

# Measuring instrument - EEM-MA770-R - 2907944


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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.



## Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 261089
GTIN	4055626261089
Weight per Piece (excluding packing)	555.000 g
Custom tariff number	90303100
Country of origin	Germany

## Technical data

### Dimensions

Width	96 mm
Height	96 mm
Depth	58 mm

### Ambient conditions

Ambient temperature (operation)	-10 °C ... 55 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Maximum altitude	≤ 2000 m
Max. permissible relative humidity (operation)	≤ 95 % (non-condensing)
Degree of protection	IP54 (Display (+ EEM-MA-IP))
	IP20 (Housing)

### Input data

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

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## Technical data

### Input data

Input name	Voltage measuring input V1, V2, V3
Input voltage range	35 V AC ... 690 V AC (Phase/Phase)
	20 V AC ... 400 V AC (Phase/neutral conductor)
	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 %
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)
Precision	0.2 %
Current overload	50 A for 1 s
Precision	0.5 %
Active energy (IEC 62053-22)	Class 0.5 S
Reactive power (IEC 62053-23)	Class 2
Description of the input	Digital input in accordance with IEC/EN 61131-2 (type 3)
Number	1
Voltage input signal	0 V DC ... 30 V DC
Current input signal	2 mA ... 15 mA

### Output data

Output description	Digital output in accordance with IEC/EN 61131-2 (type 3)
Number	1
Current output signal	$\leq 100$ mA

### Device interface

Designation	Network interface
Communication protocol	Modbus/TCP
	REST
Connection method	RJ45
Designation	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 $\Omega$ (integrated)

### General

Display	LCD display, two-color backlit
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## Technical data

### General

Supply voltage range	100 V AC ... 400 V AC (±20 %)
	150 V DC ... 250 V DC (±20 %)
Power consumption	≤ 4 W
Mains type	3-phase (3 or 4-wire), 2-phase (2-wire), and single-phase (1-wire)
Color	gray
Conformance	CE-compliant
Test voltage	4 kV AC (50 Hz, 1 min.)
Product family	EMpro

### Connection data

Connection name	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

### Connection data 2

Connection name	Digital I/O / communication
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>
Torque	0.5 Nm ... 0.6 Nm

### Connection data 3

Connection name	RS-485
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

### UL data

Operating mode	Indoor use
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### Standards and Regulations

Conformance	CE-compliant
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## Technical data

### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Classifications

### eCl@ss

eCl@ss 5.0	27200301
eCl@ss 5.1	27200301
eCl@ss 6.0	27142300
eCl@ss 7.0	27142330
eCl@ss 8.0	27142330
eCl@ss 9.0	27142330

### ETIM

ETIM 4.0	EC002301
ETIM 5.0	EC002301
ETIM 6.0	EC002301
ETIM 7.0	EC002301

## Approvals

### Approvals

#### Approvals

EAC / UL Listed / cUL Listed / cULus Listed

#### Ex Approvals

### Approval details

EAC		RU*DE*08.B.00734/19
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UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 357804
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## Approvals

cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 357804
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cULus Listed			
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## Accessories

### Accessories

#### Assembly adapter

DIN rail adapter - EEM-MKT-DRA - 2902078



DIN rail adapter for EEM-MA600 and EEM-MA400 energy meters

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## Current transformer

Current transformer - PACT MCR-V2-3015-60-PT - 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 - PACT MCR-V2-4012-70-PT - 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 - PACT MCR-V2-5012-85-PT - 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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### Accessories

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#### Current transformer - PACT MCR-V2-6015-85-PT - 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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#### Current transformer - PACT MCR-V1-21-44 - 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 - PACT MCR-V2- 3015- 60 - 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 - PACT MCR-V2- 4012- 70 - 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 - PACT MCR-V2- 5012- 85 - 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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## Measuring instrument - EEM-MA770-R - 2907944

### Accessories

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



Window-type current transformer, primary current can be selected between 200...1600 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 - PACT MCR-V2-10020-129 - 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 - PACT MCR-V3-60 - 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