

ENERGY & POWER METERING

Monitor the **health** of the power systems effectively

Authorized Partner:



ELMEASURE®

Multifunction meter for comprehensive energy management

Features

- Simultaneous sampling of voltage and current
- Programmable PT & CT ratio
- **High / Low recording for last one minute VLL and A**
- Accuracy Class 0.2s - IEC 62053-22, 0.5s - IEC 62053-22 (optional)
- User programmable Password Protection
- Measures THD and Individual harmonics up to 63rd order for PN and 31st order for EN
- Sampling rate of 512 samples / cycle for PN and 256 samples / cycle for EN
- **Voltage measurements up to 600 VLL**
- Representation of waveforms for instantaneous V, I, voltage and current harmonics histogram for PN.
- Records events and waveforms of such as **Dip & Swell** for voltage input with the time stamp in 1s duration applicable for power quality (PN Pro)
- CO2 emission, ON Hrs, Power Interruptions
- **Max demand, 12am snapshot**, 31st day snapshot.
- **Demand update every second** to forecast VA, W & VAR
- True PF and Displacement PF(EN)
- Programmable starting current in % of 5A secondary (Default 10mA)
- Programmable Auto scrolling time - 1 sec. to 10 sec. (Default 5 sec.) - available in PN
- Programmable Energy display - Counter or Resolution based
- Front POP for better accuracy 16000 Imp/KWh
- 8 Parameter display at a time, 8 digits energy (PN only)
- Byte order option - Field Programmable Float/ Little Endian/data format (PN only)

Optional Features

- **Digital outputs - 2** potential free contacts with programmable time delay Hysteresis of 1%. Trip time delay: 1 to 180 sec. Single relay o/p configurable up to 23 parameters (VLL, A, F, PF, kW, kVA....) with auto/manual recovery. Manual override option available
- TOD option (Energy & Demand upto 8 slots)
- Analog Input upto 2. Accuracy of class 1% FS - Input signal 4-20 mA or 0-20mA selectable
- Digital Input upto 2 - Four digital input (5-24V) - Programmable for high frequency (72000 RPM) or low frequency (6 RPM). ON and OFF time for low frequency input

High Profile Multifunctional Meter

- **Dual communication port- RS485, Ethernet**- simultaneous polling (PN only)
- **Built in web server** displays all the parameters and waveform for Voltage and current (PN Pro only)
- **256MB storage** downloadable through USB - Continuous logging in pen drive up to 8GB (PN only)
- **12AM snapshot**, 31st day snapshot
- Measures THD and Individual harmonics upto **63rd order** with a sampling rate of **512 samples/cycle** (PN only)
- Power quality inspection of main incomer
- Protection of equipment from Under/ Over Voltage or Current or Frequency
- Process control
- Protection of 3 phase equipment from Single phase prevention, Overload etc
- RTC setup available through communication.
- Captures and measures power quality events: K Factor, Crest factor, Dip/Swell, Interruption and unbalance in accordance with EN 50160 (PN Pro only)
- Representation of waveforms for instantaneous V,I, Dip/Swell. Voltage and Current harmonics histogram (PN Pro only)
- Phase wise voltage Dip/Swell waveforms (PN Pro only)

Ethernet Communication - Only for PN

- User configurable **MQTT data transfer time interval**
- Programming option for MODBUS or MQTT
- DNS server connection configuration option for MQTT
- **Web browser** for configuration and setup (PN Pro)
- Configuring through web page for selected parameters (RAW-JSON data)

Parameters Monitored

Product Selection:	EN 8400	PN 8700	PN 8700 Pro
ACCURACY OPTION	Customised LED	Graphical LCD	Graphical LCD
CLASS 0.5s	■	■	
CLASS 0.2s			■
BASIC PARAMETERS			
V12 V23 V31	■	■	■
V V1 V2 V3	■	■	■
A A1 A2 A3	■	■	■
Hz	■	■	■
Angle V & A, RPM	■	■	■
Unbalance V & A	■	■	■
Neutral Current (Calculated)	■	■	■
POWER PARAMETERS			
W W1 W2 W3	■	■	■
VA VA1 VA2 VA3	■	■	■
PF PF1 PF2 PF3	■	■	■
VAR VAR1 VAR2 VAR3	■	■	■
POWER QUALITY PARAMETERS			
THD - Voltage and Current	■	■	■
Individual Harmonics	31st ■		63rd ■
K Factor, Crest Factor		■	■
High Low - Instantaneous		■	■
High Low - Last Minute (VLL and Amps)	■ *	■ *	■ *
Voltage Sag, Swell and Interruptions		■	■
Power Cycles	■	■	■
TEHD and TOHD		■	■
Power THD and TDD		■	■
INTEGRATED PARAMETERS			
Wh	■	■	■
VAh	■	■	■
VARh -Ind	■	■	■
VARh-Cap	■	■	■
Load Hours	■	■	■
Phasewise Energy and Load hours	■ *	■ *	■ *
RD (Import & export)	■	■	■
Wh- Total and Net		■	■
VAh- Total and Net		■	■
VARh - Total and Net		■	■
ON hours	■	■	■
CO2 Emission (Calculated)	■	■	■
Bargraph (% Load)	■		
Volt squared hours		■	■
Amp squared hours		■	■
TOD PARAMETERS			
TOD Demand - Import		■	■
TOD Energy - Import and Export		■	■
DEMAND PARAMETERS			
Rising Demand (Sliding/Block - Programmable)	■	■	■
Forecast demand	■	■	■
Maximum demand	■	■	■
Demand Profile 4High & 4 Low			■ *
ADDITIONAL FEATURES			
12am & 31st day snap shot	■ *	■ *	■ *
Load Efficiency	■ *	■ *	■ *
Energy Trends		■ *	■ *
Dynamic communication	■ *	■ *	■ *
ADDITIONAL OPTIONAL FEATURES(ANY ONE)			
2DI + 2DO		■	■
2AI + 2DO	□	□	□
COMMUNICATION			
RS485 (MODBUS RTU)	■	■	■
Ethernet (MODBUS TCP/IP) - with 2DI, 2DO		■	■
Ethernet +256 MB Data Logging			■

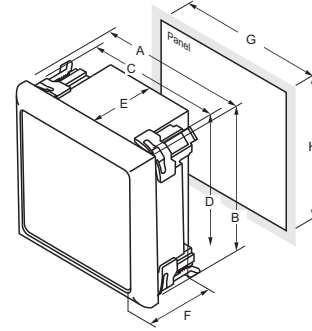
Default
 On request
 * Through communication only

Technical Specification

Specification	Description
GENERAL CHARACTERISTICS	
Display type:	Graphical LCD for PN, LED for EN 8400
Sensing/Measurement:	True RMS, 1 sec update time, 4 Quadrant power & energy
Rated Voltage:	50-600 VLL
Rated Current:	10 mA-6A
Frequency:	45-65 Hz
Sampling rate	512 samples / cycle / channel for PN, 256 for EN
Measured accuracy class:	Class 0.5s and Class 0.2s as per IEC 62053-22 (Optional)
Permissible overload:	120%, Burden: 0.2VA per phase
External fuse rating:	200 mA
Control Power	80-300V AC/DC (Lower ALDC, on request based on MOQ)
Power consumption:	4VA nominal. SVA for DMC
Data update rate:	1 sec.
COMMUNICATION	
RS485 (MODBUS RTU)	Device ID & Parity: 1-247 & odd, even, none (preferred even) Baud rate: 9600 bps to 38400 bps (preferred 9600 bps) Isolation: 2000 volts AC isolation for 1 minute between communication & other circuits.
Ethernet (MODBUS TCP/IP)	Configurable option for IP details.* Supports IPv4Programming option for Modbus or MQTTTwo types of devices can be added, Modbus RTU over TCP and TCP through Webpage along with name of devices with IP and Port.DNS server connection configuration option for MQTT. Configurable broker IP Address, port number Configuring through webpage for only selected details (say Raw/JSON data) to be pushed via MQTT User defined, Start address and register length, if data format is RAW in MQTT.Fixed Start address of 101 and register length 124, if data format in MQTT is JSON. Configurable Parity Supports up to 2 clients
ENVIRONMENTAL CHARACTERISTICS	
Operating temperature:	-10°C to +55°C (14°F-130°F)
Storage temperature:	-25°C to +70°C (-13°F - 158°F)
Humidity:	5% to 95% non-condensing
Altitude:	Below 2000 mts
Measurement category:	CAT III
PROTECTION CLASS	
Ingress protection:	IP20-terminal side, IP54-Front facia panel mount (Double insulation as per IEC 61010-1)
SAFETY AND STANDARDS	
Construction:	IEC/EN 61010-1 EDITION 3, CAT II, 300V LN/600V LL, Protection Class II
Standards:	UL E530665, IEC/EN 62052-11
MECHANICAL CHARACTERISTICS	
Weight:	Unpacked: 1.32lbs, Packed: 1.76lbs
Torque at terminals	1 N-m (For 5A)
Wire-gauge:	11 AWG (For 5A)
ELECTROMAGNETIC COMPATIBILITY	
Electrostatic discharge:	IEC 61000-4-2
Immunity to electromagnetic RF fields:	IEC 61000-4-3
Conducted immunity:	IEC 61000-4-6
Immunity to magnetic fields:	IEC 61000-4-8
Immunity to voltage dips and interruptions:	IEC 61000-4-11
Immunity to surge waves:	IEC 61000-4-5
Fast transient:	IEC 61000-4-4
Conducted and radiatedemission:	CISPR - 22

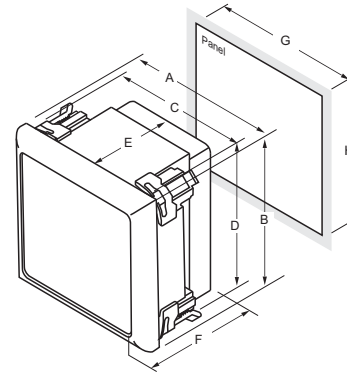
Mechanical Specification

EN 8400 / PN 8700



Units	A	B	C	D	E	F	G	H
MM	96	96	90	90	46	57	90	90
inch	3.77	3.77	3.54	3.54	1.81	2.24	3.54	3.54

EN / PN with Ethernet / BacNet



Units	A	B	C	D	E	F	G	H
MM	96	96	90	90	75	86	90	90
inch	3.77	3.77	3.54	3.54	2.95	2.24	3.38	3.54

Authorized Partner:



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