



EN | PN

MULTIFUNCTION METER

Demand Controller | Import Export | Harmonics | Power Quality | Digital/Analog Input or Output | Dual Source

HIGH-END MULTIFUNCTION METER FOR COMPREHENSIVE ENERGY MANAGEMENT!

Features:

- High / Low recording VLL, VLN, A, Hz, W, VA, PF, VAR value storage with time stamp.
- Accuracy class 1.0 as per IEC 62053-21, Class 0.2s, 0.5s optional
- User programmable Password Protection
- Measures THD and Individual harmonics up to 63rd order with a sampling rate of 512 samples / cycle
- Voltage measurements up to 600 VLL
- Captures and measures power quality events: K factor, Crest factor, Sag / Swell, Interruption and Unbalance in accordance with EN 50160
- Displays basic, power, energy for both import and export and demand parameters.
- Representation of waveforms for instantaneous V, I, voltage and current harmonics histogram.
- Records events and waveforms of such as Sag / Swell for voltage input with the time stamp in 1s duration
- CO2 emission, ON Hrs, Power Interruptions
- Max demand 4 high / 4 low, 12am snapshot, 31st day snapshot and programmable Datalogger 1MB
- Simultaneous sampling of voltage and current, programmable PT & CT ratio
- Demand update every second to forecast VA, W & VAR.
- Programmable starting current in % of 5A secondary. Default 10mA
- Programmable Auto scrolling time - 1 sec. to 10 sec. (Default 5 sec.)
- Programmable Energy display - Counter based or Resolution based
- Energy resetting at 99999999kVAh x MF.
- Front POP for better accuracy 16000 Imp/KWh.
- 8 Parameter display at a time, 8 digits energy
- Byte order option - Field Programmable Float/ Little Endian/data format.

Optional Features:

- Digital outputs - 4 potential free contacts with programmable time delay Hysteresis of 1%. Trip time delay: 1 to 180 sec.
- Output configurable for the parameters Under/Over VLL, A, F, PF, W, VA, AI1, AI2, Over Vthd, Athd, Neutral current, Unbalance V & A, Reverse A, Demand, Phase missing/Loss.
- TOD option (Energy & Demand upto 8 slots)
- Analog Input upto 2. Accuracy of class 1% FS.
- Digital Input upto 4
- Analog Output - Two independently programmable to 0-20 mA (or) 4-20 mA
- Individual Harmonics upto 63rd order
- Upto 60A or 100A direct measurements using Hanging CT(MOQ).
- Dual Source (Only LED)
- Ethernet Interface - Modbus TCP, BACNET IP
- 4 Relay Demand Controller - 8 TOD optional.

Typical Applications:

- Automatic connection or disconnection of DG connected to common bus
- Power quality inspection of main incomer
- Keep equipment in safe region
- Protection of equipment from Under/ Over Voltage or Current or Frequency
- Process control
- Protection of 3 phase equipment from Single phase prevention, Overload etc

Multiplication factor for counter based energy mode

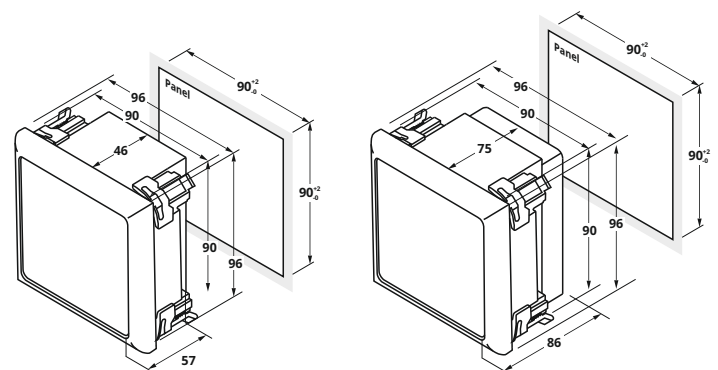
Full Scale in Watts : $\sqrt{3} \times V_{Pri} \times A_{Pri}$	0.4k to 4.0k	4.01k to 40k	40.1k to 400k	400.1k to 4000k	4M to 40 M	40 M to 400 M	400M to 4000M
Multiplication Factor:	0.01	0.1	1.0	10	100	1000	10000
Unit of display	kWh			MWh		GWh	

BACNET IP Meter



Note: Ethernet Interface - BACNET IP Protocol supports read & read multiple for 240 parameter as Analog Input (restricted option).

Mechanical Specification:



Multifunction Meter

Multifunction Meter with BACNET

Product Selection:

	EN 8400	EN 8420	PN 8700
ACCURACY OPTION			
CLASS 1.0	■	■	■
CLASS 0.2S/0.5S	□	□	□
BASIC PARAMETERS			
V ₁₂ V ₂₃ V ₃₁	■	■	■
V V ₁ V ₂ V ₃	■	■	■
A A ₁ A ₂ A ₃	■	■	■
Hz	■	■	■
Angle V & A, RPM	■	■	■
Unbalance V & A	■	■	■
POWER PARAMETERS			
W W ₁ W ₂ W ₃	■	■	■
VA VA ₁ VA ₂ VA ₃	■	■	■
PF PF ₁ PF ₂ PF ₃	■	■	■
VAR VAR ₁ VAR ₂ VAR ₃	■	■	■
POWER QUALITY PARAMETERS			
THD - Voltage and Current upto 63 rd	■	■	■
Individual Harmonics upto 63 rd	□ *	□ *	■
K Factor, Crest Factor	■ *	■ *	■
High Low - Instantaneous	■ *	■ *	■
High Low - Last Minute	■ *	■ *	■ *
Voltage Sag, Swell and Interruptions	□ *	□ *	□
Power Cycles	■	■	■
TEHD and TOHD	■ *	■ *	■
Power THD and TDD	■	■	■
INTEGRATED PARAMETERS			
Wh	■	■	■
VAh	■	■	■
VARh -Ind	■	■	■
VARh-Cap	■	■	■
Load Hours	■	■	■
Phase Energy and Load hours	■ *	■ *	■ *
RD (IE)	■	DS	■
Wh- Total and Net	■ *		■
VAh- Total and Net	■ *		■
VARh - Total and Net	■ *		■
ON hours	■	■	■
CO2 Emission	■	■	■
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	■ *	■ *	■ *
Data Logger - 1MB	□ *	□ *	□ *
Load Efficiency	■ *	■ *	■ *
Energy Trends	■ *	■ *	■ *
Dynamic communication	■ *	■ *	■ *
DUAL SOURCE		■	
ADDITIONAL OPTIONAL FEATURES(ANY ONE)			
Ethernet +256 MB Data Logging	□		□
2DI	▲ *		▲ *
4 DI	▲ *		▲ *
1DO	▲ *		▲ *
2DO	▲ *		▲ *
2AI	▲ *		▲ *
1AO	▲ *		▲ *
2AO	▲ *		▲ *
2AI, 2DO	▲ *		▲ *
2DO, 2AO	▲ *		▲ *
4DO	▲ *		▲ *
DMC	▲ *		▲ *
COMMUNICATION			
RS485 (MODBUS)	■	■	■
ETHERNET			
TCP/IP(MODBUS) - without I/O	▲	▲	▲
BACNET IP - without I/O	▲	▲	▲

■ Default ■* Default - in communication only □ Default □* Default in communication only ▲ Restricted option ▲* Restricted option - in communication only

Technical Specification:

	EN 8400	EN 8420	PN 8700
GENERAL CHARACTERISTICS			
Display type	LED 3 row, 3 Parameter		LCD 4 row, 7/8 Parameter
Instantaneous Digits	4		
Integrated Digits	8		
Sensing / Measurement	True RMS, 1 Sec update time, 4 Quadrant Power & Energy		
Rated voltage	50-600 VLL		
Rated current	10mA - 6A		
Frequency	45 - 65Hz		
Poles description	1P + N, 3P, 3P + N		
Sampling rate	512 samples / cycle / channel		
Measured Accuracy Class	Class 1 as per IEC 62053-21 / Class 0.5 / Class 0.2S as per IEC 62053-22 (Optional).		
Programmable Setting	110 or 415V LL Nominal & Primary Programmable up to 999 kV. Burden: 0.2VA Max. per phase		
Permissible overload	120%, Burden: 0.2VA per phase		
External Fuse Rating	200mA		
CT PT Ratio Max	2000MVA Programmable		
Auxiliary supply	80-300V AC / DC		
Power consumption	4VA nominal. 5VA for DMC		
Data update rate	1 Sec.		
COMMUNICATION			
Device ID & Parity	1 to 247 & Odd, Even, None (Preferred Even)		
Interface	RS 485 (MODBUS), Ethernet Optional (BACNET IP or MODBUS)		
Baud rate	9600 bps to 38400 bps (Preferred 9600 bps)		
Isolation	2000 volts AC isolation for 1 minute between communication & other circuits		
ENVIRONMENTAL CHARACTERISTICS			
Operating temperature	-10°C to + 55°C (14°F - 131°F)		
Storage temperature	-25°C to +70°C (-13°F - 158°F)		
Humidity	5% to 95% non-condensing		
Altitude	Below 2000mts		
Measurement Category	CAT III		
Pollution degree	2 (As per IEC 61010)		
PROTECTION CLASS			
Ingress protection	IP 51 (IP 54 front facia optional) & Double Insulation (As per IEC 61010-1)		
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		
Fast transient	IEC 61000-4-4		
Immunity to surge waves	IEC 61000-4-5		
Conducted and Radiated emissions	CISPR- 22		
SAFETY AND STANDARDS			
Construction	IEC/EN 61010-1 ed.3, CAT III, 300 V LN / 600 V LL , Protection class II.		
Standards	UL 61010-1, IEC/EN 62052-11		
MECHANICAL CHARACTERISTICS			
Weight	Unpacked 350 gms. Packed 450 gms. (It may vary based on optional features)		
Torque	1 N-m (For 5A)		
Wire gauge	11 AWG (For 5A)		