EasyLogic™ DM6x00H series

DM6000H & DM6200H VAF PF digital panel meters

Introducing EasyLogic™ DM6000H/DM6200H meters that are ideal replacement for multiple analogue meters for stand-alone metering in custom panels, switch boards, switch-gear, genset panels, motor control centres, power factor improvement panels and OEM panel board.

DM6x00H series meters offer large 8-segment alpha-numeric LED display type, intuitive navigation with self-guided 4 buttons, bright LED's of 14.2mm height with 12 LEDs for indicating percentage of load in the circuit.
• Applications
  – Cost management
    – Electrical installation remote monitoring
    – Control panels
    – Motor control centres
    – Power distribution boards
    – Original equipment manufacturers (OEM’s)
    – Building management system
    – Panel instrumentation
    – Energy management system
  – Network management
    – Measurement of Power factor
    – % unbalance for voltage and current
    – Phase angle between the respective voltage and current phase
    – Modbus RTU protocol, RS-485 communication port for integration with energy management systems (DM6200H)

• Main characteristics
  – Easy to install: Mounts using two retainer clips, no tools required. Compact meter with 49 mm meter depth behind the panel, connectable up to 480 V +10 % AC volts L-L without voltage transformers for installation complaint with measurement category III, and double insulated
  – Easy to operate: Intuitive navigation with self-guided menus and Heartbeat LED indicates normal functioning of meters while it conveys the communication status when connected to RS-485 network
  – LED display: Intuitive navigation with self-guided, four buttons, 8-segment alpha-numeric LEDs of height ~14.2 mm (0.55 in), and three lines of concurrent values with Kilo & Mega value indicator.
  – Standard compliance:
    – EMI/ EMC tests as per IEC 61326-1
    – CE certification as per IEC 61010-1 Edition 3
    – cULus as per UL61010-1 and CAN/CSA-C22.2 IEC 61010-1 edition 3, for 480 V AC L-L
    – Accuracy class 1.0 for V AF PF metering
    – CT nominal: 5 A, I-nominal or 1 A, I-nominal (field settable)
    – Password: Field configurable password for securing set up information
    – Cyber security: Option for disabling RS-485 port through front panel keys against unauthorized access. This feature can also be used for maintenance and troubleshooting of complex communication network
    – Analogue load bar: The colour-coded analogue load bar at the front side indicates the percentage of load through 12 LED’s with the option to select full scale based on connected load
    – Display: 4 digits for VAF PF parameters with auto scale and auto range features
    – Suppression current: To disregard the measurement of induced and panel auxiliary load current in the circuit (settable from 5 to 99 mA)
    – Protection cover to ensure that terminals screws does not detach from the housing and touch proof against fingers
### DM6x00H technical specifications

#### General
Use on LV & MV systems with Potential transformer (PT or VT): Current transformer (CT) ratio programmable at site
Digital panel meters for measurement of basic electrical parameters

#### Instantaneous rms values
- **Current**: Average line current of 3-phase, per-phase, and calculated neutral current
- **Voltage**: Average voltage of L-L, L-N parameters, and per-phase
- **Frequency**: Any available line
- **True power factor**: Average and per-phase signed
- **Unbalance**: Maximum % unbalance among phases for Volts & Amps
- **Revolution per minute (RPM)**: RPM of alternator or generator when number of poles set for 2, 4, 6, 8, 12, 14 or 16 (any one pole)

**Life timer stored in non-volatile memory**
- Time counters for measuring meter ON Hrs and power interruptions

#### Display
- **Bright red colour LED display, 8 segment alpha-numeric LED**, – 14.2 mm (0.55 in) height, 3 rows with 4 digits per row, auto range, auto scale

#### Communication
- **RS-485 serial (DM6200H)**: Channel connection Industry standard Modbus-RTU protocol
- **Integration with software**: Any Modbus compatible SCADA/ DCS/ PMS/ EMS/ BAS/ BMS software
- **Native Plug and Play support**: Schneider Electric energy management system software - EcoStruxure™ Power Monitoring Expert, EcoStruxure™ Power SCADA Operation
- **Setup utility software**: for set-up/programming of meters

#### Diagnostics
- **Diagnostic page**: Indicates the health of communication system, all LED test, device serial number, device model number, OS & RS version, communication status, error code display
- **Lock/ Un-Lock**: Once the commonly referred page is enabled for lock feature, the display returns to locked page in 4 minutes of inactive time

#### Electrical characteristics
- **Type of measurement**: True RMS, 32 samples/cycle
- **Measurement accuracy (Class 1.0 meters)**
  - Current, per-phase & average: ± 0.5 % of reading
  - Voltage, L-N, L-L, per-phase & average: ± 0.5 % of reading
  - Power factor, per-phase & average: ± 0.01 of reading
  - Frequency: ± 0.05 % for F-nominal 50/60 Hz ± 2
  - ± 0.2 % for Frequency range from 30 to 48 Hz, 52 to 58 Hz and 62 to 70 Hz

#### Input-voltage
- **VT (PT) connection**: Selectable from No VT (direct), 1 VT, 2 VT to 3 VT
- **VT (PT) primary**: 100 V L-L to 999 kV L-L max
- **U (V) nominal**: Up to 277 V L-N/ 480 V L-L (selectable VT secondary from 100, 110, 115, 120 to 415 V L-L)
- **Operating voltage range with accuracy**: 80-480 V L-L ± 10% Category III
- **Measured Voltage with full range**: 35 to 600 V L-L
- **Permanent overload (withstand)**: 750 V L-L, continuous
- **Impedance**: ≥ 5 MΩ
- **Frequency**: 50/60 Hz ± 2
- **VA burden**: ≤ 0.2 VA at 240 V L-N at 50 Hz

#### Frequency – measurement
- **Nominal operating range**: 50/60 Hz ± 2
- **Extended operating range**: 30 to 48 Hz, 52 to 58 Hz and 62 to 70 Hz
- **Voltage input**: 80 to 480 V L-L ± 10 %
### Input Current

**CT Connect**
Solo or multi-phase current measurement by installing CT(s) in either of A1, A2, A3, A12, A23, A13, A123 phases.

**CT Primary**
1 A to 32767 A, programmable

**CT Secondary**
1 A or 5 A I-nominal (field settable)

**Operating Current Range with Accuracy**
10 mA to 6 A¹

**Measured Amps with Over Range & Crest Factor**
5 mA to 10 A

**Suppression Current**
5 to 99 mA (to disregard negligible load)

**Impedance**
< 0.3 mΩ

**Permanent Overload (Withstand)**
Continuous 10 A, 10 s/hr 50 A, 1 s/hr 500 A

**Frequency**
50/60 Hz ± 2

**VA Burden**
≤ 0.1 VA at 5 A at 50 Hz

### AC Control Power

**Operating Range**
48 to 277 V L-N AC ± 10 %

**Burden**
≤ 4 VA at 240 V L-N 50 Hz

**Frequency**
50/60 Hz nominal (45 to 65 Hz operating range)

**Ride-Through Time**
200 milliseconds at 240 V L-N, 50 Hz

### DC Control Power

**Operating Range**
48 to 277 V DC ± 10 %

**Burden**
≤ 2 W at 240 V DC

**Ride-Through Time**
120 milliseconds at 240 V

### Displays Update

**Instantaneous/ RMS Parameters**
1 second

### Power System

**Phase Labelling**
Configurable to 123, ABC, rsl, pqr or rby

**Wiring Configuration**
13 wiring schemes (5 on front screen)

- 1ph, 2w, L-N
- 1ph, 2w, L-L
- 1ph, 3w, L-L with N (2-phase)
- 3ph, 3w, Delta, Ungrounded
- 3ph, 3w, Delta, Corner Grounded
- 3ph, 3w, Wye, Ungrounded
- 3ph, 3w, Wye, Grounded
- 3ph, 3w, Wye, Resistance Grounded
- 3ph, 4w, Open Delta, Centre-Tapped
- 3ph, 4w, Delta, Centre-Tapped
- 3ph, 4w, Wye, Ungrounded
- 3ph, 4w, Wye, Grounded
- 3ph, 4w, Wye, Resistance Grounded

¹ Additional error of ± 2 % between 10 mA to 50 mA, ± 1 % between 50 mA to 100 mA

² Through communication

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### Feature Set Summary

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DM6000H Class 1.0</th>
<th>DM6200H Class 1.0</th>
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<tbody>
<tr>
<td>Sampling rate per cycle</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Amps: average and per-phase, calculated neutral current</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Voltage: V-L-N, V-L-L, average, per-phase</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Power factor: average and per-phase</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Frequency: any available phase</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Revolutions per minute (RPM)</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Phase angle : Amp Deg (V to Amps, per-phase)</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>% Unbalance: Maximum of 3-ph V and Amps</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Life time counter - meter ON Hrs and number of power interruptions</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Communication: RS-485, Modbus RTU protocol</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Commercial reference number</td>
<td>METSEDM6000HCL10NC</td>
<td>METSEDM6200HCL10RS</td>
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### DM6x00H series

<table>
<thead>
<tr>
<th>Mechanical characteristics</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
<td>~ 300 g (10.6 oz)</td>
</tr>
<tr>
<td>IP degree of protection</td>
<td>IP 51 front side, IP 54 with gasket (optional accessory), IP 30-meter body, tested as per IEC 60529</td>
</tr>
<tr>
<td>Material</td>
<td>Polycarbonate meets UL 94V-0 flammability rating</td>
</tr>
<tr>
<td>Dimensions W x H x D</td>
<td>96 x 96 x 49 mm (3.78 x 3.78 x 1.93 in) maximum (depth of the meter from housing mounting flange) and 13 mm (0.51 in) (protrusion of meter from housing flange)</td>
</tr>
<tr>
<td>Mounting position</td>
<td>Vertical</td>
</tr>
<tr>
<td>Panel thickness</td>
<td>5 mm (0.196 in) maximum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-10 to 60 °C (+14 to 140 °F)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-20 to 70 °C (-4 to 158 °F)</td>
</tr>
<tr>
<td>Humidity rating</td>
<td>5 to 95 % RH non-condensing</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>2</td>
</tr>
<tr>
<td>Altitude</td>
<td>≤ 2000 m (6562 ft) Category III</td>
</tr>
<tr>
<td>Product life</td>
<td>&gt; 7 years</td>
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<tr>
<td>Insulation category</td>
<td>Double insulation for user accessible parts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electromagnetic compatibility (tested as per IEC 61326-1)</th>
<th></th>
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<tbody>
<tr>
<td>Electrostatic discharge</td>
<td>IEC 61010-4-2</td>
</tr>
<tr>
<td>Immunity to radiated field</td>
<td>IEC 61010-4-3</td>
</tr>
<tr>
<td>Immunity to fast transients</td>
<td>IEC 61010-4-4</td>
</tr>
<tr>
<td>Immunity to impulse waves</td>
<td>IEC 61010-4-5</td>
</tr>
<tr>
<td>Conducted immunity</td>
<td>IEC 61010-4-6</td>
</tr>
<tr>
<td>Immunity to magnetic fields</td>
<td>IEC 61010-4-8</td>
</tr>
<tr>
<td>Immunity to voltage dips</td>
<td>IEC 61010-4-11</td>
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<tr>
<td>Emissions</td>
<td>Emissions FCC Part 15 Class A/CE</td>
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</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Europe</td>
<td>CE, as per IEC 61010-1 edition 3</td>
</tr>
<tr>
<td>US and Canada</td>
<td>cULus as per UL61010-1 and CAN/CSA-C22.2 IEC 61010-1 edition 3, for 480 V AC L-L</td>
</tr>
<tr>
<td>Measurement Category (Voltage inputs)</td>
<td>CAT III up to 480 V L-L</td>
</tr>
<tr>
<td>Overvoltage Category (Control power)</td>
<td>CAT III up to 300 V L-N</td>
</tr>
<tr>
<td>Dielectric</td>
<td>As per IEC/UL 61010-1 edition 3</td>
</tr>
<tr>
<td>Protective Class</td>
<td>II, Double insulated for user accessible parts</td>
</tr>
<tr>
<td>Green premium</td>
<td>EOL, REACH, PEP, RoHS complied</td>
</tr>
<tr>
<td>Other certification</td>
<td>RCM &amp; EAC for Russia</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Communication</th>
<th></th>
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<tbody>
<tr>
<td>RS-485 port</td>
<td>Modbus RTU: 2-Wires, with ground &amp; shield, 4800, 9600, 19200 or 38400 baud, Parity - Even, Odd, None, 1 stop bit if parity is Odd or Even, 2 stop bits if None DLF3000: Firmware update through communication port</td>
</tr>
<tr>
<td>Isolation</td>
<td>2.5 kV RMS, double insulated</td>
</tr>
<tr>
<td>Protection features</td>
<td>User configurable password (selectable from 0000 to 9999) protected for set-up</td>
</tr>
<tr>
<td>Display language</td>
<td>English</td>
</tr>
<tr>
<td>Technical publication</td>
<td>Printed installation guide (QSG) supplied with meter in multi-language (EN, ES, FR, DE, PT, RU, TR, ZH) and user guide in soft format</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Human machine interface</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Display type</td>
<td>8 segment Alpha-numeric LED, ~ 14.2 mm (0.55 in) height, 3 rows with 4 digits per row, 1 column of 12 LEDs to indicate percentage of load connected in system.</td>
</tr>
<tr>
<td>Keypad</td>
<td>4 buttons for navigation at the front, combination of 2 buttons for lock/unlocking of commonly viewed page</td>
</tr>
<tr>
<td>Communications activity</td>
<td>Green LED (for indicating RS-485 interface or heartbeat pulse)</td>
</tr>
</tbody>
</table>
DM6x00H VAF PF meter installation

DM6x00H VAF PF meter mechanical dimensions

DM6x00H series VAF PF meter display overview

A  Menu selection buttons
   - Left key: To navigate left
   - Down key: To navigate down
   - Up key: To navigate up
   - Right/OK key: To navigate right/Enter key

B  LED indicators

C  Alphanumeric LED display

D  Analogue load bar

E  Current inputs

G  RS-485 (DM6200H)

H  Retainer clip

J  Control power

K  Voltage inputs
As standards, specifications and designs develop from time to time, please ask for confirmation of the information given in this document.

Design: Schneider Electric
Photos: Schneider Electric

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