EM1000 series
Functions and characteristics

The EasyLogic EM1000 series energy meter offers all the basic energy measurement capabilities required to monitor an electrical installation in a single 96 x 96 mm unit. Characterized by their rugged construction, compact size, and low installation costs, these state-of-the-art meters are ideal for control panels, motor control centres, and genset panels.

The EasyLogic EM1000 series energy meter is available in two different versions to better fit specific applications:
- EM1250 for 5 Amp CT Secondary, class 0.5 accuracy and RS 485 port on MODBUS RTU
- EM1251 for 1 Amp CT Secondary, class 0.5 accuracy and RS 485 port on MODBUS RTU

Applications
- Energy billing.
- Load balancing and optimization.
- Sub-metering.
- Electrical load monitoring.
- Gensets, Test benches, and laboratories.

Main characteristics
- Elegant single row, bright backlit LCD display
- Fast in-line view, Three parameters name and value at one glance
- Direct reading of primary values - No multiplication factor
- Kilo, Mega, and Giga indications with autoscaling capability
- User selectable default display page and lock.
- Resettable energy counter in addition to a permanent counter for energy display
- Test Pulse LED, in front of meter, for testing the calibration of the meter.
- Healthy phase indicators

High Resolution
- RMS values: 4 digits for RMS values
- Energy values: 10+3 digits

Auto-scrolling
- Allows you to monitor a group of parameters sequentially without any manual key operation.

Secure settings
- Unique password protection for the setup parameters.

Smart line indicators
- Helps you to check the presence of input supply voltage (healthy phase).

Smart Diagnostic
- CT missing.
- Communication Status Indication
- PT missing.

Part numbers

<table>
<thead>
<tr>
<th>Energy meter</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM1250 class 0.5 accuracy, 5 Amp CT Secondary and RS 485 port</td>
<td>METCOEM1250</td>
</tr>
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<td>EM1251 class 0.5 accuracy, 1 Amp CT Secondary and RS 485 port</td>
<td>METCOEM1251</td>
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**EM1000 series**
Functions and characteristics (cont.)

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<th>EM1250</th>
<th>EM1251</th>
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<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use on LV and HV systems</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Power accuracy</td>
<td>0.5 %</td>
<td>0.5 %</td>
</tr>
<tr>
<td>Energy accuracy</td>
<td>0.5 %</td>
<td>0.5 %</td>
</tr>
<tr>
<td>Power factor accuracy</td>
<td>0.5 %</td>
<td>0.5 %</td>
</tr>
<tr>
<td><strong>Instantaneous rms values</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active, apparent, and reactive power</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Active, apparent, and reactive energy</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Power factor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per phase and total</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Per phase and average</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS 485 communication (2 terminals)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>MODBUS RTU protocol</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CT Secondary</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Amp</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>5 Amp</td>
<td></td>
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</tbody>
</table>
### EM1000 series
Functions and characteristics (cont.)

#### Electrical characteristics

<table>
<thead>
<tr>
<th>Type of measurement</th>
<th>Power</th>
<th>Active</th>
<th>+/-0.5% of reading at Cos Ø=1 for EM1250 and EM1251</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Apparent</td>
<td>+/-0.5% of reading at Cos Ø=1 for EM1250 and EM1251</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reactive</td>
<td>+/-1.0% of reading at Cos Ø=1 for EM1250 and EM1251</td>
<td></td>
</tr>
</tbody>
</table>

- **Measurement accuracy** at current operating range:
  - For 5A: Nominal CT: 0.25A to 8A.
  - For 1A: Nominal CT: 0.15A to 2A.

- **Type of measurement**: True RMS

- **Active Power**
  - +/-0.5% of reading at Cos Ø=1 for EM1250 and EM1251

- **Apparent Power**
  - +/-0.5% of reading at Cos Ø=1 for EM1250 and EM1251

- **Reactive Power**
  - +/-1.0% of reading at Cos Ø=1 for EM1250 and EM1251

- **Power factor**
  - +/-0.5% of reading at Cos Ø=1 for EM1250 and EM1251

- **Energy**
  - **Active**
    - Class 0.5 as per IEC 62053-22 for EM1250 and EM1251
  - **Apparent**
    - +/-0.5% of reading for EM1250 and EM1251
  - **Reactive**
    - Class 1.0 as per IEC 62053-22 for EM1250 and EM1251

**Note:** PF error limit is same as W error limit in %

- **Data update rate**: 1s

- **Input-voltage characteristics**
  - **Inputs**
    - V1, V2, V3, VN
  - **Measured voltage**
    - 80 to 480 VAC L-L without PTs
    - Up to 999 kV with external PTs
  - **Permissible overload**
    - 600 VLL
  - **Burden**
    - 0.2 VA per phase max.
  - **Impedance**
    - VLL: 3 MΩ, VLN: 3 MΩ (with communication)
  - **Frequency**
    - 50/60 Hz +/- 5%

- **Input-current CT ratings**
  - **Primary**
    - 1A - 99.0KA for 1A meter
    - 5A - 20.0KA for 5A meter
  - **Secondary**
    - 1A for EM1251
    - 5A for EM1250

- **Measurement range**
  - 250mA to 6A with 0.5% accuracy for EM1250
  - 150mA to 1.2A with 0.5% accuracy for EM1251

- **Permissible overload**
  - 10A for EM1250 and 2A for EM1251

- **Burden**
  - <0.2 VA per phase
  - <0.1 ohm

- **Auxiliary supply**
  - AC: 44 to 277 V
  - DC: 44 to 277 V
  - Burden: 4 VA max.

#### Mechanical characteristics

- **Weight**
  - Approx. 0.5Kg (shipping), 0.4Kg (without packing)

- **IP degree of protection**
  - Front: IP 51; Rear: IP 40

- **Dimensions**
  - Bezel: 96 x 96 mm
  - Depth: 80 mm behind bezel
  - Panel cutout: 92 x 92 mm

#### Environmental characteristics

- **Operating temperature**
  - -10°C to +60°C (14 to 140 °F)

- **Storage temperature**
  - -25°C to +70°C (-4 to 158 °C)

- **Humidity rating**
  - 5 to 95 % RH non-condensing

- **Altitude**
  - 2000 m

- **Measurement Category**: III

- **Pollution degree**: 2

- **Protection class**: 2

#### Electromagnetic compatibility

- **Electrostatic discharge**
  - as per IEC 61000-4-2*

- **Immunity to Electromagnetic RF Fields**
  - as per IEC 61000-4-3*

- **Conducted Immunity**
  - as per IEC 61000-4-6*

- **Immunity to Magnetic Fields**
  - as per IEC 61000-4-8*

- **Immunity to voltage dips and interruptions**
  - as per IEC 61000-4-11*

- **Fast transient**
  - as per IEC 61000-4-4*

- **Immunity to surge waves**
  - as per IEC 61000-4-5*

- **Impulse voltage**
  - as per IEC 60060 - 1 *

- **Conducted and radiated emissions**
  - CISPR22 Class A

#### Safety and standards

- **Construction**
  - Self extinguishable V0 plastic;
  - Double insulation at user accessible area
  - Spacing and isolation as per UL and IEC standards

*as per IEC61326-1