**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.
- Representations 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.
- 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.

**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 : \( \sqrt{3} \times V_{Pri} \times I_{Pri} \)
  - 0.4k to 4.0k: 0.01
  - 4.01k to 40k: 0.1
  - 40.1k to 400k: 1.0
  - 400.1k to 40M: 10
  - 40M to 400M: 100
  - 400M to 4000M: 1000
  - 4000M to 40M: 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:**

**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.
- Representations 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.
- 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.
## Product Selection:

**ACCURACY OPTION**
- CLASS 1.0
- CLASS 0.25/0.5S

### 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 upto 63rd
- Individual Harmonics up to 63rd
- 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
- VARh
- VArh - Ind
- VArh - Cap
- Load Hours
- Phase Energy and Load hours
- RD (IE)
- 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 & 4Low

### ADDITIONAL FEATURES
- 12am & 31st day snap shot
- Data Logger - 1MB
- Load Efficiency
- Energy Trends
- Dynamic communication

### ADDITIONAL OPTIONAL FEATURES (ANY ONE)
- Ethernet +256 MB Data Logging
- 2 DI
- 4 DI
- 1 DO
- 2 DO
- 2 AI
- 1 AO
- 2 AO
- 2 AI, 2 DO
- 2 DO, 2 AO
- 4 DO
- DMC

### COMMUNICATION
- RS485 (MODBUS)
- ETHERNET
- TCP/IP (MODBUS) - without I/O
- BACNET IP - without I/O

<table>
<thead>
<tr>
<th>EN 8400</th>
<th>EN 8420</th>
<th>PN 8700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customised LED</td>
<td></td>
<td>Graphic LCD</td>
</tr>
</tbody>
</table>

Default: □
Default - in communication only: ●
Restricted option: ▲

Restricted option - in communication only: ▲
### Technical Specification:

<table>
<thead>
<tr>
<th>GENERAL CHARACTERISTICS</th>
<th>EN 8400</th>
<th>EN 8420</th>
<th>PN 8700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display type</td>
<td>LED 3 row, 3 Parameter</td>
<td>LCD 4 row, 7/8 Parameter</td>
<td></td>
</tr>
<tr>
<td>Instantaneous Digits</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated Digits</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensing / Measurement</td>
<td>True RMS, 1 Sec update time, 4 Quadrant Power &amp; Energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated voltage</td>
<td>50-600 VLL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current</td>
<td>10mA - 6A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>45 - 65Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poles description</td>
<td>1P + N, 3P, 3P + N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sampling rate</td>
<td>512 samples / cycle / channel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured Accuracy Class</td>
<td>Class 1 as per IEC 62053-21 / Class 0.5 / Class 0.2S as per IEC 62053-22 (Optional).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programmable Setting</td>
<td>110 or 415V LL Nominal &amp; Primary Programmable up to 999 kV. Burden: 0.2VA Max. per phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permissible overload</td>
<td>120%, Burden: 0.2VA per phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Fuse Rating</td>
<td>200mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT PT Ratio Max</td>
<td>2000MVA Programmable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary supply</td>
<td>80-300V AC / DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>4VA nominal. 5VA for DMC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data update rate</td>
<td>1 Sec.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 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) |
| Ingress protection        | IP 51 (IP 54 front facia optional) & Double Insulation (As per IEC 61010-1) |

| PROTECTION CLASS          |         |         |         |
| Electrostastic 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) |