

# ELECTRICITY METER LEM-40

## DIGITAL - THREE-PHASE

USER'S MANUAL

# exta

ZAMEL Sp. z o.o.

# zameL

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### DESCRIPTION

The LEM-40 digital, three-phase electricity meter is a precision device measuring the power consumption in a three-phase system. The meter operates in class B (equivalent to class 1). The device is equipped with a legible LCD and signaling diodes informing about the presence of voltage of a given phase. ZAMEL LEM-40 meter is used to monitor power consumption of three-phase system in consumer, commercial and industrial applications. The product is ideal solution for billing the power consumption in garages, workshops, plots of land, tenants of facilities or for machinery control. The device measures and displays electricity expressed in kWh rounded to 2 decimal places (0.01kWh). W results are presented on a 6+2 digital display. Pulse output of the meter allows connecting metering device and presenting the measurement results on the additional display/system. The meter can be easily installed in electric cabinets because it has compact 4-module design (4 DIN modules). The device is equipped with safety flaps, which can be sealed.

### FEATURES

- Three-phase digital energy meter,
- Class B (equivalent to class 1),
- Maximum current of the meter: 100A,
- 6+2 LCD display,
- Additional pulse output,
- Indication for pulse counting,
- Signalling the presence of voltage of each phase,
- Sealable terminal covers,
- Installation on TH 35 rail.



The device should be connected to a three-phase network in accordance with legally binding standards. The connection method is described in this manual.

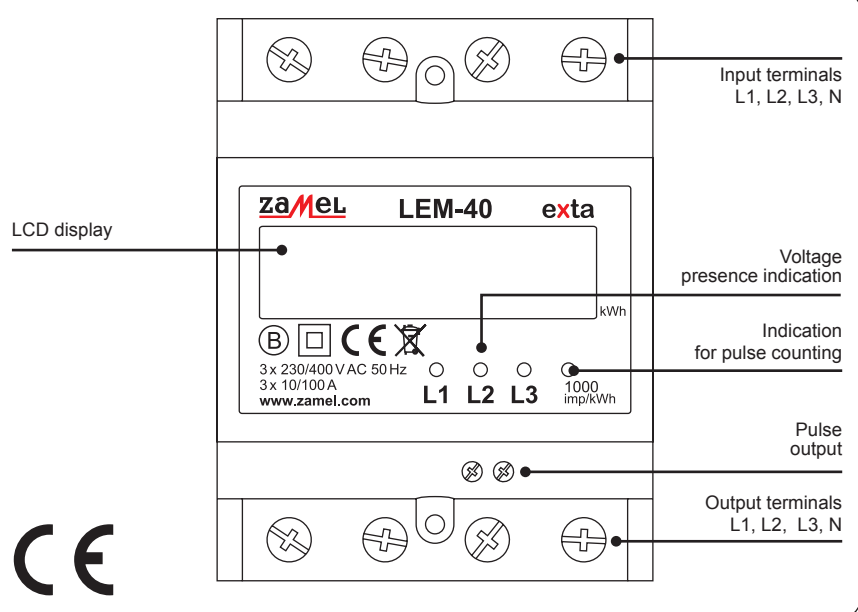
**NOTE**  
Any activities related to installation, connection, and adjustment should be performed by qualified electricians who have read this user's manual and familiarised themselves with device functions. Removing the enclosure voids the warranty and poses a risk of electric shock. Before installation, make sure that there is no voltage on connection cables. To install the device, use a cross-head screwdriver with a diameter of 3.5 mm. The proper operation of the device is affected by how the device is transported, stored, and used. It is not advisable to install the device in the following cases: lack of any components, damage to or deformation of the device. If the device operates improperly, please contact the manufacturer.

Do not dispose of this device together with other waste! To avoid harmful effects on the environment and human health, the worn-out device should be stored in designated areas. Electrical waste from households may be handed over to the waste collector established for this purpose free of charge and in any amount, as well as to the store when purchasing new equipment.

### TECHNICAL DATA

Power supply terminals:	top - inputs (IN): L1, L2, L3, N bottom - outputs (OUT): L1, L2, L3, N
Reference voltage:	3 x 230 V / 400 V AC
Voltage tolerance:	-15 ÷ +10 %
Rated frequency:	50 / 60 Hz
Base current (I <sub>b</sub> ):	3 x 10 A
Maximum current (I <sub>max</sub> ):	100 A
Operating current range:	0,4% I <sub>b</sub> ÷ I <sub>max</sub>
Current overload:	30x I <sub>max</sub> for 0,01 s
Meter own consumption:	10 VA / 2 W
Accuracy of measurement (IEC61036):	class B (class 1)
Display:	Counter 6+2 digits
Indication for pulse counting:	red LED
Pulse output SO+ SO-:	OC type, terminals: 22 (-), 23 (+)
Connection voltage SO+ SO-:	5 ÷ 27 V DC
SO+ SO- connection current:	< 27 mA
SO+ SO- contact:	1000 pulses per kWh
Pulse time SO+ SO-:	30 ms
Number of connection terminals:	10
Cross-section of connection cables:	main connection: 4 ÷ 25 mm <sup>2</sup> pulse output: minimum 0.2 mm <sup>2</sup>
Operating temperature:	-25 ÷ +55 °C
Enclosure mounting:	TH 35 rail (according to EN 60715)
Enclosure IP rating:	IP51
Overvoltage category:	II
Contamination degree:	2
Dimensions:	72 x 100 x 66 mm
Weight:	0,700 kg

### APPEARANCE



## ASSEMBLY, OPERATION

1. Before assembly you should familiarize yourself with the manual and observe the requirements related to location and conditions of assembly. The assembly should be carried out by a person with appropriate authorizations.
2. All assembly works should be carried out after disconnection of supply voltage (measuring voltage).
3. Use only insulated tools.
4. The cables used should conduct the maximum current assumed for the given meter.
5. Check voltage-free condition on supply conductors using a proper measuring instrument.
6. Install the device in the switchboard on the TH35 rail.
7. Connect the wires to the terminals in accordance with the wiring diagram.
8. Switch on the power supply.
9. Do not touch connecting terminals of the meter with bare hands, metal objects, non-insulated wire or other conductive object, because it poses a risk of electric shock, which can result in injuries, serious injuries or death.
10. Maintenance and repairs of the meter can be carried out only by qualified personnel with valid authorizations.
11. The meter should be protected against fall and mechanical impacts, that may cause damage of precise components inside it and have adverse effect on accuracy of the measurements.

**NOTE:** Using pulse output (terminals 22 and 23) you should apply additional supply voltage within the range  $5 \pm 27$  V DC through a resistor R ( $470 \Omega \pm 1 \text{ k}\Omega$ ) limiting the value of the current.

## PRODUCT SERIES

The LEM-40 energy meter belongs to the LEM series of meters.

### LEM-XX

Device version:	
02	single-phase, digital
02LM	single-phase, digital, MID
04	single-phase, digital
30	three-phase, digital
30M	three-phase, digital, MID
40	three-phase, digital

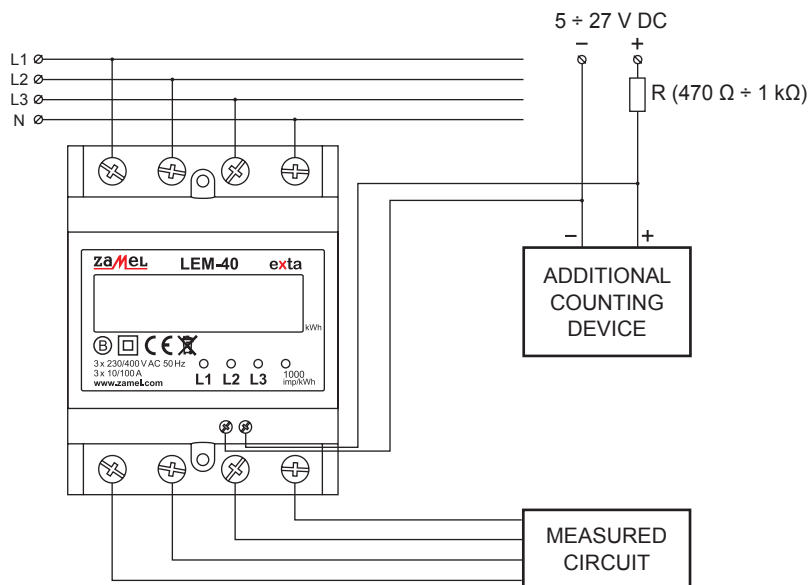
Device symbol

## WARRANTY CARD

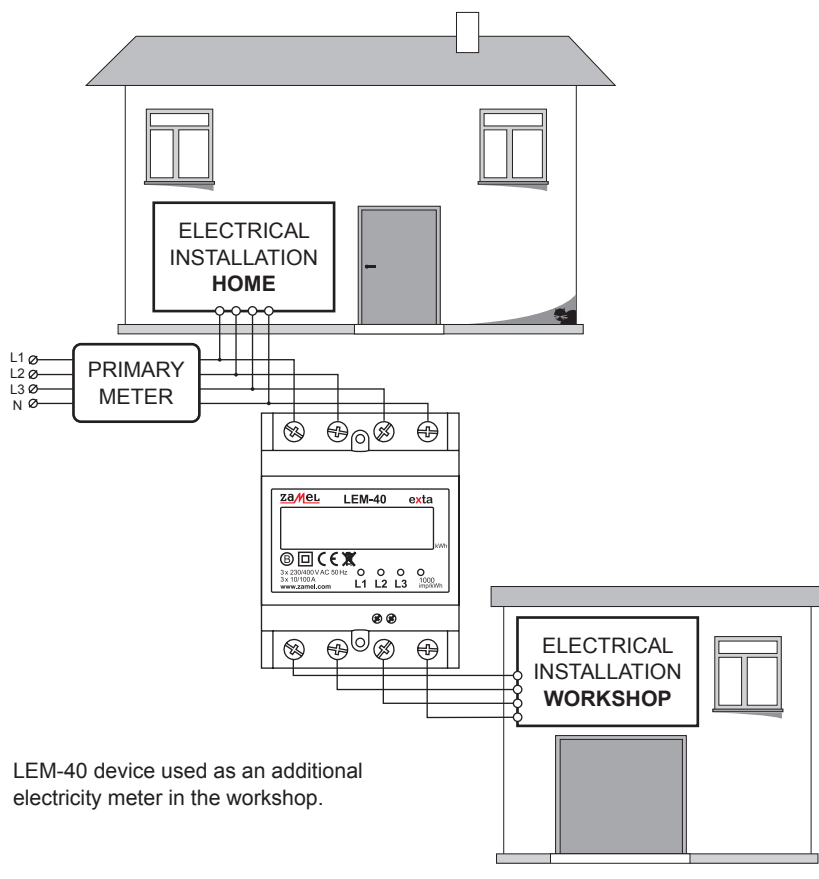
Manufacturer provides a 24-month warranty

Seller's stamp and signature, date of sale

## CONNECTION



## INTENDED USE



1. ZAMEL Sp. z o.o. shall offer a 24-month warranty on the products sold.
2. The warranty provided by ZAMEL Sp. z o.o. shall not cover:
  - a) mechanical damage caused during transport, loading/unloading or in other circumstances,
  - b) damage caused by incorrect installation or operation of products manufactured by ZAMEL Sp. z o.o.,
  - c) damage resulting from any changes made by the BUYER or third parties in the products sold or equipment necessary for the proper operation of the products sold,
  - d) damage resulting from force majeure or other fortuitous events for which ZAMEL Sp. z o.o. is not liable.
3. Any warranty claims shall be made by the BUYER at the point of sale or to ZAMEL z o.o. in writing after defects have been identified.
4. ZAMEL Sp. z o.o. undertakes to handle complaints in accordance with the applicable provisions of Polish law.
5. The choice of the form of complain resolution, e.g. replacement of a product free from defects, repair, or reimbursement of money, shall lie with ZAMEL Sp. z o.o.
6. The warranty does not exclude, limit, or suspend BUYER's rights under the statutory warranty for defects in the item sold.