# EEM-MA371-24DC - Measuring device

1127058

https://www.phoenixcontact.com/us/products/1127058

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CRA-READY



Multifunctional energy measuring device with 24 V DC supply, direct Rogowski connection, and integrated Modbus/TCP interface for measuring electrical parameters in low-voltage electrical installations up to 690 V (phoenixcontact.com/empro-help). The product is being prepared for compliance with the Cyber Resilience Act (CRA).

## Product description

The multifunctional EMpro energy measuring devices acquire your energy data and offer numerous options for communicating the data to higher-level control and management systems. Configure and integrate your energy measuring devices in just a few steps using the web-based, user-guided installation wizard. You can also benefit from the simple, direct connection of conventional Rogowski coils, and from the many practice-oriented web server and device functions.

## Your advantages

- Energy measurement in just three steps with the intuitive installation wizard
- Reduce wiring and configuration effort with the direct connection of conventional Rogowski coils
- Easy commissioning and service with intelligent web server and display functions
- Data protection through the targeted deactivation of key configuration functions and interfaces
- Fast integration into control and management systems with future-oriented communication solutions and digital services

## Commercial data

| | |
|---|---|
| Item number | 1127058 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C446 |
| Product key | CMMC21 |
| GTIN | 4063151055233 |
| Weight per piece (including packing) | 289.14 g |
| Weight per piece (excluding packing) | 245.83 g |
| Customs tariff number | 90303100 |
| Country of origin | DE |

# Technical data

## Notes

Note on application

| | |
|---|---|
| Note on application | As things stand now, we are preparing the product so that, as of December 11, 2027, it will comply with the requirements of the EU Cyber Resilience Act (CRA) based on the information currently available regarding the CRA. |

## Product properties

| | |
|---|---|
| Product type | Energy measuring device |
| Product family | EMpro |
| Number (Ethernet ports) | 1 |
| Special properties | The product is being prepared for compliance with the Cyber Resilience Act (CRA) |

Display

| | |
|---|---|
| Display type | LCD display, backlit, 2-color, multi-line |

## Electrical properties

| | |
|---|---|
| Maximum power dissipation for nominal condition | 10 VA |
| Mains type | 3-phase (3 or 4-conductor), 2-phase (2-conductor), and single-phase (1-conductor) |

Electrical isolation

| | |
|---|---|
| Test voltage | 4 kV AC (50 Hz, 60 s) |
| Pollution degree | 2 |
| Insulation | Reinforced insulation |

Electrical isolation Housing against all potentials IEC 61010-1

| | |
|---|---|
| Standards/regulations | IEC 61010-1 |
| Overvoltage category | III (300 V AC) |
| | II (600 V AC) |
| Insulation | Reinforced insulation |

Electrical isolation Supply voltage

| | |
|---|---|
| Insulation | Functional insulation |

Electrical isolation Voltage measurement input against all other potentials IEC 61010-2-030

| | |
|---|---|
| Standards/regulations | IEC 61010-2-030 |
| Measuring category | III (300 V AC) |
| | II (600 V AC) |
| Insulation | Reinforced insulation |

Electrical isolation Digital I/Os

| | |
|---|---|
| Insulation | Functional insulation |

Electrical isolation Communication interface

| | |
|---|---|
| Insulation | Functional insulation |

Supply

| | |
|---|---|
| Supply voltage | 24 V DC ±25 % |
| Supply voltage range | 18 V DC ... 30 V DC |
| Power consumption | < 4 W |

## Input data

Measuring data acquisition

| | |
|---|---|
| Measuring principle | True r.m.s. value measurement (seamless) |
| Frequency measuring range (Fundamental component) | 45 Hz ... 65 Hz |
| Measured value | AC sine (50 Hz/60 Hz) |
| Scanning rate | 12,8 kHz (50 Hz) / 15,4 kHz (60 Hz) |
| Number of periods | 10 (true RMS value at 50 Hz) |
| | 12 (true RMS value at 60 Hz) |
| Acquisition of harmonics | up to 63rd harmonic |

Measurement: Voltage

| | |
|---|---|
| Input name | Voltage measuring input V1, V2, V3 |
| Input voltage range direct | 18 V AC ... 690 V AC (Phase/Phase) |
| | 11 V AC ... 400 V AC (Phase/neutral conductor) |
| Input voltage range via external transformers | 60 V AC ... 2000000 V AC (primary) |
| | 60 V AC ... 400 V AC (secondary) |
| Surge voltage capacity | 760 V AC (Phase/Phase) |
| Precision | 0.2 % |
| Power consumption | < 0.5 VA |

Measurement: Current

| | |
|---|---|
| Input name | Current measurement RC1, RC2, RC3 |
| Input current | ≤ 400 A (Measurement level 1) |
| | ≤ 4000 A (Measurement level 2) |
| | Transmission factor: 100 mV/1000 A when using a Phoenix Contact coil |
| Input measuring range voltage | 500 µV ... 400 mV |
| Response threshold from measuring range nominal value | 5 A |
| Operate threshold | 500 µV (5 A) |
| Precision | 0.5 % |

Measurement: Power

| | |
|---|---|
| Precision | 1 % |
| Real energy (IEC 62053-21) | Class 1 |
| Reactive power (IEC 62053-23) | Class 2 |

Digital

| | |
|---|---|
| Description of the input | Digital input in accordance with IEC/EN 61131-2 (type 3) |
| Number | 1 |

| | |
|---|---|
| Voltage input signal | 24 V DC |
| | 0 V DC ... 30 V DC |
| Current input signal | 2 mA ... 15 mA |
| Protection | 250 mA (fast-blow) |
| Protective circuit | Protection against incorrect DC connection (max. 30 V) |

## Output data

Digital

| | |
|---|---|
| Output description | Digital output in accordance with IEC/EN 61131-2 (type 3) |
| Number | 1 |
| Current output signal | ≤ 100 mA |
| Voltage output signal | 24 V DC |
| Protection | 250 mA (fast-blow) |
| Protective circuit | Protection against incorrect DC connection (max. 30 V) |

## Connection data

Current / voltage / supply

| | |
|---|---|
| Connection method | Screw connection |
| Stripping length | 8 mm |
| Screw thread | M3 |

Digital I/O / communication

| | |
|---|---|
| Connection method | Screw connection |
| Stripping length | 7 mm |
| Screw thread | M3 |
| Conductor cross-section rigid | 0.14 mm² ... 2.5 mm² |
| Conductor cross-section flexible | 0.14 mm² ... 1.5 mm² |
| Conductor cross-section AWG | 26 ... 14 |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

## Interfaces

Data: Network interface

| | |
|---|---|
| Communication protocol | Modbus/TCP |
| | REST |
| Connection method | RJ45 |
| Transmission speed | 10 Mbps |
| | 100 Mbps |

## Dimensions

Item dimensions

| | |
|---|---|
| Width | 90 mm |
| Height | 90 mm |
| Depth | 71.9 mm |

| | |
|---|---|
| Horizontal pitch | 5 HP |

## Material specifications

| | |
|---|---|
| Color | gray (RAL 7042) |

## Environmental and real-life conditions

### Ambient conditions

| | |
|---|---|
| Degree of protection | IP20 (Housing) |
| | IP40 (Display) |
| Ambient temperature (operation) | -25 °C ... 70 °C |
| Ambient temperature (storage/transport) | -30 °C ... 80 °C |
| Altitude | ≤ 2000 m |
| Max. permissible relative humidity (operation) | ≤ 95 % (non-condensing) |

## Approvals

### CE

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

### UL, USA/Canada

| | |
|---|---|
| Identification | UL/C-UL Listed UL 61010-1 |

### UL data

| | |
|---|---|
| Operating mode | Indoor use |

## Standards and regulations

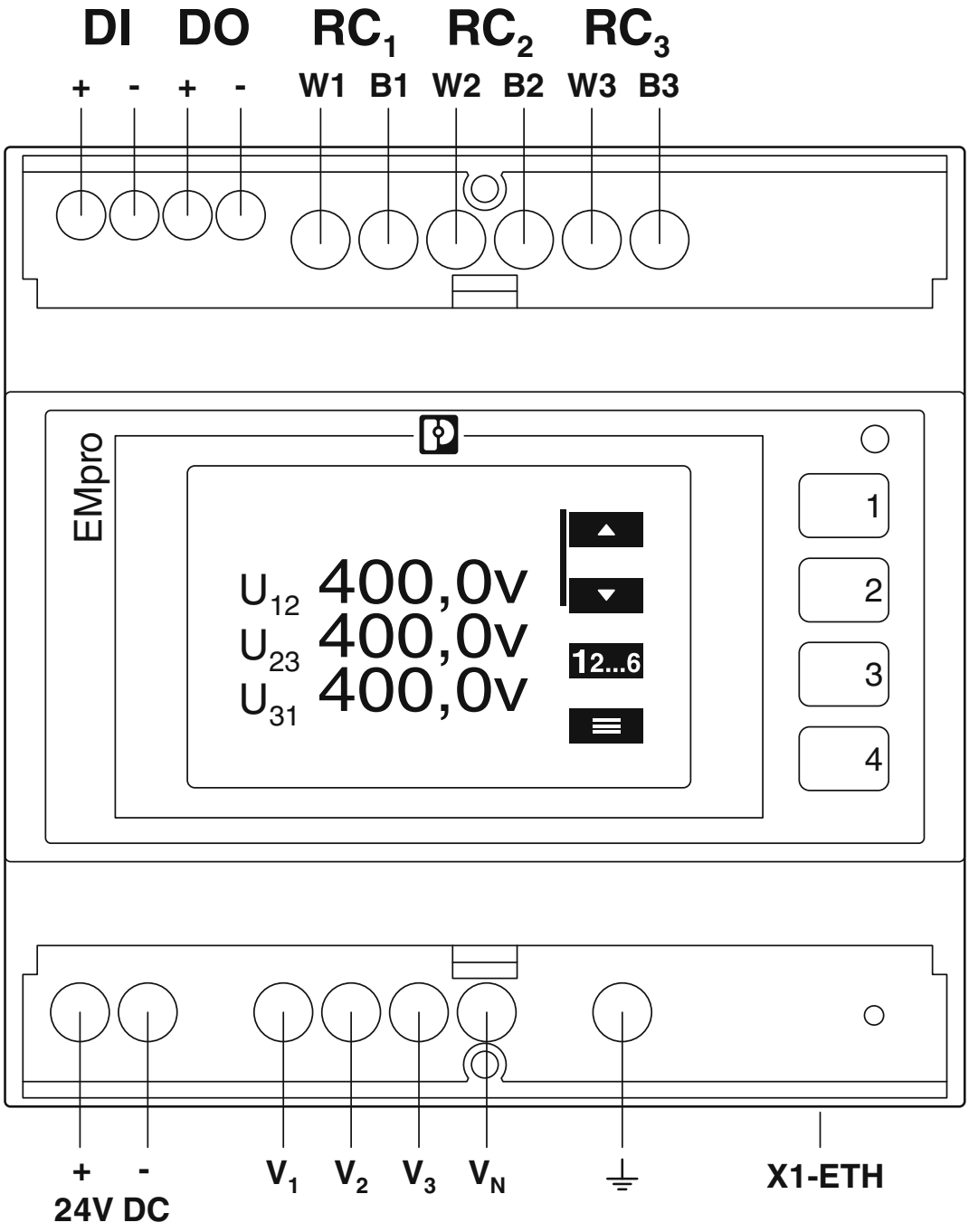
| | |
|---|---|
| Standards/regulations | IEC 61010-1 |
| | IEC 61326-1 |
| | IEC 61557-12 |

## Mounting

| | |
|---|---|
| Mounting type | DIN rail mounting |
| Mounting position | Horizontal DIN rail |

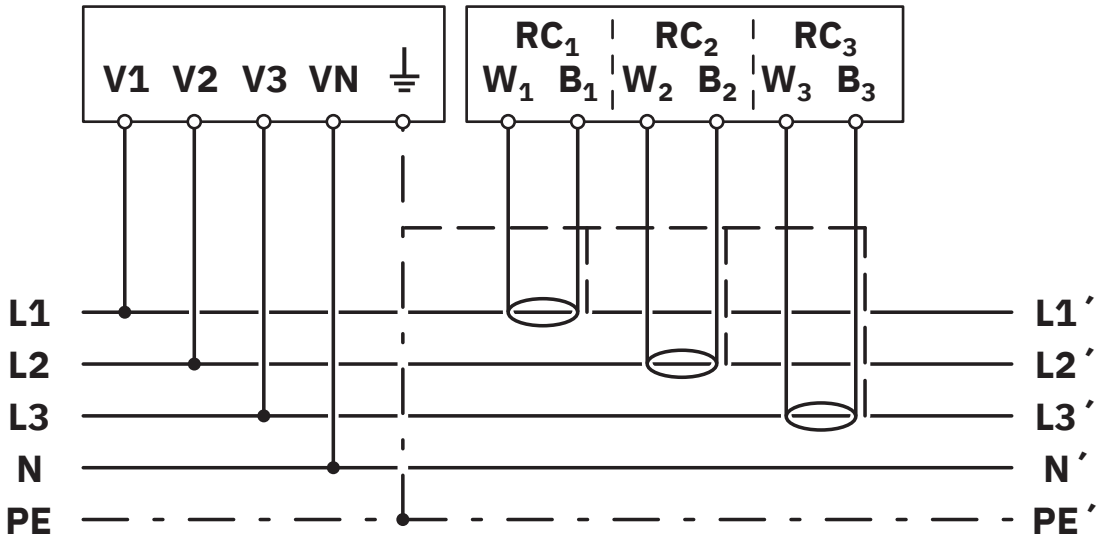
## Drawings

Connection diagram



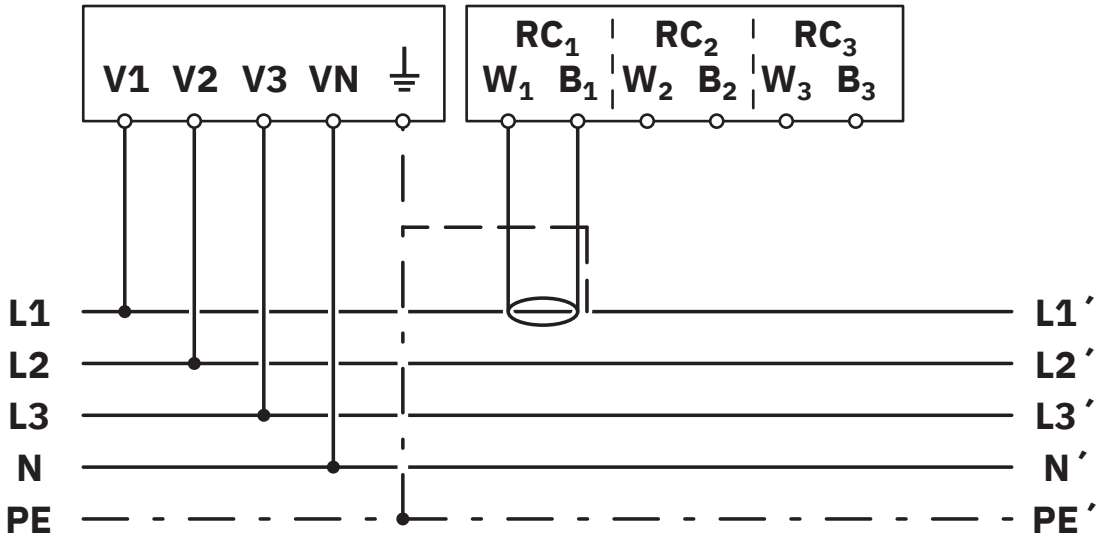

Connection assignment

Connection diagram



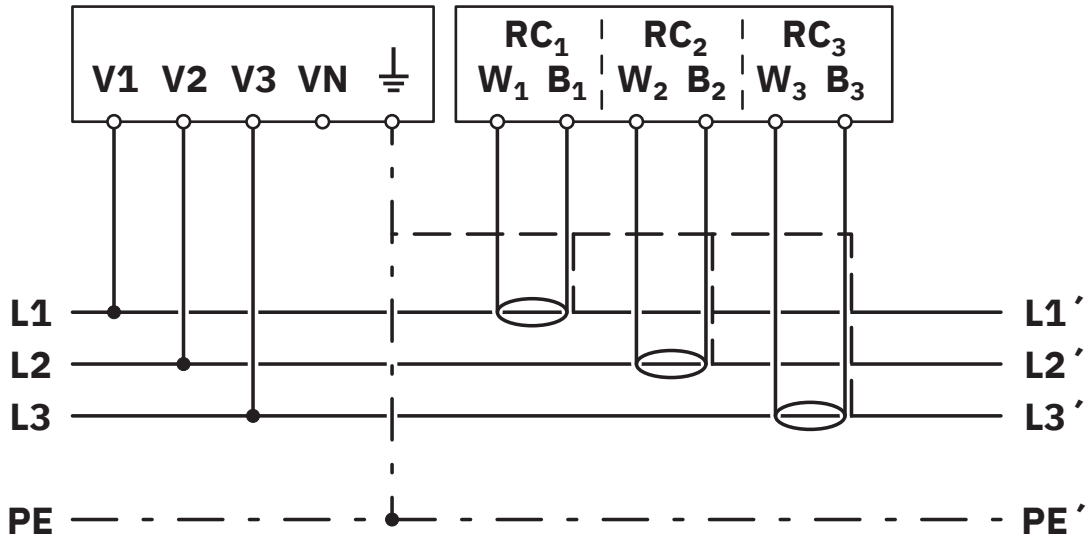

Network type: 3PH-4W-3RC

Connection diagram



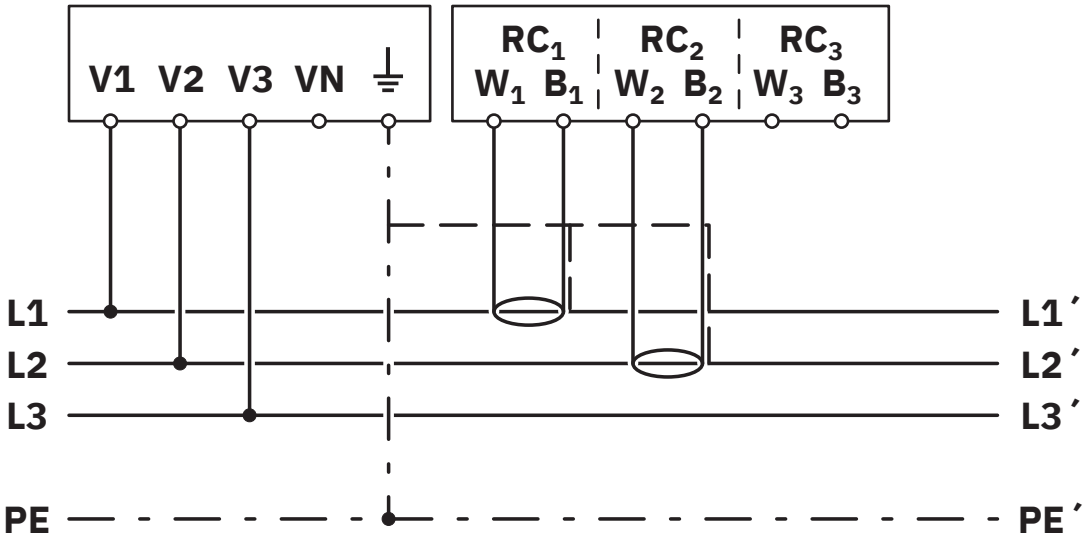

Network type: 3PH-4W-1RC

Connection diagram



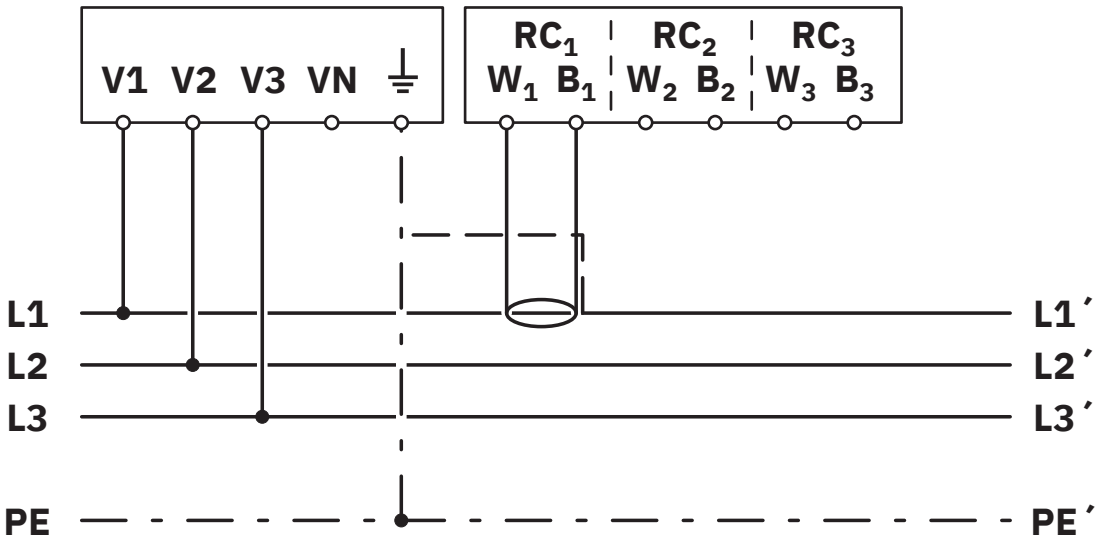

Network type: 3PH-3W-3RC

Connection diagram



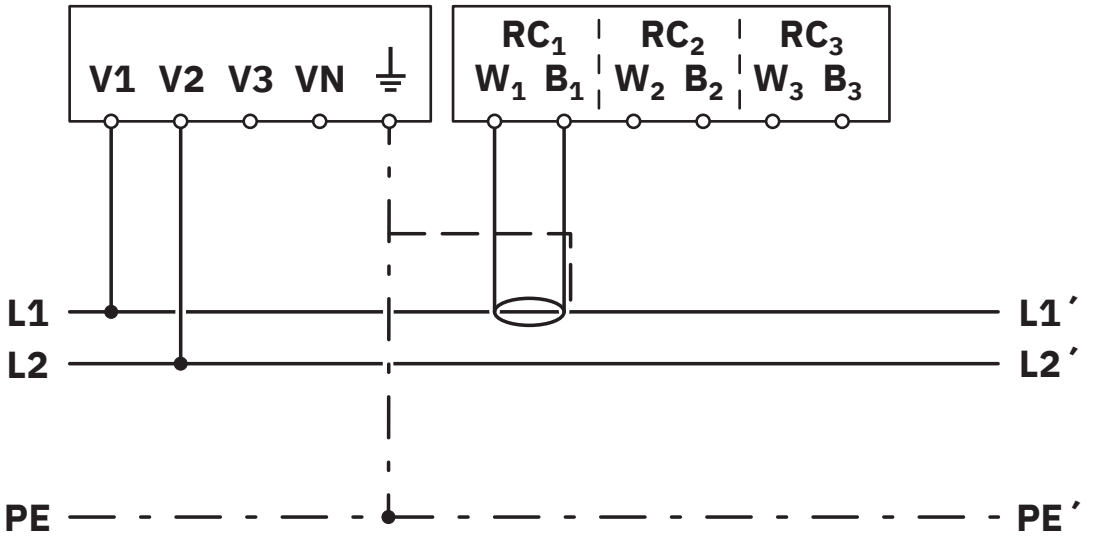

Network type: 3PH-3W-2RC

Connection diagram



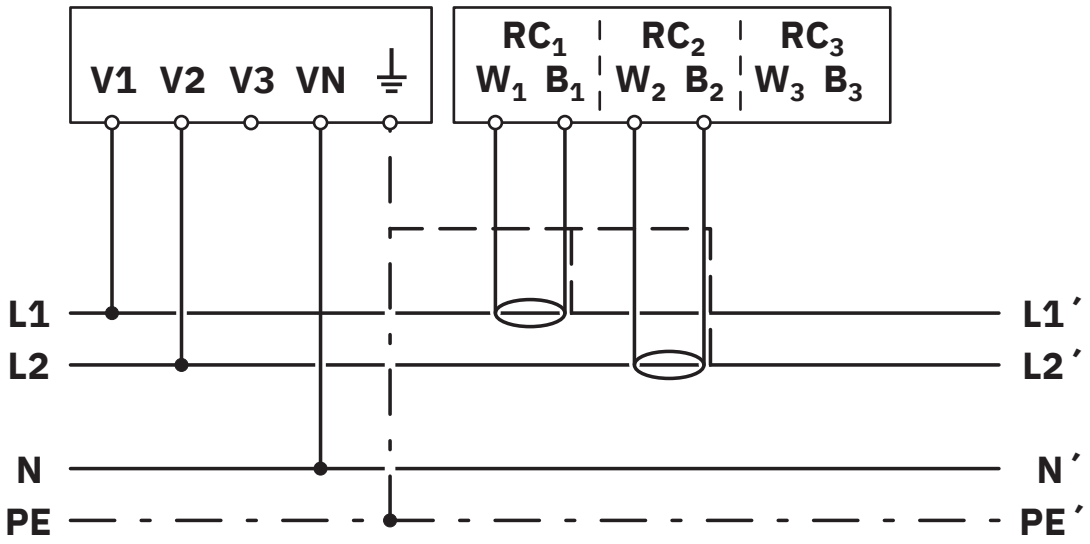

Network type: 3PH-3W-1RC

Connection diagram



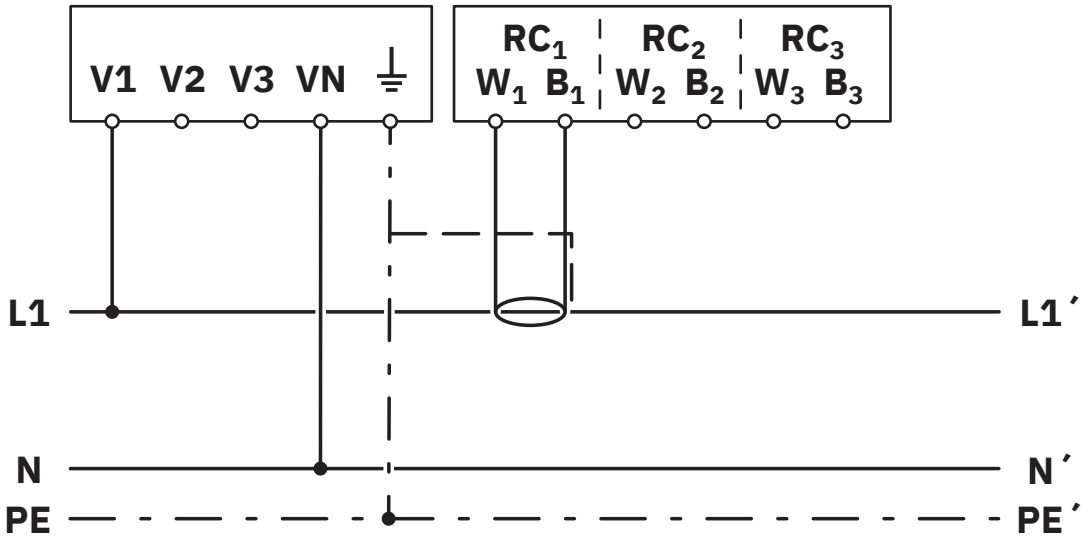

Network type: 2PH-2W-1RC

Connection diagram



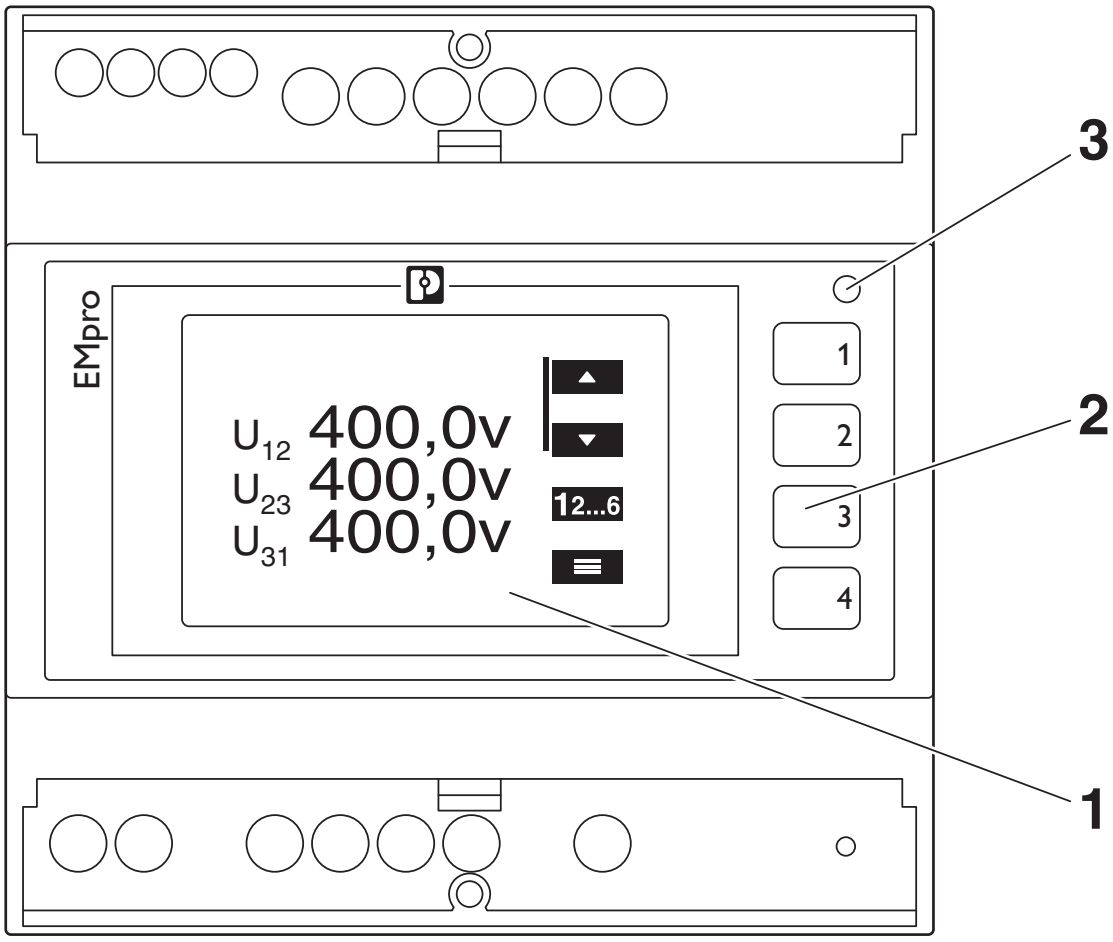

Network type: 2PH-3W-2RC

Connection diagram



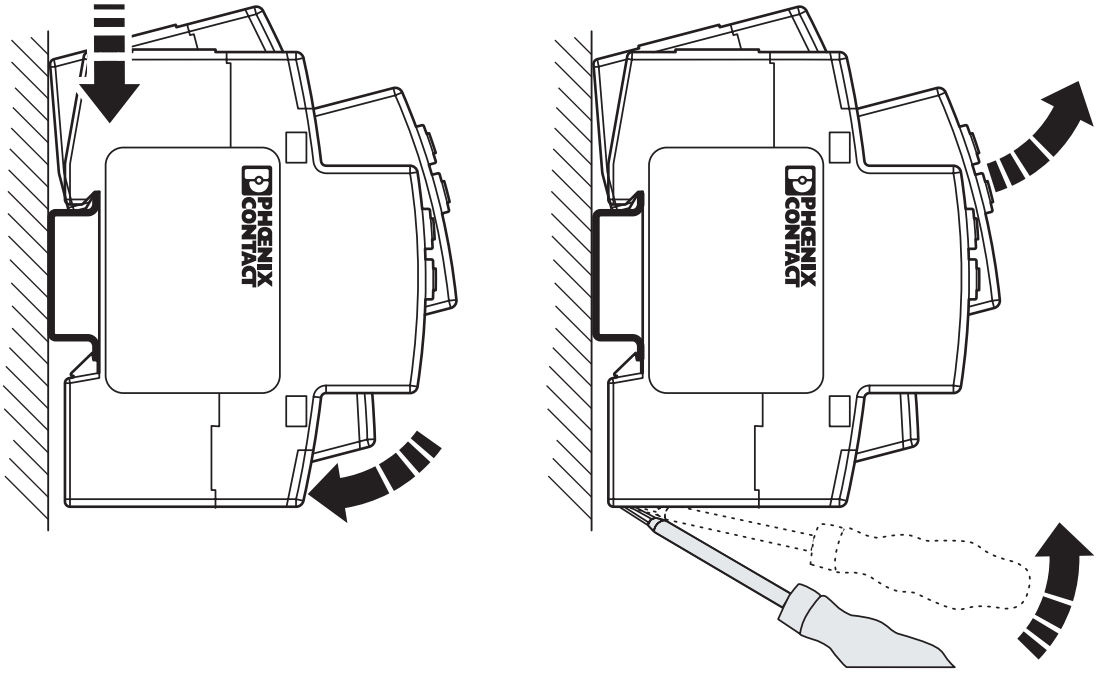

Network type: 1PH-2W-1RC

Schematic diagram




Operating and indication elements
1 LCD, backlit
2 Operating buttons for displaying measured values and for changing the configuration
3 Pulse LED

Schematic diagram



Mounting

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1127058

**UL Listed**
Approval ID: E357804

**cUL Listed**
Approval ID: E357804

**cULus Listed**
Approval ID: E357804-20191108

## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 41113600 |

## Environmental product compliance

EU RoHS

| | |
|---|---|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 7(a), 7(c)-I |

China RoHS

| | |
|---|---|
| Environment friendly use period (EFUP) | EFUP-50 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

| | |
|---|---|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
| | Perfluorobutane sulfonic acid (PFBS) and its salts(CAS: n/a) |
| SCIP | 84c609f1-846a-4e41-8f72-f6c3028dafe2 |


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