

# UPST Battery



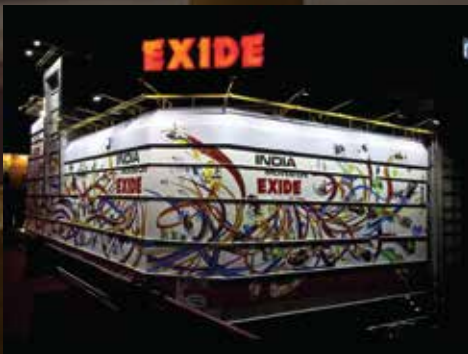
SEALED  
MAINTENANCE FREE  
VRLA BATTERIES



**EXIDE**

Exide Industries Limited, India

INDUSTRIAL  
SOLUTION  
**POWER**



- + Headquartered in **Kolkata**, India
- + Products : **Lead Acid Storage Batteries** : 2.5Ah to 20,000 Ah  
**Home UPS**  
**DC Power Solution**  
**Standby Products & Solutions**
- + **9 Manufacturing units** in India
- + **1 R&D Center** in India
- + **5 Wholly owned Subsidiaries** in India
- + Turnover of **USD 1.3 Billion**
- + An Integrated Manufacturing Unit for **Standby Systems and DC Power solutions** in Kolkata, India.

## TECHNICAL FEATURES

- Maintenance Free**  
No topping up is required
- Enhanced Performance**
  - Computer aided grid design for high power density
  - Excellent deep discharge recovery
  - Better thermal management in the module
  - Resistance to thermal runaway
- Ready-to-use**  
Supplied in factory charged condition
- State-of-the-art technology**
  - Argon arc welding employed
  - Heat sealing checked by Helium Ion Tester
  - Flame arrestor fitted safety valve
- Eco-friendly**
  - No emission of corrosive fumes or gases under normal operating conditions.
  - Cadmium free

- Easy handling & no installation constraints**  
Compact, easily transportable and can be used in any orientation without leakage or spillage of electrolyte.
- Low self discharge, Antimony - free positive alloy and hence self-discharge is less than 0.5% per week**
- Saving in floor space**  
Horizontally stackable modules, low foot-print
- User friendly**
  - Front access design
  - Easy cell replacement
  - can be used in any orientation
- Life Expectancy in number of cycles at 27°C**
  - 4000 Cycles at 20% DOD
  - 1800 cycles at 50% DOD
  - 1200 cycles at 80% DOD
- Allowable Ripple**
  - 5A (rms) per 100Ah C10 Capacity during float charge
  - 10A (rms) per 100Ah C10 Capacity during bulk phase of charging

## RECOMMENDED FLOAT CHARGE

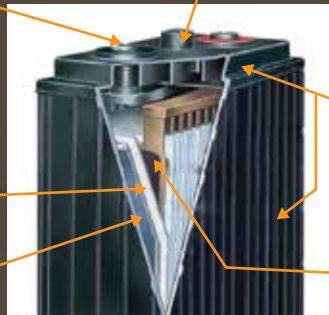
Ambient temp (deg. C)	Recommended Float Voltage per cell (V)	Maximum Charging Current (Ampere)
-5 to 14	2.27 +/- 0.01	0.15C
15 to 24	2.25 +/- 0.01	0.15C
25 to 34	2.25 +/- 0.01	0.15C
35 to 40	2.20 +/- 0.01	0.15C

## CONSTRUCTION

**Terminal**  
(Specially designed for sustained high current damages)

**Separator** (Double layer, high density, absorptive glass mat nonwoven with excellent porosity)

**Negative Plate** (Lead calcium tin alloy grid providing low corrosion & maintenance free characteristics)



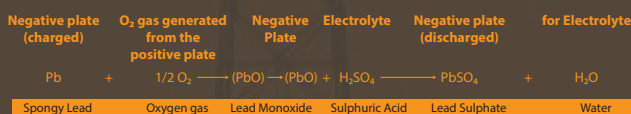
**Flame Arresting Vent Plug housing the safety valve**  
(Explosion-proof, self resealing and pressure regulating)

**Container & Lid made of high grade polypropylene co-polymer (PPCP)**

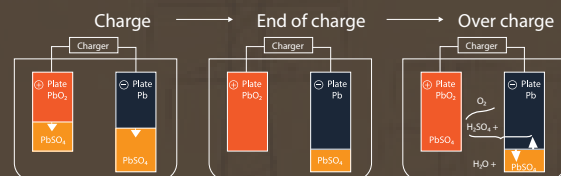
**Positive Plate** (Lead calcium tin alloy grid for low corrosion & low self discharge rates)

## RECOMBINATION PRINCIPLE

The recombination principle may be expressed as :



Recombination principle is illustrated in Figure as :



### Performance Characteristics Conforming

JIS: C8704 - 2: 1999

ANSI T1 330 (US specification for Telecom Battery)

IEC 60896 - 21 & 22

Tec Specification No. G/BAT - 01/02 MARCH 2000 with Latest Amendment

RDSO Specification No. IRS:593-96 with Latest Amendment

Table No. : 1

## TECHNICAL SPECIFICATIONS OF UNIT MODULES

Battery Model	Nominal Voltage (V)	Rated capacity (Ah) 10 hr, 1.75 v/cell	Module Dimensions (mm)			Overall Module Dimensions (mm) with cells and connector shrouds			Total Weight Module with cells (Kg) $\pm$ 5%
			L $\pm$ 5	D $\pm$ 5	H $\pm$ 5	L $\pm$ 5	D $\pm$ 5	H $\pm$ 5	
5UPST80	10	80	978	400	78	978	403	78	38.25
5UPST120	10	120	978	400	78	978	403	78	46.00
5UPST125	10	125	978	400	78	978	403	78	46.00
6UPST80	12	80	650	400	146	650	403	146	43.50
6UPST120	12	120	650	400	146	650	403	146	52.80
6UPST125	12	125	650	400	146	650	403	146	52.80
10UPST100	20	100	995	239	160	995	242	160	68.50
6UPST165	12	165	588	372	210	588	415	210	75.00
6UPST200	12	200	588	372	210	588	415	210	83.10
6UPST240	12	240	588	378	288	588	426	288	100.00
6UPST250	12	250	588	378	288	588	426	288	100.00
6UPST300	12	300	588	378	288	588	426	288	124.90
6UPST320	12	320	588	378	288	588	426	288	124.90
4UPST360	8	360	733	369	236	733	415	236	116.70
4UPST400	8	400	733	369	236	733	415	236	116.70
4UPST415	8	415	733	369	236	733	415	236	116.70
4UPST425	8	425	733	369	236	733	415	236	116.70
4UPST440	8	440	733	369	236	733	415	236	116.70
4UPST500	8	500	880	563	176	880	596	176	154.90
4UPST535	8	535	880	563	176	880	596	176	154.90
4UPST600	8	600	786	468	244	786	510	244	167.50
4UPST650	8	650	880	563	176	880	594	176	171.70
4UPST700	8	700	880	563	194	880	600	194	195.00
4UPST720	8	720	880	563	194	880	600	194	195.00
4UPST750	8	750	880	563	194	880	600	194	195.00
4UPST800	8	800	880	563	212	880	600	212	217.70
4UPST825	8	825	880	563	212	880	600	212	217.70
4UPST850	8	850	880	563	212	880	600	212	217.70
2UPST900	4	900	462	468	363	462	510	363	142.10
2UPST1000	4	1000	462	468	363	462	510	363	142.10
2UPST1100	4	1100	462	468	363	462	510	363	152.10
2UPST1250	4	1250	436	466	511	436	510	511	188.00
2UPST1500	4	1500	436	466	511	436	510	511	219.00
2UPST1600	4	1600	436	466	511	436	510	511	219.00
UPST2000	2	2000	462	468	363	462	510	363	142.10
UPST2500	2	2500	436	466	511	436	510	511	188.00
UPST3000	2	3000	436	466	511	436	510	511	219.00
UPST4000	2	4000	436	466	362	436	510	362	280.20
UPST5000	2	5000	436	466	511	436	510	511	345.00

Note : Batteries of intermediate capacities can be made available on request.

Table no 2

## DISCHARGE RATE IN AMPS AT 27 DEG CELSIUS

Cell type	Final Volt v/cell	1 min	5mins	15mins	30mins	60mins	90mins	2 hrs	3 hrs	4 hrs	5 hrs	6 hrs	8 hrs	10 hrs
UPST 80	1.80			64	53	44	34	28	21	17	14	12	10	8
	1.75	192	128	72	58	48	37	30	23	18	15	13	10	8
	1.70	194	131	78	61	51	39	32	24	19	16	13	10	9
	1.65	196	135	83	64	53	40	33	24	19	16	14	11	9
	1.60	201	140	87	65	54	41	33	25	20	17	14	11	9
UPST 100	1.80			81	67	55	43	36	27	22	18	15	12	10
	1.75	240	160	90	72	60	46	38	28	23	19	16	13	10
	1.70	243	164	98	76	64	48	39	29	24	20	17	13	11
	1.65	245	169	104	80	66	50	41	31	24	20	17	13	11
	1.60	251	175	109	82	68	51	42	31	25	21	18	14	11
UPST 125	1.80			97	80	66	51	43	32	26	22	18	15	12
	1.75	288	192	108	86	72	55	45	34	27	23	19	15	12.5
	1.70	291	197	118	92	76	58	47	35	28	23	20	16	13
	1.65	294	203	125	95	79	60	49	37	29	24	21	16	13
	1.60	301	210	130	98	82	61	50	38	30	25	21	16	13
UPST 165	1.80			133	110	91	70	59	44	36	30	25	20	16
	1.75	96	264	149	119	99	76	62	47	38	31	27	21	16.5
	1.70	400	271	162	126	105	80	65	49	39	32	28	21	18
	1.65	405	279	172	131	109	82	67	50	40	33	28	22	18
	1.60	414	288	179	135	112	84	69	52	41	34	29	23	18
UPST 200	1.80			161	133	110	85	71	54	43	36	31	24	20
	1.75	480	320	180	144	120	92	75	57	46	38	32	25	21
	1.70	485	329	196	153	127	97	79	59	47	39	34	26	22
	1.65	491	338	208	159	132	100	81	61	48	40	34	27	22
	1.60	502	349	217	163	136	102	83	63	50	41	35	27	22
UPST 240	1.80			202	167	138	107	89	67	54	45	39	31	25
	1.75	600	400	225	180	151	115	94	71	57	47	41	32	26
	1.70	606	411	245	191	159	121	99	74	59	49	42	33	27
	1.65	613	423	261	199	166	125	102	77	61	50	43	34	28
	1.60	628	437	272	204	170	127	104	79	63	52	44	34	28
UPST 300	1.80			242	200	166	128	107	80	65	54	46	37	30
	1.75	720	480	270	216	181	138	113	85	68	56	49	38	31
	1.70	728	493	294	229	191	145	118	88	71	59	50	39	32
	1.65	736	507	313	239	199	149	122	92	73	60	52	40	33
	1.60	753	524	326	245	204	152	125	94	75	62	53	41	34
UPST 320	1.80		904	629	391	294	245	183	150	113	90	75	64	49
	1.75	792	528	297	238	199	151	124	94	75	62	53	42	34
	1.70	800	542	323	252	210	159	130	97	78	64	55	43	36
	1.65	809	558	344	262	218	164	134	101	80	66	57	44	36
	1.60	828	577	359	269	224	168	138	104	83	68	58	45	37

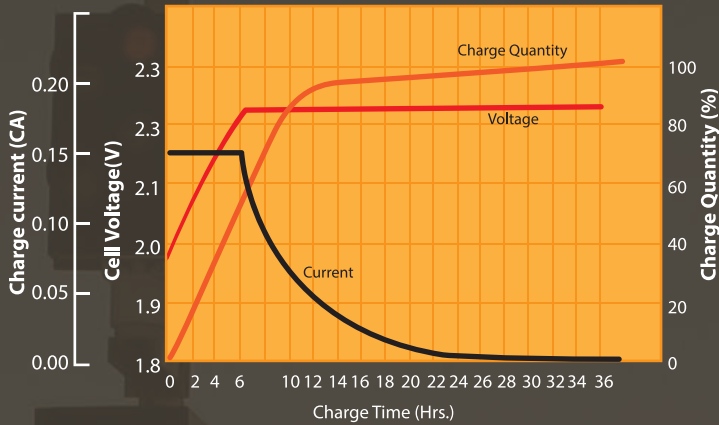
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## DISCHARGE RATE IN AMPS AT 27 DEG CELSIUS

Cell type	Final Volt v/cell	1 min	5mins	15mins	30mins	60mins	90mins	2 hrs	3 hrs	4 hrs	5 hrs	6 hrs	8 hrs	10 hrs
UPST 360	1.80				242	204	171	133	113	85	69	58	50	40
	1.75	864			290	240	199	154	128	96	78	65	55	44
	1.70	873	864	576	324	259	217	165	136	102	82	68	58	45
	1.65	883	873	591	353	275	229	174	142	106	85	70	60	47
	1.60	904	883	608	375	286	238	179	147	110	87	72	62	48
UPST 400	1.80			322	267	221	191	142	107	86	72	62	49	40
	1.75	960	640	360	288	241	184	151	114	91	75	65	50	42
	1.70	970	657	392	305	255	193	158	118	94	78	67	52	43
	1.65	981	676	417	318	265	199	163	122	97	80	69	54	44
	1.60	1004	699	435	326	272	203	167	126	100	83	71	55	45
UPST 500	1.80			383	330	263	200	178	124	97	83	75	60	49
	1.75		550	428	348	274	211	182	128	99	85	76	62	50
	1.70	800	675	442	379	290	225	191	134	103	91	77	64	54
	1.65	865	733	461	390	299	235	196	135	105	95	80	65	55
	1.60	950	800	489	403	313	248	205	145	109	100	84	67	57
UPST 600	1.80			459	396	316	240	213	148	116	99	89	71	58
	1.75		660	513	417	328	253	218	153	119	101	91	74	60
	1.70	960	810	530	455	348	270	229	160	123	109	92	77	64
	1.65	1038	879	553	468	359	281	235	162	126	113	95	78	66
	1.60	1140	960	578	483	375	297	246	174	131	120	100	80	68
UPST 720	1.80			551	475	379	288	256	178	140	119	107	86	70
	1.75		792	616	500	394	303	262	184	143	122	109	89	72
	1.70	1152	972	636	546	418	324	274	192	148	131	111	92	77
	1.65	1246	1055	663	562	431	338	282	194	151	136	114	94	79
	1.60	1368	1152	704	580	450	356	295	209	157	144	120	96	81
UPST 800	1.80			612	528	421	320	284	198	155	132	119	95	78
	1.75		880	684	556	438	337	291	204	158	135	121	98	80
	1.70	1280	1080	707	606	464	360	305	214	164	146	123	102	86
	1.65	1384	1172	737	624	478	375	313	216	168	151	127	104	88
	1.60	1520	1280	782	644	500	396	328	232	174	160	134	106	90
UPST 1000	1.80			765	660	526	400	355	247	194	165	149	119	97
	1.75		1100	855	695	547	421	364	255	198	169	151	123	100
	1.70	1600	1350	884	758	580	450	381	267	205	182	154	128	107
	1.65	1730	1465	921	780	598	469	391	270	210	189	159	130	110
	1.60	1900	1600	978	805	625	495	410	290	218	200	167	133	113
UPST 1500	1.80			1148	990	789	600	533	371	291	248	224	179	146
	1.75		1650	1283	1043	821	632	546	383	297	254	227	185	150
	1.70	2400	2025	1326	1137	870	675	572	401	308	273	231	192	161
	1.65	2595	2198	1382	1170	897	704	587	405	315	284	239	195	165
	1.60	2850	2400	1467	1208	938	743	615	435	327	300	251	200	170

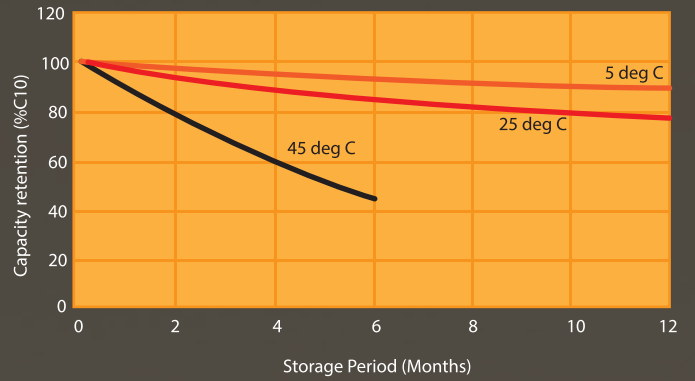
# Battery Characteristics

## Charge Characteristics



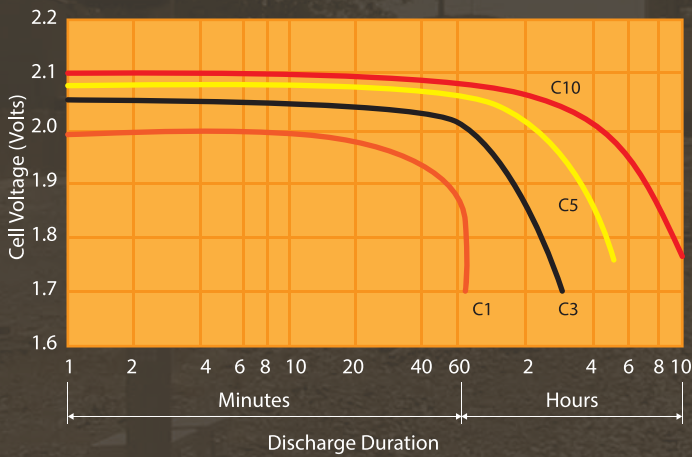
Temperature : 27 deg C  
 Discharge : 100% C10 rate  
 Recharge : 2.23 vpc  
 0.15C Amps

## Capacity Retention Characteristics

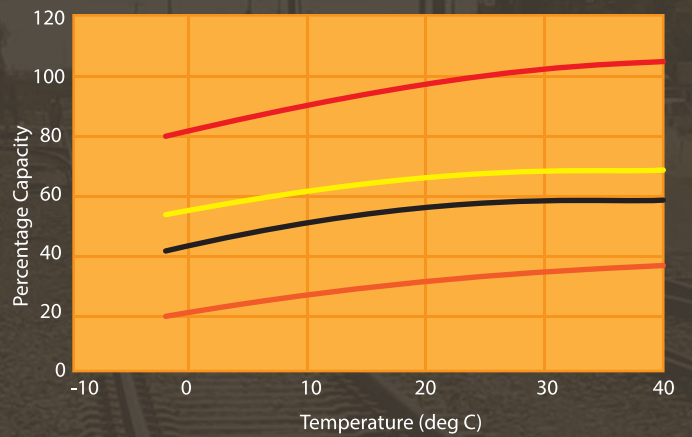


• Supplementary charge is recommended before capacity retention ratio drops less than 80%.

## Discharge Performance Curves



## Effect of Temperature on Capacity



Global Presence

- Norway
- UK
- Canada
- Croatia
- Poland
- Greece
- Malta
- Israel
- Jordan
- Egypt
- Bahrain
- Qatar
- Peru
- Argentina
- Mali
- Nigeria
- Botswana
- South Africa
- Zambia
- Tanzania
- Mozambique
- Kenya
- Mauritius
- UAE
- Sri Lanka
- Malaysia
- New Zealand
- Australia
- Singapore
- Indonesia
- Brunei
- Philippines
- Thailand
- Cambodia
- Vietnam
- Hong Kong
- Taiwan
- Bangladesh
- China
- Japan
- Korea
- Afghanistan
- Oman
- Kuwait
- Armenia
- Finland
- Germany
- Scotland



Manufacturing Facilities  
India

EXIDE\*



DYNEX

INDEX

CHLORIDE\*



\* Wherever we own the brand



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