

EEM-XM377 - Measuring device

1674501

<https://www.phoenixcontact.com/us/products/1674501>

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3-phase energy meter with direct measurement up to 100 A AC, Modbus/TCP interface, operating temperature up to +70°C, certified in accordance with Measuring Instruments Directive (MID)

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 | 1674501 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C446 |
| Product key | CMMC11 |
| GTIN | 4067923225121 |
| Weight per piece (including packing) | 370.7 g |
| Weight per piece (excluding packing) | 315 g |
| Customs tariff number | 90283019 |
| Country of origin | CN |

Technical data

Product properties

| | |
|-----------------------------|---|
| Product type | Energy meter |
| Product family | EMpro |
| Number (Ethernet ports) | 1 |
| Calibration validity period | 8 Years |
| Meter type | Bidirectional meter (delivery and consumption) incl. 4-quadrant measurement |

Insulation characteristics

| | |
|------------------|----|
| Protection class | II |
|------------------|----|

Insulation characteristics

| | |
|----------------------|-----|
| Overvoltage category | III |
| Pollution degree | 2 |

Display

| | |
|--------------|--|
| Display type | LCD with white backlighting and maximum display range of 999999.99 kWh/kVArh |
|--------------|--|

Electrical properties

| | |
|---------------------|---|
| Rated surge voltage | 6 kV |
| Accuracy class | C (EN 50470-3) 0.5 (IEC 62053-21) |
| Mains type | 1-phase (2-conductor) 3-phase (3-conductor) 3-phase (4-conductor) |

Supply

| | |
|----------------------|-----------------------------------|
| Supply voltage range | Supply from the measuring circuit |
|----------------------|-----------------------------------|

Electrical isolation

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

Input data

Measurement

| | |
|------------------------|--|
| Nominal voltage | 3x 230 V AC (400 V AC) |
| Input voltage range | 100 V AC ... 277 V AC (Phase/neutral conductor) 173 V AC ... 480 V AC (Phase/Phase) |
| Input current range | 100 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) |

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| | |
|-------------------------------|-----------------------------|
| Startup current I_{st} | 0.04 A |
| Minimum current I_{min} | 0.3 A |
| Limiting current I_{max} | 100 A |
| Transient current I_{tr} | 1 A |
| Reference current I_{ref} | 10 A |
| Current carrying capacity | ≤ 100 A (Neutral conductor) |
| Overload capacity | 30 x 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 |
| Scanning rate | 4096 Hz |

Output data

Pulse output

| | |
|-----------|--------------------------------|
| Pulse LED | 400 imp/kWh (Metrological LED) |
|-----------|--------------------------------|

Connection data

Measurement connection

| | |
|-------------|------------------------|
| Designation | Measurement connection |
|-------------|------------------------|

Conductor connection

| | |
|-------------------|--|
| Connection method | Screw connection |
| rigid | 1.5 mm ² ... 25 mm ² |
| flexible | 1.5 mm ² ... 25 mm ² |
| AWG | 14 ... 4 (rigid/flexible) |
| Stripping length | 15 mm |
| Tightening torque | 2.5 Nm |

Interfaces

Communication:

| | |
|--------------------------|--|
| Communication protocol | Modbus/TCP |
| Communication standard | Ethernet |
| Connection method | RJ45 |
| Transmission speed range | 100 Mbps |
| Data update rate | 100 ms (Real power) 1 s (Energy values) |

Dimensions

Item dimensions

| | |
|--------|--------|
| Width | 72 mm |
| Height | 100 mm |
| Depth | 71 mm |

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| | |
|-------------------|---|
| Depth (NS 35/7,5) | 65 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715) |
| Horizontal pitch | 4 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 _n (300 m/s ²), 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

CE

| | |
|-------------|--------------|
| Certificate | CE-compliant |
|-------------|--------------|

MID

| | |
|-------------|---------------|
| Certificate | MID-compliant |
|-------------|---------------|

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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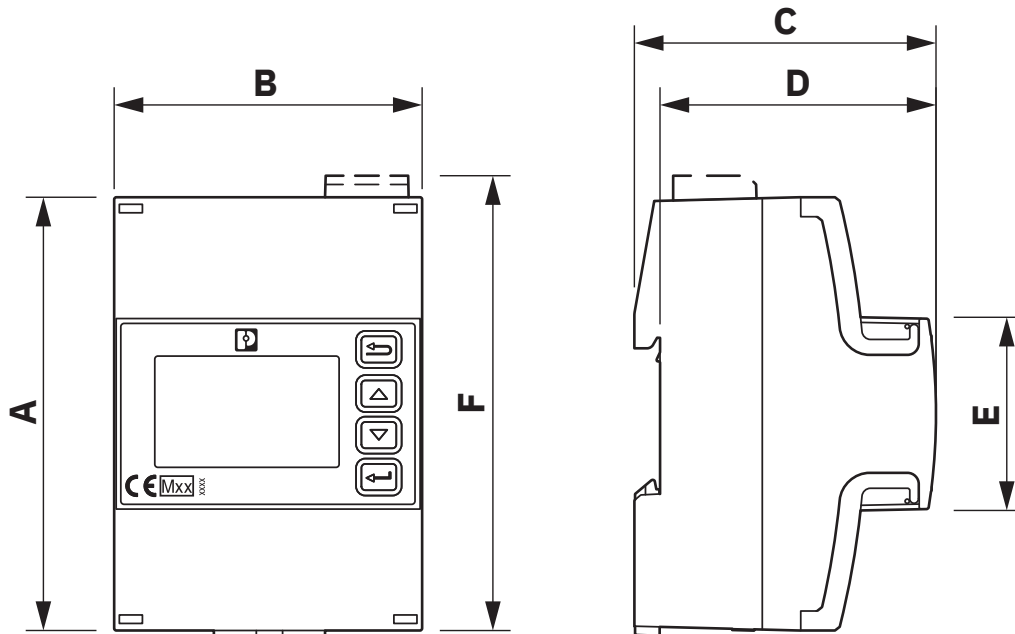
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Drawings

Dimensional drawing



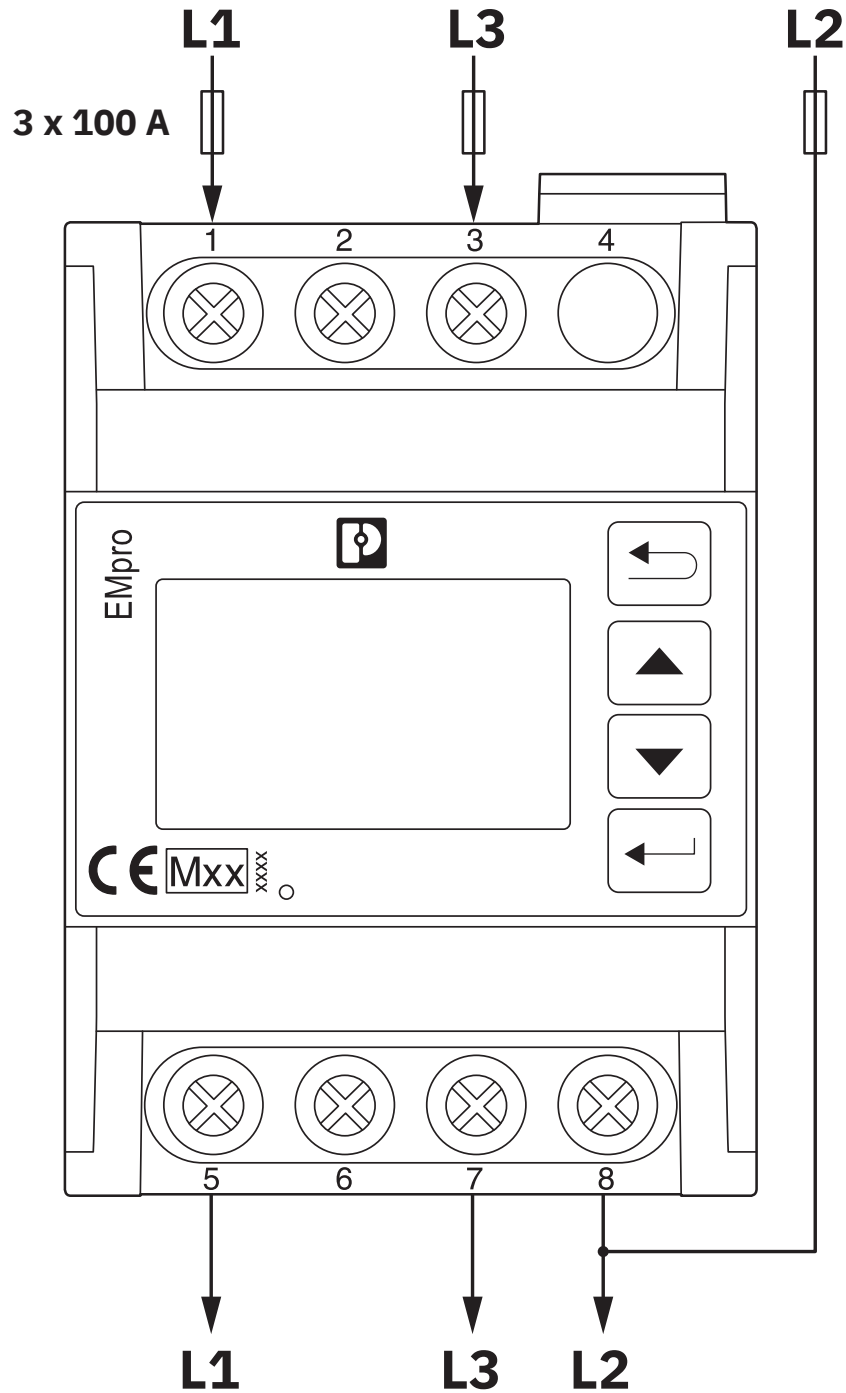
A = 100 mm; B = 72 mm; C = 71 mm; D = 65 mm; E = 45 mm; F = 105,5 mm

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Connection diagram



3P3W

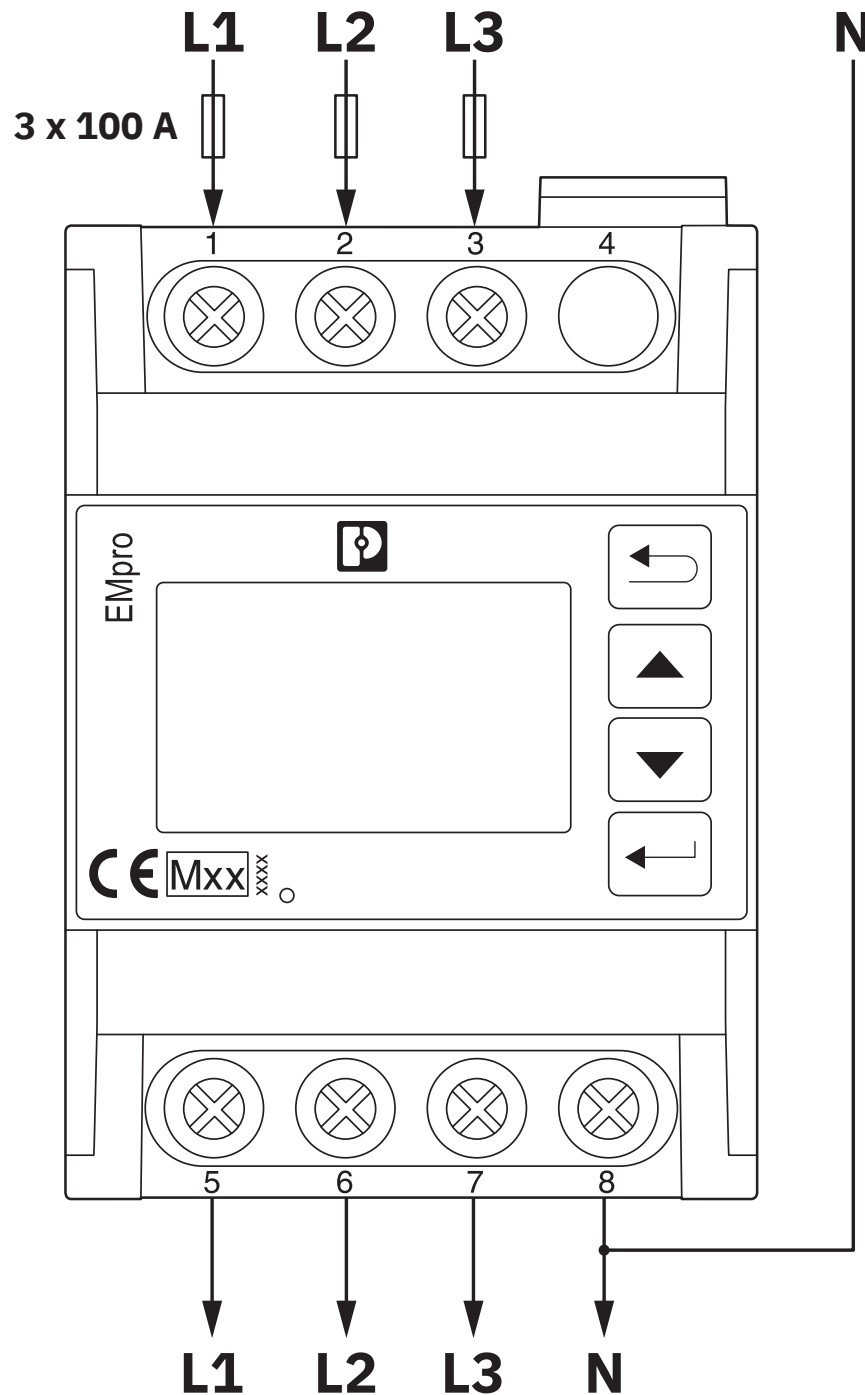
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Connection diagram



3P4W

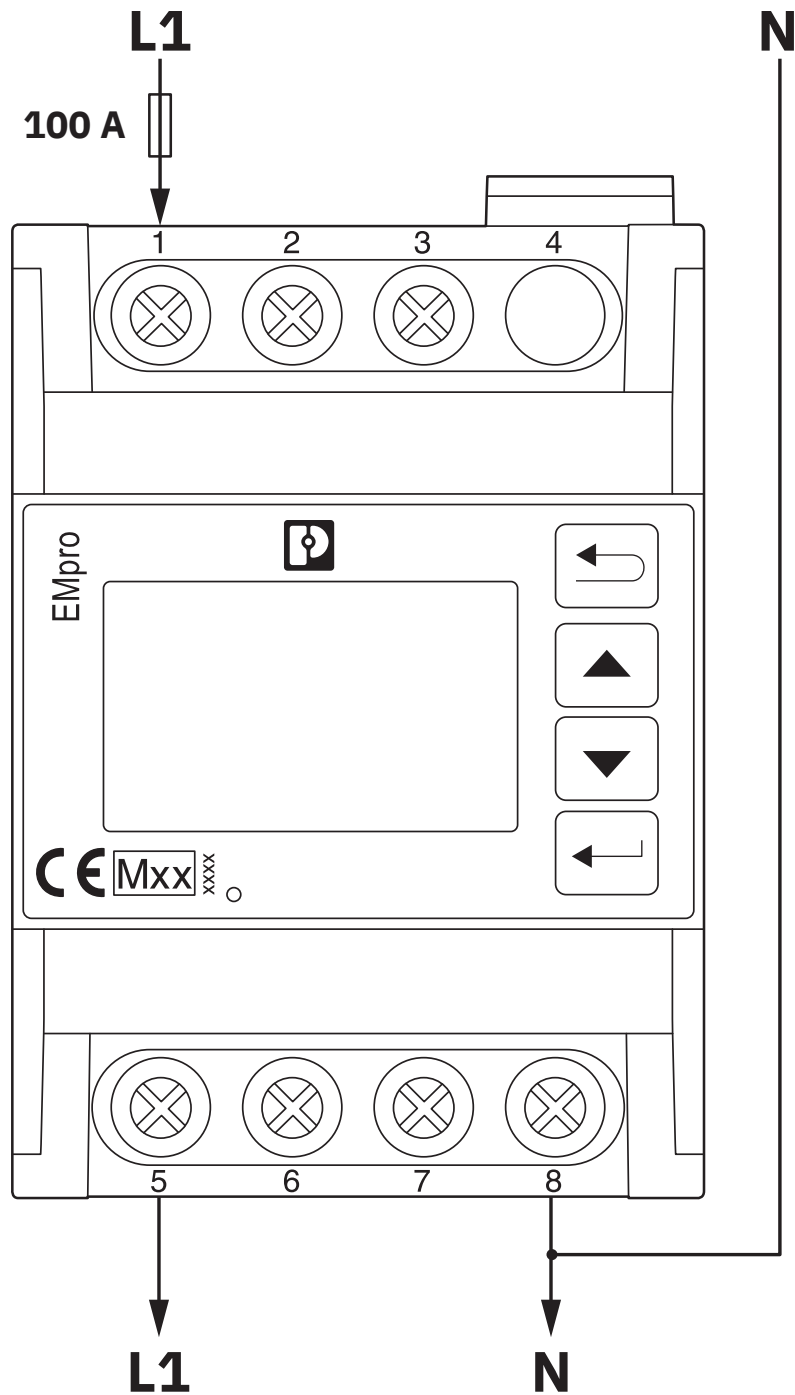
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Connection diagram



1P2W

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Approvals

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cULus Listed

Approval ID: E552445-20260213

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 27142330 |
| ECLASS-15.0 | 27142330 |

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC002301 |
|-----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 26111500 |
|-------------|----------|

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Environmental product compliance

EU RoHS

| | |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |
|---|--------------------|

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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