

EEM-MA371-24DC - Measuring device



1127058

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

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Multi-functional energy measuring device with 24 V DC supply, direct Rogowski connection, and integrated Modbus/TCP interface for measuring electrical parameters in low-voltage installations up to 690 V ([phoenixcontact.com/empro-help](https://www.phoenixcontact.com/empro-help))

Commercial data

Item number	1127058
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C446
Product key	CK4C21
GTIN	4063151055233
Weight per piece (including packing)	288.46 g
Weight per piece (excluding packing)	245.15 g
Customs tariff number	90303100
Country of origin	DE

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Technical data

Product properties

Product type	Energy measuring device
Product family	EMpro

Data management status

Article revision	07
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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
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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
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Electrical isolation Communication interface

Insulation	Functional insulation
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Supply

Supply voltage	24 V DC $\pm$ 25 %
Supply voltage range	18 V DC ... 30 V DC
Power consumption	< 4 W

Input data

General

EEM-MA371-24DC - Measuring device



1127058

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Measuring principle	True r.m.s. value measurement
Measured value	AC sine (50 Hz/60 Hz)
Acquisition of harmonics	up to 63rd harmonic
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)

Measurement: Voltage

Input name	Voltage measuring input V1, V2, V3
Input voltage range direct	35 V AC ... 690 V AC (Phase/Phase) 20 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	< 2 VA

Measurement: Current

Input name	Current measurement RC1, RC2, RC3
Input current	≤ 400 A (Measurement level 1) ≤ 4000 A (Measurement level 2)
Input measuring range voltage	500 µV ... 400 mV (1000 A)
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

Output data

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

EEM-MA371-24DC - Measuring device



1127058

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

Connection method	Screw connection
Stripping length	8 mm
Screw thread	M3
Conductor cross section rigid	0.2 mm ² ... 6 mm ²
Conductor cross section flexible	0.2 mm ² ... 4 mm ²
Conductor cross section AWG	24 ... 10
Tightening torque	0.5 Nm ... 0.6 Nm

Digital I/O / communication

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section rigid	0.14 mm ² ... 2.5 mm ²
Conductor cross section flexible	0.14 mm ² ... 1.5 mm ²
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

Dimensions

Width	90 mm
Height	80 mm
Depth	64 mm

Material specifications

Color	gray (RAL 7042)
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Environmental and real-life conditions

Ambient conditions

Degree of protection (Housing)	IP20 (Housing)
Degree of protection (Display)	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
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1127058

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UKCA

Certificate	UKCA-compliant
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UL, USA/Canada

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

Operating mode	Indoor use
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Standards and regulations

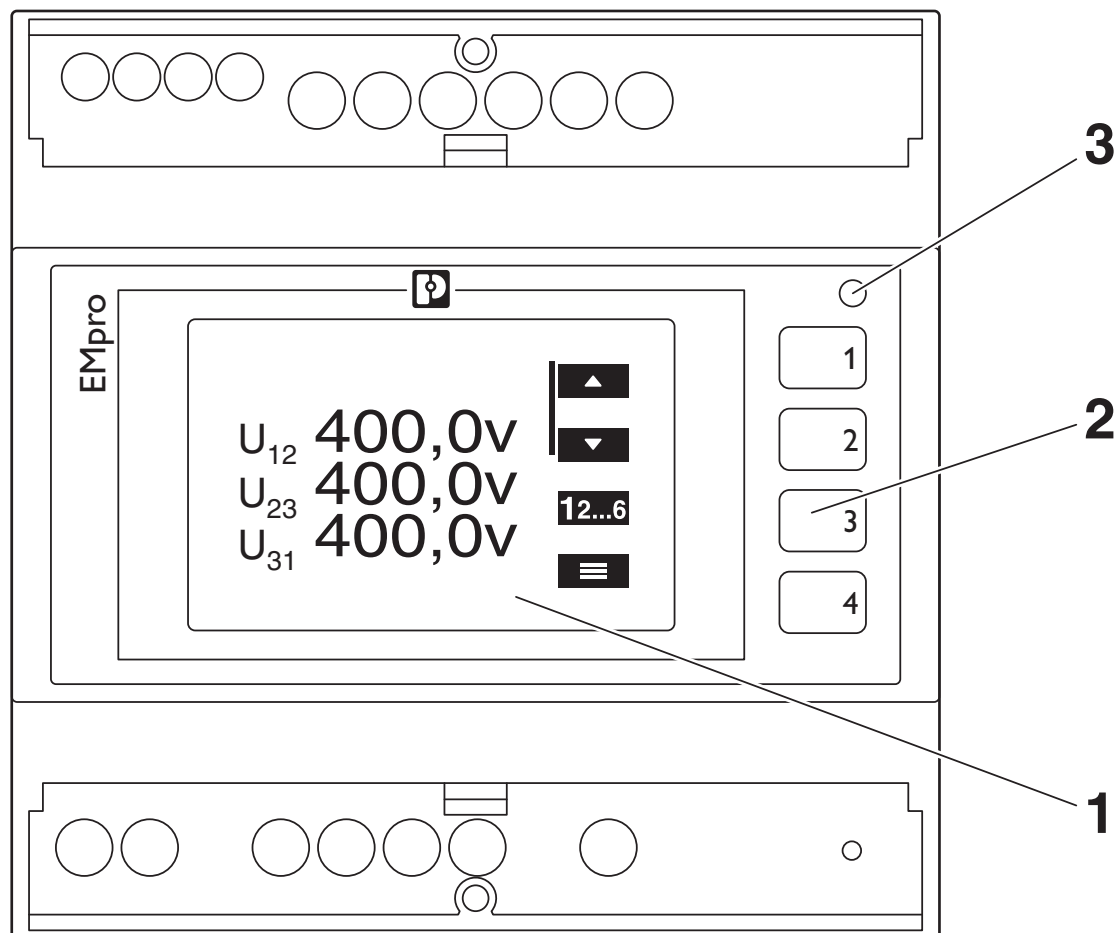
Standards/regulations	IEC 61010-1
	IEC 61326-1
	IEC 61557-12

Mounting

Mounting type	DIN rail mounting
Mounting position	Horizontal DIN rail

Drawings

Schematic diagram



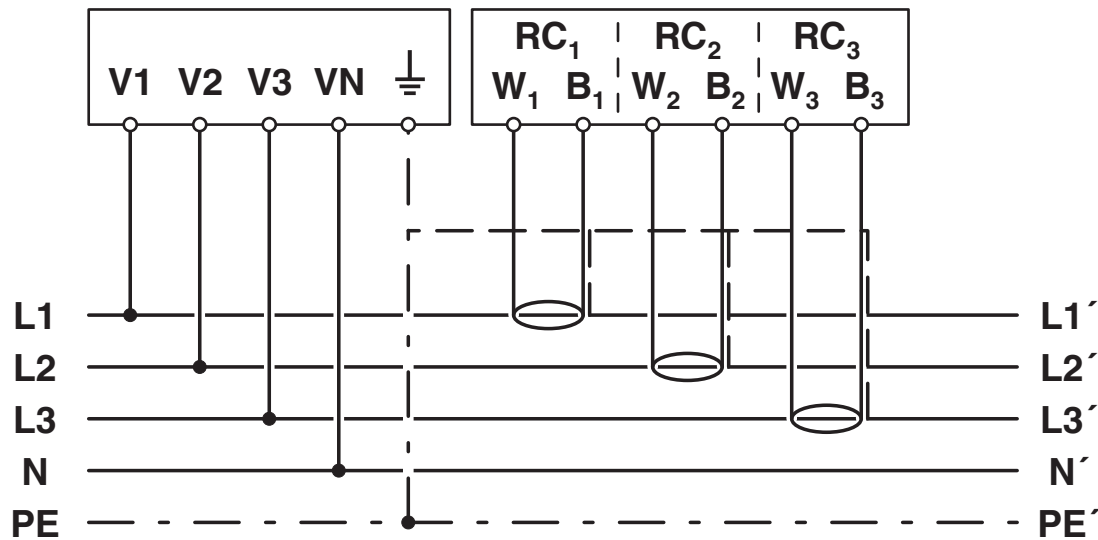
Operating and indication elements

1 LCD, backlit

2 Operating buttons for displaying measured values and for changing the configuration

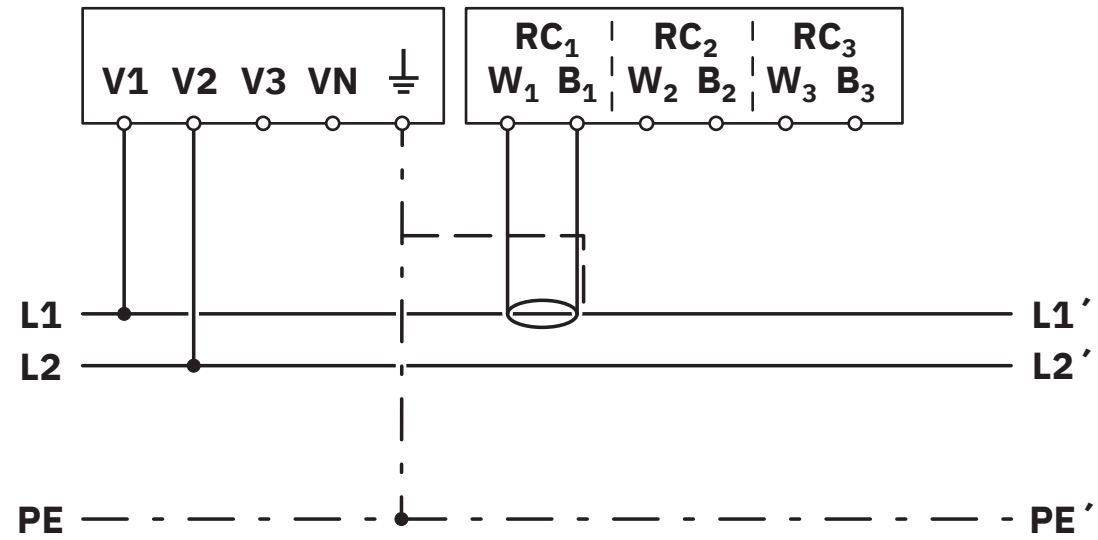
3 Pulse LED

Connection diagram



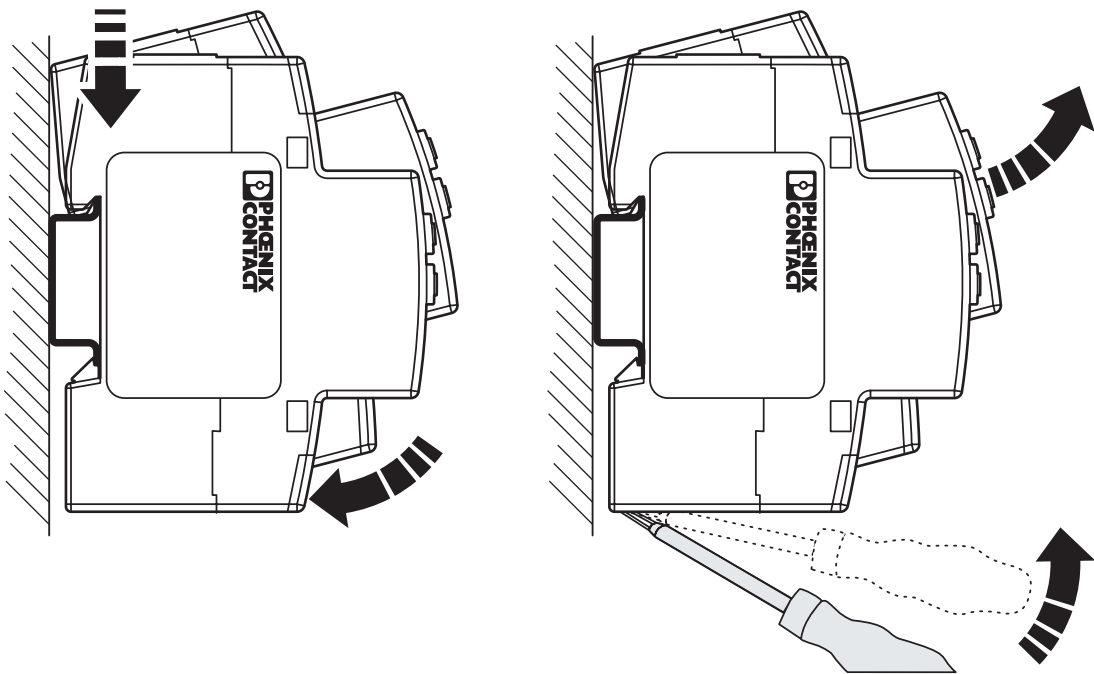
Network type: 3PH-4W-3RC

Connection diagram



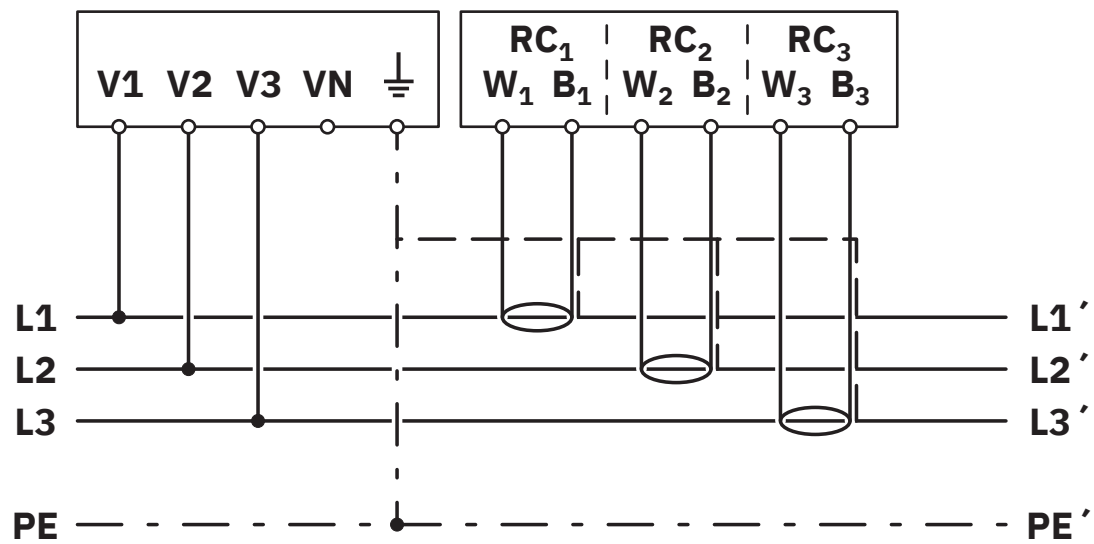
Network type: 2PH-2W-1RC

Schematic diagram



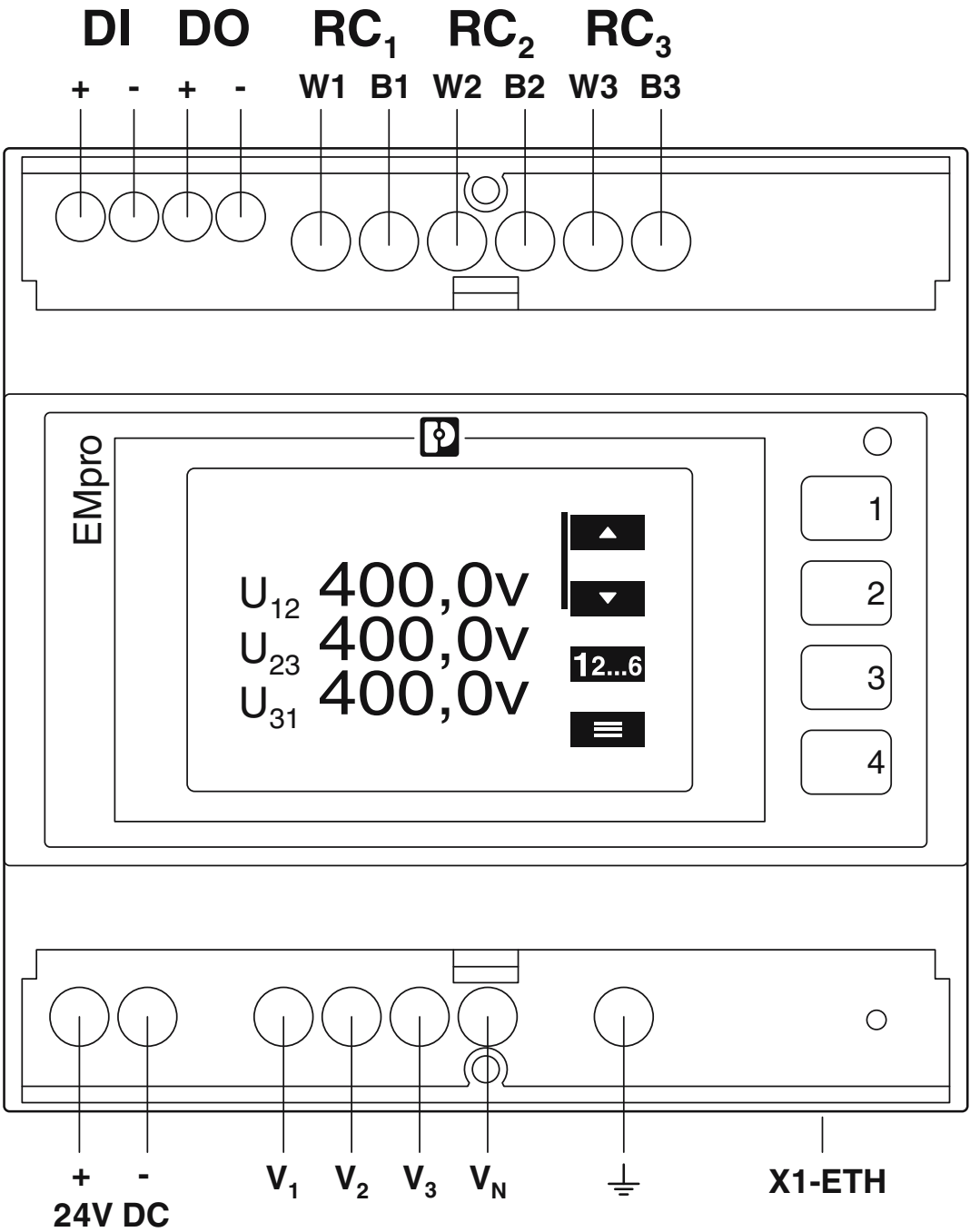
Mounting

Connection diagram



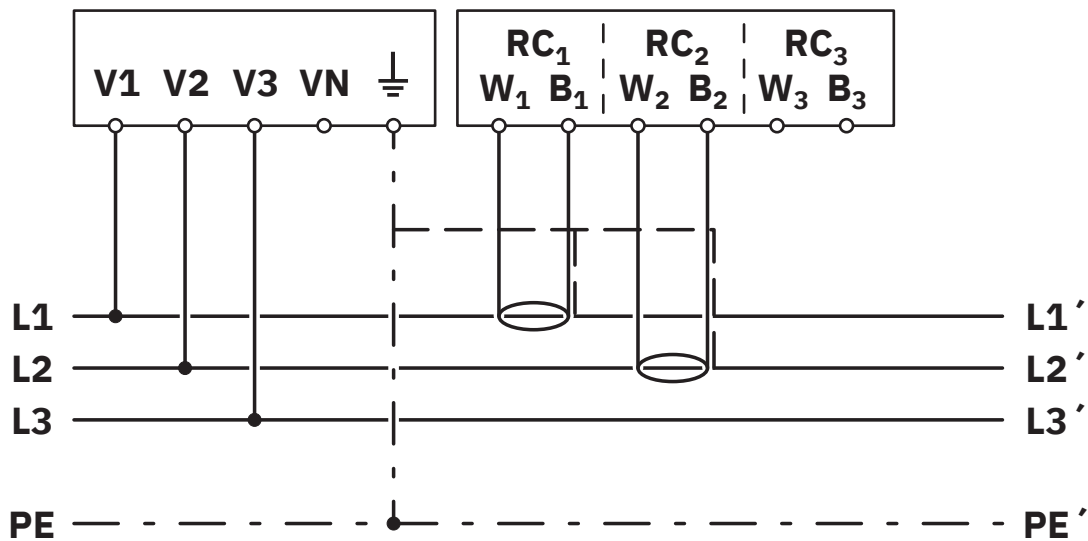
Network type: 3PH-3W-3RC

Connection diagram



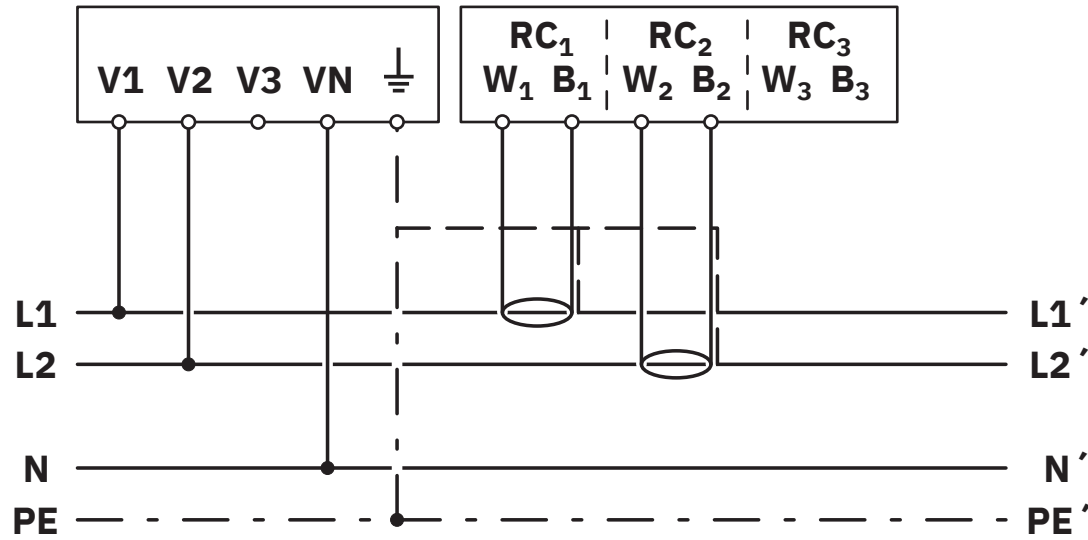
Pin assignment

Connection diagram



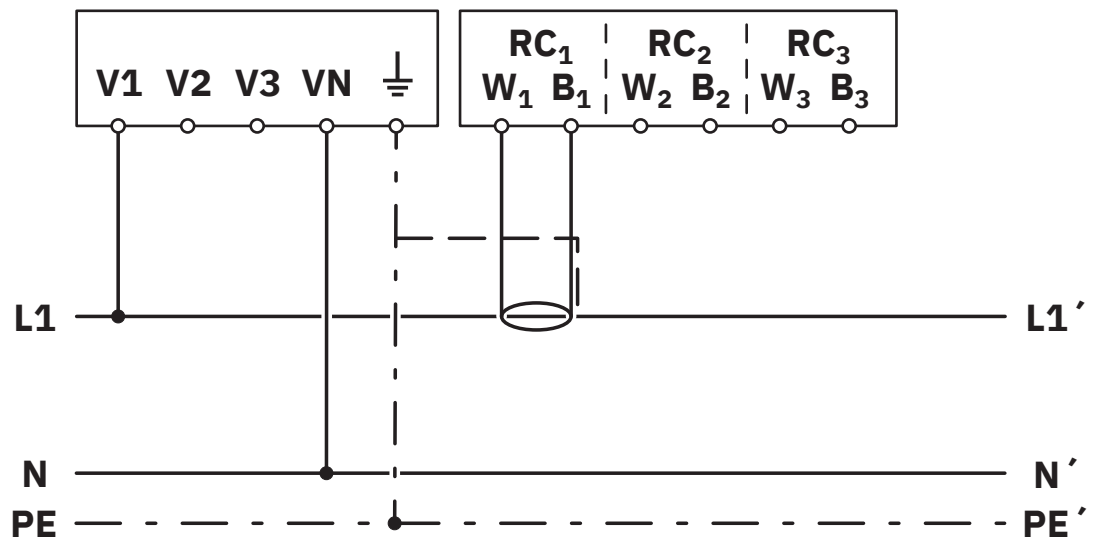
Network type: 3PH-3W-2RC

Connection diagram



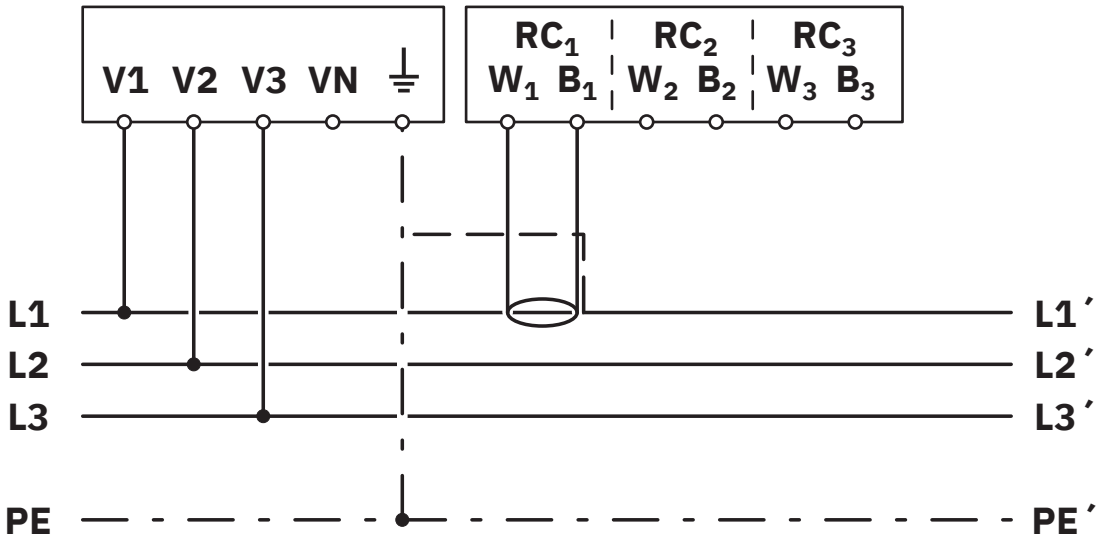
Network type: 2PH-3W-2RC

Connection diagram



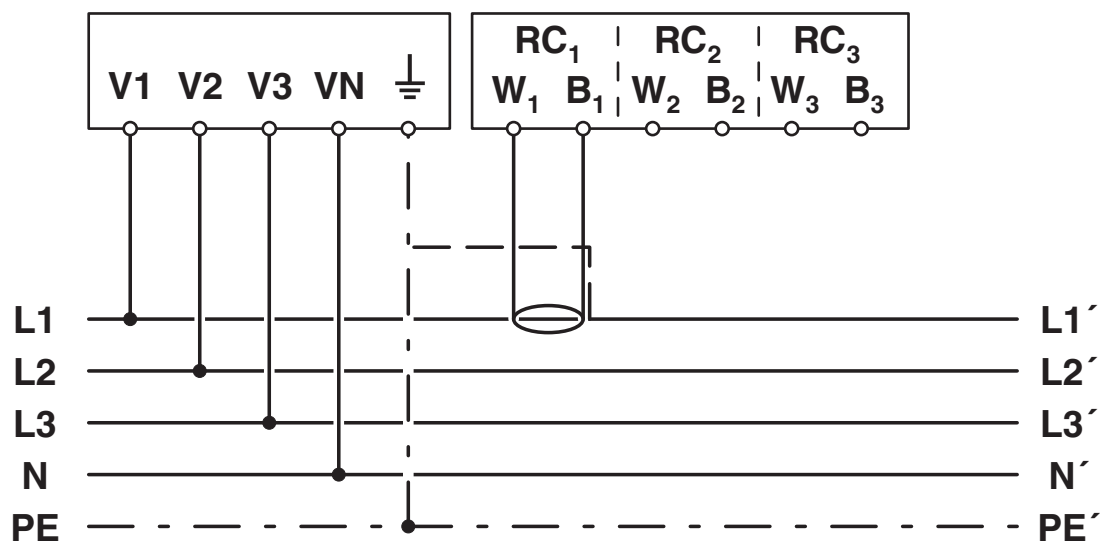
Network type: 1PH-2W-1RC

Connection diagram



Network type: 3PH-3W-1RC

Connection diagram



Network type: 3PH-4W-1RC

EEM-MA371-24DC - Measuring device



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Approvals

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UL Listed
Approval ID: E357804



cUL Listed
Approval ID: E357804

cULus Listed

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Classifications

ECLASS

ECLASS-11.0	27142330
ECLASS-13.0	27142330
ECLASS-12.0	27142330

ETIM

ETIM 9.0	EC002301
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UNSPSC

UNSPSC 21.0	41113600
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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)
SCIP	84c609f1-846a-4e41-8f72-f6c3028dafe2

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