

## Elecon Measurements

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## PROGRAMMING GUIDE

### MPS 8000

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PG/MPS/V4/0715

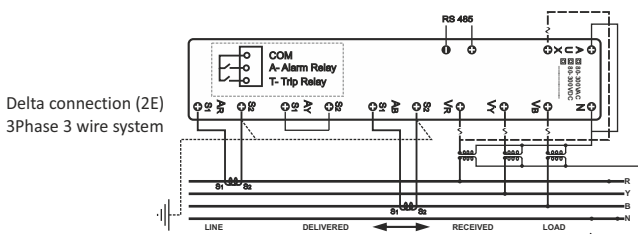
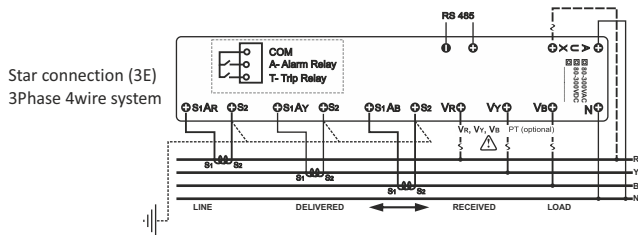
### 1. FEATURES

- STAR (Wye)/ DELTA Programmable.
- Universal Auxiliary (80 - 300 VAC/DC) supply.
- PT ratio / CT ratio programmable including CT Secondary.
- "OLD" Register for storing Cleared Energy and Load Hours.
- Graphical LCD display with Auto scaling & Auto Scrolling.
- 8 row, 7 digits LCD Display
- Two Energy readings in single page.
- User configurable (Editable) password.
- Clearance & Creepage distance meets UL61010 standard.
- Compact size and Weight.
- Universal Voltage Input (50 - 550 VAC) and Current Secondary (0.05A to 6A).

### 2. UNIQUE FEATURES

- Multiple groups of protection settings.
- RS 485 Communication interface (optional).
- Over/Under voltage & Frequency protection.
- Over Current protection.
- Under PF Protection.
- Voltage & current Unbalancing
- Single Phasing & Neutral current protection.
- Winding Short protection and Motor Lock protection.
- Fault Monitoring.
- Monitors status of Electrical Parameters when NO fault.
- Alarm Indication for Early action.
- Programmable Instantaneous/Delay Tripping time.

### 3. WIRING DIAGRAM - MPS 8000



### 4. KEY FUNCTIONS

Key	In SET (Programming) mode	In RUN (Measurement) mode
<b>Right/UP</b> ▶	To select the value and to accept the value	To scroll energy pages to look at different parameters.
<b>UP/Power</b> ▶	To edit the value/system type up-ward in edit mode and scroll through the parameters.	To scroll power pages to look at different parameters.
<b>DOWN/Basic</b> ◀	To edit the value/system type down-ward in edit mode and scroll through the parameters.	To scroll basic pages to look at different parameters
<b>RESET</b> RESET	Jumps to save Page	To view different options.

### 5. ENTERING CONFIGURATION (SETUP) MODE

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

Step	Actions	Display Reads	Range/Options/Comments
1	Press RIGHT & UP keys together to enter SETUP	SETUP	
2	Press DOWN key	Row 1: PASWD (Password) is displayed. Row 2: 0000 with first digit "0" blinking.	
3	Press UP key to once increment the first digit to "1".	PASSWORD = 1000 (default/factory set).	If any other password is already set, Key functions to set the right password

4	Press RIGHT key four times to accept the password.	Row 1: display ELEMNT (element) Row 2: STAR/ DELTA (Displays last programmed system type)	Defines the power system configuration. Options: STAR /DELTA
5	Press RIGHT key to select required system type	Row 1: display ELEMNT Row 2: Blinks STAR / DELTA	Options: STAR /DELTA
6	Press UP/DOWN key to select STAR/DELTA	Row 1: display ELEMNT Row 2: STAR / DELTA	(selected mode blinks)
7	Press RIGHT key to accept	Row 1: display ELEMNT Row 2: STAR / DELTA	(selected system type stabilizes)
8	Press DOWN key.	Row 1 : Pt. Pri(P.T Primary) Row 2 : 415.0 (default/factory set)	
9	Press RIGHT key to set the PT primary value	Row 1: Pt. Pri (PT Primary) Row 2 : 415.0 First digit blinking, can be edited using UP/DOWN key.	
10	Press RIGHT key to accept the edited value for first digit.	Row 1: Pt. Pri (PT Primary) Row 2 : 415.0 Second digit blinking, can be edited using UP/ DOWN key. Press RIGHT key to accept the edited value. Continue the same method till fourth digit.	Program Range for PT Primary : 100V to 999kV

11	Press RIGHT key		Row 1: Pt. Pri (PT Primary) Row 2: 415.0 Decimal point blinking. Can be set at appropriate location using UP/DOWN key. Ascertain the correct scale K/M/G (Kilo/Mega/Giga). Press RIGHT key to accept the edited value.	Program Range for PT Primary : 100V to 999KV
12	Press DOWN key to go to the next parameter.		Row 1: Pt. Sec (PT Secondary). Row 2: 415.0 (default/factory set) Repeat steps 9 to 11 to change the settings	Range: 50V to 550V If value set is above this limit, display returns to the maximum PT sec value acceptable.
13	Press DOWN key		Row 1: Ct. Pri (CT Primary) Row 2: 5.000 (default/factory set) Repeat steps 9 to 11 to change the settings.	Range: 0.5A to 99kA
14	Press DOWN key		Row 1: Ct. Sec (CT Secondary). Row 2 : 5.000 (default/factory set) Repeat steps 9 to 11 to change the settings.	Range: 0.5A to 6A If value set is above this limit, it returns to the maximum CT sec value acceptable.
15	Press DOWN key		Row 1: VA.SEL (Method of VA Selection). Row 2 : UEC.HAR (Vector harmonics)	Arithmetic (Arith). Vector harmonics (UEC.Hor). Vector (VECTor) can be selected using UP/DOWN key.
16	Press DOWN key		Row 1: PARAM1 Row 2 : WATTs (Default)	Programmable Parameter 1 Options: WATTS/FREQ/A/VLL/VA/PF Option can be edited using RIGHT & UP/DOWN keys

32	Press DOWN key		Row 1 : OV. A Row 2 : INV. CURV (Default threshold range)	Displays the Characteristic for the Over Current Options: INV. CURV / ABSLUTT
33	Press DOWN key		Row 1 : WIND.SH Row 2 : 10.00 (Default threshold range)	Winding Short. Threshold Range:5 to 90%
34	Press DOWN key		Row 1: BAUD (Baud rate) Row 2: 9600 (Default / factory set)	Defines the Communication Speed Options: 2400, 4800, 9600, 19.2k, 1200.
35	Press DOWN key		Row 1: PARITY Row 2: Even/ Odd/ None	Even(even)/ Odd( odd)/No (No parity)/(Internal Communication error Check)
36	Press DOWN key		Row 1: DEV Id ( Device ID) Row 2: 1.000	Defines the Communication identification Number. Options :1- 247
37	Press DOWN key		Row 1: POLES (Poles) Row 2: 4.000	Option: 1-28 ( for rpm)
38	Press DOWN key		Row 1: REVLOC (Reverse Lock) Row 2: NO / YES	Option: NO/ YES. (If YES blocks Energy accumulation incase CT polarity is reversed)
39	Press DOWN key		Row 1: PASWD (Password). User Programmable password, settable from 1000 to 9999. CAUTION: Memorize the password. Use the password for programming/ editing next time. Instrument will reject other passwords. Row 2: ----	If the password is forgotten the meter has to be reset and calibrated at factory only.

17	Press DOWN key		Row 1:PARAM2 Row 2 : PF (Default)	Programmable Parameter 2 Options: WATTS/FREQ/A/VLL/VA/PF Option can be edited using RIGHT & UP/DOWN keys
18	Press DOWN key		Row 1: OV.VLL (OVER.VLL) Row 2 : 550.0 ( Default Threshold Value)	Over Voltage Line to Line. Threshold Range : 1.000 to 999.0 K Press RIGHT & UP/DOWN keys to set the required threshold value.
19	Press DOWN key		Row 1:Un.VLL.(UNDER VLL) Row 2 :0.001 (Default Threshold Value)	Under Voltage Line to Line. Threshold Range : 0.001 to 999.0 K
20	Press DOWN key		Row 1: OV.A (OVER Amps.) Row 2: 6.000 (Default Threshold Value).	Over current. Threshold Range : 0.500 to 99.00 K.
21	Press DOWN key		Row 1: OV.FREQ. (over frequency) Row 2: 60.00 ( Default Threshold Value )	Over Frequency. Threshold Range: 25 to 200 HZ.
22	Press DOWN key		Row 1: Un.FREQ. (under frequency) Row 2: 40.00 (Default Threshold value).	Under frequency. Threshold Range: 25 to 200 HZ.
23	Press DOWN key		Row 1: Un. PF (under PF) Row2: 0.400 (Default Threshold Value).	Under Power factor. Threshold Range: 0.001 to 0.999
24	Press DOWN key		Row 1: % VUNBL Row 2: 7.000 ( Default Threshold Range)	Percentage of voltage unbalance. Threshold Range: 0.5% to 60%

40	Press DOWN key		Row 1: ENERGY Row 2: RESOLU /COUNTR.	Options: resolution/counter. Energy value format i.e., the energy accumulated in the meter to be displayed in resolution or counter format
41	Press DOWN key		Row 1: STARTA. Row 2: 0.400	Starting current value to be displayed in the meter. Range: (0.2% to 10% of full scale)
42	Press DOWN key		Row 1: DISRU.R Row 2: 1.000	Range: 1 to 5 seconds Update rate for displaying parameter.
43	Press DOWN key		Row 1: Auto.T. Row 2: 5.000	Range: 1 to 10 seconds Display increment during auto scroll.
44	Press DOWN key		Row 1: PORON.T (pulse output ON time) Row 2: 250.0	Range: 50 to 500m Sec. Pulse width defined for pulse output occurrence.
45	Press DOWN key		Row 1: PWR.SAV Row 2: DISABL	Defines Power Save of the LCD back light Option-ENABLE/DISABLE
46	Press DOWN key		Row 1 : S A V E Row 2: blinking.	If "n"(no) is selected then Meter enters into RUN mode without memorizing any edited Values in the setup

Once the required parameter is programmed press the DOWN key continuously till it reaches SAVE page or press the RESET key to reach SAVE page directly.

25	Press DOWN key		Row 1: % A. UNBL. Row 2: 7.000 ( Default Threshold Value)	Percentage Current Unbalance. Threshold Range: 0.5% to 60%
26	Press DOWN key		Row 1: A.NUTRL Row 2: 2.000	Value of Neutral Current Threshold Range: 0.030 to 99kA
27	Press DOWN key		Row 1: ON DEL Row 2: 10.00	Digital Delay Time for Trip Relay to ON. Threshold Range: 1 to 600 Sec.
28	Press DOWN key		Row 1: OFF DEL Row 2: 3.000	Digital Delay Time for Trip Relay to OFF. Threshold Range: 1 to 60 Sec. This shall be set at least 2 seconds less than the ON DEL time.
29	Press DOWN key		Row 1: MTR.ON Row 2: REL.ON	Displays the Option for Relay to trip or not. Options: REL ON/REL OFF
30	Press DOWN key		Row 1: LOK.RO. A (Locked Rotor Current) Row 2: 30.00	Displays the Allowable current value during Locked Rotor condition. Threshold Range: 1 to 999kA
31	Press DOWN key		Row 1: LOK.R. DL (Locked Rotor Delay) Row 2: 5.000	Displays the Allowable time for occurrence of Locked Rotor condition. Threshold Range: 1 to 60 Sec.

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

Sl.No.	Parameter	Default setup	Range / Options
1	Connection mode(ELEMNT)	STAR	STAR/ DELTA
2	PT Primary (PT.Pri)	415	100V- 999KV
3	PT Secondary (PT. SEC.)	415	50V - 550V
4	CT Primary (CT.Pri.)	5.000	0.5A – 99KA
5	CT SECOndary (CT. SEC.)	5.000	0.5A - 6A
6	VA selection (UA.SEL.)	VEC.Har	Arith (Arithmetic) / Vector/ vec.H (vector Harmonics)
7	Over Voltage Line to Line	550	1-999KV
8	Under Voltage Line to Line	0.001	0.001-999KV
9	Over Current	6.000	0.500-99KA
10	Over Frequency	60.00	25-200 Hz
11	Under Frequency	40.00	25-200Hz
12	Under PF	0.400	0.001-0.99 PF
13	Percentage Voltage Unbalance	7.000%	0.5-60 %
14	Percentage Current Unbalance	7.000%	0.5-60 %
15	Neutral Current	2.000	0.030-99KA
16	ON Delay	10.00	1-600 seconds
17	OFF Delay	3.000	1-60 seconds
18	Motor ON	REL ON	REL ON/OFF
19	Locked Rotor Current	30.00	1-999.0 KA
20	Locked Rotor Time Delay	5.000	1-60 Sec

21	Over Current Digital Output characteristics	INV.CUrv	INV.CUrv/ABSLUT
22	Winding short	10.00	5-90 %
23	Baud Rate	9600	1200/2400/4800/9600/19.20k
24	Parity	Even	Even/Odd/No
25	Device Id (dEV.Id)	1.000	1.000 to 247.0
26	No of Poles (POLES)	4.000	1.000 to 28.00
27	Reverse lock(rEu.LOC)	No	Yes/no
28	Password (PASWD)	1000	1000 to 9999
29	ENERGY (energy)	RESOLU	RESOLU /COUNTR
30	START.A (starting current)	0.400	0.2% to 10 % of fullscale
31	Display update time(dISP.U.t)	1.000	1 to 5 seconds
32	Display increment time during auto scroll (Auto.t)	5.000	1 to 10 seconds
33	POP.ON.T (Pulse out put on time	250.0	50 to 500 milliseconds.

### 7. Clearing the Integrator:



To Clear parameters from the front panel, Press UP and DOWN Keys together, and 'CLEAR' (Clear) is shown on the display. Enter the Password (default password is 1000. Set up and clear has the same password) and it will display "CLr.Int". Press UP / DOWN Key for selecting CLr.Int (Integ Clear). Once the parameter to be cleared is selected it will prompt to 'y' or 'n'. Press UP and DOWN key for changing 'y' or 'n' and Press the RIGHT key to do the operation. User can return to display mode at any time by again pressing OPTIONS button.

### 8. Enabling and disabling of Auto scrolling:

Enabling auto scrolling: Press UP key continuously for 5 seconds or until display shows EnAbLE Auto.Sc for upward scrolling. Press Down key continuously for 5 seconds or until display shows EnAbLE Auto.Sc for downward scrolling.

Disabling auto scrolling: Press any key (RIGHT/UP/DOWN/RESET), display show dISAbL Auto.Sc and returns to normal mode.

### 9. LED INDICATION

	Communication ON
Trip - On	Trip relay off
	Alarm On
T1	Pulse / Reserved

### 10. Mechanical Specification:

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

Panel Cutout:  $90_{-0}^{+2} \times 90_{-0}^{+2}$  mm

