EasyLogic™ DM2500 series Technical Datasheet

The EasyLogic™ DM2500 multi-function power and energy meter

Offering comprehensive 3-phase electrical instrumentation and load management facilities in a compact and rugged package.

Applications

Cost management applications

- Bill checking to verify that you are only charged for the energy you use
- Aggregation of energy consumption, including WAGES, and cost allocation per area, per usage, per shift or per time within the same facility
- Energy cost and usage analysis per zone, per usage or per time period to optimize energy usage

Network management applications

- Metering of electrical parameters to better understand the behaviour of your electrical distribution system
- Power quality analysis

DM2500

Feature selection

Commercial ref. number	Model
METSEDM2510	DM2510
METSEDM2511	DM2511

See your Schneider Electric representative for complete ordering information.

Introducing EasyLogic DM2500 series, power meter which offers comprehensive 3-phase electrical instrumentation and loadmanagement facilities in a compact and rugged package.

- Network management:
  - Power Quality analysis: THD % and individual harmonics up to 51st order.
  - Measurement of True PF and Displacement PF.
  - Recording Min/Max values of instantaneous parameters with timestamp.
  - Comprising either 2 or 4 Digital Inputs and 2 Relay Outputs for comprehensive WAGES monitoring.
  - Calculates % unbalance for voltage & current.

- Main characteristics:
  - Power quality analysis: The DM2500 offers THD % measurements and Individual harmonics up to 51st order
  - Load management: Simultaneous display of last, present, predicted & maximum demands of all the four demand parameters (W, VA, VAR, Amps)
  - Billing: Tenant billing/utility meter cross check (where local regulations are not applicable).
  - Timer: Active load timer, Meter operation timer and Run hours timer. These features help advise maintenance requirements and scheduling.
  - Password: Field configurable password for securing set up information and prevent tampering of integrated values.
  - Cyber security: Debugging port has been disabled when the meter leaves the factory to prevent attackers from reading and changing the firmware and configuration of the meter
  - Quadrant based VARh
  - 16MB FRAM nonvolatile memory

Internal

DM2500

DM2500 technical specifications

General	
Use on LV and MV systems with onsite programmable PT/CT ratio	
Basic metering with THD %, Individual Harmonics, RTC and min/max readings	

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
Real, reactive, and apparent power	Total and per-phase value
Displacement power factor	Average and per-phase signed
True Power Factor	Average and per-phase signed
% Unbalance	Among the phase for Amps, V L-N, V L-L

Energy values stored in non-volatile memory	
Four quadrant measurement for Delivered (Forward or Import) and Received (Reverse or Export) energy	Accumulated energy values for Active, Reactive & Apparent Energy parameters, quadrant basis Net & Total (absolute) values
Timer	Accumulated time counters for active load timer, meter operation timer, run hours and power outage counter
Old Registers	Facilitates retrieval of last cleared energy values

Demand values	
Current average	Present, Last, Predicted, Peak, and Peak Date Time
Active power	Present, Last, Predicted, Peak, and Peak Date Time
Reactive power	Present, Last, Predicted, Peak, and Peak Date Time
Apparent power	Present, Last, Predicted, Peak, and Peak Date Time
Demand sync methods	Timed, Command Sync, and Clocked Sync
Demand calculation mode	Sliding, fixed and rolling block
Demand intervals	Settable from 1 to 60 minutes, in steps of 1 minute

Display	
Type	Monochrome graphical LCD
Visualization mode for signs	IEC type in LCD display meter

Communication	
RS-485 serial	Channel connection Industry standard Modbus RTU protocol
Integration with software	SCADA / DCS / PMS / EMS / BAS / BMS software
Native Plug and Play support	ION Setup for programming and setting

Min/Max values	
Minimum & Maximum value recording of 3-ph average or total	Average of V L-L, V L-N, Amps, and Total of W, VA, VAR

Alarms	
Alarming with time stamping in DM2500 meters	The meter keeps an alarm logs with the active and historical alarms with date and time stamping in 19 registers

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DM2500 electrical characteristics

Electrical characteristics	
Type of measurement	True RMS 128 samples per cycle
Measurement accuracy	
Current, phase	±0.5 %
Voltage, L-N, L-L	±0.5 %
Power Factor	±1%
Power	• Active power：±0.5% • Apparent power：±0.5% • Reactive power：±1%
Frequency	± 0.05 %
Active Energy	Class 0.5S as per IEC 62053-22 (for 5A and 1A CT)
Reactive Energy	Class 2.0
THD and individual harmonics	Up to 51st harmonic ± 1% FS(THD)
Voltage inputs	
VT primary	999 kV L-L max, starting voltage depends on VT ratio
V nominal	240V L-N / 480 V L-L
Measured V with full range	20-347 V L-N / 35-600 V L-L
Impedance	≥ 4 MΩ
Frequency	50/ 60 Hz nominal ± 5%
VA burden	< 0.2 VA (240 V AC L-N)
Current inputs	
CT ratings	Primary adjustable 1 A to 50kA Secondary 1 A or 5 A I-nominal
Measured current	5 mA to 6 A
Over current withstand	Continuous 10 A; 100 A at 1 sec/hr
Impedance	< 20 mΩ
Frequency	50/ 60 Hz nominal ± 5%
VA Burden	< 0.02 VA at 6 A
AC control power	
Operating range	100-277VAC L-N / 415 VAC L-L ± 10%
Burden	<9 VA at 415 V AC L-N
Frequency	45 to 65 Hz
DC control power	
Operating range	125-250 V ± 10%
Burden	≤ 4 W at 250 V DC
Displays update	
Instantaneous	1 s
Demand	60 s
Harmonics	2 s

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DM2500 series mechanical characteristics

Mechanical characteristics	
Weight	369.4 g
IP degree of protection	IP54 front side, IP20 meter body as per IEC 60529-1;
Display type	LCD display: Monochrome graphical LCD
Dimensions W x H x D	96 x 96 x 77.5 mm maximum (depth of the meter from housing mounting flange) and 13 mm (protrusion of meter from housing flange). Meter depth with IO module is 74 mm
Mounting position	Vertical
Keypad	4 buttons
Front panel LED indicators	Green LED (serial communications activity) Amber LED (energy pulse output)
Protection features	Password protected for set-up parameters
Environmental characteristics	
Operating temperature	-20℃ to +70℃
Storage temperature	-30℃ to +80℃
Humidity rating	5% to 95% RH at 50℃ (non-condensing)
Pollution degree	2
Altitude	≤ 2000 m (6562 ft)
Location	Not suitable for wet locations
Electromagnetic compatibility	
Product standards	IEC 62052-11, IEC 62053-22, and IEC 61557-12
Immunity to Electrostatic discharge	IEC 61000-4-2
Immunity to radiated fields	IEC 61000-4-3
Immunity to fast transients	IEC 61000-4-4
Immunity to surges	IEC 61000-4-5
Conducted immunity	IEC 61000-4-6
Immunity to impulse waves	IEC 61000-4-12
Safety	
Measurement Category (Voltage and Current inputs)	CAT III up to 400 V L-N / 690 V L-L
Overvoltage Category (Control power)	CAT III up to 277 V L-N ± 10%, CAT II up to 415V L-L ± 10%
Dielectric	IEC 61010-1
Protective Class	Protective Class II, Double insulated for user accessible parts
RS-485 Communication	
Number of ports	1
Maximum cable length	1000 m (3280 ft)
Maximum number of devices (unit loads)	Up to 32 devices on the same bus
Parity	Even, Odd, None
Baud rate	1200, 2400, 4800, 9600, 19200, 38400, default 9600
Protocol	Modbus RTU
Isolation	2.5 kV RMS, double insulated

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DM2500 series electrical characteristics of IO

Digital Input	
Type	Passive dry contact
On resistance	Conducting: input resistance <; 10kΩ, Disconnect: input resistance >;15 kΩ
Isolation voltage	2.5kV true effective value, double insulation
Relay output	
Relay output	250 V L-N AC (maximum) / 2A 30V DC / 2A
Isolation voltage	Between contact and coil: 2.5kV RMS
Output frequency	0.5Hz (1 second on / 1 second off)

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Version:

DM2500TDS

DM2500

Feature summary

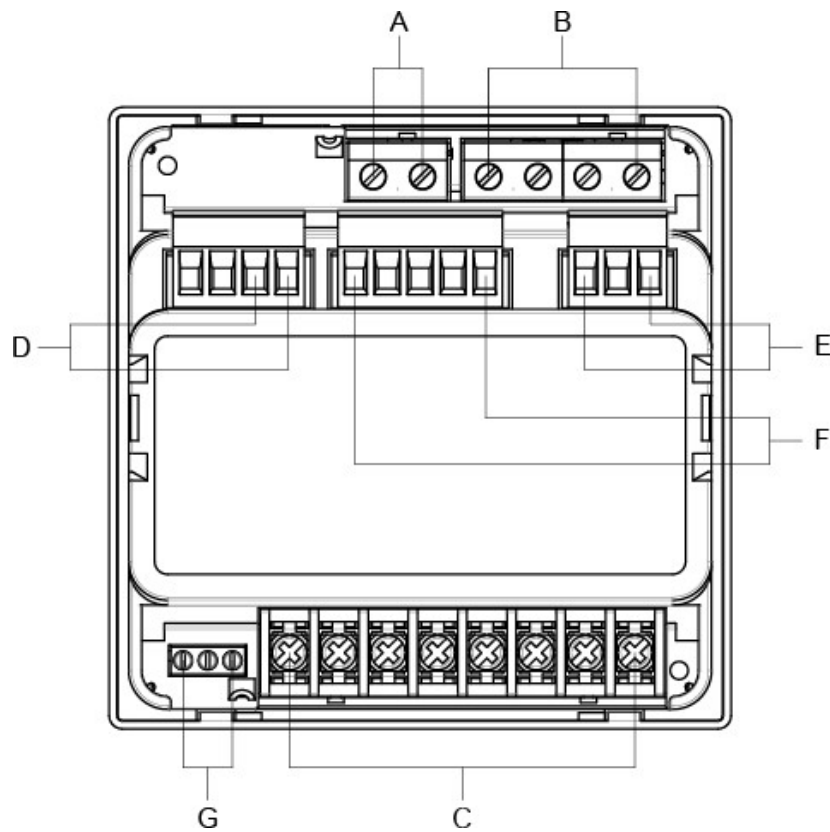| Parameter	DM2510	DM2511
Accuracy Class for Wh	Class 0.5S	Class 0.5S
Accuracy Class for varh	Class 2.0	Class 2.0
Sampling rate per cycle	128	128
Current: • Per-phase and 3 phase average • Calculated neutral current	3CT	4CT
Fourth current	—	✔
Voltage: • V L-N - per-phase and 3 phase average • V L-L - per-phase and 3 phase average	✔	✔
Power Factor • Per phase and 3 phase total	True PF Displacement PF	True PF Displacement PF
Frequency	✔	✔
Power: • Active power (kW) - Phase wise and total • Apparent power (kVA) - Phase wise and total • Reactive power (kVAR) - Phase wise and total	✔	✔
3 Phase unbalance	Current Voltage	Current Voltage
Demand parameters (kW, kVA, kVAR, I) • Last demand • Present demand • Predictive demand • Peak demand: Timestamp for peak demand	✔	✔
Energy: kWh, kVARh, kVAh • Delivered (Import / Forward) • Received (Export / Reverse) Energy: kVARh (4 Quadrant)	Delivered (D) Received (R)	Delivered (D) Received (R)
Active load timer Operating timer	✔	✔

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1.0 - 23/12/2021

Version:

DM2500TDS

DM2500

| Parameter	DM2510	DM2511
THD: • Voltage L-N per phase • Voltage L-L per phase • Current per phase	✔	✔
Individual Harmonics	Up to 51st individual harmonics	Up to 51st individual harmonics
Min / Max with timestamp •V L-L average •V L-N average •Current average •Active power, Total •Apparent power, Total •Reactive power, Total	✔	✔
RTC	✔	✔
Communication	RS-485 Modbus RTU	RS-485 Modbus RTU
Digital inputs	2*DI	4*DI
Relay Output	2*RO	2* RO
Energy Pulse	✔	✔

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DM2500 Panel meter

A	Auxiliary power supply (control power) terminals(L/+,N/-)
B	Input voltage terminals(V1,V2,V3,VN)
C	Input current terminals(I1+,I1-,I2+,I2-,I3+,I3-,I4+,I4-)
D	Power pulse output terminals (AP+,AP-)
E	RO terminals(RO1,ROC,RO2)
F	DI terminals(DIC,DI1,DI2,DI3,DI4)
G	RS-485 communications(RS+,RS-,C)

DM2500 meter display
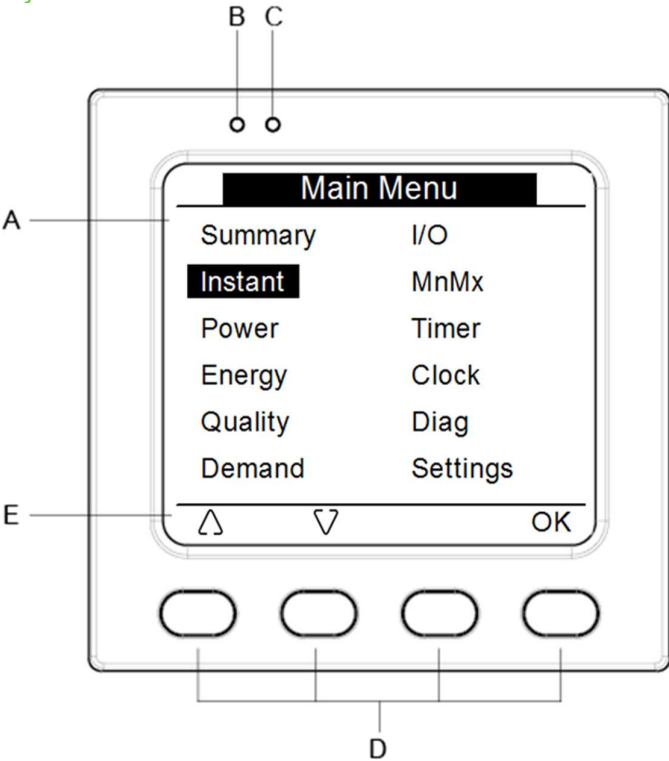
A	According to the content
B	Power pulse indication
C	Serial communication indication
D	Navigation/menu selection buttons
E	Navigation symbols or menu options

Internal

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Dec 2021
EasyLogic™ DM2500 Series
DM2500TDS

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

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have been awarded the Green Premium ecolabel.

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