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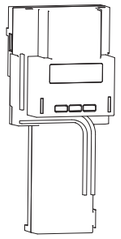
IIST437-01 - 16-01-2025

EN



Code	Model
ECSEM540MID	LEVSEM MID

Three phase energy meter, direct connection 32 A
with MID declaration of conformity and Modbus RTU communication.

MID certification concerns active energy only.

User instructions.

Safety instructions

Read this manual carefully BEFORE installing the instrument.

This device must be installed indoor only by a professional electrician according to local applicable installation standards.

Do not plug in or unplug this product when the power supplying is ON. Its use is only permitted within the limits shown and stated in the installation instructions. The device and the equipement connected can be destroyed by loads exceeding the values stated.

Any type of intervention on the products, including cases in which they cease to function or present defects, can be dangerous for the operator's safety and relieves the Manufacturer from all civil and criminal liability.

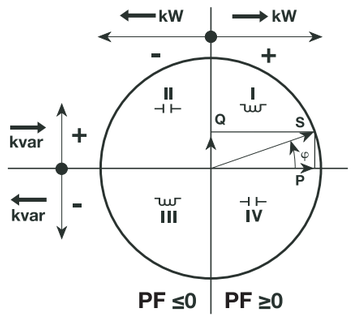
Function

This 4 quadrants energy meter measures the active and reactive energy used in an electrical installation.

Only the total active energy register can be used for billing purposes according to measuring instrument directive (MID).
- Active Energy Class B (according to EN 50470-3:2022)
- Active Power Class 1 (according to IEC 62053-21:2020 and IEC 61557-12:2018)
- Reactive Energy Class 2 (according to IEC 62053-23:2020)
- Reactive Power Class 2 (according to IEC 62053-21:2020).

This device has a LCD and 3 push-button keys to read
Energies, V, I, PF, F, P, Q
The design and manufacture of this meter comply with
Standard EN 50470-3:2022 requirements.

Power factor
Convention according to IEC 62053-23:2020



Layout of device

LCD display

Energy register

P Sub-menu page

Energy import (consumption)

Energy export (production)

L1 L2 L3 Phase indicators

Page number

Commands

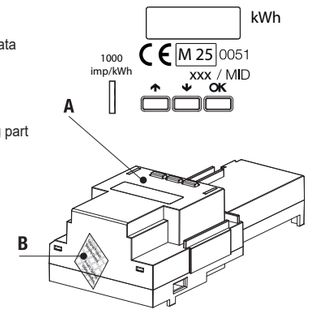
Scroll up \ down

OK Enter \ Exit sub-menu

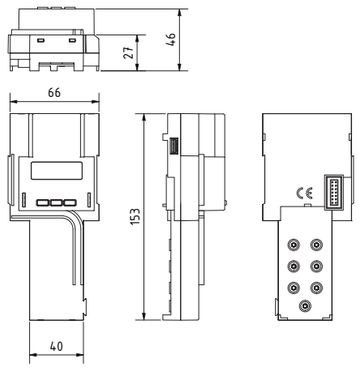
MID certified

A) Device code and certification data indications

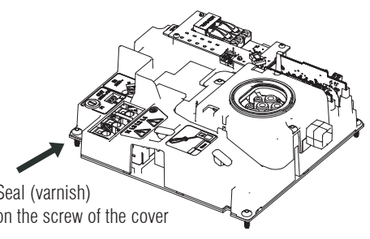
B) Safety-sealing between upper and lower housing part



Dimensions

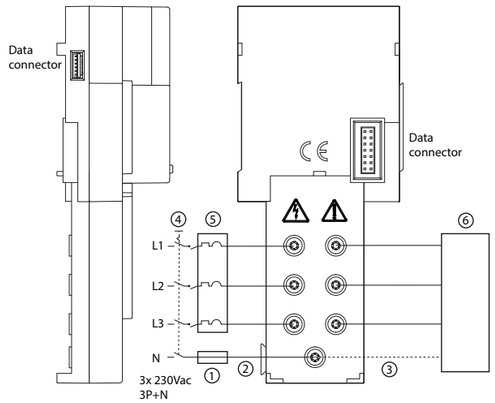


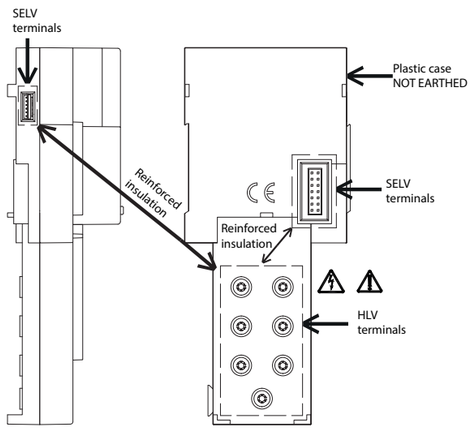
Sealable terminal cover



Seal (varnish) on the screw of the cover

Wiring





There are no accessible parts

Legenda:

1 Fuse or circuit breaker in series with the neutral conductor, to be adopted in case the source neutral is not earthed. The installer is responsible for coordinating the rating and the characteristics of the supply side overcurrent protection. The devices must be correctly sized with respect to the installation voltage, the maximum overcurrent applicable to the meter and the fault current available. The following parameters are to be taken into consideration:
- Maximum current = 32A
- Maximum Overload current = 38A
- Maximum Voltage = 276 Vac

2 The connection of the Neutral to the Energy Meter is strictly MANDATORY. Failure to connect affects not only the quality of the measurements, but also safety.

3 The connection of the Neutral to the load is not mandatory. However, consider that in a 3P+N network, if the Neutral is not connected to the load, the measurements referred to L1, L2 and L3 no longer haveany meaning. Only the 3-phase measurements remain significant.

4 Four-pole disconnector 3X230Vac, 3P+N. The disconnectors must be clearly labelled and must be easily accessible by the installer

5 3 fuses or 3 circuit breakers

6 3 wires or 4 wires electrical load.

Installation and uninstallation

The disconnectors (reference 4 and 5 in the wiring diagram) must be easy to identify and to operate and must be close to the Meter. They both must be in "OFF" position (open circuits) from the beginning to the end of the installation or of the uninstallation. The Energy Meter, the disconnectors and the overload current protection devices must be easily identifiable, must be installed in an adequate cabinet (IP51 and V1) and it must be easy to intervene on them whenever appropriate. Inside the cabinet, do not install any other device with a inflammability class worse than V1.

Commissioning

Recommendations
Check the following before putting it into service:
- Make sure that no dangerous voltages are connected to the SELV terminals.
- Make sure that a phase has not been connected to the Neutral terminal (this would cause the internal protections to intervene with permanent damage to the Meter).
- Check that the main page appears on the display (see menu description) and not the Phase Sequence Error page.

Maintenance

- Make sure that no voltage is applied to the instrument.
- Only dry cleaning is allowed with a natural fiber cloth (for example cotton or linen) or synthetic fabric that does not leave residual fibers that can remain on the surface of the Energy Meter or that can penetrate into the Energy Meter.

For this Energy meter, no maintenance, repair or replacement of parts is foreseen. Such interventions are to be considered prohibited. In case of malfunction, it must be replaced.

Help in case of problems

Error condition

When the display shows the following messages the meter has got a malfunction and must be replaced.

Error n88

00 software
01 factory data
02 save data
03 parameters
04 energies
05 led pulses
06 watchdog
07 adjustment
08 sensor
09 assert

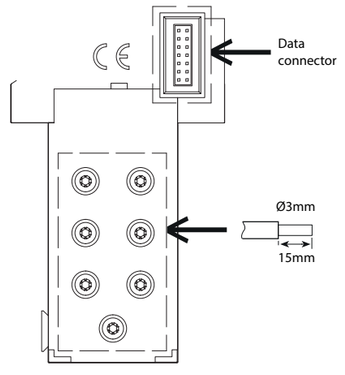
Diagnostic message

PHASE Err
L1 L2 L3

The cabling sequence (L1-L2-L3) is wrong. L1, L2 and L3 icons blink. Invert the voltage wires of 2 phases (phase 1 < > phase 2 or phase 2 < > phase 3).

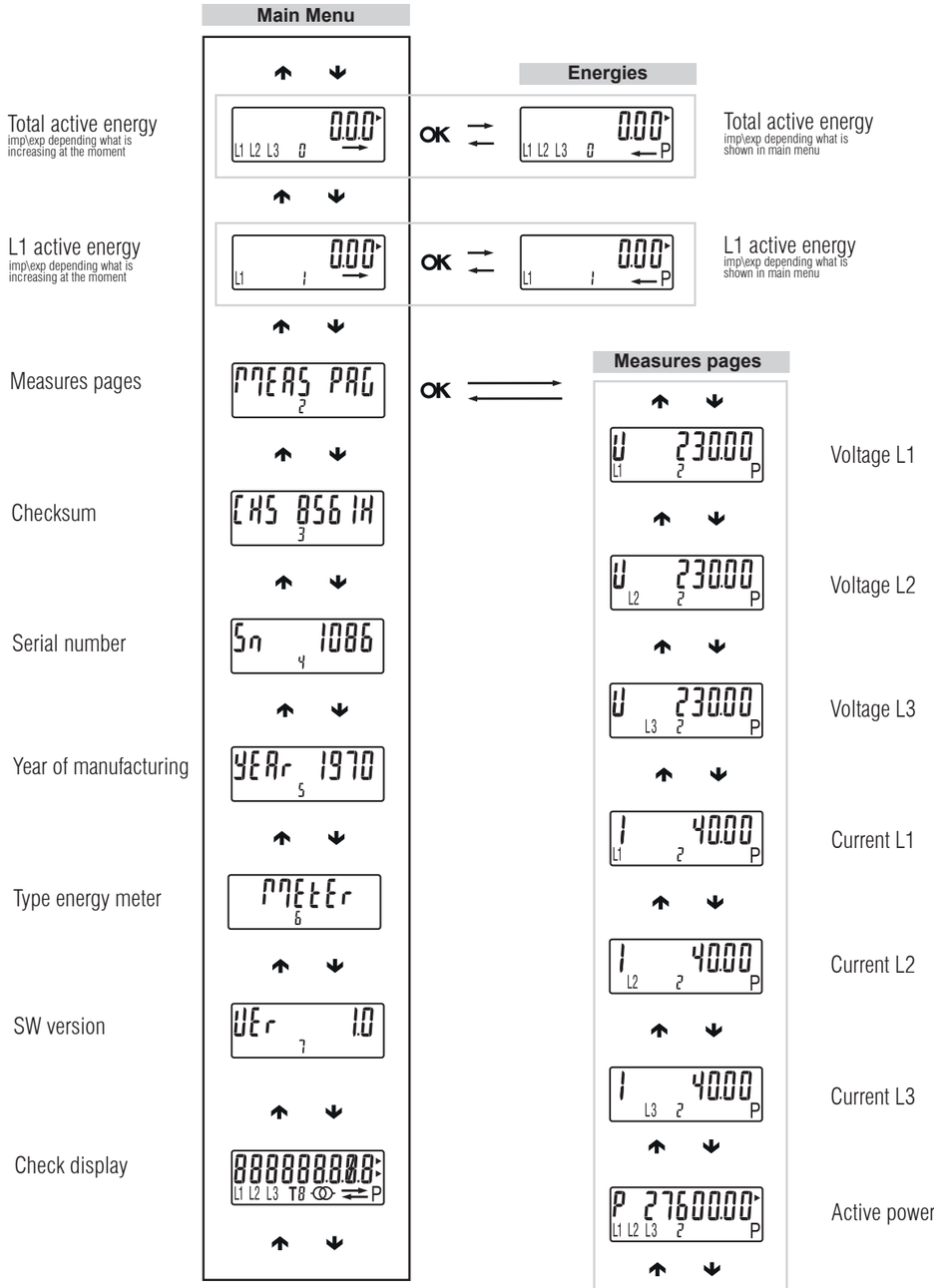
Cable section Cable stripping length

Adopted cables shall retard flame propagation.
Cables must therefore comply with IEC 60332-1-2:2004 or have a flammability rate UL 2556 VW-1



Notes

General Menu



Technical data

Data in compliance with EN 62052-11:2021+A11:2022, EN 62052-31:2016-06, EN 50470-3:2022, EN 62059-32-1:2012				
General characteristics				
Housing			wallbox	
Mounting			fast connectors	
Depth			mm	46
Weight			g	180
Operating features				
Connection	to three-phase network - number of wires		-	4
Storage of energy values and configuration	Internal flash non volatile memory		-	yes
			-	
Approval (EN 50470-3:2022)				
Reference Voltage (Un)	phase / neutral		VAC	230
	phase / phase		VAC	400
Nominal Current (In)			A	5
Transition Current (Itr)			A	0.5
Minimum Current (Imin)			A	0.25
Maximum Current (Imax)			A	32
Starting Current (Ist)			A	0.020
Reference Frequency (fn)			Hz	50
Number of phases / number of wires			-	3 / 4
Certified Measures			kWh kWh	kWh
Accuracy				
- Active Energies (accord. to EN 50470-3:2022)			classe	B / 1
- Active Powers (accord. to IEC 62053-21:2020 and IEC 61557-12:2018)				
- Reactive Energies (accord. to IEC 62053-23:2020)			classe	2
- Reactive Power (accord. to IEC 62053-21:2020)				
Supply Voltage and Power Consumption				
Operating Supply Voltage range			V	92 … 276 / 160 … 480
Maximum Power Consumption (Voltage circuit)			VA / W	≤2 / 0.6
Maximum VA burden (Current circuit) @ Imax			VA	≤2
Voltage Input Waveform			-	AC
Voltage impedance			MΩ	1
Current impedance			mΩ	≤20
Overload capability				
Voltage	continuous	phase / neutral	VAC	276
	temporary (1 s)	phase / neutral	VAC	300
	continuous	phase / phase	VAC	480
	temporary (1 s)	phase / phase	VAC	800
Current	Maximum		A	38
	temporary (10 ms)		A	960
Measuring Features				
Voltage range	phase / neutral		VAC	184 … 276
	phase / phase		VAC	320 … 480
Current range			A	0.25 … 32
Frequency range			Hz	45 … 65
Measured Quantities			-	V, A, kWh, kvarh, PF, Hz, kW, kvar
3 phases Energy calculation			-	Scalar sum
Display features				
Display type	LCD		-	7.2
Active Energy	7 digits + 2 decimal digits		kWh	0.01 … 99999999.9
Reactive Energy	7 digits + 2 decimal digits		kvarh	0.01 … 99999999.9
Voltage	3 digits + 1 decimal digit		V	92.0 … 276.0
Current	2 digits + 2 decimal digits / 3+1 / 4+0		A	0.00 … 40.00
Power factor	1 digit + 3 decimal digits with sign + capac./induc. indic.		-	-1.000 … 1.000
Frequency	2 digits + 2 decimal digits		Hz	45.00 … 65.00
Active Power	2 digits + 2 decimal digits		kW	0.00 … 22.08
Reactive Power	2 digits + 2 decimal digits		kvar	0.00 … 22.08
Apparent Power	2 digits + 2 decimal digits		kVA	0.00 … 22.08
Display refresh period			s	1
Optical metrological LED				
Front mounted red LED (meter constant)	proportional to active imp/exp Energy		imp/kWh	1000
Safety				
Utilization category			-	UC1
Overvoltage category			-	3
Protective class			classe	II
AC voltage test			kV	4
Degree of pollution			-	2
Operational voltage			V	300
Impulse voltage test (Uimp)			1.2/50µs-kV	6.4
Housing material flame resistance	UL 94		classe	V0
Safety-sealing between upper and lower housing part			-	yes
Printed circuit board flammability class			-	V1
Material Group			-	IIIa
Environmental conditions				
Storage temperature range			°C	-40 … +85
Operating temperature range			°C	-25 … +70
Mechanical environment			-	M1
Electromagnetic environment			-	E2
Installation	indoor only		-	yes
Altitude (max.)			m	≤2000
Humidity	yearly average, without condensation		-	≤75%
	on 30 days per year, without condensation		-	≤95%
IP rating	in built-in condition (front part)		-	IP51
	terminal block		-	IP20
Emission class compatibility CISPR 32			classe	B