

EEM-MA770-24DC - Measuring instrument



1127052

<https://www.phoenixcontact.com/us/products/1127052>

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Multi-functional energy measuring device with 24 V DC supply and integrated Modbus/TCP interface for measuring electrical parameters in low-voltage installations up to 690 V

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 1127052 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C446 |
| Product key | CK4C21 |
| GTIN | 4063151055226 |
| Weight per piece (including packing) | 518 g |
| Weight per piece (excluding packing) | 503 g |
| Customs tariff number | 90303100 |
| Country of origin | DE |

Technical data

Product properties

| | |
|----------------|-------------------------|
| Product type | Energy measuring device |
| Product family | EMpro |

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

Input data

General

| | |
|--------------------------|--|
| 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 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 |
|-------------------|--------|

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 | ≤ 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 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 |

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Interfaces

Data: Network interface

| | |
|------------------------|------------|
| Communication protocol | Modbus/TCP |
| | REST |
| Connection method | RJ45 |

Dimensions

| | |
|--------|-------|
| Width | 96 mm |
| Height | 96 mm |
| Depth | 58 mm |

Environmental and real-life conditions

Ambient conditions

| | |
|--|------------------------------|
| Degree of protection (Housing) | IP20 (Housing) |
| Degree of protection (Display) | IP54 (Display (+ EEM-MA-IP)) |
| 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) |

Approvals

CE

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

UKCA

| | |
|-------------|----------------|
| Certificate | UKCA-compliant |
|-------------|----------------|

UL, USA/Canada

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

UL data

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

UL data

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

Mounting

| | |
|-------------------|--------------------------------------|
| Mounting type | Panel mount |
| Mounting position | Front panel installation, horizontal |

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Approvals

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UL Listed

Approval ID: FILE E 357804



cUL Listed

Approval ID: FILE E 357804

cULus Listed

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Classifications

ECLASS

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

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Accessories

EEM-MKT-DRA - DIN rail adapter

2902078

<https://www.phoenixcontact.com/us/products/2902078>



DIN rail adapter for EEM-MA770-X and EEM-MA771-X series energy measuring devices

PACT MCR-V1-21-44 - Current transformer

2277268

<https://www.phoenixcontact.com/us/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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PACT MCR-V2- 3015- 60 - Current transformer

2277271

<https://www.phoenixcontact.com/us/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

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

2907413

<https://www.phoenixcontact.com/us/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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PACT MCR-V2- 4012- 70 - Current transformer

2277284

<https://www.phoenixcontact.com/us/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

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

2907414

<https://www.phoenixcontact.com/us/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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PACT MCR-V2- 5012- 85 - Current transformer

2277297

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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

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

2907416

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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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PACT MCR-V2- 6015- 85 - Current transformer

2277336

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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

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

2907417

<https://www.phoenixcontact.com/us/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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PACT MCR-V2-10020-129 - Current transformer

2277378

<https://www.phoenixcontact.com/us/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

PACT MCR-V3-60 - Current transformer

2277417

<https://www.phoenixcontact.com/us/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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