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.

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Front view DM6000H

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Rear ISO DM6000H non comm

- 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 ION 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	
Page lock and unlock features	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 phase(s)
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 A[+1]
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 V A 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 s
Power system	
Phase labelling	Configurable to 123, ABC, rst, pqr or ryb
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[+2] 3ph, 3w, Wye, Ungrounded[+2] 3ph, 3w, Wye Grounded[+2] 3ph, 3w, Wye, Resistance Grounded[+2] 3ph, 4w, Open Delta, Centre-Tapped[+2] 3ph, 4w, Delta, Centre-Tapped[+2] 3ph, 4w, Wye, Ungrounded[+2] 3ph, 4w, Wye Grounded 3ph, 4w, Wye, Resistance Grounded[+2]

[+1] Additional error of ± 2 % between 10 mA to 50 mA, ± 1 % between 50 mA to 100 mA
[+2] Through communication

Feature set summary

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

DM6x00H series

Mechanical characteristics	
Weight	~ 300 g (10.6 oz)
IP degree of protection	IP 51 front side, IP 54 with gasket (optional accessory), IP 30-meter body, tested as per IEC 60529
Material	Polycarbonate meets UL 94V-0 flammability rating
Dimensions W x H x D	96 x 96 x 49 mm (3.78 x 3.78x1.93 in) maximum (depth of the meter from housing mounting flange) and 13 mm (0.51 in) (protrusion of meter from housing flange)
Mounting position	Vertical
Panel thickness	5 mm (0.196 in) maximum
Environmental characteristics	
Operating temperature	-10 to 60 °C (+14 to 140 °F)
Storage temperature	- 20 to 70 °C (-4 to 158 °F)
Humidity rating	5 to 95 % RH non-condensing
Pollution degree	2
Altitude	≤ 2000 m (6562 ft) Category III
Product life	> 7 years
Insulation category	Double insulation for user accessible parts
Electromagnetic compatibility (tested as per IEC 61326-1)	
Electrostatic discharge	IEC 61000-4-2
Immunity to radiated field	IEC 61000-4-3
Immunity to fast transients	IEC 61000-4-4
Immunity to impulse waves	IEC 61000-4-5
Conducted immunity	IEC 61000-4-6
Immunity to magnetic fields	IEC 61000-4-8
Immunity to voltage dips	IEC 61000-4-11
Emissions	Emissions FCC Part 15 Class A/CE
Safety	
Europe	CE, as per IEC 61010-1 edition 3
US and Canada	cULus as per UL61010-1 and CAN/CSA-C22.2 IEC 61010-1 edition 3, for 480 V AC L-L
Measurement Category (Voltage inputs)	CAT III up to 480 V L-L
Overvoltage Category (Control power)	CAT III up to 300 V L-N
Dielectric	As per IEC/UL 61010-1 edition 3
Protective Class	II, Double insulated for user accessible parts
Green premium	EOL, REACH , PEP, RoHS complied
Other certification	RCM & EAC for Russia
Communication	
RS-485 port	Modbus RTU: 2-Wires, with ground & 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
Isolation	2.5 kV RMS, double insulated
Protection features	User configurable password (selectable from 0000 to 9999) protected for set-up
Display language	English
Technical publication	Printed installation guide (QSG) supplied with meter in multi-language (EN, ES, FR, DE, PT, RU, TR, ZH) and user guide in soft format
Human machine interface	
Display type	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. 4 digits for VAF PF parameters with auto scrolling and auto range
Keypad	4 buttons for navigation at the front, combination of 2 buttons for lock/unlocking of commonly viewed page
Communications activity	Green LED (for indicating RS-485 interface or heartbeat pulse)

DM6x00H VAF PF meter installation

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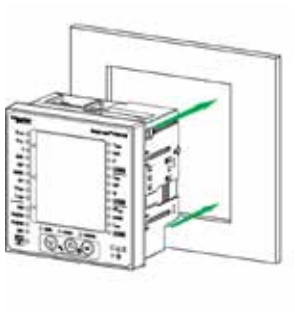

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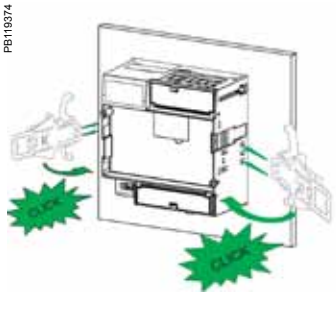

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DM6x00H VAF PF meter mechanical dimensions

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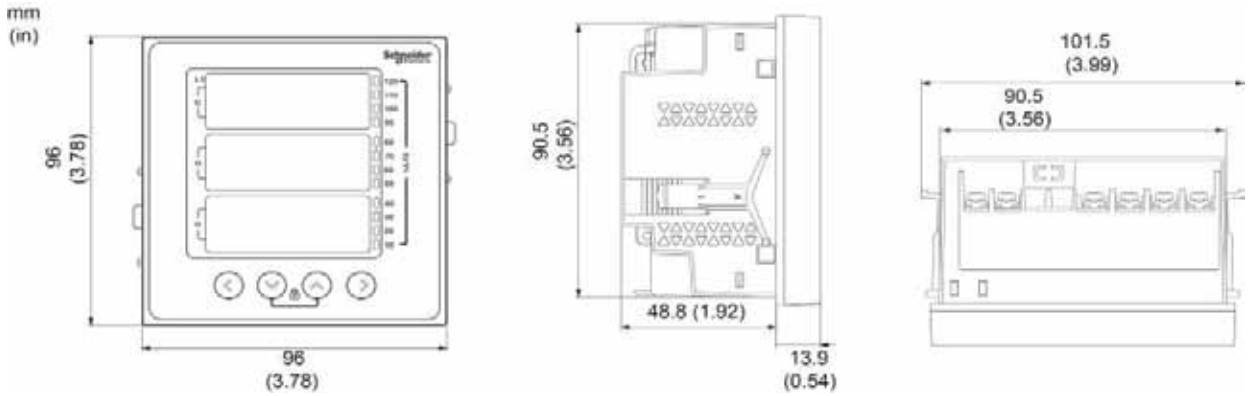

DM6x00H series VAF PF meter display overview

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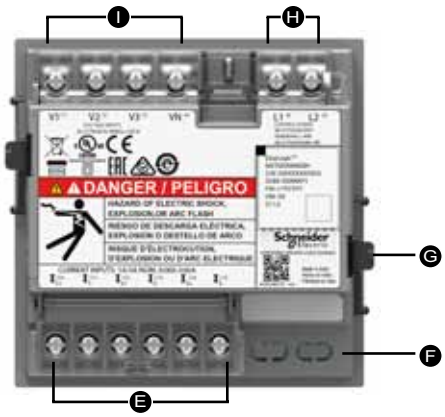

A Menu selection buttons

- 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

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