

Qoltec®



User Manual

4P 100A LCD Multifunction Digital Energy Meter for DIN Rail

Model: 50977

Introduction

Thank you for your trust and for choosing our product. We are confident that the product will meet your expectations. This manual contains instructions on the installation and use of the product, including important safety instructions regarding correct operation and installation. If you have any questions after reading this manual, please contact our Customer Service Department.

Safety Information

1. Before you begin assembly, connection or use of the device, please read this user manual and the connection diagram carefully.
2. The device is intended solely for measuring AC current parameters within the range specified in the technical specifications.
3. Installation, connection and removal of the meter should only be carried out by a person with the appropriate electrical qualifications.
4. Before commencing any installation work, you must disconnect the power supply to the circuit and ensure that there is no voltage present on the cables.
5. Do not exceed the device's permissible operating parameters, in particular the voltage, current and frequency ranges.
6. Using the meter outside the specified measurement range may cause damage to the device, incorrect measurement readings or a risk of electric shock.
7. The leads must be connected in accordance with the manufacturer's diagram. Particular attention must be paid to the correct connection of the test leads and to ensuring the lead is correctly routed through the current transformer's aperture.
8. Incorrect installation may lead to incorrect measurements or damage to the device.
9. The device should be mounted on a DIN rail in a suitable switchboard or enclosure providing mechanical and electrical protection.
10. The meter must not be installed in locations exposed to moisture, direct contact with water, excessive dust, high temperatures, mechanical vibrations or corrosive gases.
11. Do not open the device's housing, modify its design or carry out repairs yourself. The device does not contain any parts intended for user

maintenance or replacement. All repairs must be carried out exclusively by an authorised service centre.

12. Do not use the device if the casing, terminals, cables, display or other components are damaged. If you notice any malfunction, overheating, an unusual odour, smoke, mechanical damage or incorrect readings, immediately disconnect the power supply and stop using the device.
13. During operation, regularly check the condition of the electrical connections and ensure that the cables are securely fastened in the terminals. Loose connections may cause overheating, measurement errors or damage to the installation.
14. The device must only be used for its intended purpose. Failure to observe safety precautions may result in damage to the meter, failure of the electrical installation, fire or electric shock.

About the product

This multifunctional digital DIN-rail meter can simultaneously measure AC voltage, AC current, active power, power factor, frequency and electrical energy. The meter features a high-resolution colour LCD display for showing measurement parameters. The meter can be used in electrical switchboards, domestic installations, workshops, small commercial premises, technical installations and energy consumption monitoring systems. It is ideal wherever load monitoring and analysis of basic system operating parameters are required.

The meter can be used, amongst other things, for:

- 1) monitoring voltage and current in a circuit,
- 2) monitoring current power consumption,
- 3) checking the mains frequency,
- 4) measuring the power factor,
- 5) measuring electricity consumption in kWh,
- 6) monitoring the load on the installation or a selected load,
- 7) monitoring the operation of electrical equipment in the switchboard.

Voltage measurement range

The meter is designed to measure alternating current within the range of 40.0–300.0 V AC. Before connecting the device, ensure that the voltage in the installation falls within the meter's permissible operating range.

Warning: The device must only be connected to the electrical installation by a person with the appropriate electrical qualifications. Disconnect the power supply to the circuit before starting work.

How to connect the device?

Connection and usage method

Note: Before starting installation, ensure that the circuit's power supply has been disconnected.

1. Connecting the measurement voltage

Connect the voltage to be measured to terminals 1 and 2 of the meter. These terminals are used to supply voltage from the circuit whose parameters are to be measured. Once correctly connected, the meter will be able to read the AC voltage and power the measurement circuit.

2. Measuring current using the internal current transformer

When connecting the meter using the internal current transformer, follow the procedure shown in Figure 1.

The diagram shows how to connect the meter when the current is measured via the meter's internal current transformer.

1. Connect the voltage to be measured to terminals 1 and 2.
2. Pass the wire through which the current to be measured flows through the hole on the right-hand side of the meter. (The direction in which the wire is passed through the hole is irrelevant, unless the manufacturer has specified otherwise in the diagram.)
3. Connect the load, marked as 'Load' on the diagram, to the circuit.
4. The meter will display the basic operating parameters of the circuit, such as voltage, current, power, frequency, power factor and energy consumption.

This connection method is used when the load current does not exceed the meter's permissible measurement range, i.e. up to 100 A AC.

Figure 1 in the appendix: Connection diagram when the AC current is less than 100 A.

Legend:

Measuring signal — measurement signal,

Load — load / consumer,

3. Current measurement using an external current transformer (CT)

1. Connect the voltage to be measured to terminals 1 and 2.
2. Pass the main cable, through which the current to be measured flows, through the opening in the CT.
3. Connect the two secondary leads of the current transformer to terminals 3 and 4 of the meter.
4. The load marked 'Load' must be connected in accordance with the diagram.
5. Once correctly connected and powered up, the meter will begin measuring the electrical parameters.

Figure 2 in the appendix: Installation of the CT.

Legend:

Measuring signal — measurement signal,

The current transformer T.ct wire across the hole on — current transformer wire passed through the hole,

CT — current transformer,

Load — load / consumer,

RESET — energy reading reset button,

If an external current transformer is used, the connection must be made in accordance with Figure 2.

The main conductor through which the measured current flows must be routed through the current transformer's aperture. Then, the two secondary leads of the current transformer must be connected to terminals 3 and 4 of the meter.

This option is used when the measurement is carried out using an additional CT. Ensure that the current transformer is selected in accordance with the installation parameters and is compatible with the meter.

Note: The meter is intended solely for measuring AC current parameters at a frequency of 45–65 Hz. Do not use the device in DC installations or outside the range of parameters specified in the technical specifications.

Starting the device

Once the power is switched on, the meter will automatically start operating and display the measured parameters. The screen may show, amongst other things: AC voltage, AC current, active power, power factor, frequency and electricity consumption.

Note: If, after switching on the power, the display does not show any values or the readings are incorrect, please check again that the cables are connected correctly and that the cable has been routed correctly through the current transformer.

Resetting the energy reading

- 1) Once the power is switched on, you can reset the electricity meter. To do this, press and hold the SAM CK button for approximately 5 seconds.
- 2) Once this has been done, the electricity reading will be cleared, and when you release the button, the meter will start counting energy consumption from zero again.
- 3) When the power is switched off, the meter stores the last recorded energy value. When the device is switched on again, measurement will resume from the stored value, provided the meter has not been reset beforehand.

Technical specifications

Device type	Multifunctional digital DIN rail meter
Measurement accuracy	1% ± 2 digits
AC voltage range	AC 40–300 V
AC current range	AC 0–100 A
Current measurement resolution	0.01 A
Frequency range	45–65 Hz
Power factor	0.00–1.00 PF
Active power measurement range	0–450,000 W

Electricity energy measurement range	0–99,999 kWh
Measurement update rate	Twice per second
Dimensions	54 × 80 × 64 mm
Installation	DIN rail

Maintenance

1. Keep the unit clean by using a soft, dry cloth to remove dust and dirt. Do not use chemicals.
2. Regularly check the power cables and connectors for damage, such as chafing, cracks or loose connections.

Disposal

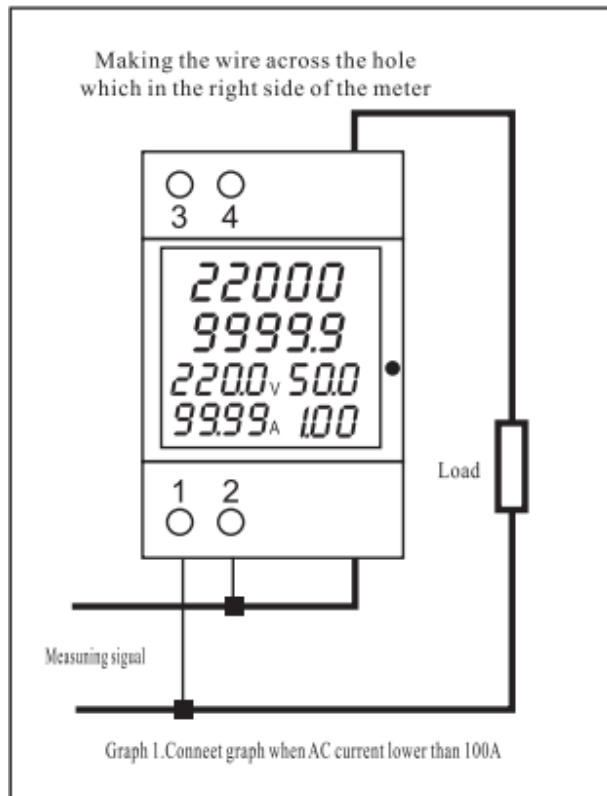
This product is subject to the regulations on the disposal of electrical and electronic equipment (WEEE). Take it to an e-waste collection point that ensures safe recycling in accordance with GPSR standards. Check where your nearest e-waste collection points are. If you have any questions regarding disposal, please contact the manufacturer or an authorised service centre.

Warranty and servicing information

The product is covered by a 24-month manufacturer's warranty, effective from the date of purchase. The warranty covers all material and manufacturing defects. Please contact our service department if you experience any problems with the device to ensure you receive prompt and professional assistance. The warranty does not cover damage resulting from misuse, drops, mechanical damage, unauthorised repairs or attempts to dismantle the device.

Attachment 1

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