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ELMEASURE®
Possibilities...Infinite

User Manual

Multifunction Meter

EN8400 | EN8420

www.elmeasure.com

1. FEATURES

- True RMS measurements.
- Simultaneous sampling of voltage and current.
- Aux voltage Input: 80 to 300V AC/DC.
- Accuracy class: Class1 as per standard IEC 62053-21.
- 3 Row LED display with unique look and with best possible parameter grouping.
- Bar graph representation programmable for A/Watt/VA.
- Energy Import and Export, number of interruptions available.
- Optional demand measurement for Watts, VA & VAR
- Optional 2 relay Demand control.#
- Displacement PF and True PF.
- Energy TOD and Demand TOD with the programmable time & slot(available only with Data logger). #
- Measurement of Voltage & Current THD.
- Optional individual harmonics up to 31st.
- Individual Phase energy through communication for better load pattern analysis.
- On-site setup for wiring configuration: STAR, DELTA and SINGLE PHASE.
- Auto Scaling of Decimal point.
- Programmable CT & PT Ratio.
- User programmable password protection.
- Front LED pulse 16000 imp/KWh for 5A.
- Representation of Power Factor as per IEC or IEEE standard.
- Load Profile for selected parameter- W/A. #
- Dynamic communication - User selectable address with selectable Parameter. #
- Inbuilt real time clock for display of date and time - optional. #
- Voltage and Current phase angle measurement.
- Energy resetting at 99999999 KVAh*MF.
- CO2 emission.
- Dual source measurement (Model EN8420).
- Optional 2 Digital outputs. #
- Optional Wifi communication
- Data logging option for selectable parameters up to 29.
- 12am & 31st day snap shot for selectable parameters up to 29.

Note : # - Setup available through Communication. Use App.

2. KEY & DISPLAY INDICATION

2.1 Key Indication

Key	In setup mode	In run mode
Right	To Select the value and accept the value	To scroll energy pages to look at different parameters.
Up	To edit the value/ system types and scroll through the parameters upwards.	To scroll power pages and demand pages to look at different parameters.
Down	To edit the value/system types and scroll through the parameters downwards.	To scroll basic pages to look at different parameters.
Option	No action	To scroll option page to look at different parameters.

2.2 Display Parameter

Parameter	Meaning
K	Kilo
M	Mega
MK	Giga
VLL in Average page	Average Voltage Line to Line
VLN in Average page	Average voltage Line to Neutral
A	Average Amps
Hz	Frequency
VLL with L1	Voltage Line to line R phase - Y phase
VLL with L2	Voltage Line to line Y phase - B phase
VLL with L3	Voltage Line to line B phase - R phase
VLN with L1, L2,L3	Voltage Line to Nuetral Phasewise
A with L1,L2,L3	Current Phasewise
W in total page	Total Active Power
VA in total page	Total Apparent Power
Var in total page	Total Reactive Power
PF in Power total page	Average Power Factor
only PF icon	Displacement PF
PF with Max	True PF

Parameter	Meaning
W with L1, L2, L3	Active Energy Import
VA with L1, L2, L3	Apparent Power Phase wise
VAR with L1, L2, L3	Reactive power Phase wise
PF with L1, L2, L3	PF Phase wise
Wh with Engy	Active Energy Import
Uah with Engy	Apparent Energy Import
UAr.L with Engy	Reactive Energy Inductive Import
UAr.C with Engy	Reactive Energy Capacitive Import
Lh	Load hours Import
Wh with Engy and EXP	Active Energy Export
Uah with Engy and EXP	Apparent Energy Export
Uar.L with Engy and EXP	Reactive Energy Inductive Export
Uar.C with Engy and EXP	Reactive Energy Capacitive Export
Lh with EXP	Load hours Export
Wh.d with Engy	Active Energy Import of second source(Dual source)
UAh.d with Engy	Apparent Energy Import of second source(Dual source)
Ur.L.d with Engy	Reactive Energy Inductive of second source(Dual source)
Ur.L.d with Engy	Reactive Energy Capacitive of second source(Dual source)
Lh.d	Load hours Import of second source(Dual source)
rPm	RPM
Co2	CO2 emission
PC	Power cycles
On.Hr	On hours
W with DMD	Rising Demand for Watts
VA with DMD	Rising Demand for VA
VAR with DMD	Rising Demand for VAR
W with Max DMD	Max Demand for Watts
VA with Max DMD	Max Demand for VA
VAR with Max DMD	Max Demand for VAR
W with FC.dm	Forecast Demand for Watts
VA with FC.dm	Forecast Demand for VA
VAR with FC.dm	Forecast Demand for VAR
W with dm.dG	Rising Demand for Watts of second source
VA with dm.dG	Rising Demand for VA of second source
VAR with dm.dG	Rising Demand for VAR of second source
W with md.dG	Max Demand for Watts of second source
VA with md.dG	Max Demand for VA of second source
VAR with md.dG	Max Demand for VAR of second source
W with F.d.dG	Forecast Demand for Watts of second source
VA with F.d.dG	Forecast Demand for VA of second source
VAR with F.d.dG	Forecast Demand for VAR of second source
VLN with Ø & L1,L2,L3	Voltage Phase angle
A with Ø & L1, L2, L3	Amps phase angle
VLN with un.bA & L1, L2, L3	% Unbalance Voltage Phase wise
A with un.bA & L1, L2, L3	% Unbalance Amps Phase wise
VLN with THD & L1, L2, L3	Voltage THD Phasewise
A with THD & L1, L2, L3	Current THD Phasewise
An.C	Neutral Amps Calculated

3. PROGRAMMING MODE

3.1 Setup Procedure

1. To configure the setup parameters through front panel keys, the following steps can be followed.
2. Press the UP & RIGHT keys together to enter the setup, display shows 0000 / SEtP
3. Press down key to enter the password, display shows 0000 with first digit "0" blinking
4. Press UP key to increment the first digit "1" If any password is already set, use UP and Down key to set the correct password. (Enter your password or leave it as default '1000' if it wasn't changed)
5. Press Right key to move second digit or accept the password. (If any password is already set, press UP and Down key to change the value, then press Right key to accept the value.)
6. Continue the same method for 3rd digit and 4th digit to entering in to the configuration mode
7. After entering the four digit password, on pressing RIGHT key, the device enters into Setup/Configure mode.
8. If the provided password is incorrect display shows StAr / ELEn
9. But not possible to edit, then continue to press the Down key to reach display live parameter. And again follow the same steps with correct password.

3.2 Clearing Parameters

1. Press the UP & DOWN keys together to enter the Clear mode, display shows
   Row1: 0000 with first digit "0" blinking.
   Row2: CLr
2. Press UP key to increment the first digit as "1". If any password is already set, use UP and DOWN key to set the correct Password. (Default password is 1000)
3. Press RIGHT key to move second digit and or accept the password. If any password is already set, press UP and DOWN key to change the value then press RIGHT key to accept the value.
4. Continue the same method for 3 digit and 4 digit then display shows "Clr.".
   Press RIGHT key
   CLr.I = Clear Integrated energy parameter.
   CLr.m = Clear Maximum demand parameter (If demand option is available)
5. Press DOWN or UP key to select the required parameter option to clear.
6. Press RIGHT key to accept to clear, display shows "no", then press UP/DOWN key display shows "yES". To Clear select "yES" and press RIGHT key to clear.

3.3 Display Setup

Action	Action	Option / Range
Press Down key	Row1: StAr Row 2:ELEm	Options: Star/Delta/Single phase.
Press Down key	Row1: 415.0 Row 2:P.Prl	PT Primary Range: 50V to 999K V
Press Down key	Row1: 415.0 Row 2:P.SEC	PT Secondary Range: 50V to 600 V
Press Down key	Row1: 5.000 Row 2:C.Prl	CT Primary Range: 0.5A to 99K A
Press Down key	Row1: 5.000 Row 2:C.SEC	CT Secondary Range: 0.5A to 6A
Press Down key	Row1: UEC.H Row 2:UA.SL	VA selection Options: Uec.H/UECt/Arth
Press Down key	Row1: wAtt Row 2:d.Par **	Demand Parameter Options: Watt/VA/VAR
Press Down key	Row1: 15.00 Row 2:d.Prd **	Demand Period Range: 5 to 30 min
Press Down key	Row1: SLId Row 2:d.SEL **	Demand Selection Options: Sliding/ Block
Press Down key	Row1: 7.000 Row 2: F.Prd **	Forecast interval Range: 1 min to 50% of Demand period
Press Down key	Row1: 9600 Row 2:bAUd	Baud rate Options: 4800/9600/19200/38400
Press Down key	Row1: EUEn Row 2:Prty	Parity Options: Odd/Even/None
Press Down key	Row1: 1.000 Row 2:du.Id	Device ID Range: 1 to 247
Press Down key	Row1: ---- Row 2:Pwd	Password Range: 1000 to 9999
Press Down key	Row1: 4.000 Row 2:POLS	Poles Range: 2 to 28
Press Down key	Row1: rESL Row 2:E.SEL	Energy format Selection Options: Resolution/Counter
Press Down key	Row1: IEC Row 2:PF.F0	PF Selection Options: IEC/ IEEE
Press Down key	Row1: 2.000K Row 2: H.Lt.2 *	High limit 2 Range: 1% to 100% of full scale
Press Down key	Row1: 1.800K Row 2: H.Lt.1*	High limit 1 Range: 50% to 99% of High limit 2
Press Down key	Row1: 1.200K Row 2: Lo.Lt *	Low limit Range: 50% to 99% of High limit 1
Press Down key	Row1: A Row 2:bAr.S	Bargraph Parameter selection Options: A/W/VA
Press Down key	Row1: SAUE Row 2:yES	Save Option: Yes/No

* Applicable only with 2 Relay DMC ** Applicable only with Demand option

3.4 Enabling and Disabling Auto Scrolling

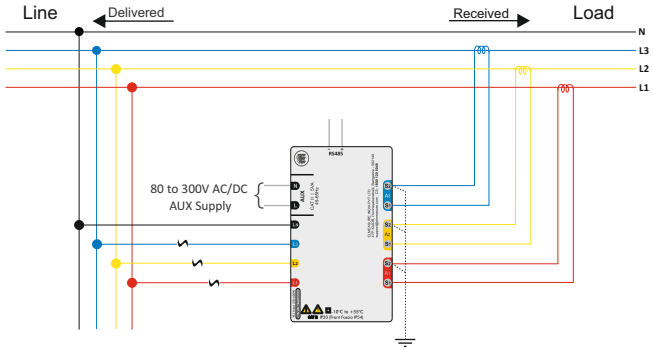
Press Down or Up Key continuously for 5 secs or until display shows: EnbL. / AUto

Now display will start to scroll all parameters automatically every 5 seconds.

Again press any key to disable auto scrolling. Display shows: dSbL. / AUto

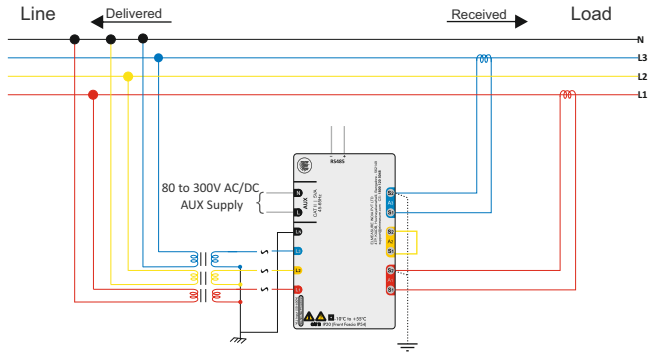
4. WIRING DIAGRAM

Star Connection (3E) 3 Phase 4 Wire system



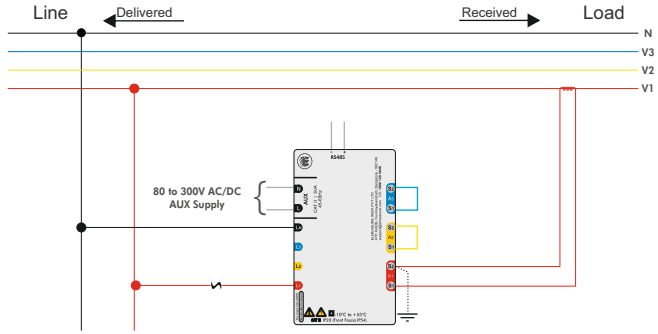
* Note ⏦ Fuse rating 500mA Slow blow fuse.
NOTE: For DC Aux Voltage, +/- ve can be connected anyway.

Delta Connection (2E) 3 Phase 3 Wire system



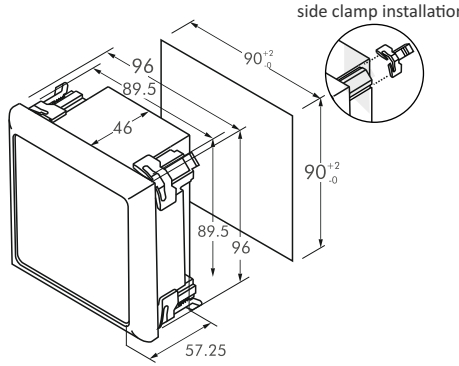
* Note : Wiring should be be in accordance with the national electrical code and/or the Canadian Electrical Code, part I.

Single phase connection 1Phase 2 Wire



5. MECHANICAL SPECIFICATION

Mounting: The Front bezel of the basic model is molded plastic. Bezel dimensions are 96x96mm. Depth 46mm behind the bezel.



Note: Dimension in mm.

7. INFORMATION

Manufacturer assumes no responsibility for a hazard or damage caused by incorrect or non-application of any of the instructions mentioned herein. ELMEASURE shall not be liable for any consequential or resulting injury or for loss, damage or expense directly or indirectly from the use of this product under any circumstances.

ELMEASURE does not claim any responsibility for the damage caused by using the product directly or indirectly as sufficient care has been taken to provide all information regarding the product. The user is advised to use according to the operating instructions, professional practices, wiring rules, codes, and safety regulations applicable to the given installation.

8. CAUTION

During normal operation of this instrument, hazardous voltages are present at the rear terminals, which may cause injury or death. Installation, disconnection or removal of the meter should be carried out only by qualified, trained personnel, after de-energizing connected circuit. The warranty will become void incase the seal is broken, improper installation as well as improper grounding.