

# EEM-XM157 - Measuring device



1674507

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1-phase energy meter with direct measurement up to 45 A AC, Modbus/RTU interface, 2 pulse outputs, operating temperature up to +70°C, certified in accordance with Measuring Instruments Directive (MID)

## Product description

Energy meters for billing purposes enable cost-center-specific energy data billing. EMpro AC energy meters with MID approval record all important electrical parameters such as currents, voltages, power factors, power ratings, and energy values in all four quadrants. EMpro DC energy meters enable the direct measurement of currents and voltages up to 650 A/1000 V DC. The measurement data is provided via standard communication interfaces.

## Your advantages

- Direct current measurement up to 100 A AC over the full temperature range of -40°C to +70°C
- Compliance with accuracy class C in accordance with EN 50470-3 and 0.5 in accordance with IEC 62053-21
- Easy, intuitive operation and reading via the backlit LCD display
- Simple bus and network connection via Modbus/RTU or Modbus/TCP interface
- Modbus registers based on EMpro multifunctional energy measuring devices

## Commercial data

Item number	1674507
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C446
Product key	CMMC11
GTIN	4067923225022
Weight per piece (including packing)	101.3 g
Weight per piece (excluding packing)	85 g
Customs tariff number	90283019
Country of origin	CN

## Technical data

### Product properties

Product type	Energy meter
Product family	EMpro
Calibration validity period	8 Years
Meter type	Bidirectional meter (delivery and consumption) incl. 4-quadrant measurement

### Insulation characteristics

Protection class	II
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### Insulation characteristics

Overvoltage category	III
Pollution degree	2

### Display

Display type	LCD with white backlighting
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### Electrical properties

Rated surge voltage	6 kV
Accuracy class	C (EN 50470-3) 0.5 (IEC 62053-21)
Mains type	1-phase (2-conductor)

### Supply

Supply voltage range	Supply from the measuring circuit
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### Electrical isolation

Measuring category	CAT III 300 V
Utilization category	UC 2 (EN 62052-31)

### Input data

#### Measurement

Nominal voltage	1x 230 V AC
Input voltage range	100 V AC ... 277 V AC (Phase/neutral conductor)
Input current range	45 A AC (Direct measurement)
Power consumption	10 VA (2 W)
Frequency range	±2 % (50/60 Hz reference frequency $f_N$ )
Power factor (cos phi)	0.5 (inductive) 0.8 (capacitive)
Startup current $I_{st}$	0.02 A
Minimum current $I_{min}$	0.15 A
Limiting current $I_{max}$	16 A (Energy meters in combination on DIN rail) 45 A (Energy meters individually mounted on DIN rail, with spacing of one device width to neighboring devices)

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Transient current $I_{tr}$	0.5 A
Reference current $I_{ref}$	5 A
Overload capacity	$30 \times I_{max}$ for 0.01 s
Active energy (EN 50470-3)	Class C
Real energy (IEC 62053-21)	Class 0.5
Reactive power (IEC 62053-23)	Class 2

## Output data

### Pulse output

Output description	Passive opto-isolated
Maximum switching voltage	27 V DC
Max. switching current	27 mA
Pulse width Pulse output 1	configurable
Pulse width Pulse output 2	100 ms
Pulse LED	1000 imp/kWh (Metrological LED)
Meter constant Pulse output 1	configurable
Meter constant Pulse output 2	1000 imp/kWh

## Connection data

### Measurement connection

Designation	Measurement connection
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### Conductor connection

Connection method	Screw connection
rigid	2.5 mm <sup>2</sup> ... 10 mm <sup>2</sup>
flexible	2.5 mm <sup>2</sup> ... 10 mm <sup>2</sup>
AWG	13 ... 8 (rigid/flexible)
Stripping length	9 mm
Tightening torque	1.5 Nm

### other connections

Designation	other connections
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### Conductor connection

Connection method	Screw connection
rigid	0.5 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
flexible	0.5 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
AWG	22 ... 14 (rigid/flexible)
Stripping length	5 mm
Tightening torque	0.2 Nm

## Interfaces

### Communication:

Communication protocol	Modbus/RTU
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Communication standard	RS-485
Connection method	Screw connection
Transmission speed range	2400 bps
	4800 bps
	9600 bps (preset)
	19200 bps
	38400 bps
Address area	1 ... 247 (adjustable)
Parity	odd, even, none
Stop bit	1 or 2
Data update rate	100 ms (Real power)
	1 s (Energy values)

## Dimensions

### Item dimensions

Width	18 mm
Height	118 mm
Depth	66 mm
Depth (NS 35/7,5)	60 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)
Horizontal pitch	1 Div.

## Material specifications

Color (Upper housing part)	light gray (RAL 7035)
Color (Lower housing part)	gray (RAL 7042)
Flammability rating according to UL 94	V0

## Environmental and real-life conditions

### Ambient conditions

Degree of protection (Front)	IP51 (Front)
Degree of protection (Connections)	IP20 (Connections)
Ambient temperature (operation)	-40 °C ... 70 °C
	-40 °F ... 158 °F (MID)
	0 °C ... 55 °C (Display)
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	0 % ... 90 % (non-condensing)
Shock (storage/transport)	30g <sub>n</sub> (300 m/s <sup>2</sup> ), 18 ms (IEC 60068-2-27)
Vibration (storage/transport)	10 Hz ... 150 Hz, 1g (EN 60068-2-6)
Mechanical environment	M1
EMC environment	E2

## Approvals

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## CE

Certificate	CE-compliant
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## MID

Certificate	MID-compliant
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## EMC data

Noise immunity	EN 62052-11
Impulse withstand voltage	4 kV

## Standards and regulations

Standards/regulations	EN 50470-1
	EN 50470-3

## Mounting

Mounting type	DIN rail mounting
Mounting position	Horizontal DIN rail

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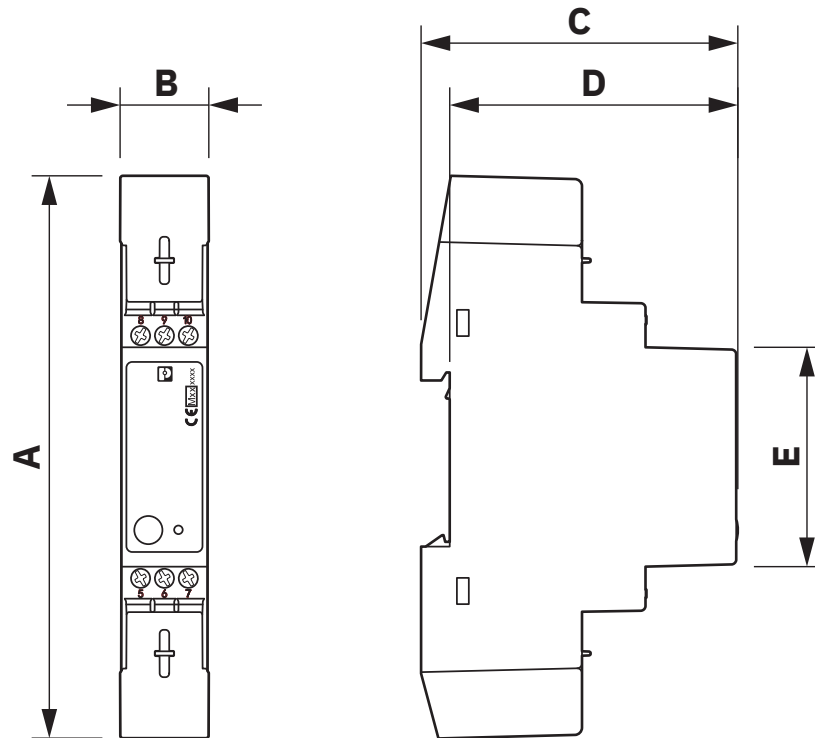
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## Drawings

Dimensional drawing



A = 118 mm; B = 18 mm; C = 66 mm; D = 60 mm; E = 45 mm

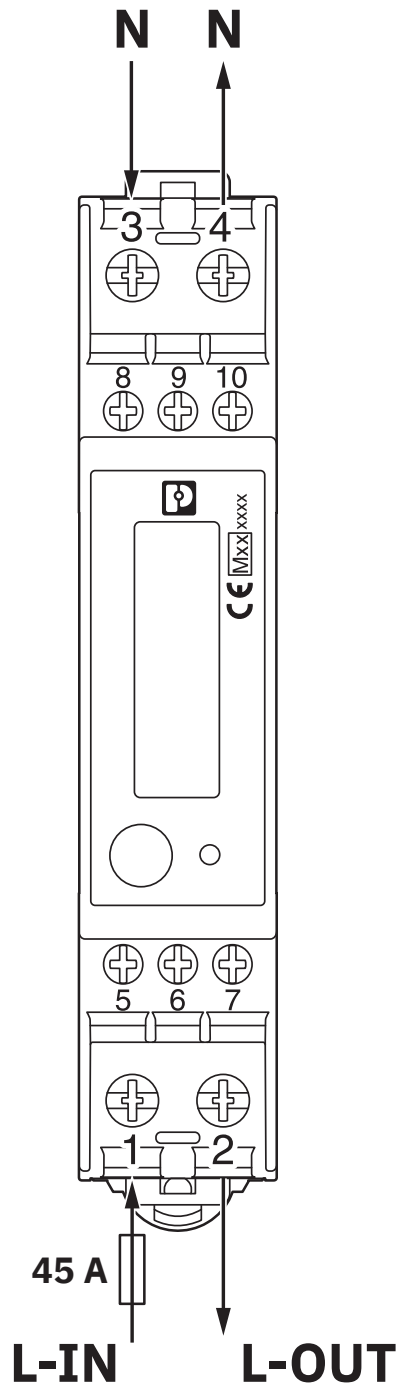
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Connection diagram



1P2W

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## Classifications

### ECLASS

ECLASS-13.0	27142330
ECLASS-15.0	27142330

### ETIM

ETIM 10.0	EC002301
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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