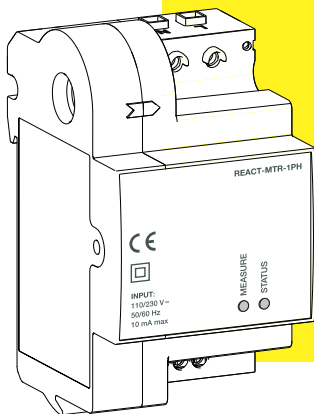


FIMER



Solar Inverters

REACT-MTR-1PH

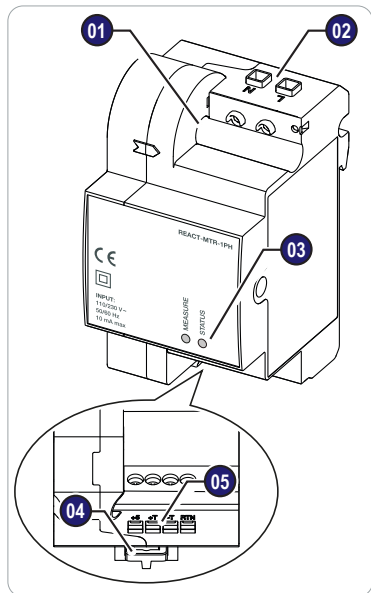
Quick Installation Guide

1. Main components

The main components of the REACT-MTR-1PH are shown in the figure and described in the following table:

Main components

01	Current sensor
02	Power supply terminals
03	Status LED
04	Fixing spring for DIN rail
05	RS485 line connection terminals



2. Supplied component list

Components available in the kit

Quantity



REACT-MTR-1PH

1



Technical documentation

1

3. Operating diagram

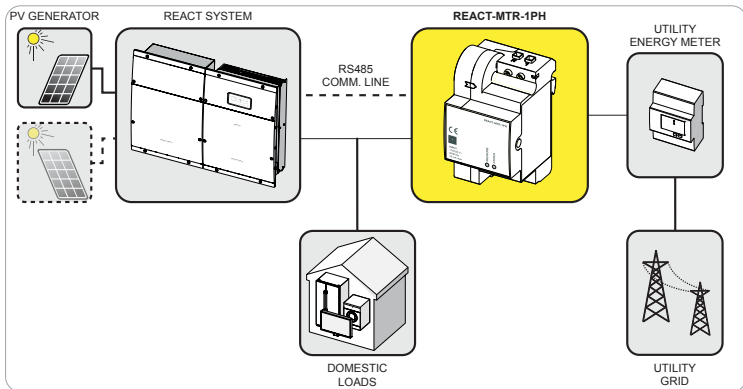
The REACT-MTR-1PH is a four quadrant electronic meter that provides measurements of active power, reactive power, voltage, current, and frequency on a serial communication line.

The very high performance of this device is ensured by the latest technology.

The information provided by the REACT-MTR-1PH is used by the REACT inverter to coordinate all the energy flows in the home.

The meter is therefore a fundamental component for the implementation of the self-consumption and energy self-sufficiency maximisation algorithm.

- Single-phase meter
- Compact design that's easy to install on DIN rail
- RS-485 serial communication
- Modbus RTU communication protocol



The REACT-MTR-1PH has two multicoloured LEDs, "Status" and "Measure", which show the status of the device and the direction of the energy flow (import / export of energy) in real time.

All possible LED activation combinations are shown in the table (03).

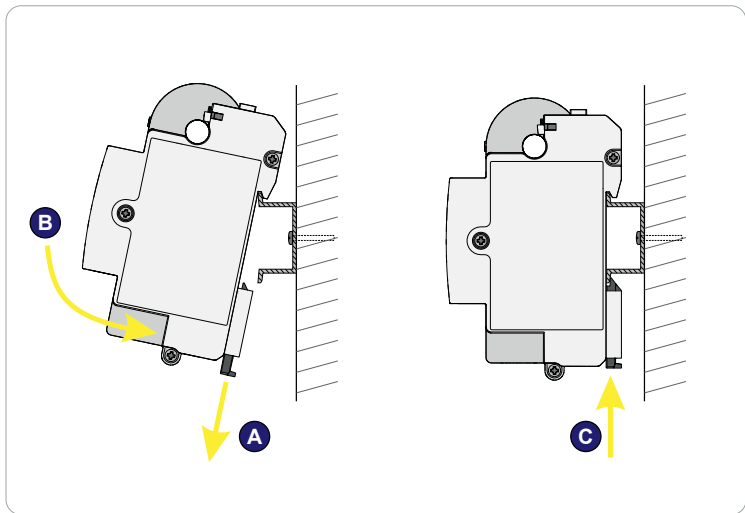
MEASURE LED	Description
OFF	Serial communication absent or malfunctioning
FLASHING	Serial communication present
STATUS LED	Description
RED	Drawing of energy from the grid (import)
GREEN	Self-consumption (maximum exchange ± 20 W)
FLASHING	Feeding of energy into grid (export)

4. Assembly Instructions

The REACT-MTR-1PH is designed to be assembled on a DIN rail (UNI EN 50022) using the special snap-on device (04) on the back of the unit.

For correct assembly of the REACT-MTR-1PH on the DIN rail follow the procedure below:

- Using a flathead screwdriver, remove the tab to release the snap-on device (A).
- Fit the REACT-MTR-1PH onto the DIN rail (B).
- Push the tab so as to secure the snap-on device (C).



NOTE – If installed outside or in non-residential buildings, the use of an outdoor box with IP54 or IP66 level protection is strongly recommended.

5. Connection of AC power supply

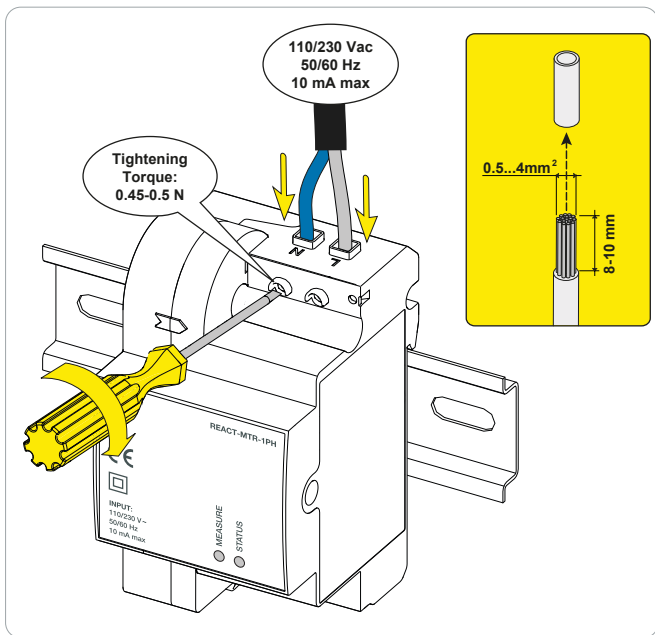
⚠ WARNING – The meter must always be protected by fuses or circuit breakers on the incoming side. It is recommended that the input voltage sensing is protected by fuses rated 6A (gL–gG type) or by circuit breakers rated 6A (B/C type) installed near the meter.

The REACT-MTR-1PH power supply must respect the following characteristics:

Nominal voltage	230 V AC
Operating voltage range	110 - 230 V AC
Nominal frequency	50 / 60 Hz
Maximum input current	10 mA

⚠ WARNING – Make sure that the AC line has been correctly isolated and check that no voltage is present using a multimeter.

- Strip 8/10 mm of sheathing from the AC power supply connection cables.
- Connect the neutral cable (normally blue) to the terminal **(02)** labelled with the letter N.
- Connect the phase cable to the terminal **(02)** labelled with the letter L.

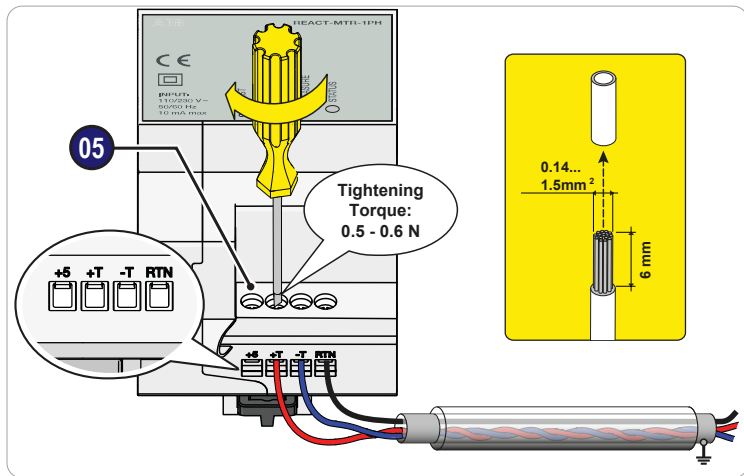


6. RS485 line connection

The REACT-MTR-1PH is equipped with an RS485 line that allows communication with the REACT system to maximise the system's self-sufficiency and self-consumption.

To connect the RS485 line it is necessary to use the connectors (05) located on the lower part of the device and a shielded cable with three conductors. The specifications that the cable must have are shown in the following table:

Type	AWG	Typical impedance	Operating voltage	Operating temperature
Shielded	22 - 24	120 Ohm	≥300 V	-20...+60 °C



REACT-MTR-1PH RS485 line connection terminals	REACT-UNO communication and control signal terminal block
+T	+T/R (Terminal 16)
-T	-T/R (Terminal 14)
RTN	RTN (Terminal 18)
SHIELD ⁽¹⁾	⏏ (Terminal 20)

1. Connect the shield only to the REACT-UNO Inverter side.

7. Commissioning

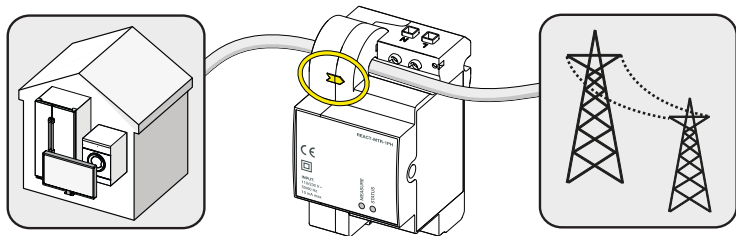
For energy readings to be taken, the phase cable coming from the distribution grid and going to the home must go through the current sensor reading hole (01).

⚠ WARNING – Make sure that the AC line has been correctly isolated and check that no voltage is present using a multimeter.

• Insert the phase cable into the current sensor reading hole (01).

⚠ ATTENTION – The maximum diameter of the phase cable accepted is 8 mm.

• Make sure that the direction of insertion of the cable is correct. The arrow on the front of the REACT-MTR-1PH shows the side of the cable that must be connected to the distribution network.



• Close the external disconnect switches

• Turn on at least one load in the home of more than 50 W and check that the "Status" LED (03) is red: this means that the flow of current is going from the distribution grid to the home and is correctly identified as "Negative". If the result of the previous test is that the "Status" LED (03) is blinking it means that the flow of current is inverted and it will therefore be necessary to invert the direction of the line cable going into the current sensor reader hole (01).

8. Characteristics and Technical Data

Power supply

Connection of AC input	2-wire single phase
Nominal AC input voltage (Vnom)	110 - 230 V AC
Operating voltage range	$0.9 \times V_{nom} < V < 1.1 \times V_{nom}$
Nominal frequency	50 / 60 Hz
Maximum input current	10 mA
Power consumption	0.6 W; <1VA

Measurements

Vrms resolution	± 0.01 V
Irms resolution	± 1 mA
Active Power Resolution	± 0.01 W
Reactive Power Resolution	± 0.01 VAR
Apparent Power Resolution	± 0.01 VA
Frequency Resolution	± 0.1 Hz

Physical and environmental

Assembly System	DIN rail (UNI EN 50022)
Size	100 x 64 x 53 mm / 3.9 x 2.5 x 2.1 inch
Level of environmental protection	IP21 (only for indoor use)
Operating temperature range	-25...+70 °C / -13...+158 °F
Overvoltage Category compliant with IEC EN 61010-1	III (If installed with OV CAT IV, use an outdoor protection for OV and OC in order to reduce Overvoltage Category to III or less)

Communication

Type	RS485, MODBUS RTU
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Safety

Marking	CE
Protection Class	II
Standard	IEC EN 61010-1; IEC EN 61326-1

FIMER_REACT-MTR-1PH_Quick Installation Guide_EN_RevB

29/04/2021



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