ELMEASURE™
Possibilities...Infinite

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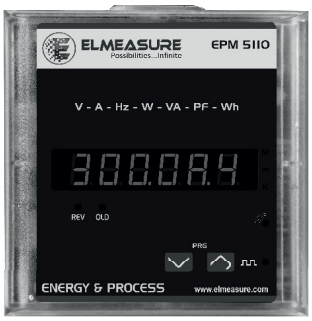

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PG/EPM/V0/1117

PROGRAMMING GUIDE
EPM 5110

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1. FEATURES

- Universal Auxiliary supply (80V to 300V AC/DC)
- True RMS measurement.
- Active Energy, positive energy accumulation
- User configurable (Editable) password
- 'OLD' register to store the previously cleared energy value.
- Simultaneous sampling of Volts & Amps.
- Universal Voltage Input Line to Line (50 to 550V AC) and Current secondary Input (0.05A to 6A).

2. UNIQUE FEATURES

- 1 row 6 digit display for readability.
- Parameters (VLL, VLn, A, F, W, VA, Wh, PF, Load hour) along with respective R, Y and B Phases.
- Auto-scaling of kilo, mega, & decimal point.
- Energy selection : Wh/VAh
- Energy display programmable-counter based or resolution based.
- Energy resetting at 999999KVAh x Multiplication factor.

4. KEY FUNCTIONS

Key	In SET (Programming) mode	In RUN (Measurement) mode
Right/UP	To select the value and accept the value (it act as a Right key in programming mode)	To scroll pages in upward direction to look at different parameters.
DOWN	To edit the value/system types downward in edit mode and scroll through the parameters.	To scroll pages in downward direction to look at different parameters

5. LED INDICATION

LED Status	Meaning
M	Mega
–	Minus
K	**Kilo**
	Communication

LED Status	Meaning
⎍⎍	Pulse
REV	Reverse
OLD	Old Reading (Cleared readings)

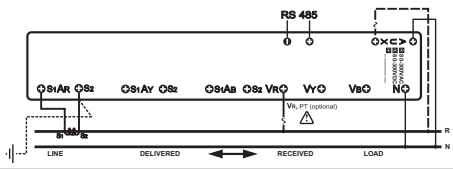
6. ENTERING CONFIGURATION (SETUP) MODE

To configure the setup parameters through front panel, the following steps can be followed.

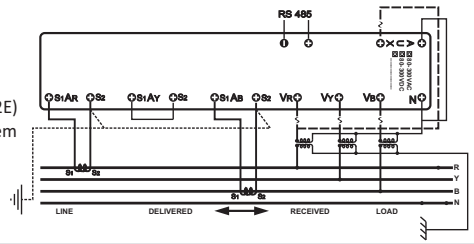
Step	Actions	Display Reads	Range/Options/Comments
1	Press RIGHT & DOWN keys together to enter SETUP	SEt.CLr.	
2	Press DOWN key	0000 With digit "0" blinking	
3	Press DOWN key to decrement the first digit to "9" sequentially come to digit 1.	1000 first digit "1" blinking.	If any other password is already set press RIGHT and DOWN key to reach the right password
4	Press RIGHT key four times to accept the password.	CLr1 display CLr	Defines the clearing option for the meter
CLEAR Mode : Press RIGHT key for CLEAR Mode			
5	Press RIGHT key	CLr1. n Options can be changed by pressing DOWN key. Display will prompt to 'y' or 'n' while pressing DOWN key.	Option : (YES) /(NO) **Y (for clearing) N (for not clearing)**
6	Press RIGHT key To accept the edited option.	0000.LL Displays xxxx LL (Clear Mode ends here)	
SETUP Mode : Press DOWN key for SETUP Mode			
7	Press DOWN key	StAr.EL display StAr.EL	Defines the power system configuration. Options: STAR /DELTA/1. Phase
8	Press RIGHT key	StAr.EL StAr/ dELt/ 1.Phase, selected mode blinks. Options can be changed by pressing DOWN key.	Press RIGHT key to accept the mode.
9	Press DOWN key	415.0P.P XXXX P.P (PT Primary) (415.00 -default/factory set)	Programmable Range: 100V to 999kV

4. WIRING DIAGRAM (ITF)

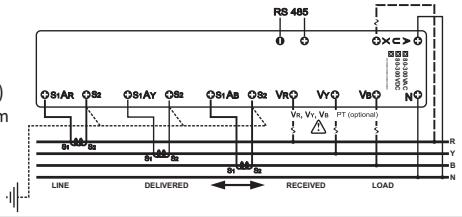
Single phase connection



Delta connection (2E)
3Phase 3 wire system



Star connection (3E)
3Phase 4wire system



10	Press RIGHT key	415.0P.P First digit blinking can be edited using DOWN key.	
11	Press RIGHT key to accept the edited value for first digit.	415.0P.P Second digit blinking, can be edited using DOWN key. Press RIGHT key to accept the edited value. Continue the same method till fourth digit.	
12	Press Right key to accept the value.	415.0P.P Decimal point blinking. Can be set at appropriate location using DOWN key. Ascertain the correct scale (Mega/Kilo) is selected. Mega/Kilo is placed on the right hand side of the display by Letter M/K. Press RIGHT key to accept the edited value.	Eg: To set 11.00kV Set first four digits (1100) as explained above keep pressing DOWN key to place decimal point at appropriate location. USE RIGHT/DOWN key..
13	Press DOWN key	415.0P.S (PT Secondary) (415.00 -default/factory set)	Programmable Range: 50V to 550V Follow the same procedure as explained in step-10 to 12.
14	Press DOWN key	5.000C.P (CT Secondary) (5.00 -default/factory set)	Programmable Range: 0.5A to 99kA Follow the same procedure as explained in step-10 to 12.
15	Press DOWN key	5.000C.S (CT Secondary) (5.00 -default/factory set)	Programmable Range: 0.5A to 6A Follow the same procedure as explained in step-10 to 12.
16	Press DOWN key	UEC.HUA (Method of VA Selection).	Arithmetic (Arth), Vector harmonics (UEC.H). Vector (UECt). Can be selected using RIGHT & DOWN key.
17	Press DOWN key	dI SA.A 1	Analog Input 1 parameter. Options: Disable/0.t.1.V / 0.t.20mA/4.t.20mA
18	Press DOWN key	1200.A1	Analog Input 1 Full Scale. Range: 0.001 to 9999 Mega (Displays only when A1. is selected)
19	Press DOWN key	dI SA.A2	Analog Input 2 parameter 0.t.1.V/0.t.20mA/4.t.20mA
20	Press DOWN key	1200.A2	Analog Input 2 Full Scale. Range: 0.001 to 9999 Mega (Displays only when A2. is selected)
21	Press DOWN key	9600.b (baud rate) Communication speed. (9600 default /factory set)	Defines the baud rate. Option: 2400, 4800, 9600, 19.20k. Options can be changed using RIGHT & DOWN keys.
22	Press DOWN key	EUEn P (Parity check)	Internal communication error check EUEn (even)/odd(odd)/no (no parity). Options can be changed using RIGHT & DOWN keys.
23	Press DOWN key	1.000 d (device ID)	Defines the (ID) communications identification number. Range : 1 to 247 Can be set using RIGHT & DOWN keys as in step 10 to 12.
24	Press DOWN key	no rL (Reverse lock)	Reverse lock (blocks energy accumulation in case the CT polarity is reverse). Option : NO/YES
25	Press DOWN key	----Py (Password user definable).	Range: 1000-9999. CAUTION: memorize the Password. Use the same Password for next time. Instruments will reject other Passwords.
26	Press RIGHT key to view the password	1000	CAUTION: Password can be reset only at the factory. Can be set using RIGHT & DOWN keys as in step 10 to 12.
27	Press DOWN key	rESO E	Energy value format i.e., the energy accumulated in the meter to be displayed in Resolution or Counter format. Option: resolution/ counter
28	Press DOWN key	0.080S.A Starting Current	Starting current value to be displayed in the meter Range: (0.02% to 10% of full scale)
29	Press DOWN key	Wh. ES	Energy Selection. Option : Wh/VAh
30	Press DOWN key	SAVE n blinking.	If "n"(no) is selected then Meter enters into RUN mode without affecting any edited Values in the setup
31	Press RIGHT key to store the changes done	SAVE n Displays XXXX LL (Setup Mode ends here and returns to Run mode).	

Once the required parameter is programmed press the DOWN key continuously till it reaches SAVE page.

7. The List of parameters can be configured and the range is given below

Sl. No.	Parameter	Default Setup	Range / Options
1	Connection mode(EL)	STAR	STAR/ DELTA/ 1.Phase
2	PT Primary (P.P)	415.0	100V- 999kV
3	PT Secondary (P.S)	415.0	50V - 550V
4	CT Primary (C.P)	5.000	0.5A - 99kA
5	CT Secondary (C.S)	5.000	0.5A - 6A
6	VA selection (UA)	UEC.H	Arth (Arithmetic)/UECt(Vector) /UEC.H(vector harmonics)
7	Analog Input 1Parameter(A.1)	dISA	Disable/0.t.1.V / 0.t.20mA/ 4.t.20mA
8	Analog Input 2 Parameter(A.2)	dISA	0.t.1.V/0.t.20mA/4.t.20mA
9	Baud rate (b)	9600	1200 to 19.2k
10	Parity (P)	Even	Even/ Odd/ no
11	Device Id (d)	1.000	1.000 to 247.0
12	Reverse lock(r.L)	no	Yes/no
13	Password (PW)	1000	1000 to 9999
14	Energy (E)	rESO	rESO/COUT
15	Starting Current (S.A)	0.08	0.020% to 10% of Fullscale
16	Energy Selection (E S.)	Wh	Wh/VAh

8. Enabling and disabling of Auto scrolling

Enabling auto scrolling: Press UP key continuously for 5 seconds or until display shows EnAb for scrolling.

Disabling auto scrolling: Press any key (UP/DOWN), display show dISA and returns to normal mode.

9. Mechanical Specification:

Dimension Bezel:
96 x 96 mm (Depth 50mm behind Bezel)

Panel Cutout:
90^{+2}_{-0} x 90^{+2}_{-0} mm