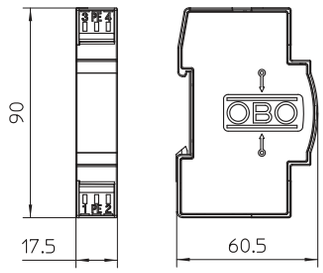
/pc.

Surge protection for use in measurement and control technology

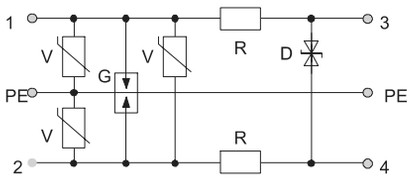
- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FRD 5

Maximum continuous voltage AC	U_C	5 V
Maximum continuous voltage DC	U_C	8 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.2 A
Series resistance per wire		15 Ω ± 10 %
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<15 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

Medium and fine protection for two-core systems 12 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FRD 12	9	13	2	Terminal	1	5,100	**5098506**

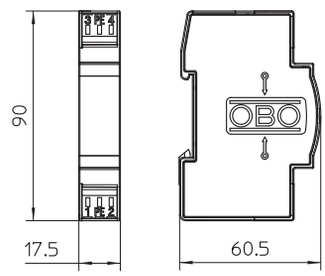
/pc.

Surge protection for use in measurement and control technology

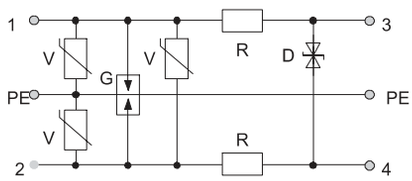
- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FRD 12

Maximum continuous voltage AC	U_C	9 V
Maximum continuous voltage DC	U_C	13 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.2 A
Series resistance per wire		15 Ω ± 10 %
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<30 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Medium and fine protection for two-core systems 24 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FRD 24	19	28	2	Terminal	1	5,100	**5098514**

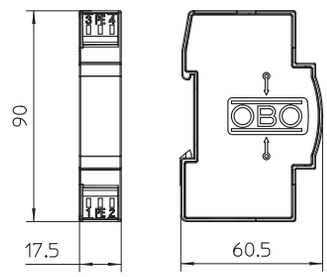
/pc.

Surge protection for use in measurement and control technology

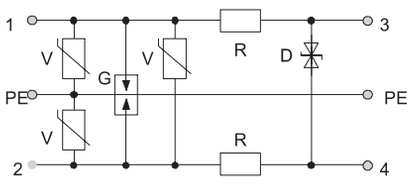
- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FRD 24

Maximum continuous voltage AC	U_C	19 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.2 A
Series resistance per wire		15 Ω ± 10 %
Impulse current resistance wire-wire		C2: 5 kV / 2,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<60 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

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Medium and fine protection for two-core systems 48 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FRD 48	37	53	2	Terminal	1	5,100	**5098522**

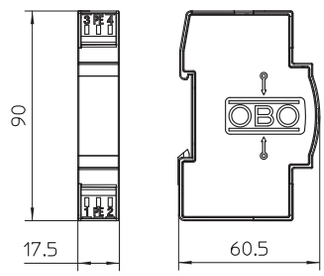
/pc.

Surge protection for use in measurement and control technology

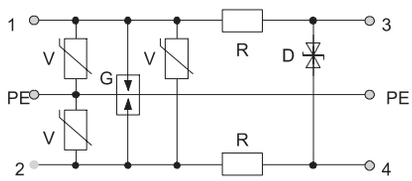
- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FRD 48

Maximum continuous voltage AC	U_C	37 V
Maximum continuous voltage DC	U_C	53 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.2 A
Series resistance per wire		15 Ω ± 10 %
Impulse current resistance wire-wire		C2: 5 kV / 2,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<140 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Medium and fine protection for two-core systems 110 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FRD 110	86	122	2	Terminal	1	5,100	**5098557**

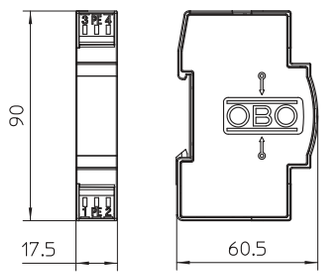
/pc.

Surge protection for use in measurement and control technology

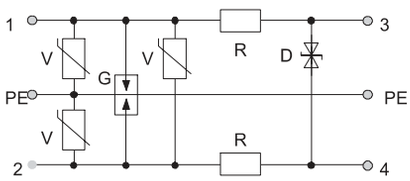
- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FRD 110

Maximum continuous voltage AC	U_C	86 V
Maximum continuous voltage DC	U_C	122 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.2 A
Series resistance per wire		15 Ω ± 10 %
Impulse current resistance wire-wire		C2: 5 kV / 2,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<300 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

Medium and fine protection for two-core systems 24 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FRD 2-24	19	28	2	Terminal	1	5,100	**5098727**

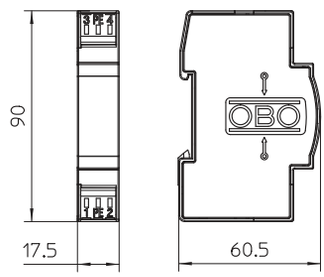
/pc.

Surge protection for use in measurement and control technology

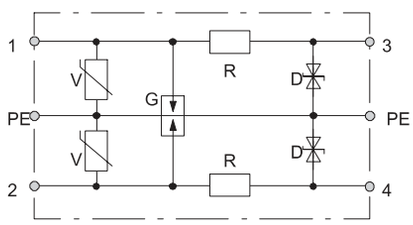
- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FRD 2-24

Maximum continuous voltage AC	U_C	19 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		2
Rated current	I_L	0.2 A
Series resistance per wire		15 Ω ± 10 %
Impulse current resistance wire-wire		C2: 5 kV / 2,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2.5 kA (8/20µs)
Total arrester surge current (8/20)		5 kA
Total arrester surge current (10/350)		— kA
Protection level wire-wire		<120 V
Protection level wire-earth		<60 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Medium and fine protection for two-core systems 5 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 5	5	8	2	Terminal	1	5,200	**5098600**

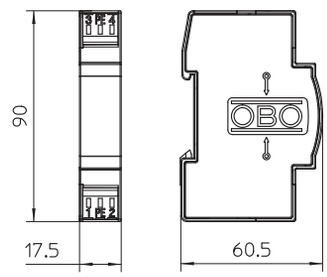
/pc.

Surge protection for use in measurement and control technology

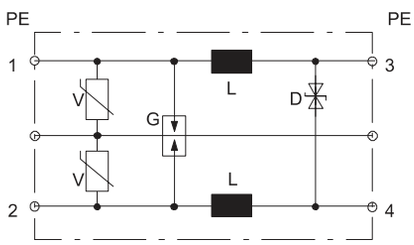
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 5

Maximum continuous voltage AC	U_C	5 V
Maximum continuous voltage DC	U_C	8 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 20 %
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<15 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

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Medium and fine protection for two-core systems 12 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 12	9	13	2	Terminal	1	5,200	**5098603**

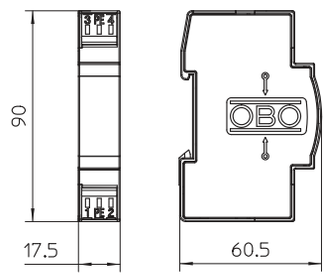
/pc.

Surge protection for use in measurement and control technology

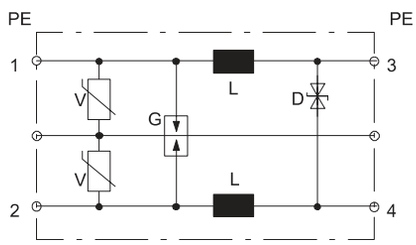
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 12

Maximum continuous voltage AC	U_C	9 V
Maximum continuous voltage DC	U_C	13 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 20 %
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<30 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Medium and fine protection for two-core systems 24 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 24	19	28	2	Terminal	1	5,200	**5098611**

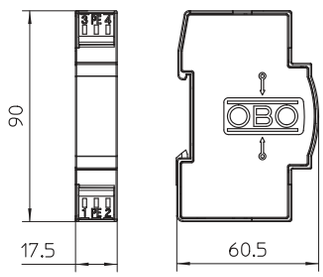
/pc.

Surge protection for use in measurement and control technology

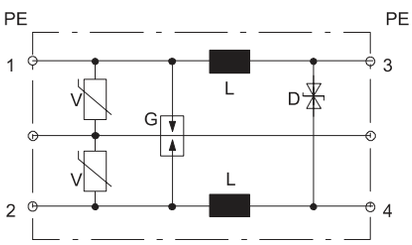
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 24

Maximum continuous voltage AC	U_C	19 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 20 %
Impulse current resistance wire-wire		C2: 5 kV / 2,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<60 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Medium and fine protection for two-core systems 48 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 48	37	53	2	Terminal	1	5,200	**5098630**

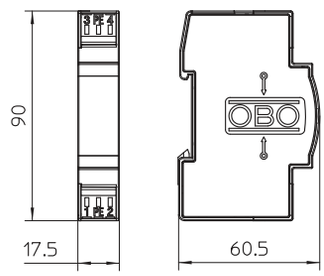
/pc.

Surge protection for use in measurement and control technology

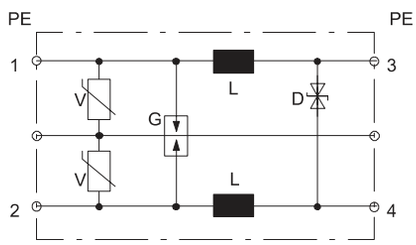
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 48		
Maximum continuous voltage AC	U_C	37 V
Maximum continuous voltage DC	U_C	53 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 20 %
Impulse current resistance wire-wire		C2: 5 kV / 2,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<140 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Medium and fine protection for two-core systems 60 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 60	65	93	2	Terminal	1	5,200	**5098638**

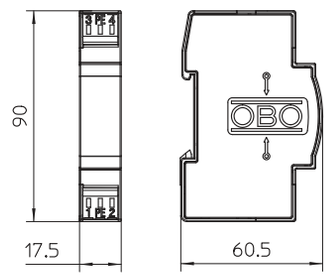
/pc.

Surge protection for use in measurement and control technology

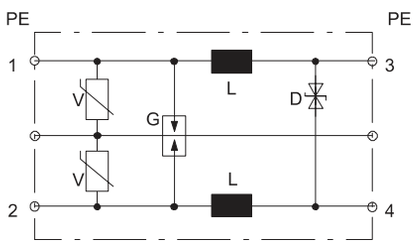
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 60		
Maximum continuous voltage AC	U_C	65 V
Maximum continuous voltage DC	U_C	93 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 20 %
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<160 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

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Medium and fine protection for two-core systems 110 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 110	86	122	2	Terminal	1	5,200	**5098646**

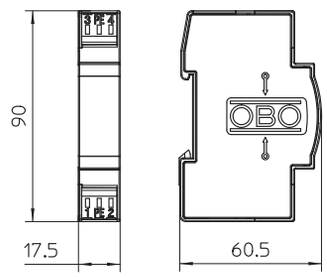
/pc.

Surge protection for use in measurement and control technology

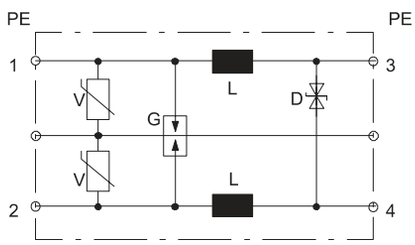
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 110

Maximum continuous voltage AC	U_C	86 V
Maximum continuous voltage DC	U_C	122 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 20 %
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 10 kV / 5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 3 kA
Protection level wire-wire		<300 V
Protection level wire-earth		<600 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Medium and fine protection for two-core systems 5 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 2-5	5	8	2	Terminal	1	5,100	**5098867**

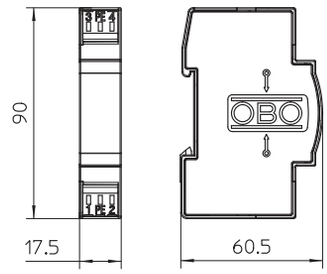
/pc.

Surge protection for use in measurement and control technology

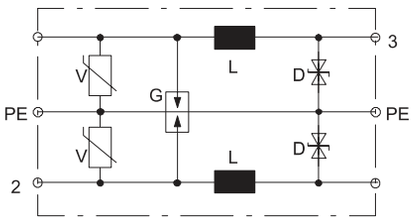
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 2-5

Maximum continuous voltage AC	U_C	5 V
Maximum continuous voltage DC	U_C	8 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 10 %
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C1: 1 kV / 0,5 kA (8/20µs)
Total arrester surge current (8/20)		1 kA
Total arrester surge current (10/350)		– kA
Protection level wire-wire		<30 V
Protection level wire-earth		<15 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

Medium and fine protection for two-core systems 12 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 2-12	9	13	2	Terminal	1	5,100	**5098808**

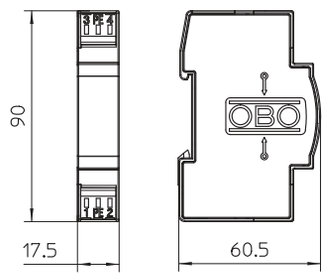
/pc.

Surge protection for use in measurement and control technology

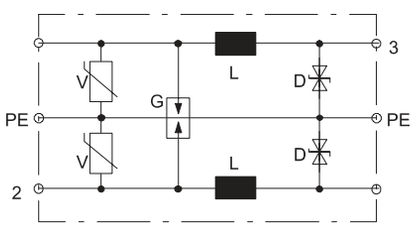
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 2-12

Maximum continuous voltage AC	U_C	9 V
Maximum continuous voltage DC	U_C	13 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 10 %
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C1: 1 kV / 0,5 kA (8/20µs)
Total arrester surge current (8/20)		1 kA
Total arrester surge current (10/350)		— kA
Protection level wire-wire		<60 V
Protection level wire-earth		<30 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Medium and fine protection for two-core systems 24 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 2-24	28	19	2	Terminal	1	5,100	**5098816**

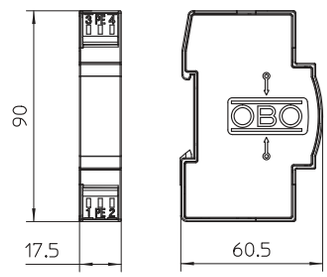
/pc.

Surge protection for use in measurement and control technology

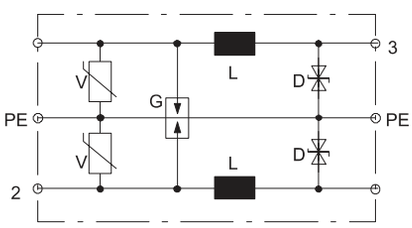
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 2-24

Maximum continuous voltage AC	U_C	28 V
Maximum continuous voltage DC	U_C	19 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 10 %
Impulse current resistance wire-wire		C1: 1 kV / 0,5 kA (8/20µs)
Impulse current resistance wire-earth		C1: 1 kV / 0,5 kA (8/20µs)
Total arrester surge current (8/20)		1 kA
Total arrester surge current (10/350)		– kA
Protection level wire-wire		<120 V
Protection level wire-earth		<60 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

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Always indicate the item number when ordering.

Medium and fine protection for two-core systems 110 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
FLD 2-110	86	122	2	Terminal	1	5,100	**5098859**

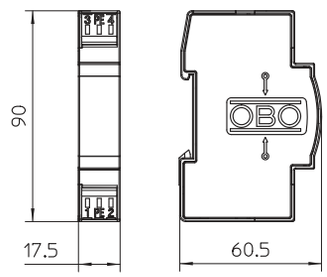
/pc.

Surge protection for use in measurement and control technology

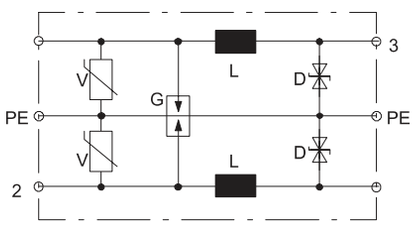
- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

Dimensions



Connection options



FLD 2-110

Maximum continuous voltage AC	U_C	86 V
Maximum continuous voltage DC	U_C	122 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		2
Rated current	I_L	1 A
Series inductivity per wire		120 µH ± 10 %
Impulse current resistance wire-wire		C2: 5 kV / 2,5 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		5 kA
Total arrester surge current (10/350)		— kA
Protection level wire-wire		<500 V
Protection level wire-earth		<300 V
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Division unit TE (17.5 mm)		1
Protection rating		IP20
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 2.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		Terminal
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

MCR protection for multi-wire systems (testable): the plus of the MDP family

+ Protection device for multi-wire systems (4-pole)
+ Direct shield earthing
+ Easy-mounting, screwless connection terminals
+ Space-saving width of just 8.1 mm
+ Versions with nominal currents up to 10 A
+ High frequency bandwidth up to 100 MHz
+ UL-listed

Series protection device
2–3 and 4-pole
from 5 to 48 V

Besides the high current capacity, the lightning barriers of type MDP offer a narrow installation width of just 8 mm. A separate screen connection permits shield attachment on both sides of the equipotential bonding, thus optimising the shield effect against capacitive and inductive couplings. Depending on the version, a nominal current of up to 10 A can be applied to the devices, meaning that they are thus ideally suited to use in special applications, such as slip ring transmitters or heating systems in wind power systems. When installed, all the MDPs can be checked using LifeControl.

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Series protection device, 2-pole, 5 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-2 D-5-T	7	10	2	Terminal	1	6,000	**5098404**

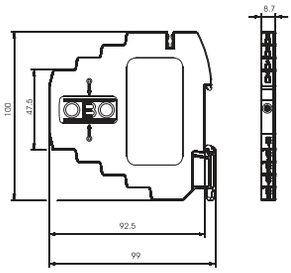
/pc.

MDP... D-5-T: Lightning barrier with test function; 5 V version

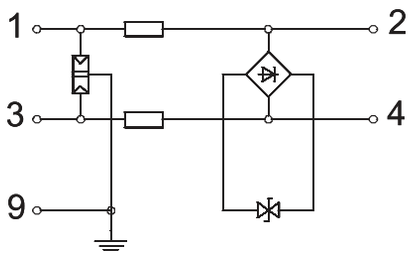
- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High frequency range of 0–100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-2 D-5-T		
Maximum continuous voltage AC	U_C	7 V
Maximum continuous voltage DC	U_C	10 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		5 kA
Total arrester surge current (10/350)		D1: 1 kA
Protection level wire-wire		<35 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 3-pole, 5 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-3 D-5-T	7	10	3	Terminal	1	6,000	**5098407**

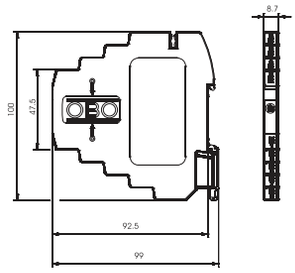
/pc.

MDP... D-5-T: Lightning barrier with test function; 5 V version

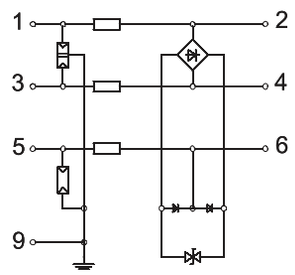
- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High frequency range of 0–100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-3 D-5-T		
Maximum continuous voltage AC	U_C	7 V
Maximum continuous voltage DC	U_C	10 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		3
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		7,5 kA
Total arrester surge current (10/350)		D1: 1,5 kA
Protection level wire-wire		<35 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 4-pole, 5 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-4 D-5-T	7	10	4	Terminal	1	6,000	**5098411**

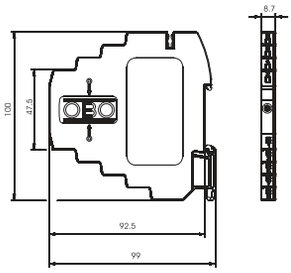
/pc.

MDP... D-5-T: Lightning barrier with test function; 5 V version

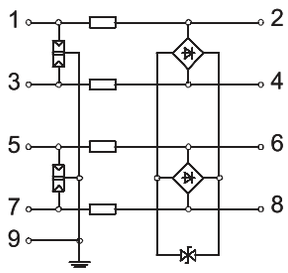
- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High frequency range of 0–100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-4 D-5-T

Maximum continuous voltage AC	U_C	7 V
Maximum continuous voltage DC	U_C	10 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA kA
Total arrester surge current (10/350)		D1: 2kA kA
Protection level wire-wire		<35 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 2-pole, 24 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-2 D-24-T	20	28	2	Terminal	1	6,000	**5098422**

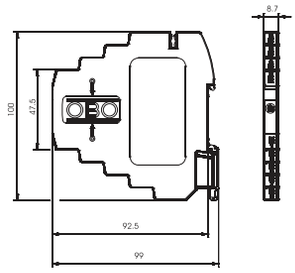
/pc.

MDP... D-24-T: Lightning barrier with test function; 24 V version

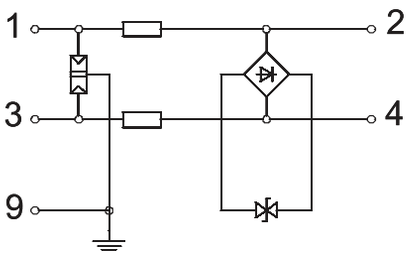
- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-2 D-24-T		
Maximum continuous voltage AC	U_C	20 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		5 kA
Total arrester surge current (10/350)		D1: 1 kA
Protection level wire-wire		<55 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 3-pole, 24 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-3 D-24-T	20	28	3	Terminal	1	6,000	**5098427**

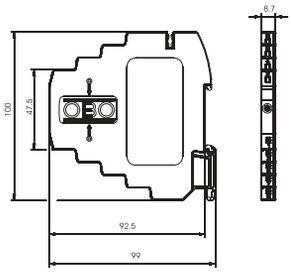
/pc.

MDP... D-24-T: Lightning barrier with test function; 24 V version

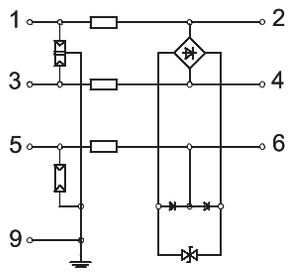
- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-3 D-24-T

Maximum continuous voltage AC	U_C	20 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		3
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		7,5 kA
Total arrester surge current (10/350)		D1: 1,5 kA
Protection level wire-wire		<55 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 4-pole, 24 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-4 D-24-T	20	28	4	Terminal	1	5,800	**5098431**

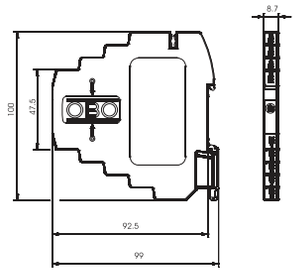
/pc.

MDP... D-24-T: Lightning barrier with test function; 24 V version

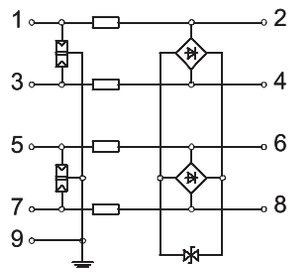
- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-4 D-24-T

Maximum continuous voltage AC	U_C	20 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA kA
Total arrester surge current (10/350)		D1: 2 kA
Protection level wire-wire		<55 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 2-pole, 48 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-2 D-48-T	41	58	2	Terminal	1	6,000	**5098442**

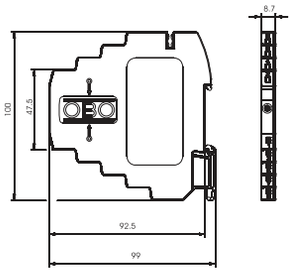
/pc.

MDP... D-48-T: Lightning barrier with test function; 48 V version

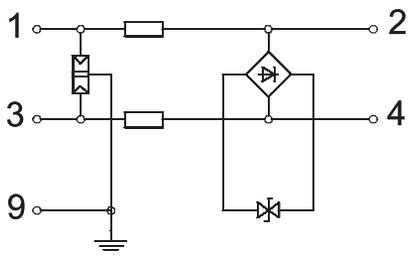
- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-2 D-48-T

Maximum continuous voltage AC	U_C	41 V
Maximum continuous voltage DC	U_C	58 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		5 kA
Total arrester surge current (10/350)		D1: 1 kA
Protection level wire-wire		<95 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 3-pole, 48 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-3 D-48-T	41	58	3	Terminal	1	6,000	**5098446**

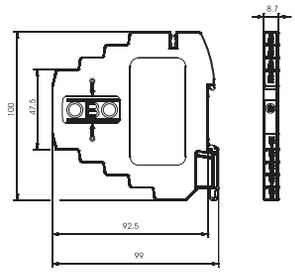
/pc.

MDP... D-48-T: Lightning barrier with test function; 48 V version

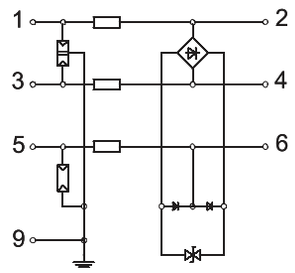
- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-3 D-48-T		
Maximum continuous voltage AC	U_C	41 V
Maximum continuous voltage DC	U_C	58 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		3
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		7,5 kA
Total arrester surge current (10/350)		D1: 1,5 kA
Protection level wire-wire		<95 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Series protection device, 4-pole, 48 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-4 D-48-T	41	58	4	Terminal	1	5,800	**5098450**

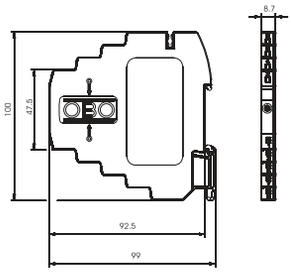
/pc.

MDP... D-48-T: Lightning barrier with test function; 48 V version

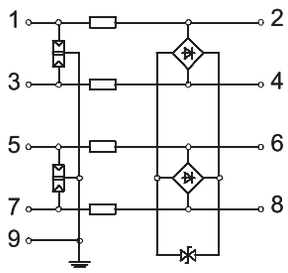
- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-4 D-48-T

Maximum continuous voltage AC	U_C	41 V
Maximum continuous voltage DC	U_C	58 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 2 kA
Protection level wire-wire		<95 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail 35 mm
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 4-pole, 5 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-4 D-5-T-10	7	10	4	Terminal	1	7,200	**5098413**

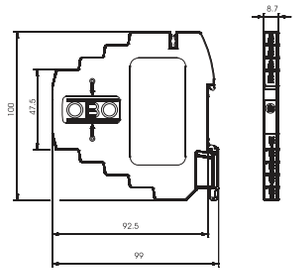
/pc.

MDP-4 D-5-T-10: Lightning barrier with test function; 5 V version

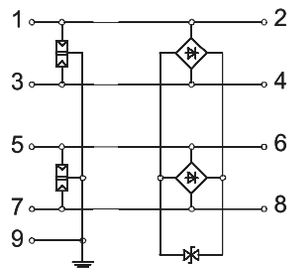
- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-4 D-5-T-10

Maximum continuous voltage AC	U_C	7 V
Maximum continuous voltage DC	U_C	10 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	10 A
Series resistance per wire		–
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 2 kA
Protection level wire-wire		<45 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Always indicate the item number when ordering.

Series protection device, 2-pole, 12 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-2 D-12-T-10	10.5	15	2	Terminal	1	6,000	**5098415**

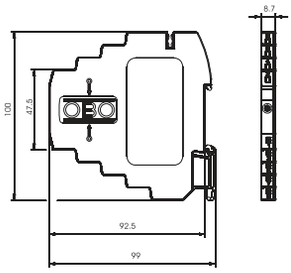
/pc.

MDP... D-12-T-10: Lightning barrier with test function; 12 V version

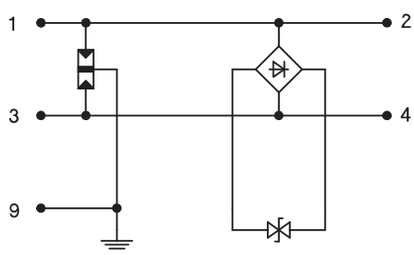
- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-2 D-12-T-10

Maximum continuous voltage AC	U_C	10.5 V
Maximum continuous voltage DC	U_C	15 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	10 A
Series resistance per wire		–
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Total arrester surge current (8/20)		5 kA
Total arrester surge current (10/350)		D1: 1 kA
Protection level wire-wire		<55 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 4-pole, 12 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-4 D-12-T-10	10.5	15	4	Terminal	1	6,000	**5098419**

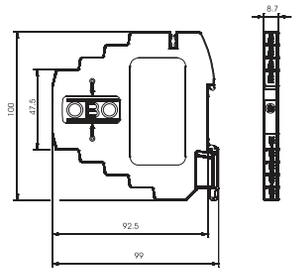
/pc.

MDP... D-12-T-10: Lightning barrier with test function; 12 V version

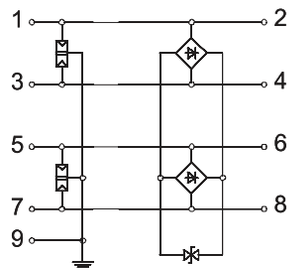
- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-4 D-12-T-10

Maximum continuous voltage AC	U_C	10.5 V
Maximum continuous voltage DC	U_C	15 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	10 A
Series resistance per wire		–
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 2 kA
Protection level wire-wire		<55 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Always indicate the item number when ordering.

Series protection device, 2-pole, 24 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-2 D-24-T-10	20	28	2	Terminal	1	6,000	**5098425**

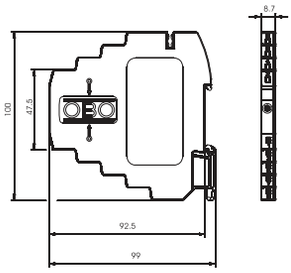
/pc.

MDP... D-24-T-10: Lightning barrier with test function; 24 V version

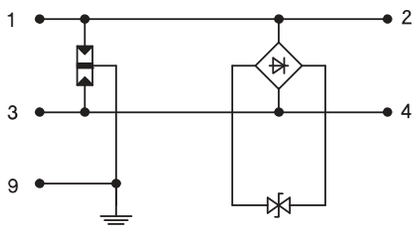
- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-2 D-24-T-10

Maximum continuous voltage AC	U_C	20 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		2
Rated current	I_L	10 A
Series resistance per wire		–
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Total arrester surge current (8/20)		5 kA
Total arrester surge current (10/350)		D1: 1 kA
Protection level wire-wire		<70 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 4-pole, 24 V version

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Connection system	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-4 D-24-T-10	20	28	4	Terminal	1	7,200	**5098433**

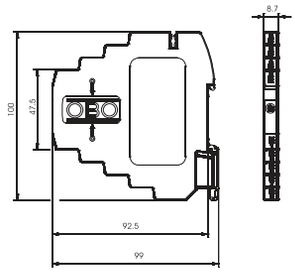
/pc.

MDP... D-24-T-10: Lightning barrier with test function; 24 V version

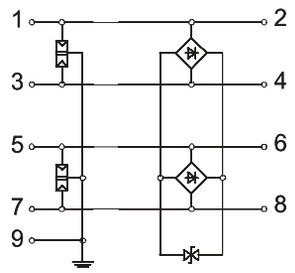
- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-4 D-24-T-10

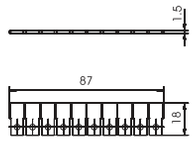
Maximum continuous voltage AC	U_C	20 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	10 A
Series resistance per wire		–
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 2 kA
Protection level wire-wire		<70 V
Protection level wire-earth		<800 V
Frequency range		0 - 100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Accessories for series terminal

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
VB-MDP 10-MD	1	2,300	**5098470**

Cu Copper /pc.



Connecting bridge for 8 mm lightning barriers

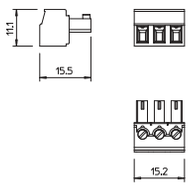
- Length of bridge can be adjusted
- Material: Copper
- Allows quick equipotential bonding

Application: Parallel switching of the MDP lightning barriers

Replacement connector for VF remote signalling

Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
VF-FS	3-pole	25	0,320	**5098475**

/pc.



Replacement telephony connector, 3-pin version, for VF variant

Always indicate the item number when ordering.

Surge arrestor
MCR protection for Ex areas

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04418) / 30/11/2016

Surge protection, Ex protection

	Series protection device, 4-pole, 5 V	431
	Series protection device, 4-pole, 24 V	432
	Series protection device, 4-pole, 48 V	433
	MCR protection, 2-pole 24 V	435
	MCR protection, 3-pole 24 V	436

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MCR protection for Ex areas: the plus of the MDP Ex family

+ Protection device for multi-wire systems (4-pole)
+ Direct shield earthing
+ Easy-mounting, screwless connection option
+ Space-saving width of just 8.7 mm
+ Ex-tested for intrinsically safe measuring circuits
+ High frequency bandwidth up to 100 MHz

Series protection device, Ex protection 2–4-pole, 5–48 V

Surge protection in potentially explosive areas is an important topic. Here, it is important to protect costly measuring technology against the influence of surge voltages through atmospheric discharge. OBO lightning barriers are tested for intrinsic safety (ia) and are independently certified. With a high arresting capacity of 10 kA, they offer optimum protection for four-pole measurement and control applications. Different voltage variants offer a wide range of applications.

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Series protection device, 4-pole, 5 V version, Ex-tested

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-4 D-5-EX	7	10	4	1	5,800	**5098412**

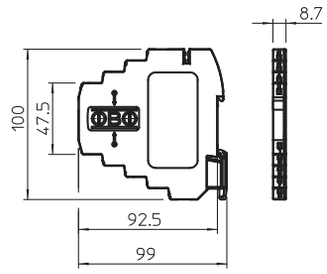
/pc.

MDP-4 D...-EX : Lightning barrier for intrinsically safe measuring circuits

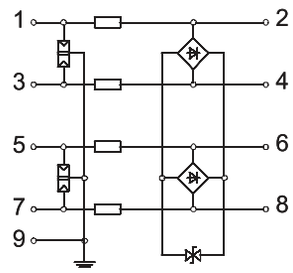
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- High frequency range of 0-100 MHz
- Ex-tested: Ex II 2(1) G Ex ia IIC T4 (BVS 11 ATEX E 131 X)
- UL-listed (4UM2)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-4 D-5-EX

Maximum continuous voltage AC	U_C	7 V
Maximum continuous voltage DC	U_C	10 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 KV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 KV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 2 kA
Protection level wire-wire		< 35 V
Protection level wire-earth		<800 V
Frequency range		0-100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
EX approval		II 2(1)G Ex ia [ia Ga] IIC T4 Gb
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

Series protection device, 4-pole, 24 V version, Ex-tested

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-4 D-24-EX	20	28	4	1	5,800	**5098432**

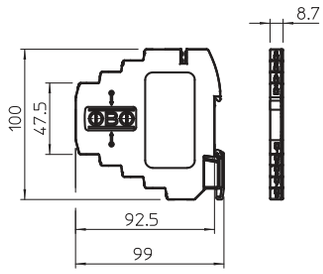
/pc.

MDP-4 D...-EX : Lightning barrier for intrinsically safe measuring circuits

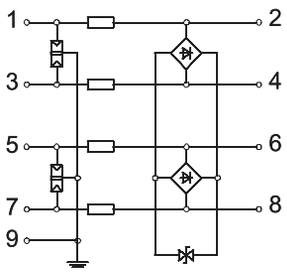
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- High frequency range of 0-100 MHz
- Ex-tested: Ex II 2(1) G Ex ia IIC T4 (BVS 11 ATEX E 131 X)
- UL-listed (4UM2)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



MDP-4 D-24-EX

Maximum continuous voltage AC	U_C	20 V
Maximum continuous voltage DC	U_C	28 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 KV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 KV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 2 kA
Protection level wire-wire		< 55 V
Protection level wire-earth		<800 V
Frequency range		0-100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
EX approval		II 2(1)G Ex ia [ia Ga] IIC T4 Gb
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

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Series protection device, 4-pole, 48 V version, Ex-tested

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Number of poles	Pack. pcs	Weight kg/100 pcs.	Item No.
MDP-4 D-48-EX	41	58	4	1	5,800	**5098452**

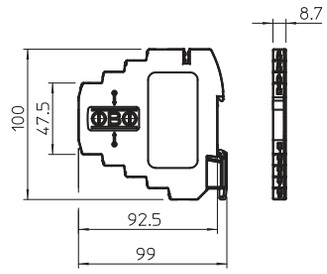
/pc.

MDP-4 D...-EX : Lightning barrier for intrinsically safe measuring circuits

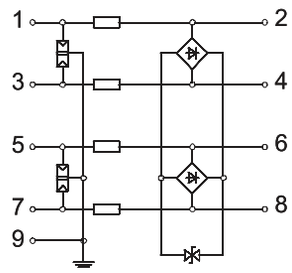
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- High frequency range of 0-100 MHz
- Ex-tested: Ex II 2(1) G Ex ia IIC T4 (BVS 11 ATEX E 131 X)
- UL-listed (4UM2)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

Dimensions



Connection options



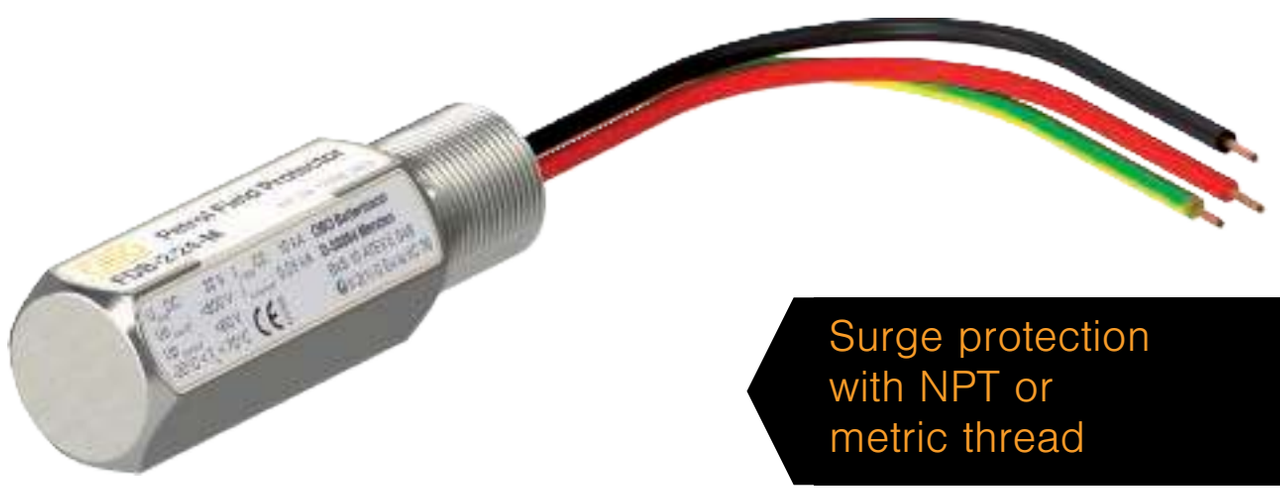
MDP-4 D-48-EX

Maximum continuous voltage AC	U_C	41 V
Maximum continuous voltage DC	U_C	58 V
Category		Type 1+2+3 / D1+C2+C1
Lightning protection zone LPZ		0→3
Number of poles		4
Rated current	I_L	0.58 A
Series resistance per wire		2,35 Ω ± 5 %
Impulse current resistance wire-wire		C1: 0,5 KV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 KV / 2,5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Total arrester surge current (10/350)		D1: 2 kA
Protection level wire-wire		< 95 V
Protection level wire-earth		<800 V
Frequency range		0-100 MHz
Temperature range	ϑ	-40 - +80 °C
Installation type		DIN rail
Connection system		Terminal
Protection rating		IP20
Shielding connection available		Yes
Shield connection		Direct
Connection cross-section, flexible		0.14 - 2.5 mm²
Connection cross-section, multi-wire		0.14 - 1.5 mm²
Connection cross-section rigid		0.14 - 2.5 mm²
Earthing via:		DIN rail
EX approval		II 2(1)G Ex ia [ia Ga] IIC T4 Gb
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

MCR protection for explosive areas: the plus of the Petrol Field Protector family

+ For potentially explosive areas
+ Two or three-pole protection of various sensors
+ Metric or NPT thread
+ Robust VA housing
+ High arresting capacity



Surge protection with NPT or metric thread

Function and areas of use

With the Petrol Field Protector for data cable protection devices, OBO Bettermann can offer a surge protection device for sensors in potentially explosive areas.

The Petrol Field Protector permits two or three-pole protection for all kinds of sensors. The protection device can be fastened directly on the sensor and wired in using the appropriate metric or NPT thread. The robust VA housing means that aggressive atmospheres are no problem. The intrinsic safety of the Petrol Field Protector was independently tested and certified. The Petrol Field Protector is your partner for safety-relevant applications in which effective surge protection must be guaranteed.

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MCR protection for explosive areas, 2-pole, 24 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
FDB-2 24-M	22	32	2-pole; metric	1	18,500	**5098380**

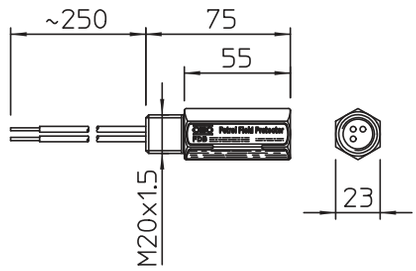
/pc.

Petrol field protector FDB for intrinsically safe measuring circuits and bus systems

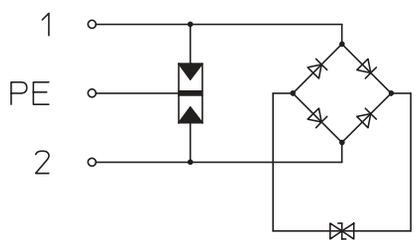
- Different connection technologies available (metric/NPT)
- Low protection level at high current load
- Easy mounting on field devices
- Negligible internal capacitance and inductance
- Stainless steel housing with pressure-resistant encapsulation
- Ex-tested: Ex II 2(1) G Ex ia IIC T6 (BVS 10 ATEX E 48)

Application: Flow sensors, temperature sensors

Dimensions



Connection options



FDB-2 24-M

Maximum continuous voltage AC	U_C	22 V
Maximum continuous voltage DC	U_C	32 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		2
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2.5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Protection level wire-wire		<80 V
Protection level wire-earth		<800 V
Temperature range	ϑ	-20 - +70 °C
Installation type		Screw-on
Protection rating		IP65/67
Mounting of input / output		M20 x 1.5 external thread
Mounting of field / device side:		Connection cable 1.5 mm² Length ~ 250 mm
Earthing via:		Connection cable
Housing material		V2A
EX approval		Ex II 2(1) G Ex ia IIC T6 (BVS 10 ATEX E 48)
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

MCR protection for explosive areas, 3-pole, 24 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
FDB-3 24-M	22	32	3-pole; metric	1	19,000	**5098382**

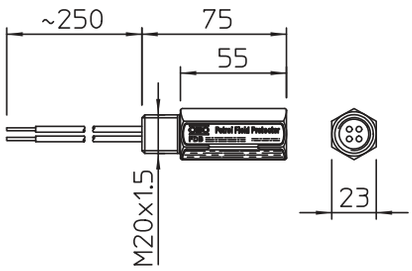
/pc.

Petrol field protector FDB for intrinsically safe measuring circuits and bus systems

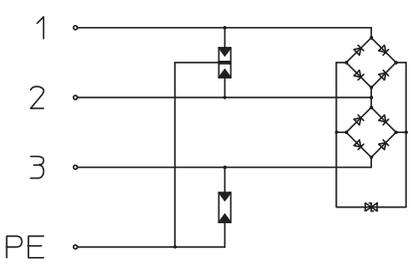
- Different connection technologies available (metric/NPT)
- Low protection level at high current load
- Easy mounting on field devices
- Negligible internal capacitance and inductance
- Stainless steel housing with pressure-resistant encapsulation
- Ex-tested: Ex II 2(1) G Ex ia IIC T6 (BVS 10 ATEX E 48)

Application: Flow sensors, temperature sensors

Dimensions



Connection options



FDB-3 24-M

Maximum continuous voltage AC	U_C	22 V
Maximum continuous voltage DC	U_C	32 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		3
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2.5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Protection level wire-wire		<80 V
Protection level wire-earth		<800 V
Temperature range	ϑ	-20 - +70 °C
Installation type		Screw-on
Protection rating		IP65/67
Mounting of input / output		M20 x 1.5 external thread
Mounting of field / device side:		Connection cable 1.5 mm² Length ~ 250 mm
Earthing via:		Connection cable
Housing material		V2A
EX approval		Ex II 2(1) G Ex ia IIC T6 (BVS 10 ATEX E 48)
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

MCR protection for explosive areas, 2-pole, 24 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
FDB-2 24-N	22	32	2-pole; NPT	1	19,000	**5098390**

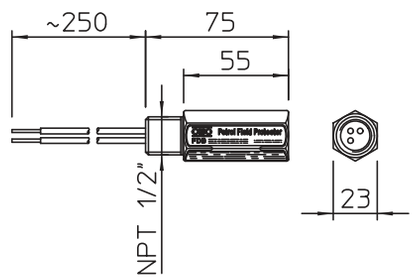
/pc.

Petrol field protector FDB for intrinsically safe measuring circuits and bus systems

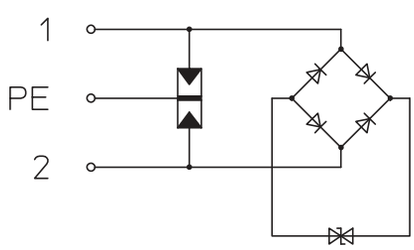
- Different connection technologies available (metric/NPT)
- Low protection level at high current load
- Easy mounting on field devices
- Negligible internal capacitance and inductance
- Stainless steel housing with pressure-resistant encapsulation
- Ex-tested: Ex II 2(1) G Ex ia IIC T6 (BVS 10 ATEX E 48)

Application: Flow sensors, temperature sensors

Dimensions



Connection options



FDB-2 24-N

Maximum continuous voltage AC	U_C	22 V
Maximum continuous voltage DC	U_C	32 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		2
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2.5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Protection level wire-wire		<80 V
Protection level wire-earth		<800 V
Temperature range	ϑ	-20 - +70 °C
Installation type		Screw-on
Protection rating		IP65/67
Mounting of input / output		1/2" NPT
Mounting of field / device side:		Connection cable 1.5 mm² Length ~ 250 mm
Earthing via:		Connection cable
Housing material		V2A
EX approval		Ex II 2(1) G Ex ia IIC T6 (BVS 10 ATEX E 48)
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

MCR protection for explosive areas, 3-pole, 24 V

Type	Highest continuous voltage AC V	Highest continuous voltage DC V	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
FDB-3 24-N	22	32	3-pole; NPT	1	19,500	**5098392**

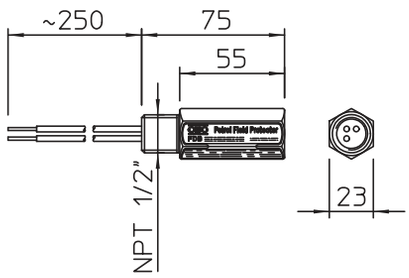
/pc.

Petrol field protector FDB for intrinsically safe measuring circuits and bus systems

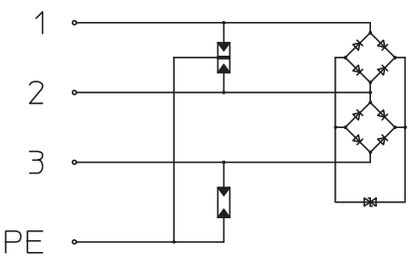
- Different connection technologies available (metric/NPT)
- Low protection level at high current load
- Easy mounting on field devices
- Negligible internal capacitance and inductance
- Stainless steel housing with pressure-resistant encapsulation
- Ex-tested: Ex II 2(1) G Ex ia IIC T6 (BVS 10 ATEX E 48)

Application: Flow sensors, temperature sensors

Dimensions



Connection options



FDB-3 24-N

Maximum continuous voltage AC	U_C	22 V
Maximum continuous voltage DC	U_C	32 V
Category		Type 2+3 / C2+C1
Lightning protection zone LPZ		1→3
Number of poles		3
Impulse current resistance wire-wire		C1: 0,5 kV / 0,25 kA (8/20µs)
Impulse current resistance wire-earth		C2: 5 kV / 2.5 kA (8/20µs)
Total arrester surge current (8/20)		10 kA
Protection level wire-wire		<80 V
Protection level wire-earth		<800 V
Temperature range	ϑ	-20 - +70 °C
Installation type		Screw-on
Protection rating		IP65/67
Mounting of input / output		1/2" NPT
Mounting of field / device side:		Connection cable 1.5 mm² Length ~ 250 mm
Earthing via:		Connection cable
Housing material		V2A
EX approval		Ex II 2(1) G Ex ia IIC T6 (BVS 10 ATEX E 48)
Testing standard		IEC 61643-21

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

Protection and spark gaps
Ex approval

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

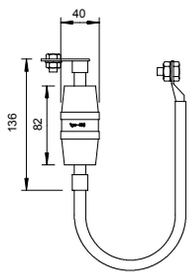
Surge protection, protection and spark gaps

	Isolating spark gap	442
	Connection straps	442
	Closed spark gap with lightning current carrying capability	443
	Protective spark gap	443
	Spark gap/ surge voltage protection	443

Explosion-proof, Parex closed spark gap

Type	Connection cable length m	Contact voltage kV	Impulse current (10/350) kA	Nominal discharge current (8/20) kA	Protection level kV	Temperature range °C	Pack. pcs	Weight kg/100 pcs.	Item No.
480 180	0.18	1	100	100	< 3,0	-20 - +50	1	48,000	**5240034**
480 250	0.25	1	100	100	< 3,0	-20 - +50	1	50,000	**5240077**
480 350	0.35	1	100	100	< 3,0	-20 - +50	1	53,000	**5240069**

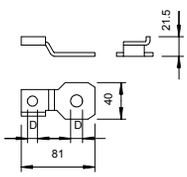
/pc.



- Ex certificate to ATEX
- Labelling to EN 60079-0/-1: II 2G Ex d IIC T6 Gb
- Ex certificate to IECEx and DNV
- Labelling to EN 60079-0/-1: Ex d IIC T6 Gb
- Lightning current carrying capacity class H (100 kA) to VDE 0185-561-3 (IEC 62561-3)
- Incl. connector cable 25 mm² Cu, highly flexible, with cable lug, screw (M 10), nut and lock washer

Application: In potentially explosive areas, indirect by-passing of insulating flanges and insulating glands e.g. in cathodic, corrosion-protected (KKS) systems

Connection bracket for Parex spark gap



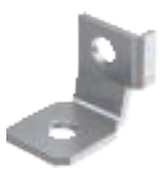
Type	Bore hole Ø mm	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
484 M12	13	For M12 bolt	2	8,100	**5240220**
484 M16	17	For M16 bolt	2	7,700	**5240239**
484 M20	21	For M20 bolt	2	7,300	**5240247**
484 M24	25	For M24 bolt	2	6,800	**5240255**

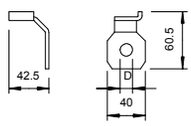
St Steel /pc.

F Hot-dip galvanised

Attaching flange for installing OBO Parex spark gap 480 on insulating flanges.

Connection bracket for Parex spark gap





Type	Bore hole Ø mm	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
485 M12	13	For M12 bolt	2	8,100	**5240328**
485 M10	11	For M10 bolt	2	8,300	**5240301**
485 M16	17	For M16 bolt	2	7,700	**5240336**

St Steel /pc.

F Hot-dip galvanised

Attaching flange for installing OBO Parex spark gap 480 on insulating flanges.

Always indicate the item number when ordering.

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Closed spark gap with lightning current carrying capability

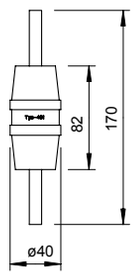
Type	Impulse current (10/350) kA	Nominal discharge current (8/20) kA	Protection level kV	Contact voltage kV	Temperature range °C	Pack. pcs	Weight kg/100 pcs.	Item No.
481	50	100	< 5	2.5	-20 - +50	1	26,500	**5240085**

/pc.

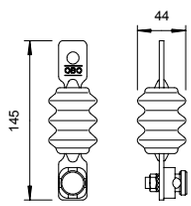
Closed, lightning current carrying spark gap for separation of electrically conductive plant components.

- Connection bolts; Ø 10 mm; stainless steel.
- Pulsed current 50 kA (10/350)
- BET

Tested application: Installation of electrical isolations for external lightning protection and earthing systems, e.g. two earthing systems on account of mutual influence or corrosion (corrosion current prevention).



Protective spark gap



Type	Protection level kV	Contact voltage kV	Pack. pcs	Weight kg/100 pcs.	Item No.
482	–	< 10 kV	10	1	56,000	**5240050**

/pc.

Closed spark gap for bridging a proximity point between roof standard of low-voltage system and components of outer lightning protection system

- Protection rating IP 54
- With pre-mounted type 5001 connector for attaching round conductors Rd 8 - 10

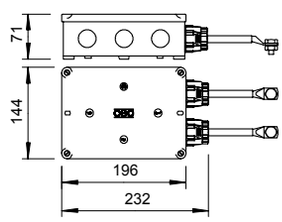
Spark gap / surge voltage protection for coupling earthing systems

Type	Dimension mm	Highest continuous voltage V	Impulse current (10/350) kA	Nominal discharge current (8/20) kA	Protection level kV	Pack. pcs	Weight kg/100 pcs.	Item No.
FS-V20	196 x 144 x 71	280	100	100	< 1,5	1	170,000	**5099803**

/pc.

The FS-V 20 device is a discharge gap with parallel-connected surge voltage protector. It is used to couple different earthing systems. It is connected directly to the equipotential busbar concerned.

Application: Coupling earthing systems in data technology sector (functional and operational earthing)



Always indicate the item number when ordering.

Measuring and testing systems

Always indicate the item number when ordering.

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Measuring and testing systems

	ISOLAB measuring system arrestor tester	446
	Testing unit for lightning barriers	446
	Magnetic card PCS	446
	Magnetic card holder PCS-H	447
	Card reader PCS-CS..	447
	Lightning current meter LSC	448

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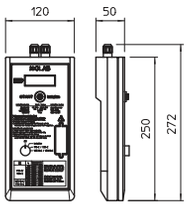
ISOLAB measuring system arrestor tester



Type	Country version	Nom. voltage V	Measuring range	Pack. pcs	Weight kg/100 pcs.	Item No.
ISOLAB	D/GB	6	0 V - - 999 V	1	165,000	**5096812**

/pc.

To test the insulation resistance to DIN VDE 0100 Part 610 and the characteristic curve behaviour of the following surge voltage and lightning current arrestors:

• V10-C and V20-C:

Uc		Tolerance range
75 V	->	110 V - 130 V
150 V	->	215 V - 265 V
280 V	->	385 V - 475 V
320 V	->	460 V - 560 V
335 V	->	460 V - 560 V
385 V	->	560 V - 680 V
440 V	->	645 V - 785 V
550 V	->	820 V - 1,000 V

• V25-B+C and V50-B+C:

Uc		Tolerance range
150 V	->	215 V - 265 V
280 V	->	385 V - 475 V
320 V	->	460 V - 560 V
385 V	->	560 V - 680 V

• Varistor arrestors of other manufacturers can be tested for 1 or 3 mA characteristic curve behaviour
• Battery operation
• Measuring cables contained in the scope of delivery.

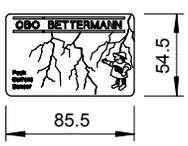
Testing unit for lightning barriers

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
LFC	1	164,500	**5096786**

/pc.

OBO Life Control allows function control of the MDP lightning barriers.
The lightning barriers can be checked while installed. Life Control will not have any influences on the measuring signal.
Life Control possesses an integrated OLED with visual and acoustic defect signalling. A separate LED inside the testing pin is also integrated.
Life Control is delivered in a case, complete with a CD and instructions.

Magnetic card PCS



Type	Pack. PU	Weight kg/100 PUs	Item No.
PCS	1	8,000	**5091438**

/VPE

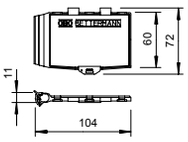
Magnetic card for recording pulsed/lightning currents.

• Contents = 10 pieces

Magnetic card holder PCS-H

Type	Pack. PU	Weight kg/100 PUs	Item No.
PCS-H	1	31,000	**5091527**

/VPE



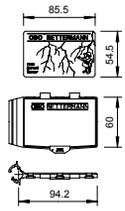
Magnetic card holder for mounting PCS cards.

- Sealable holder
- For installing on round conductor Rd 8-10
- Simple holder installation by means of clamp
- 1 PU = 10 pieces

Magnetic card and holder MK-B

Type	Pack. PU	Weight kg/100 PUs	Item No.
MK-B	1	31,000	**5091322**

/VPE



PCS magnetic card to record pulse/lightning currents including holder

- Holder can be leaded
- For mounting on round conductor Rd 8-10
- Simple holder mounting through clamping
- 1 PU = 10 units

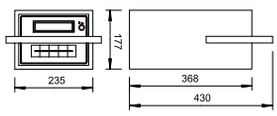
Card reader PCS-CS...:

Type	Country version	Nom. voltage V	Measuring range	Measuring tolerances	Pack. pcs	Weight kg/100 pcs.	Item No.
PCS-CS-D	EN	230	3 - - 120 kA	< 2 kA (< 2%)	1	750,000	**5091683**
PCS-CS-GB	GB	230	3 - - 120 kA	< 2 kA (< 2%)	1	750,000	**5091691**

/pc.

Magnetic card reader for reading and analysing PCS cards.

- Inc. rechargeable battery for 4 h continuous, no-mains operation
- Large, clear display



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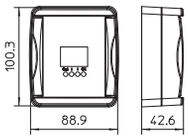
Always indicate the item number when ordering.

Lightning strike counter



Type	Measuring range	Pack. pcs	Weight kg/100 pcs.	Item No.
LSC I+II	1 kA - 100 kA	1	36,000	**5091722**
Plastic				/pc.

The LSC I+II lightning current meter measures and permanently saves pulse currents, together with the date and time. This ensures constant monitoring in order to notice if any lightning has struck the lightning protection system. Should this be the case, then the lightning protection system must be maintained according to VDE 0185-305 (IEC 62305).

- Saving and display of time and date
- Usable both inside and outside due to its protection class of IP65
- Cable clip for round conductor or flat conductor
- Direct mounting on the arrestor or the PE cable of the surge protection device
- Long lifespan of the internal lithium batteries
- LCD display
- Internal battery

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Always indicate the item number when ordering.

Equipotential bonding systems
Indoors and outdoors
Industrial area and Ex area

Always indicate the item number when ordering.

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Equipotential bonding systems

Equipotential busbars for indoor use 455

Equipotential busbars for outdoor areas 461

Equipotential busbars for industrial areas 463

Equipotential busbars for Ex area 467

Earthing clamps 471

Earthing clips 472

Equipotential busbars for indoor use

VDE-tested

Type	Item no.	Page
1801 VDE	5015 65 0	455

Standard

Type	Item no.	Page
1809	5015 07 3	457

With metal base plate

Type	Item no.	Page
1809 M	5015 08 1	457

Bioplastic

Type	Item no.	Page
1809 NR	5015 07 5	458

Equipotential busbars for outdoor areas

UV-resistant

Type	Item no.	Page
1809 A	5015 11 1	461

Always indicate the item number when ordering.

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Equipotential busbars for industry

Stainless steel

Pole	Item no.	Page
5	5015 85 4	463
10	5015 86 6	463

Copper

Pole	Item no.	Page
5	5015 83 0	463
6	5015 83 2	463
8	5015 83 6	463
10	5015 84 2	463
12	5015 84 4	463
14	5015 84 7	463
20	5015 84 9	463

Galvanised steel

Pole	Item no.	Page
2	5016 02 9	464
4	5016 03 7	464
6	5016 04 5	464

Stainless steel

Pole	Item no.	Page
2	5016 09 6	464
4	5016 11 8	464
6	5016 12 6	464

Equipotential busbars for potentially explosive areas

Zone 2/22 (stainless steel)

Pole	Item no.	Page
5	5015 85 4	463
10	5015 86 6	463

Zone 2/22 (copper)

Pole	Item no.	Page
5	5015 83 0	463
6	5015 83 2	463
8	5015 83 6	463
10	5015 84 2	463
12	5015 84 4	463
14	5015 84 7	463
20	5015 84 9	463

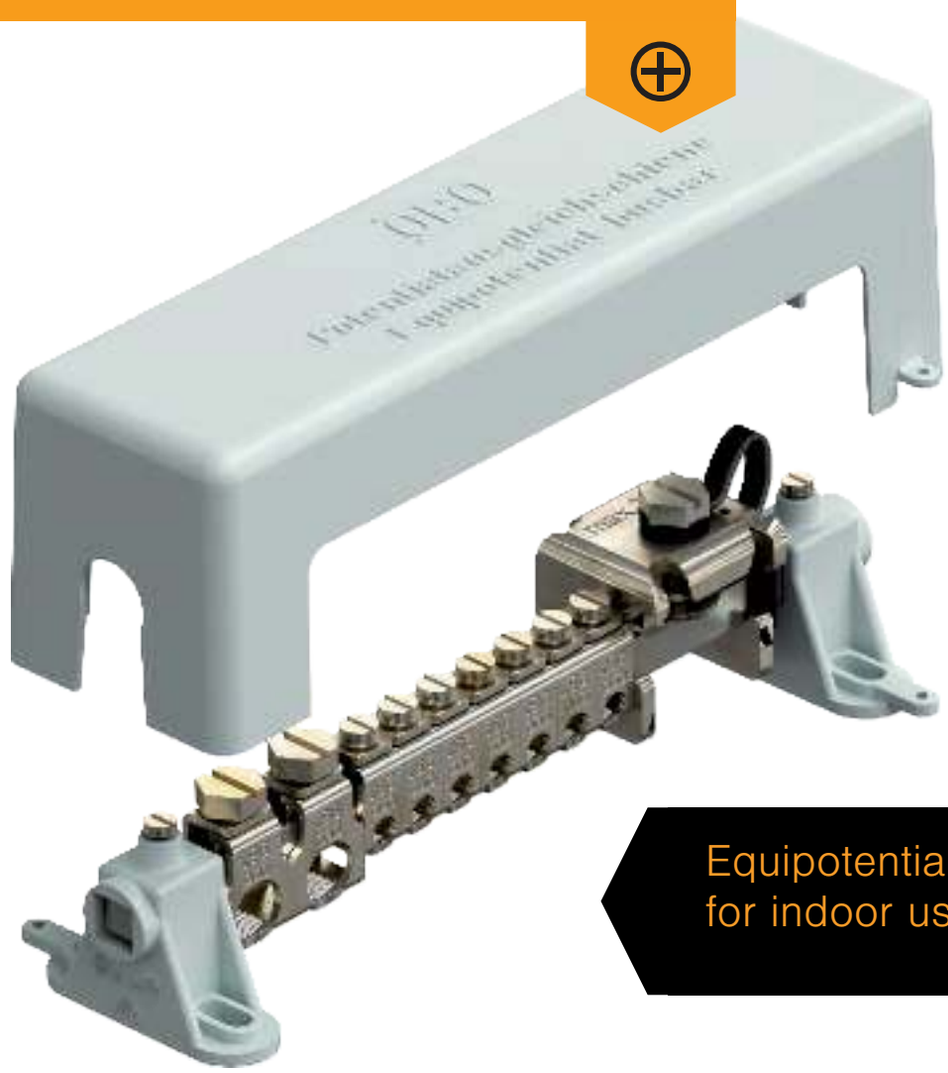
Zone 1/21 + 2/22

Pole	Item no.	Page
5	5015 26 5	467
10	5015 27 0	467

Always indicate the item number when ordering.

Equipotential busbars for indoor use

+ Simple installation
+ Modular series terminal system
+ Wide range of uses



Equipotential bonding for indoor use

The equipotential busbars for interior areas are available as a modular, VDE-tested series terminal system 1801 or as a ready-for-installation equipotential busbar 1809 with plastic or metal footplate. The OBO Green 1809 is a solution made from renewable resources. The simple versions of the 1809 and 1804 are available as both surface-mounted and concealed versions. The equipotential busbars are used for installation the protection and functional equipotential bonding according to DIN VDE 0100-410/540 and the lightning equipotential bonding according to VDE 0185-305 (IEC 62305).

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Always indicate the item number when ordering.

Equipotential busbar for indoors, VDE-tested

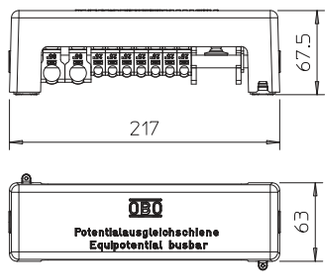
Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
1801 VDE	Grey	1	55,000	**5015650**
CuZn	Brass			/pc.

Equipotential busbar for equipotential bonding according to DIN VDE 0100-410 / -540 and lightning protection equipotential bonding according to DIN VDE 0185-305

- According to VDE 0618, part 1
- With clamping rail 10 x 10 mm, nickel-plated brass
- With close-contact series terminals made of electrogalvanised steel
- Cover hood and rail stand made of grey polystyrene
- Lightning current carrying capacity 100 kA (10/350)
- Tension clamp with screw lock against self-loosening (e.g. required in industry and in explosion-protected areas)

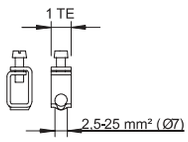
Connection options:
- 7 single or multi-wire cables 2.5-25 mm² or fine-wire cables to 16 mm² (max. Ø 7 mm)
- 2 single or multi-wire cables 25-95 mm² or fine-wire cables to 70 mm² (max. Ø 13.5 mm)
- 1 flat conductor 30 x 3.5 mm

Dimensions



Round conductor terminal to 25 mm² for 1801 VDE

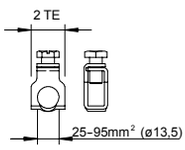
Type	Connection option	Pack. pcs	Weight kg/100 pcs.	Item No.
1801 RK25	2.5–25 mm²	10	2,080	**5015758**
St	Steel			/pc.
G	Electrogalvanised			



- For single or multi-wire cables 2.5–25 mm²
- For fine-wire cables to 16 mm² (max. Ø 7 mm)
- 1 division unit
- Lightning current carrying capacity 100 kA (10/350)
- Electrogalvanised steel
- Tension clamp with screw lock against self-loosening (e.g. required in industry and in explosion-protected areas)

Round conductor terminal from 25 mm² for 1801 VDE

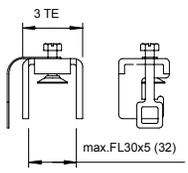
Type	Connection option	Pack. pcs	Weight kg/100 pcs.	Item No.
1801 RK95	25–95 mm²	10	4,700	**5015766**
St	Steel			/pc.
G	Electrogalvanised			



- For single or multi-wire cables 25–95 mm²
- For fine-wire cables to 70 mm² (max. Ø 13.5 mm)
- 2 division units
- Lightning current carrying capacity 100 kA (10/350)
- Electrogalvanised steel
- Tension clamp with screw lock against self-loosening (e.g. required in industry and in explosion-protected areas)

Always indicate the item number when ordering.

Flat conductor terminal to FL 30 for 1801 VDE



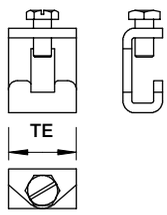
Type	Connection option	Pack. pcs	Weight kg/100 pcs.	Item No.
1801 RK30	FL30 x 5	10	18,410	**5015731**

St Steel /pc.

G Electrogalvanised

- For flat conductors to FL 30 and thickness to 5 mm
- Captive design with plastic safety strap
- 3 division units
- Lightning current carrying capacity 100 kA (10/350)
- Electrogalvanised steel

Flat conductor terminal from FL 30 for 1801 VDE



Type	Connection option	Pack. pcs	Weight kg/100 pcs.	Item No.
1801 RK40	FL40 x 5	10	7,300	**5015774**

St Steel /pc.

G Electrogalvanised

- For flat conductors from FL 30
- 2 terminals always required for each flat conductor connection
- Lightning current carrying capacity 100 kA (10/350)
- Electrogalvanised steel

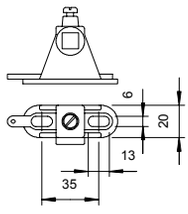
Contact strip for 1801 VDE

Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1801 KL1	212	1	18,000	**5015723**
1801 KL2	430	1	36,000	**5015804**
1801 KL3	645	1	54,000	**5015812**

CuZn Brass /pc.

- 10 x 10 mm made of nickel-plated brass
- 1801 KL1: 14 subunits
- 1801 KL2: 28 subunits
- 1801 KL3: 42 subunits

Busbar stands for 1801 VDE

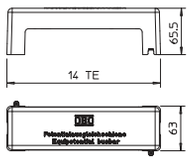


Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
1801 SCH	Grey	10	1,490	**5015715**

PS Polystyrene /pc.

- 2 rail stands required per 14 units
- With 6 x 13 mm slot

Cover hood for 1801 VDE



Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
1801 AH	Grey	1	6,450	**5015707**

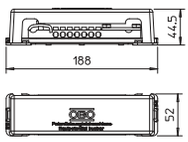
PS Polystyrene /pc.

- 1 covering hood required per 14 division units
- Fastening to rail stands 1801/Sch
- Sealable

Always indicate the item number when ordering.

Equipotential busbar with plastic base plate

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
1809	Grey	1	23,000	**5015073**
CuZn	Brass			/pc.



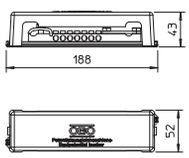
Equipotential busbar for equipotential bonding according to DIN VDE 0100-410/-540 and lightning protection equipotential bonding according to DIN VDE 0185-305

- Base plate and covering hood from polystyrene, grey
- Contact strip made of nickel-plated brass
- Screws and crossbar made of electrogalvanised steel
- Capable of carrying lightning current 100 kA (10/350)

Connection options:
- 7 x single or multi-core conductors to 25 mm² or fine-core conductors to 16 mm²
- 1 x round conductor Rd 8-10
- 1 x flat strip to FL30 or round conductor Rd 8-10

Equipotential busbar with metal base plate

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
1809 M	Grey	1	28,100	**5015081**
CuZn	Brass			/pc.



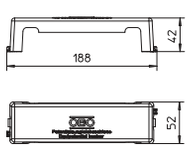
Equipotential busbar with metal foot for equipotential bonding according to DIN VDE 0100-410/-540 and lightning protection equipotential bonding according to DIN VDE 0185-305

- Cover hood from polystyrene, grey
- Base plate made of strip-galvanised steel
- Contact strip made of nickel-plated brass
- Screws and crossbar made of electrogalvanised steel
- Capable of carrying lightning current 100 kA (10/350)

Connection options:
- 7 x single or multi-core conductors to 25 mm² or fine-core conductors to 16 mm²
- 1 x round conductor Rd 8-10
- 1 x flat strip to FL30 or round conductor Rd 8-10

Cover hood for 1809

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
1809 30 AH	Grey	50	0,120	**5015200**
PS	Polystyrene			/pc.



- Replacement cover hood for equipotential busbar, type 1809

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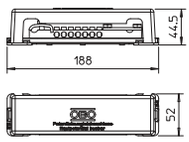
Always indicate the item number when ordering.

Equipotential busbar OBO Green



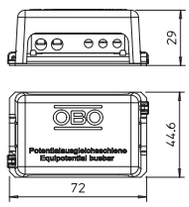
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
1809 NR	1	24,300	**5015075**
CuZn Brass			/pc.

Natural product protects against natural influences.
The OBO Green equipotential busbar is a solution manufactured from cellulose acetate CA for the installation of the equipotential bonding according to DIN VDE 0100-410/-540 and lightning protection equipotential bonding according to DIN VDE 0185-305. The basic material is widely used in the paper industry.

- Base plate and covering hood made of CA, white
- Contact strip made of nickel-plated brass
- Screws and crossbar made of electrogalvanised steel
- Capable of carrying lightning current 100 kA (10/350)

Connection options:
- 7 x single or multi-core conductors to 25 mm² or fine-core conductors to 16 mm²
- 1 x round conductor Rd 8-10
- 1 x flat strip to FL 30 or round conductor Rd 8-10

Equipotential busbar for small systems

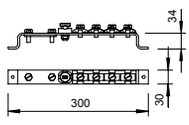


Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
1809 BG	Grey	1	9,000	**5015502**
CuZn Brass				/pc.

- Cover hood made of polystyrene, grey
- Base plate made of strip galvanised steel
- Contact strip and screws made of nickel-plated brass

Connection options:
- 3 x multi-core cables to 6 mm²
- 2 x multi-core cables to 16 mm²

Equipotential busbar, simple version

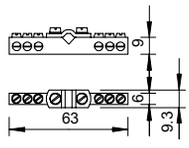


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
1808	1	67,000	**5015014**
CuZn Brass			/pc.

- Clamp and crossbar, electrogalvanised steel
- Clamping element and contact strip, brass, screws, hot dipped galvanised steel

Connection options:
- 8 x cables to 25 mm²
- 1 x round conductor Rd 8-10
- 1 x flat conductor to FL 40

Equipotential busbar for bathrooms



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
1804	5	3,000	**5015553**
CuZn Brass			/pc.

- Nickel-plated brass contact strip
- Screws and clamp made of electrogalvanised steel

Connection options:
- 6 cables 1.5-10 mm²
- 1 cable 6-16 mm²

Always indicate the item number when ordering.

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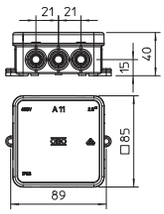
Equipotential busbar for surface mounting with 1804

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
1804 AP	10	12,000	**5015557**
PE Polyethylene			/pc.

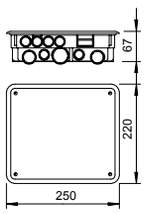


A 10/BP: Equipotential busbar for bathroom in housing

Connection options:
- 6x conductors 1.5-10 mm²
- 1x conductor 6-16 mm²
- Uncut
- With mounted potential equalisation rail 1804 in wet-room branch box A10

Equipotential busbar for flush-mounting with 1809

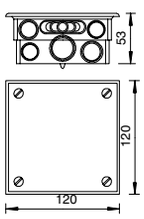
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
1809 UP	1	74,500	**5015065**
CuZn Brass			/pc.



Connection options:
- 7 conductors to 25 mm²
- 1 round conductor Rd 8-10
- 1 flat conductor to FL30 or round conductor Rd 8-10
- With mounted potential equalisation rail 1809 (without covering hood)
- Pre-marked boxes for inserting required conductors and cover

Equipotential busbar for flush-mounting with 1804

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
1804 UP	5	20,700	**5015545**
CuZn Brass			/pc.



A 10/BP: Equipotential busbars for bathroom in housing

Connection options:
- 6x conductors 1.5-10 mm²
- 1x conductor 6-16 mm²
- Uncut
- With mounted potential equalisation rail 1804 in wet-room branch box A10

Always indicate the item number when ordering.

Equipotential busbars for outdoor areas

+ UV-stabilised
+ Corrosion-resistant
+ Simple installation

Equipotential bonding for outdoor use

The equipotential busbar for outdoor areas, 1809 A, is used for installation the protection and functional equipotential bonding according to DIN VDE 0100-410/540 and the lightning protection equipotential bonding according to VDE 0185-305 (IEC 62305). Thanks to corrosion-resistant and UV-stabilised materials, the equipotential busbar is suitable for both outdoor areas and systems in aggressive environments.

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Always indicate the item number when ordering.

Equipotential busbar for outside installation

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
1809 A	Black	1	23,000	**5015111**

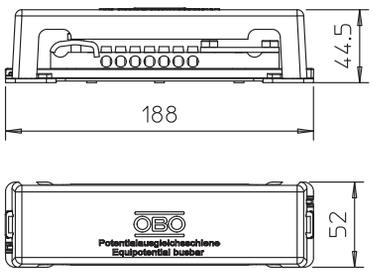
V2A Stainless steel, grade 304 /pc.

Equipotential busbar for equipotential bonding according to DIN VDE 0100-410/-540 and lightning protection equipotential bonding according to DIN VDE 0185-305

- Base plate and cover hood from polystyrene
- Colour: black, UV-resistant
- Screws and crossbar made of VA
- Capable of carrying lightning current 100 kA (10/350)

Connection options:
- 7 x single or multi-core conductors to 25 mm² or fine-core conductors to 16 mm²
- 1 x round conductor Rd 8-10
- 1 x flat strip to FL30 or round conductor Rd 8-10

Dimensions



Equipotential busbar, solid version

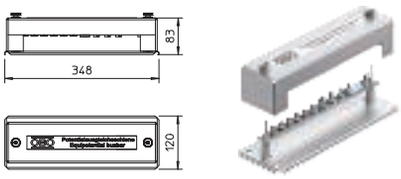
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
1810	1	173,000	**5015057**

St Steel /pc.

F Hot-dip galvanised

- Base plate and screw-on cover hood, made of strip-galvanised steel
- Contact strip, made of electrogalvanised steel
- Screws and crossbar, made of hot-dip galvanised or electrogalvanised steel

Connection options:
- 6 x cables 6-16 mm²
- 1 x round conductor Rd 8-10
- 1 x flat conductor to FL40
- 2 x cable lug M8



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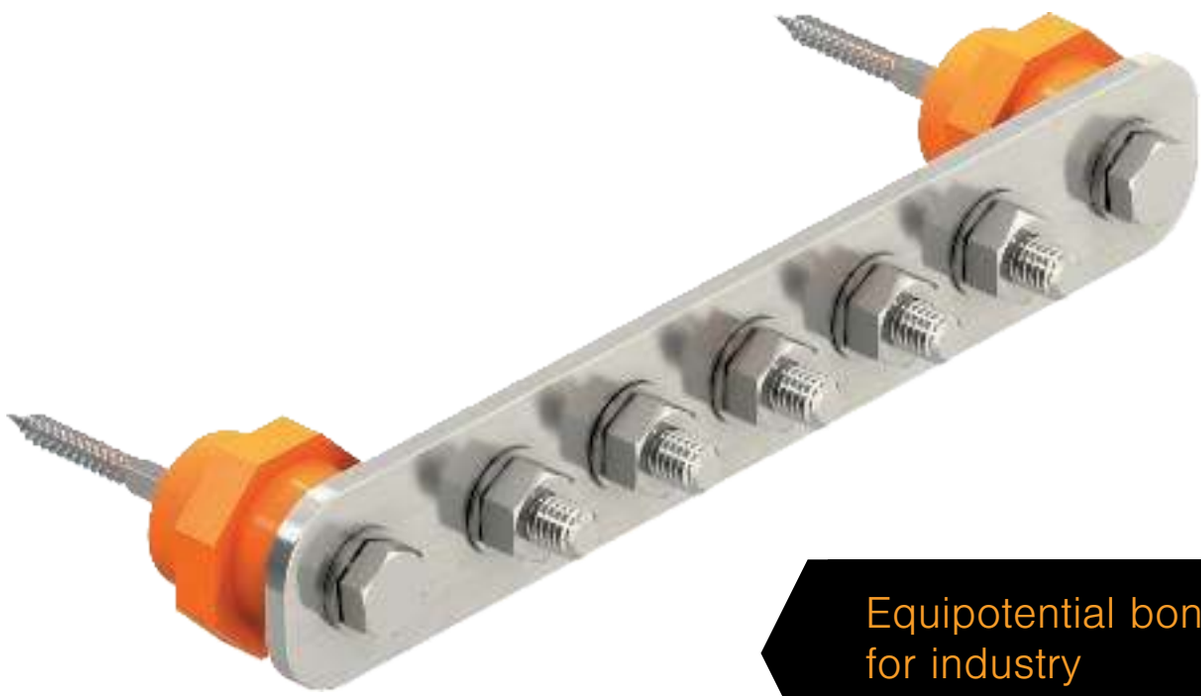
Always indicate the item number when ordering.

Equipotential busbars for industrial areas

+ Corrosion-resistant
+ UV-stabilised
+ Quick and easy mounting



Equipotential bonding for industry

The equipotential busbars for industry, BigBar (1802) and 1805, are used for the installation of protection and functional equipotential bonding according to DIN VDE 0100-410/540 and the lightning protection equipotential bonding according to VDE 0185-305 (IEC 62305). Due to the combination of corrosion resistance materials and their simple installation, the equipotential busbars are especially suitable for use in the industrial sector. The stainless steel (V4A, 1.4571, 316 Ti) variants of the 1805 can be used in a wide range of applications thanks to the fastening holes with their 11 mm diameter.

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Always indicate the item number when ordering.

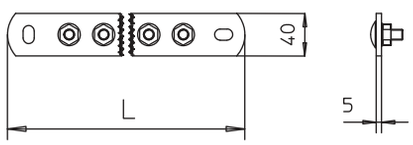
Equipotential busbar BigBar for industrial application

Type	Number of connections	Width mm	Length mm	Height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1802 5 VA	5	40	246	5	1	90,000	**5015854**
1802 10 VA	10	40	408.5	5	1	190,000	**5015866**

V2A Stainless steel, grade 304 /pc.

- Main potential equalisation to VDE 0100 Part 410 and Part 540, and also lightning protection potential equalisation to VDE 0185-305 (IEC 62305)
- Insulation feet
- Quick, simple assembly of connection conductors to the contact rail using lock bolts M10
- The high-grade stainless steel versions (V2A) are suitable for outdoor use
- Complete with anchors and bolts for wall mounting
- With lock washer (DIN 137) for bolt locking against loosening (e.g. required in industry and explosion-protected areas)

Dimensions



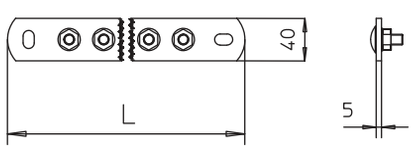
Equipotential busbar BigBar for industrial application

Type	Number of connections	Width mm	Length mm	Height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1802 5 CU	5	40	246	5	1	80,000	**5015830**
1802 6 CU	6	40	278.5	5	1	98,400	**5015832**
1802 8 CU	8	40	343.5	5	1	116,550	**5015836**
1802 10 CU	10	40	408.5	5	1	180,000	**5015842**
1802 12 CU	12	40	473.5	5	1	152,850	**5015844**
1802 14 CU	14	40	538.5	5	1	171,000	**5015847**
1802 20 CU	20	40	733.5	5	1	225,450	**5015849**

Cu Copper /pc.

- Main potential equalisation to VDE 0100 Part 410 and Part 540, and also lightning protection potential equalisation to VDE 0185-305 (IEC 62305)
- Insulation feet
- Quick, simple assembly of connection conductors to the contact rail using lock bolts M10
- The high-grade stainless steel versions (V2A) are suitable for outdoor use
- Complete with anchors and bolts for wall mounting
- With lock washer (DIN 137) for bolt locking against loosening (e.g. required in industry and explosion-protected areas)

Dimensions

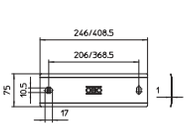


Cover for BigBar equipotential busbar

Type	Number of connections	Pack. pcs	Weight kg/100 pcs.	Item No.
1802 AH 5	5	1	25,800	**5015880**
1802 AH 10	10	1	36,300	**5015884**

V2A Stainless steel, grade 304 /pc.

- Complete with all installation components



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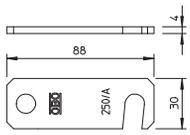
Crossbar for equipotential busbar

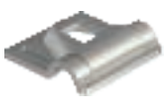


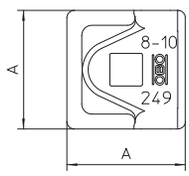
Type	Connection option	Pack. pcs	Weight kg/100 pcs.	Item No.
1802 KL	FL20-FL40	1	7,000	**5015890**

V2A Stainless steel, grade 304 /pc.

- To clamp the flat conductors 30 x 3.5 and 40 x 5
- Suitable for equipotential busbar BigBar, type 1802

Crossbar for equipotential busbar



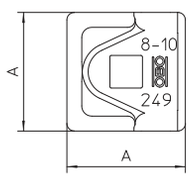


Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 VA-OT	Rd 8-10	40	100	3,130	**5311554**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor Rd 8-10
- Suitable for M10 bolts

Crossbar for equipotential busbar

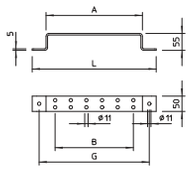


Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 CU-OT	Rd 8-10	40	100	3,580	**5311530**

Cu Copper /100 pc.

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Potential and earth connection block



Type	Dimension L mm	Dimension A mm	Dimension B mm	Dimension G mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1805 2 FT	200	110	51	155	10	54,800	**5016029**
1805 4 FT	302	212	153	257	20	77,000	**5016037**
1805 6 FT	404	314	255	359	10	97,100	**5016045**

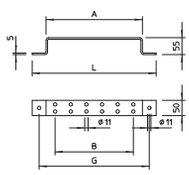
St Steel /pc.

FT Hot-dip galvanised

1805/...: For connecting different earthing systems

- With 2 mounting holes Ø 11 mm
- 1805/2: With 4 attaching holes
- 1805/4: With 8 attaching holes
- 1805/6: With 12 attaching holes

Potential and earth connection block



Type	Dimension L mm	Dimension A mm	Dimension B mm	Dimension G mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1805 2 VA	200	110	51	155	10	54,800	**5016096**
1805 4 VA	302	212	153	257	20	77,000	**5016118**
1805 6 VA	404	314	255	359	10	97,100	**5016126**

V4A Stainless steel, grade 316 Ti /pc.

1805/...: For connecting different earthing systems

- With 2 mounting holes Ø 11 mm
- 1805/2: With 4 attaching holes
- 1805/4: With 8 attaching holes
- 1805/6: With 12 attaching holes

Always indicate the item number when ordering.

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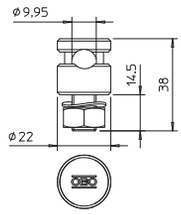
Connector, Rd 8–10 mm with pressure trough

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5001 N-VA	Rd 8-10	10	6,800	**5304176**
V2A	Stainless steel, grade 304			/100 pc.

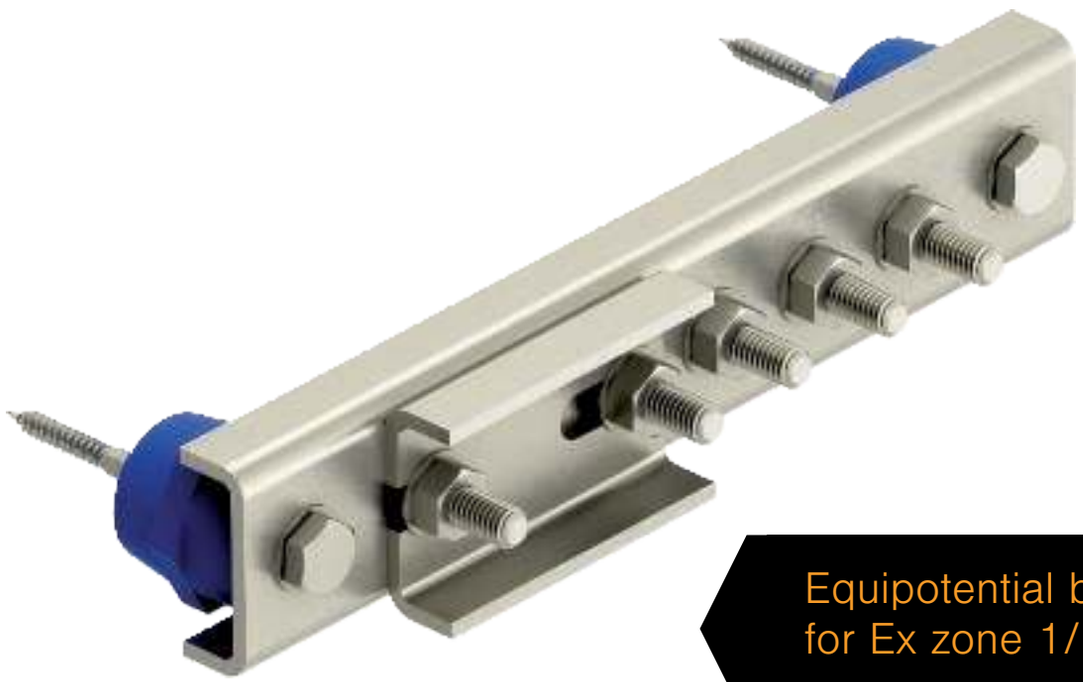


- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.

Equipotential bonding for Ex areas

+ Manufacturer declaration for use in potentially explosive areas
+ Protected against self-loosening
+ UV-stabilised and halogen-free insulation feet
+ For single, multi and fine-wire connection cables and flat conductors
+ Suitable for FT, VA, CU and AL material
+ Corrosion-resistant



Equipotential bonding for Ex zone 1/21, 2/22

The lightning protection components for equipotential bonding in Ex areas can be used as part of the erection according to VDE 0165 Part 1 (IEC 60079-14) and VDE 0185-305-3 (IEC 62305-3). They are secured against self-loosening in accordance with VDE 0185-305-3 Supplementary Sheet 2 (DIN EN 62305-3 Supplementary Sheet 2).
The equipotential busbars are used for lightning protection equipotential bonding according to VDE 0185-305-3 (IEC 62305-3) and protective/function equipotential bonding according to DIN VDE 0100 Part 410/540.The Vario quick connectors and the connectors with pressure trough are connected with lightning current carrying capacityaccording to VDE 0185-305-3 (IEC 62305-3) and VDE0185-561-1 (IEC 62561-1).
The components are suitable for use in potentially explosive areas of Zone 2 (gases, vapours, mist) as well as Zone 22 (dusts). They do not possess their own potential source of ignition and thus cannot be evaluated according to the European Directive 94/9/EC. This means that an approval according to the European Directive 94/9/EC is not legally possible and also not required in the context of explosion protection.

Always indicate the item number when ordering.

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Equipotential bonding rail for EX zone 1/21, 2/22

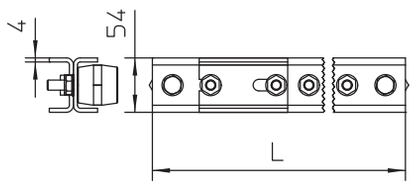
Type	Number of connections	Width mm	Length mm	Height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
EX PAS 5	5	54	279	4	1	152,000	**5015265**
EX PAS 10	10	54	441	4	1	214,000	**5015270**

V2A Stainless steel, grade 304 /pc.

For ignition spark-free protection/functional equipotential bonding to DIN VDE 0100-410/-540 as well as ignition spark-free lightning protection equipotential bonding to DIN VDE 0185-305 (IEC 62305) in systems to VDE 0165-1 (IEC/ EN 60079-14)

- Use in potentially explosive areas, Ex zone 1 and 2/21 and 22
- Tested according to explosion group IIC
- Lightning current carrying capacity class H (100 kA) to VDE 0185-561-1 (IEC/EN 62561-1)
- UV-stabilised and halogen-free insulation feet
- With spring washer for locking screws against self-loosening to VDE 0185-305-3 Supplementary sheet 2
- Suitable for indoor and outdoor applications

Dimensions



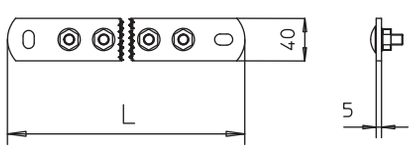
Equipotential busbar BigBar for industrial application

Type	Number of connections	Width mm	Length mm	Height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1802 5 VA	5	40	246	5	1	90,000	**5015854**
1802 10 VA	10	40	408.5	5	1	190,000	**5015866**

V2A Stainless steel, grade 304 /pc.

- Main potential equalisation to VDE 0100 Part 410 and Part 540, and also lightning protection potential equalisation to VDE 0185-305 (IEC 62305)
- Insulation feet
- Quick, simple assembly of connection conductors to the contact rail using lock bolts M10
- The high-grade stainless steel versions (V2A) are suitable for outdoor use
- Complete with anchors and bolts for wall mounting
- With lock washer (DIN 137) for bolt locking against loosening (e.g. required in industry and explosion-protected areas)

Dimensions



Always indicate the item number when ordering.

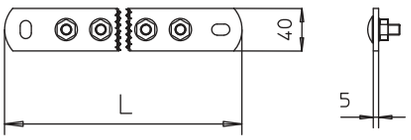
Equipotential busbar BigBar for industrial application

Type	Number of connections	Width mm	Length mm	Height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1802 5 CU	5	40	246	5	1	80,000	**5015830**
1802 6 CU	6	40	278.5	5	1	98,400	**5015832**
1802 8 CU	8	40	343.5	5	1	116,550	**5015836**
1802 10 CU	10	40	408.5	5	1	180,000	**5015842**
1802 12 CU	12	40	473.5	5	1	152,850	**5015844**
1802 14 CU	14	40	538.5	5	1	171,000	**5015847**
1802 20 CU	20	40	733.5	5	1	225,450	**5015849**

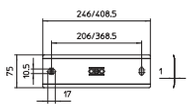
Cu Copper /pc.

- Main potential equalisation to VDE 0100 Part 410 and Part 540, and also lightning protection potential equalisation to VDE 0185-305 (IEC 62305)
- Insulation feet
- Quick, simple assembly of connection conductors to the contact rail using lock bolts M10
- The high-grade stainless steel versions (V2A) are suitable for outdoor use
- Complete with anchors and bolts for wall mounting
- With lock washer (DIN 137) for bolt locking against loosening (e.g. required in industry and explosion-protected areas)

Dimensions



Cover for BigBar equipotential busbar

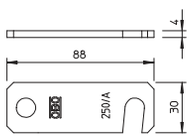


Type	Number of connections	Pack. pcs	Weight kg/100 pcs.	Item No.
1802 AH 5	5	1	25,800	**5015880**
1802 AH 10	10	1	36,300	**5015884**

V2A Stainless steel, grade 304 /pc.

- Complete with all installation components

Crossbar for equipotential busbar

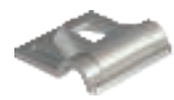


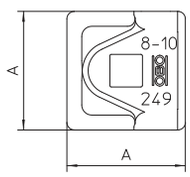
Type	Connection option	Pack. pcs	Weight kg/100 pcs.	Item No.
1802 KL	FL20-FL40	1	7,000	**5015890**

V2A Stainless steel, grade 304 /pc.

- To clamp the flat conductors 30 x 3.5 and 40 x 5
- Suitable for equipotential busbar BigBar, type 1802

Crossbar for equipotential busbar



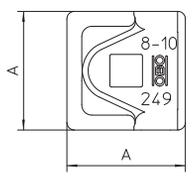


Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 VA-OT	Rd 8-10	40	100	3,130	**5311554**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor Rd 8-10
- Suitable for M10 bolts

Crossbar for equipotential busbar



Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 CU-OT	Rd 8-10	40	100	3,580	**5311530**

Cu Copper /100 pc.

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Always indicate the item number when ordering.

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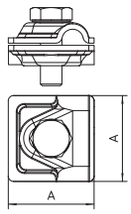
Vario quick connector

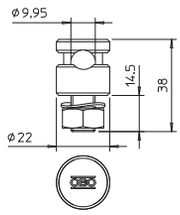
Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 VA	Rd 8-10	40	10	10,700	**5311551**
V2A	Stainless steel, grade 304				/100 pc.



- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Connector, Rd 8–10 mm with pressure trough

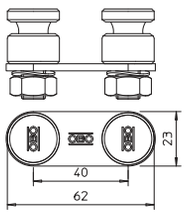
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5001 N-VA	Rd 8-10	10	6,800	**5304176**
V2A	Stainless steel, grade 304			/100 pc.



- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Connector, Rd 8–10 mm, double, with pressure trough

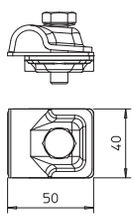
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5002 N-VA	Rd 8-10	10	16,200	**5304270**
V2A	Stainless steel, grade 304			/100 pc.



- With 2 Fix-Kontakt clamping bolts, nuts and serrated washers
- With pre-mounted pressure trough made of VA
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Vario quick connector Rd 8-10x16

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10X16 VA	8-10X16	10	16,300	**5311590**
V2A	Stainless steel, grade 304			/100 pc.



- For T, intersection and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

The plus of earthing clips

+ Varied connection options
+ Adjustable mounting strip
+ Suitable for many pipe diameters

Earthing clips

Each system has different environmental and normative requirements relating to equipotential bonding. To implement equipotential bonding correctly, it is therefore necessary to select the right components to use. Equipotential bonding rails and earthing clips are key components of this kind of installation. In the context of lightning protection equipotential bonding, these must fulfil the requirements and undergo tests as defined in VDE 0185-561-1 (IEC 62561-1).

When connecting metallic pipes to the equipotential bonding, strip earthing clips such as OBO type 927 are generally used. These offer a wide range of advantages over pipe clamps during assembly. With their rustproof stainless steel tightening strap, they are suitable for a wide range of pipe diameters and materials.

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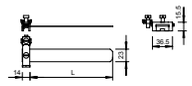
Always indicate the item number when ordering.

Earthing pipe clamp VA

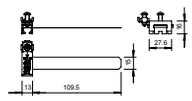


Type	for pipe Ø inch	Dimension L mm	for pipe Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
927 1	3/8-11/2	200	17.2 - 48	10	7,780	**5057515**
927 2	3/8-4	395	17.2 - 114	10	8,550	**5057523**
927 4	3/8-6	555	17.2 - 185	10	8,900	**5057558**

V2A Stainless steel, grade 304 /100 pc.

- For pipes of Ø 3/8 - 6"
- Connection options: Max. 2 cables 2.5-25 mm²
- Round conductor Rd 8
- Clip element, bolts and tightening strap made of rustproof stainless steel (VA)

Earthing pipe clamp, nickel-plated



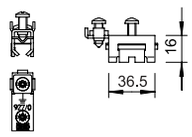
Type	Dimension L mm	for pipe Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
927 0	109.5	8 - 22	10	5,000	**5057507**

CuZn Brass /100 pc.

N Nickel-plated

- For pipe Ø 8-22 mm
- Connection options: max. 2 conductors 2.5-10 mm²
- Clip elements and screws from nickel-plated brass
- Tightening strip from high-grade stainless steel (V2A)

Clamp lock for earthing pipe clamp

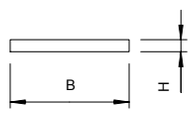


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
927 SCH-K-VA	20	4,700	**5057930**

V2A Stainless steel, grade 304 /100 pc.

- Connection option: max. 2 conductors 2.5-25 mm²
- Possible to connect round conductor Rd 8

Installation strip for earthing pipe clamp



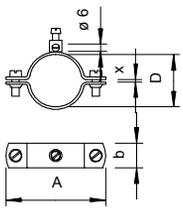
Type	Dimension B mm	Dimension H mm	Pack. m	Weight kg/100 m	Item No.
927 BAND-VA	23	0.3	40	6,000	**5057922**

V2A Stainless steel, grade 304 price/100 m

- 40 m roll
- Ready for transport and installation in unroll pack

Always indicate the item number when ordering.

Earthing clamp, type 925



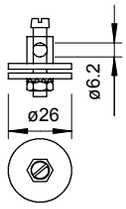
Type	Dimension A mm	Clamping range D mm	Dimension X mm	for pipe Ø inch	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
925 1/4	48	11.5 - 13.5	2	1/4	300	25	4,100	**5040035**
925 3/8	52	15.2 - 17.2	2	3/8	300	25	4,360	**5040051**
925 1/2	56	19.3 - 21.3	2	1/2	300	25	4,788	**5040078**
925 3/4	62	24.9 - 26.9	2	3/4	250	25	5,316	**5040094**
925 1	70	31.7 - 33.7	2	1	250	25	5,956	**5040116**
925 1 1/4	81	40.4 - 42.4	2	1 1/4	300	25	7,744	**5040132**
925 1 1/2	88	46.3 - 48.3	2	1 1/2	240	20	9,615	**5040159**

St Steel /100 pc.

G Electrogalvanised

- For pipes 1/4"-1½" or Ø 11.5-48.3 mm
- Connection options: conductors to 16 mm² with connecting terminal, riveted with brass and 1 cylinder screw M5 x 12
- To 1½" with 2 cylinder screws M6 x 16 (G)

Earthing terminal for fastening on earthing strap



CE

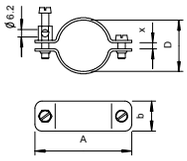
Type	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
928	240	10	5,700	**5040507**

CuZn Brass /100 pc.

N Nickel-plated

- For use in bathtubs or shower lutes etc.
- Connection option: conductors to 16 mm²
- Clamping element with threaded connection M6, 1 hexagonal nut M6, 1 serrated dimension washer and 1 cylinder screw M5 x 8
- Clamping element, nut and screws from copper-plated brass
- Serrated washer from stainless steel; 2 washers from galvanised steel

Earthing clamp, type 942



Type	Dimension A mm	Clamping range D mm	Dimension X mm	for pipe Ø inch	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
942 11	44	8 - 11	3.5	1/8	420	10	4,480	**5038014**
942 15	50	13 - 15	3	1/4	320	10	4,800	**5038030**
942 18	52	16 - 18	2	3/8	200	10	5,170	**5038057**
942 22	55	19 - 22	3	1/2	180	10	5,550	**5038073**
942 28	63	24 - 28	3	3/4	180	10	6,170	**5038081**
942 35	71	30 - 35	5	1	120	10	8,570	**5038111**
942 43	81	39 - 43	5	1 1/4	100	10	9,740	**5038138**
942 49	86	44 - 49	5	1 1/2	100	10	10,540	**5038154**

Cu Copper /100 pc.

N Nickel-plated

- For pipes 1/8"-1½" or Ø 8-49 mm
- Connection options: conductors to 16 mm²
- With attaching clamp and cylinder screw M6 x 16 from nickel-plated brass
- Top and bottom clip sections from nickel-plated copper

Always indicate the item number when ordering.

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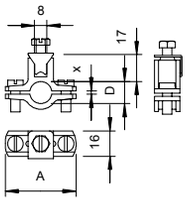
Earthing clamp, type 950

Type	Dimension A mm	Clamping range D mm	Dimension X mm	for pipe Ø inch	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
950 Z 1/4	45	12 - 14	2	1/4	300	10	5,830	**5050030**
950 Z 3/8	50	15.5 - 17.5	2	3/8	180	10	6,020	**5050057**
950 Z 1/2	54	20 - 22.5	2.5	1/2	120	10	7,000	**5050073**
950 Z 3/4	61	25 - 28	3	3/4	120	10	7,620	**5050081**
950 Z 1	66	31.5 - 34.5	3	1	150	10	8,410	**5050111**
950 Z 1 1/4	78	40.5 - 43.5	3	1 1/4	160	10	10,030	**5050138**
950 Z 1 1/2	84	46.5 - 49.5	3	1 1/2	150	10	10,410	**5050154**
950 Z 1 3/4	88	51 - 54	3	1 3/4	100	10	11,820	**5050170**
950 Z 2	96	58.5 - 61.5	3	2	80	10	12,150	**5050197**

Zn Die-cast zinc /100 pc.

G Electrogalvanised



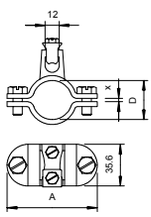
- For pipes Ø 1/4"-2"
- Connection options: conductors to 35 mm² or round conductors to Ø 6 mm
- With captive pressure strip, 2 cylinder screws M6 x 16 and 1 hex-head screw M6 x 16 from galvanised steel, top and bottom part of clip from die-cast zinc

Earthing clamp, type 952

Type	Dimension A mm	Clamping range D mm	Dimension X mm	for pipe Ø inch	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
952 Z 1/2	65	18.5 - 21.5	3	1/2	50	5	24,880	**5052076**
952 Z 3/4	71	24 - 27	3	3/4	50	5	26,780	**5052092**
952 Z 1	77	30.5 - 33.5	3	1	50	5	28,560	**5052114**
952 Z 1 1/4	87	39.5 - 42.5	3	1 1/4	50	5	32,200	**5052130**
952 Z 1 1/2	94	45.5 - 48.5	3	1 1/2	20	5	34,720	**5052157**
952 Z 2	105	57 - 60	3	2	30	5	38,520	**5052181**

St Steel /100 pc.

FT Hot-dip galvanised

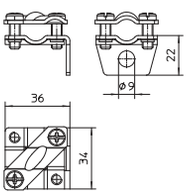


- For pipes 1/2-2" or Ø 11.5-60 mm
- Connection options: conductors 16-70 mm² and/or round conductors to Rd 10 with captive pressure strip from stainless steel
- With 2 hexagonal bolts M6 x 16 and 2 hexagonal bolts M6 x 20 from hot-dip galvanised steel
- Top section of clip with cast contact point from die-cast zinc, bottom section of clip from hot-dip galvanised steel

Earthing terminal type 951

Type	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
951	120	10	5,400	**5051509**

V2A Stainless steel, grade 304 /100 pc.



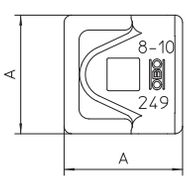
- Longitudinal and transverse conductor routing
- With 1 attaching hole Ø 9 mm
- With 2 cylinder bolts M6 x 16

Connection terminal, equipotential bonding, Rd 8–10 mm

Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 ST-OT	Rd 8-10	40	100	3,240	**5311503**

St Steel /100 pc.

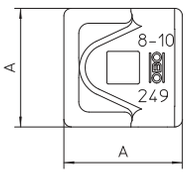
FT Hot-dip galvanised



- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Always indicate the item number when ordering.

Connection terminal, equipotential bonding, Rd 8–10 mm

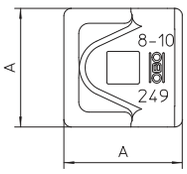


Type	Dimension A mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 ALU-OT	44	Rd 8-10	100	2,100	**5311585**

Alu Aluminium /100 pc.

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

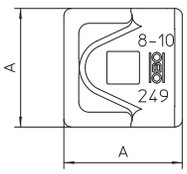


Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 VA-OT	Rd 8-10	40	100	3,130	**5311554**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor Rd 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

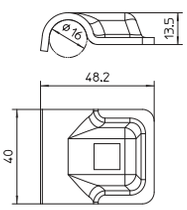


Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 CU-OT	Rd 8-10	40	100	3,580	**5311530**

Cu Copper /100 pc.

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 16 mm

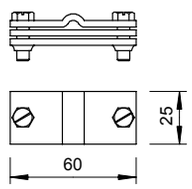


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 VA-OT	16	100	5,700	**5311573**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor fastening RD 16
- Suitable for M10 bolts

Earth connection terminal for round conductor and flat conductor



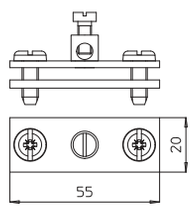
Type	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
937 50	100	10	11,750	**5043018**

St Steel /100 pc.

FT Hot-dip galvanised

- For round and flat conductors
- Fit: cable 50 mm² x max. FL 40
- Rd 8 x max. FL 40
- With 2 hexagonal bolts M6 x 20 (F)

Earthing terminal for conductors and flat conductors



Type	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
939	150	25	5,932	**5043107**

St Steel /100 pc.

G Electrogalvanised

- For cables to 16 mm² and flat conductors
- Fit: cable to 16 mm² x max. FL 30
- With riveted brass connection terminal and one cylinder bolt, M5 x 12, with two cylinder bolts, M6 x 16

Always indicate the item number when ordering.

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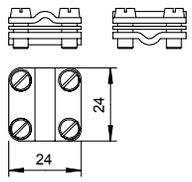
Clip branch terminal

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
470 4-16	50	2,856	**5064015**

CuZn Brass /100 pc.

N Nickel-plated

- Seat: 4-8 mm x 4-8 mm
- With 4 cylinder bolts M4 x 16



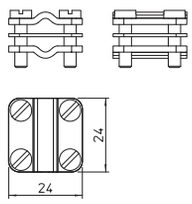
Clip branch terminal, parallel

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
471 4-16 P	–	50	2,900	**5064017**

CuZn Brass /100 pc.

N Nickel-plated

- Seat: 4-8 mm x 4-8 mm
- With 4 cylinder bolts M4 x 16



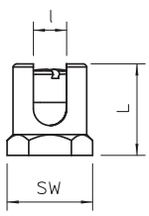
Earthing screw with fastening thread

CE

Type	Dimension L mm	Dimension l mm	Cross-section mm²	SW mm	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
EKL 25 M6	22	8	25	18	M6	50	3,100	**6404006**
EKL 35 M6	26	10	35	21	M6	50	4,800	**6404014**

CuZn Brass /100 pc.

Earthing screw for fastening the equipotential bonding wire to the cable support system.



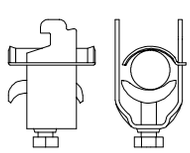
Clamp clips for screen connection

CE 11-12

Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056N SAS 8 VA	4 - 8	50	2,900	**1167006**
2056N SAS 12 VA	8 - 12	50	3,700	**1167014**
2056N SAS 16 VA	12 - 16	50	4,200	**1167022**
2056N SAS 22 VA	16 - 22	50	4,850	**1167030**
2056N SAS 28 VA	22 - 28	50	6,600	**1167049**

V2A Stainless steel, grade 304 /100 pc.

For electrical connection of the braided shield of stripped cables.
Delivery complete with counter-trough; pressure trough and VA counter-trough.
A cable screen for protection against electromagnetic influences, can also contribute towards equipotential bonding as both ends are connected to the reference potential.



Profile rail

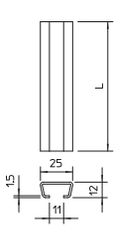
CE 11 N

Type	Version	Dimension W x H mm	Material thickness mm	Length mm	Bundle m	Weight kg/100 m	Item No.
2066 2M FT	Unperforated	25 x 12	1.5	2000	20	65,000	**1117025**
2066 2M FS	Unperforated	25 x 12	1.5	2000	20	58,300	**1117033**

St Steel price/100 m

FS Strip-galvanised FT Hot-dip galvanised

Profile rail, unperforated, slot width 11 mm.



Always indicate the item number when ordering.

Earthing systems

02 TPC Kesterkatalog Länder en 30/11/2016 (LLExport 04408 30/11/2016

Earthing systems

Conductor material 480

Earth rods and plates 485

Connection material 492

Holders and accessories 505

Earth rod

Standard

Surface	Item no.	Page
FT	5000 74 2	485
FT	5000 75 0	485
FT	5000 76 9	485

BP

Surface	Item no.	Page
FT	5000 94 7	485
FT	5000 95 5	485
Stainless steel	5000 85 8	486
Stainless steel	5000 86 6	486
Copper-plated	5000 50 0	486

OMEX

Surface	Item no.	Page
FT	5000 01 7	486
FT	5000 20 3	486
FT	5000 02 5	486

Pipe earther

Surface	Item no.	Page
FT	5000 30 0	485
Stainless steel	5000 33 5	485

Connection clips for earth rods

RD 8-10/FL 30-40

Surface	Item no.	Page
FT	5001 64 1	492
FT	5001 74 9	492
FT	5001 66 8	492
Stainless steel	5001 63 3	493
Stainless steel	5001 67 2	493
Stainless steel	5001 61 7	493
Stainless steel	5001 62 5	493

Universal

Surface	Item no.	Page
FT	5001 41 2	492
FT	5001 40 4	492
Stainless steel	5001 36 6	492

RD 8-10

Surface	Item no.	Page
FT	5001 21 8	492
FT	5001 22 6	492

RD 7-12.5

Surface	Item no.	Page
Copper-plated	5001 56 0	493

Cross-connectors

FL/FL

Surface	Item no.	Page
FT	5314 53 4	493
FT	5314 51 8	493
FT	5314 65 8	494
FT	5314 66 6	494
FT	5314 61 5	494
FT	5314 62 3	494
Stainless steel	5314 65 9	494
Stainless steel	5314 72 0	494
Stainless steel	5314 61 6	494

RD 8-10/RD 8-10

Surface	Item no.	Page
FT	5312 60 4	495
FT	5312 31 0	495
Stainless steel	5312 31 8	495
Copper-plated	5312 41 8	496

RD 8-10/RD 16

Surface	Item no.	Page
FT	5312 80 9	496
FT	5312 34 5	496
Stainless steel	5312 34 6	496
Copper-plated	5312 44 2	497

RD 8-10/FL 30

Surface	Item no.	Page
FT	5312 65 5	497
Stainless steel	5312 65 6	497

Always indicate the item number when ordering.

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Diagonal and parallel clamps

RD 8-10/FL 30

Surface	Item no.	Page
FT	5312 90 6	497
V4A	5312 92 5	498
V2A	5312 92 2	498

RD 6-22/max. FL 50

Surface	Item no.	Page
FT	5313 01 5	498
FT	5313 03 1	498
FT	5313 06 6	498
V2A	5313 02 3	498

RD 8-10

Surface	Item no.	Page
V4A	5313 01 3	499
V2A	5001 61 2	499

RD 10-20

Surface	Item no.	Page
V2A	5315 52 2	499
FT	5315 51 4	499
ST	5315 55 7	499

Connection terminals, sealing sleeves and fixed earthing terminals

Ø 8–14 mm

Surface	Item no.	Page
ST	5014 47 6	500
FT	5014 46 8	500

Ø 16–37 mm

Surface	Item no.	Page
ST	5014 47 7	500
FT	5014 46 9	500

RD 10/FL 30x3.5

Surface	Item no.	Page
	2360 04 1	500
	2360 04 3	500

25 kg

Surface	Item no.	Page
	5009 20 0	505

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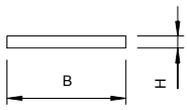
Always indicate the item number when ordering.

Galvanised steel flat conductor



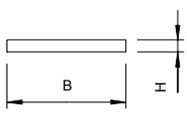
Type	Dimension W x H mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
5052 DIN 20X2.5	20 x 2,5	50	122	50	41,000	**5019340**
5052 DIN 25X3	25 x 3	75	84	50	59,700	**5019342**
5052 DIN 30X3	30 x 3	90	71	50	70,650	**5019344**
5052 DIN 30X3.5	30 x 3,5	105	30	25	84,000	**5019345**
5052 DIN 30X3.5	30 x 3,5	105	60	50	84,000	**5019347**
5052 DIN 30X4	30 x 4	120	52	50	97,000	**5019350**
5052 DIN 40X4	40 x 4	160	40	51	128,000	**5019355**
5052 DIN 40X5	40 x 5	200	30	50	162,000	**5019360**

St Steel — price/100 m

FT Hot-dip galvanised

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Meets the requirements of VDE 0185-305 (IEC 62305)
- Zinc coating: 500 g/m² (approx. 70 µm)
- For lightning protection, earthing systems and ring equipotential bonding

Stainless steel flat conductor

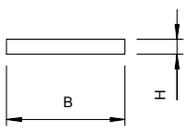


Type	Dimension W x H mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
5052 V2A 30X3.5	30 x 3,5	105	50	42	82,500	**5018501**
5052 V4A 30X3.5	30 x 3,5	105	50	42	82,425	**5018706**
5052 V4A 30X3.5	30 x 3,5	105	25	21	82,425	**5018730**

V2A Stainless steel, grade 304 V4A Stainless steel, 316Ti / 316L — price/100 m

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- According to the foundation earther standard DIN 18014, V4A is required in the earth
- For use in areas at risk of corrosion
- For lightning protection, earthing systems and ring equipotential bonding

Flat conductor, copper

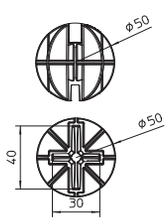


Type	Dimension W x H mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
FL 20-CU	20 x 2,5	50	45	20	44,500	**5021804**

Cu Copper — price/100 m

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Meets the requirements of VDE 0185-305 (IEC 62305)
- For lightning protection, earthing systems and ring equipotential bonding

Protective cap for connection lugs, reflective



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
ProtectionBall	RD 8-10/ FL 25/ 30/ 40	25	2,050	**5018014**

PE Polyethylene — /100 pc.

- For snapping onto round conductors or flat conductors
- Noticeable, reflective label
- For accident protection during the construction phase

Always indicate the item number when ordering.

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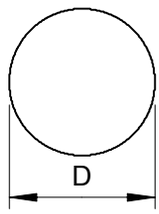
Round conductor, galvanised steel

Type	Nominal size Ø mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-FT	8	50	125	50	40,000	**5021081**
RD 8-FT 50	8	50	50	20	40,000	**5021050**
RD 10	10	78	80	50	63,000	**5021103**

St Steel
FT Hot-dip galvanised

price/100 m



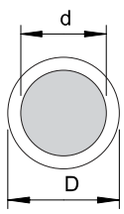
- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10 can also be used in the earth
- Zinc coating: 350 g/m² (approx. 50 µm)

Round conductor, galvanised steel with PVC jacketing

Type	Colour	Dimension d mm	Dimension D mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 10-PVC	Black	10	13	78	75	50	67,200	**5021162**

St Steel
FT Hot-dip galvanised

price/100 m



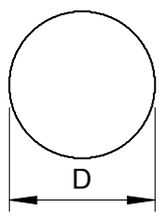
- Conforms to the requirements according to VDE V 0185-305, (IEC 62305)
- Zinc coating: 350 g/m² (approx. 50 µm)
- With PVC sheathing

Round conductor, aluminium

Type	Nominal size Ø mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-ALU	8	50	150	20	13,500	**5021286**
RD 8-ALU-T	8	50	150	20	13,500	**5021294**
RD 8-ALU-T 75	8	50	75	10	13,500	**5021296**
RD 10-ALU	10	78	95	20	21,000	**5021308**

Alu Aluminium

price/100 m



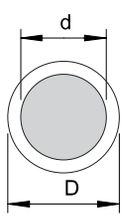
- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 8 ALU: Semi-hard (E-AlMgSi0.5 corresponds to DIN 48801)
- RD 8 ALU-T: Can be subjected to torsion (E-AlMgSi0.5 corresponds to DIN 48801)
- RD 10 ALU: Pure aluminium (E-Al corresponds to DIN 48801)
- AL and ALMgSi may not be routed directly on, in or under plaster, mortar or concrete, nor routed in the earth

Round conductor, aluminium, with PVC sheathing

Type	Nominal size Ø mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-PVC	8/11	50	100	20	20,000	**5021332**

Alu Aluminium

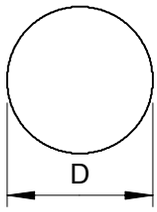
price/100 m



- Meets the requirements of VDE 0185-305 (IEC 62305)
- With PVC jacketing (halogen-free)
- Suitable for routing on, in or under plasterwork, mortar or concrete

Always indicate the item number when ordering.

Round conductor, stainless steel

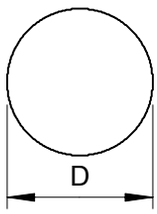


Type	Nominal size Ø mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-V2A	8	50	125	50	40,000	**5021235**
RD 10-V2A	10	78	50	32	63,000	**5021227**
RD 10-V2A	10	78	80	50	63,000	**5021239**
RD 8-V4A	8	50	125	50	40,000	**5021644**
RD 10-V4A 20	10	78	20	12	63,000	**5021640**
RD 10-V4A	10	78	50	32	63,000	**5021642**
RD 10-V4A	10	78	80	50	63,000	**5021647**

V2A Stainless steel, grade 304 V4A Stainless steel, 316Ti / 316L price/100 m

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10-V4A for applications in the earth
- According to the foundation earther standard DIN 18014, V4A is required in the earth

Round conductor, copper

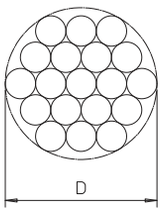


Type	Nominal size Ø mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-CU	8	50	100	45	45,000	**5021480**
RD 10-CU	10	78	50	35	70,000	**5021502**

Cu Copper price/100 m

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Stranded & tinned copper conductor



Type	Dimension D mm	Individual wires	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
S 11-CU	10.5	19 x Ø 2,1	70	50	30	58,600	**5021654**
S 9-CU	9	19 x Ø1,8	50	100	45	45,000	**5021652**
S-11-CU SN	10.5	19 x Ø 2,1	70	50	30	58,600	**5021656**

Cu Copper price/100 m

Sn Tin-plated

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.

02 TBS Masterkatalog Länder / en / 30/11/2016 (LLExport_04408) / 30/11/2016

The plus of earth rods and plates

+ Corrosion-resistant – zinc coating double the amount required
+ Constant resistance values
+ No cross-section increase at the coupling point
+ Optimised for vibration hammers

Earth rods and plates with modular structure

The earthing system is the basis for the entire electrical system. Together with the equipotential bonding system, a conductive and low-resistance connection to the local earth is created. Voltage differences between the connected parts are shorted and a reference potential is generated. The safety conditions and switch-off systems can only reach their protection aims when the system is implemented correctly.

Besides correct planning, the installation must be checked and documented. The continued protective action of the earthing system must be ensured through regular maintenance and testing. Besides the state of the art and the named standards, the directives of the local power generating company must be complied with.

A correctly installed earthing system, together with lightning and surge protection devices, can minimise damage and failures.

The earthing system creates the electrical connection to the surrounding earth. The earthing resistance of the system should be as small as possible (less than 10 Ω) and must be coordinated with further protective measures and switch-off conditions.

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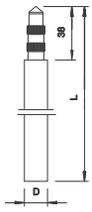
Earth rod for standard applications

Type	Length mm	Outer-Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
219 20 ST FT	1000	20	5	250,000	**5000742**
219 20 ST FT	1500	20	5	360,000	**5000750**

St Steel /pc.

FT Hot-dip galvanised



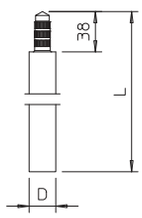
- High corrosion resistance
- Zinc support 70 µm
- With peg and bore for linking together
- Round pegs with two knurls
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)
- Short-circuit current Ik (50 Hz), time 1 s, max. temp 300 °C: 7.9 kA (219/20 ST)

Earth rod for standard applications

Type	Length mm	Outer-Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
219 25 ST FT	1500	25	5	573,000	**5000769**

St Steel /pc.

FT Hot-dip galvanised



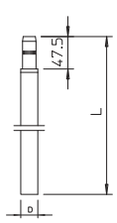
- High corrosion resistance
- Zinc support approx. 130 µm
- With peg and bore for linking together
- Round pegs with three knurls
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)
- Short-circuit current Ik (50 Hz), time 1 s, temp. max. 300 °C: 12.3 kA

LightEarth earth rod

Type	Length mm	Outer-Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
LE ERDER FT	1500	25	5	235,000	**5000300**

St Steel /pc.

FT Hot-dip galvanised

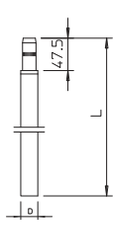


- Expandable earth rod system for erecting earthing connections (type A)
- Also suitable for difficult soil conditions
- The LightEarth earthing system is connected using the pre-mounted sleeve
- Satisfies requirements according to DIN VDE 0185-305 (IEC 62305)
- For use with antenna earthing systems, lightning earthing systems, etc.

LightEarth earth rod

Type	Length mm	Outer-Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
LE ERDER V4A	1500	25	5	235,000	**5000335**

V4A Stainless steel, grade 316 L /pc.



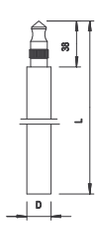
- Expandable earth rod system for erecting earthing connections (type A)
- Also suitable for difficult soil conditions
- The LightEarth earthing system is connected using the pre-mounted sleeve
- Satisfies requirements according to DIN VDE 0185-305 (IEC 62305)
- For use with antenna earthing systems, lightning earthing systems, etc.

BP earth rod

Type	Length mm	Outer-Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
219 20 BP FT	1500	20	5	360,000	**5000947**
219 25 BP FT	1500	25	5	573,000	**5000955**

St Steel /pc.

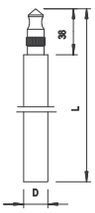
FT Hot-dip galvanised



- "BP" system (Bundespost)
- Very good contacting properties with soft metal inlay in the bore hole
- With peg and bore for linking together
- FT version with zinc coating approx. 130 µm
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.

BP earth rod

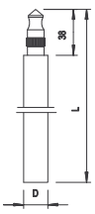


Type	Length mm	Outer-Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
219 20 BP V4A	1000	20	5	250,000	**5000858**
219 20 BP V4A	1500	20	5	365,000	**5000866**

V4A Stainless steel, grade 316 /pc.

- "BP" system (Bundespost)
- Very good contacting properties with soft metal inlay in the bore hole
- With peg and bore for linking together
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)
- Short circuit current Ik (50 Hz), time 1 s, max. temp. 300 °C: 4.5 kA (219 20 BP V4A)

BP copperbond earth rod



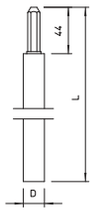
Type	Length mm	Outer-Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
219 20 BP CU	1500	20	5	365,400	**5000500**

St Steel /pc.

Cu Copper-plated

- "BP" system (Bundespost)
- Made of steel with a copper jacket of min. 0.25 mm
- Very good contacting properties with soft metal inlay in the bore hole
- With peg and bore for linking together
- Tensile strength min. 600 N/mm²
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

OMEX earth rod



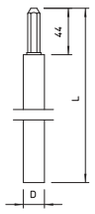
Type	Length mm	Outer-Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
219 20 OMEX FT	1500	20	5	365,400	**5000017**
219 20 OMEX FT	2000	20	5	491,400	**5000203**

St Steel /pc.

FT Hot-dip galvanised

- OMEX system
- With peg and bore for linking together
- With hardened hexagonal pins
- Min. zinc coating 60 µm
- Very good contacting properties with soft metal inlay in the bore hole
- Conforms to the requirements according to VDE 0185-305 (IEC 62305) and DIN EN 62561-2

OMEX earth rod



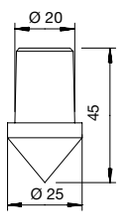
Type	Length mm	Outer-Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
219 25 OMEX FT	1500	25	5	577,200	**5000025**

St Steel /pc.

FT Hot-dip galvanised

- OMEX system
- With peg and bore for linking together
- With hardened hexagonal pins
- Min. zinc coating 60 µm
- Very good contacting properties with soft metal inlay in the bore hole
- Conforms to the requirements according to VDE 0185-305 (IEC 62305) and DIN EN 62561-2

Driving spike for LightEarth earth rod



Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
LE SPITZE	25	5	10,000	**3041409**

St Steel /pc.

FT Hot-dip galvanised

- Suitable for LightEarth system

Always indicate the item number when ordering.

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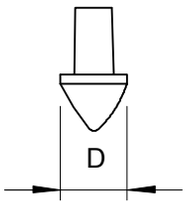
Driving spike for ST and BP earth rod

Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1819 20BP	20	5	3,800	**3041212**
1819 25BP	25	5	6,800	**3041956**

TG Cast iron /pc.

FT Hot-dip galvanised



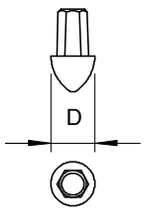
- Suitable for ST and BP system

Driving spike for OMEX earth rod

Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1819 20	20	5	3,300	**3041204**
1819 25	25	5	4,900	**3041255**

TG Cast iron /pc.

FT Hot-dip galvanised



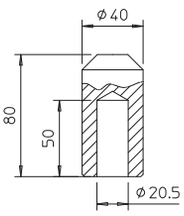
- Suitable for OMEX system
- DIN 48852, Form SP

Driving head for LightEarth earth rod

Type	Material symbol	For earth rods Ø mm	Pack. pcs	Item No.
LE KOPF	St	25	1	**3042308**

St Steel /pc.

FT Hot-dip galvanised

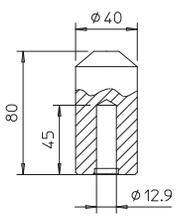


- Suitable for LightEarth system
- For driving earth rods using hand-held hammer
- Hardened

Driving head for earth rods ST, BP and OMEX

Type	Material symbol	For earth rods Ø mm	Pack. pcs	Item No.
1820 20	St	20	1	**3042200**
1820 25	St	25	1	**3042251**

St Steel /pc.

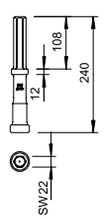


- Suitable for ST, BP and OMEX systems
- Hardened
- DIN 48852, Form SP

Hammer insert, type 2500, for earth rods ST, BP and OMEX

Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2500 20	20	1	120,000	**3043207**
2500 25	25	1	140,000	**3043258**

St Steel /pc.



- Manufactured by Cobra BBM 47 SPA-Super, Tex11 and COBRA 248
- Fits earth rod system ST, BP and OMEX
- Hardened

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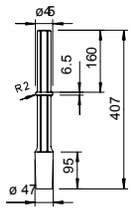
Always indicate the item number when ordering.

Hammer insert, type 2510, for earth rods ST, BP and OMEX

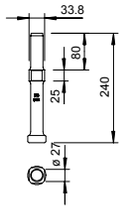


Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2510 20	20	1	310,000	**3043312**

St Steel /pc.

- Manufactured by Atlas Copco, type FB 60 S-Super
- Fits earth rod system ST, BP and OMEX
- Hardened

Hammer insert, type 2520, for earth rods ST, BP and OMEX

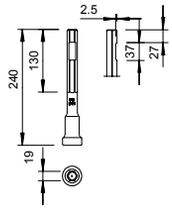


Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2520 20	20	1	197,000	**3043703**
2520 25	25	1	197,000	**3043754**

St Steel /pc.

- Manufactured by Wacker BHF 25, BHF 30S, EHU 25/220
- Fits earth rod system ST, BP and OMEX
- Hardened

Hammer insert, type 2530, for earth rods ST, BP and OMEX

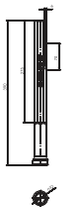


Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2530 20	20	1	125,000	**3043401**
2530 25	25	1	125,000	**3043452**

St Steel /pc.

- Manufactured by Bosch USH 10, HSH 10
- Fits earth rod system ST, BP and OMEX
- Hardened

Hammer insert, type 2531, for earth rods ST, BP and OMEX

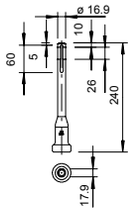


Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2531 20	20	1	200,000	**3043908**

St Steel /pc.

- Make: Bosch GSH 27, USH 27 (WAF 28 mm)
- Suitable for ST, BP and OMEX earth rod systems
- Hardened

Hammer insert, type 2535, for earth rods ST, BP and OMEX



Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2535 20	20	1	100,000	**3043916**
2535 25	25	1	100,000	**3044912**

St Steel /pc.

- Manufactured by Hilti TE 52/42, TE 72/60, TE 92
- Fits earth rod system ST, BP and OMEX
- Hardened

Always indicate the item number when ordering.

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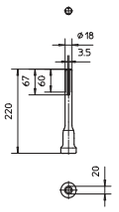
Hammer insert, type 2536, for earth rods ST, BP and OMEX

Type	For earth rods Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2536 20	20	1	63,000	**3044904**
2536 25	25	1	61,000	**3044831**

St Steel /pc.



- Fits earth rod system ST, BP and OMEX
- For vibration hammers with SDS- Max/TEY- mounting
- Hardened

Hammer insert for LightEarth earth rod

Type	Seat systems	Pack. pcs	Weight kg/100 pcs.	Item No.
LE HAMMER-W	Wacker	1	132,000	**3043606**
LE HAMMER-H	Hilti	1	76,000	**3043610**
LE HAMMER-B	Bosch	1	87,000	**3043614**
LE HAMMER-SDS-M	SDS-max	1	76,000	**3043602**
LE HAMMER-AC	Atlas Copco	1	76,000	**3043618**
LE HAMMER-B-II	Other	1	200,000	**3043628**

St Steel /pc.

- Suitable for LightEarth system
- 3043606 for Wacker (BHF 25, BHF 30S)
- 3043610 for Hilti (TE 52/42, TE72/60, TE92)
- 3043614 for Bosch (USH 10, HSH 10)
- 3043602 for SDS-Max
- 3043618 for Atlas Copco (Hexagon seat)
- 3043628 for Bosch GSH27/UH27 (11304) / HS28 (12314)
  Hitachi H65SD
  Makita HM 1500B / HM1800
- Hardened

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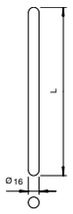
Always indicate the item number when ordering.

Interception/earth entry rod, rounded-off on both sides



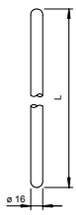
Type	Length mm	Nominal size Ø mm		Pack. pcs	Weight kg/100 pcs.	Item No.
101 A-1500	1500	16	–	10	240,000	**5400155**

St Steel /100 pc.

FT Hot-dip galvanised

- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Interception/earth entry rod, rounded-off on both sides

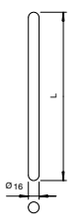


Type	Length mm	Nominal size Ø mm		Pack. pcs	Weight kg/100 pcs.	Item No.
200 V4A-1500	1500	16	–	10	242,000	**5420504**
200 V4A-2000	2000	16	–	10	320,000	**5420539**

V4A Stainless steel, grade 316 Ti /100 pc.

- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Interception/earth entry rod, rounded-off on both sides

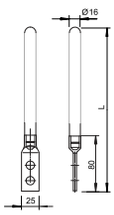


Type	Length mm	Nominal size Ø mm		Pack. pcs	Weight kg/100 pcs.	Item No.
101 A-CU	1500	16	–	10	272,100	**5400627**

Cu Copper /100 pc.

- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Interception/earth entry rod with connection tabs



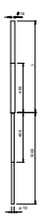
Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 F1500	1500	16	10	240,000	**5424151**
101 F2000	2000	16	10	320,000	**5424208**

St Steel /100 pc.

FT Hot-dip galvanised

- With 2 attaching holes Ø 12 mm
- One end rounded

Earth entry rod, tapered and partially insulated



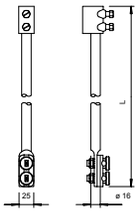
Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
204 KS-2000	2000	16/10	1	230,000	**5430011**
204 KS-2500	2500	16/10	1	310,000	**5430062**

St Steel /pc.

F Hot-dip galvanised

- 16 mm earth entry with 10 mm connection
- With mounted heat-shrinkable sleeve (corrosion protection)

Earth entry rod with separating piece and connector



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
204 KL-1500	Rd 8-10	10	260,700	**5430151**

St Steel /100 pc.

- With separating piece type 223 DIN and connector type 5002 DIN

Always indicate the item number when ordering.

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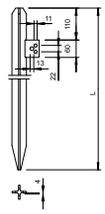
Profile earth rod connection with connecting lug

Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
213 1000 DIN	1000	5	240,500	**5003008**
213 1500 DIN	1500	5	364,500	**5003016**
213 2000 DIN	2000	5	488,400	**5003024**
213 2500 DIN	2500	3	612,400	**5003032**
213 3000 DIN	3000	3	736,400	**5003040**

St Steel /pc.

FT Hot-dip galvanised



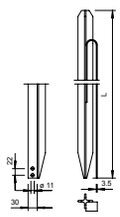
- Cross-profile 50 x 50 x 3 mm
- With connecting strap
- 1 through hole Ø 13 mm
- 2 through holes Ø 11 mm
- Round conductor fastening e.g. with type 5001 DIN-FT possible
- For the construction of earthing systems e.g. antenna or earthing of building site distribution boards

Profile earth rod connection with strip steel lug

Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
213 1500 M	1500	3	527,600	**5003261**
213 2000 M	2000	3	651,600	**5003288**
213 2500 M	2500	3	783,800	**5003296**
213 3000 M	3000	3	899,500	**5003318**

St Steel /pc.

FT Hot-dip galvanised



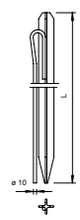
- With 2 m strip steel section FL 30 x 3.5
- With 2 through holes Ø 11 mm
- For the construction of earthing systems e.g. antenna or earthing of building site distribution boards

Profile earth rod connection with round conductor lug

Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
213 1500 F	1500	3	486,900	**5003776**
213 2000 F	2000	3	610,900	**5003784**

St Steel /pc.

FT Hot-dip galvanised



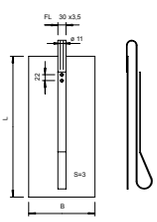
- With 2 m round conductor lugs Rd 10
- For the construction of earthing systems e.g. antenna or earthing of building site distribution boards

Earth plate

Type	Dimension B x L x S mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1816 F-500X1000	500 x 1000 x 3	1	1.329,300	**5009227**
1816 F-1000X1000	1000 x 1000 x 3	1	2.700,000	**5009235**

St Steel /pc.

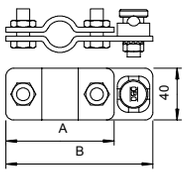
FT Hot-dip galvanised



- With 3 m strip steel section FL30 x 3.5
- With 2 attaching holes Ø 11 mm

Always indicate the item number when ordering.

Connection clamp for earth rod to round conductors Rd 8–10



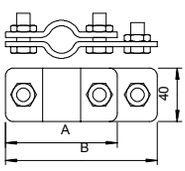
Type	For earth rods Ø mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2710 20	20	84	114	5	39,900	**5001218**
2710 25	25	89	119	5	42,300	**5001226**

St Steel /pc.

FT Hot-dip galvanised

- ST, BP, OMEX and LightEarth system
- On round conductor Rd 8-10
- Incl. connector, type 5001 DIN

Connection clamp for earth rod on flat conductor



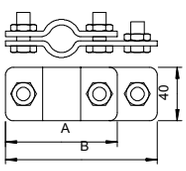
Type	For earth rods Ø mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2730 25 FT	25	89	119	5	38,800	**5001412**
2730 20 FT	20	84	114	5	35,900	**5001404**

St Steel /pc.

FT Hot-dip galvanised

- ST, BP, OMEX and LightEarth systems
- On flat conductors
- Including hex-head screw for attaching flat conductors

Connection clamp for earth rod on flat conductor

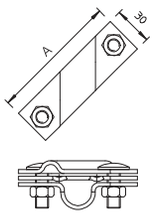


Type	For earth rods Ø mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2730 20 VA	20	84	114	5	35,900	**5001366**

V2A Stainless steel, grade 304 /pc.

- ST, BP, OMEX and LightEarth systems
- On flat conductors
- Including hex-head screw for attaching flat conductors

Connection clamp for earth rod, universal



Type	Dimension A mm	For earth rods Ø mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2760 20 FT	101	20	Rd 8-10/FL40	5	32,400	**5001641**
2760 B-20 FT	101	20	Rd 8-10/FL40	20	32,400	**5001749**
2760 25 FT	110	25	Rd 8-10/FL40	5	38,400	**5001668**

St Steel /pc.

FT Hot-dip galvanised

- Suitable for attaching round conductors Rd 8-10 or flat conductors to FL 40
- With separator plate
- Installed with 2 hexagonal bolts M10 x 30 and 2 hexagonal nuts M10

Always indicate the item number when ordering.

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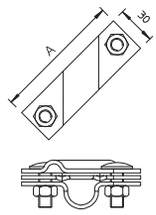
Connection clamp for earth rod, universal

Type	Dimension A mm	For earth rods Ø mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2760 20 VA	101	20	Rd 8-10/FL40	5	32,400	**5001617**
2760 B-20 VA	101	20	Rd 8-10/FL40	20	32,400	**5001625**
2760 20 V4A	101	20	Rd 8-10/FL40	5	32,400	**5001633**
2760 25 V4A	110	25	Rd 8-10/FL40	5	32,400	**5001672**

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 L /pc.



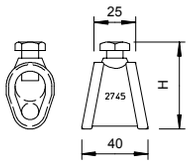
- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Suitable for connecting round conductors Rd 8-10 or flat conductors to FL 40
- With adapter plate
- Mounted with 2 hexagonal bolts M10 x 30 and 2 hexagonal bolts M10

Connection clamp for earth rod or cables

Type	For earth rods Ø mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2745 20 MS	20	7-12.5/S95 mm²	5	16,000	**5001560**

CuZn Brass /pc.

Cu Copper-plated



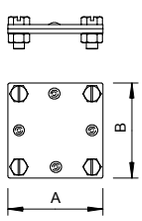
- For earth rod connectors Ø 20 or conductors 95 mm²
- For round conductor attachments Rd 7-12.5 with hexagonal bolts M10 x 25, copper (Cu)

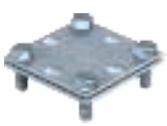
Cross-connector for flat conductor

Type	Fit mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
255 A-FL30 FT	max. FL30	52	52	20	11,500	**5314534**

St Steel /100 pc.

FT Hot-dip galvanised





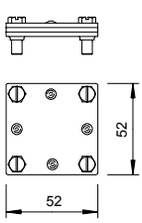
- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Max FL 30 x FL 30
- Without adapter plate
- Mounted with 4 hexagonal bolts M6 x 20 (F)

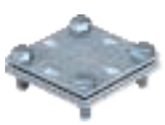
Cross-connector for flat conductor, with intermediate plate

Type	Fit mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
255 30	max. FL30	52	52	20	16,650	**5314518**

St Steel /100 pc.

FT Hot-dip galvanised

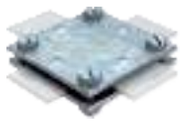


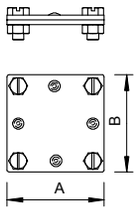


- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Max FL 30 x FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M6 x 20 (F)

Always indicate the item number when ordering.

DIN cross-connector for flat conductor





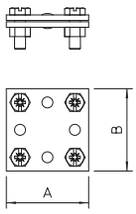
Type	Fit mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
256 A-DIN 30 FT	max. FL30	60	60	10	27,800	**5314658**
256 A-DIN 40 FT	max. FL40	80	80	10	38,800	**5314666**

St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Max. FL 30 x FL 30 or max. FL 40 x FL 40
- Without adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

DIN cross-connector for flat conductor

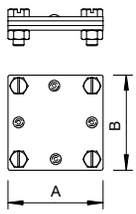


Type	Fit mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
256 A-DIN 30 VA	max. FL30	60	60	10	27,800	**5314720**
256 A-DIN 30 V4A	max. FL30	60	60	10	26,400	**5314659**

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Max. FL 30 x FL 30
- Without adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

DIN cross-connector for flat conductor, with intermediate plate



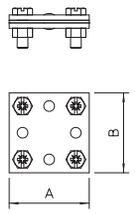
Type	Fit mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
256 DIN 30 FT	max. FL30	60	60	10	35,860	**5314615**
256 DIN 40 FT	max. FL40	80	80	10	54,650	**5314623**

St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Max. FL 30 x FL 30 or max. FL 40 x FL 40
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

DIN cross-connector for flat conductor, with intermediate plate



Type	Fit mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
256 DIN 30 V4A	max. FL30	60	60	10	29,100	**5314616**

V4A Stainless steel, grade 316 Ti /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Max. FL 30 x FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Always indicate the item number when ordering.

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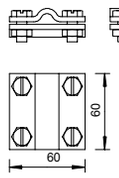
Cross-connector for round conductors Rd 8–10

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
253 8X8	Rd 8-10	25	30,700	**5312604**

St Steel /100 pc.

FT Hot-dip galvanised

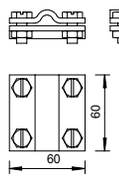


- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

Cross-connector for round conductors Rd 8–10

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
253 8-10 V4A	Rd 8-10	25	23,650	**5312582**

V4A Stainless steel, 316Ti / 316L /100 pc.



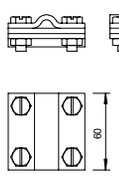
- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

Cross-connector with intermediate plate for round conductors, Rd 8–10

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10 FT	Rd 8-10	25	33,530	**5312310**

St Steel /100 pc.

FT Hot-dip galvanised

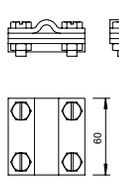


- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

Cross-connector with intermediate plate for round conductors, Rd 8–10

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10 V4A	Rd 8-10	10	33,530	**5312318**

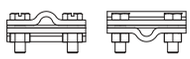
V4A Stainless steel, grade 316 Ti /100 pc.

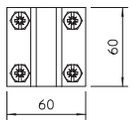


- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Always indicate the item number when ordering.

Cross-connector with intermediate plate for round conductors, Rd 8–10



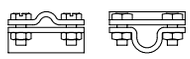


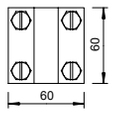
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10 CU	Rd 8-10	10	38,940	**5312418**

Cu Copper /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector for round conductors Rd 8–10 x Rd 16





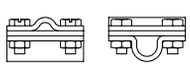
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
253 10X16	Rd 8-10 x 16	25	29,800	**5312809**

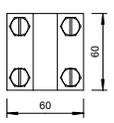
St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

Cross-connector with intermediate plate for round conductors, Rd 8–10 x Rd 16





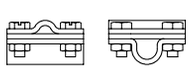
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10X16 FT	Rd 8-10 x 16	25	38,800	**5312345**

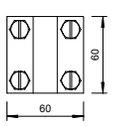
St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector with intermediate plate for round conductors, Rd 8–10 x Rd 16





Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10x16 V4A	Rd 8-10 x 16	10	39,000	**5312346**

V4A Stainless steel, grade 316 Ti /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Always indicate the item number when ordering.

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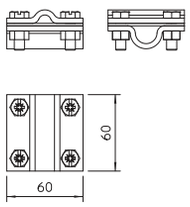
Cross-connector with intermediate plate for round conductors, Rd 8–10 x Rd 16

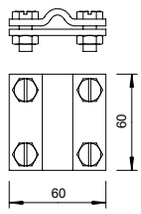


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10X16 CU	Rd 8-10 x 16	10	43,985	**5312442**

Cu Copper /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector for flat conductors and round conductors



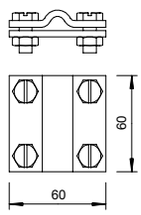
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10XFL30 FT	8-10 x FL30	25	28,500	**5312655**

St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector for flat conductors and round conductors

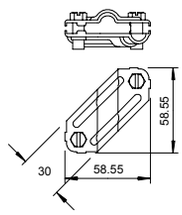


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10xFL30V4A	8-10 x FL30	10	28,500	**5312656**

V4A Stainless steel, grade 316 Ti /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector for flat conductors and round conductors



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
250	Rd 8-10/FL30	25	10,260	**5312906**

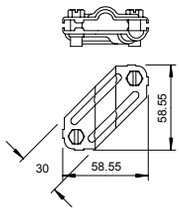
St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Rd 8-10 x FL 30
- Fit: FL 30 x FL 30
- Mounted with 2 hexagonal bolts M8 x 20 (F)

Always indicate the item number when ordering.

Cross-connector for flat conductors and round conductors

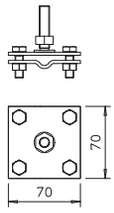


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
250 VA	Rd 8-10/FL30	25	10,260	**5312922**
250 V4A	Rd 8-10/FL30	10	10,260	**5312925**

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Rd 8-10 x FL 30
- Fit: FL 30 x FL 30
- Mounted with 2 hexagonal bolts M8 x 20

Cross-connector for flat conductors and round conductors



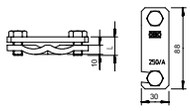
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 GB 10x45	8-10 x FL30	10	34,800	**5312657**

V2A Stainless steel, grade 304 /100 pc.

FT/VA Hot-dip galvanised/stainless steel, grade 304

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Diagonal clamp



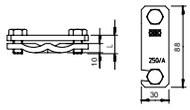
Type	Dimension L mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
250 A-FT	40	Rd 6-22/max. FL50	25	28,800	**5313015**
250 AS-FT	20	Rd 6-22/max. FL50	25	26,000	**5313031**
250 A	40	Rd 6-22/max. FL50	25	28,800	**5313058**

St Steel /100 pc.

FT Hot-dip galvanised

- For reinforced steels Ø 6-22 mm and flat conductor 50 x 4
- Installed with screws M10 x 40
- AS version with screws M10 x 20
- Simple installation with open slot

Diagonal clamp

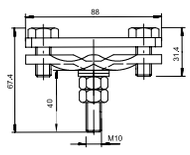


Type	Dimension L mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
250 A-VA	40	Rd 6-22/max. FL50	10	28,800	**5313023**

V2A Stainless steel, grade 304 /100 pc.

- For reinforced steels Ø 6-22 mm and flat conductor 50 x 4
- Installed with screws M10 x 40
- AS version with screws M10 x 20
- Simple installation with open slot

Diagonal clamp with bolt



Type	Dimension L mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
250 A-BO	25	Rd 6-22/max. FL50	25	33,000	**5313066**

St Steel /100 pc.

F Hot-dip galvanised

- For reinforced steels Ø 6-22 mm and flat conductor 50 x 4
- Installed with screws M10 x 25
- Simple installation with open slot
- With flange-welded bolts M10 x 40, inc. 2 washers and 2 nuts

Always indicate the item number when ordering.

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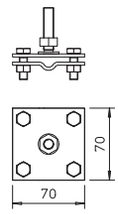
Cross-connector for flat conductors and round conductors

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 GB 10x45	8-10 x FL30	10	34,800	**5312657**

V2A Stainless steel, grade 304 /100 pc.

FT/VA Hot-dip galvanised/stainless steel, grade 304

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

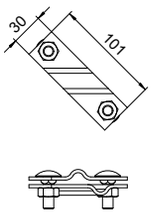


Diagonal clamp

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2760 8-10 V4A	Rd 8-10	25	20,600	**5313013**
2760 8	Rd 8-10	5	27,120	**5001612**

V2A Stainless steel, grade 304 V4A Stainless steel, 316Ti / 316L /100 pc. /pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- To connect round conductors 8–10 mm
- Mounted with 2 truss-head bolts M10 x 30 and 2 hexagonal bolts M10
- Type 2760 8 with adapter plate



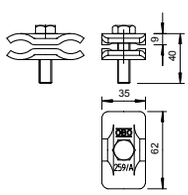
Parallel clamp

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
259 A ST	Ø 10-20	25	18,800	**5315557**
259 A FT	Ø 10-20	25	18,800	**5315514**
259 A VA	Ø 10-20	10	18,800	**5315522**

St Steel V2A Stainless steel, grade 304 /100 pc.

FT Hot-dip galvanised

- For connecting reinforced steels Ø 10–20 mm
- Mounted with M10 x 40 bolts



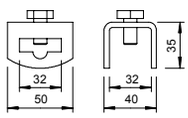
Variable earthing terminal

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1813 KL	FL30 x Rd 8-10	50	18,000	**5014425**

St Steel /pc.

FT Hot-dip galvanised

- Suitable for connection for Rd 10 x FL 30, FL 30 x FL 30
- Quick mounting using a hexagonal bolt M10 x 20 (F)



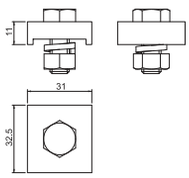
Connection terminal for round conductor

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1818	Rd 8-10	10	17,600	**5012015**

St Steel /100 pc.

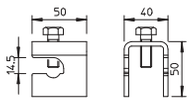
FT Hot-dip galvanised

- For connecting round conductor Rd 8-10
- With 1 hexagonal bolt M12 x 40, 1 hexagonal nut M12 and 1 lock washer, stainless steel



Always indicate the item number when ordering.

Connection terminal for reinforced steels



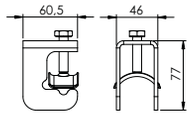
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1814 ST	FL30x5 x Rd8-14	25	20,000	**5014476**
1814 FT	FL30x5 x Rd8-14	25	20,000	**5014468**

St Steel /pc.

FT Hot-dip galvanised

- For reinforced steels with diameters 8-14 mm and FL 30 x 5
- Simple mounting through open slot
- Side suspension possible

Connection terminal for large reinforced steels



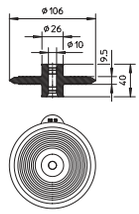
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1814 ST D37	FL30x3-4mm /Rd 10 x Rd 16-37	25	30,000	**5014477**
1814 FT D37	FL30x3-4mm /Rd 10 x Rd 16-37	25	30,000	**5014469**

St Steel /pc.

FT Hot-dip galvanised

- For armoured steel with 16-37 mm diameter and round conductors and flat conductors
- Rapid installation using open slot and only one M10 screw
- Rotatable metal pressure trough for simple, safe mounting

Sealing sleeve for round conductors

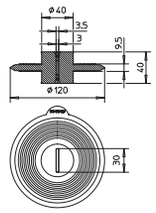


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
DW RD10	RD 10	1	13,000	**2360041**

TPE Thermoplastic elastomer /100 pc.

- Sealing sleeve for penetrations with waterproof foundation plates/walls (e.g. white trough)
- For mounting on connection lugs with stainless steel tightening straps
- With pressurised water testing to 5 bar

Sealing sleeve for flat conductors

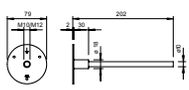


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
DW FL30x3,5	FL 30x3,5	1	18,000	**2360043**

TPE Thermoplastic elastomer /100 pc.

- Sealing sleeve for penetrations with waterproof foundation plates/walls (e.g. white trough)
- For mounting on connection lugs with stainless steel tightening straps
- With pressurised water testing to 5 bar

Fixed earthing terminal



Type	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
205 B-M10 VA	M10	10	25,500	**5420008**
205 B-M12 VA	M12	10	25,500	**5420016**

V4A Stainless steel, grade 316 L /pc.

- Connection to earthing systems, conductors and reinforcement
- Contact plate: Ø 79 mm, made of rustproof stainless steel (V4A)
- Clamping bolt Ø 10 mm, rustproof (V2A)
- Incl. plastic cover for simple installation

Always indicate the item number when ordering.

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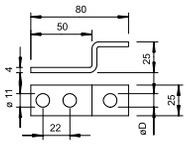
End piece

Type	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5011	11	10	7,064	**5304997**

St Steel /100 pc.

FT Hot-dip galvanised

- For attaching to steel structures or bolting to fixed earthing terminals
- For attachments: Round conductor Rd 8-10 and flat conductor FL 30 x 3.5
- 2 attaching holes Ø 11 mm
- 1 attaching holes Ø D mm

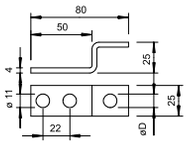


End piece

Type	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5011 VA M10	11	10	7,064	**5334934**
5011 VA M12	13	10	7,048	**5334942**

V4A Stainless steel, grade 316 Ti /100 pc.

- For attaching to steel structures or bolting to fixed earthing terminals
- For attachments: Round conductor Rd 8-10 and flat conductor FL 30 x 3.5
- 2 attaching holes Ø 11 mm
- 1 attaching holes Ø D mm



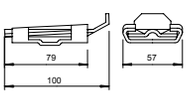
Wedge connector

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1813 DIN	10/FL30 x FL30	5	20,000	**5014212**

St Steel /pc.

FT Hot-dip galvanised

- DIN 48834, Form A
- Suitable for connecting Rd 10 x FL 30, FL 30 x FL 30
- Quick installation with high contact force



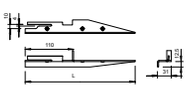
Spacer

Type	Fit mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1811	10/FL30 x 3,5	250	25	19,000	**5014018**
1811 L	10/FL30 x 3,5	400	25	31,500	**5014026**

St Steel /pc.

FT Hot-dip galvanised

- For professional laying of round conductors and flat conductors according to DIN VDE 0185-305 (IEC 62305)
- DIN 48833
- Suitable for mounting round conductors Rd 10 or flat conductors FL 30 x 3.5

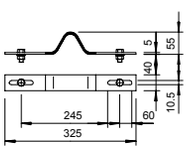


Expansion piece

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
1807	1	27,000	**5016142**

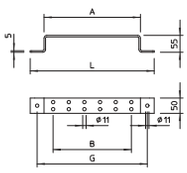
Alu Aluminium /pc.

- For expansion joints when laying foundation earthers
- With 2 hexagonal bolts M10 x 30
- 2 hexagonal nuts M10, 2 steel washers, hot galvanised, and 2 rustproof steel serrated washers



Always indicate the item number when ordering.

Earthing connection bar



Type	Dimension L mm	Dimension A mm	Dimension B mm	Dimension G mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1805 2 FT	200	110	51	155	10	54,800	**5016029**
1805 4 FT	302	212	153	257	20	77,000	**5016037**
1805 6 FT	404	314	255	359	10	97,100	**5016045**

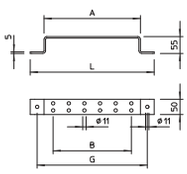
St Steel /pc.

FT Hot-dip galvanised

1805/...: For connecting different earthing systems

- With 2 mounting holes Ø 11 mm
- 1805/2: With 4 attaching holes
- 1805/4: With 8 attaching holes
- 1805/6: With 12 attaching holes

Earthing connection bar



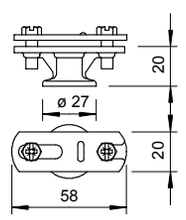
Type	Dimension L mm	Dimension A mm	Dimension B mm	Dimension G mm	Pack. pcs	Weight kg/100 pcs.	Item No.
1805 2 VA	200	110	51	155	10	54,800	**5016096**
1805 4 VA	302	212	153	257	20	77,000	**5016118**
1805 6 VA	404	314	255	359	10	97,100	**5016126**

V4A Stainless steel, grade 316 Ti /pc.

1805/...: For connecting different earthing systems

- With 2 mounting holes Ø 11 mm
- 1805/2: With 4 attaching holes
- 1805/4: With 8 attaching holes
- 1805/6: With 12 attaching holes

Cable bracket for flat conductor



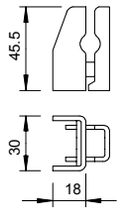
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
113 BZ-FL	100	6,280	**5230446**
113 B-Z-HD-FL	100	7,000	**5230462**

Zn Die-cast zinc /100 pc.

G Electrogalvanised

- With female thread M8 or through hole for wood screws
- For flat conductor FL 30
- Sliding over-piece for quick installation

Cable bracket for Rd 8–10 and FL 30



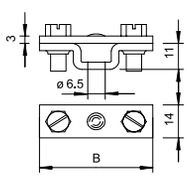
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
835	Rd 8/10/ FL30x3,5	1	12,100	**5033209**

St Steel /100 pc.

FT Hot-dip galvanised

- For round conductor Rd 8-10 and flat conductor FL 30 x 3.5
- Supplied with hexagonal wood bolt 6 x 70 and straddling dowel 910/N

Spacer clip for flat conductor with fastening hole Ø 6.5



Type	Fit mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
831 30	max. FL30	54	25	3,580	**5032032**
831 40	max. FL40	65	25	3,894	**5032040**

St Steel /100 pc.

FT Hot-dip galvanised

- Fit: FL 30 and FL 40
- With mounting hole Ø 6.5 and 2 hexagonal bolts M6 x 16 (F)

Always indicate the item number when ordering.

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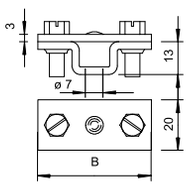
Spacer clip for flat conductor, with fastening hole Ø 7

Type	Fit mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
832 30	max. FL30	55	25	7,416	**5032539**
832 40	max. FL40	65	25	7,612	**5032547**

St Steel /100 pc.

FT Hot-dip galvanised



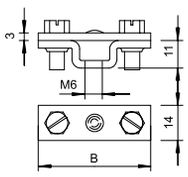
- Fit: FL 30 and FL 40
- With mounting hole Ø 7 mm and 2 hexagonal bolts M6 x 16

Spacer clip for flat conductor, with threaded connection M6

Type	Fit mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
831 30 M6	max. FL30	54	25	3,712	**5032237**
831 40 M6	max. FL40	65	25	3,880	**5032245**

St Steel /100 pc.

FT Hot-dip galvanised



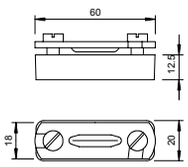
- Fit: FL 30 and FL 40
- With attaching thread M6 and 2 hexagonal bolts M6 x 16 (F)

Spacer clip for flat conductor, with polyamide base

Type	Fit mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
833 35	max. FL30	60	25	4,228	**5033039**

St Steel /100 pc.

FT Hot-dip galvanised



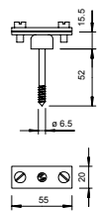
- Fit: FL 30
- With mounting hole 6.2 x 22 mm
- With 2 cylinder bolts M6 x 16 and over-piece from hot-dip galvanised steel
- Bottom section from polyamide, black

Spacer clip for flat conductor, with wood screw and spacer

Type	Fit mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
370 H	max. FL30	55	100	10,200	**5025206**

St Steel /100 pc.

FT Hot-dip galvanised



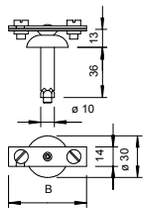
- Fit: FL 30
- With spacer and cylinder bolts M6 x 16 (G)
- With wood bolts

Spacer clip for flat conductor, with steel spreading anchor Ø 10

Type	Fit mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
710 30	max. FL30	52	25	5,044	**5028035**
710 40	max. FL40	62	25	5,360	**5028043**

St Steel /100 pc.

G Electrogalvanised



- Fit: FL 30 and FL 40
- With steel straddling dowel Ø 10 mm, spacer and 2 cylinder bolts M5 x 14 (G)

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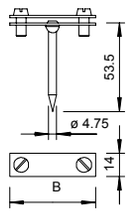
Always indicate the item number when ordering.

Spacer clip for flat conductor, with square pin



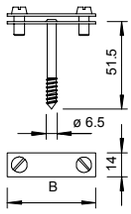
Type	Fit mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
708 30 SP	max. FL30	52	50	3,148	**5030021**

St Steel /100 pc.

G Electrogalvanised

- Fit: FL 30 and FL 40
- With 2 cylinder bolts M5 x 12 (G) and over-piece
- With square pin

Spacer clip for flat conductor, with wood screw



Type	Fit mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
708 30 HG	max. FL30	52	50	3,148	**5030234**
708 40 HG	max. FL40	52	50	3,474	**5030242**

St Steel /100 pc.

G Electrogalvanised

- Fit: FL 30 and FL 40
- With 2 cylinder bolts M5 x 12 (G) and over-piece
- With wood screw

Earthing enhancing compound

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
OEC 25	25kg	1	2.500,000	**5009200**

/pc.

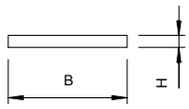
- To improve and maintain a constant earth electrode resistance
- Highly swellable and powdery special clay

Plastic corrosion protection strip

Type	Width mm	Length m	Pack. pcs	Weight kg/100 pcs.	Item No.
356 50	50	10	1	71,500	**2360055**
356 100	100	10	1	122,200	**2360101**

PETRO Petrolatum

/pc.



- Approx. 1.1 mm thick
- Width: 50 mm or 100 mm, made of petrolatum-coated chemical fibre fabric
- Can be processed cold

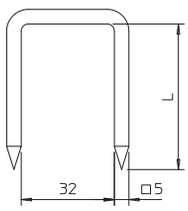
Strip steel crimp

Type	Length mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
366 35	35	max. FL30	100	1,737	**5059356**
366 50	50	max. FL30	100	2,300	**5059496**

St Steel

FT Hot-dip galvanised

/100 pc.

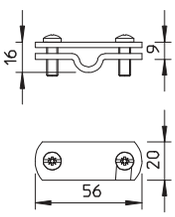


- Fit: FL 30

Number plates

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
311 N-ALU 8-10	RD 8 - 10 / FL30	5	2,500	**3049256**
311 N-ALU 16	RD 16 - FL30	5	2,800	**3049345**

/100 pc.

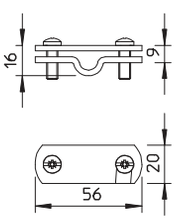


- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

Number plates

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
311 N-VA 8-10	RD 8 - 10 / FL30	5	5,600	**3049221**
311 N-VA 16	RD 16 - FL30	5	6,400	**3049329**

/100 pc.



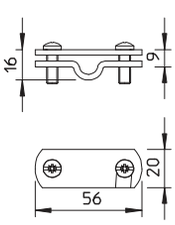
- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

Number plates

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
311 N-CU 8-10	RD 8 -10 / FL30	5	6,400	**3049205**

Cu Copper

/100 pc.



- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

Always indicate the item number when ordering.

Air-termination and down-conductor systems

Always indicate the item number when ordering.

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Air-termination and down conductor systems

Conductor material 510

Air-termination devices 513

Air-termination rods 520

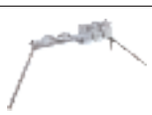
Roof conductor holder 526

Conductor bracket 536

Connectors and connection terminals 545

Connection and separating terminals 567

Earth entries 571



Accessories 572

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Air-termination rods

FangFix-Junior

Length	Item no.	Page
1 m	5403 30 8	513

Tapered tubular air-termination rod

Length	Item no.	Page
1.5 m	5401 98 0	513
2.0 m	5401 98 3	513
2.5 m	5401 98 6	513
3.0 m	5401 98 9	513
3.5 m	5401 99 3	513
4.0 m	5401 99 5	513

Threaded air-termination rod

Length	Item no.	Page
1.0 m	5401 77 1	517
1.5 m	5401 80 1	517
2.0 m	5401 83 6	517
3.0 m	5401 87 9	517

Concrete blocks

Type	Item no.	Page
FangFix	5403 20 0	514
FangFix	5403 20 5	514
Loose	5403 22 7	514
FangFix	5403 10 3	515
FangFix	5403 11 0	515
Loose	5403 11 7	515
Thread	5402 89 1	517

Air-termination rod systems up to 8 m

isFang air-termination rod, AL

Length	Item no.	Page
4.0 m	5402 86 4	520
4.5 m	5402 86 6	520
5.0 m	5402 86 8	520
5.5 m	5402 87 0	520
6.0 m	5402 87 2	520
6.5 m	5402 87 4	520
7.0 m	5402 87 6	520
7.5 m	5402 87 8	520
8.0 m	5402 88 0	520

isFang air-termination rod, insulated

Length	Item no.	Page
4.0 m	5408 94 3	521
6.0 m	5408 94 7	521
4.0 m	5408 94 2	521
6.0 m	5408 94 6	521

isFang stand

Spr.	Item no.	Page
1.0 m	5408 96 6	521
1.5 m	5408 96 7	521
1.0 m	5408 96 8	521
1.5 m	5408 96 9	521

Air-termination rod systems 10 m, 12 m, 14 m, 19 m

irod

Length	Item no.	Page
10 m	5400 81 0	524
12 m	5400 81 2	524
14 m	5400 81 4	524
19 m	5400 81 7	524

Accessories, air-termination rod systems

Accessories

Type	Item no.	Page
isFang 3B-G1	5408 97 1	521
isFang 3B-G2	5408 97 2	521
isFang 3B-G3	5408 97 9	
isFang 3B-G4	5408 97 5	
F-FIX-S16	5403 22 7	514
F-FIX-B16 3B	5403 23 8	522

Always indicate the item number when ordering.

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Roof cable holder

Ridge

Surface	Item no.	Page
V2A	5203 01 8	526
V2A	5202 83 3	526
V2A	5203 01 5	526
V2A	5202 51 0	527
Copper-plated	5203 02 3	526
Copper-plated	5202 86 8	526
Copper-plated	5202 59 0	527
FT	5202 56 6	527

Tile

Surface	Item no.	Page
V2A	5215 55 5	528
V2A	5215 55 2	528
V2A	5215 54 4	528
V2A	5215 62 5	528
V2A	5215 66 8	529
Copper	5216 19 2	528
Copper	5216 18 4	528
Copper	5215 74 9	529

Slate

Surface	Item no.	Page
V2A	5215 83 8	530
V2A	5215 43 9	530
V2A	5215 37 4	530
Copper-plated	5215 85 4	530
Copper-plated	5215 47 1	530
Copper-plated	5215 38 2	530

Flat roof

Colour	Item no.	Page
Black	5218 69 1	532
Black	5218 67 5	532
Black	5218 74 8	532
Black	5218 75 6	532
Black	5218 86 1	532
Grey	5218 69 3	532
Grey	5218 67 7	532
Grey	5218 99 9	533

Connector

Vario quick connector 8-10

Surface	Item no.	Page
FT	5311 50 0	545
FT	5311 70 5	545
Copper	5311 52 7	545
V2A	5311 55 1	545
ALU	5311 51 9	545
V4A	5311 40 4	545
Bimetal	5311 53 5	546

Vario quick connector 6-8

Surface	Item no.	Page
FT	5311 41 0	546
Copper-plated	5311 41 7	546
Copper-plated	5311 40 7	546

Fix contact clamping screw Rd 8-10

Surface	Item no.	Page
FT	5304 10 5	547
FT	5304 10 7	547
FT	5304 20 2	547
FT	5304 31 8	547
Copper-plated	5304 11 3	547

Flat roof

Surface	Item no.	Page
FT	5304 16 4	548
Copper-plated	5304 17 2	548
V2A	5304 27 0	548
V2A	5304 17 6	548

Terminals and clips

Fold

Surface	Item no.	Page
FT	5317 01 0	556
FT	5317 40 1	557
FT	5317 42 8	558
Copper-plated	5317 05 3	556
Copper-plated	5317 25 8	557
Copper-plated	5317 45 2	557
V2A	5317 20 8	556
V2A	5317 48 1	557

Trays

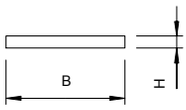
Surface	Item no.	Page
FT	5316 45 0	559
FT	5316 30 8	559
FT	5316 51 0	560
Copper-plated	5316 46 8	559
Copper-plated	5316 25 1	560
Copper-plated	5316 15 4	560
V2A	5316 45 9	559
V2A	5316 32 4	559

Downspout

Surface	Item no.	Page
Strip galvanised	5350 86 7	564
Strip galvanised	5351 05 7	565
Copper-plated	5350 88 3	564
Copper-plated	5351 45 6	565
Copper-plated	5351 47 2	565
V2A	5350 90 5	564
V2A	5351 25 1	565
ALU	5351 35 9	565

Always indicate the item number when ordering.

Galvanised steel flat conductor for earth



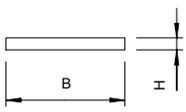
Type	Dimension W x H mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
5052 DIN 20X2.5	20 x 2,5	50	122	50	41,000	**5019340**
5052 DIN 25X3	25 x 3	75	84	50	59,700	**5019342**
5052 DIN 30X3	30 x 3	90	71	50	70,650	**5019344**
5052 DIN 30X3.5	30 x 3,5	105	30	25	84,000	**5019345**
5052 DIN 30X3.5	30 x 3,5	105	60	50	84,000	**5019347**
5052 DIN 30X4	30 x 4	120	52	50	97,000	**5019350**
5052 DIN 40X4	40 x 4	160	40	51	128,000	**5019355**
5052 DIN 40X5	40 x 5	200	30	50	162,000	**5019360**

St Steel — price/100 m

FT Hot-dip galvanised

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Meets the requirements of VDE 0185-305 (IEC 62305)
- Zinc coating: 500 g/m² (approx. 70 µm)
- For lightning protection, earthing systems and ring equipotential bonding

Stainless steel flat conductor

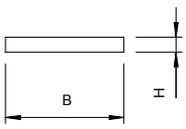


Type	Dimension W x H mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
5052 V2A 30X3.5	30 x 3,5	105	50	42	82,500	**5018501**
5052 V4A 30X3.5	30 x 3,5	105	50	42	82,425	**5018706**
5052 V4A 30X3.5	30 x 3,5	105	25	21	82,425	**5018730**

V2A Stainless steel, grade 304 V4A Stainless steel, 316Ti / 316L — price/100 m

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- According to the foundation earther standard DIN 18014, V4A is required in the earth
- For use in areas at risk of corrosion
- For lightning protection, earthing systems and ring equipotential bonding

Flat conductor, copper

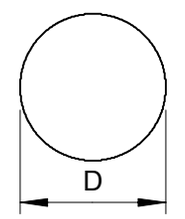


Type	Dimension W x H mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
FL 20-CU	20 x 2,5	50	45	20	44,500	**5021804**

Cu Copper — price/100 m

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Meets the requirements of VDE 0185-305 (IEC 62305)
- For lightning protection, earthing systems and ring equipotential bonding

Round conductor, galvanised steel



Type	Nominal size Ø mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-FT	8	50	125	50	40,000	**5021081**
RD 8-FT 50	8	50	50	20	40,000	**5021050**
RD 10	10	78	80	50	63,000	**5021103**

St Steel — price/100 m

FT Hot-dip galvanised

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10 can also be used in the earth
- Zinc coating: 350 g/m² (approx. 50 µm)

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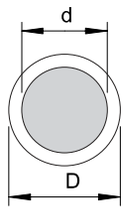
Round conductor, galvanised steel with PVC jacketing

Type	Colour	Dimension d mm	Dimension D mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 10-PVC	Black	10	13	78	75	50	67,200	**5021162**

St Steel — price/100 m

FT Hot-dip galvanised

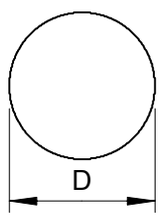


- Conforms to the requirements according to VDE V 0185-305, (IEC 62305)
- Zinc coating: 350 g/m² (approx. 50 µm)
- With PVC sheathing

Round conductor, aluminium

Type	Nominal size Ø mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-ALU	8	50	150	20	13,500	**5021286**
RD 8-ALU-T	8	50	150	20	13,500	**5021294**
RD 8-ALU-T 75	8	50	75	10	13,500	**5021296**
RD 10-ALU	10	78	95	20	21,000	**5021308**

Alu Aluminium — price/100 m

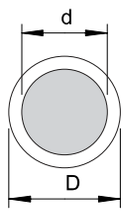


- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 8 ALU: Semi-hard (E-AlMgSi0.5 corresponds to DIN 48801)
- RD 8 ALU-T: Can be subjected to torsion (E-AlMgSi0.5 corresponds to DIN 48801)
- RD 10 ALU: Pure aluminium (E-Al corresponds to DIN 48801)
- AL and ALMgSi may not be routed directly on, in or under plaster, mortar or concrete, nor routed in the earth

Round conductor, aluminium, with PVC sheathing

Type	Nominal size Ø mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-PVC	8/11	50	100	20	20,000	**5021332**

Alu Aluminium — price/100 m

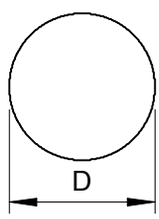


- Meets the requirements of VDE 0185-305 (IEC 62305)
- With PVC jacketing (halogen-free)
- Suitable for routing on, in or under plasterwork, mortar or concrete

Round conductor, stainless steel

Type	Nominal size Ø mm	Cross-section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-V2A	8	50	125	50	40,000	**5021235**
RD 10-V2A	10	78	50	32	63,000	**5021227**
RD 10-V2A	10	78	80	50	63,000	**5021239**
RD 8-V4A	8	50	125	50	40,000	**5021644**
RD 10-V4A 20	10	78	20	12	63,000	**5021640**
RD 10-V4A	10	78	50	32	63,000	**5021642**
RD 10-V4A	10	78	80	50	63,000	**5021647**

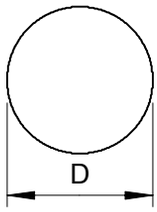
V2A Stainless steel, grade 304 V4A Stainless steel, 316Ti / 316L — price/100 m



- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10-V4A for applications in the earth
- According to the foundation earther standard DIN 18014, V4A is required in the earth

Always indicate the item number when ordering.

Round conductor, copper



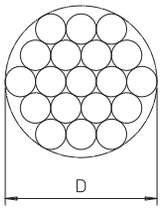
Type	Nominal size Ø mm	Cross–section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
RD 8-CU	8	50	100	45	45,000	**5021480**
RD 10-CU	10	78	50	35	70,000	**5021502**

Cu Copper

price/100 m

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Stranded & tinned copper conductor



Type	Dimen-sion D mm	Individual wires	Cross–section mm²	Normal ring ca. m	Normal ring ca. kg	Weight kg/100 m	Item No.
S 11-CU	10.5	19 x Ø 2,1	70	50	30	58,600	**5021654**
S 9-CU	9	19 x Ø1,8	50	100	45	45,000	**5021652**
S-11-CU SN	10.5	19 x Ø 2,1	70	50	30	58,600	**5021656**

Cu Copper

Sn Tin-plated

price/100 m

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Stand for FangFix Junior system

Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-JUNIOR	1000	10	10	32,000	**5403308**

Alu Aluminium /pc.

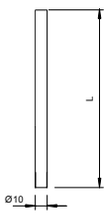
- Incl. aluminium interception rod 1,000 mm long (Ø 10 mm)
- Quick mounting of the interception rod in the base using plug technology
- With Vario quick connector 249

Air-termination rod for FangFix-Junior

Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 J1000	1000	10	10	21,800	**5401970**

Alu Aluminium /100 pc.

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Ø 10 mm, Alu
- Without thread
- Suitable for use in FangFix-Junior

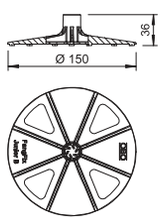


Base for FangFix Junior

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-BASIS	10	3,790	**5403324**

PP Polypropylene /pc.

- For mounting Ø 10 mm interception rods up to an overall length of 1,000 mm
- Quick installation of interception rod in base using plug-in system
- Quick and easy installation



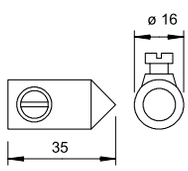
Air-termination tip

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
120 A	Rd 8-10	10	2,500	**5405068**

Zn Die-cast zinc /100 pc.

G Electrogalvanised

- To be used for Rd 8–10 (corrosion protection)
- With cylinder bolt M6 x 10
- Made of die-cast zinc, bolts made of hot-galvanised steel

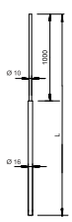


Tapered pipe air-termination rod

Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 VL1500	1500	10/16	10	38,000	**5401980**
101 VL2000	2000	10/16	10	55,000	**5401983**
101 VL2500	2500	10/16	10	72,000	**5401986**
101 VL3000	3000	10/16	10	88,000	**5401989**
101 VL3500	3500	10/16	10	105,000	**5401993**
101 VL4000	4000	10/16	10	120,000	**5401995**

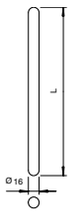
Alu Aluminium /100 pc.

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- From a free length of > 2.5 m, an additional fastening, e.g. insulated spacer is recommended
- Last metre is tapered from Ø 16 mm to Ø 10 mm, material: AlMgSi
- Matches stand system FangFix



Always indicate the item number when ordering.

Air-termination/earth entry rod, rounded-off on both ends



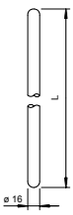
Type	Length mm	Nominal size Ø mm		Pack. pcs	Weight kg/100 pcs.	Item No.
101 A-1500	1500	16	—	10	240,000	**5400155**

St Steel /100 pc.

FT Hot-dip galvanised

- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Air-termination/earth entry rod, rounded-off on both ends

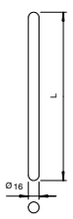


Type	Length mm	Nominal size Ø mm		Pack. pcs	Weight kg/100 pcs.	Item No.
200 V4A-1500	1500	16	—	10	242,000	**5420504**
200 V4A-2000	2000	16	—	10	320,000	**5420539**

V4A Stainless steel, grade 316 Ti /100 pc.

- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Air-termination/earth entry rod, rounded-off on both ends

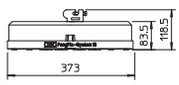


Type	Length mm	Nominal size Ø mm		Pack. pcs	Weight kg/100 pcs.	Item No.
101 A-CU	1500	16	—	10	272,100	**5400627**

Cu Copper /100 pc.

- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Stand for FangFix system 16 kg



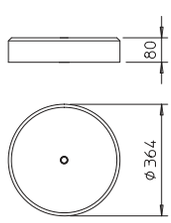
BET TESTED

Type	Fit mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-16	Rd 8	373	1	1.732,500	**5403200**
F-FIX-16B	Rd 8	373	54	1.732,500	**5403205**

BET Concrete /100 pc.

- System consists of FangFix stone with base and clamp
- FangFix clamp made of VA; lightning current tested with 100 kA (10/350)
- 16 kg stone of Ø 365 mm, high level of stability
- Quick and easy mounting of air-termination rod using anchors
- Concrete, frost-resistant
- The FangFix stone can be stacked

Concrete block for FangFix-System 16 kg



Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-S16	365	1	1.700,000	**5403227**

BET Concrete /100 pc.

- 16 kg stone of Ø 365 mm, high level of stability
- Concrete, frost-resistant
- Stackable

Always indicate the item number when ordering.

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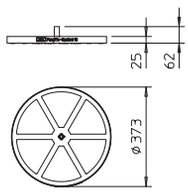
Base for FangFix system 16 kg

Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-B16	373	10	16,400	**5403235**

PP Polypropylene /100 pc.

Edge protection with integrated dowel (basic) suitable for FangFix system.

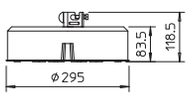


Stand for FangFix system 10 kg

Type	Fit mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-10	Rd 8	295	1	1.058,000	**5403103**
F-FIX-10B	Rd 8	295	72	1.058,000	**5403110**

BET Concrete /100 pc.

- System consists of FangFix stone with base and clamp
- FangFix clamp made of VA; lightning current tested with 100 kA (10/350)
- 10 kg stone of Ø 289 mm, high level of stability
- Quick and easy mounting of air-termination rod using anchors
- Concrete, frost-resistant
- The FangFix stone can be stacked

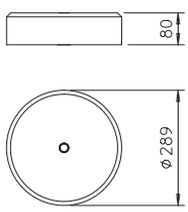


Concrete block for FangFix system 10 kg

Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-S10	289	1	1.000,000	**5403117**

BET Concrete /100 pc.

- 10 kg stone of Ø 289 mm, high level of stability
- Concrete, frost-resistant
- Stackable

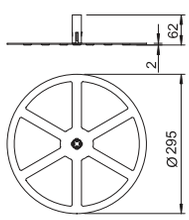


Base for FangFix system 10 kg

Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-B10	295	10	7,600	**5403124**

PP Polypropylene /100 pc.

Edge protection with integrated dowel (basic) suitable for FangFix 10 system.

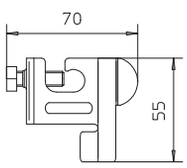


Terminal for FangFix system

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-KL	Rd 8	5	8,700	**5403219**

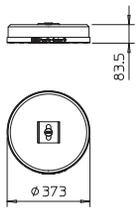
V2A Stainless steel, grade 304 /100 pc.

- FangFix terminal, VA for RD 8 mm
- Tested with H (100 kA) to DIN EN 50164-1
- Round conductor installed on the air-termination rod with only one screw



Always indicate the item number when ordering.

Stand - TrayFix set



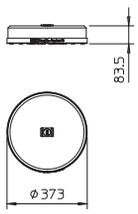
CE

Type	From tray width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
TrayFix-16-L	100	1	1.700,000	**5403098**

/pc.

- Mounting system for the fastening of mesh cable trays and cable trays on FangFix stone e.g. cable routing on a flat roof.
- Adapted to OBO cable tray systems MKSM, SKSM and IKSM
- Adapted to OBO mesh cable tray systems with a minimum width of 100 mm
- Set consisting of TrayFix mounting adapter and concrete block including base for FangFix-System 16 kg

Stand - TrayFix set

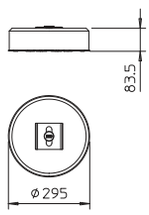


Type	From tray width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
TrayFix-16-S	100	1	1.700,000	**5403099**

/pc.

- Mounting system for the fastening of mesh cable trays and cable trays on FangFix stone e.g. cable routing on a flat roof.
- Adapted to OBO mesh cable systems with a minimum width of 100 mm
- Set consisting of clamping piece, fastening plug and concrete block including base for FangFix-System 16 kg

Stand - TrayFix set

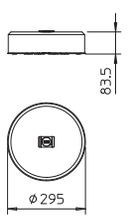


Type	From tray width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
TrayFix-10-L	100	1	1.100,000	**5403101**

/pc.

- Mounting system for the fastening of mesh cable trays and cable trays on FangFix stone e.g. cable routing on a flat roof.
- Adapted to OBO cable tray systems MKSM, SKSM and IKSM
- Adapted to OBO mesh cable tray systems with a minimum width of 100 mm
- Set consisting of TrayFix mounting adapter and concrete block including base for FangFix-System 10 kg

Stand - TrayFix set

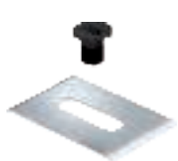


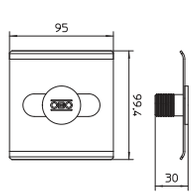
Type	From tray width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
TrayFix-10-S	100	1	1.000,000	**5403102**

/pc.

- Mounting system for the fastening of mesh cable trays and cable trays on FangFix stone e.g. cable routing on a flat roof.
- Adapted to OBO mesh cable systems with a minimum width of 100 mm
- Set consisting of clamping piece, fastening plug and concrete block including base for FangFix-System 10 kg

TrayFix mounting adapter for mesh cable trays on FangFix system





Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
TrayFix	ø 20mm	25	9,850	**5403100**

/100 pc.

- Mounting system for the fastening of mesh cable trays and cable trays on FangFix stone e.g. cable routing on a flat roof.
- Adapted to OBO cable tray systems MKSM, SKSM and IKSM
- Adapted to OBO mesh cable tray systems with a minimum width of 100 mm

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Air-termination rod, one end rounded

Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 ALU-1000	1000	16	10	55,000	**5401771**
101 ALU-1500	1500	16	10	81,000	**5401801**
101 ALU-2000	2000	16	10	109,000	**5401836**
101 ALU-2500	2500	16	10	136,000	**5401852**
101 ALU-3000	3000	16	5	162,000	**5401879**

Alu Aluminium /100 pc.

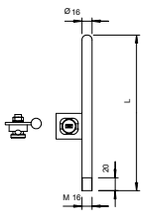
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- From a free length of > 2.5 m, an additional fastening, e.g. insulated spacer is recommended
- Ø 16 mm, aluminium
- For stand system with M16 internal thread

Air-termination rod, one end rounded with connection strap

Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 A-L100	1000	16	10	160,000	**5402808**
101 A-L150	1500	16	10	240,000	**5402859**

St Steel /100 pc.

FT Hot-dip galvanised

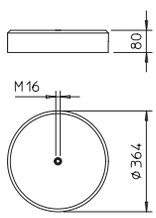


- With thread M16 x 20
- With connecting strap
- Including pre-mounted connector type 5001 DIN for round conductor Rd 8-10
- For stands with female thread M16

Stand 16 kg with female thread

Type	Nominal size Ø mm	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
101 B2-16 M16	364	M16	1	1.600,000	**5402958**

BET Concrete /100 pc.

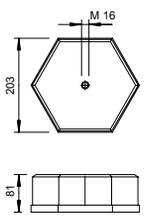


- Weight 16 kg
- From frost-resistant concrete
- Female thread M16
- Recommended air-termination rod length max. 3.0 m, depending on wind load zone

Stand 6.9 kg with female thread

Type	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
101 ST	M16	4	690,000	**5402891**

BET Concrete /100 pc.



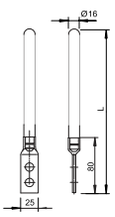
- Weight 6.9 kg
- From frost-resistant concrete
- Female thread M16
- Recommended air-termination rod length max. 1.0 m

Air-termination/earth entry rod with connection tabs

Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 F1000	1000	16	10	160,000	**5424100**
101 F1500	1500	16	10	240,000	**5424151**
101 F2000	2000	16	10	320,000	**5424208**

St Steel /100 pc.

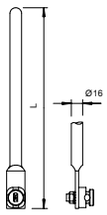
FT Hot-dip galvanised



- With 2 attaching holes Ø 12 mm
- One end rounded

Always indicate the item number when ordering.

Air-termination/earth entry rod with connection tabs and connector



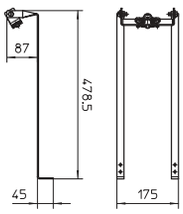
Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 G1000	1000	16	10	164,300	**5402107**
101 G1500	1500	16	10	240,000	**5402158**

St Steel /100 pc.

FT Hot-dip galvanised

- 1 attaching hole Ø 12 mm
- With pre-mounted conductor for Rd 8-10
- One end rounded

Air-termination rod holder for sloping roof



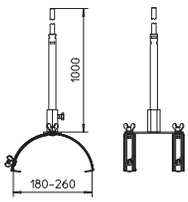
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
SD-Fix	1	81,000	**5403335**

V2A Stainless steel, grade 304 /pc.

Stand system: rod holder for sloping roofs, for simple, quick and secure fastening of Ø 16 mm interception rods.

- System consists of a bracket made of V2A stainless steel
- Quick and easy mounting
- Adjustable angle
- In the case of high interception rods (> 1 m), additional fastening with insulated spaces is necessary

Air-termination rod holder for ridge tiles



Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-132	110	1	62,000	**5403330**
F-Fix-132-300	300	1	78,000	**5403333**

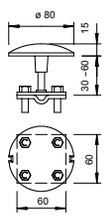
V2A Stainless steel, grade 304 /pc.

Rod holder for ridge tiles, for simple, quick and safe fastening of Ø 16 mm interception rods

- System consisting of holder made of V2A stainless steel and aluminium interception rod
- Quick and easy mounting thanks to pre-mounted air-termination rod
- Air-termination rod length:
- Air-termination rod length: 1,000 mm
- Width adjustable between 180–260 mm
- Spacing of the ridge holders: 110 mm (5403330)
- Spacing of the ridge holders: 300 mm (5403333)

Application: To protect roof structures such as photovoltaic and TV/SAT systems.

Mushroom-shaped air-termination with connectors



Type	Fit mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
128 F	Rd 8-10/ FL30	80	5	40,000	**5405769**

St Steel /pc.

FT Hot-dip galvanised

- Mushroom-shaped interceptor from aluminium
- With pre-mounted cross-piece and hexagonal bolt M8 x 25, hot-dip galvanised steel
- For round conductor Rd 8-10 and flat conductor FL 30

Always indicate the item number when ordering.

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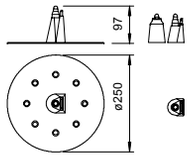
Roof penetration

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
330 K	Rd 8-10/ FL20 u. FL30	5	14,400	**5201101**

PA Polyamide /100 pc.

- For round conductor Rd 8-10
- Air-termination rods Rd 16
- Flat conductor FL 20 and FL 30
- Colour: black



Always indicate the item number when ordering.

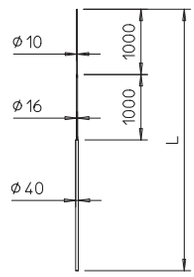
isFang air-termination rod

Type	Dimension B mm	Dimension D mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 3B-4000	2000	1000	4000	1	400,000	**5402864**
101 3B-4500	2500	1000	4500	1	480,000	**5402866**
101 3B-5000	3000	1000	5000	1	550,000	**5402868**
101 3B-5500	3500	1000	5500	1	630,000	**5402870**
101 3B-6000	4000	1000	6000	1	700,000	**5402872**
101 3B-6500	4500	1000	6500	1	780,000	**5402874**
101 3B-7000	5000	1000	7000	1	850,000	**5402876**
101 3B-7500	5500	1000	7500	1	930,000	**5402878**
101 3B-8000	5500	1500	8000	1	1.000,000	**5402880**

Alu Aluminium /pc.

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Tapered air-termination rod
- Suitable for 40 mm isFang tripod stand and isFang support systems

Dimensions



Always indicate the item number when ordering.

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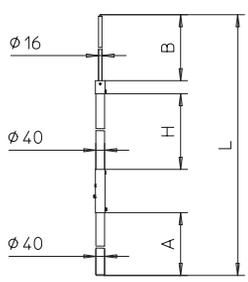
isFang, insulated air-termination rod

Type	Dimension A mm	Dimension H mm	Dimension B mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang 4000 AL	1240	1500	1000	4000	1	580,000	**5408943**
isFang 6000 AL	3340	1500	1000	6000	1	600,000	**5408947**
isFang 4000	1240	1500	1000	4000	1	680,000	**5408942**
isFang 6000	3340	1500	1000	6000	1	1.260,000	**5408946**

GFK Fibre-glass-reinforced plastic /pc.

- For isolated creation of air-termination systems
- Suitable for isFang air-termnation rod stands, type isFang 3B-100/150
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- For mounting on the building structure with isFang support
- Fastening of the OBO isCon® cable possible using accessories

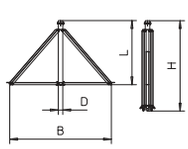
Dimensions



isFang air-termination rod stand

Type	Dimension B mm	Dimension D Ø mm	Dimension L mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang 3B-100 AL	1000	40	600	885	1	380,000	**5408966**
isFang 3B-150 AL	1500	40	900	1275	1	560,000	**5408967**
isFang 3B-100	1000	40	600	885	1	620,000	**5408968**
isFang 3B-150	1500	40	900	1275	1	950,000	**5408969**

V2A Stainless steel, grade 304 Alu Aluminium /pc.

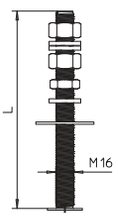


Folding tripod stand for screwless installation of free-standing interception rods with a diameter of 40 mm, e.g. for OBO isCon® cable. Roof slope to max. 5 degrees. Incl. Rd 8–10 crossbar for rapid round conductor fastening. The concrete plinth and threaded rods are to be ordered separately.

isFang-3B threaded rod

Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang 3B-G1	270	3	48,000	**5408971**
isFang 3B-G2	340	3	60,400	**5408972**
isFang 3B-G3	430	3	76,600	**5408973**
isFang 3B-G4	500	3	75,000	**5408905**

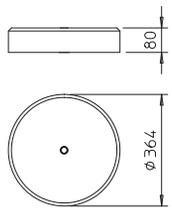
V2A Stainless steel, grade 304 /pc.



- For fastening on 1, 2, 3 or 4 FangFix concrete bases with tripod stand

Always indicate the item number when ordering.

Concrete block for FangFix-System 16 kg

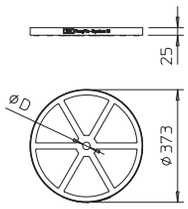


Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-S16	365	1	1.700,000	**5403227**

BET Concrete /100 pc.

- 16 kg stone of Ø 365 mm, high level of stability
- Concrete, frost-resistant
- Stackable

Base for FangFix system 16 kg for mounting the isFang tripod

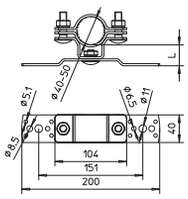


Type	Nominal size Ø mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-B16 3B	373	25	10	15,800	**5403238**

PP Polypropylene /100 pc.

- Edge protection with through hole
- For mounting isFang-3B threaded rod and FangFix concrete block F-FIX-S16

isFang support for wall mounting, 30 mm spacing

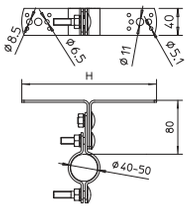


Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW30	–	30	2	62,000	**5408952**

V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

isFang support for wall mounting, 80 mm spacing

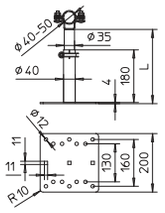


Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW80	–	80	2	63,000	**5408950**

V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

isFang support for wall mounting, 200–300 mm spacing

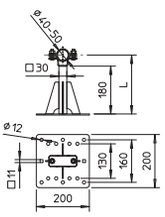


Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW200	–	300	2	230,000	**5408954**

V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

Support for wall mounting, 200 mm spacing



Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW200 12	50	200	2	240,000	**5408910**

V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

Always indicate the item number when ordering.

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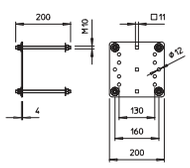
Mounting set for T support

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW200 Set	200x200mm	2	188,600	**5408914**

V2A Stainless steel, grade 304 /pc.

- Set for mounting isFang TW200 onto double T support
- Suitable for double T support, e.g. widths 100, 120

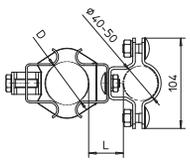


isFang support for pipe mounting, ø 50–300 mm

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TR100	300	40	2	77,000	**5408956**

V2A Stainless steel, grade 304 /pc.

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 50–300mm.

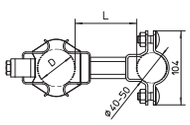


isFang support for spaced pipe mounting, ø 50–300 mm

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TR100 100	300	100	2	95,500	**5408955**
isFang TR100 200	300	200	2	121,000	**5408957**
isFang TR100 300	300	300	2	146,000	**5408959**

V2A Stainless steel, grade 304 /pc.

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 50–300 mm.

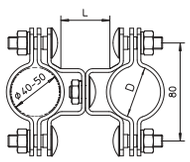


isFang support for pipe mounting, ø 40–50 mm

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TS40-50	50	40	2	90,000	**5408958**

V2A Stainless steel, grade 304 /pc.

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 40–50 mm.

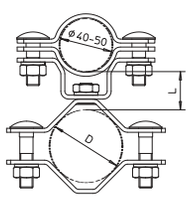


isFang support for pipe mounting, ø 50–60 mm

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TS50-60	60	30	2	76,000	**5408960**

V2A Stainless steel, grade 304 /pc.

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 50–60 mm.

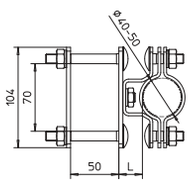


isFang support for corner pipe mounting, 50 x 50 mm

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TS50x50	—	30	2	82,000	**5408964**

V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or for construction-side corner pipes of 50x50 mm.



Always indicate the item number when ordering.

10 m air-termination rod with 6-legged air-termination rod stand

Type	Dimension D Ø mm	Dimension B mm	Length mm	Materials combination	Pack. pcs	Weight kg/100 pcs.	Item No.
irod 10	48.3	1800	10000	Alu/ V2A	1	6.500,000	**5400810**

V2A Stainless steel, grade 304 /pc.

- Tele lightning protection system against direct lightning strikes into plants, such as biogas plants
- Consisting of interception rod and interception rod stand
- Please order concrete foot, edge protection and threaded rods separately

12 m air-termination rod with 6-legged air-terminatio rod stand

Type	Dimension D Ø mm	Dimension B mm	Length mm	Materials combination	Pack. pcs	Weight kg/100 pcs.	Item No.
irod 12	85	3000	12000	Alu/ V2A	1	10.900,000	**5400812**

V2A Stainless steel, grade 304 /pc.

- Tele lightning protection system against direct lightning strikes into plants, such as biogas plants, gas pressure regulation plants, control and greenfield photovoltaic systems
- Consisting of interception rod and interception rod stand
- Please order concrete foot, edge protection and threaded rods separately

14 m air-terminatio rod with 8-legged air-termination rod stand

Type	Dimension D Ø mm	Dimension B mm	Length mm	Materials combination	Pack. pcs	Weight kg/100 pcs.	Item No.
irod 14	85	3200	14000	Alu/ V2A	1	15.400,000	**5400814**

V2A Stainless steel, grade 304 /pc.

- Tele lightning protection system against direct lightning strikes into plants, such as biogas plants, gas pressure regulation plants, control and greenfield photovoltaic systems
- Consisting of air-termination rod and air-termination rod stand
- Please order concrete foot, edge protection and threaded rods separately

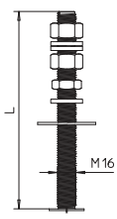
19 m air-termination rod with 12-legged air-termination rod stand

Type	Dimension D Ø mm	Dimension B mm	Length mm	Materials combination	Pack. pcs	Weight kg/100 pcs.	Item No.
irod 19	198	3400	19500	Alu/ V2A/ St (FT)	1	41.500,000	**5400817**

V2A Stainless steel, grade 304 /pc.

- Tele lightning protection system against direct lightning strikes into plants, such as biogas plants, gas-pressure regulation plants, control and greenfield photovoltaic systems
- Consisting of air-terminatio rod and air-termination rod stand
- Please order concrete foot and edge protection separately
- Including 800-mm threaded rods

isFang-3B threaded rod



Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang 3B-G1	270	3	48,000	**5408971**
isFang 3B-G2	340	3	60,400	**5408972**
isFang 3B-G3	430	3	76,600	**5408973**
isFang 3B-G4	500	3	75,000	**5408905**

V2A Stainless steel, grade 304 /pc.

- For fastening on 1, 2, 3 or 4 FangFix concrete bases with tripod stand

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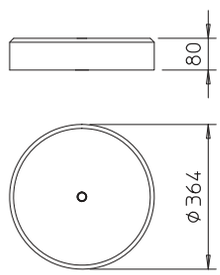
Always indicate the item number when ordering.

Concrete block for FangFix-System 16 kg

Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-S16	365	1	1.700,000	**5403227**

BET Concrete /100 pc.

- 16 kg stone of Ø 365 mm, high level of stability
- Concrete, frost-resistant
- Stackable

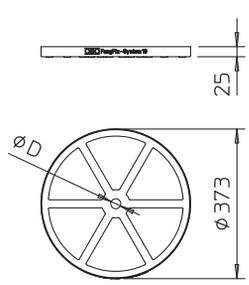


Base for FangFix system 16 kg for mounting the isFang tripod

Type	Nominal size Ø mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-B16 3B	373	25	10	15,800	**5403238**

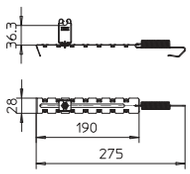
PP Polypropylene /100 pc.

- Edge protection with through hole
- For mounting isFang-3B threaded rod and FangFix concrete block F-FIX-S16



Always indicate the item number when ordering.

Ridge conductor holder with tensioning spring

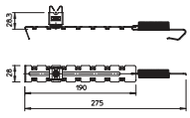


Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 U 35	RD 8	35	20	6,800	**5203018**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor Rd 8
- Clamping range 280-380 mm

Ridge conductor holder with tensioning spring

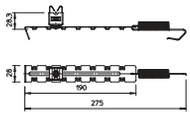


Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 U	RD 8	20	20	6,000	**5203015**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor Rd 8
- Clamping range 280-380 mm

Ridge conductor holder with tensioning spring



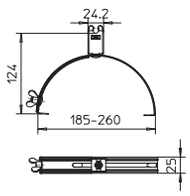
Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 U-CU	RD 8	20	10	0,600	**5203023**

V2A Stainless steel, grade 304 /100 pc.

Cu Copper-plated

- For round conductor Rd 8
- Clamping range 280-380 mm

Roof conductor holder for ridge tiles, 185–260 mm, Rd 8

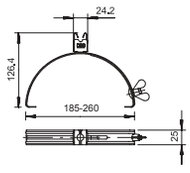


Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 VA 35	Rd 8	35	20	13,700	**5202836**

V2A Stainless steel, grade 304 /100 pc.

- Adjustable width from 185-260 mm
- Fast installation using wing screw

Roof conductor holder for ridge tiles, 185–260 mm, Rd 8

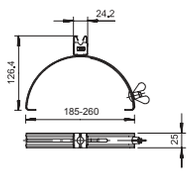


Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 VA	Rd 8	20	20	12,900	**5202833**

V2A Stainless steel, grade 304 /100 pc.

- Adjustable width from 185-260 mm
- Fast installation using wing screw

Roof conductor holder for ridge tiles, 185–260 mm, Rd 8



Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 CU	Rd 8	20	10	13,400	**5202868**

Cu Copper /100 pc.

- Adjustable width from 185-260 mm
- Fast installation using wing screw

Always indicate the item number when ordering.

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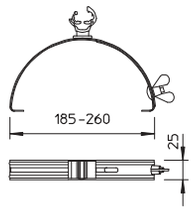
Roof conductor holder for ridge tiles, 185–260 mm, Rd 8–10

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 K-VA	Rd 8-10	20	20	10,900	**5202515**

V2A Stainless steel, grade 304 /100 pc.

- Adjustable width from 185-260 mm
- Bottom part made of non-rusting stainless steel (V2A)
- Infinitely adjustable conductor holder
- Conductor holder of polyamide
- Fast installation using wing screw

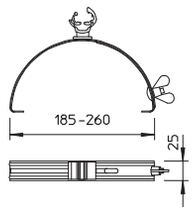


Roof conductor holder for ridge tiles, 185–260 mm, Rd 8–10

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 K-CU	Rd 8-10	20	10	11,600	**5202590**

Cu Copper /100 pc.

- Adjustable width from 185-260 mm
- Bottom part made of copper
- Infinitely adjustable conductor holder
- Conductor holder of polyamide
- Fast installation using wing screw



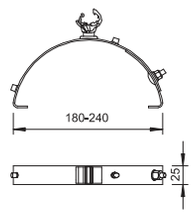
Roof conductor holder for ridge tiles, 180–240 mm, Rd 8–10

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 N-DK	Rd 8-10	20	20	19,700	**5202566**

St Steel /100 pc.

FT Hot-dip galvanised

- Adjustable from 180–240 mm
- With conductor 177/20, polyamide, grey
- With 3 M8 threaded nipples for positioning the holder



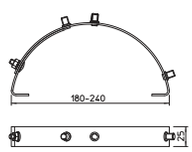
Roof conductor holder for ridge tiles with M8 threaded bolts

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 GB-M8	–	–	20	18,700	**5202568**

St Steel /100 pc.

FT Hot-dip galvanised

- Adjustable from 180–240 mm
- With conductor 177/20, polyamide, grey
- With 3 M8 threaded nipples for positioning the holder

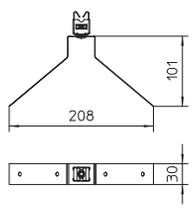


Roof conductor holder for ridge tiles, metal roofs, Rd 8

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
132 P VA	Rd 8	20	20	8,420	**5202510**

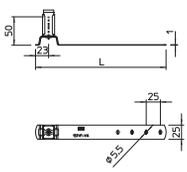
V2A Stainless steel, grade 304 /100 pc.

- For round conductors Rd 8
- Suitable for metal roofs



Always indicate the item number when ordering.

Roof conductor holder for tiled roofs, Rd 8

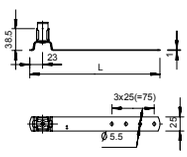


Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 F-VA 230 35	Rd 8	50	230	20	8,300	**5215555**
157 F-VA 280 35	Rd 8	50	280	20	9,700	**5215582**

V2A Stainless steel, grade 304 /100 pc.

- Conductor holder from stainless steel (V2A)
- Including drill hole in bottom section for quick installation

Roof conductor holder for tiled roofs, Rd 8

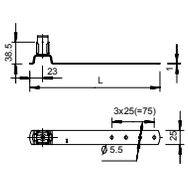


Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 F-VA 230	Rd 8	38.5	230	20	8,350	**5215552**
157 F-VA 280	Rd 8	38.5	280	20	10,170	**5215579**
157 F-VA 410	Rd 8	38.5	410	20	14,880	**5215595**

V2A Stainless steel, grade 304 /100 pc.

- Conductor holder from stainless steel (V2A)
- Including drill hole in bottom section for quick installation

Roof conductor holder for tiled roofs, Rd 8

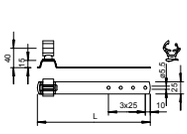


Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 F-CU 230	Rd 8	38.5	230	10	10,300	**5216192**
157 F-CU 280	Rd 8	38.5	280	10	11,100	**5216206**
157 F-CU 410	Rd 8	38.5	410	10	14,500	**5216257**

Cu Copper /100 pc.

- Conductor holder from copper plated stainless steel (V2A)
- Including drill hole in bottom section for quick installation

Roof conductor holder for tiled roofs, Rd 8–10

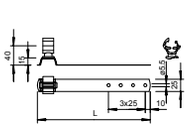


Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 FK-VA 230	Rd 8-10	40	230	20	7,800	**5215544**
157 FK-VA 280	Rd 8-10	40	280	20	10,170	**5215587**
157 FK-VA 410	Rd 8-10	40	410	20	14,880	**5215609**

V2A Stainless steel, grade 304 /100 pc.

- Conductor holder of polyamide
- Including drill hole in bottom section for quick installation

Roof conductor holder for tiled roofs, Rd 8–10

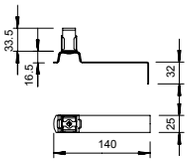


Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 FK-CU 230	Rd 8-10	40	230	10	8,800	**5216184**
157 FK-CU 280	Rd 8-10	40	280	10	9,600	**5216214**

Cu Copper /100 pc.

- Conductor holder of polyamide
- Including drill hole in bottom section for quick installation

Roof conductor holder for tiled roofs, angled, Rd 8



Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 I-VA	Rd 8	26.5	140	20	7,150	**5215625**

V2A Stainless steel, grade 304 /100 pc.

- Conductor holder high-grade stainless steel (V2A)
- Curved bottom strip for quick installation

Always indicate the item number when ordering.

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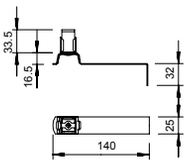
Roof conductor holder for tiled roofs, angled, Rd 8

Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 I-CU	Rd 8	26.5	140	10	7,800	**5215749**

Cu Copper /100 pc.

- Conductor holder copper plated high-grade stainless steel (V2A)
- Curved bottom strip for quick installation

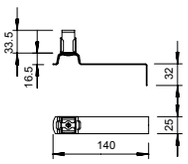


Roof conductor holder for tiled roofs, angled, flexible, Rd 8

Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 FX-AL	Rd 8	26.5	140	20	3,900	**5215875**

Alu Aluminium /100 pc.

- With flexible bottom section from aluminium for matching to roof tiles (easy to flex)
- Holder from stainless steel (V2A)
- Curved bottom section for quick installation

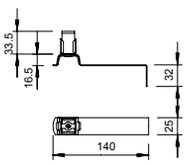


Roof conductor holder for tiled roofs, angled, flexible, Rd 8

Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 FX-CU	Rd 8	26.5	140	10	7,500	**5215879**

Cu Copper /100 pc.

- With flexible bottom section from copper for matching to roof tiles (easy to flex)
- Holder from copper plated stainless steel (V2A)
- Curved bottom section for quick installation

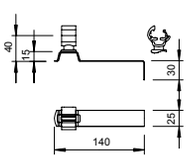


Roof conductor holder for tiled roofs, angled, Rd 8–10

Type	Fit mm	Installation height mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 IK-VA	Rd 8-10	40	140	20	7,150	**5215668**

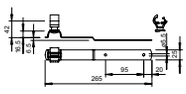
V2A Stainless steel, grade 304 /100 pc.

- Conductor holder of polyamide
- Curved bottom strip for quick installation



Always indicate the item number when ordering.

Roof cable holder for slated roofs, crimped, Rd 8–10

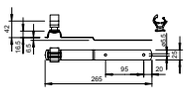


Type	Fit mm	Length mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 EK-VA	Rd 8-10	265	42	20	7,800	**5215838**

V2A Stainless steel, grade 304 /100 pc.

- Conductor holder of polyamide
- With Ø 5.5 mm drill hole

Roof cable holder for slated roofs, crimped, Rd 8–10

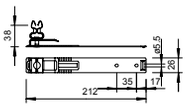


Type	Fit mm	Length mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 EK-CU	Rd 8-10	265	42	10	8,800	**5215854**

Cu Copper /100 pc.

- Conductor holder of polyamide
- With Ø 5.5 mm drill hole

Roof cable holder for slated roofs, Rd 8

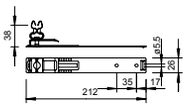


Type	Fit mm	Length mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 L-VA	Rd 8	212	32	20	8,000	**5215439**

V2A Stainless steel, grade 304 /100 pc.

- With Ø 5.5 mm drill hole and beading

Roof cable holder for slated roofs, Rd 8

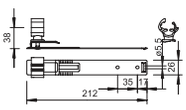


Type	Fit mm	Length mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 L-CU	Rd 8	212	32	10	9,900	**5215471**

Cu Copper /100 pc.

- With Ø 5.5 mm drill hole and beading

Roof cable holder for slated roofs, Rd 8–10

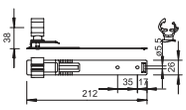


Type	Fit mm	Length mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 LK-VA	Rd 8-10	212	38	20	8,000	**5215374**

V2A Stainless steel, grade 304 /100 pc.

- With Ø 5.5 mm drill hole and beading
- Conductor holder of polyamide

Roof cable holder for slated roofs, Rd 8–10



Type	Fit mm	Length mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 LK-CU	Rd 8-10	212	38	10	8,400	**5215382**

Cu Copper /100 pc.

- With Ø 5.5 mm drill hole and beading
- Conductor holder of polyamide

Always indicate the item number when ordering.

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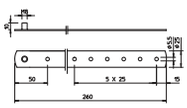
Roof cable holder for slated roofs with M8 threaded bolts

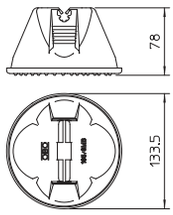
Type	Fit mm	Length mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 GB-M8	—	260	—	20	5,000	**5202569**
V2A Stainless steel, grade 304						/100 pc.



- With Ø 5.5 mm drill hole
- With 3 M8 threaded nipples for positioning the holder

Always indicate the item number when ordering.

Roof conductor holder for flat roofs

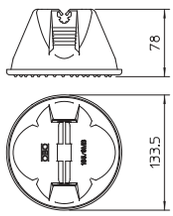


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 MBG-8	Rd 8	12	106,000	**5218691**
165 MBG-8 FO	Rd 8	12	106,000	**5218692**
165 MBG-10	Rd 10	12	106,000	**5218675**
165 MBG-10 FO	Rd 10	12	106,000	**5218676**

PA/PE Polyamide/Polyethylene /100 pc.

- Closed form with base
- With double conductor holder
- Filling weight 1 kg (frost-resistant concrete)
- Sleeve made of polyethylene, black, bottom polypropylene, black
- Base made of polyamide PA 6, black, UV-stabilised and weather-resistant
- Base can be used on almost roofing felt systems (bitumen, PVC)
- Types 165 MBG...FO: Packed in foil bag

Roof conductor holder for flat roofs

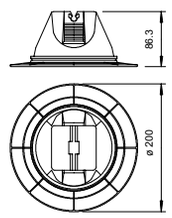


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 KRB-I	Rd 8	9	144,000	**5218888**

PA/PE Polyamide/Polyethylene /100 pc.

- Closed form with base
- With double conductor holder
- Filling weight 1 kg (frost-resistant concrete)
- Sleeve made of polyethylene, black, bottom polypropylene, black
- Base made of polyamide PA 6, black, UV-stabilised and weather-resistant
- Base can be used on almost roofing felt systems (bitumen, PVC)
- Types 165 MBG...FO: Packed in foil bag

Roof conductor holder for flat roofs, with increased base section

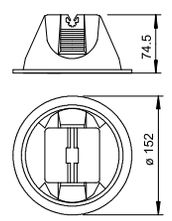


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 MBG-8 200	Rd 8	12	111,000	**5218748**
165 MBG-10 200	Rd 10	12	111,000	**5218756**

PE Polyethylene /100 pc.

- DIN 48829 Form B 1
- Closed form with bottom
- With double conductor holder
- Filling weight 1 kg (frost-resistant concrete)
- Sleeve from polyethylene, black, bottom polypropylene, black
- With larger bottom section (Ø 200 mm) for improved stability

Roof conductor holder for flat roofs, without base

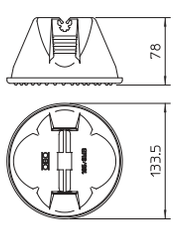


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 OBG-8	Rd 8	12	100,000	**5218683**

PE Polyethylene /100 pc.

- Without bottom
- With double conductor holder
- Filling weight 1 kg (frost-resistant concrete)
- Sleeve from polyethylene, black

Roof conductor holder for flat roofs, grey



Type	Fit mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
165 MBG-8 GR	Rd 8	Grey	12	106,000	**5218693**
165 MBG-10 GR	Rd 10	Grey	12	106,000	**5218677**

PA/PE Polyamide/Polyethylene /100 pc.

- Closed form with base
- With double cable holder
- Filling weight 1 kg (frost resistant concrete)
- Case made from polyethylene, light grey, UV-stabilised and weatherproof
- Base made from polyamide PA 6, light grey, UV-stabilised and weatherproof
- Base suitable for nearly all roofing membrane systems (Bitumen, PVC)

Always indicate the item number when ordering.

Flat conductor adapter for roof conductor holder, type 165/MBG

Type	Colour	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 MBG HFL	Black	Rd 8	12	0,670	**5218885**

PP Polypropylene /100 pc.

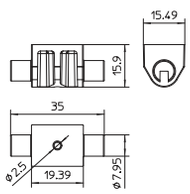
- Flat conductor holder FL 30 x 3.5 mm
- For fastening to 165/MBG in fit Rd 8

Universal adapter for roof conductor holder, type 165/MBG

Type	Colour	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 MBG UH	Black	Rd 8	25	0,280	**5218882**

PP Polypropylene /pc.

- Universal adapter with drill hole Ø 2.5 mm
- E.g. for OBO Golden Sprint screw, type 4758 4 x L (L = depending on application)
- For fastening to 165/MBG

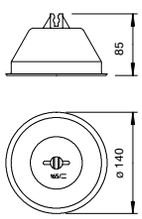


Roof conductor holder for flat roofs, plastic sleeve

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 KR	Rd 8	50	5,300	**5218861**

PE Polyethylene /100 pc.

- For self-filling with concrete
- Potential filling weight: approx. 1.3 kg
- Sleeve from polyethylene, black

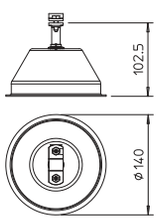


Roof conductor holder for flat roofs, with raised cable bracket

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 KRB SO	Rd 8-10	9	144,000	**5218977**

/100 pc.

- For self-filling with concrete
- Potential filling weight: approx. 1.3 kg
- Sleeve from polyethylene, black

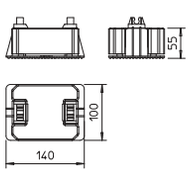


Roof conductor holder for flat roofs, recyclable

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 R-8-10	Rd 8-10	10	106,000	**5218997**

PE Polyethylene /100 pc.

- For round conductors Rd 8 to 10
- With polyethylene plastic holder, black
- Block made of frost-resistant concrete
- Weight 1 kg
- Block can be split into plastic and concrete (recyclable)

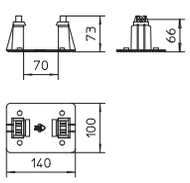


Roof conductor holder, for plastic film roofs

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 R-8-10 OBG	Rd 8-10	100	6,760	**5218999**

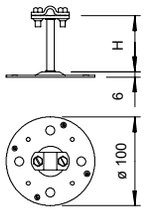
PE Polyethylene /100 pc.

- For flat roofs
- For round conductors Rd 8 to 10
- Polyethylene plastic holder, light grey
- For clamping in roof strips



Always indicate the item number when ordering.

Roof conductor holder, suitable for bonding straight to flat roofs



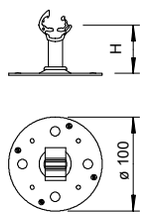
Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 B 60	Rd 8-10	60	50	26,100	**5218810**
165 B 100	Rd 8-10	100	50	27,700	**5218829**

St Steel /100 pc.

FT Hot-dip galvanised

- With conductor holder and bottom section, hot-dip galvanised steel
- Bottom section Ø 100 mm

Roof conductor holder, 55 mm, suitable for bonding straight to flat roofs



Type	Fit mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 NBK 55	Rd 8-10	100	75	17,060	**5218314**

PA Polyamide /100 pc.

- Suitable for bonding straight to flat roofs
- Conductor holder of polyamide
- Bottom section, hot-dip galvanised steel
- Bottom section Ø 100 mm

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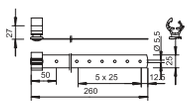
Always indicate the item number when ordering.

Roof conductor holder for tiled and slated roofs, Rd 8–10

Type	Fit mm	Length mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 NB-VA	Rd 8-10	260	27	20	6,000	**5215277**

V2A Stainless steel, grade 304 /100 pc.

- With Ø 5.5 mm drill hole
- Conductor holder of polyamide

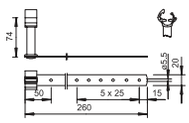


Roof conductor holder for tiled and slated roofs, 74 mm height

Type	Fit mm	Length mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
157 ND-VA	Rd 8-10	260	74	20	6,000	**5215307**

V2A Stainless steel, grade 304 /100 pc.

- High roof cable holder: 74 mm
- With perforation Ø 5.5 mm
- Polyamide cable bracket

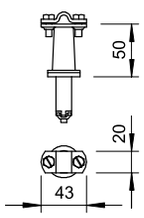


Roof conductor holder for tiled, slated and corrugated roofs, with crossbar

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
133 A	Rd 8-10	50	20	9,000	**5202248**

PA Polyamide /100 pc.

- With weatherproof clamping collar from soft PVC
- Required drill hole Ø = 16 mm
- Spacer from polyamide, grey

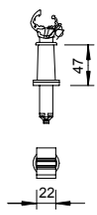


Roof conductor holder for tiled, slated and corrugated roofs, with cable bracket

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
133 NB	Rd 8-10	67	20	8,000	**5202213**

PA Polyamide /100 pc.

- With weather-proof clamping collar from soft-PVC
- Required drill hole-Ø = 16 mm
- Spacer and conductor holder from polyamide, grey

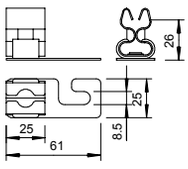


Roof conductor holder for tiled, slated and corrugated roofs, Rd 8

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
159 VA-V	Rd 8	21	20	3,900	**5217075**

V2A Stainless steel, grade 304 /100 pc.

- Bottom section and conductor holder stainless steel (V2A)
- Bottom section with Ø 8.5 mm slot

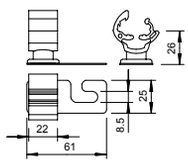


Roof conductor holder for tiled, slated and corrugated roofs, Rd 8–10

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
159 K-VA	Rd 8-10	21	20	2,540	**5216818**

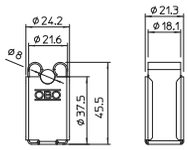
V2A Stainless steel, grade 304 /100 pc.

- Bottom section stainless steel (V2A)
- Bottom section with Ø 8.5 mm slot
- Conductor holder of polyamide



Always indicate the item number when ordering.

Screwless conductor bracket, raised construction type, for Rd 8 mm, through-way Ø 5 mm

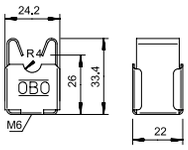


Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
177 35 VA M6	Rd 8	35	20	2,680	**5207342**

V2A Stainless steel, grade 304 /100 pc.

- With female thread M6 or through hole Ø 5 mm
- From stainless steel (V2A)

Screwless conductor bracket for Rd 8 mm, through-way Ø 5 mm

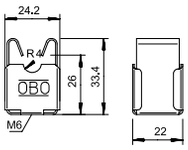


Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
177 20 VA M6	Rd 8	20	20	2,500	**5207339**

V2A Stainless steel, grade 304 /100 pc.

- With female thread M6 or through hole Ø 5 mm
- From stainless steel (V2A)

Screwless conductor bracket for Rd 8 mm, through-way Ø 5 mm



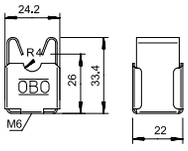
Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
177 20 VA-VK M6	Rd 8	20	20	2,500	**5207800**

V2A Stainless steel, grade 304 /100 pc.

Cu Copper-plated

- With female thread M6 or through hole Ø 5 mm
- From stainless steel (V2A)
- VA-VK: copper-plated

Screwless conductor bracket for Rd 8 mm, through-way Ø 7 mm

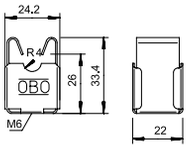


Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
177 20 VA M8	Rd 8	20	20	1,900	**5207347**

V2A Stainless steel, grade 304 /100 pc.

- With female thread M8 or through hole Ø 5 mm
- From stainless steel (V2A)

Screwless conductor bracket for Rd 8 mm, through-way Ø 7 mm



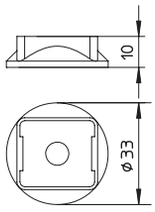
Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
177 20 VA-VK M8	Rd 8	20	20	1,900	**5207819**

V2A Stainless steel, grade 304 /100 pc.

Cu Copper-plated

- With female thread M8 or through hole Ø 5 mm
- From stainless steel (V2A)
- VA-VK: copper-plated

Washer for conductor bracket, type 177



Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
177 U	Light grey	20	0,295	**5207371**

PP Polypropylene /100 pc.

- For simple wall installation
- UV-resistant

Always indicate the item number when ordering.

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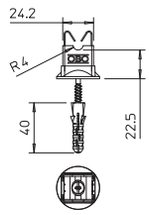
Screwless conductor bracket for Rd 8 mm, fastening with screw and anchor

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
177 20 VA B-HD	Rd 8	20	50	2,900	**5207901**

V2A Stainless steel, grade 304 /100 pc.

- With female thread M8 or through hole Ø 5 mm
- From stainless steel (V2A)
- With pre-mounted wood screws (5 x 60) and plastic dowels (8 x 40).

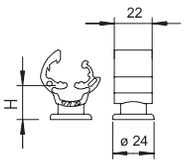


Universal conductor bracket Rd 8–10 mm

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
177 20 M8	Rd 8-10	20	20	1,050	**5207444**
177 30 M8	Rd 8-10	30	20	1,200	**5207460**
177 55 M8	Rd 8-10	55	20	1,450	**5207487**

PA Polyamide /100 pc.

- With female thread M8 or through hole Ø 7 mm
- Weather and temperature-resistant from -35 °C to +90 °C

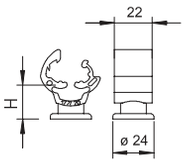


Universal conductor bracket Rd 8–10 mm, copper-plated

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
177 20 CU	Rd 8-10	20	10	1,050	**5207746**
177 30 CU	Rd 8-10	30	10	1,200	**5207754**
177 55 CU	Rd 8-10	55	10	1,450	**5207762**

PA Polyamide /100 pc.

- With female thread M8 for screwing and through hole for wood screws
- Colour: copper
- Weather and temperature-resistant from -35 °C to +90 °C

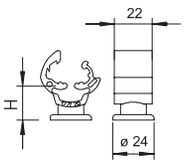


Universal conductor bracket Rd 8–10 mm with pre-mounted wood screw

Type	Fit mm	Installation height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
177 B-HD20	Rd 8-10	20	50	1,930	**5207851**
177 B-HD30	Rd 8-10	30	50	2,080	**5207878**

PA Polyamide /100 pc.

- With female thread M8 for screwing and through hole for wood screws
- For round conductor Rd 8-10
- Weather and temperature-resistant from -35 °C to +90 °C
- With pre-mounted wood screws (5 x 60) and plastic dowels (8 x 40).

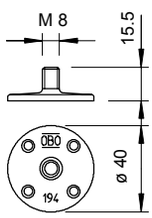


Bonding base

Type	Colour	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
194	Grey	M8	100	0,548	**5207258**

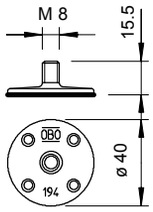
PA Polyamide /100 pc.

- With threaded stem M8
- For mounting conductor supports with M8 female thread
- For bonding to concrete, steel or brickwork



Always indicate the item number when ordering.

Bonding base including industrial bonding pad

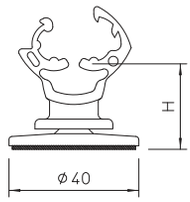


Type	Colour	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
194 K	Grey	M8	20	0,600	**5207266**

PA Polyamide /100 pc.

- With threaded pin M8
- To accept cable supports with M8 internal thread
- For bonding to concrete, steel or smooth substrates
- Not suitable for rough surfaces such as plaster, wood, bitumen strips
- Processing at > +15 °C and on cleaned substrate
- To route the arrestor, cannot be used on the roof
- Use on sheet roofs after agreement with the responsible roofing contractors

Conductor bracket, Rd 8–10 mm with bonding base

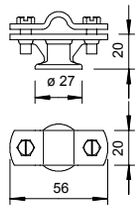


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
177 20 KL	50	1,650	**5207451**

PA Polyamide /100 pc.

- For bonding to concrete, steel or smooth substrates
- Not suitable for rough surfaces such as plaster, wood, bitumen strips
- Processing at > +15 °C and on cleaned substrate
- To route the arrestor, cannot be used on the roof
- Use on sheet roofs after agreement with the responsible roofing contractors

Conductor bracket with crossbar Rd 8–10 mm



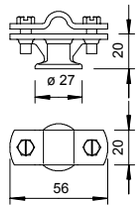
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 Z8-10	Rd 8-10	20	6,202	**5229960**

Zn Die-cast zinc /100 pc.

G Electrogalvanised

- With female thread M8 or through hole Ø 7 mm
- Over-piece installed with 2 hexagonal bolts
- Version HD with wood screws (5 x 60) and plastic dowels (8 x 40)

Conductor bracket with crossbar Rd 8–10 mm



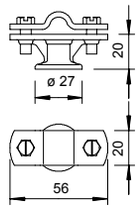
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 8-10	Rd 8-10	20	9,600	**5230217**

Zn Die-cast zinc /100 pc.

Cu Copper-plated

- With female thread M8 or through hole Ø 7 mm
- Over-piece installed with 2 hexagonal bolts

Conductor bracket with crossbar, wood screw, plastic anchor Rd 8-10 mm



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 B-Z-HD	Rd 8-10	100	6,580	**5230322**

Zn Die-cast zinc /100 pc.

VZ Galvanised

- With female thread M8 or through hole Ø 7 mm
- Over-piece installed with 2 hexagonal bolts
- Version HD with wood screws (5 x 60) and plastic dowels (8 x 40)

Always indicate the item number when ordering.

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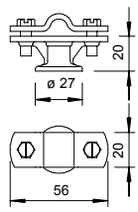
Conductor bracket with crossbar, wood screw, plastic anchor Rd 8-10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 B-MS-HD 8-10	Rd 8-10	100	7,280	**5230365**

Zn Die-cast zinc /100 pc.

Cu Copper-plated

- With female thread M8 or through hole Ø 7 mm
- Over-piece installed with 2 hexagonal bolts
- Version HD with wood screws (5 x 60) and plastic dowels (8 x 40)



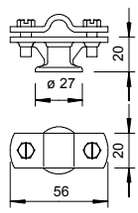
Conductor bracket with hinged crossbar Rd 8–10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 Z-K 8-10	Rd 8-10	20	6,202	**5229961**

Zn Die-cast zinc /100 pc.

G Electrogalvanised

- With female thread M8 or through hole Ø 7 mm
- Hinge crossbar for quick swivel mounting
- Crossbar mounted with 2 hexagonal bolts



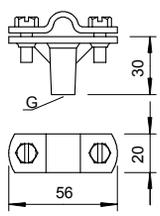
Conductor bracket with hinged crossbar Rd 8–10, 30 mm mounting height

Type	Fit mm	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
168 8-10 M6	Rd 8-10	M6	20	7,800	**5229162**
168 DIN-K-M8	Rd 8-10	M8	20	7,780	**5229839**

Zn Die-cast zinc /100 pc.

G Electrogalvanised

- With female thread (G)
- With over-piece and 2 hexagonal bolts
- Installed height 30 mm



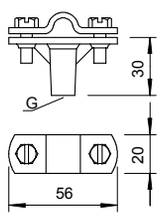
Conductor bracket with hinged crossbar Rd 8–10, 30 mm mounting height

Type	Fit mm	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
168 ZN-M6	Rd 8-10	M6	20	8,660	**5229367**
168 DIN-K-M8	Rd 8-10	M8	20	8,440	**5229383**

Zn Die-cast zinc /100 pc.

Cu Copper-plated

- With female thread (G)
- With over-piece and 2 hexagonal bolts
- Installed height 30 mm



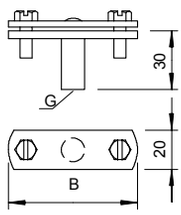
Conductor bracket with crossbar FL, 30 mm mounting height

Type	Dimension B mm	Fit mm	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
168 FL40-M8	66	FL 40	M8	20	8,200	**5229553**

TG Cast iron /100 pc.

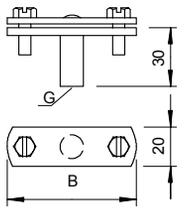
FT Hot-dip galvanised

- For flat strip
- With female thread (G)
- Installed height 30 mm



Always indicate the item number when ordering.

Conductor bracket with crossbar FL, 30 mm mounting height



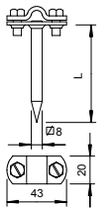
Type	Dimension B mm	Fit mm	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
168 FL30-M6	56	FL 30	M6	20	7,640	**5229464**
168 DIN 30	56	FL 30	M8	20	7,320	**5229480**

Zn Die-cast zinc /100 pc.

G Electrogalvanised VZ Galvanised

- For flat strip
- With female thread (G)
- Installed height 30 mm

Conductor bracket with crossbar Rd 8–10 mm, with square pin



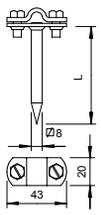
Type	Fit mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
163 70 FT	Rd 8-10	70	50	8,476	**5223075**
163 100 FT	Rd 8-10	100	50	10,056	**5223105**
163 150 FT	Rd 8-10	150	50	14,400	**5223156**
163 200 FT	Rd 8-10	200	20	18,880	**5223202**

St Steel /100 pc.

FT Hot-dip galvanised

- Complete with over-piece and hexagonal bolts
- With square pin for quick installation
- With hexagonal bolts, VA

Conductor bracket with crossbar Rd 8–10 mm, with square pin

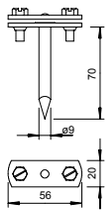


Type	Fit mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
163 100 CU	Rd 8-10	100	10	10,840	**5223601**

Cu Copper /100 pc.

- Complete with over-piece and hexagonal bolts
- With square pin for quick installation
- With hexagonal bolts, VA

Conductor bracket with crossbar FL 30 mm, with round pin



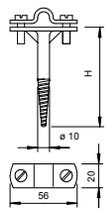
Type	Fit mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
166 LS 70	FL30	70	50	9,140	**5226570**

St Steel /100 pc.

FT Hot-dip galvanised

- With over-piece and 2 hex-head screws (VA)
- Round pin Ø 9 mm

Conductor bracket with crossbar Rd 8–10 mm, with wood screw thread



Type	Fit mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
176 A 65	Rd 8-10	65	50	9,536	**5227070**
176 A 80	Rd 8-10	80	50	10,025	**5227089**
176 A 100	Rd 8-10	100	50	11,500	**5227100**
176 A 150	Rd 8-10	150	20	13,100	**5227151**

TG Cast iron /100 pc.

F Hot-dip galvanised

- Also for flat conductor to FL 30
- With wood screw thread
- Bottom section, hot-dip galvanised cast iron
- Over-piece and screws, hot dipped galvanised steel

Always indicate the item number when ordering.

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Base plate

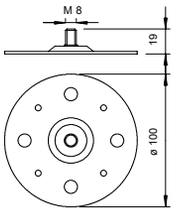
Type	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
199 DIN	M8	10	14,200	**5208017**

/100 pc.

St Steel

FS Strip-galvanised

- With threaded pin M8
- Suitable for direct bonding
- Threaded pin brass and base plate hot-dip galvanised steel



Hinge crossbar for FL 30 mm

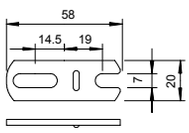
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
156 FL	FL30	50	2,460	**5228328**

/100 pc.

St Steel

FT Hot-dip galvanised

- With slot for quick installation



Crossbar for Rd 8–10 mm

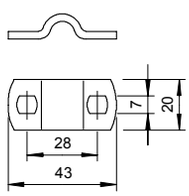
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
156 K8-10 ST	Rd 8-10	100	2,000	**5228123**

/100 pc.

St Steel

FT Hot-dip galvanised

- For round conductor Rd 8-10



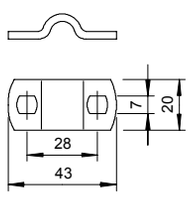
Crossbar for Rd 8–10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
156 K8-10 VA	Rd 8-10	100	2,100	**5228134**

/100 pc.

V2A Stainless steel, grade 304

- For round conductor Rd 8-10



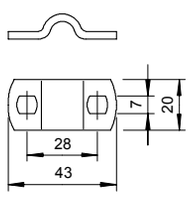
Crossbar for Rd 8–10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
156 K8-10 CU	Rd 8-10	100	2,260	**5228131**

/100 pc.

Cu Copper

- For round conductor Rd 8-10



Hinge crossbar for Rd 8-10 mm

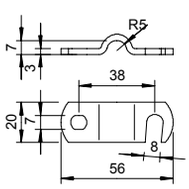
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
156 8-10	Rd 8-10	100	2,680	**5228026**

/100 pc.

St Steel

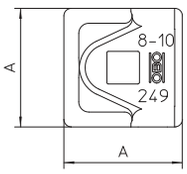
FT Hot-dip galvanised

- With open slot for quick installation



Always indicate the item number when ordering.

Clamping block for Rd 8-10 mm



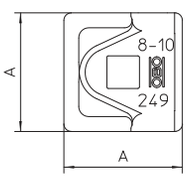
Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 ST-OT	Rd 8-10	40	100	3,240	**5311503**

St Steel /100 pc.

FT Hot-dip galvanised

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Clamping block for Rd 8-10 mm

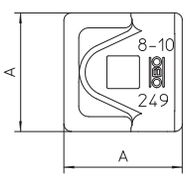


Type	Dimension A mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 ALU-OT	44	Rd 8-10	100	2,100	**5311585**

Alu Aluminium /100 pc.

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Clamping block for Rd 8-10 mm

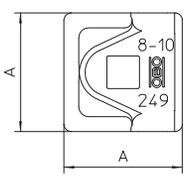


Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 VA-OT	Rd 8-10	40	100	3,130	**5311554**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor Rd 8-10
- Suitable for M10 bolts

Clamping block for Rd 8-10 mm

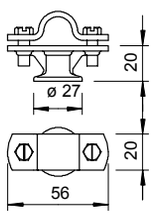


Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 CU-OT	Rd 8-10	40	100	3,580	**5311530**

Cu Copper /100 pc.

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Rod holder for 16 mm interception and earth entry rods



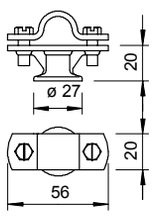
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 Z-16	Rd 16	10	6,000	**5412609**

Zn Die-cast zinc /100 pc.

VZ Galvanised

- For lightning and ground insertion rods Rd 16
- Installed with over-piece and hex-head screws M6 x 16
- With female thread M8 or through hole Ø 7 mm

Rod holder for 16 mm interception and earth entry rods



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 ZN-16	Rd 16	10	10,100	**5412633**

Zn Die-cast zinc /100 pc.

Cu Copper-plated

- For lightning and ground insertion rods Rd 16
- Installed with over-piece and hex-head screws M6 x 16
- With female thread M8 or through hole Ø 7 mm

Always indicate the item number when ordering.

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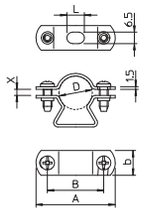
Rod holder for 16 mm interception and earth entry rods

Type	Clamping range D mm	Hole size mm	Bolt	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
733 16 VA	14 - 16	6.5 x 10	5 x M12	500	50	2,430	**1362011**

V2A Stainless steel, grade 304 /100 pc.

* Size M16 is not suitable for nail device
* Sizes M16 - PG16 are not suitable for bolt-firing tool



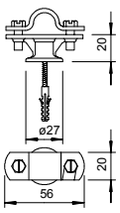
Rod holder for 16 mm interception and earth entry rods, with screw and anchor

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 B-Z-HD	Rd 16	100	6,000	**5412803**

Zn Die-cast zinc /100 pc.

VZ Galvanised

- For lightning and ground insertion rods Rd 16
- Installed with over-piece and hexagonal bolts M6 x 16 (VA)
- Female thread M8 for screwing and through hole for wood screws
- Pre-mounted with wood screw 5 x 60 and plastic dowels 8 x 40



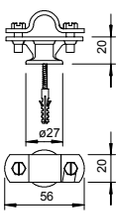
Rod holder for 16 mm interception and earth entry rods, with screw and anchor

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 B-HD-16	Rd 16	100	10,100	**5412811**

Zn Die-cast zinc /100 pc.

Cu Copper-plated

- For lightning and ground insertion rods Rd 16
- Installed with over-piece and hexagonal bolts M6 x 16 (VA)
- Female thread M8 for screwing and through hole for wood screws
- Pre-mounted with wood screw 5 x 60 and plastic dowels 8 x 40



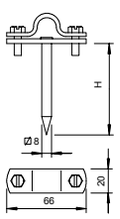
Rod holder for 16 mm interception and earth entry rods, with square pin

Type	Fit mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
112 DIN-100	Rd 16	100	10	12,412	**5410096**

St Steel /100 pc.

F Hot-dip galvanised

- For lightning and ground insertion rods
- Over-piece with 2 hexagonal bolts M6 x 16 (VA)
- With square pin



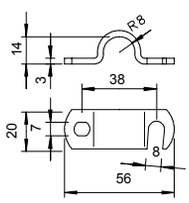
Crossbar, round conductors and interception rods 16 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
156 16	Rd 16	50	3,230	**5228220**

St Steel /100 pc.

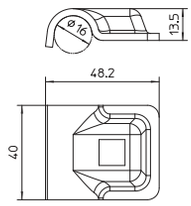
FT Hot-dip galvanised

- With open slot for quick installation



Always indicate the item number when ordering.

Clamping block for Rd 16 mm

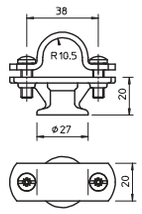


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 VA-OT	16	100	5,700	**5311573**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor fastening RD 16
- Suitable for M10 bolts

Rod holder for 20 mm rods



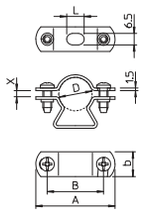
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 Z-20	Rd 20	20	8,200	**5230527**

Zn Die-cast zinc /100 pc.

VZ Galvanised

- Installed with over-piece and hex-head screws M6 x 16
- With female thread M8 or through hole Ø 7 mm.

Rod holder for 20 mm rods



Type	Clamping range D mm	Hole size mm	Bolt	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
733 21 VA	19 - 21	6,5 x 10	5 x M16	500	50	2,740	**1362046**

V2A Stainless steel, grade 304 /100 pc.

* Size M16 is not suitable for nail device
* Sizes M16 - PG16 are not suitable for bolt-firing tool

Always indicate the item number when ordering.

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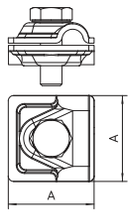
Vario quick connector

Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 ST	Rd 8-10	40	20	10,800	**5311500**
249 B ST	Rd 8-10	40	100	10,800	**5311705**

St Steel /100 pc.

FT Hot-dip galvanised

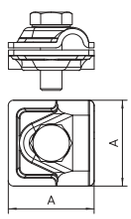


- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Vario quick connector

Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 ALU	Rd 8-10	44	30	6,600	**5311519**
249 B ALU	Rd 8-10	44	100	7,250	**5311713**

Alu Aluminium /100 pc.

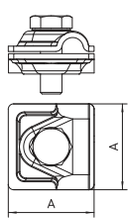


- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Vario quick connector

Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 VA	Rd 8-10	40	10	10,700	**5311551**

V2A Stainless steel, grade 304 /100 pc.

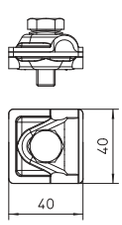


- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Vario quick connector

Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 V4A	Rd 8-10	—	10	9,500	**5311404**

V4A Stainless steel, 316Ti / 316L /100 pc.

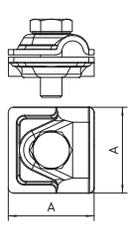


- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Vario quick connector

Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 CU	Rd 8-10	40	10	11,900	**5311527**

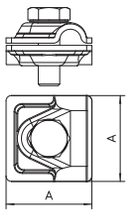
Cu Copper /100 pc.



- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.

Variable bi-metal quick connector

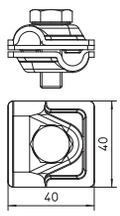


Type	Fit mm	Dimension A mm	Material upper part	Material lower part	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 ZV	Rd 8-10	44	Cu	Al	10	14,220	**5311535**

Cu Copper /100 pc.

- Intermediate plate, copper/aluminium, top section copper and aluminium
- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- With spring washer according to DIN 137
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Variable earthing connector Rd 6-8 / 8-10 mm



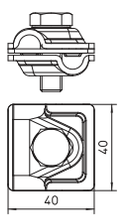
Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 6-10 ST	RD 6-8 / 8-10	40	20	13,100	**5311410**

St Steel /100 pc.

FT Hot-dip galvanised

- For T, intersection and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Variable earthing connector Rd 6-8 / 8-10 mm

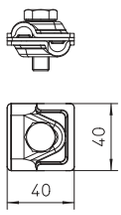


Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 6-10 CU	RD 6-8 / 8-10	40	10	14,540	**5311417**

Cu Copper /100 pc.

- For T, intersection and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Vario quick connector Rd 6-8 / Rd 6-8 mm



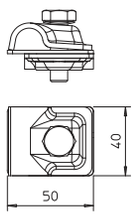
Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 6-8 CU	RD 6-8 / 6-8	40	10	12,710	**5311407**

Cu Copper /100 pc.

Cu Copper-plated

- For T, intersection and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Vario quick connector Rd 8-10x16



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10X16 VA	8-10X16	10	16,300	**5311590**

V2A Stainless steel, grade 304 /100 pc.

- For T, intersection and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

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Always indicate the item number when ordering.

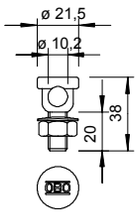
Connector, Rd 8–10 mm with M10 thread

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5000	Rd 8-10	20	4,630	**5304008**

St Steel /100 pc.

F Hot-dip galvanised

- With bore hole 10.2 mm
- With thread M10
- Including pre-mounted nut M10 and serrated washer
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)



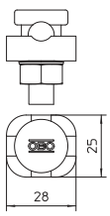
Connector Rd 8–10 mm, single

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5001 DIN-FT	Rd 8-10	20	7,450	**5304105**
5001 DIN-FT+VA	Rd 8-10	20	7,450	**5304107**

St Steel /100 pc.

FT Hot-dip galvanised

- With fix contact clamping screw, nut and serrated washer
- With bore hole 10.2 mm
- With pre-mounted pressure piece, die-cast zinc
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)



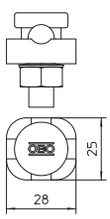
Connector Rd 8–10 mm, single

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5001 ZN-CU	Rd 8-10	10	8,760	**5304113**

Zn Die-cast zinc /100 pc.

Cu Copper-plated

- With fix contact clamping screw, nut and serrated washer
- With bore hole 10.2 mm
- With pre-mounted pressure piece, die-cast zinc
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)



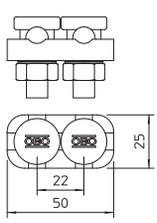
Connector Rd 8–10 mm, double

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5002 DIN-FT	Rd 8-10	20	14,240	**5304202**

St Steel /100 pc.

FT Hot-dip galvanised

- With 2 fix contact clamping screws, nut and serrated washer
- Including pre-mounted connecting pressure piece, die-cast zinc or copper-plated die-cast zinc
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)



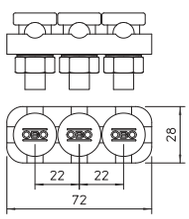
Connector Rd 8–10 mm, triple

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5003	Rd 8-10	10	22,420	**5304318**

TG Cast iron /100 pc.

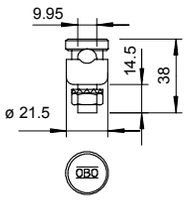
FT Hot-dip galvanised

- With 3 fix contact clamping screws, nut and serrated washer
- With pre-mounted connecting pressure piece, die-cast zinc
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)



Always indicate the item number when ordering.

Connector, Rd 8–10 mm with pressure trough



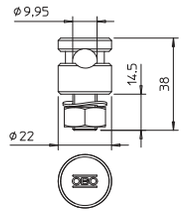
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5001 N-FT	Rd 8-10	20	5,900	**5304164**

St Steel /100 pc.

FT Hot-dip galvanised

- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Connector, Rd 8–10 mm with pressure trough

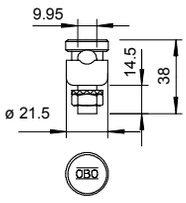


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5001 N-VA	Rd 8-10	10	6,800	**5304176**

V2A Stainless steel, grade 304 /100 pc.

- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Connector, Rd 8–10 mm with pressure trough

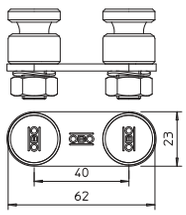


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5001 N-CU	Rd 8-10	10	6,750	**5304172**

Cu Copper /100 pc.

- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Connector, Rd 8–10 mm, double, with pressure trough

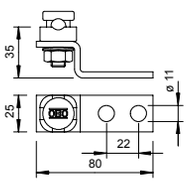


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5002 N-VA	Rd 8-10	10	16,200	**5304270**

V2A Stainless steel, grade 304 /100 pc.

- With 2 Fix-Kontakt clamping bolts, nuts and serrated washers
- With pre-mounted pressure trough made of VA
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Connection and end piece with connector



Type	Material symbol	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5009	St	Rd 8-10	10	14,500	**5304970**

St Steel /100 pc.

F Hot-dip galvanised

- With 2 attaching holes Ø 11 mm
- Installed with connector (single-piece) type 5001 DIN-FT
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

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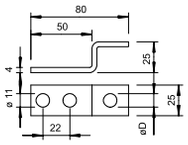
Connection and end piece

Type	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5011	11	10	7,064	**5304997**

St Steel /100 pc.

FT Hot-dip galvanised

- For attaching to steel structures or bolting to fixed earthing terminals
- For attachments: Round conductor Rd 8-10 and flat conductor FL 30 x 3.5
- 2 attaching holes Ø 11 mm
- 1 attaching holes Ø D mm

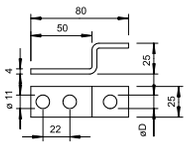


Connection and end piece

Type	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5011 VA M10	11	10	7,064	**5334934**
5011 VA M12	13	10	7,048	**5334942**

V4A Stainless steel, grade 316 Ti /100 pc.

- For attaching to steel structures or bolting to fixed earthing terminals
- For attachments: Round conductor Rd 8-10 and flat conductor FL 30 x 3.5
- 2 attaching holes Ø 11 mm
- 1 attaching holes Ø D mm



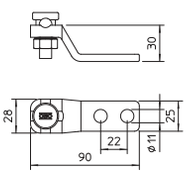
Connection and end piece, DIN version

Type	Fit mm	Material symbol	Pack. pcs	Weight kg/100 pcs.	Item No.
5005 DIN-FT	Rd 8-10	St	10	15,518	**5304601**

St Steel /100 pc.

F Hot-dip galvanised

- With 2 attaching holes and 1 fix contact clamping screw 5000…
- With 2 attaching holes Ø 11 mm
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)



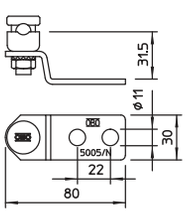
Connection and end piece with connector and pressure trough

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5005 N-FT	Rd 8-10	10	11,600	**5304660**

St Steel /100 pc.

FT Hot-dip galvanised

- With 2 attaching holes Ø 11 mm
- Including pre-mounted connector 5001 N
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)



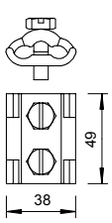
Parallel connector Rd 8–10 mm, M8 x 25

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
259 8-10	Rd 8-10	25	13,230	**5315506**

TG Cast iron /100 pc.

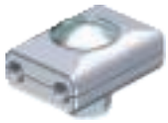
FT Hot-dip galvanised

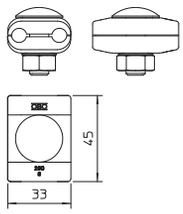
- With 2 hex-head screws M8 x 25, hot-dip galvanised steel



Always indicate the item number when ordering.

Parallel connector Rd 8 mm, M10 x 30





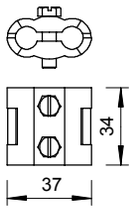
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
260 8	Rd 8	50	13,930	**5315700**

Zn Die-cast zinc /100 pc.

G Electrogalvanised

- With flat, round screw M10 x 30 and hexagonal nut, hot-dip galvanised steel

Parallel connector Rd 8–10 mm, M6 x 20



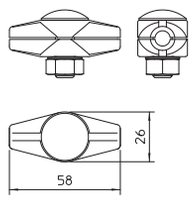
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
260 8-10 MS	Rd 8-10	50	15,820	**5315654**

CuZn Brass /100 pc.

Cu Copper-plated

- With 2 hexagonal bolts M6 x 20 from copper

Straight connector Rd 8 mm



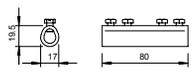
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
239	Rd 8	20	12,510	**5329078**

Zn Die-cast zinc /100 pc.

G Electrogalvanised

- With truss-head bolt M10 x 30 and hexagonal nut M10
- Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

Straight connector Rd 8–10 mm



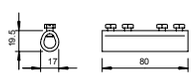
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
237 N FT	Rd 8-10	20	8,560	**5328209**

St Steel /100 pc.

F Hot-dip galvanised

- With 4 hexagonal bolts M6 x 10
- Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

Straight connector Rd 8–10 mm



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
237 N CU	Rd 8-10	10	8,760	**5328284**

Cu Copper /100 pc.

- With 4 hexagonal bolts M6 x 10
- Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

Always indicate the item number when ordering.

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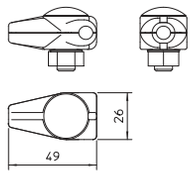
T connector Rd 8 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
244	Rd 8	10	11,580	**5311039**

Zn Die-cast zinc /100 pc.

G Electrogalvanised



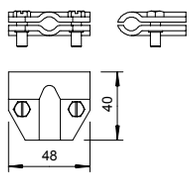
- With truss-head bolt M10 x 30 and hexagonal nut M10
- Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

T connector Rd 8–10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
245 8-10 FT	Rd 8-10	10	9,401	**5311101**

St Steel /100 pc.

FT Hot-dip galvanised

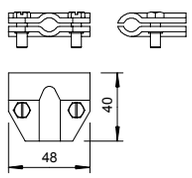


- With 2 hexagonal bolts M6 x 16 (VA)
- Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

T connector Rd 8–10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
245 8-10 CU	Rd 8 - 10	10	11,560	**5311152**

Cu Copper /100 pc.



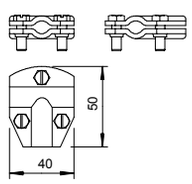
- With 2 hexagonal bolts M6 x 16 (VA)
- Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

T connector Rd 8-10 mm, triple-screwed

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
247 8-10 FT	Rd 8-10	10	10,934	**5311209**

St Steel /100 pc.

FT Hot-dip galvanised

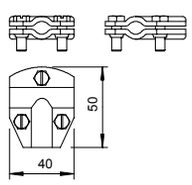


- With 3 hexagonal bolts M6 x 16 (VA)

T connector Rd 8-10 mm, triple-screwed

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
247 8-10 CU	Rd 8-10	10	10,750	**5311268**

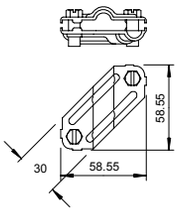
Cu Copper /100 pc.



- With 3 hexagonal bolts M6 x 16 (VA)
- Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

Always indicate the item number when ordering.

Cross-connector for round conductors and flat conductors



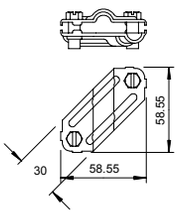
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
250	Rd 8-10/FL30	25	10,260	**5312906**

St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Rd 8-10 x FL 30
- Fit: FL 30 x FL 30
- Mounted with 2 hexagonal bolts M8 x 20 (F)

Cross-connector for round conductors and flat conductors

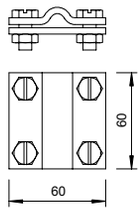


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
250 VA	Rd 8-10/FL30	25	10,260	**5312922**
250 V4A	Rd 8-10/FL30	10	10,260	**5312925**

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Rd 8-10 x FL 30
- Fit: FL 30 x FL 30
- Mounted with 2 hexagonal bolts M8 x 20

Cross-connector for round conductors and flat conductors DIN



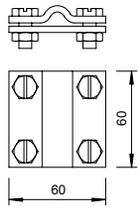
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10XFL30 FT	8-10 x FL30	25	28,500	**5312655**

St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector for round conductors and flat conductors DIN



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10xFL30V4A	8-10 x FL30	10	28,500	**5312656**

V4A Stainless steel, grade 316 Ti /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Always indicate the item number when ordering.

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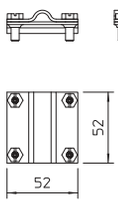
Cross-connector Rd 8–10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
251 8-10	Rd 8-10	25	11,690	**5312035**

St Steel /100 pc.

FT Hot-dip galvanised

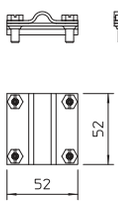


- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- For round conductors, fit: Rd 8-10 x Rd 8-10
- With 4 hexagonal bolts M6 x 16 (VA)

Cross-connector Rd 8–10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
251 CU	Rd 8-10	10	12,400	**5312132**

Cu Copper /100 pc.



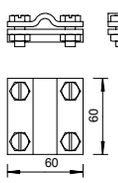
- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- With 4 hexagonal bolts M6 x 16, must of rust-proof steel (VA)

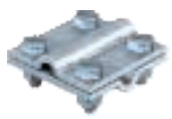
Cross-connector Rd 8–10 mm, wide version

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
253 8X8	Rd 8-10	25	30,700	**5312604**

St Steel /100 pc.

FT Hot-dip galvanised





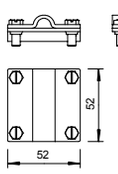
- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

Cross-connector with intermediate plate for Rd 8–10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
254 DIN 8-10 FT	Rd 8-10	25	16,660	**5314038**

St Steel /100 pc.

FT Hot-dip galvanised

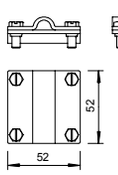


- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- For round conductors, fit: Rd 8-10 x Rd 8-10
- With adapter plate
- Mounted with 4 hexagonal bolts M6 x 20 and 4 hexagonal nuts M6

Cross-connector with intermediate plate for Rd 8–10 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
254 DIN 8-10 CU	Rd 8-10	10	17,410	**5314135**

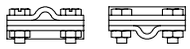
Cu Copper /100 pc.

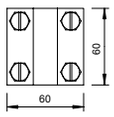


- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- With adapter plate
- Mounted with 4 hexagonal bolts M6 x 20 and 4 hexagonal nuts M6 (F) made of rustproof steel (VA)

Always indicate the item number when ordering.

Cross-connector with intermediate plate for Rd 8–10 mm, wide version





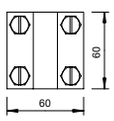
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10 FT	Rd 8-10	25	33,530	**5312310**

St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

Cross-connector with intermediate plate for Rd 8–10 mm, wide version

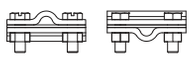


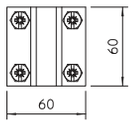
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10 V4A	Rd 8-10	10	33,530	**5312318**

V4A Stainless steel, grade 316 Ti /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector with intermediate plate for Rd 8–10 mm, wide version



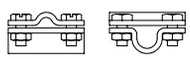


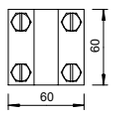
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10 CU	Rd 8-10	10	38,940	**5312418**

Cu Copper /100 pc.

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector for Rd 8–10 x Rd 16 mm





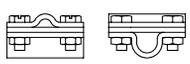
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
253 10X16	Rd 8-10 x 16	25	29,800	**5312809**

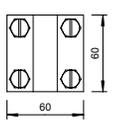
St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

Cross-connector with intermediate plate for Rd 8–10 x Rd 16 mm





Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10X16 FT	Rd 8-10 x 16	25	38,800	**5312345**

St Steel /100 pc.

FT Hot-dip galvanised

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Always indicate the item number when ordering.

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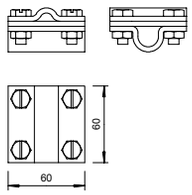
Cross-connector with intermediate plate for Rd 8–10 x Rd 16 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10x16 V4A	Rd 8-10 x 16	10	39,000	**5312346**

V4A Stainless steel, grade 316 Ti /100 pc.

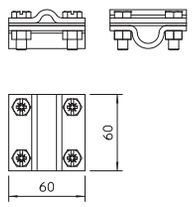


- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector with intermediate plate for Rd 8–10 x Rd 16 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
252 8-10X16 CU	Rd 8-10 x 16	10	43,985	**5312442**

Cu Copper /100 pc.



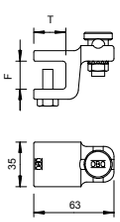
- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Folding and construction clamp, 10–20 mm

Type	Fit mm	Dimension T mm	Dimension L mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5004 DIN-FT 12	Rd 8-10	20	55	max. 12	10	18,730	**5304407**
5004 DIN-FT 20	Rd 8-10	25	63	10 - 20	10	30,600	**5304504**

TG Cast iron /100 pc.

FT Hot-dip galvanised



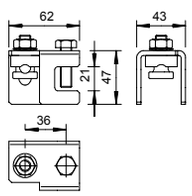
- Flange thickness to 12 or 10–20 mm
- With pre-mounted Fix-Kontakt clamping screw 5000
- 2 hexagonal bolts M8 x 20, screws made of hot galvanised steel,
- Terminal block made of malleable iron, hot galvanised
- Mounting of the round conductors either vertical or transverse to structure
- Corresponds to the requirements of DIN VDE 0185-305-3

Construction clamp to 20 mm

Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5010 20 FT	Rd 8-10	4 - 20	10	30,600	**5304520**

St Steel /100 pc.

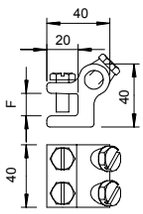
FT Hot-dip galvanised



- Round conductors can be installed vertical or transverse to structure
- For affixing to structures with a flange thickness of up to 20 mm
- Affixing to structures with a hexagonal bolt M10
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.

Connection terminal to 14 mm



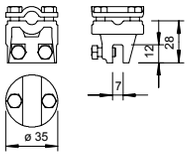
Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
272 8	Rd 8-10	max. 8	20	22,800	**5318084**
272 14	Rd 8-10	max. 14	20	25,230	**5318149**

TG Cast iron /100 pc.

FT Hot-dip galvanised

- Flange thickness to 8 and/or 14 mm
- With 4 hexagonal bolts M8
- Conforms to the requirements according to DIN V VDE V 0185-3, Section 4.5

Folding clamp up to 7 mm plate thickness



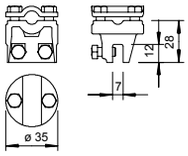
Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
269 8-10	Rd 8-10	max. 7	20	14,460	**5317010**

Zn Die-cast zinc /100 pc.

G Electrogalvanised

- Plate thickness to 7 mm
- For conductor arrangement transverse and parallel to plate with 4 hexagonal bolts M6 x 16
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Folding clamp up to 7 mm plate thickness



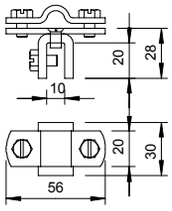
Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
269 MS	Rd 8-10	max. 7	10	14,480	**5317053**

Zn Die-cast zinc /100 pc.

Cu Copper-plated

- Plate thickness to 7 mm
- For conductor arrangement transverse and parallel to plate with 4 hexagonal bolts M6 x 16
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Folding clamp Rd 8-10 up to 10 mm plate thickness



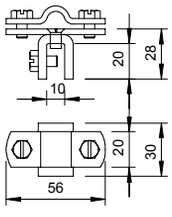
Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
270 8-10 FT	Rd 8-10	max. 10	20	13,810	**5317207**

St Steel /100 pc.

FT Hot-dip galvanised

- Metal thickness to 10 mm
- For cable routing transverse and in parallel to the plate
- Corresponds to the requirements to DIN V VDE V 0185-3 section 4.5

Folding clamp Rd 8-10 up to 10 mm plate thickness



Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
270 8-10 VA	Rd 8-10	max. 10	10	13,800	**5317208**

V2A Stainless steel, grade 304 /100 pc.

- Metal thickness to 10 mm
- For cable routing transverse and in parallel to the plate
- Corresponds to the requirements to DIN V VDE V 0185-3 section 4.5

Always indicate the item number when ordering.

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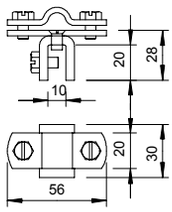
Folding clamp Rd 8-10 up to 10 mm plate thickness

Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
270 8-10 CU	Rd 8-10	max. 10	10	14,740	**5317258**

Cu Copper /100 pc.



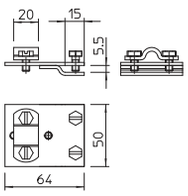
- Metal thickness to 10 mm
- For cable routing transverse and in parallel to the plate
- Corresponds to the requirements to DIN V VDE V 0185-3 section 4.5

Folding clamp up to 5 mm plate thickness

Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
271 8-10	Rd 8-10	max. 5	20	14,060	**5317401**

St Steel /100 pc.

FT Hot-dip galvanised

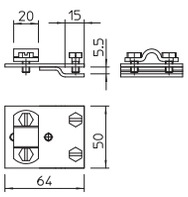


- Plate thickness to 5 mm
- For conductor routing transverse and longitudinal to plate
- With 4 hexagonal bolts M6 x 12
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)
- 271 Cu: with hexagonal bolts stainless steel (VA)

Folding clamp up to 5 mm plate thickness

Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
271 8-10 VA	Rd 8-10	max. 5	10	15,000	**5317481**

V2A Stainless steel, grade 304 /100 pc.

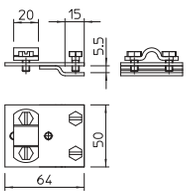


- Plate thickness to 5 mm
- For conductor routing transverse and longitudinal to plate
- With 4 hexagonal bolts M6 x 12
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)
- 271 Cu: with hexagonal bolts stainless steel (VA)

Folding clamp up to 5 mm plate thickness

Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
271 CU	Rd 8-10	max. 5	10	15,230	**5317452**

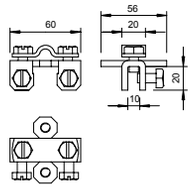
Cu Copper /100 pc.



- Plate thickness to 5 mm
- For conductor routing transverse and longitudinal to plate
- With 4 hexagonal bolts M6 x 12
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)
- 271 Cu: with hexagonal bolts stainless steel (VA)

Always indicate the item number when ordering.

Folding clamp up to 10 mm plate thickness



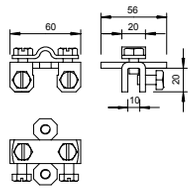
Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
273 8-10	Rd 8-10	max. 10	50	17,000	**5317223**

St Steel /100 pc.

FT Hot-dip galvanised

- Plate thickness to 10 mm
- Conductor routing transverse and longitudinal to plate with 2 hexagonal bolts M8 x 10 and 2 hexagonal bolts M8 x 16 (F)

Folding clamp up to 10 mm plate thickness

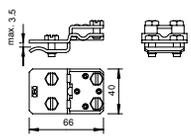


Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
273 CU	Rd 8-10	max. 10	10	18,500	**5317274**

Cu Copper /100 pc.

- Plate thickness to 10 mm
- Conductor routing transverse and longitudinal to plate with 2 hexagonal bolts M8 x 10 and 2 hexagonal bolts M8 x 16 (F)
- 273 Cu: with hexagonal bolts, stainless steel (VA)

Folding clamp and connection terminal up to 10 mm plate thickness



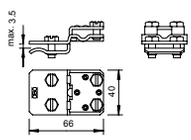
Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
274 8-10	Rd 8-10	max. 10	20	10,400	**5317428**

St Steel /100 pc.

FT Hot-dip galvanised

- Plate thickness to 10 mm
- For conductor routing transverse and longitudinal to plate
- 4 hexagonal bolts M6 x 16
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Folding clamp and connection terminal up to 10 mm plate thickness



Type	Fit mm	Clamping range mm	Pack. pcs	Weight kg/100 pcs.	Item No.
274 CU	Rd 8-10	max. 10	10	11,340	**5317479**

Cu Copper /100 pc.

- Plate thickness to 10 mm
- For conductor routing transverse and longitudinal to plate
- 4 hexagonal bolts M6 x 16
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.

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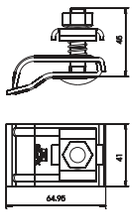
Gutter clamp RK-FIX

Type	Fit mm	Material symbol	Inter-face	Pack. pcs	Weight kg/100 pcs.	Item No.
RK-FIX	2 x Rd 8	St	FT	25	19,100	**5316450**

St Steel /100 pc.

FT Hot-dip galvanised

- For up to 2 conductor cables Rd 8
- With double crossbar
- Suitable for all bead thicknesses (15–25 mm)
- With 1 truss-head bolt M10 x 45
- Nut and bolt made of VA stainless steel
- With spring for prefixing for rain gutter

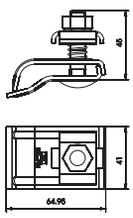


Gutter clamp RK-FIX

Type	Fit mm	Material symbol	Inter-face	Pack. pcs	Weight kg/100 pcs.	Item No.
RK-FIX VA	2 x Rd 8	V2A	—	10	19,100	**5316459**

V2A Stainless steel, grade 304 /100 pc.

- For up to 2 conductor cables Rd 8
- With double crossbar
- Suitable for all bead thicknesses (15–25 mm)
- With 1 truss-head bolt M10 x 45
- Nut and bolt made of VA stainless steel
- With spring for prefixing for rain gutter
- Tested to DIN EN 50164-1



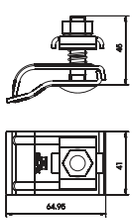
Gutter clamp RK-FIX

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
RK-FIX CU	2 x Rd 8	10	21,000	**5316468**

V2A Stainless steel, grade 304 /100 pc.

Cu Copper-plated

- For up to 2 conductor cables Rd 8
- With double crossbar
- Suitable for all bead thicknesses (15–25 mm)
- With 1 truss-head bolt M10 x 45
- Nut and bolt made of VA stainless steel
- With spring for prefixing for rain gutter
- Tested to DIN EN 50164-1



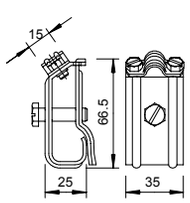
Gutter clamp for all bead thicknesses

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
267	Rd 8-10	25	13,950	**5316308**

St Steel /100 pc.

FT Hot-dip galvanised

- Fits all bead thicknesses
- With 1 hexagonal bolt M8 x 30
- 2 hexagonal bolts M6 x 12

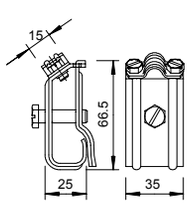


Gutter clamp for all bead thicknesses

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
267 VA	Rd 8-10	10	11,360	**5316324**

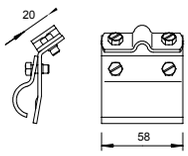
V2A Stainless steel, grade 304 /100 pc.

- Fits all bead thicknesses
- With 1 hexagonal bolt M8 x 30
- 2 hexagonal bolts M6 x 12
- VA version also for use as bimetal conductor (holder)



Always indicate the item number when ordering.

Gutter clamp for bead thickness 15–22 mm



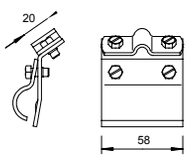
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
262 A-DIN FT	Rd 8-10	25	19,610	**5316219**

St Steel
FT Hot-dip galvanised

/100 pc.

- Suitable for bulge thickness 15–22 mm
- With 4 hexagonal bolts M6 x 16 (VA)

Gutter clamp for bead thickness 15–22 mm



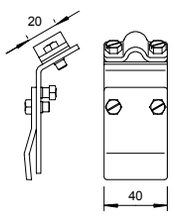
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
262 A-DIN CU	Rd 8-10	10	20,840	**5316251**

Cu Copper

/100 pc.

- Suitable for bulge thickness 15–22 mm
- With 4 hexagonal bolts M6 x 16 (VA)

Roof gutter clamp for all bead thicknesses



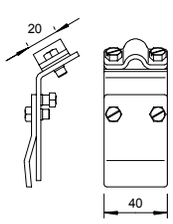
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
262	Rd 8-10	25	20,300	**5316014**

St Steel
FT Hot-dip galvanised

/100 pc.

- With 4 hexagonal bolts M6 x 16
- Fits all bead thicknesses

Roof gutter clamp for all bead thicknesses



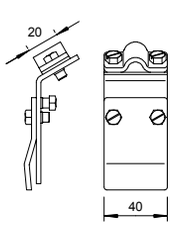
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
262 CU	Rd 8-10	10	20,940	**5316154**

Cu Copper

/100 pc.

- With 4 hexagonal bolts M6 x 16
- Fits all bead thicknesses

Bi-metal roof gutter clamp for all bead thicknesses



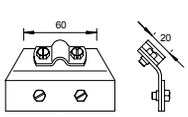
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
262 ZM	Rd 8-10	10	23,100	**5316170**

St Steel
FT Hot-dip galvanised

/100 pc.

- Fits all bead thicknesses
- Bi-metal for attaching round conductors aluminium or steel to roof gutters without corrosion to different metals

Snow catching grate clamp



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
264	Rd 8-10	25	18,640	**5316510**

St Steel
F Hot-dip galvanised

/100 pc.

- Plate thickness to 8 mm
- With 4 hexagonal bolts M6 x 16

Always indicate the item number when ordering.

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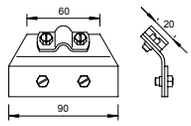
Snow catching grate clamp

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
264 CU	Rd 8-10	10	21,140	**5316553**

Cu Copper /100 pc.

- Plate thickness to 8 mm
- With 4 hexagonal bolts M6 x 16



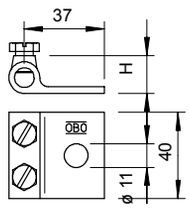
Clamping shoe

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
319 8	Rd 8	25	7,800	**5325307**
319 10	Rd 10	25	9,650	**5325315**

TG Cast iron /100 pc.

F Hot-dip galvanised

- With Ø 11 mm attaching hole
- 2 hexagonal bolts M8 x 16
- Bolts hot-dip galvanised steel and clamping element hot dipped galvanised cast steel



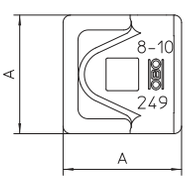
Connection terminal, equipotential bonding, Rd 8–10 mm

Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 ST-OT	Rd 8-10	40	100	3,240	**5311503**

St Steel /100 pc.

FT Hot-dip galvanised

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

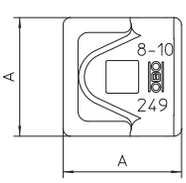


Connection terminal, equipotential bonding, Rd 8–10 mm

Type	Dimension A mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 ALU-OT	44	Rd 8-10	100	2,100	**5311585**

Alu Aluminium /100 pc.

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

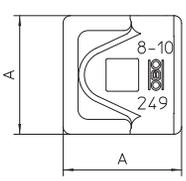


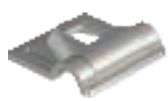
Connection terminal, equipotential bonding, Rd 8–10 mm

Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 VA-OT	Rd 8-10	40	100	3,130	**5311554**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor Rd 8-10
- Suitable for M10 bolts



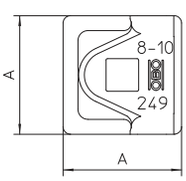


Connection terminal, equipotential bonding, Rd 8–10 mm

Type	Fit mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 8-10 CU-OT	Rd 8-10	40	100	3,580	**5311530**

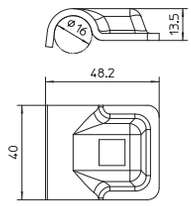
Cu Copper /100 pc.

- For round conductor fastening RD 8-10
- Suitable for M10 bolts



Always indicate the item number when ordering.

Connection terminal, equipotential bonding, Rd 16 mm

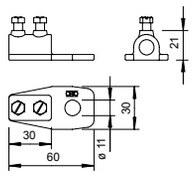


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
249 VA-OT	16	100	5,700	**5311573**

V2A Stainless steel, grade 304 /100 pc.

- For round conductor fastening RD 16
- Suitable for M10 bolts

End piece



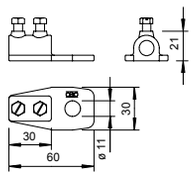
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
280 8-10	Rd 8-10	20	6,300	**5320011**

Zn Die-cast zinc /100 pc.

G Electrogalvanised

- With Ø 11 mm attaching hole
- 2 hexagonal bolts M6 x 12, bolts hot-dip galvanised steel or VA
- Clamping element from die-cast zinc or copper-plated die-cast zinc

End piece

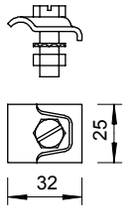


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
280 VK	Rd 8-10	20	9,000	**5320054**

Zn Die-cast zinc /100 pc.

- With Ø 11 mm attaching hole
- 2 hexagonal bolts M6 x 12, bolts hot-dip galvanised steel or VA
- Clamping element from die-cast zinc or copper-plated die-cast zinc

Universal clamping block Rd 8–10 mm



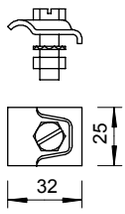
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
324 S-FT	Rd 8-10	20	3,400	**5326303**

St Steel /100 pc.

FT Hot-dip galvanised

- Including hexagonal bolt M8 x 25, washer and nuts

Universal clamping block Rd 8–10 mm

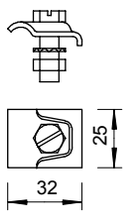


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
324 S-VA	Rd 8-10	10	3,400	**5326311**

V2A Stainless steel, grade 304 /100 pc.

- Including hexagonal bolt M8 x 25, washer and nuts

Universal clamping block Rd 8–10 mm



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
324 S-CU	Rd 8-10	10	3,660	**5326338**

Cu Copper /100 pc.

- Including hexagonal bolt M8 x 25, washer and nuts

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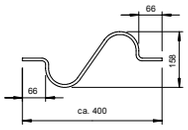
Expansion piece

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
172 AR	10	7,500	**5218926**

Alu Aluminium /100 pc.

- For equalising temperature-related length changes
- Necessary on conductor lengths over 20 m
- From round conductor Rd 8-Al

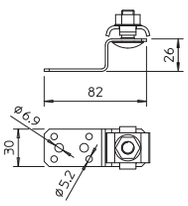


Connection component

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
287	20	1,600	**5320704**

Alu Aluminium /100 pc.

- With 1 attaching hole Ø 11 mm
- 4 mounting holes Ø 5.2 mm
- 2 mounting holes Ø 6.9 mm

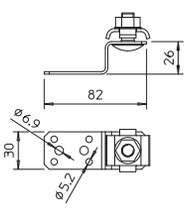


Connection component

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
287 CU	10	5,600	**5320690**

Cu Copper /100 pc.

- With 1 attaching hole Ø 11 mm
- 4 mounting holes Ø 5.2 mm
- 2 mounting holes Ø 6.9 mm

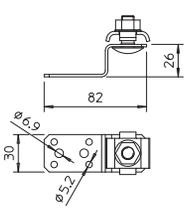


Connection component with double crossbar

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
287 DCT	Rd 8	10	6,450	**5320707**

Alu Aluminium /100 pc.

- Conforming to VDE 0185-305 (IEC 62305) standards
- Quick mounting thanks to an M10x30 screw from rustproof stainless steel
- 4 mounting holes Ø 5.2 mm
- 2 mounting holes Ø 6.9 mm

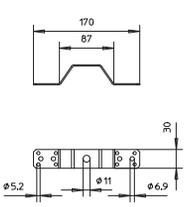


Connection and bridging component

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
288 DIN	20	2,900	**5320712**

Alu Aluminium /100 pc.

- With 1 attaching hole Ø 11 mm
- With 2 x 4 mounting hole Ø 5.2 mm
- With 2 x 2 mounting hole Ø 6.9 mm

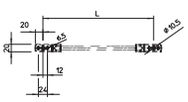


Bridging cable

Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
853 200	200	10	4,840	**5331008**
853 300	300	10	7,260	**5331013**
853 400	400	10	9,680	**5331017**

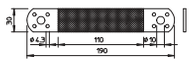
Cu Copper /100 pc.

- From flexible copper cable 16 mm²
- Coating: black, chlorinated India rubber mixture
- With 1 mounting hole Ø 10.5 mm per attachment side
- With 2 mounting holes Ø 7.3 mm per attachment side
- For applications outside or inside suitable



Always indicate the item number when ordering.

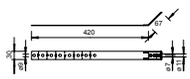
Connection and expansion strip



Type		Pack. pcs	Weight kg/100 pcs.	Item No.
856		10	8,125	**5331501**
Cu	Copper			/100 pc.

- Copper strip 35 mm², tin-plated
- Highly-flexible with rigid ends
- Each end with mounting hole Ø 10 mm and 4 mounting holes Ø 4.3 mm

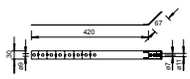
Universal downspout clamp 60–130 mm



Type		Pack. pcs	Weight kg/100 pcs.	Item No.
301 V		5	11,900	**5350867**
St	Steel			/100 pc.
FS	Strip-galvanised			

- Adjustable for pipes from 60-130 mm
- With 2x attaching holes Ø 7 mm
- With 1x attaching hole Ø 9 mm
- With 1x attaching hole Ø 11 mm
- Including hexagonal bolt M6 x 20 and nuts M6

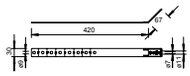
Universal downspout clamp 60–130 mm



Type		Pack. pcs	Weight kg/100 pcs.	Item No.
301 V-VA		5	11,800	**5350905**
V2A	Stainless steel, grade 304			/100 pc.

- Adjustable for pipes from 60-130 mm
- With 2x attaching holes Ø 7 mm
- With 1x attaching hole Ø 9 mm
- With 1x attaching hole Ø 11 mm
- Including hexagonal bolt M6 x 20 and nuts M6

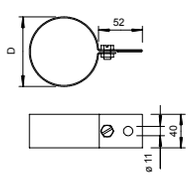
Universal downspout clamp 60–130 mm



Type		Pack. pcs	Weight kg/100 pcs.	Item No.
301 V-CU		5	13,500	**5350883**
Cu	Copper			/100 pc.

- Adjustable for pipes from 60-130 mm
- With 2x attaching holes Ø 7 mm
- With 1x attaching hole Ø 9 mm
- With 1x attaching hole Ø 11 mm
- Including hexagonal bolt M6 x 20 and nuts M6

Downspout clamp



Type	For pipe mm	Pack. pcs	Weight kg/100 pcs.	Item No.
301 DIN-80	80	10	19,580	**5350085**
301 DIN-90	90	10	21,880	**5350093**
301 DIN-100	100	10	19,880	**5350107**
301 DIN-110	110	10	24,920	**5350115**
301 DIN-120	120	10	26,240	**5350123**
St	Steel			/100 pc.
FS	Strip-galvanised			

- To connect cables and downspouts
- Similar to DIN 48818 C
- Strip galvanised (rd. 275 g/m² = 40 µm average value)
- With 1x hexagonal bolt M8 x 20
- With 1x hexagonal nut M8 and 1 stainless steel serrated washer
- With connection hole Ø 11 mm

Always indicate the item number when ordering.

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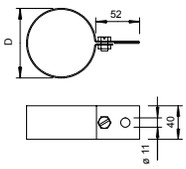
Downspout clamp

Type	For pipe mm	Pack. pcs	Weight kg/100 pcs.	Item No.
301 CU-80	80	10	22,500	**5350689**
301 CU-100	100	10	26,230	**5350700**
301 CU-110	110	10	30,400	**5350719**
301 CU-120	120	10	31,400	**5350727**



Cu Copper /100 pc.

- With 1x hexagonal bolt M8 x 20
- With 1x hexagonal nut M8 and 1 serrated disc made of rustproof steel
- With connection hole Ø 11 mm

Downspout clamp for routing Rd 8–10 mm behind pipe

Type	For pipe mm	Pack. pcs	Weight kg/100 pcs.	Item No.
301 S-100	100	10	5,200	**5351057**
301 S-120	120	10	5,950	**5351073**

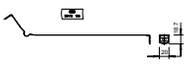
St Steel /100 pc.

FS Strip-galvanised

- With beading
- For round conductor Rd 8-10
- Including hexagonal bolt M6 x 20 and nuts M6

Downspout clamp for routing Rd 8–10 mm behind pipe

Type	Material symbol	Inter-face	For pipe mm	Pack. pcs	Weight kg/100 pcs.	Item No.
301 S-AL-100	Alu	—	100	10	4,100	**5351359**
301 S-AL-120	Alu	—	120	10	4,600	**5351375**



Alu Aluminium /100 pc.

- With beading
- For round conductor Rd 8-10
- Including hexagonal bolt M6 x 20 and nuts M6

Downspout clamp for routing Rd 8–10 mm behind pipe

Type	Material symbol	Inter-face	For pipe mm	Pack. pcs	Weight kg/100 pcs.	Item No.
301 S-VA-100	V2A	—	100	10	5,200	**5351251**
301 S-VA-120	V2A	—	120	10	5,950	**5351286**

V2A Stainless steel, grade 304 /100 pc.

- With beading
- For round conductor Rd 8-10
- Including hexagonal bolt M6 x 20 and nuts M6

Downspout clamp for routing Rd 8–10 mm behind pipe

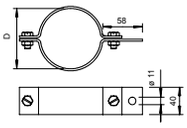
Type	Material symbol	Inter-face	For pipe mm	Pack. pcs	Weight kg/100 pcs.	Item No.
301 S-CU-100	Cu	—	100	10	5,850	**5351456**
301 S-CU-120	Cu	—	120	10	6,700	**5351472**

Cu Copper /100 pc.

- With beading
- For round conductor Rd 8-10
- Including hexagonal bolt M6 x 20 and nuts M6

Always indicate the item number when ordering.

Pipe clamp



Type	For pipe mm	For pipe inch	Pack. pcs	Weight kg/100 pcs.	Item No.
303 DIN-3/8	17.2	3/8	5	22,600	**5102057**
303 DIN-1/2	21.3	1/2	5	23,280	**5102073**
303 DIN-3/4	26.9	3/4	5	25,640	**5102081**
303 DIN-1	33.7	1	5	28,300	**5102111**
303 DIN-1 1/4	42.4	11/4	5	31,300	**5102138**
303 DIN-1 1/2	48.3	11/2	5	33,220	**5102154**
303 DIN-2	60.3	2	5	36,840	**5102197**
303 DIN-2 1/2	76.1	21/2	10	39,400	**5102219**
303 DIN-3	88.9	3	10	43,300	**5102235**
303 DIN-3 1/2	100	31/2	10	64,900	**5102251**
303 DIN-4	114.3	4	10	66,800	**5102278**

St Steel /100 pc.

FT Hot-dip galvanised

- DIN 48818, Form D
- With Ø 11 mm mounting hole
- 2 hexagonal bolts M8 x 20 (4 inch = M10)
- 2 hex-head nuts M8 (4 inch = M10)

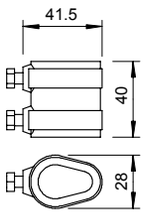
Always indicate the item number when ordering.

Separating piece, open

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
223 O DIN ZN	Rd 8-10/16	20	12,500	**5335140**

/100 pc.

Zn Die-cast zinc
G Electrogalvanised



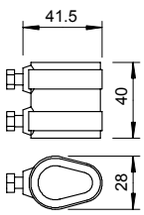
- With 2 hexagonal bolts, stainless steel (VA)
- Clamping element, die-cast zinc

Separating piece, open

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
223 O DIN MS	Rd 8-10/16	20	14,900	**5335167**

/100 pc.

Zn Die-cast zinc
Cu Copper-plated



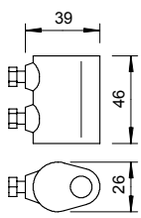
- With 2 hexagonal bolts, stainless steel (VA)
- Clamping element, copper-plated die-cast zinc

Separating piece, closed

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
223 DIN ZN	Rd 8-10/16	20	10,500	**5335205**

/100 pc.

Zn Die-cast zinc
G Electrogalvanised



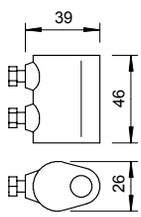
- For fitting round conductors Rd 8-10 to ground insertion rods Rd 16
- Including 2 hexagonal bolts, high-grade stainless steel (V2A)
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Separating piece, closed

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
223 DIN MS	Rd 8-10/16	10	11,700	**5335256**

/100 pc.

Zn Die-cast zinc
Cu Copper-plated



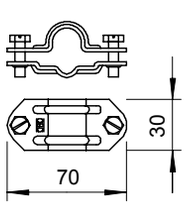
- For fitting round conductors Rd 8-10 to ground insertion rods Rd 16
- Including 2 hexagonal bolts, high-grade stainless steel (V2A)
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Universal separating piece

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
226 8-10	Rd 8-10/FL30 x 16	20	8,600	**5336007**

/100 pc.

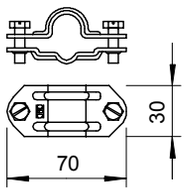
St Steel
FT Hot-dip galvanised



- For fitting round conductors Rd 8–10 to Rd 16 or flat conductors FL30
- Including 2 hexagonal bolts M8 x 20 high-grade stainless steel (V2A)
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.

Universal separating piece

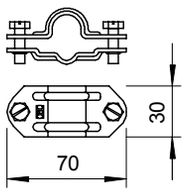


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
226 VA	Rd 8-10/FL30 x 16	10	8,700	**5336058**

V2A Stainless steel, grade 304 /100 pc.

- For fitting round conductors Rd 8–10 to Rd 16 or flat conductors FL30
- Including 2 hexagonal bolts M8 x 20 high-grade stainless steel (V2A)
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

Universal separating piece

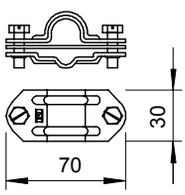


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
226 CU	Rd 8-10/FL30 x 16	10	9,700	**5336023**

Cu Copper /100 pc.

- For fitting round conductors Rd 8–10 to Rd 16 or flat conductors FL30
- Including 2 hexagonal bolts M8 x 20 high-grade stainless steel (V2A)
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

Universal bi-metal separating piece

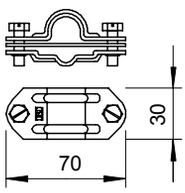


Type	Fit mm	Material upper part	Material lower part	Pack. pcs	Weight kg/100 pcs.	Item No.
226 ZV VA	Rd 8-10/FL30 x 16	VA	Cu	10	11,000	**5336074**

Cu Copper /100 pc.

- Fit: Rd 8-10 x 16, FL 30 x Rd 16
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)
- Intermediate plate, aluminium/copper

Universal bi-metal separating piece

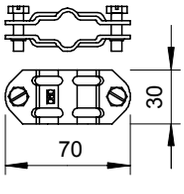


Type	Fit mm	Material upper part	Material lower part	Pack. pcs	Weight kg/100 pcs.	Item No.
226 ZV CU	Rd 8-10/FL30 x 16	Cu	VA	10	11,900	**5336090**

V2A Stainless steel, grade 304 /100 pc.

- Fit: Rd 8-10 x 16, FL 30 x Rd 16
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)
- Intermediate plate, aluminium/copper

Separating piece for Rd 8–10 and FL 30 mm



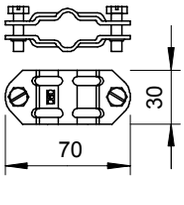
Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
233 8	Rd 8-10/FL30 x Rd 8-10/FL30	20	8,200	**5336309**

St Steel /100 pc.

FT Hot-dip galvanised

- For fitting round conductors Rd 8-10 or flat conductors FL 30
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)

Separating piece for Rd 8–10 and FL 30 mm



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
233 VA	Rd 8-10/FL30 x Rd 8-10/FL30	10	8,300	**5336341**

V2A Stainless steel, grade 304 /100 pc.

- For fitting round conductors Rd 8-10 or flat conductors FL 30
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)

Always indicate the item number when ordering.

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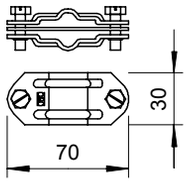
Bi-metal separating piece for Rd 8–10 and FL 30 mm

Type	Fit mm	Material upper part	Material lower part	Pack. pcs	Weight kg/100 pcs.	Item No.
233 ZV	Rd 8-10/FL30 x Rd 8-10/FL30	Cu	VA	10	10,100	**5336376**

V2A Stainless steel, grade 304 /100 pc.

- For fitting round conductors Rd 8-10 to flat conductors FL 30
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)
- Intermediate plate aluminium/copper, top section copper, bottom section stainless steel

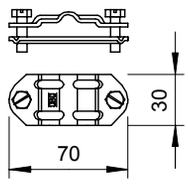


Separating piece for Rd 8–10 and FL 30–40 mm

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
233 A VA	8-10xFL30-40	10	8,300	**5336457**

V2A Stainless steel, grade 304 /100 pc.

- Fit: Rd 8-10 x FL 30-40
- With 2 hexagonal bolts M8 x 20 (VA)

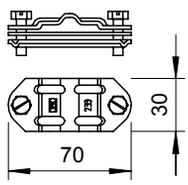


Bi-metal separating piece for Rd 8–10 and FL 30–40 mm

Type	Fit mm	Material upper part	Material lower part	Pack. pcs	Weight kg/100 pcs.	Item No.
233 A ZV	Rd 8-10 x FL30-40	Cu	VA	10	10,400	**5336503**

Cu Copper /100 pc.

- Fit: Rd 8-10 x FL 30-40, FL 30 x FL 30-40
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)
- Intermediate plate, aluminium/copper
- Top section copper, bottom section stainless steel



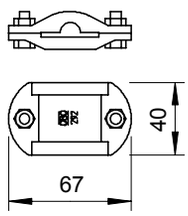
Malleable iron separating piece

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
292 DIN	Rd 8-10 x FL30	10	19,259	**5340012**

TG Cast iron /100 pc.

F Hot-dip galvanised

- For round conductor/flat conductor
- Fit: Rd 8-10 x FL 30
- With 2 hexagonal bolts M8 x 25 and 2 hexagonal nuts M8, stainless steel (VA)
- Clamping parts, hot-dip galvanised cast iron



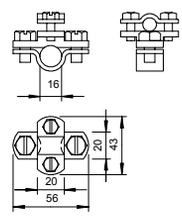
Rod clamp

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
108 B DIN	Rd 8-10/16	10	13,970	**5416566**

St Steel /100 pc.

FT Hot-dip galvanised

- Rod clamp for connecting round conductors Rd 8–10 to connector rods Rd 16
- Mounted with 2 hexagonal bolts M8 x 16 and M6 x 12
- Adapter from malleable iron
- Crossbar and bolts from hot dip galvanized steel



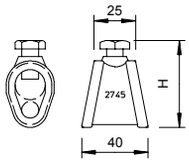
Connection clamp

Type	For earth rods Ø mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2745 20 MS	20	7-12.5/S95 mm²	5	16,000	**5001560**

CuZn Brass /pc.

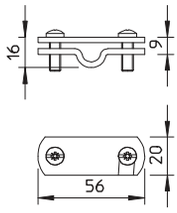
Cu Copper-plated

- For earth rod connectors Ø 20 or conductors 95 mm²
- For round conductor attachments Rd 7-12.5 with hexagonal bolts M10 x 25, copper (Cu)



Always indicate the item number when ordering.

Number plates

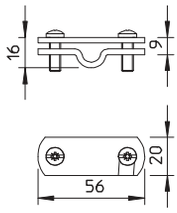


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
311 N-ALU 8-10	RD 8 - 10 / FL30	5	2,500	**3049256**
311 N-ALU 16	RD 16 - FL30	5	2,800	**3049345**

/100 pc.

- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

Number plates

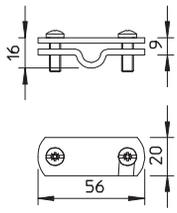


Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
311 N-VA 8-10	RD 8 - 10 / FL30	5	5,600	**3049221**
311 N-VA 16	RD 16 - FL30	5	6,400	**3049329**

/100 pc.

- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

Number plates



Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
311 N-CU 8-10	RD 8 -10 / FL30	5	6,400	**3049205**

Cu Copper

/100 pc.

- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

Always indicate the item number when ordering.

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Air-termination/earth entry rod, rounded-off on both ends

Type	Length mm	Nominal size Ø mm		Pack. pcs	Weight kg/100 pcs.	Item No.
101 A-1500	1500	16	—	10	240,000	**5400155**

St Steel /100 pc.

FT Hot-dip galvanised

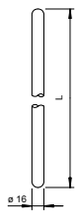
- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Air-termination/earth entry rod, rounded-off on both ends

Type	Length mm	Nominal size Ø mm		Pack. pcs	Weight kg/100 pcs.	Item No.
200 V4A-1500	1500	16	—	10	242,000	**5420504**
200 V4A-2000	2000	16	—	10	320,000	**5420539**

V4A Stainless steel, grade 316 Ti /100 pc.

- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system



Air-termination/earth entry rod, rounded-off on both ends

Type	Length mm	Nominal size Ø mm		Pack. pcs	Weight kg/100 pcs.	Item No.
101 A-CU	1500	16	—	10	272,100	**5400627**

Cu Copper /100 pc.

- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

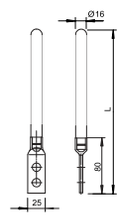
Air-termination/earth entry rod with connection tabs

Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 F1500	1500	16	10	240,000	**5424151**
101 F2000	2000	16	10	320,000	**5424208**

St Steel /100 pc.

FT Hot-dip galvanised

- With 2 attaching holes Ø 12 mm
- One end rounded



Earth entry rod, tapered and partially insulated

Type	Length mm	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
204 KS-2000	2000	16/10	1	230,000	**5430011**
204 KS-2500	2500	16/10	1	310,000	**5430062**

St Steel /pc.

F Hot-dip galvanised

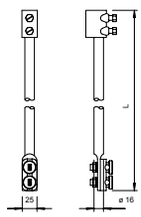
- 16 mm earth entry with 10 mm connection
- With mounted heat-shrinkable sleeve (corrosion protection)

Earth entry rod with separating piece and connector

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
204 KL-1500	Rd 8-10	10	260,700	**5430151**

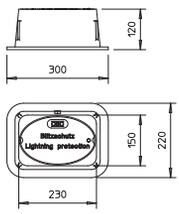
St Steel /100 pc.

- With separating piece type 223 DIN and connector type 5002 DIN



Always indicate the item number when ordering.

Inspection pit

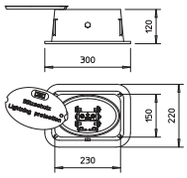


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
5700	1	720,000	**5106002**

EN-GJL Cast iron /pc.

- Without base
- Cast iron, painted black
- Without cut-off unit
- To VDE 0185-561-5 (IEC 62561-5) suitable for heavy loads (up to 40 kN/ 4.0 t)

Inspection pit with integrated separation piece

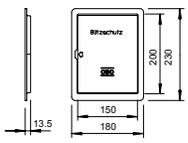


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
5700 SP	1	770,000	**5106003**

EN-GJL Cast iron /pc.

- Without base
- Cast iron, painted black
- With built-in cut-off unit for round conductors Rd 8-10 and flat conductors to FL 40
- To VDE 0185-561-5 (IEC 62561-5) suitable for heavy loads (up to 40 kN/ 4.0 t)

Inspection door



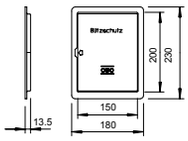
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
5800 VZ	1	46,000	**5106133**

St Steel /pc.

FS Strip-galvanised

- Lightweight design for flush-mounted separation points
- Claw length approx. 80 mm

Inspection door

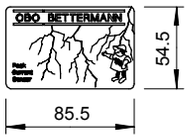


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
5800 VA	1	46,000	**5106141**

V2A Stainless steel, grade 304 /pc.

- Lightweight design for flush-mounted separation points
- Claw length approx. 80 mm

Magnetic card PCS



Type	Pack. PU	Weight kg/100 PUs	Item No.
PCS	1	8,000	**5091438**

/VPE

Magnetic card for recording pulsed/lightning currents.

- Contents = 10 pieces

Always indicate the item number when ordering.

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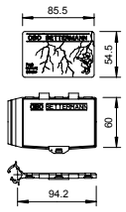
Magnetic card and holder

Type	Pack. PU	Weight kg/100 PUs	Item No.
MK-B	1	31,000	**5091322**

/VPE



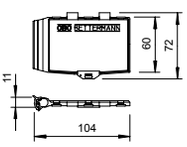
PCS magnetic card to record pulse/lightning currents including holder

- Holder can be leaded
- For mounting on round conductor Rd 8-10
- Simple holder mounting through clamping
- 1 PU = 10 units

Magnetic card holder

Type	Pack. PU	Weight kg/100 PUs	Item No.
PCS-H	1	31,000	**5091527**

/VPE



Magnetic card holder for mounting PCS cards.

- Sealable holder
- For installing on round conductor Rd 8-10
- Simple holder installation by means of clamp
- 1 PU = 10 pieces

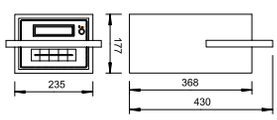
Magnetic card reader

Type	Country version	Nom. voltage V	Measuring range	Measuring tolerances	Pack. pcs	Weight kg/100 pcs.	Item No.
PCS-CS-D	EN	230	3 - - 120 kA	< 2 kA (< 2%)	1	750,000	**5091683**
PCS-CS-GB	GB	230	3 - - 120 kA	< 2 kA (< 2%)	1	750,000	**5091691**

/pc.

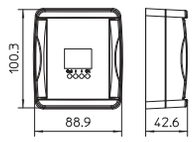
Magnetic card reader for reading and analysing PCS cards.

- Inc. rechargeable battery for 4 h continuous, no-mains operation
- Large, clear display



Always indicate the item number when ordering.

Lightning strike counter



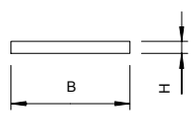
Type	Measuring range	Pack. pcs	Weight kg/100 pcs.	Item No.
LSC I+II	1 kA - 100 kA	1	36,000	**5091722**

Plastic /pc.

The LSC I+II lightning current meter measures and permanently saves pulse currents, together with the date and time. This ensures constant monitoring in order to notice if any lightning has struck the lightning protection system. Should this be the case, then the lightning protection system must be maintained according to VDE 0185-305 (IEC 62305).

- Saving and display of time and date
- Usable both inside and outside due to its protection class of IP65
- Cable clip for round conductor or flat conductor
- Direct mounting on the arrestor or the PE cable of the surge protection device
- Long lifespan of the internal lithium batteries
- LCD display
- Internal battery

Plastic corrosion protection strip

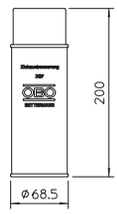


Type	Width mm	Length m	Pack. pcs	Weight kg/100 pcs.	Item No.
356 50	50	10	1	71,500	**2360055**
356 100	100	10	1	122,200	**2360101**

PETRO Petrolatum /pc.

- Approx. 1.1 mm thick
- Width: 50 mm or 100 mm, made of petrolatum-coated chemical fibre fabric
- Can be processed cold

Zinc repairs

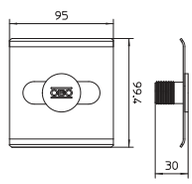


Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
ZSF	400ml	1	45,000	**2362970**

/pc.

Zinc spray for treatment of unprotected surfaces and cutting edges. Can contents: 400 ml.

TrayFix mounting adapter for mesh cable trays on FangFix system



Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
TrayFix	ø 20mm	25	9,850	**5403100**

/100 pc.

- Mounting system for the fastening of mesh cable trays and cable trays on FangFix stone e.g. cable routing on a flat roof.
- Adapted to OBO cable tray systems MKSM, SKSM and IKSM
- Adapted to OBO mesh cable tray systems with a minimum width of 100 mm

Always indicate the item number when ordering.

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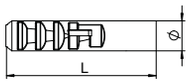
Angler spreading anchor

Type	Dowel Ø mm	Dimension L mm	Wood screws Ø mm	Pull-out value N	Pack. pcs	Weight kg/100 pcs.	Item No.
910 N 5x25 GRW	5	25	2,5-4	2100	100	0,051	**2349043**
910 N 6x30 GRW	6	30	3,5-5	3300	100	0,052	**2349051**
910 N 6x60 GRW	6	60	3,5-5	3300	100	0,080	**2349078**
910 N 8x40 GRW	8	40	4,5-6	4500	100	0,140	**2349086**
910 N 10x50 GRW	10	50	6-8	9400	50	0,306	**2349108**
910 N 12x60 GRW	12	60	8-10	11600	25	0,459	**2349124**

PA Polyamide /100 pc.

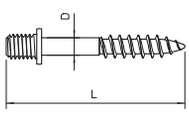


Required minimum bolt length = anchor length + component thickness + 1 x bolt Ø.
Withdrawal force applies to wood screws of the largest bolt diameter in concrete of class B25.
Our safety value recommendation: 5x

Screw-in anchor with M6 thread

Type	Shank length mm	Shank-Ø mm	Thread length mm	Wood thread outer-Ø mm	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
985 M6 25	25	4.3	8	5	3000	100	0,412	**3133028**
985 M6 35	35	4.3	8	5	2000	100	0,533	**3133036**

St Steel /100 pc.
G Electrogalvanised

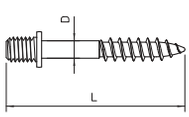


With wood screw shank and M6 thread.

Screw-in anchor with M8 thread

Type	Shank length mm	Thread length mm	Wood thread outer-Ø mm	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
985 M8 35	35	10	6	1200	100	1,288	**3133230**

St Steel /100 pc.
G Electrogalvanised

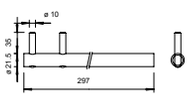


With wood screw shank and M8 thread.

Directional irons

Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
364	297	1	35,000	**3051013**

St Steel /pc.
FT Hot-dip galvanised

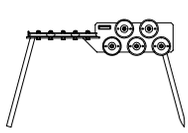


• Directional iron for bending and aligning conductors

Wire straightening machine

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
5900	1	3.300,000	**3059006**

St Steel /pc.



• Factory-set for round conductor Rd 8
• Structure, steel, painted
• Straightening rolls, galvanised cast iron

Always indicate the item number when ordering.

OBO isCon® system
Insulated lightning protection

Always indicate the item number when ordering.

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Insulated lightning protection

Insulated lightning protection 581

OBO isCon® system 588

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isCon® down-conductor

Black

Ring size	Item no.	Page
25 m	5408 00 2	588
100 m	5408 00 4	588
250 m	5408 00 6	588

Grey

Ring size	Item no.	Page
25 m	5407 99 5	588
100 m	5407 99 7	588

Connection elements

	Item no.	Page
Rd 10	5408 02 2	588
M 16	5408 02 4	593

Potential connection

	Item no.	Page
Clip	5408 03 6	589
Holder	5408 05 6	589
Holder	5408 06 4	589
Clip	5057 59 9	595

isCon® air-termination rod systems, routed externally

Mast

Length	Item no.	Page
4.0 m	5408 94 3	521
6.0 m	5408 94 7	521
4.0 m	5408 94 2	521
6.0 m	5408 94 6	521

Stand

Spr.	Item no.	Page
1.0 m	5408 96 6	521
1.5 m	5408 96 7	521
1.0 m	5408 96 8	521
1.5 m	5408 96 9	521

Connection plates

-pole	Item no.	Page
2	5408 02 6	595
3	5408 02 8	595

Accessories

	Item no.	Page
Tool	5408 01 3	588
Cable tie	2381 92 4	
Spacer	5408 04 3	591
Concrete block	5403 22 7	514
Threaded rod	5408 97 1	521
Threaded rod	5408 97 2	521
Threaded rod	5408 97 3	521
Threaded rod	5408 90 5	594
Basic	5403 23 8	522

Always indicate the item number when ordering.

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isCon® air-termination rod systems, routed internally

Mast, without outlet

Length	Item no.	Page
4.0 m	5408 93 4	596
6.0 m	5408 93 6	596
8,0	5408 86 8	596
10.0 m	5408 87 0	596

Support system for mast without outlet

Mounting location	Item no.	Page
Wall	5408 95 2	522
Wall	5408 95 0	522
Wall	5408 95 4	522
Wall	5408 91 0	597
T support	5408 91 4	597
Pipe	5408 95 6	523
Pipe	5408 95 5	523
Pipe	5408 95 7	523
Pipe	5408 95 9	523
Pipe	5408 95 8	523
Pipe	5408 96 0	523
Corner pipe	5408 96 4	523

Mast, with outlet

Length	Item no.	Page
4.0 m	5408 93 8	592
6.0 m	5408 94 0	592
8.0 m	5408 88 8	592
10.0 m	5408 89 0	592

Stand, with outlet

Spr.	Item no.	Page
1.0 m	5408 93 0	592
1.5 m	5408 93 2	592
2.5 m	5408 90 2	592

Always indicate the item number when ordering.

The plus of insulated lightning protection

+ Variable combination of components
+ Multifunctional
+ For cables and insulation rods
+ For maintenance of the separation distance to VDE 0185-305 (IEC 62305)

Insulated lightning protection
Components and sets

Isolated lightning protection systems allow standard-compliant lightning protection according to IEC 62305. The separation distance to electronic systems required by the standard can be maintained by the different versions of the insulated lightning protection. The individual components and systems allow the creation of different solutions, according to requirements.

The insulated lightning protection system consists of GFK rods with a diameter of 16 or 20 mm:

- There is a comprehensive range of system accessories available for both variants.
- Two material thicknesses
- Can be obtained as a set for different applications

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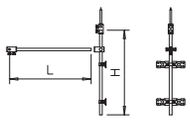
Always indicate the item number when ordering.

Insulated lightning protection set, 3-corner fastening

Type	Dimension D Ø mm	Dimension L mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 3-ES-16	16	750	1500	1	207,100	**5408976**

/pc.



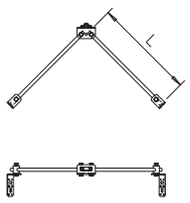
3-corner fastening for an insulated interception unit at the separating distance s.

- Mounting on walls and roof structures with two fastening plates
- Acceptance of air-termination rods and round conductors with 8, 16 and 20 mm diameter

Insulated lightning protection set, V fastening

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 VS-16	16	750	1	201,800	**5408978**

/pc.



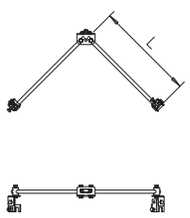
V fastening for an insulated interception unit at the separating distance s.

- Mounting on walls and roof structures with two wall connection brackets
- Acceptance of air-termination rods and round conductors with 8, 16 and 20 mm diameter

Insulated lightning protection set, IR fastening

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 FS-16	16	750	1	235,500	**5408980**

/pc.



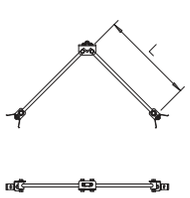
Fold fastening for insulated interception unit at separating spacing s.

- Mounting on folds with thicknesses of up to 20 mm.
- Seat for air-termination rods and round conductors of 8, 16 and 20 mm diameter

Insulated lightning protection set, VRS fastening

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 VRS-16	16	750	1	209,400	**5408982**

/pc.



Pipe V fastening: For an insulated interceptor unit at the separation distance, see mounting on pipes with two pipe clips. To accept interception rods and round conductors of 8, 16 and 20 mm diameter.

Insulating rod

Type	Nominal size Ø mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 20-3000	20	3000	5	190,000	**5408105**
101 20-6000	20	6000	5	380,000	**5408148**
101 16-750	16	750	5	30,000	**5408107**
101 16-1500	16	1500	5	60,000	**5408108**
101 16-3000	16	3000	5	120,000	**5408109**

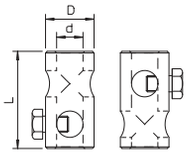
GFK Fibre-glass-reinforced plastic

/pc.

To erect insulated interception devices to VDE 0185-305 (IEC 62305), km = 0.7

Always indicate the item number when ordering.

T connector

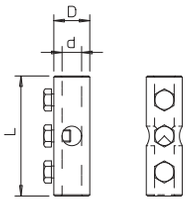


Type	Dimension d Ø mm	Length mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 IT	20	65	40	10	20,000	**5408156**
101 IT-16	16	60	30	10	11,475	**5408158**

Alu Aluminium /pc.

- T-link for installation of insulation rods
- With M 10 bolts

K connector

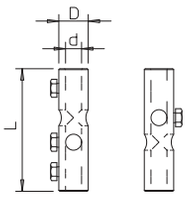


Type	Dimension d Ø mm	Length mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 IK	20	100	40	10	20,000	**5408296**
101 IK-16	16	100	30	10	17,500	**5408298**

Alu Aluminium /pc.

- K-link for installation of insulation rods
- With M10 bolts

DK connector

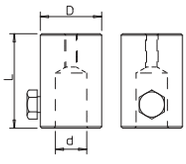


Type	Dimension d Ø mm	Length mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 IDK	20	125	40	10	40,000	**5408245**

Alu Aluminium /pc.

- DK-connector link for installing insulation rods
- With M10 bolts

Wall connection

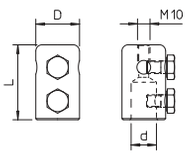


Type	Dimension d Ø mm	Length mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 IW-M10	20	60	40	10	20,000	**5408687**
101 W-16	16	60	30	10	14,200	**5408689**

Alu Aluminium /pc.

- For installing insulating rods to structures or walls
- With female thread M8
- With M10 bolts

End piece

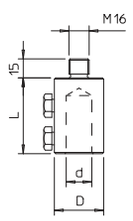


Type	Dimension d Ø mm	Length mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 IES	20	60	35	10	20,000	**5408393**
101 IES-16	16	60	30	10	10,000	**5408395**

Alu Aluminium /pc.

- End piece for attaching round conductors Rd 8-10 and air-termination tips, type 101 ISP
- With M10 bolts

Connection piece



Type	Dimension d Ø mm	Length mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 A-M16	20	60	40	10	20,000	**5408350**
101 A-16	16	60	30	10	13,000	**5408352**

Alu Aluminium /pc.

- Fitting with M16 thread
- For installation on stands with M16 female thread
- With M10 bolts

Always indicate the item number when ordering.

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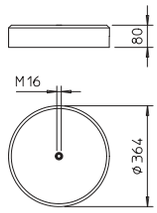
Stand 16 kg with female thread

Type	Nominal size Ø mm	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
101 B2-16 M16	364	M16	1	1.600,000	**5402958**

BET Concrete /100 pc.

- Weight 16 kg
- From frost-resistant concrete
- Female thread M16
- Recommended air-termination rod length max. 3.0 m, depending on wind load zone

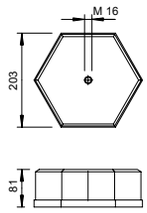


Stand 6.9 kg with female thread

Type	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
101 ST	M16	4	690,000	**5402891**

BET Concrete /100 pc.

- Weight 6.9 kg
- From frost-resistant concrete
- Female thread M16
- Recommended air-termination rod length max. 1.0 m

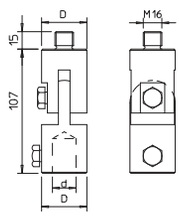


Connection joint

Type	Dimension d Ø mm	Length mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 IAG	20	107	40	10	40,000	**5408504**

Alu Aluminium /pc.

- Attaching link for installation on concrete stones
- With thread M16 on slanting roof surfaces
- With M10 bolts

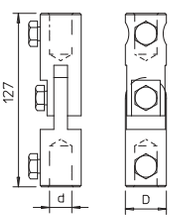


Articulated connector

Type	Dimension d Ø mm	Length mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 IGL-16	16	127	30	10	32,000	**5408630**

Alu Aluminium /pc.

Link for installation of insulation pipes, including M10 screws.

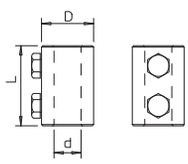


Extension

Type	Dimension d Ø mm	Length mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 IV-16	16	60	30	10	16,000	**5408557**

Alu Aluminium /pc.

- Extension of insulating rods
- With M10 bolts

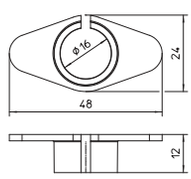


FangFix reducing sleeve

Type	Colour	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 RH-16	Black	16	25	0,190	**5408101**

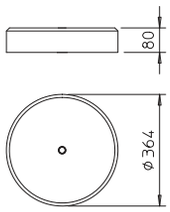
PA Polyamide /100 pc.

Reduces the drill hole of the FangFix block from Ø 20 mm to Ø 16 mm. Suitable for the installation of GFK insulating rods of Ø 16 mm.



Always indicate the item number when ordering.

Concrete block for FangFix-System 16 kg

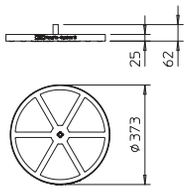


Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-S16	365	1	1.700,000	**5403227**

BET Concrete /100 pc.

- 16 kg stone of Ø 365 mm, high level of stability
- Concrete, frost-resistant
- Stackable

Base for FangFix system 16 kg

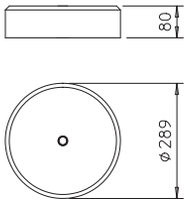


Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-B16	373	10	16,400	**5403235**

PP Polypropylene /100 pc.

Edge protection with integrated dowel (basic) suitable for FangFix system.

Concrete block for FangFix system 10 kg

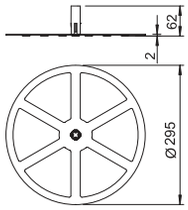


Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-S10	289	1	1.000,000	**5403117**

BET Concrete /100 pc.

- 10 kg stone of Ø 289 mm, high level of stability
- Concrete, frost-resistant
- Stackable

Base for FangFix system 10 kg

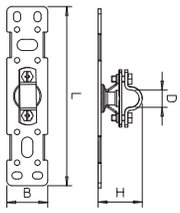


Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-B10	295	10	7,600	**5403124**

PP Polypropylene /100 pc.

Edge protection with integrated dowel (basic) suitable for FangFix 10 system.

Fastening plate

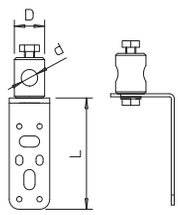


Type	Length mm	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 BP-16	175	40	42	1	21,200	**5408984**

/pc.

To mount insulating rods on constructions or walls
Plate made of VA stainless steel
Holder and crosspiece for 16 and 20 mm rods and Rd 8–10 mm

Wall connection, angled



Type	Dimension d Ø mm	Dimension L mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 WG-16	16	110	30	1	27,960	**5408986**

V2A Stainless steel, grade 304 /pc.

- Wall connection for GFK rods
- Dimension D Ø: 16 mm

Always indicate the item number when ordering.

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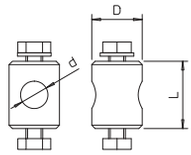
Fastening bolts

Type	Dimension d Ø mm	Dimension L mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 BB-16	16	40	30	1	13,920	**5408988**

Alu Aluminium /pc.

For GFK rods, Dimension D Ø: 16 mm

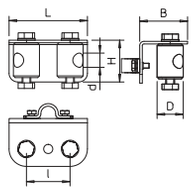


Holder, V support

Type	Dimension d Ø mm	Dimension L mm	Dimension H mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 HV-16	16	90	55	48	1	50,700	**5408990**

V2A Stainless steel, grade 304 /pc.

- Rod holder to accept two GFK rods
- Dimension D Ø: 16 mm

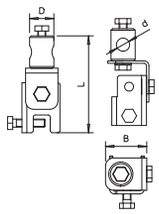


Fold fastening

Type	Dimension d Ø mm	Dimension L mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 F-16	16	121	30	1	45,120	**5408992**

V2A Stainless steel, grade 304 /pc.

To fasten a GFK rod on constructions of 4 to 20 mm, Dimension D Ø: 16 mm

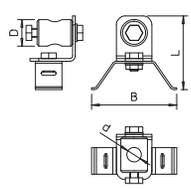


Pipe fastening

Type	Dimension d Ø mm	Dimension L mm	Dimension D Ø mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 R-16	16	81	30	96	1	26,830	**5408994**

V2A Stainless steel, grade 304 /pc.

For pipe fastening of a GFK rod using tightening strap, Dimension D Ø: 16 mm

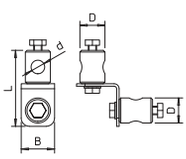


Multi adapter

Type	Dimension d Ø mm	Dimension L mm	Dimension D Ø mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 MA-16	16	91	30	40	1	36,280	**5408996**

V2A Stainless steel, grade 304 /pc.

- Connector for two GFK rods
- Dimension D Ø: 16 mm.



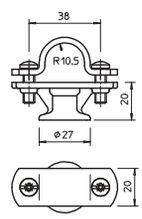
Rod holder

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
113 Z-20	Rd 20	20	8,200	**5230527**

Zn Die-cast zinc /100 pc.

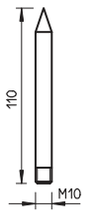
VZ Galvanised

- Installed with over-piece and hex-head screws M6 x 16
- With female thread M8 or through hole Ø 7 mm.



Always indicate the item number when ordering.

Interception tip

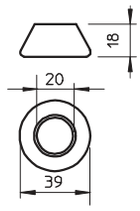


Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 ISP M10	110	10	10,000	**5408458**

Alu Aluminium /pc.

Interception tip for attaching to end piece, type 101 IES, with M10 thread

Water repellent



Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
101 IAB	18	10	2,000	**5408733**

Alu Aluminium /pc.

Water repellent for mounting on insulation rods with d = 20 mm

Adjustable insulating beam – pipe

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
ISAV1000R	1	130,000	**5408849**

GFK Fibre-glass-reinforced plastic /pc.

Variable spacer for cables and air-termination rods to maintain the separation distance.

- Infinitely adjustable distance range (L = 550–1,000 mm)
- Made of fibre glass-reinforced plastic (km = 0.7)
- For pipe mounting (including 2 m tightening strap and tension jack)

Adjustable insulating beam – wall

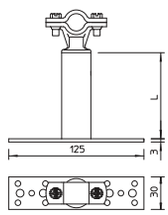
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
ISAV1000W	1	130,000	**5408852**

GFK Fibre-glass-reinforced plastic /pc.

Variable spacer for cables and air-termination rods to maintain the separation distance.

- Infinitely adjustable distance range (L = 550–1,000 mm)
- Made of fibre glass-reinforced plastic (km = 0.7)
- For wall mounting with 10 4.2 mm fastening holes and 4 6.9 mm fastening holes

Insulated spacer



Type	Length mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
ISO-A-500	500	Rd 16	15	36,000	**5408806**
ISO-A-800	800	Rd 16	15	55,000	**5408814**
ISO-A-1030	1030	Rd 16	15	68,000	**5408820**
ISO-A-150 8	150	Rd 8	15	13,800	**5408800**

Alu Aluminium PA Polyamide /pc.

- Mounting foot with 10 connection holes Ø 6.5 mm and 4 connection holes Ø 8.5 mm
- Type ...150 8 with holder suitable for round conductor RD 8
- Application for shelters e.g. golf, barbecue or mountain huts

Always indicate the item number when ordering.

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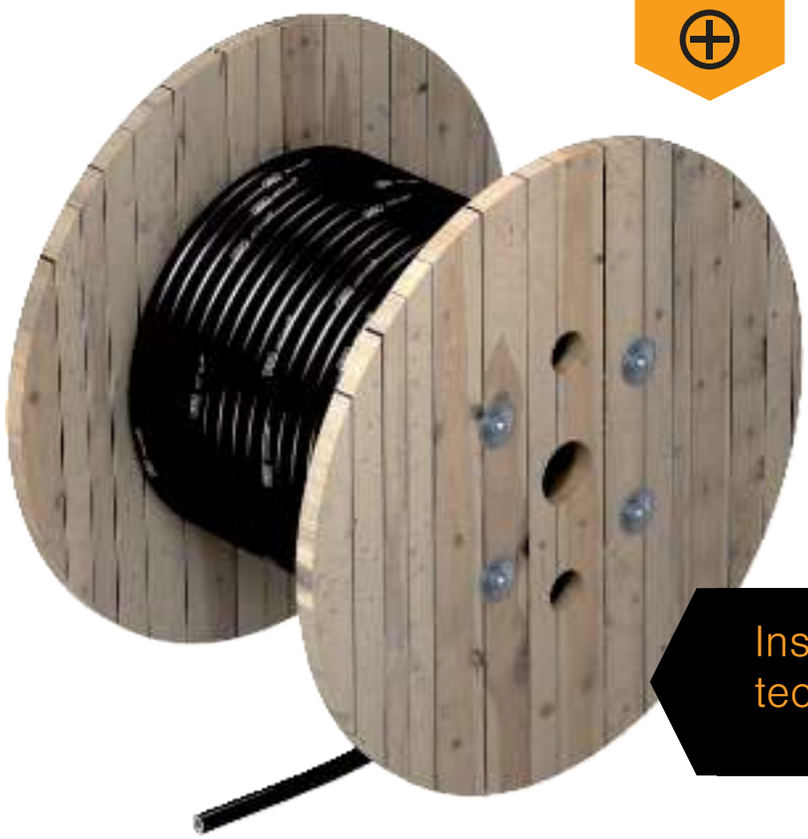
The plus of the isCon® system

+ Unique structure
+ Equivalent separation distance ≤ 0.75 m (Cuf) or ≤1.5 m (solid material)
+ IsCon® air-termination rods fulfil the requirements to Eurocode
+ Suitable for all lightning protection classes
+ Satisfies requirements according to VDE 0185-561-1/-2
+ Satisfies requirements according to CIEC 62561-1/-2



Insulated lightning protection set

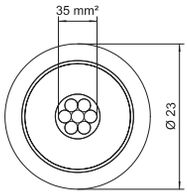
Insulated down-conductors are used in the field of external lightning protection to reduce or avoid the separation distance according to VDE 0185-305 (IEC 62305). isCon® creates an equivalent separation distance of 0.75 m in air.
In contrast to standard shielded medium-voltage cables with a metallic shield, insulated down-conductors possess a weakly conductive jacket for field control, de-energising the high voltage in the area of the supply point. This thus prevents arcing via the cable jacketing of the insulated down-conductor.
After the first potential connection of the cable jacket, the insulated down-conductor secures the specified equivalent separation distance.

The insulated air-termination rods protect electrical and metallic roof structures, taking the calculated separating distance (s) according to VDE 0185-305-3 (IEC 62305-3) into account. An insulated section of 1.5 metres made of fibre-glass reinforced plastic (GRP) ensures sufficient distance to all roof structures. Even complex building structures can be protected by the comprehensive system accessories.

The three-part aluminium and GRP air-termination rod with its insulated structure allows the isCon® cable (black and light grey) to be routed inside the air-termination rod. Combining a perfect appearance with perfect functionality, it offers the following advantages:

- Tidy appearance through internal isCon® cable
- 4 variants: 4 m to 10 m height
- Including connection element and potential connection in the mast
- For freestanding installation, can be combined with isFang air-termination rod stand with side exit

isCon® conductor



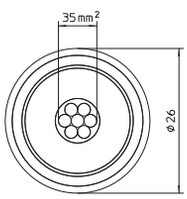
Type	Colour	Cross-section mm²	Nominal size Ø mm	Normal ring ca. m	Pack. m	Weight kg/100 m	Item No.
isCon 750 SW	Black	35	23	25	25	69,400	**5408002**
isCon 750 SW	Black	35	23	100	100	69,400	**5408004**
isCon 750 SW	Black	35	23	250	250	69,400	**5408006**

price/100 m

Please refer to the mounting instructions for information on routing the OBO isCon® cable.

- Floating discharge-free, high voltage-resistant, insulated arrestor
- For maintenance of the separation distance according to IEC 62305
- Equivalent separation distance s ≤ 0.75 m in air
- Cable weight 69.4 kg/ 100m
- Halogen-free
- Can be used in potentially explosive areas Ex zone 1/2 and 21/22 when taking the current mounting instructions into account

isCon® conductor in light grey



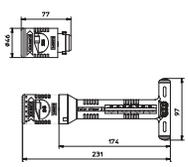
Type	Colour	Cross-section mm²	Nominal size Ø mm	Normal ring ca. m	Pack. m	Weight kg/100 m	Item No.
isCon 750 LGR	Light grey	35	26	25	25	86,800	**5407995**
isCon 750 LGR	Light grey	35	26	100	100	86,800	**5407997**

price/100 m

Please refer to the mounting instructions for information on routing the OBO isCon® cable.

- Floating discharge-free, high voltage-resistant, insulated arrestor
- For maintenance of the separation distance according to IEC 62305
- Equivalent separation distance s ≤ 0.75 m in air
- Can be used in potentially explosive areas Ex zone 1/2 and 21/22 when taking the current mounting instructions into account
- Cable weight 86.8 kg/ 100 m
- Suitable for routing in the earth
- Can painted different colours
- Halogen-free

Stripping tool for isCon conductor

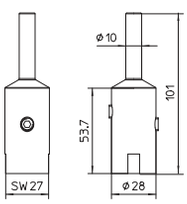


Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon stripper 2	23	1	33,000	**5408013**

PA/PE Polyamide/Polyethylene /pc.

Stripping tool to remove the insulation of OBO isCon® cable.

Connection element



Type	Dimension D Ø mm	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon connect	23	10	2	21,500	**5408022**

V2A Stainless steel, grade 304 /pc.

Screw-on termination of the connection for the isCon® cable.
Including heat-shrinkable sleeve and screw lock.

Always indicate the item number when ordering.

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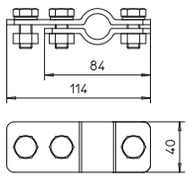
Potential connection

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon PAE	ø 17-25mm	2	36,500	**5408036**

V2A Stainless steel, grade 304 /pc.

Potential control to avoid surface discharges on the isCon® cable. Installation takes place after the first 1.5 metres.

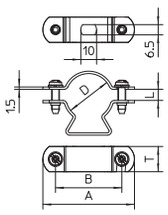


VA cable bracket

Type	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon H VA	23	50	2,850	**5408056**
isCon H 26 VA	26	20	3,400	**5408064**

V2A Stainless steel, grade 304 /pc.

Cable brackets for isCon® cable for mounting on roof/wall structures.

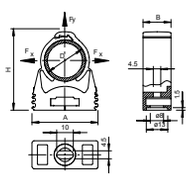


starQuick cable bracket PA

Type	Colour	Dimension D mm	Dimension A mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
SQ-20 SW	Jet black	23	29	17	50	0,848	**2146164**
SQ-25 LGR	Light grey	25-28	40	17	50	0,970	**2146207**

PP Polypropylene PA Polyamide /100 pc.

Cable brackets for isCon® cables for mounting on the building structure. Can also be used in the first 1.5 m.
Can be arranged next to each other and are made from a UV and weather-resistant polyamide.

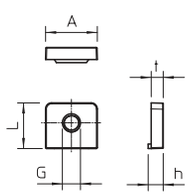


starQuick nut M6

Type	Colour	Thread	Dimension L mm		Dimension h mm	Dimension t mm	Pack. pcs	Weight kg/100 pcs.	Item No.
SQ M6	Light grey	M6	15	–	5	4	100	0,070	**2146509**

PC Polycarbonate /100 pc.

The starQuick nut was developed especially for the starQuick clip. Simply push into the intended opening of the clip. The nut is captive in the clip. Suitable for M6 threads.

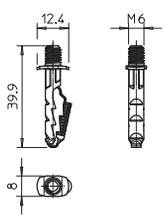


starQuick anchor M6

Type	Dowel Ø mm	Length mm	Bore hole Ø mm	Bore hole depth mm	Pack. pcs	Weight kg/100 pcs.	Item No.
SQ PP	6	30	6	35	50	0,100	**2351706**

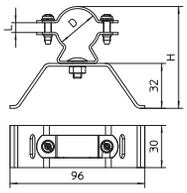
PA Polyamide /100 pc.

Suitable for concrete, calcareous sandstone, brick or porous concrete masonry with interplay of the starQuick clip and starQuick nut.



Always indicate the item number when ordering.

VA cable bracket with tightening strap

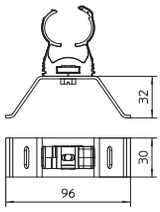


Type	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon HS VA	23	10	25,200	**5408052**
isCon HS 26 VA	26	10	25,900	**5408068**

V2A Stainless steel, grade 304 /pc.

Cable brackets for isCon® cable for pipe mounting on 2 m tightening strap.

PA cable bracket with tightening strap

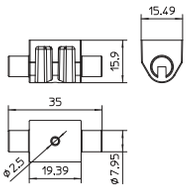


Type	Colour	Dimension	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon HS 26 PA	Light grey	ø 26mm	26	10	23,200	**5408066**

PA Polyamide /pc.

Cable brackets for isCon® cable for pipe mounting on 2 m tightening strap.

Adapter for flat roof cable holder

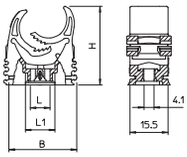


Type	Colour	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
165 MBG UH	Black	Rd 8	25	0,280	**5218882**

PP Polypropylene /pc.

- Universal adapter with drill hole Ø 2.5 mm
- E.g. for OBO Golden Sprint screw, type 4758 4 x L (L = depending on application)
- For fastening to 165/MBG

M-Quick cable bracket PA

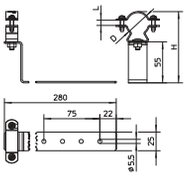


Type	Clamping range D mm	Pull-out value N	Colour	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
M-Quick M25 SW	20 - 25	50	Jet black	600	50	0,930	**2153787**
M-Quick M32 LGR	25 - 32	60	Light grey	600	50	1,400	**2153734**

PA Polyamide /100 pc.

- Multi-quick metric
- Simple fastening
- Secure locking
- Radial arrangement
- Simplified storage
- Universally applicable

VA roof cable holder, sloping roof

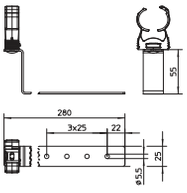


Type	Installation height mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon H280 VA	55	23	25	16,100	**5408047**
isCon H280 26 VA	55	26	25	16,900	**5408074**

V2A Stainless steel, grade 304 /pc.

To route the isCon® cable on pitched roofs.

PA roof cable holder, sloping roof



Type	Colour	Dimension	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon H280 PA	Black	280mm	23	25	13,950	**5408049**
isCon H280 26 PA	Light grey	280mm	26	25	14,060	**5408072**

PA Polyamide /pc.

To route the isCon® cable on pitched roofs.

Always indicate the item number when ordering.

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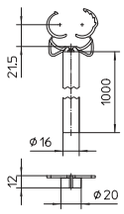
Spacer

Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon DH	23 - 26	2	41,400	**5408043**

GFK Fibre-glass-reinforced plastic /pc.

For stand-off installation of the isCon® cable in the area of the connection. Incl. reducing sleeve for mounting on FangFix concrete block 10 Kg.



Always indicate the item number when ordering.

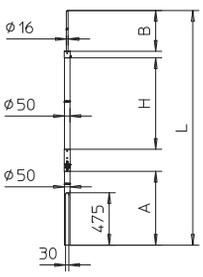
Insulated air-termination rod for inner-routed isCon conductor with side exit

Type	Dimension D Ø mm	Dimension A mm	Dimension H mm	Dimension B mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang IN-A 4000	50	1325	1500	1000	4000	1	535,000	**5408938**
isFang IN-A 6000	50	3325	1500	1000	6000	1	835,000	**5408940**
isFang IN-A 8000	50	5335	1500	1000	8000	1	1.385,000	**5408888**
isFang IN-A10000	50	6000	1733	2000	10000	1	1.540,000	**5408890**

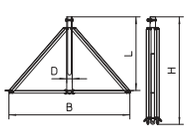
GFK Fibre-glass-reinforced plastic /pc.

- For installation of the OBO isCon® conductor in the pipe
- With side conductor outlet matching isFang air-termination rod stand with side outlet, type isFang 3B-A
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Inclusive connection element (type isCon IN connect)
- Inclusive potential connection (type IsCon In PAE)

Dimensions



isFang air-termination rod stand with side exit

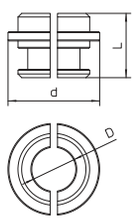


Type	Dimension B mm	Dimension D Ø mm	Dimension L mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang 3B-100-A	1026	50	600	885	1	77,000	**5408930**
isFang 3B-150-A	1500	50	900	1275	1	123,000	**5408932**
isFang 3B-250-A	2900	50	1450	2055	1	2.500,000	**5408902**

V2A Stainless steel, grade 304 /pc.

- Screwless installation of freestanding air-termination rods as well as insulated air-termination rods with 50 mm diameter
- e.g. for internal OBO isCon® conductor
- Roof slope to max. 5 degrees
- Incl. Rd 8–10 crossbar for quick round conductor fastening
- Concrete plinths as well as threaded rods should be ordered separately

Potential connection for installation in the insulated air-termination rod isFang IN



Type	Dimension D Ø mm	Dimension d Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon IN PAE	23	49.9	35	1	5,900	**5408031**

Alu Aluminium /pc.

- To avoid surface discharges on the isCon® cable
- Installation takes place after the first 1.5 metres in the insulated air-termination rod type isFang IN

Always indicate the item number when ordering.

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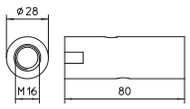
Connection element for installation in the insulated air-termination rod isFang IN

Type	Dimension D Ø mm	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon IN connect	23	M16	1	27,800	**5408024**

V2A Stainless steel, grade 304 /pc.



- Screw-on termination of the connection for the isCon® conductor
- Connection and installation of the cable in the insulated air-termination rod
- Tested up to 150 kA (lightning protection Class II)

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Always indicate the item number when ordering.

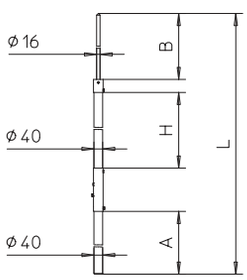
Insulated air-termination rod

Type	Dimension A mm	Dimension H mm	Dimension B mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang 4000 AL	1240	1500	1000	4000	1	580,000	**5408943**
isFang 6000 AL	3340	1500	1000	6000	1	600,000	**5408947**
isFang 4000	1240	1500	1000	4000	1	680,000	**5408942**
isFang 6000	3340	1500	1000	6000	1	1.260,000	**5408946**

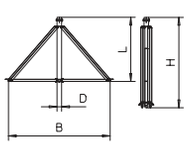
GFK Fibre-glass-reinforced plastic /pc.

- For isolated creation of air-termination systems
- Suitable for isFang air-termnation rod stands, type isFang 3B-100/150
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- For mounting on the building structure with isFang support
- Fastening of the OBO isCon® cable possible using accessories

Dimensions



isFang air-termination rod stand

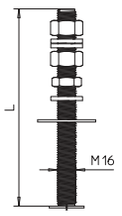


Type	Dimension B mm	Dimension D Ø mm	Dimension L mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang 3B-100 AL	1000	40	600	885	1	380,000	**5408966**
isFang 3B-150 AL	1500	40	900	1275	1	560,000	**5408967**
isFang 3B-100	1000	40	600	885	1	620,000	**5408968**
isFang 3B-150	1500	40	900	1275	1	950,000	**5408969**

V2A Stainless steel, grade 304 Alu Aluminium /pc.

Folding tripod stand for screwless installation of free-standing interception rods with a diameter of 40 mm, e.g. for OBO isCon® cable. Roof slope to max. 5 degrees. Incl. Rd 8–10 crossbar for rapid round conductor fastening. The concrete plinth and threaded rods are to be ordered separately.

isFang-3B threaded rod



Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang 3B-G1	270	3	48,000	**5408971**
isFang 3B-G2	340	3	60,400	**5408972**
isFang 3B-G3	430	3	76,600	**5408973**
isFang 3B-G4	500	3	75,000	**5408905**

V2A Stainless steel, grade 304 /pc.

- For fastening on 1, 2, 3 or 4 FangFix concrete bases with tripod stand

Always indicate the item number when ordering.

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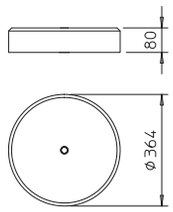
Concrete block for FangFix-System 16 kg

Type	Nominal size Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-S16	365	1	1.700,000	**5403227**

BET Concrete /100 pc.

- 16 kg stone of Ø 365 mm, high level of stability
- Concrete, frost-resistant
- Stackable

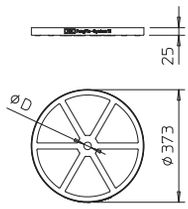


Base for FangFix system 16 kg for mounting the isFang tripod

Type	Nominal size Ø mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
F-FIX-B16 3B	373	25	10	15,800	**5403238**

PP Polypropylene /100 pc.

- Edge protection with through hole
- For mounting isFang-3B threaded rod and FangFix concrete block F-FIX-S16

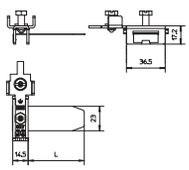


Potential connection clamp for mounting on isFang

Type	Fit mm	Pack. pcs	Weight kg/100 pcs.	Item No.
927 2 6-K	3/8-4"	10	5,500	**5057599**

V2A Stainless steel, grade 304 /100 pc.

Potential connection for isCon® cable for mounting on insulated air-termination rods of type isFang.

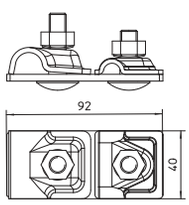


Connection plate for one isCon® conductor

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon AP1-16 VA	16x8-10mm	1	27,400	**5408026**

V2A Stainless steel, grade 304 /pc.

Connection plate to connect an isCon® cable with air-termination rod Ø 16 mm.

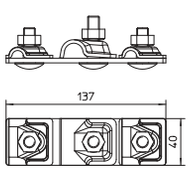


Connection plate for two isCon® conductor

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon AP2-16 VA	16x8-10mm	1	39,500	**5408028**

V2A Stainless steel, grade 304 /pc.

Connection plate to connect two isCon® cables with air-termination rod Ø 16 mm.



Cable tie

Type	Dimension B mm	Dimension L mm	Dimension t mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
565 7.6x380 SWUV	7.6	380	2	Black	100	0,533	**2331924**

PA Polyamide /100 pc.

Cable ties are used for quick, uncomplicated fixing or bundling of cables and pipes to cable support systems or other mounting structures.

Always indicate the item number when ordering.

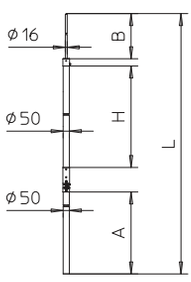
Insulated air-termination rod for inner-routed isCon conductor

Type	Dimension D Ø mm	Dimension A mm	Dimension H mm	Dimension B mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang IN 4000	50	1325	1500	1000	4000	1	535,000	**5408934**
isFang IN 6000	50	3325	1500	1000	6000	1	835,000	**5408936**
isFang IN 8000	50	5335	1500	1000	8000	1	1.315,000	**5408868**
isFang IN 10000	50	6000	1733	2000	10000	1	1.540,000	**5408870**

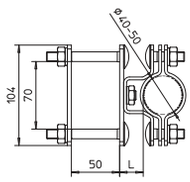
GFK Fibre-glass-reinforced plastic /pc.

- For installation of the OBO isCon® conductor in the pipe
- For mounting on the building structure with isFang support
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Inclusive connection element (type isCon IN connect)
- Inclusive potential connection (type IsCon In PAE)

Dimensions



isFang support for corner pipe mounting, 50 x 50 mm

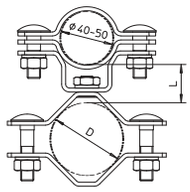


Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TS50x50	—	30	2	82,000	**5408964**

V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or for construction-side corner pipes of 50x50 mm.

isFang support for pipe mounting, ø 50–60 mm



Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TS50-60	60	30	2	76,000	**5408960**

V2A Stainless steel, grade 304 /pc.

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 50–60 mm.

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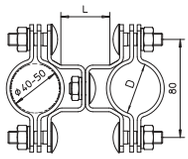
Always indicate the item number when ordering.

isFang support for pipe mounting, ø 40–50 mm

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TS40-50	50	40	2	90,000	**5408958**

V2A Stainless steel, grade 304 /pc.

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 40–50 mm.

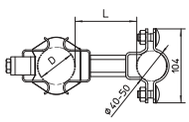


isFang support for spaced pipe mounting, ø 50–300 mm

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TR100 100	300	100	2	95,500	**5408955**
isFang TR100 200	300	200	2	121,000	**5408957**
isFang TR100 300	300	300	2	146,000	**5408959**

V2A Stainless steel, grade 304 /pc.

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 50–300 mm.

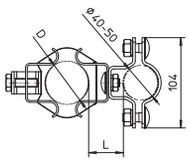


isFang support for pipe mounting, ø 50–300 mm

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TR100	300	40	2	77,000	**5408956**

V2A Stainless steel, grade 304 /pc.

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 50–300mm.

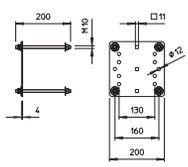


Mounting set for T support

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW200 Set	200x200mm	2	188,600	**5408914**

V2A Stainless steel, grade 304 /pc.

- Set for mounting isFang TW200 onto double T support
- Suitable for double T support, e.g. widths 100, 120

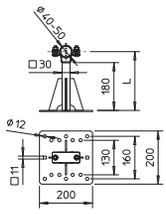


Support for wall mounting, 200 mm spacing

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW200 12	50	200	2	240,000	**5408910**

V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

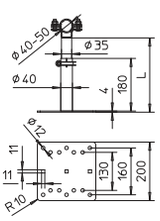


isFang support for wall mounting, 200–300 mm spacing

Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW200	—	300	2	230,000	**5408954**

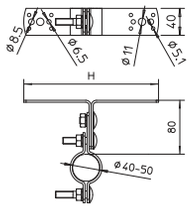
V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.



Always indicate the item number when ordering.

isFang support for wall mounting, 80 mm spacing

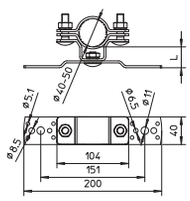


Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW80	—	80	2	63,000	**5408950**

V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

isFang support for wall mounting, 30 mm spacing

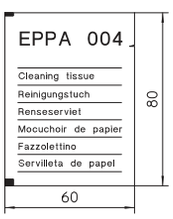


Type	Dimension D Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isFang TW30	—	30	2	62,000	**5408952**

V2A Stainless steel, grade 304 /pc.

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

Cleaning cloth



Type	Width mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon EPPA 004	140	200	50	0,420	**5408060**

Z-PP-P Cellulose-polypropylene paper /100 pc.

- Cellulose polypropylene paper with abrasive sections, folded multiple times
- Doused with 2.8 ml impregnation solution
- For cleaning the external jacket of the OBO isCon® cable

Information panel

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
isCon HWS	— 1	2,000	**5408058**

PS Polystyrene /pc.

Label: "NOTE! Insulated lightning protection with the OBO isCon® system. Only a lightning protection specialist may carry out changes"

- To label the lightning protection system
- Self-adhesive and with 4 fastening holes ø 6.5 mm

Always indicate the item number when ordering.

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5229216	**2349124**	575
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5388692	**5057558**	471
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6415762	**5081005**	375
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6046478	**5081692**	335
6087723	**5081694**	336
6427444	**5081698**	333
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6415663	**5081977**	340
6415670	**5081982**	341
6415687	**5081984**	342
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5405559	**5089763**	169
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5405580	**5089775**	177
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6035496	**5092482**	263
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6398669	**5093448**	131
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6398591	**5093584**	160
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6398621	**5093592**	163
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5363941	**5094931**	257
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101 3B-6000	5674795	5402872	520
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101 ALU-1500	5427810	5401801	517
101 ALU-2000	5427872	5401836	517
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113 BZ-FL	5739999	5230446	502
113 B-Z-HD	5629535	5230322	538
113 B-Z-HD	5752356	5412803	543
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132 P VA	6379965	5202510	527
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157 FK-CU 230	5902652	5216184	528
157 FK-CU 280	5813071	5216214	528
157 FK-VA 230	5902591	5215544	528
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157 FK-VA 410	5812418	5215609	528
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157 FX-AL	5531791	5215875	529
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157 IK-VA	5812531	5215668	529
157 I-VA	5407355	5215625	528
157 L-CU	5812111	5215471	530
157 LK-CU	5811930	5215382	530
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163 100 FT	5409519	5223105	540
163 150 FT	5409632	5223156	540
163 200 FT	5409755	5223202	540
163 70 FT	5409458	5223075	540
165 B 100	5408970	5218829	534
165 B 60	5408918	5218810	534
165 KR	5409038	5218861	533
165 KRB SO	5952213	5218977	533
165 KRB-I	5462972	5218888	532
165 MBG HFL	5623052	5218885	533
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165 MBG UH	5674580	5218882	533
165 MBG UH	5674580	5218882	590
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165 MBG-10	5408734	5218675	532
165 MBG-10 200	5814634	5218756	532
165 MBG-10 FO	6456239	5218676	532
165 MBG-10 GR	6127481	5218677	532
165 MBG-8	5408857	5218691	532
165 MBG-8 200	5904519	5218748	532
165 MBG-8 FO	6409990	5218692	532
165 MBG-8 GR	6127443	5218693	532
165 NBK 55	5904274	5218314	534
165 OBG-8	5408796	5218683	532
165 R-8-10	5625889	5218997	533
165 R-8-10 OBG	6388196	5218999	533
166 LS 70	5410416	5226570	540
168 8-10 M6	5411499	5229162	539
168 DIN 30	5411734	5229480	540
168 DIN-K-M8	5412151	5229839	539
168 DIN-K-M8	5411611	5229383	539
168 FL30-M6	5411673	5229464	540
168 FL40-M8	5411970	5229553	539
168 ZN-M6	5411550	5229367	539
172 AR	5409090	5218926	563
176 A 100	5410652	5227100	540
176 A 150	5410713	5227151	540
176 A 65	5410539	5227070	540
176 A 80	5410591	5227089	540
177 20 CU	5904991	5207746	537
177 20 KL	5009726	5207451	538
177 20 M8	5404897	5207444	537
177 20 VA B-HD	5915836	5207901	537
177 20 VA M6	5404774	5207339	536
177 20 VA M8	5404835	5207347	536
177 20 VA-VK M6	5904878	5207800	536
177 20 VA-VK M8	5904939	5207819	536
177 30 CU	5905059	5207754	537
177 30 M8	5404958	5207460	537
177 35 VA M6	5735762	5207342	536
177 55 CU	5905110	5207762	537
177 55 M8	5405016	5207487	537
177 B-HD20	5336433	5207851	537
177 B-HD30	5334811	5207878	537
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1801 AH	5378617	5015707	456
1801 KL1	5378730	5015723	456
1801 KL2	5378976	5015804	456
1801 KL3	5379034	5015812	456
1801 RK25	5378853	5015758	455
1801 RK30	5378792	5015731	456
1801 RK40	5455837	5015774	456
1801 RK95	5378914	5015766	455
1801 SCH	5378679	5015715	456
1801 VDE	5378556	5015650	455
1802 10 CU	5002260	5015842	463
1802 10 CU	5002260	5015842	468
1802 10 VA	5002284	5015866	463
1802 10 VA	5002284	5015866	467
1802 12 CU	5699354	5015844	463
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1802 14 CU	5699361	5015847	463
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1802 6 CU	5699330	5015832	463
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1802 8 CU	5699347	5015836	463
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1802 AH 10	5033677	5015884	463
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1804 AP	5477839	5015557	459
1804 UP	5378433	5015545	459
1805 2 FT	5379096	5016029	464
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1805 2 VA	5922216	5016096	464
1805 2 VA	5922216	5016096	502
1805 4 FT	5379157	5016037	464
1805 4 FT	5379157	5016037	502
1805 4 VA	5800354	5016118	464
1805 4 VA	5800354	5016118	502
1805 6 FT	5379218	5016045	464
1805 6 FT	5379218	5016045	502
1805 6 VA	5922278	5016126	464
1805 6 VA	5922278	5016126	502
1807	5379270	5016142	501
1808	5378075	5015014	458
1809	5378259	5015073	457
1809 30 AH	5800118	5015200	457
1809 A	5959427	5015111	461
1809 BG	5378372	5015502	458
1809 M	5378310	5015081	457
1809 NR	5931669	5015075	458
1809 UP	5378198	5015065	459
1810	5378136	5015057	461
1811	5377894	5014018	501
1811 L	5377955	5014026	501
1813 DIN	5378013	5014212	501
1813 KL	5901938	5014425	499
1814 FT	5105015	5014468	500
1814 FT D37	6391059	5014469	500
1814 ST	5105077	5014476	500
1814 ST D37	6391042	5014477	500
1816 F-1000X1000	5376996	5009235	491
1816 F-500X1000	5376934	5009227	491
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1818	5377719	5012015	499
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1819 20	5242710	3041204	487
1819 20BP	5242772	3041212	487
1819 25	5242833	3041255	487
1819 25BP	5242956	3041956	487
1820 20	5243137	3042200	487
1820 25	5243199	3042251	487
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194	5404651	5207258	537
194 K	5110392	5207266	538
199 DIN	5405252	5208017	541
200 V4A-1500	5751571	5420504	490
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200 V4A-1500	5751571	5420504	571
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204 KS-2000	5901457	5430011	571
204 KS-2500	5901570	5430062	490
204 KS-2500	5901570	5430062	571
205 B-M10 VA	5900498	5420008	500
205 B-M12 VA	5629290	5420016	500
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2056N SAS 12 VA	5432432	1167014	475
2056N SAS 16 VA	5432494	1167022	475
2056N SAS 22 VA	5432555	1167030	475
2056N SAS 28 VA	5432616	1167049	475
2056N SAS 8 VA	5432371	1167006	475
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2066 2M FS	5046578	1117033	475
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213 1000 DIN	5373575	5003008	491
213 1500 DIN	5373636	5003016	491
213 1500 F	5374718	5003776	491
213 1500 M	5374053	5003261	491
213 2000 DIN	5373698	5003024	491
213 2000 F	5374770	5003784	491
213 2000 M	5374114	5003288	491
213 2500 DIN	5373759	5003032	491
213 2500 M	5374176	5003296	491
213 3000 DIN	5373810	5003040	491
213 3000 M	5374237	5003318	491
219 20 BP CU	6336340	5000500	486
219 20 BP FT	5371892	5000947	485
219 20 BP V4A	5740650	5000858	486
219 20 BP V4A	5371830	5000866	486
219 20 OMEX FT	5371298	5000017	486
219 20 OMEX FT	5371472	5000203	486
219 20 ST FT	5018049	5000742	485
219 20 ST FT	5814450	5000750	485
219 25 BP FT	5371953	5000955	485
219 25 OMEX FT	5371359	5000025	486
219 25 ST FT	5111047	5000769	485
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223 DIN MS	5423676	5335256	567
223 DIN ZN	5423614	5335205	567
223 O DIN MS	5890119	5335167	567
223 O DIN ZN	5890058	5335140	567
226 8-10	5424215	5336007	567
226 CU	5424277	5336023	568
226 VA	5424338	5336058	568
226 ZV CU	5424451	5336090	568
226 ZV VA	5424390	5336074	568
233 8	5424635	5336309	568
233 A VA	5424871	5336457	569
233 A ZV	5424932	5336503	569
233 VA	5424758	5336341	568
233 ZV	5424819	5336376	569
237 N CU	5453673	5328284	550
237 N FT	5453611	5328209	550
239	5423195	5329078	550
244	5417316	5311039	551
245 8-10 CU	5417439	5311152	551
245 8-10 FT	5417378	5311101	551
247 8-10 CU	5417552	5311268	551
247 8-10 FT	5417491	5311209	551
249 6-10 CU	5816591	5311417	546
249 6-10 ST	5816584	5311410	546
249 6-8 CU	6416912	5311407	546
249 8-10 ALU	5417736	5311519	545
249 8-10 ALU-OT	5466192	5311585	474
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249 8-10 CU-OT	5835394	5311530	542
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249 8-10 ST	5417675	5311500	545
249 8-10 ST-OT	5737063	5311503	473
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249 8-10 VA	5417910	5311551	469
249 8-10 VA	5417910	5311551	545
249 8-10 VA-OT	5835349	5311554	464
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249 8-10 VA-OT	5835349	5311554	542
249 8-10 VA-OT	5835349	5311554	561
249 8-10 ZV	5417859	5311535	546
249 8-10X16 VA	5925446	5311590	469
249 8-10X16 VA	5925446	5311590	546
249 B ALU	5452058	5311713	545
249 B ST	5451990	5311705	545
249 VA-OT	5693789	5311573	474
249 VA-OT	5693789	5311573	544
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250 A-FT	5740537	5313015	498
250 AS-FT	5543015	5313031	498
250 A-VA	5740476	5313023	498
250 V4A	5700876	5312925	498
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251 8-10	5417972	5312035	553
251 CU	5418030	5312132	553
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2510 20	5717492	3043312	488
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252 8-10 CU	5418214	5312418	496
252 8-10 CU	5418214	5312418	554
252 8-10 FT	5418092	5312310	495
252 8-10 FT	5418092	5312310	554
252 8-10 V4A	5700869	5312318	495
252 8-10 V4A	5700869	5312318	554
252 8-10X16 CU	5418276	5312442	497
252 8-10X16 CU	5418276	5312442	555
252 8-10X16 FT	5418153	5312345	496
252 8-10X16 FT	5418153	5312345	554
252 8-10x16 V4A	5893103	5312346	496
252 8-10x16 V4A	5893103	5312346	555
252 8-10XFL30 FT	5418399	5312655	497
252 8-10XFL30 FT	5418399	5312655	552
252 8-10xFL30V4A	5893141	5312656	497
252 8-10xFL30V4A	5893141	5312656	552
252 GB 10x45	6454563	5312657	498
252 GB 10x45	6454563	5312657	499
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2520 20	5243793	3043703	488
2520 25	5243854	3043754	488
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253 10X16	5418573	5312809	496
253 10X16	5418573	5312809	554
253 8-10 V4A	6466306	5312582	495
253 8X8	5418337	5312604	495
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254 DIN 8-10 FT	5418993	5314038	553
255 30	5419174	5314518	493
255 A-FL30 FT	5419235	5314534	493
256 A-DIN 30 FT	5419471	5314658	494
256 A-DIN 30 V4A	5893080	5314659	494
256 A-DIN 30 VA	5925873	5314720	494
256 A-DIN 40 FT	5419532	5314666	494
256 DIN 30 FT	5419297	5314615	494
256 DIN 30 V4A	5893097	5314616	494
256 DIN 40 FT	5419358	5314623	494
259 8-10	5419716	5315506	549
259 A FT	5740414	5315514	499
259 A ST	5237198	5315557	499
259 A VA	5740353	5315522	499
260 8	5419839	5315700	550
260 8-10 MS	5419778	5315654	550
262	5419891	5316014	560
262 A-DIN CU	5420071	5316251	560
262 A-DIN FT	5420019	5316219	560
262 CU	5419952	5316154	560
262 ZM	5818359	5316170	560
264	5420316	5316510	560
264 CU	5420378	5316553	561
267	5420132	5316308	559
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269 8-10	5420439	5317010	556
269 MS	5420491	5317053	556
270 8-10 CU	5420675	5317258	557
270 8-10 FT	5420552	5317207	556
270 8-10 VA	5893158	5317208	556
271 8-10	5420798	5317401	557
271 8-10 VA	5850861	5317481	557
271 CU	5420910	5317452	557
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272 14	5421092	5318149	556
272 8	5421030	5318084	556
273 8-10	5420613	5317223	558
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274 8-10	5420859	5317428	558
274 CU	5420972	5317479	558
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2745 20 MS	5372851	5001560	493
2745 20 MS	5372851	5001560	569
2760 20 FT	5372912	5001641	492
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301 DIN-80	5425595	5350085	564
301 DIN-90	5425656	5350093	564
301 S-100	5426974	5351057	565
301 S-120	5427032	5351073	565
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301 S-AL-120	5890713	5351375	565
301 S-CU-100	5427216	5351456	565
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301 V	5426790	5350867	564
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303 DIN-1 1/2	5400097	5102154	566
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303 DIN-1/2	5399858	5102073	566
303 DIN-2	5400158	5102197	566
303 DIN-2 1/2	5400219	5102219	566
303 DIN-3	5400271	5102235	566
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311 N-ALU 16	5631392	3049345	570
311 N-ALU 8-10	5631576	3049256	505
311 N-ALU 8-10	5631576	3049256	570
311 N-CU 8-10	5631699	3049205	505
311 N-CU 8-10	5631699	3049205	570
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319 10	5421931	5325315	561
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356 100	5230595	2360101	505
356 100	5230595	2360101	574
356 50	5230533	2360055	505
356 50	5230533	2360055	574
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480 180	5412571	5240034	442
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5001 N-FT	5817512	5304164	548
5001 N-VA	5892809	5304176	465
5001 N-VA	5892809	5304176	469
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5001 ZN-CU	5415930	5304113	547
5002 DIN-FT	5416050	5304202	547
5002 N-VA	5892847	5304270	469
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5005 N-FT	5817758	5304660	549
5009	5416951	5304970	548
5010 20 FT	5503057	5304520	555
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5011 VA M10	5629115	5334934	501
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5011 VA M12	5959663	5334942	501
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5052 DIN 20X2.5	5680468	5019340	480
5052 DIN 20X2.5	5680468	5019340	510
5052 DIN 25X3	5694007	5019342	480
5052 DIN 25X3	5694007	5019342	510
5052 DIN 30X3	5694014	5019344	480
5052 DIN 30X3	5694014	5019344	510
5052 DIN 30X3.5	5680475	5019345	480
5052 DIN 30X3.5	5680475	5019345	510
5052 DIN 30X3.5	5680482	5019347	480
5052 DIN 30X3.5	5680482	5019347	510
5052 DIN 30X4	5680499	5019350	480
5052 DIN 30X4	5680499	5019350	510
5052 DIN 40X4	5680505	5019355	480
5052 DIN 40X4	5680505	5019355	510
5052 DIN 40X5	5680512	5019360	480
5052 DIN 40X5	5680512	5019360	510
5052 V2A 30X3.5	5800415	5018501	480
5052 V2A 30X3.5	5800415	5018501	510
5052 V4A 30X3.5	5800477	5018706	480
5052 V4A 30X3.5	5800477	5018706	510
5052 V4A 30X3.5	5022015	5018730	480
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5800 VA	5900436	5106141	572
5800 VZ	5900375	5106133	572
5900	5244813	3059006	575
		/100 pc.	
708 30 HG	5383659	5030234	504
708 30 SP	5383413	5030021	504
708 40 HG	5383710	5030242	504
710 30	5383055	5028035	503
710 40	5383116	5028043	503
733 16 VA	5116714	1362011	543
733 21 VA	5116837	1362046	544
831 30	5383833	5032032	502
831 30 M6	5383956	5032237	503
831 40	5383895	5032040	502
831 40 M6	5384014	5032245	503
832 30	5384137	5032539	503
832 40	5384199	5032547	503
833 35	5384434	5033039	503
835	5433750	5033209	502
853 200	5885573	5331008	563
853 300	5423379	5331013	563
853 400	5885580	5331017	563
856	5423430	5331501	564
910 N 10x50 GRW	5229155	2349108	575
910 N 12x60 GRW	5229216	2349124	575
910 N 5x25 GRW	5228851	2349043	575
910 N 6x30 GRW	5228912	2349051	575
910 N 6x60 GRW	5228974	2349078	575
910 N 8x40 GRW	5229032	2349086	575
925 1	5385455	5040116	472
925 1 1/2	5385578	5040159	472
925 1 1/4	5385516	5040132	472
925 1/2	5385332	5040078	472
925 1/4	5385219	5040035	472
925 3/4	5385394	5040094	472
925 3/8	5385271	5040051	472
927 0	5388517	5057507	471
927 1	5388579	5057515	471
927 2	5388630	5057523	471
927 2 6-K	5699651	5057599	595
927 4	5388692	5057558	471
		price/100	
927 BAND-VA	5805458	5057922	471
		/100 pc.	
927 SCH-K-VA	5805519	5057930	471
928	5385936	5040507	472
937 50	5385998	5043018	474
939	5386056	5043107	474
942 11	5384557	5038014	472
942 15	5384618	5038030	472
942 18	5384670	5038057	472
942 22	5384731	5038073	472
942 28	5384793	5038081	472
942 35	5384854	5038111	472
942 43	5384915	5038138	472
942 49	5384977	5038154	472
950 Z 1	5386353	5050111	473
950 Z 1 1/2	5386476	5050154	473
950 Z 1 1/4	5386414	5050138	473
950 Z 1 3/4	5386537	5050170	473
950 Z 1/2	5386230	5050073	473
950 Z 1/4	5386117	5050030	473
950 Z 2	5386599	5050197	473
950 Z 3/4	5386292	5050081	473

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951	5386650	5051509	473
952 Z 1	5386957	5052114	473
952 Z 1 1/2	5387077	5052157	473
952 Z 1 1/4	5387015	5052130	473
952 Z 1/2	5386834	5052076	473
952 Z 2	5387190	5052181	473
952 Z 3/4	5386896	5052092	473
985 M6 25	5250395	3133028	575
985 M6 35	5250456	3133036	575
985 M8 35	5250579	3133230	575
AS 3x16	6190386	5012010	244
AS 3x16	6190386	5012010	261
AS 3x16	6190386	5012010	327
		/pc.	
C20-0-255	6329694	5095600	243
C50-0-255	6337620	5095609	165
CNS 3-D-D	5952817	5092701	276
CNS-D-D	5314837	5092604	277
DLS-BS	5685333	5082382	371
DS-7 16 M/W	5030881	5093171	360
DS-BNC M/M	5391098	5093260	355
DS-BNC M/W	5391036	5093252	353
DS-BNC W/W	5390978	5093236	354
DS-F M/W	5022732	5093275	361
DS-F W/W	5022619	5093272	362
DS-N M/W	5805991	5093996	356
DS-N W/W	5962243	5093988	357
DS-N-6 M/W	6463831	5093998	358
DS-SMA W/W	5867050	5093277	363
DS-TNC M/W	5087250	5093270	359
		/100 pc.	
DW FL30x3,5	6421053	2360043	500
DW RD10	6421046	2360041	500
EKL 25 M6	6049080	6404006	475
EKL 35 M6	6049202	6404014	475
		/pc.	
EX PAS 10	6427680	5015270	467
EX PAS 5	6427628	5015265	467
FC-D	5035053	5092800	270
FC-ISDN-D	5047223	5092812	274
FC-RJ-D	5047254	5092828	275
FC-SAT-D	5035176	5092816	272
FC-TAE-D	5035237	5092824	273
FC-TV-D	5035114	5092808	271
FDB-2 24-M	5683339	5098380	435
FDB-2 24-N	5683384	5098390	437
FDB-3 24-M	5683346	5098382	436
FDB-3 24-N	5683391	5098392	438
		/100 pc.	
F-FIX-10	5070054	5403103	515
F-FIX-10B	5070061	5403110	515
		/pc.	
F-FIX-132	5613572	5403330	518
F-Fix-132-300	5813903	5403333	518
		/100 pc.	
F-FIX-16	5548713	5403200	514

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F-FIX-B10	5070085	5403124	515
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F-FIX-B16	5548959	5403235	515
F-FIX-B16	5548959	5403235	584
F-FIX-B16 3B	5926320	5403238	522
F-FIX-B16 3B	5926320	5403238	525
F-FIX-B16 3B	5926320	5403238	595
		/pc.	
F-FIX-BASIS	5034933	5403324	513
F-FIX-JUNIOR	5034872	5403308	513
		/100 pc.	
F-FIX-KL	5548775	5403219	515
F-FIX-S10	5070078	5403117	515
F-FIX-S10	5070078	5403117	584
F-FIX-S16	5548898	5403227	514
F-FIX-S16	5548898	5403227	522
F-FIX-S16	5548898	5403227	525
F-FIX-S16	5548898	5403227	584
F-FIX-S16	5548898	5403227	595
		price/100	
FL 20-CU	5382331	5021804	480
FL 20-CU	5382331	5021804	510
		/pc.	
FLD 110	5578413	5098646	407
FLD 12	5578376	5098603	403
FLD 2-110	5578512	5098859	411
FLD 2-12	5578444	5098808	409
FLD 2-24	5578451	5098816	410
FLD 24	5578383	5098611	404
FLD 2-5	5578529	5098867	408
FLD 48	5578390	5098630	405
FLD 5	5578369	5098600	402
FLD 60	5578406	5098638	406
FRD 110	5578338	5098557	400
FRD 12	5578291	5098506	397
FRD 2-24	5578420	5098727	401
FRD 24	5578307	5098514	398
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FRD 5	5578284	5098492	396
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irod 12	6219346	5400812	524
irod 14	6219353	5400814	524
irod 19	6219360	5400817	524
ISAV1000R	5004608	5408849	586
ISAV1000W	5009733	5408852	586
		price/100	
isCon 750 LGR	5888123	5407995	588
isCon 750 LGR	5888154	5407997	588
isCon 750 SW	5674573	5408002	588
isCon 750 SW	5674627	5408004	588
isCon 750 SW	5854265	5408006	588
		/pc.	
isCon AP1-16 VA	5674696	5408026	595
isCon AP2-16 VA	5674702	5408028	595
isCon connect	5674689	5408022	588
isCon DH	5674863	5408043	591
		/100 pc.	
isCon EPPA 004	5813781	5408060	598
		/pc.	
isCon H 26 VA	5872696	5408064	589
isCon H VA	5699668	5408056	589
isCon H280 26 PA	5872757	5408072	590
isCon H280 26 VA	5872764	5408074	590
isCon H280 PA	5674887	5408049	590
isCon H280 VA	5674870	5408047	590
isCon HS 26 PA	5872702	5408066	590
isCon HS 26 VA	5872740	5408068	590
isCon HS VA	5674726	5408052	590
isCon HWS	5813774	5408058	598
isCon IN connect	5864172	5408024	593
isCon IN PAE	5871569	5408031	592
isCon PAE	5674719	5408036	589
isCon stripper 2	6095346	5408013	588

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isFang 3B-100 AL	5802433	5408966	521
isFang 3B-100 AL	5802433	5408966	594
isFang 3B-100-A	5859550	5408930	592
isFang 3B-150	5674931	5408969	521
isFang 3B-150	5674931	5408969	594
isFang 3B-150 AL	5802440	5408967	521
isFang 3B-150 AL	5802440	5408967	594
isFang 3B-150-A	5859567	5408932	592
isFang 3B-250-A	6219452	5408902	592
isFang 3B-G1	5674948	5408971	521
isFang 3B-G1	5674948	5408971	524
isFang 3B-G1	5674948	5408971	594
isFang 3B-G2	5674979	5408972	521
isFang 3B-G2	5674979	5408972	524
isFang 3B-G2	5674979	5408972	594
isFang 3B-G3	5674986	5408973	521
isFang 3B-G3	5674986	5408973	524
isFang 3B-G3	5674986	5408973	594
isFang 3B-G4	6219469	5408905	521
isFang 3B-G4	6219469	5408905	524
isFang 3B-G4	6219469	5408905	594
isFang 4000	5670056	5408942	521
isFang 4000	5670056	5408942	594
isFang 4000 AL	5785330	5408943	521
isFang 4000 AL	5785330	5408943	594
isFang 6000	5670063	5408946	521
isFang 6000	5670063	5408946	594
isFang 6000 AL	5785347	5408947	521
isFang 6000 AL	5785347	5408947	594
isFang IN 10000	6219407	5408870	596
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isFang IN 6000	5871620	5408936	596
isFang IN 8000	6219391	5408868	596
isFang IN-A 4000	5871668	5408938	592
isFang IN-A 6000	5871675	5408940	592
isFang IN-A 8000	6219414	5408888	592
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isFang TR100	5670100	5408956	523
isFang TR100	5670100	5408956	597
isFang TR100 100	5849360	5408955	523
isFang TR100 100	5849360	5408955	597
isFang TR100 200	5849391	5408957	523
isFang TR100 200	5849391	5408957	597
isFang TR100 300	5849407	5408959	523
isFang TR100 300	5849407	5408959	597
isFang TS40-50	5670117	5408958	523
isFang TS40-50	5670117	5408958	597
isFang TS50-60	5670124	5408960	523
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isFang TS50x50	5670131	5408964	596
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isFang TW200	5670094	5408954	597
isFang TW200 12	6219476	5408910	522
isFang TW200 12	6219476	5408910	597
isFang TW200 Set	6034314	5408914	523
isFang TW200 Set	6034314	5408914	597
isFang TW30	5670087	5408952	522
isFang TW30	5670087	5408952	598
isFang TW80	5670070	5408950	522
isFang TW80	5670070	5408950	598
ISO-A-1030	5770497	5408820	586
ISO-A-150 8	6036226	5408800	586
ISO-A-500	5542773	5408806	586
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ISOLAB	5921738	5096812	446
KOAX B-E2 FF-F	6415731	5082434	370
KOAX B-E2 MF-C	6415717	5082430	368
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LC 63	5509899	5096970	116
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LE HAMMER-B	5087137	3043614	489
LE HAMMER-B-II	5421627	3043628	489
LE HAMMER-H	5087076	3043610	489
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LFC	5425182	5096786	446
LSA-A-LEI	5525134	5084008	348
LSA-BF-180	5525370	5084024	346
LSA-BF-24	5525431	5084028	347
LSA-B-MAG	5525318	5084020	345
LSA-E	5525493	5084032	348
LSA-E-LEI	5525257	5084016	348
LSA-G	5110750	5084048	349
LSA-M	5525554	5084036	348
LSA-T-LEI	5525196	5084012	348
LSA-TOOL	5525615	5084040	349
LSC I+II	6465644	5091722	448
LSC I+II	6465644	5091722	574
MB-FS	5813484	5096693	261
MB-SG	5616375	5096695	261
MB-SG	5616375	5096695	327
MC 125-B NPE	5966449	5096863	112
MC 50-B 0 VDE	5480730	5096820	115
MC 50-B 0-OS	5051428	5096825	115
MC 50-B 3	5077046	5096876	111
MC 50-B 3+1	5077084	5096878	110
MC 50-B U VDE	5480792	5096839	116
MC 50-B VDE	5966388	5096847	113
MC 50-B-OS	5051411	5096851	114
MC V3	5531135	5096884	116
MC V4	5531197	5096886	116
MCD 125-B NPE	5541394	5096865	104
MCD 50-B	5541158	5096849	102
MCD 50-B 0	5544517	5096822	115
MCD 50-B 0-OS	5051473	5096827	115
MCD 50-B 3	5077077	5096877	100
MCD 50-B 3+1	5077091	5096879	98
MCD 50-B 3+1-OS	5288299	5096836	99
MCD 50-B 3+1-VG	5362036	5096875	107
MCD 50-B 3-OS	5288282	5096835	101
MCD 50-B 3-VG	5362029	5096874	108
MCD 50-B-OS	5051466	5096852	103
MCF 35-1+FS-440	5990116	5096974	119
MCF 35-P3+FS-440	5995012	5096976	120
MCF-MS-M10	5995029	5096990	121
MCF-MS-P1	5995036	5096992	121
MCF-MS-P3	5995043	5096994	121
MDP-2 D-12-T-10	5787372	5098415	423
MDP-2 D-24-T	5406860	5098422	416
MDP-2 D-24-T-10	5787389	5098425	425
MDP-2 D-48-T	5406891	5098442	419
MDP-2 D-5-T	5406839	5098404	413
MDP-3 D-24-T	5406877	5098427	417
MDP-3 D-48-T	5406907	5098446	420
MDP-3 D-5-T	5406846	5098407	414
MDP-4 D-12-T-10	5773610	5098419	424
MDP-4 D-24-EX	5848523	5098432	432
MDP-4 D-24-T	5406884	5098431	418
MDP-4 D-24-T-10	5625131	5098433	426
MDP-4 D-48-EX	5848530	5098452	433
MDP-4 D-48-T	5406914	5098450	421
MDP-4 D-5-EX	5848516	5098412	431
MDP-4 D-5-T	5406853	5098411	415
MDP-4 D-5-T-10	5625124	5098413	422
		/VPE	
MK-B	5461111	5091322	447
MK-B	5461111	5091322	573
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M-Quick M25 SW	5505396	2153787	590
M-Quick M32 LGR	5741671	2153734	590

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OEC 25	6427925	5009200	505
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PCS	5461296	5091438	572
		/pc.	
PCS-CS-D	5461654	5091683	447
PCS-CS-D	5461654	5091683	573
PCS-CS-GB	5896111	5091691	447
PCS-CS-GB	5896111	5091691	573
		/VPE	
PCS-H	5461470	5091527	447
PCS-H	5461470	5091527	573
		/100 pc.	
ProtectionBall	6409327	5018014	480
		/pc.	
PS 2-B+C/TT+TNS	5759782	5089748	167
PS3-B+C TNC	5405528	5089754	170
PS3-B+C TNC+FS	5405535	5089756	171
PS3-B+C-320	5806813	5089755	172
PS3-B+C-320+FS	5816614	5089757	173
PS3-VA TNC	5405566	5089768	176
PS3-VA TNC+FS	5405580	5089775	177
PS4-B+C TNS+FS	5405559	5089763	169
PS4-B+C TT+TNS	5405542	5089761	168
PS4-VA TT+FS	5405597	5089777	175
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		price/100	
RD 10	5381617	5021103	481
RD 10	5381617	5021103	510
RD 10-ALU	5381976	5021308	481
RD 10-ALU	5381976	5021308	511
RD 10-CU	5382096	5021502	482
RD 10-CU	5382096	5021502	512
RD 10-PVC	5381730	5021162	481
RD 10-PVC	5381730	5021162	511
RD 10-V2A	5801375	5021227	482
RD 10-V2A	5801375	5021227	511
RD 10-V2A	5680567	5021239	482
RD 10-V2A	5680567	5021239	511
RD 10-V4A	5902058	5021642	482
RD 10-V4A	5902058	5021642	511
RD 10-V4A	5680581	5021647	482
RD 10-V4A	5680581	5021647	511
RD 10-V4A 20	6282425	5021640	482
RD 10-V4A 20	6282425	5021640	511
RD 8-ALU	5381914	5021286	481
RD 8-ALU	5381914	5021286	511
RD 8-ALU-T	5901273	5021294	481
RD 8-ALU-T	5901273	5021294	511
RD 8-ALU-T 75	6286232	5021296	481
RD 8-ALU-T 75	6286232	5021296	511
RD 8-CU	5382034	5021480	482
RD 8-CU	5382034	5021480	512
RD 8-FT	5381556	5021081	481
RD 8-FT	5381556	5021081	510
RD 8-FT 50	5423898	5021050	481
RD 8-FT 50	5423898	5021050	510
RD 8-PVC	5067474	5021332	481
RD 8-PVC	5067474	5021332	511
RD 8-V2A	5680529	5021235	482
RD 8-V2A	5680529	5021235	511
RD 8-V4A	5680574	5021644	482
RD 8-V4A	5680574	5021644	511
		/pc.	
RJ11-TELE 4-C	6415656	5081975	339
RJ11-TELE 4-F	6415663	5081977	340
RJ45 S-ATM 8-F	6415694	5081990	367
RJ45 S-E100 4-B	6415748	5081001	373
RJ45 S-E100 4-C	6415755	5081003	374
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RK-FIX VA	5433729	5316459	559
		price/100	
S 11-CU	5836209	5021654	482
S 11-CU	5836209	5021654	512
S 9-CU	6033768	5021652	482
S 9-CU	6033768	5021652	512
S-11-CU SN	5938668	5021656	482
S-11-CU SN	5938668	5021656	512
		/pc.	
SD09-V11 9	5916277	5080061	379
SD09-V24 9	5915973	5080053	377
SD15-V24 15	5916031	5080150	378
SD-Fix	5670735	5403335	518
		/100 pc.	
SQ M6	5016069	2146509	589
SQ PP	5016182	2351706	589
SQ-20 SW	5655367	2146164	589
SQ-25 LGR	5595717	2146207	589
		/pc.	
S-UHF M/W	5390732	5093023	351
S-UHF W/W	5390671	5093015	352
TD-2/D-HS	6087723	5081694	336
TD-2D-V	6427444	5081698	333
TD-4/I	6034352	5081690	334
TD-4/I-TAE-F	6046478	5081692	335
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		/100 pc.	
TrayFix	5738428	5403100	516
TrayFix	5738428	5403100	574
		/pc.	
TrayFix-10-L	6095452	5403101	516
TrayFix-10-S	6095469	5403102	516
TrayFix-16-L	6098613	5403098	516
TrayFix-16-S	6098620	5403099	516
TV 4+1	5022978	5083400	364
ÜSM-A	5080886	5092451	278
ÜSM-A-150	5475804	5092466	278
ÜSM-A-2	5247098	5092460	279
ÜSM-A-4	5613596	5092472	280
ÜSM-LED 230	6035441	5092480	263
ÜSM-LED 230-65	6439034	5092478	264
ÜSM-LED 440	6035496	5092482	263
ÜSM-ST-230-1P+PE	6426690	5092441	281
ÜSS 45-A-RW	6117611	6117465	283
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V10 COMPACT 255	5076551	5093380	251
V10 COMPACT 385	5126041	5093384	252
V10 COMPACT-AS	5299448	5093391	253
V10 COMPACT-FS	6098583	5093382	254
V10-C 0-150	5158103	5093400	260
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Always indicate the item number when ordering.

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Terms and conditions of sale and delivery of the companies OBO Bettermann GmbH & Co. KG and OBO Bettermann Projekt und Systemtechnik GmbH, and OBO Befestigungselemente GmbH, Menden

1. All our supplies and services shall be governed exclusively by the following terms and conditions, including our additional terms and conditions for cable tray business transactions. Any terms and conditions of business and purchasing of the customer shall be valid only if we have acknowledged them in writing. Our quotations are without engagement; they are mere invitations to submit contract offers. Any and all transactions and agreements, including those entered into by our employees and agents shall only be binding upon our written confirmation or invoicing. The foregoing provision shall also apply to any modifications of the agreed formal requirements.

2. The documents and data pertaining to the quotation, such as illustrations, brochures, drawings, dimensions, loading capacity values and weight details are approximate only, unless they are expressly stipulated to be binding.

Samples are non-binding samples for inspection. Any purchase according to sample will be subject to customary deviations and deviations resulting from normal production processes. The properties of the sample shall be no

guaranteed quality of the purchase object unless expressly stated otherwise in the confirmation of order. Samples must be returned to us at the latest within four weeks in perfect condition. If they are not returned within this period in proper condition, we shall be entitled to charge the purchase price for the sample in accordance with our current price list. All information on our products, in particular the illustrations, drawings, weight, dimension and performance data included in our quotations and printed matter shall be regarded as approximate average values and shall not represent any quality guarantee.

With regard to products made according to customer drawings, samples and other instructions of the customer, we will not provide any warranty nor assume any liability for the due and proper functioning of the product or for any other defects if and to the extent they are based upon the customer's specifications. The customer shall indemnify us from any third party claims, including claims for product liability as may be asserted against us for damages resulting from the products unless we have caused such damages by intent or gross negligence. The customer shall warrant that the manufacture and supply of products made in accordance with his instructions will not infringe any proprietary rights of third parties. Should any proprietary rights be asserted against us, we shall be entitled, without any legal review of the third party claims, to withdraw from the contract after hearing the customer, unless the third party withdraws the claims asserted against us under its proprietary rights within eight days by written declaration. The customer shall compensate us for any damage sustained as a result of the assertion of proprietary rights. In case of withdrawal, the work we have carried out so far shall be remunerated. Further rights under the statutory provisions shall not be affected thereby.

Any moulds, tools and design data produced by us for the execution of the order shall be our exclusive property. Unless expressly agreed otherwise, the customer shall not have any claims thereto, even if he has contributed to the costs of producing any such moulds, tools and design data.

3. The packing, shipping route and means of transportation shall be left to our discretion in the absence of any other agreements. They shall be charged at their cost price. We will take back undamaged cases, when being returned carriage paid, at 2/3 of the amount invoiced. The one-way or pool pallets used for transport shall be either exchanged upon taking delivery or returned. The smallest packing units stocked and listed may not be broken up for rationalisation reasons. In case of orders for different quantities, the nearest packing unit will be supplied.

We reserve the right to deviate from the agreed delivery quantity, in particular in the case of custom-made products, to a customary extent or in conformity with national or international standards. In case of a demand for adhering to a precise quantity, an express reference is necessary and subject to confirmation.

Master and call orders shall oblige the customer to accept the total quantity on which the master/call order is based. Where no particular call orders are specified in the contract, the total quantity of the master call order must be called within twelve months. If the customer fails to adhere to call deadlines, we shall be entitled to deliver and charge the total quantity in full after four weeks from written notice with reference to the consequences of any failure to call. Our rights arising from any default of the customer shall not be affected thereby.

4. Unless otherwise agreed, our prices are quoted ex works and do not include packing and insurance. The value added tax at the rate applicable on the date of dispatch will be added to our prices. The purchaser shall ensure the correctness of his VAT identification number, which he must notify to us immediately without being asked. He shall undertake to inform both us and the competent domestic tax authority without delay of any change in his name, address and VAT identification number.

Delivery shall be franco domicile within Germany, i.e. carriage and packing prepaid, if the net order value is in excess of € 1,200. For small orders below € 100 (net excluding value added tax), we shall invoice a lower quantity surcharge of € 10 (net) per order. Upon transfer of our supplies and services to a carrier or forwarding agent, at the latest upon their leaving our warehouse or supply plant, the risk shall pass to the recipient, even in case of deliveries free place of destination.

5. Delivery periods and delivery deadlines shall be approximate only unless we have expressly stated in writing that they are binding. Delivery periods shall commence upon receipt of our confirmation of order, but not before clarification of all execution details, ex place of delivery. The customer shall only be entitled to withdraw from the contract after having granted a reasonable extension of time. We reserve the right to make partial deliveries. Claims for damages and reimbursement of expenses - for any reason whatsoever - shall be subject to the provisions set out in article 10.

In the event of any circumstances that are beyond our control within the scope of normal operating risks and obstruct or make impracticable any delivery, we shall be entitled to suspend delivery by the duration of such

obstruction plus a reasonable start-up period or to withdraw from the contract for the part not yet fulfilled. The purchaser can demand a statement from us as to whether we wish to deliver within a reasonable period or withdraw. If we fail to make such a statement, the purchaser may withdraw. Our notice to the purchaser shall be deemed to be sufficient evidence that we have been prevented from delivering.

Delivery time is extended in case of such events as labour disputes, strikes and lockouts, orders from the authorities, difficulties with the procurement of materials, spoiled work or post-processing, shutdowns and staff

shortage as well as shortage of means of transport, and general occurrence of unforeseen events beyond our scope of influence, by the length of duration of these events.

6. Payments shall be made upon receipt of invoice less a 3% cash discount for payment within 10 days or net after 30 days from date of invoice. Erection work and all paid labour work must be paid within 10 days without deduction of any cash discount. In case of non-cash payments, the date of the credit note will be deemed to be the date of receipt of payment. Payments received shall always be credited first against costs, then against interest and then against the earliest liability. Cheques and bills of exchange shall only be accepted as means of payment.

Any payment by bill of exchange shall be subject to a prior separate and written agreement, whereby all bill costs shall be borne by the customer and no discount can be granted. The customer shall have no right to refuse performance and no right of retention - for any legal reason whatsoever - unless we have acknowledged his claim beforehand in writing or his claim has the force of law.

The customer shall only be entitled to set off claims which have the force of law, are undisputed or acknowledged by us in writing.

7. We shall retain title to the goods supplied by us until all our claims arising from our business transactions with the customer have been satisfied - current account clause - and all bills of exchange or cheques submitted for payment by the customer have been honoured.

Any treatment or processing of goods subject to our retention of title (reserved goods) shall be carried out for us as the manufacturer in accordance with § 950 BGB (German Civil Code) without any obligation on our part. If our reserved goods are to be regarded as the main item or the main item is owned by the customer, full title to the new item shall pass to us when it is created. In other cases, we shall acquire a co-ownership interest in the new item in the proportion of the sales value of our reserved goods to the other goods used for the new item at the time of processing, intermingling, joining or mixing. The customer shall take custody of our ownership or co-ownership interest free of charge; it shall be treated as reserved goods.

Before transfer of title, our goods shall be neither pledged nor assigned as collateral without our prior consent. In addition, any third party rights or pledges shall be notified to us immediately and we shall be given all details and provided all documents necessary for intervention; otherwise the customer must bear our loss. In the latter case, our total claims against the customer shall also be immediately payable.

The customer shall be entitled to sell or to use our reserved goods in the ordinary course of business subject to the condition that the relevant claims are transferred in accordance with article 8 below. This right shall lapse upon the customer's failure to promptly meet his payment obligations towards us or in the event of any cheque or bill protests or his suspension of payments. In such cases, we shall be entitled to take back the goods provisionally at the customer's expense and to sell them at our duly exercised discretion after a corresponding reminder has been sent to the customer. We will then pass the due amount to the customer's credit.

8. If our goods are sold before payment of our claim, the customer shall be obliged to retain our title against his purchaser until the goods have been paid for in full by the purchaser. The claim arising against the purchaser from such resale as well as any other ancillary rights or security interests of the customer resulting from the sale and any claims for compensation in case of damage to or destruction of our reserved property, including the relevant insurance sum shall hereby be assigned to us. We hereby accept this assignment. Where our co-ownership interest is sold, the relevant claims shall be assigned in the amount corresponding to the value of our interest.

The customer shall, at our request, inform us of his purchasers, notify them of the assignment made and provide us with any and all documents required to assert our rights.

As long as the customer meets his contractual obligations without delay, he shall be authorised to collect the claims assigned. He shall keep the amounts collected on our behalf separately and remit them to us immediately

as soon and as far as our claims become due. The authorisation shall lapse in case of any cheque or bill protest of the customer or his definite suspension of payments. The customer shall bear the costs incurred for any action

taken against third parties and shall advance them upon request.

If the security provided to us by the retention of title and the anticipatory assignment should exceed the claims to be secured by more than 20%, we shall, at the customer's request, release paid supplies of our choice. Upon payment of all our claims by the customer, assigned claims shall pass to the customer.

9. Any complaints for obvious defects regarding the quantity or quality of our supplies and services that are identifiable upon careful inspection shall without delay, but at the latest within the period of limitation of eight days from arrival of the goods at the address of the customer or the person appointed by him, be notified in writing to us, not to our representatives. Slight deviations in dimensions and designs within the scope of defined technical tolerances shall not give rise to any right of complaint. Any rejected goods may only be returned to us with our prior written authorisation.

In case of justified complaints within the prescribed period, we shall, at our option, take remedial action by way of subsequent performance, by rectifying the defect, supplying non-defective goods or providing a credit note for the lower value calculated.

We shall be entitled to refuse subsequent performance in accordance with the statutory provisions. If we refuse subsequent performance, if any subsequent performance remains unsuccessful or if the customer cannot be reasonably expected to accept any subsequent performance, the latter shall be entitled to withdraw from the contract in compliance with the provisions of the following sentences. The customer shall only be entitled to withdraw from the contract - where a withdrawal is not excluded by law - upon the unsuccessful expiry of a reasonable period for subsequent performance set by him, unless this period was not required under the statutory provisions (§§ 281 para. 2, 323 para. 2, 440, 441 para. 1 BGB (German Civil Code)).

In case of his withdrawal, the customer shall be liable for any deterioration, destruction or loss of use resulting from any negligence or intent on his part. Any claims for damages or reimbursement of expenses of the customer shall be subject to the provisions set out in article 10.

In the case of any fraudulent concealment of a defect or in the case of any provision of a quality guarantee for the goods sold at the time of the passing of risk within the meaning of § 444 BGB (German Civil Code) (seller's declaration that the object sold has a specific property at the time of the passing of risk and that the seller, regardless of any fault on his part, intends to be answerable for any and all consequences resulting from its absence), the customer's rights shall be exclusively governed by the statutory provisions.

We shall - in addition to the statutory grounds for refusal - also be entitled to refuse subsequent performance if and as long as the customer fails to send us, at our request, the rejected goods or a sample thereof; the customer shall have no right of withdrawal for any such refusal. We may further refuse any subsequent performance if the goods concerned have been altered or modified without our consent unless the customer can prove that the defect was not caused by such alteration or modification.

The limitation period for any claims arising from defects shall be one year; in the case of goods which have been used in accordance with their intended purpose for a building and have caused its defectiveness, the limitation period shall be two years. The provisions of §§ 478, 479 BGB (German Civil Code) on recourse in the chain of suppliers shall not be affected thereby.

10. In the case of a pre-contractual, contractual or non-contractual breach of duty, including unsatisfactory delivery, tortious conduct and producer's liability, we shall only be liable for compensatory damages and reimbursement of expenses - subject to further contractual or statutory liability requirements - in the case of intent, gross negligence or slightly negligent breach of a material contractual duty (contractual duty the infringement of which jeopardises the fulfilment of the object of the contract). However - except in the case of intent - our liability shall be limited to the typical contractual damage that was foreseeable at the time the contract was entered into.

The purchaser shall not be permitted to make a claim for expenses incurred in vain.

Except for any breach of material duties, our liability for slight negligence shall be excluded, but in any case be limited to the amount of the purchase price.

Any claim asserted by the customer or a third party for payment of a contractual penalty shall be excluded.

With regard to damages caused by delay, we shall only be liable for slight negligence up to the amount of 5% of the purchase price agreed with us.

The exclusions and limitations of liability set forth above shall not apply in the event that a guarantee is given with respect to the quality of the object sold within the meaning of § 444 BGB (German Civil Code) if a defect is fraudulently concealed or in the event of injury to life, physical injury or injury to health, or strict liability under the German Product Liability Act.

Any and all claims for damages against us, for any legal reason whatsoever, shall become statute-barred at the latest after one year from delivery of the goods to the customer, in the case of tortious liability from the time of knowledge, or grossly negligent ignorance, of the circumstances giving rise to the claim and the person liable to pay damages. This provision shall not apply in the case of liability for intent and in the event that a guarantee is given for the quality of the object sold, in the case of fraudulent concealment of a defect or in the event of injury to life, physical injury or injury to health, or strict liability under the German Product Liability Act. Any shorter limitation periods shall take precedence.

11. We shall be entitled to process and store any customer data obtained with regard to or in connection with the business relationship in accordance with the German Federal Data Protection Act, irrespective of whether such data is provided by the purchaser himself or by any third parties.

12. Place of performance for delivery and payment is Menden/Sauerland. The court of competent jurisdiction for any and all disputes, including disputes with regard to bills of exchange and cheques, is the Local Court (Amtsgericht) of Menden or, at our option, the District Court (Landgericht) of Arnsberg, irrespective of the value of the object in dispute. We shall, however, also be entitled to take legal proceedings against the customer at the place of his registered office.

German law shall be exclusively applicable. The application of international purchase laws is hereby excluded.

Should, for any reason whatsoever, individual provisions of our terms and conditions of sale and delivery be invalid, the validity and binding nature of the other provisions shall not be affected thereby. The customer agrees, that the invalid provision shall be replaced by a valid provision that comes as close as possible to the economic meaning of the invalid provision.

13. The prices of products made of brass and copper are subject to certain fluctuations that are based on the relevant DEL listings. The prices of our brass articles are based on a DEL listing of € 150 for Ms 58, those of our copper products on a DEL value for electrolyte copper of € 200.

In case of any increase or reduction in these prices by more than € 15, a five per cent surcharge or deduction shall be made for each 15 points. The calculation of any such surcharges or deductions shall be based on the DEL listing of the date of our receipt of the order.

Valid from November 2015

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