

RLE01-1M-T

electricity meters



- Single-phase narrow-profile meters for direct electricity metering AC (100 A)
- LCD display
- Remote reading of data via Modbus RTU bus (RS-485)
- Housing – installation module, width 1 DIN
- Direct mounting on a 35 mm rail according to PN-EN 60715
- Applications: commercial and industrial photovoltaic networks (for solar inverters)
- Compliant with PN-EN 50470
- Recognitions, certificates, directives: RoHS, MID (module B+D),

Input circuit

Rated input voltage (U_n)	AC 230 V $\pm 10\%$
Operating supply voltage range	0.8...1.2 U_n
Input current • direct input (I_{min} / I_{max}) • direct input (I_{tr} / I_{st}) • rated current (I_n)	min./max.: 0.4 A / 100 A reference/inrush current: 1 A / 0.04 A 10 A
Inrush current • direct input	0.004 I_β
Power consumption • voltage circuit • current circuit	< 3 VA < 2 VA
Power frequency	AC 50/60 Hz $\pm 5\%$

Output/measuring circuit ^①

Real-time measurement	voltage, current, active/reactive current, active/reactive/apparent power, power factor, frequency, demand, max./min. values
Energy measurement	active/reactive energy, four-quadrant reactive energy, apparent energy
Communication • communication interface • protocol	RS-485 port ^① Modbus RTU ^② or DL/T645, baud rate up to 9600 bps
Accuracy • measuring device	Class B (kWh)
Electrical pulse	1 active energy pulse output, pulse width 80 ms $\pm 20\%$, pulse indicator 800 imp/kWh
RTC measurement error	≤ 0.5 s/day

General data

Dimensions (a × b × h)	18 × 90 × 63.5 mm
Mass	167 g (with single-unit packaging)
Ambient temperature (no condensation and/or icing) • operation • storage	-10...+55 °C -25...+70 °C
Degree of protection	panel: IP 54; housing: IP 20 according to PN-EN 60529
Relative humidity (non-condensing)	5...95%

^① The RS-485 port is isolated from the inside of the meter, and the meter uses a surge arrest system. RS-485 communication is implemented via a PC for programming, setting and reading the meters.

^② The communication protocol is set to Modbus RTU by default.

EMC according to Directive 2014/30/EU

Resistance to:	EN 55035
• electrostatic discharge (PN-EN 61000-4-2)	Class III
• radiated radio-frequency electromagnetic field (PN-EN 61000-4-3)	Class III
• electrical fast transients/bursts (PN-EN 61000-4-4)	Class IV
• surges (PN-EN 61000-4-5)	Class IV
• conducted disturbances induced by radio-frequency fields (PN-EN 61000-4-6)	Class III
• power-frequency magnetic field (PN-EN 61000-4-8)	Class III
• voltage dips, short interruptions and voltage variations (PN-EN 61000-4-11)	Class III

Description

RLE01-1M-T electricity meters are designed for direct mounting on a 35 mm rail according to PN-EN 60715. Thanks to the modular housing design, they are characterized by ergonomic installation in switchboards, small dimensions, low weight, easy installation and reliability. They have a fire-resistant housing (ABS), good impact resistance, high temperature resistance, excellent insulation and durability.

In accordance with Directive 2014/32/EU, they are intended for installation in a mechanical environment "M1", in which shocks and vibrations are of little importance, and for installation in an electromagnetic environment "E2".

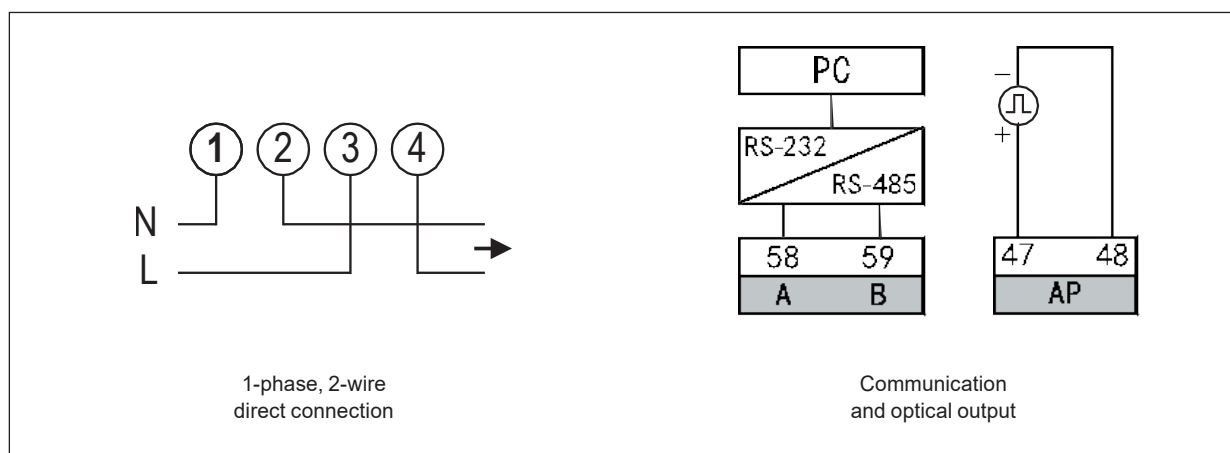
The meters are designed for actual, accurate measurement of the user's electricity consumption. This is achieved by using an

integrated circuit in SMT technology together with advanced digital sample processing modules.

They measure the following parameters: voltage, current, active current, reactive current, active power, reactive power, apparent power, power factor, frequency, demand, maximum value, minimum value. Other energy measurement functions include: bidirectional active energy measurement, bidirectional reactive energy measurement, four-quadrant reactive energy, apparent energy.

The meter provides an active energy pulse output and uses an open optical collector mode to enable remote active energy transmission. A remote computer terminal, PLC and switching signal acquisition module are used to collect accumulated energy.

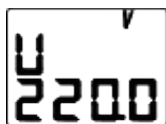
Wiring diagrams



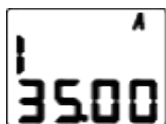
Display interfaces

Switch between different display interfaces: Press the <

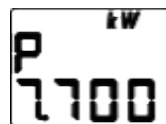
Display of electrical variables



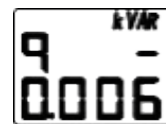
Voltage:
U = 220 V



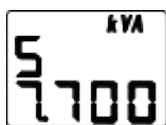
Current:
I = 35 A



Active power:
P = 7.7 kW



Reactive power:
Q = -0.006 kvar



Apparent power:
S = 7.7 kVA

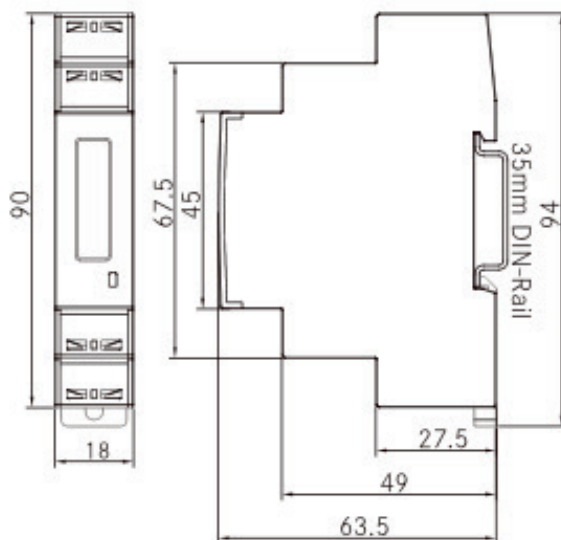


Power factor:
PF = 1



Frequency:
F = 50 Hz

Dimensions



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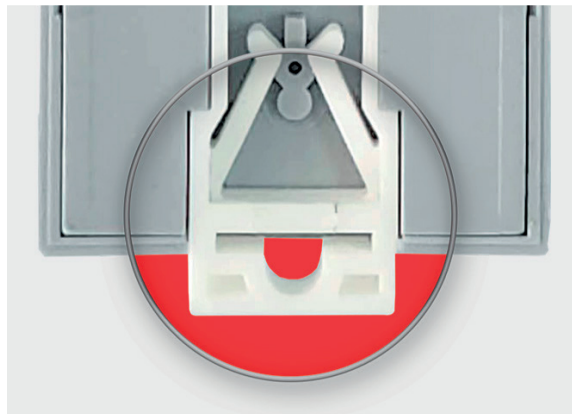
Installation

RLE01-1M-T meters are designed for direct mounting on a 35 mm rail according to PN-EN 60715.

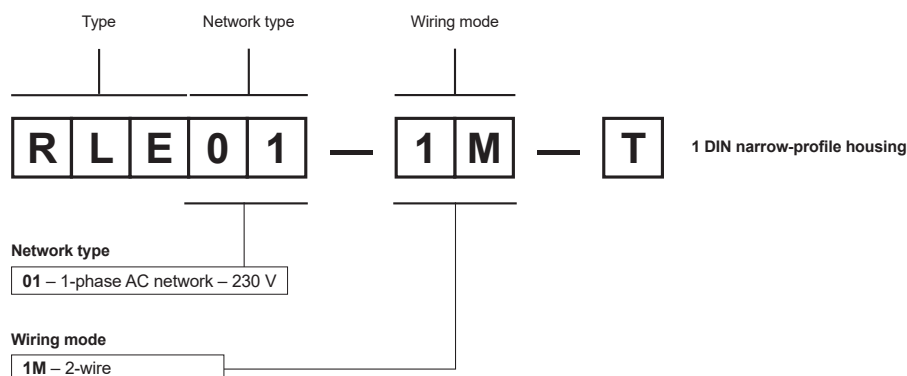
Operational position – vertical.

Hook:

simple mounting on a 35 mm rail,
solid hooking (bottom).



Ordering codes



Encoding example:

RLE01-1M-T

RLE01-1M-T meter, housing – installation module, width 18 mm, 2-wire wiring, electricity metering in 1-phase AC network – 230 V 50/60 Hz

PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. 4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.