

Single phase counter, direct connection 45 A, Modbus RS485

Cat. No: 4 120 68



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1. DESCRIPTION - USE

Single phase active energy meter.
Measures the electric power consumed by a single-phase circuit downstream of the power distribution metering.
Displays the energy consumption in kWh.

2. RANGE

. Cat. No 4 120 68: Single phase counter in 1 module (18,2 mm) self-supplied on the measurement terminals.

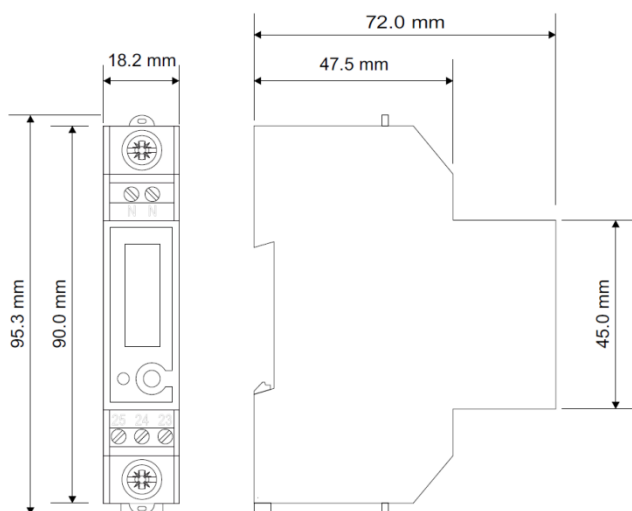
Rated currents:

- . Base current, I_b : 5 A
- . Maximum current, I_{max} : 45 A
- . Starting current, I_{st} : 20 mA

Rated voltage and frequency:

- . U_n : 230 VAC - Operational range: 196 ÷ 264 VAC
- . F_n : 50/60 Hz - Operational range: 47 ÷ 63 Hz

3. OVERALL DIMENSIONS



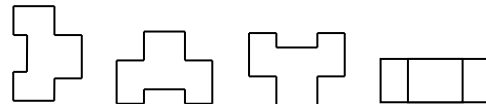
4. PREPARATION - CONNECTION

Fixing:

- . On symmetrical EN/IEC 60715 rail or DIN 35 rail.

Operating position:

- . Vertical Horizontal Upside down On the side



Power terminals (1-3):

- . Terminals depth: 11 mm.
- . Stripping length: 11 mm

Neutral (N-N) and RS485 output terminals (23-24-25):

- . Terminals depth: 5 mm.
- . Stripping length: 5 mm

Screw head:

- . Power terminals: slotted and Philips.
- . Neutral and RS485 output terminals: slotted.

Recommended tightening torque:

- . Power terminals (1-3): 2,5 Nm.
- . Neutral (N-N) and RS485 output terminals: 0,5 Nm.

Max. tightening torque:

- . Neutral (N-N) and RS485 output terminals: 0,8 Nm.

Tools required:

- . Power terminals: Philips n°2 screwdriver or flat screwdriver 6 mm.
- . Neutral and RS485 output terminals: flat screwdriver 3 mm.
- . For fixing the device on the DIN rail: flat screwdriver 5.5 mm (max. 6 mm).

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4. PREPARATION - CONNECTION (continued)

Connectable section:

- . Copper cables.
- . Power terminals

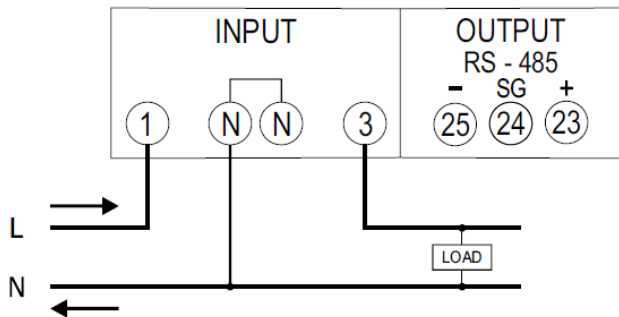
	Without ferrule	With ferrule
Rigid cable	6 to 25 mm ²	-
Flexible cable	6 to 25 mm ²	4 to 25 mm ²

- . Pulse output terminals

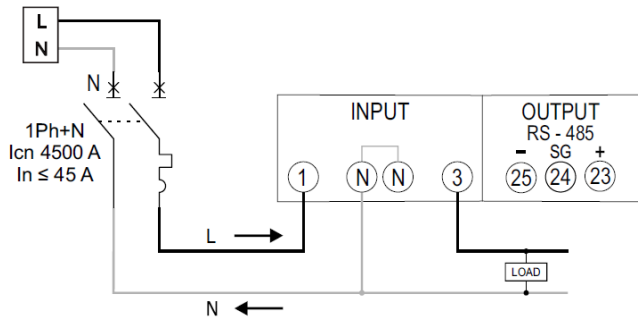
	Without ferrule	With ferrule
Rigid cable	1 to 4 mm ²	-
Flexible cable	1 to 2,5 mm ²	1 to 2,5 mm ²

ATTENTION: for safety reasons, it is compulsory not to exceed 4 A/mm² as current density in the input terminals.

Electrical wiring diagram:



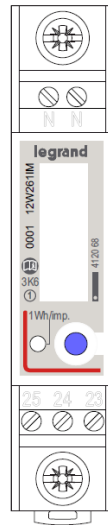
Protect the device with a circuit breaker with $I_n \leq 45$ A (see the example)



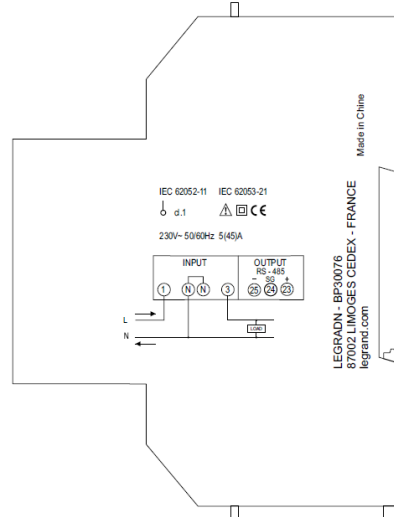
5. GENERAL CHARACTERISTICS (continued)

Marking:

- . **Front face:** adhesive foil



- . **Right side:** by permanent ink pad printing



Display:

- . Type: 6 digits LCD
- . Resolution: 0,01 kWh or 0,1kWh
- . Maximum indication: 99999,9 kWh
- . Total energy count: not resettable
- . Page scrolling: manual by front push-button and/or automatic
- . Display measure: display is divided into pages
 - Active energy (kWh)
 - Reactive energy (kvarh)
 - Voltage (V)
 - Current (A)
 - Active power (kW)
 - Reactive power (kvar)
 - Apparent power (kVA)
 - Power factor

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5. GENERAL CHARACTERISTICS *(continued)*

Metrological LED:

- . Pulse weight: 1 Wh/imp

RS485 communication port's characteristics:

- . Programmable addresses*: from 1 to 247
- . Programmable baud rate*: 1,2, 2,4 - 4,8 - 9,6 kbps
- . Parity bit: none (non-programmable)
- . Stop bit: 1 (non-programmable)
- . Galvanically isolated respect to measuring inputs and auxiliary supply
- . Standard RS485 3 wires, half-duplex
- . Protocol Modbus® RTU
- . Response time (time out question/answer): ≤50 ms

* Programmable via RS485 communication only. Refer to the document F02230EN that contains the Modbus registers

Ambient operating temperature:

- . Min. = - 5 °C; Max. = + 55 °C.

Ambient storage temperature:

- . Min. = - 25 °C; Max. = + 70 °C.

Protection Index:

- . Protection index of terminals against solid and liquid bodies (wired device): IP 20 (IEC/EN 60529).
- . Protection index of the front face against solid and liquid bodies: IP 20 (IEC/EN 60529).

Impulse withstand voltage:

- . All circuits / earth:
alternate current 50 Hz / 1 min.: 4 kV

Short-time overcurrent:

- . 30 I_{max} for 10 ms

Power Factor - Operating range:

- . 0.5 inductive to 0.8 leading

Protection class:

- . II

Pollution degree:

- . 2

Installation category:

- . III

Accuracy class:

- . Active energy: class B according EN 50470-1, -3

Average weight per device:

- . 0,12 kg.

Volume when packed:

- . 0,15 dm³.

Consumption

- . ≤ 7,5 VA

Thermal power dissipated:

- . ≤ 1 W.

6. COMPLIANCE AND APPROVALS

Compliance to standards:

- . Compliance with Directive on electromagnetic compatibility (EMC) n° 2014/30/EU
- . Compliance with low voltage directive n° 2014/35/EU.
- . Electromagnetic Compatibility: IEC 62052-11.

Environment respect - Compliance with EU directives:

- . Compliance with Directive 2011/65/EU as amended by Directive 2015/863 (RoHS 2) on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
- . Compliance with REACH regulation (1907/2006): at the date of the publication of this document no element of the SVHC substance list (updated on 27/06/2018) is present in these products.
- . WEEE directive (2012/19/EU): the sale of this product is subject to a contribution to eco-organisations in each country responsible for managing end-of-life products in the field of application of the European Waste Electronic and Electrical Equipment Directive.

Packaging:

- . Design and manufacture of packaging compliant to decree 98-638 of the 20/07/98 and also to directive 94/62/CE.

Installation software:

- . XL PRO³.

7. EQUIPMENT AND ACCESSORIES

Wiring accessories:

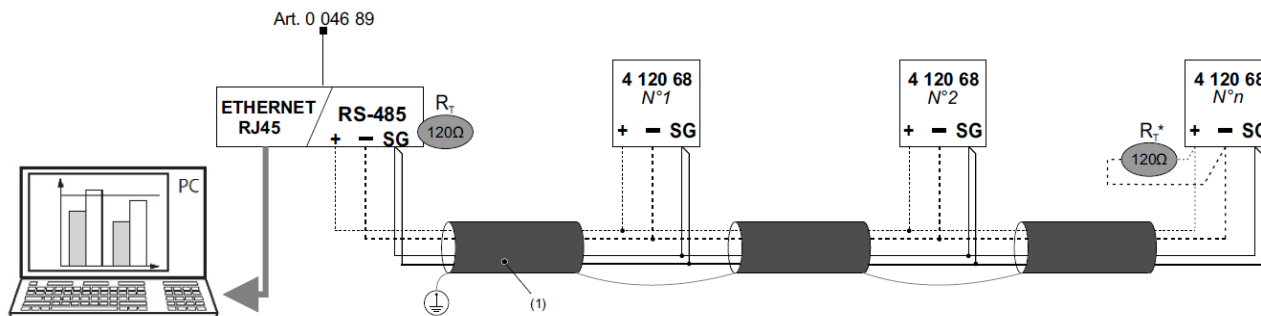
- . Sealable terminals shield (supplied with the counter). The overall height of the device and terminal shields is 95,3 mm.

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8.COMMUNICATION

RS485 Wirina diagram:



(1) RS485: Prescribed use of Cable Belden 9842, Belden 3106A (or equivalent) for a maximum length of 1000 m, or Category 6 cable (FTP or UTP) for a maximum length of 50 m;

(*) Resistance not furnished

Modbus communication tables

. Modbus communication tables are available at www.e-catalogue.legrandgroup.com, typing "4 120 68" in the search field