- COMPACT **THREE-PHASE DIRECT CONNECTED DIN-RAIL** MOUNTING METER.
- ACCORDING TO REQUIREMENTS OF **PTB, VDE and OCMF**.
- **MID** APPROVED.
- **CLASS 1 FOR ACTIVE ENERGY** AND **CLASS 2 FOR REACTIVE ENERGY**.
- MAXIMUM CURRENT **40 A** (I_{max}).
- **70°C** AMBIENT OPERATION TEMPERATURE.
- POSSIBILITY TO CONNECT ONLY ON ONE PHASE.

Type	Description	Code	Weight [kg]	Packaging [pcs]
3MEM40-EVRS	3 phase, 40A, RS485, EV	004657200	0,248	1/97

FEATURES

- 3 DIN modules width three phase direct connected DIN-rail mounting meter.
- Class 1 for active energy according to EN 62053-21.
- class B according to EN 50470-3.
- Reference frequency 50 Hz or 60 Hz.
- Maximum current 40 A (I_{max}).
- Basic current 5 A (I_b).
- Reference voltage 3×230 V/400 V (U_n).
- Voltage operating range (-20 % … +15 %)U_n.
- Two row display 6+2 digit (10 Wh resolution) with backlight.
- Multifunctional front LED.
- IR Serial communication.
- RS485 Serial communication.
- Measurement of:
  - power (active/reactive/apparent),
  - energy (active/reactive/apparent) each phase and total),
  - voltage (each phase),
  - current (each phase),
  - phase to phase voltage,
  - phase to phase angle,
  - frequency,
  - power factor (for each phase and total),
  - power angle (for each phase and total),
  - THD of voltage,
  - THD of current.
- Possibility to connect only on one phase (on L3).
- Remote control of backlight LCD.
- 70°C ambient operation temperature.
- Sealable terminal cover.

DESCRIPTION

3MEM40-EVRS energy meters are intended for energy measurements in the three-phase and one phase electrical charger stations due to allowed high temperature operation (up to 70'C). Measuring energy directly in 4-wire networks according to the principle of fast sampling of voltage and current signals. A built-in microprocessor calculates power, energy, current, voltage, power factor, power angle, frequency, harmonics of THD voltage and THD current harmonics.

INSTALLATION

WARNING: Installation must be carried out and inspected by a specialist or under his supervision. When working on the meter, switch off the mains voltage! It is recommended to use 40 A fuse for the line protection.

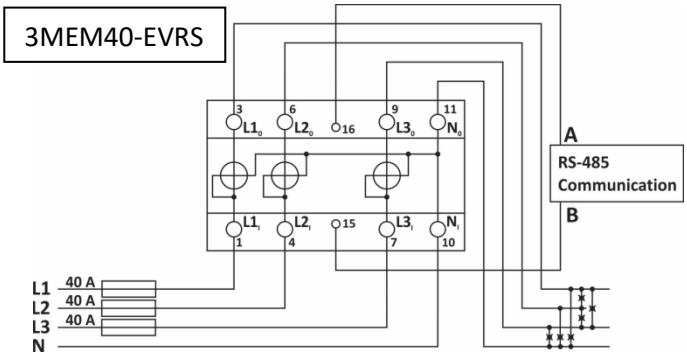


Figure 1: *3-phase connection diagram*

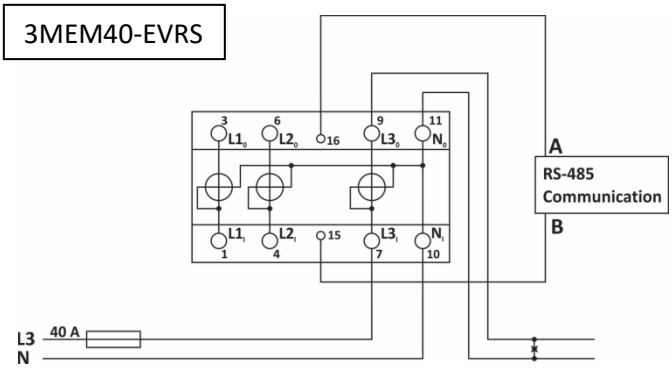


Figure 2: *Single-phase connection diagram*

NOTE: Neutral wire must be connected to the meter.

Mark	***Meaning***
L_I	*Line input*
N_I	*Neutral input*
L_O	*Line output*
N_O	*Neutral output*

TECHNICAL DATA

Rail mounting according DIN EN 60715.

Mechanical characteristics of input:

Main inputs:

- Contacts capacity: Rigid (flexible)1.5 mm^2...25 (16) mm^2
- Connection screws: M5
- Max torque: 3.5 Nm (PZ2)
- Length of removed isolation: 10 mm

Communication terminals:

- Contacts capacity: 1 mm^2... 2.5 mm^2
- Connection screws: M3
- Max torque: 1.2 Nm (PZ2)
- Length or removed isolation: 8 mm

Electrical characteristics of input:

Type (connection): three-phase (4u)
Reference current (I_{ref}): 5 A
Maximum current (I_{max}): 40 A
Minimum current (I_{min}): 0.25 A
Transitional current (I_{tr}): 0.5 A
Starting current: 20 mA
Power consumption at I_{ref}: < 0.1 VA
Nominal voltage (U_n): 3x230 V/400 V (-20 %...+15 %)
Power consumption per phase at U_n: < 8 VA
Nominal frequency (f_n): 50 Hz in 60 Hz
Minimum measuring time: 10 s

Accuracy:

Active energy:

- class 1 EN 62053-21
- class B EN 50470-3
- ±1.5 % from I_{min} to I_{tr}
- ±1 % from I_{tr} to I_{max}

Reactive, Apparent energy:

- class 2 EN 62053-23
- ±2.5 % from I_{min} to I_{tr}
- ±2 % from I_{tr} to I_{max}

Voltage:

- ±1 % measured value

Current:

- ±1 % I_{ref} (from I_{st} to I_{ref})
- ±1 % measured value from I_{ref} to I_{max}

Active Power:

- ±1 % of nominal power ($U_n * I_{ref}$) from I_{st} to I_{ref}
- ±1 % of measured value from I_{ref} to I_{max}

Reactive, Apparent power:

- ±2 % of nominal power from I_{st} to I_{ref}
- ±2 % of measured value from I_{ref} to I_{max}

Frequency:

- ±0.5% of measured value

LCD:

Type: LCD
Number of energy display rows: 2
Number of digits: 8 (6+2)
Height of digits: 4.52 mm

LED:

Colour: red
Pulse rate: 1000 imp/kWh
LED on: no load indication

RS485 Serial communication:

Type: RS485
Speed: 1200 bit/s to 115200 bit/s (default 115200 bit/s)
Frame: 8, N, 1
Protocol: MODBUS RTU
Address: 33 (default)

Optical communication:

Type: IR
Speed: 19200 bit/s
Frame: 8, N, 1
Protocol: MODBUS RTU
Address: 33 (locked)

SAFETY AND AMBIENT CONDITIONS:

According to standards for indoor active energy meters.

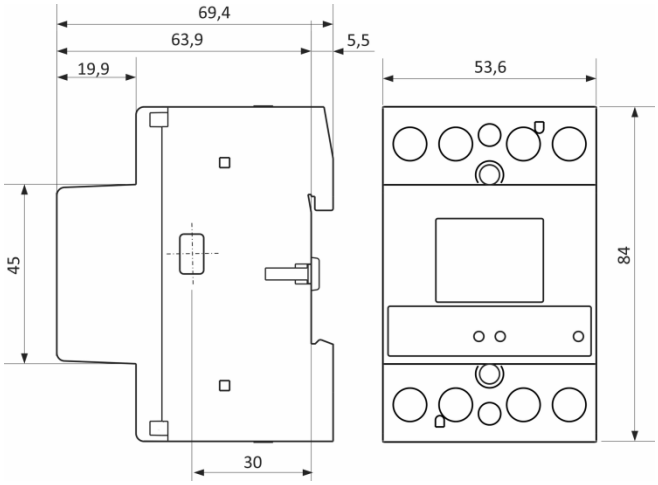
Temperature and climatic condition according to EN 62052-11:

- Dust/water protection: IP50
- Operating temperature range: -25 °C...+70 °C
- Storage temperature range: -30 °C...+80 °C
- Enclosure material: self-extinguish, complying UL94-V
- Indoor meter: YES
- Degree of pollution: 2
- Protection class: II
- Installation category: 300 V_{rms} cat.III
- Standard: IEC 62052-31

Mechanical enviroment: M1
Electromagnetic enviroment: E2
Humidity: non condensing

MECHANICAL CHARACTERISTICS:

Installation: DIN rail 35 mm
Dimensions (W x H x D):
53.6 mm x 84 mm x 69.4 mm
Package dimensions (W x H x D):
57 mm x 93 mm x 85 mm
Colour: RAL 7035



DIMENSIONAL DRAWING

***Figure 3**: Dimensional drawing of 3MEM40-EVR*