

# Measuring instrument - EEM-MA370-R



2907980

<https://www.phoenixcontact.com/pc/products/2907980>

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Multi-functional energy measuring device with integrated Modbus RTU/TCP interface for measuring electrical parameters in low-voltage installations up to 690 V.

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## Commercial Data

Item number	2907980
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CK4C21
Catalog Page	Page 203 (C-5-2019)
GTIN	4055626260570
Weight per Piece (including packing)	457 g
Weight per Piece (excluding packing)	441 g
Customs tariff number	90303100
Country of origin	DE

## Technical Data

### Product properties

Product type	Energy meter
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### Insulation characteristics

Overvoltage category	III (300 V)
Pollution degree	2

### Electrical properties

Electrical isolation	IEC 61010-1 (Overvoltage category III at 300 V AC Overvoltage category II at 600 V AC)
	IEC 61010-1 (Overvoltage category III at 300 V AC Overvoltage category II at 600 V AC)
	IEC 61010-1 (Measurement category III at 300 V AC Measurement category II at 600 V AC)
Test voltage	4 kV AC (50 Hz, 1 min.)
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)

### Supply

Supply voltage range	100 V AC ... 230 V AC ( $\pm 20\%$ )
	150 V DC ... 250 V DC ( $\pm 20\%$ )
Power consumption	$\leq 4$ W
Nominal frequency	50 Hz ... 60 Hz (AC sine)

### Input data

Measuring principle	True r.m.s. value measurement (TRMS)
Measured value	AC sine (50/60 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
Voltage input signal	0 V DC ... 30 V DC
Current input signal	2 mA ... 15 mA
Protection	250 mA (fast-blow)

### 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 %

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Power consumption	< 2 VA
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## Measurement: Current

Input name	Current measurement I1, I2, I3
Input current	1 A (secondary)
	5 A (secondary)
Current measuring range	1 A ... 20000 A (primary)
Overload capacity	6 A ( $I_{max}$ )
Response threshold from measuring range nominal value	10 mA (1 A)
	50 mA (5 A)
Precision	0.2 %
Current overload	50 A for 1 s
Power consumption	< 0.5 VA

## Measurement: Power

Precision	0.5 %
Active energy (IEC 62053-22)	Class 0.5 S
Reactive power (IEC 62053-23)	Class 2
ANSI C12.20	Class 0.5 S

## Output data

Output description	Digital output in accordance with IEC/EN 61131-2 (type 3)
Number	1
Current output signal	$\leq 100$ mA
Voltage output signal	24 V DC
Protection	250 mA (fast-blow)

## Connection data

### Current / voltage / supply

Connection method	Screw connection
Stripping length	8 mm
Screw thread	M3
Conductor cross section solid	0.2 mm <sup>2</sup> ... 6 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Conductor cross section AWG	24 ... 10
Torque	0.5 Nm ... 0.6 Nm

### Current / voltage / supply

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section solid	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section AWG	26 ... 14
Torque	0.5 Nm ... 0.6 Nm

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## Current / voltage / supply

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section solid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12
Torque	0.5 Nm ... 0.6 Nm

## Interfaces

### Data: Network interface

Communication protocol	Modbus/TCP
	REST
Connection method	RJ45

### Data: Network interface

Communication protocol	Modbus/RTU
Communication standard	RS-485
Connection method	Screw connection
Transmission speed range	2.4 kbps ... 115.2 kbps
Resistance	120 Ω (integrated)

## Dimensions

Width	90 mm
Height	80 mm
Depth	64 mm

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP40 (Display)
	IP20 (Housing)
Ambient temperature (operation)	-10 °C ... 55 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Altitude	≤ 2000 m
Max. permissible relative humidity (operation)	≤ 95 % (non-condensing)

## Approval data

### CE

Certificate	CE-compliant
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### CE

Certificate	UKCA-compliant
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### CE

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

Operating mode	Indoor use
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Operating mode	Indoor use
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## Mounting

Mounting type	DIN rail mounting
Mounting position	Horizontal DIN rail

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## Approvals



**EAC**

Approval ID: RU\*DE\*08.B.00734/19



**UL Listed**

Approval ID: FILE E 357804



**cUL Listed**

Approval ID: FILE E 357804

**cULus Listed**

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## Classifications

### ECLASS

ECLASS-9.0	27142330
ECLASS-10.0.1	27142330
ECLASS-11.0	27142330

### ETIM

ETIM 8.0	EC002301
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### UNSPSC

UNSPSC 21.0	41113600
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

### Current transformer

Current transformer - PACT MCR-V1-21-44 - 2277268

<https://www.phoenixcontact.com/pc/products/2277268>



Bus-bar current transformer, primary current can be selected between 50...500 A AC; secondary current can be selected as 1 A AC or 5 A AC; accuracy class can be selected as 0.5 or 1; rated power can be selected

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### Current transformer

Current transformer - PACT MCR-V2- 3015- 60 - 2277271

<https://www.phoenixcontact.com/pc/products/2277271>



Window-type current transformer, primary current can be selected between 50...750 A AC; secondary current can be selected as 1 A AC or 5 A AC; accuracy class can be selected as 0.5 or 1; rated power can be selected

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## Current transformer

Current transformer - PACT MCR-V2- 4012- 70 - 2277284

<https://www.phoenixcontact.com/pc/products/2277284>



Window-type current transformer, primary current can be selected between 75... 1000 A AC; secondary current can be selected as 1 A AC or 5 A AC; accuracy class can be selected as 0.5 or 1; rated power can be selected

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## Current transformer

Current transformer - PACT MCR-V2- 5012- 85 - 2277297

<https://www.phoenixcontact.com/pc/products/2277297>



Window-type current transformer, primary current can be selected between 100.. .1500 A AC; secondary current can be selected as 1 A AC or 5 A AC; accuracy class can be selected as 0.5 or 1; rated power can be selected

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## Current transformer

Current transformer - PACT MCR-V2- 6015- 85 - 2277336

<https://www.phoenixcontact.com/pc/products/2277336>



Window-type current transformer, primary current can be selected between 200 .  
.. 1,250 A AC; secondary current can be selected as 1 A AC or 5 A AC; accuracy  
class can be selected as 0.5 or 1; rated power can be selected

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## Current transformer

Current transformer - PACT MCR-V2-10020-129 - 2277378

<https://www.phoenixcontact.com/pc/products/2277378>



Window-type current transformer, primary current can be selected between  
800 and 4,000 A AC, secondary current can be selected 1 A AC or 5 A AC,  
accuracy class can be selected 0.5 or 1, rated power can be selected

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## Current transformer

Current transformer - PACT MCR-V3-60 - 2277417

<https://www.phoenixcontact.com/pc/products/2277417>



Winding current transformer, primary current can be selected between 1...40 A AC; secondary current can be selected as 1 A AC or 5 A AC; accuracy class can be selected as 0.5 or 1; rated power can be selected

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## Current transformer

Current transformer - PACT MCR-V2-3015-60-PT - 2907413

<https://www.phoenixcontact.com/pc/products/2907413>



Window-type current transformer with screw and Push-in connection technology, conductor connection for Push-in: from directly above, no tools required. The following can be selected: primary current (50 ... 750) A AC, secondary current (1 or 5) A AC, accuracy class 0.5 or 1, VA power

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## Current transformer

Current transformer - PACT MCR-V2-4012-70-PT - 2907414

<https://www.phoenixcontact.com/pc/products/2907414>



Window-type current transformer with screw and Push-in connection technology, conductor connection for Push-in: from directly above, no tools required. The following can be selected: primary current (100 ... 1000) A AC, secondary current (1 or 5) A AC, accuracy class 0.5 or 1, VA power

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## Current transformer

Current transformer - PACT MCR-V2-5012-85-PT - 2907416

<https://www.phoenixcontact.com/pc/products/2907416>



Window-type current transformer with screw and Push-in connection technology, conductor connection for Push-in: from directly above, no tools required. The following can be selected: primary current (100 ... 1500) A AC, secondary current (1 or 5) A AC, accuracy class 0.5 or 1, VA power

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## Current transformer

Current transformer - PACT MCR-V2-6015-85-PT - 2907417

<https://www.phoenixcontact.com/pc/products/2907417>



Window-type current transformer with screw and Push-in connection technology, conductor connection for Push-in: from directly above, no tools required. The following can be selected: primary current (200 ... 1600) A AC, secondary current (1 or 5) A AC, accuracy class 0.5 or 1, VA power

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