"GLOBY-S" Polyphase Meter User Manual

Document Number:	DMI A I 000014
Issue:	I
Date:	05/02/2025

Drafted by:	TCI/MD/TD – S. Offidani TCI/MD/TD – M. Castrini
Checked by:	TCI/MD/TD – A. Signorini
Approved by:	TCI/MD/TD – A. Signorini

AMENDMENT REGISTER

Description of change	NAME	ISSUE	DATE
First Issue	S.O. M.C.	I	05.02.2025

Content .....page

1. OVERVIEW

The scope of this document is to describe and to show all the information necessary to know in order to use properly and in complete safety the Semi-Direct Polyphase meter belonging to Gridspertise's meter family "GLOBY" named "GLOBY-S".

In this document are collected all the information useful for the operator that will have to install the meter and for those who will use it, in order to avoid undesirable consequences.

In particular, this document must be consulted in case that the following symbol is present in any part of the CE in order to find out the nature of the potential hazards and any actions which have to be taken to avoid them.

CAUTION:

This graphic symbol is to require caution and that the accompanying documents must be considered.

In addition, the installer must consult and comply local regulations and read the instructions for correct installation written in the installation and maintenance manual, if the following symbol is shown:

2. APPLICATION FIELD

This document is applicable to the electronic Polyphase meter "GLOBY-S".

GLOBY-S is a semi-direct Polyphase bidirectional electronic meter for measuring Active and Reactive Energy on low voltage networks.

That meter works in the frequency range included between 45 Hz to 65 Hz (Class B kWh, Class 2 kvarh).

The meter is calibrated at the nominal frequency of the network where it is intended to be installed (50 Hz or 60Hz).

The meter has a standard reference voltage equal to 3x120/208V…3x230/400 (it can be configured in factory as 3x120/208V, 3x220/380V, 3x230/400V, or 3x127/220...3x230/400V) and reference currents (a.c.) are: Istart = 0,01 A, Imin = 0,2 A, Iref = 1 A, Imax = 20 A.

The rated frequency, the reference voltage and the "min", "ref" and "max" currents are always included in the nameplate data (for more details refer to paragraph 5.1)

The meter is provided with SCS (relay).

The following table summarizes all the main general information:

Model	**GLOBY-S**
Manufacturer's name	Gridspertise S.r.L. Via Ombrone, 2 – 00198 – Rome - Italy
Type	Bidirectional Semi-Direct Polyphase meter for the measurement of active and reactive energy.
Protective class	Double Insulation
Rated impulse voltage	OVC III
Environmental conditions, storage	Indoor with a temperature between -40 ° C and + 70 ° C.
Environmental conditions, operation, including - Mechanical condition - EM condition - Climatic condition	- M1 - E2 - For indoor installation (from -40°C to +70°C)
IP Rating	• IP 54 for PCB and electronics; • IP 54 for current transducer; • IP 40 for relay compartment; • IP 20 for output terminal blocks area when cables are installed (as per EN 60898).
Reference to standards	EN IEC 62052 – 11 EN IEC 62053 – 21 & EN IEC 62053 – 23 EN 50470 – 3 CLC/TR 50579 EN IEC 62052 – 31

Accuracy class - Active energy - Reactive energy	 - 1 (EN IEC 62053-21) or B (EN 50470-3) - 2 (EN IEC 62053-23)
Meter Constant	10000 pulses/kWh 10000 pulses/kvarh
Refrence Voltage	3x120/208V…3x230/400 (can be configured in factory as 3x120/208V, 3x220/380V, 3x230/400V, or 3x127/220…3x230/400V)
Reference current and current range	I_{start} = 0,02 A; I_{min} = 0,01 A; I_{ref} = 1 A; I_{max} = 20 A.
Dimension [mm]	300 x 170 x 83.5 (with long terminal cover) 250 x 170 x 83.5 (with long terminal cover)

3. REFERENCE REGULATIONS AND STANDARD USED IN THE DOCUMENT

	The manufacturer must apply reference standards listed below in the latest edition.
• EN 50470-3	Electricity metering equipment (a.c.). Part 3: Particular requirements – Static meters for active energy (class index A, B, C).
• EN IEC 62052-11	Electricity metering equipment - General Requirements, Tests and Test Conditions - Part 11: Metering equipment.
• EN IEC 62053-21	Electricity metering equipment (a.c.) – Particular Requirements - Part 21: Static meters for active energy (classes 1 and 2).
• EN IEC 62053-23	Electricity metering equipment (a.c.) - Particular requirements -Part 23: Static meters for reactive energy (classes 2 and 3).
• EN IEC 60898	Electrical accessories - Circuit-breakers for over current protection for household and similar.
• EN IEC 60947-3	Switches, disconnectors, switch-disconnectors and fuse combination units.
• EN IEC 62056-21	Data exchange for meter Reading, tariff and load control - Direct local data exchange.
• EN IEC 60387	Symbols for alternating-current electricity meters.
• EN IEC 62058-11	Electricity Metering Equipment (a.c.) – Acceptance Inspection – Part.11: General Acceptance inspection methods.
• EN IEC 62058-31	Electricity Metering Equipment (a.c.) – Acceptance Inspection – Part.31: Particular requirements for static meters for active energy (classes 0.2 S, 0.5 S, 1 and 2, and class indexes A, B and C.
• EN IEC 60529	Degrees of protection provided by enclosures (IP Code).
• EN IEC 62059-11	Electricity metering equipment – Dependability, Part 11: General concepts.
• EN IEC 62059-21	Electricity metering equipment – Dependability, Part 21: Collection of meter dependability data from the field.
• EN IEC 62052-31	Electricity metering equipment (a.c.) – General requirements, tests and tests conditions – Part 31: Product safety requirements and tests
• EN 50160	Characteristics of the voltage supplied by the public network power supply distribution.

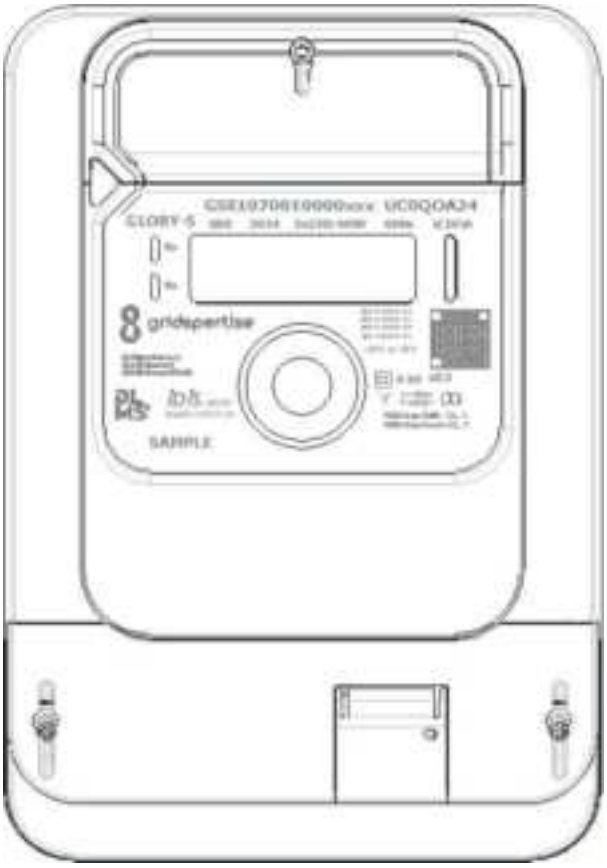
4. ACRONYMS LIST

CE:	Static Meter (Polyphase)
LV-C:	Low-Voltage Concentrator
PLC:	Power Line Communication
GLOBY-S:	PolyphaseSemiDirectMeter
MCU:	Micro Controller Unit
HHU:	Hand Held Unit
LV:	Low Voltage
DSO:	Distribution system operator (operating managers and sometime owners of energy distribution networks),

5. MARKING

5.1. NAMEPLATE

The external cover of CE is marked with a nameplate that is indelible, non-transferable, distinct and legible from outside the meter.



The nameplate reported in the previous picture is an example that includes relevant and optional information. Other possible layout including additional information can be possible assuring that relevant information according to MID/IEC, Safety and RED will be always present.

The explanation of the information included in the previous nameplate is the following:

	Description	Relevant = R Optional = O
GLOBY-S	Identification of Meter Model	R
OM. XXX	Gridspertise Homologation Number of the CE	O
2024	Year of manufacturing of the meter	R
3x230/400V	Reference voltage *This field may vary according to the factory configuration. Allowed values are:* 3x120/208V, 3x220/380V, 3x230/400V, or 3x127/220...3x230/400V *240V*	R
50 Hz	Reference frequency (Hertz) *This field may vary according to the factory configuration. Allowed values are 50 Hz or 60 Hz*	R

0,01-1(20)A	Min. – Nominal (Max.) Current of the measuring system	R (MID)
1(20)A	Nominal (Max.) Current of the measuring system	R (IEC)
GSE1060010000xxx	Meter serial number	R
UA0WEA24	*Meter code*	R
10000 imp/kWh	Verification Constant for Active Energy	R
Cl.B	Accuracy Class for active energy of the CE according to CEI EN 50470-3.	R (MID)
Cl.1	Accuracy Class for active energy of the CE according to IEC 62052-11 and IEC 62053-21	R (IEC)
10000 imp/kvarh	Verification Constant for Reactive Energy	R
Cl.2	Accuracy Class for Reactive energy of the CE according to IEC EN 62052-11 and IEC EN 62053-23.	R
-40 °C to 70 °C	Operating Temperature Range	R
EN 50470-3	Electricity metering equipment (AC) – Particular requirements – Static meters for active energy (class indexes A, B and C)	O
EN IEC 62052-11	Electricity metering equipment (AC) – General requirements, tests and test condition	O
EN IEC 62053-21	Electricity metering equipment - Particular requirements - Part 21: Static meters for AC active energy (classes 0,5, 1 and 2)	O
EN IEC 62053-23	Static meter for measurement of electrical reactive energy for alternate current.	O
EN IEC 62052-31	Electricity metering equipment (a.c.) – General requirements, tests and tests conditions – Part 31: Product safety requirements and tests	R (Safety)
CE	CE Mark. **Note**: The CE mark is affixed respecting the following dimensions: 	R (MID)
M24	MID Marking with year of application of MID Marking.	R (MID)
0122	Code of the Notified Body that has issued the MID Module D Certificate.	R (MID)
⧈	Meter of protective class II	R
6 kV	Equipment of Overvoltage category III	R
	Meter Graphic Symbol with three measuring element (Type)	R
	Bi-Directional Capability	R

gridspertise	Meter Manufacturer Registered trade mark	R
Gridspertise s.r.l.	Meter Manufacturer Name	R
Via Ombrone 2 00198 Roma ITALIA	Postal Address at which the manufacturer can be contacted.	R
	QR Code	Optional
	This symbol warn the installer to consult local regulations and the installation manual for the necessary protection requirements before installation.	

5.2. TERMINALS

GLOBY-S's input and output terminals are located on the front side of the meter (protected through the terminal cover):

1 -> Phase R line input

3 -> Phase R line output

4 -> Phase S line input

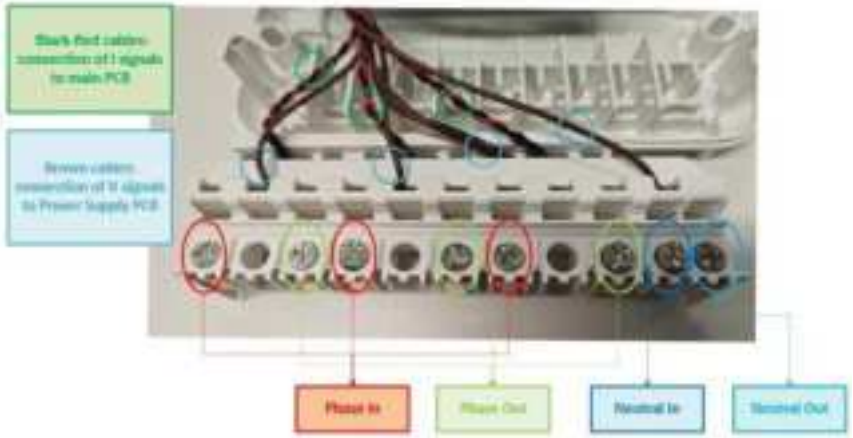
6 -> Phase S line output

7 -> Phase T line input

9 -> Phase T line output

10 -> Neutral input

12 -> Neutral output



For more details please refer to **section 7.4**.

5.3. PACKAGING

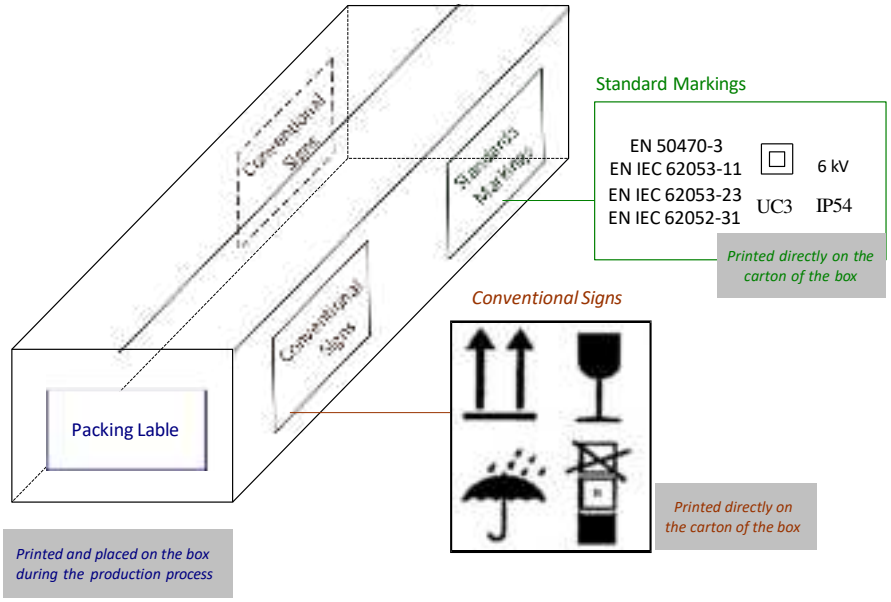
The GLOBY-S meter, after the production process, is placed in boxes containing up to 5 meters.

Four different areas are reserved on each box for different types of marking:

- **Packing Label:** in this area there is a label (printed and placed during the production process) that contains all the tracking information of the shipment and the main features of GLOBY-S.
- **Standards Marking:** in this area some product conformity markings are printed directly on the carton.
- **Conventional Signs:** in these two areas some specific packaging markings are printed directly on the carton.

The following image shows a box with the different areas reserved for marking.

The content described in the following example may be represented in a slightly different form (this means that the contents will be the same but may be arranged differently for graphic reasons). For reasons related to specific customer requests / specific national legislation, additional markings may be present.



The explanation of the information included in the previous nameplates is the following:

The packaging Label will include the following information:

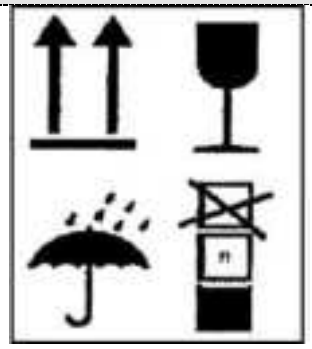
PACKAGING LABEL DATA	Description
First string of barcode **xxxxxxxxxxxxxxxxxx**	Order Specification Number
Second string of barcode **xxxxxxxxxxxxxxxxxx**	Order type
Manufacturer Globy-S – Poliphase xxxV	Manufacturer and material description
Customer name XXXXXX	Customer Material Part Number
Gridspertise XXXXXX	Gridspertise Material Part number
gridspertise	Meter Manufacturer Registered trade mark
CE	CE Mark (not applicable if meters included into the box are marked IEC instead of MID)
M23	MID Marking with year of application of MID Marking. (not applicable if meters included into the box are marked IEC instead of MID)
0122	Code of the Notified Body that has issued the MID Module D Certificate. (not applicable if meters included into the box are marked IEC instead of MID)
Pack n. xxxxxxx	Packing progressive number
Quantity xxx	Number of meters contained in the box
Lot xxxxxxxxxxxxxx	Shipment batch

M	Symbol to identify boxes/pallets including MID compliant meters (not applicable if meters included into the box are marked IEC instead of MID)
kg. x,xx	Total weight of the box
m^3 x,xxx	Total volume of the box
Made in xxxxxxx	Assembly plant country
○	Area for special marks dedicated for specific customization
3xyyy/zzzV)	Rated operated voltage
	QR Code

The Standards Label will include the following information:

STANDARDS LABEL DATA	Description
EN 50470-3 **EN IEC 62052-11** **EN IEC 62053-23** **EN IEC 62052-31**	Standards applicable to instruments included in the box (if the devices included are MID marked)
EN IEC 62052-11 **EN IEC 62053-21** **EN IEC 62053-23** **EN IEC 62052-31**	Standards applicable to instruments included in the box (if the devices included are IEC marked)
6 kV	Equipment of Overvoltage category III
⧈	Meter of protective class II
UC3	Utilization Category (UC)
IP54	IP Rating

The conventional sign Label will include the followi ng information:

Conventional Signs LABEL DATA	Description
	Conventional signs according to ISO 780 standard (symbols n. 1, 3, 6 and 14)

6. METER INSTALLATION

Only qualified persons (i.e. in possession of the requirements of the applicable technical standards and national legislation) may perform the installation procedures.

Safe and reliable installation is the responsibility of the installer.

Before to install the meter, the operator must review the safety instructions in the product documentation. Failure to follow the safety instructions may result in personal injury or equipment damage.

The meter must not be installed outdoor, but it has to be installed indoor, in a position such that the display, the push button and the input/output terminals are easily accessible.

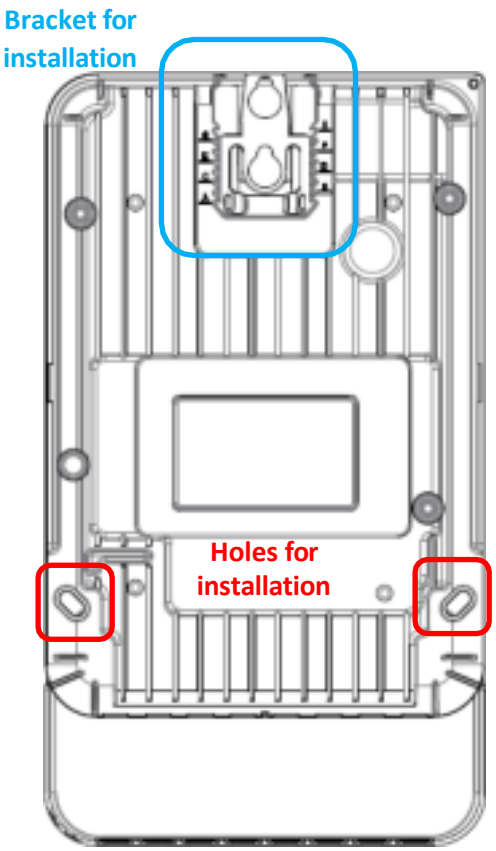
The safety of any system incorporating the equipment is the responsibility of the assembler of the system.

6.1. SAFETY INSTRUCTIONS

Read all available product documentation before assembling and commissioning. Incorrect handling of this product may cause personal injury and/or damage to equipment. Adhere strictly to the installation instructions and requirements.

If the equipment is used in a different way than what specified by the manufacturer, the protection provided by the equipment may be impaired.

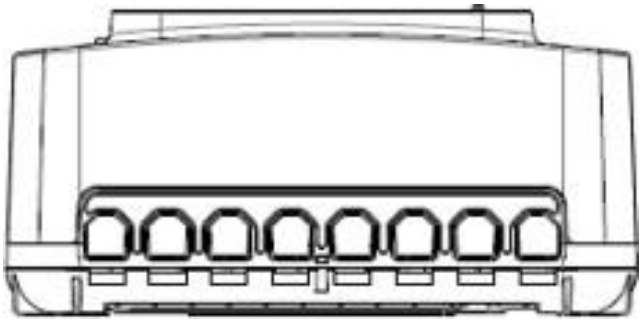
6.2. OPERATING INSTRUCTIONS

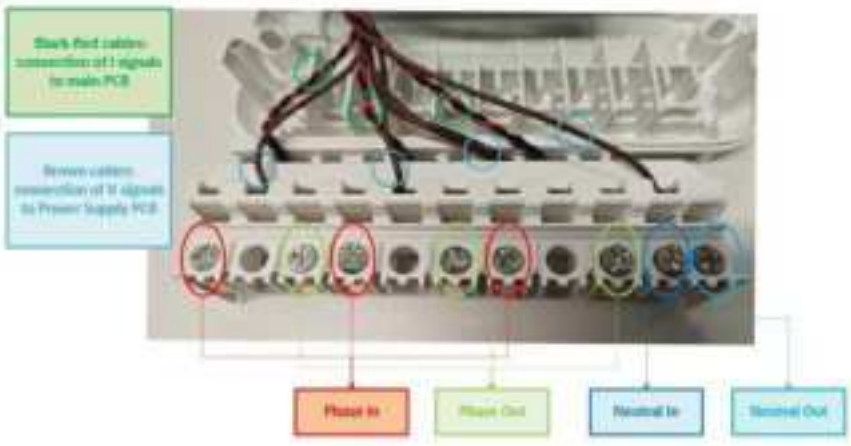


GLOBY-S must be firmly fixed in a vertical position through two holes and one bracket as per DIN 43847 (please refer to the image on the side).

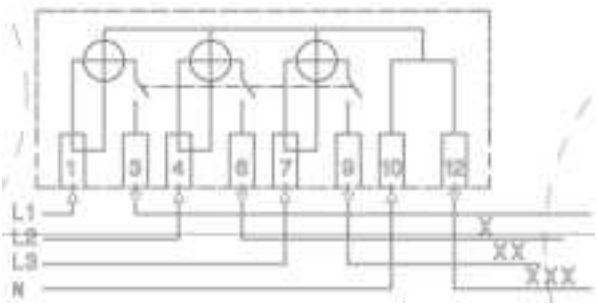
GLOBY-S complies with the DIN connection standard, and it is equipped with input and output terminals on the front. Terminals are protected with a terminal cover on which the connection diagram is indelibly silk-screened.

The input/output terminals support cables with a cross section between 6 and 50 mm^2. The fixing screws of the cables must be tightened with a torque of 6 Nm.

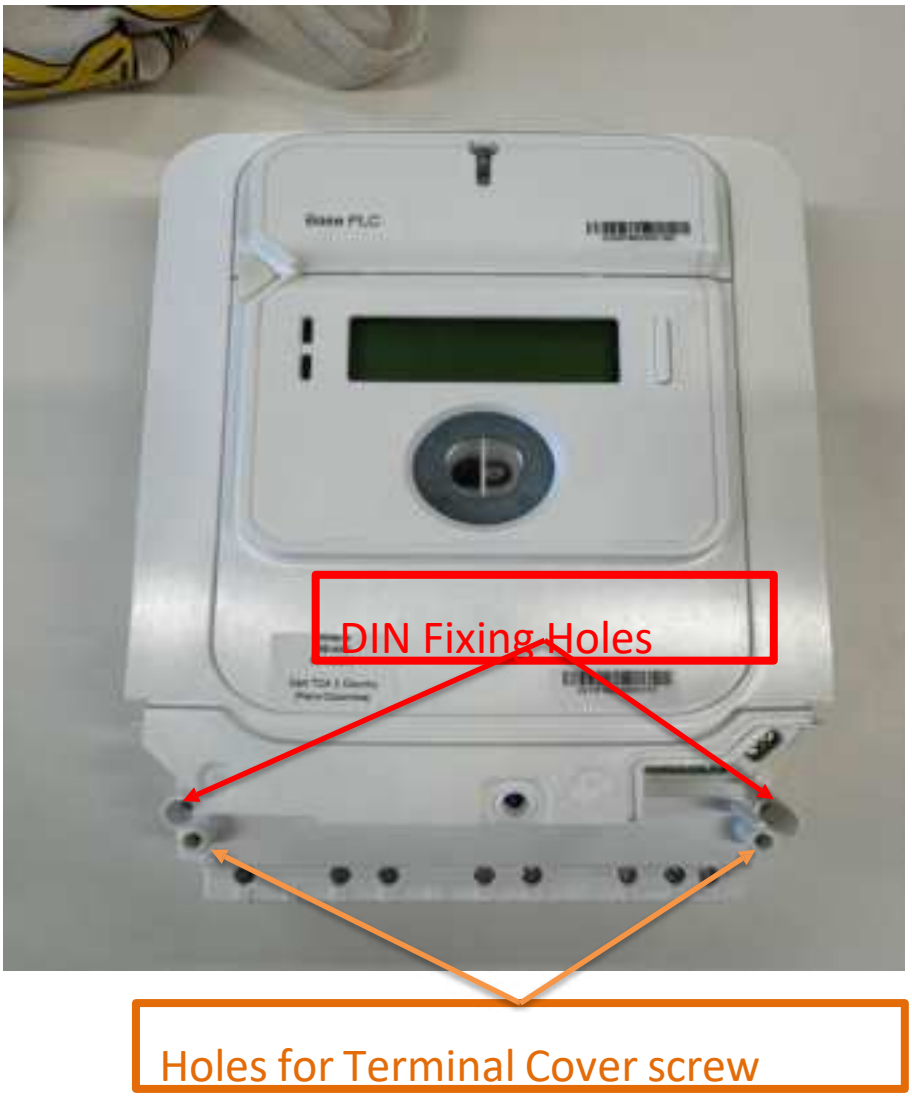




The connection diagram will be also available on the back side of the terminal cover:



Once the input/output terminals have been connected, the terminal cover has to be installed (there are two models of terminal covers: one short and one long. The installation methods are similar) in order to prevent any type of accidental contact with the metal parts connected to the mains voltage. The conductors must be connected to the terminals only by authorized and qualified personnel.



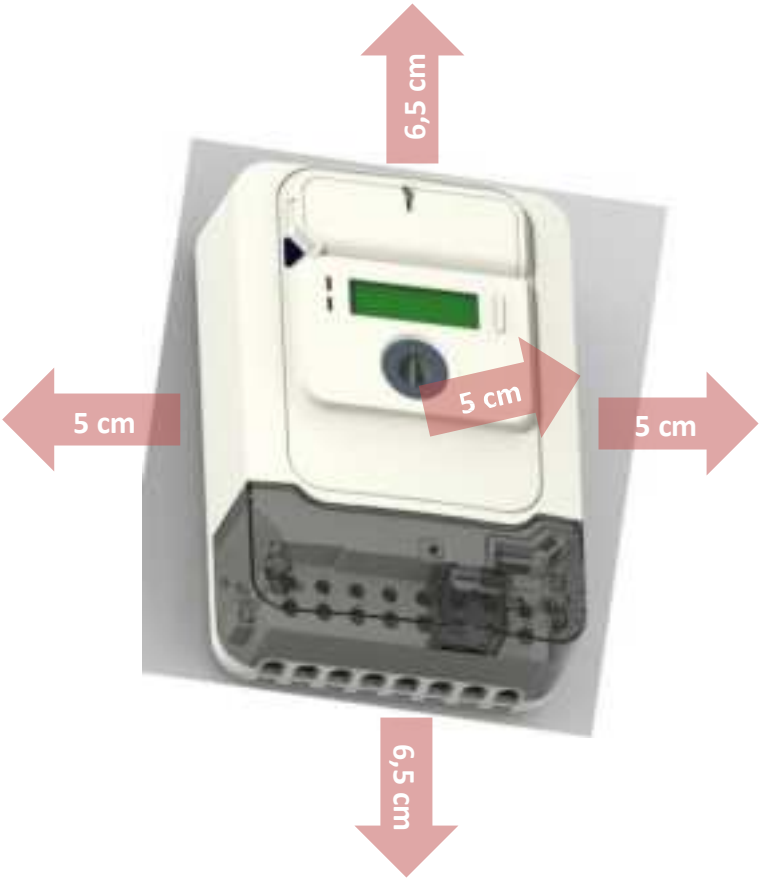
Once the input/output terminals have been connected, the terminal cover has to be installed (there are two models of terminal covers: one short and one long. The installation methods are similar) in order to prevent any type of accidental contact with the metal parts connected to the mains voltage. The conductors must be connected to the terminals only by authorized and qualified personnel.

Once the terminal cover has been installed and fixed through a sealabel screw it can be removed only by authorized and qualified personnel.

Unauthorized removal of the terminal cover causes the relay to open and the activation of an alarm in the meter. Only the intervention of authorized personnel will be able to allow a new closure of the meter relay.

During the installation, the installer must ensure the minimum distances to allow the meter to cooling properly and not overheating. The minimum distances are:

- On the lateral sides → 5cm
- On the top → 6,5 cm
- On the bottom → 6,5 cm
- On the front side → 5 cm



7. DOCUMENTATION

7.1. INTRODUCTION

The "GLOBY-S" is a bi-directional Polyphase electronic energy meters for the measurement of active and reactive energy (a.c. current) that support remote communication implementing G3 Hybrid communication protocol (it means that is able to communicate via PLC or via RF depending on the network topology.

The meter is able to operate as part of a remote controlled system and in a "stand alone configuration (without the requirement for remote communications)".

The meter is an instrument that, once fixed in the point of use during the installation, remains stationary and cannot be moved during its operation.

In the picture on the side, a sample of "GLOBY-S" is showed.

Note: Depending on some customizations, the layout may be slightly different (additional markings, other terminal cover).

7.2. MANUFACTURER INFORMATION

The manufacturer of the "GLOBY-S" is Gridspertise s.r.l., Via Ombrone, 2 – 00198 – Rome (Italy)

7.3. EQUIPMENT CHARACTERISTICS

The electrical characteristics of the CE are the following:

Type	Nominal Voltage (Vn)	Reference Frequency (Hz)	Reference currents (A)				
			Starting I_{ST}	Minimum I_{MIN}	Transitional I_{TR}	Refence I_{REF}	Max I_{MAX}
Polifase Polyphase	3x120/208V, 3x220/380V, 3x230/400V, or 3x127/220...3x230/400V	50 or 60	0,02	0,01	0,5	1	20

7.3.1. VOLTAGE FIELD

- Nominal voltage Vn
- Operating range 0,80 Vn ÷ 1,15 Vn
- Limit range of operation 0,0 Vn ÷ 1,15 Vn

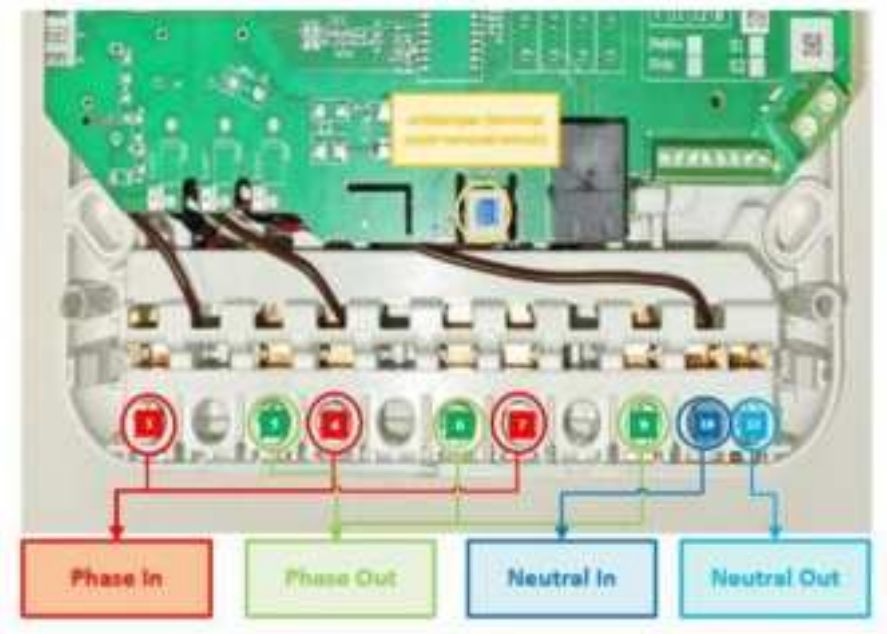
- **MAIN SUPPLY OVERVOLTAGE**
  - Permanent 130% Vn
  - Temporary (0,5 s) 190% Vn

7.4. INPUT AND OUTPUT CONNECTIONS

The input and output terminals are compliant with MID.

Each meter is provided with information indicating the correct way of connecting main terminals. The identifications of the terminal blocks are reproduced in the proximity of the terminals in permanent way. In addition, the CE is provided with all information for the installation.

In the followings pictures are showed the input/output terminals of a "GLOBY-S" prototype.



All terminals are clearly, unequivocally and indelibly indicated in the meter on its front face in proximity of the output terminals. They are marked from left to right (with the meter in operating position) showing the function of the connected wire as follows:

1 -> Phase R line input

3 -> Phase R line output

4 -> Phase S line input

6 -> Phase S line output

7 -> Phase T line input

9 -> Phase T line output

10 -> Neutral input

12 -> Neutral output

The material used for the output terminal is compatible with both aluminium and copper cables.

The power- output terminal block has screw terminals, for conductors cross area:

- from 6 mm^2 to 50 mm^2;

The tightening torque of the screws to fix the output terminals has to be 1.8 Nm.

The output terminals are segregated in order to prevent the risk of producing short circuit condition between adjacent terminals during the installation and connection of the meter.

The conductors have to be connected to the input and output terminals only by qualified and authorized personnel (for more detail, please refer to section 6).

7.5. PROTECTIVE CLASS

The meter is compliant to protective class II.

7.6. METER COMPARTMENTS AND PROTECTION DEGREE

Base and Cover of the meters are designed in order to segregate in independent compartments the below modules and components:

- Measurement and electronics;
- Output terminal blocks.

The CE is intended for indoor use.

For each module the appropriate protection degree, according CEI EN 60529, is guaranteed, specifically:

- IP 54 for PCB and electronics;
- IP 54 for current transducer;
- IP 40 for cut-off device compartment;
- IP 20 for output terminal blocks area when cables are installed (as per EN 60898).

The case is such that possible deformations do not impair the meter and normal breaker operations and the prescribed protection degrees.

Electromechanical parts of the meter are assembled in order to make it impossible to open the meter without producing visible damaging.

The terminal block cover is an essential part of the equipment and it is fixed with one sealabel screw to the meter case.

When the terminal blocks cover is properly installed, it will prevent any accidental contact with metallic parts electrically connected to the main voltage. The access to the terminal blocks is allowed only by deliberately removing the above cover.

Electromechanical parts are impenetrable to solid foreign bodies.

7.7. MATERIALS

All electromechanical parts (including input and output terminals) have the following characteristics:

- Polycarbonate 10% glass fiber;
- Made of synthetic resin suitable for recycling (related symbol is molded on bigger ports);
- Colour light resistant;
- Heat and flame resistant (class V0 in accordance with UL94);
- Low emission of corrosive and toxic gases and smokes;
- the case shows no deformations, brittleness process or surface hardness reduction, in the temperature range from –25°C to +100 °C and is suited to withstand up to -40°C temperature.

The transparent window (display) is made with a plastic material that is not affected by direct solar radiations. The transparency of the window is assured over the lifetime of the meter when installed indoor and at rated conditions.

All the materials comply with the European Directive 2011/65/UE (RoHS) dealing with the restriction of the use of certain hazardous substances in electrical and electronic equipment.

7.7.1. CLIMATIC CONDITIONS

The **temperature operational range** for the CE is from -40°C to +70°C (for indoor installation).

All meter capabilities are operational when in the previous specified range.

7.8. INFORMATION FOR USE

The CE "GLOBY-S" is a typical bi-directional smart - meter with the following functionality:

1. *It operates in remote controlled mode and in stand-alone mode*
2. *Active energy and Active power measurement, positive and negative*
3. *RMS current and RMS voltage measurement*
4. *Reactive energy and Reactive power measurement in all four quadrants*
5. *Load profile recording, for active and reactive energy in all four quadrants*
6. *Management of customer contracts for billing purposes*
7. *Management of weekly tariff profiles based on different types of tariffs and daily time intervals*
8. *Management of a seasonal tariff program*
9. *Management of programmable public holidays*
10. *Management of billing periods. For each billing period is stored, measurement data, power maximum demand and time stamp of the billing period closure.*
11. *Management of daily closure*
12. *Remote communication with DCU or central system (according to the communication module)*
13. *Customer available power threshold is remotely programmable*
14. *Display of consumption data and service communications (displayed data are those measured by the meter).*
15. *The meter allows two display modes: automatic and manual. The default mode is the automatic one which cyclically shows the basic information for customer without the need to interact with the meter. Through the manual mode it is possible to activate submenus (by pressing the push button) in which additional information is shown to support technical and qualified personnel (date, time, software version…).*
16. *Remote programming and initialization of tariff system and contractual parameters*
17. *Remote synchronisation of Clock/calendar. Synchronisation doesn't affect historical data and it can be managed to prevent difference of more than a programmable threshold (e.g. 3 minutes) between the official time and the time of the meter.*
18. *Clock/calendar of the meter is configurable in a flexible way: it can be referred to local time (according to national standard for quality of service) without variation during of the year or implementing automatically the DST time activation. The time adjustments that can be necessary for other purposes are made by the respective systems of each Distribution Company, without affecting the time settings of the SMMC components.*
19. *Remote supply disconnection and enabling of manual/automatic connection by means of a cut-off device*
20. *Zload functionality;*

21. *Storage of configuration data and metrological information even without power supply for the entire lifetime of the meter (storage in non-volatile memory)*
22. *Self diagnostic of the main elements and functional blocks*
23. *Detection and recording of case openings and/or SW modifications*
24. *Detection strong external magnetic fields by magnetometer installed on PCB;*
25. *Optical pulse output device used for testing the meter (active or reactive energy)*
26. *Non-interfering harmonization with other communication systems on LV network*
27. *ZVEI optical port communications compatible with CEI EN 62056-21, required for local communications*
28. *Load modulation management (load shedding)*
29. *Management of firmware downloading procedure;*
30. *Management of traceability of Firmware Download;*
31. *Data and firmware integrity verification in compliance to Welmec guide 7.2 requirements;*
32. *RF spontaneous management*
33. *Event Log;*
34. *Monitoring of microcontroller functionality;*
35. *Voltage variation management: the meter is able to detect and store Low Voltage Variation respect to the nominal value.*
36. *Voltage Interruption management. If a voltage interruption occurs, the meter is able to save – before switching off – all legally relevant information and those relating to the state of the relay (if it is closed or open and if a power limitation is active). In this way, when the power supply is restored, the meter can resume the operation mode it had before the interruption (including communication).*

The use of "GLOBY-S" is aimed at measurement of active and reactive energy (a.c. current).

It is possible:

- to have information about the measurement data (please refer the following section) using the push button and display;

If the equipment is used in a manner not specified in this document, the protection provided by the equipment may be impaired.

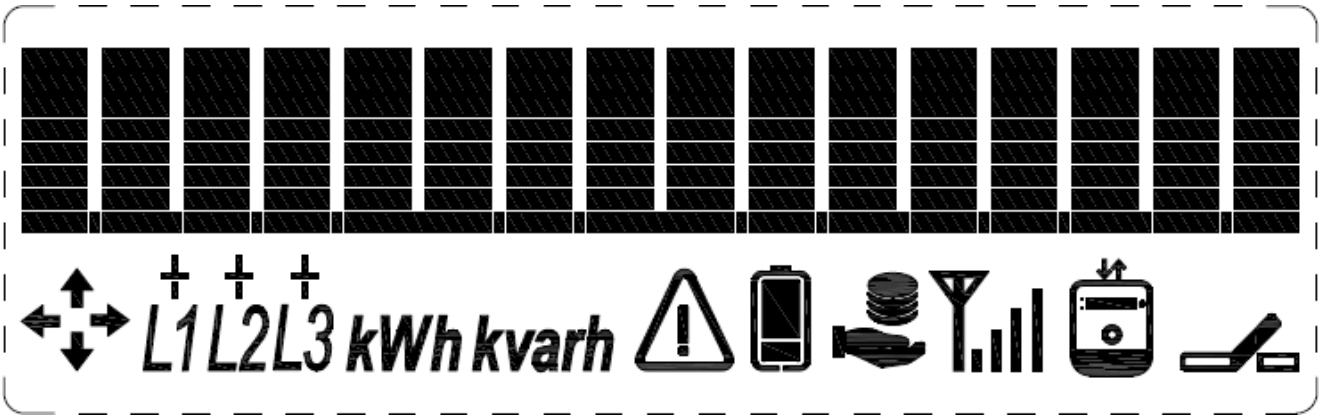
When the CE detects active energy consumption/export, the pulse emitter for active energy will start to blink: one blink every **0.25 Wh** measured.

When the CE detects reactive energy consumption/export, the pulse emitter for reactive energy will start to blink: one blink every **0.25 Wh** measured.

Once installed, the meter can be removed from the place of use only by qualified persons after indication of the LV network distributor, otherwise it must remain stationary, and it cannot be moved from the point of installation for any reason.

7.8.1. DISPLAY

The CE is equipped with a display through which the messages that are configured by the DSO are shown.



The display of these messages can be "automatic" (the information will scroll on the display without any interaction) or "manually" (through the use of the button on the front of the meter).

The "manual" display allows the management a list of messages which can be navigated through presses of the button. The "manual" mode can be integrated with the "automatic" one: in this way a certain number of messages scroll continuously on the display automatically, but by pressing the button another menu will be activated.

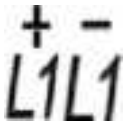
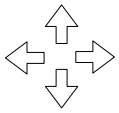
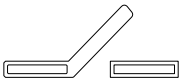
For example, the following information may be displayed:

- Time and date;
- Energy Consumption (active and reactive);
- Active Tariff;
- Active firmware version and digest

The DSO has the faculty to program in different way the information shown on the display in this menu according to its needs and national rules, however, at least the following messages will be always shown:

	Display Message	Meaning
1	0.9.2 dd/mm/yy	Local Date
2	0.9.1 hh:mm:ss	Local Time
3	C.14.0 T}	Currently Active Energy Tariff
4	1.8.0 }}}}}},}}}	Active Import energy totalizer (in conjunction with kWh icon)
5	2.8.0 }}}}}},}}}	Active export energy totalizer (in conjunction with kWh icon)
6	5.8.0 }}}}}},}}}	Reactive energy Q1 (R+L) (in conjunction with kvarh icon)
7	6.8.0 }}}}}},}}}	Reactive energy Q2 (R-C) (in conjunction with kvarh icon)
8	7.8.0 }}}}}},}}}	Reactive energy Q3 (R-L) (in conjunction with kvarh icon)
9	8.8.0 }}}}}},}}}	Reactive energy Q4 (R+C) (in conjunction with kvarh icon)
10	VER. }}.}}.}}.}}	Active FW identifier
11	0.2.8 x/}}}}}}}}	Active FW Signature (splitted in 3 messages)

There are also a series of icons on the display that are activated when certain conditions occur. Below are more details:

SYMBOLS	DESCRIPTIONS
	The phase indicator icon L1 is shown by the meter when the voltage (Vmis) is present. The "+" symbol shall be shown when the meter measures positive active energy on the line phase. The "-" symbol shall be shown when the meter measures negative active energy on the line phase. The icon L1 cannot be programmed externally
	The phase indicator icon L2 is shown by the meter when the voltage (Vmis) is present. The "+" symbol shall be shown when the meter measures positive active energy on the line phase. The "-" symbol shall be shown when the meter measures negative active energy on the line phase. The icon L2 cannot be programmed externally
	The phase indicator icon L3 is shown by the meter when the voltage (Vmis) is present. The "+" symbol shall be shown when the meter measures positive active energy on the line phase. The "-" symbol shall be shown when the meter measures negative active energy on the line phase. The icon L3 cannot be programmed externally
	This symbol is used to show the energy quadrant in use. Active and Reactive energy arrows are shown only if the energy measurements are higher than the creep values.
	The symbol is shown in the meter when the active power register has been displayed.
	The symbol is shown in the meter together with icon kW when the active energy register has been displayed
	The symbol is shown in the meter when the reactive power register has been displayed
	The symbol is shown in the meter together with icon kvar when the reactive energy register has been displayed.
	The warning icon is displayed if any of the programmable flags are set. The icon cannot be programmed externally
	This icon shall be used to show the level of battery in the SM.
	This icon shall show the PREPAYED contract mode. (if this functionality is active)
	This icon shall show the quality of signal of the IOT/cellular network.
	This icon shall be shown if the SM successfully ends the join phase.
	This symbol is shown when the cut-off device results open

	The symbol is shown according to DLC interface activity and status of commissioning of the meter with the AMM system.

The lack of messages on the display can be caused or by the incorrect feeding of the meter (not properly fixing on the input terminals, lack of voltage from the low voltage network) or by a malfunction of the display or of the meter.

If a status that prevents the correct visualization of the messages on the display (malfunction or incorrect installation) is detected, the distributor must be contacted to replace the meter.

7.9. COMPATIBILITY REQUIREMENTS WITH INTERFACES, SUB-UNITS OR MEASURING INSTRUMENTS

GLOBY-S is equipped with:

- ZVEI optical interface compliant with IEC / CEI EN 62056-21 for local communications at 9600 bps (mode C),
- a G3 hybrid modem for remote communications via PLC and RF (in the RED and FCC frequency bands) with transmitted power lower than 0.5 W;
- two pulse emitters (normally used for active energy, but configurable for reactive energy);
- a not used Bluetooth interface (for future implementation of local communications via RF at the communication frequency BLE 2400 MHz ÷ 2483.5 MHz with transmitted power lower than 2,0 mW).

8. MAINTENANCE AND ASSISTANCE

The GLOBY-S does not need maintenance and once that it has failed, it must be replaced by the supplier of the meter.

9. CLEANING

Cleaning of the meter is allowed only with a soft damp cloth. Cleaning is allowed only in upper part of the meter – in region of the LCD. Cleaning is forbidden in the region of terminal cover. Cleaning can be performed only by the DSO"

DANGER: Never clean soiled meters under running water or with high pressure devices. Penetrating water can cause short circuits. A damp cleaning cloth (without cleaning agents) is sufficient to remove normal dirt such as dust. If the meter is dirtier soiled, it should be replaced.

10. CONFORMITY

The GLOBY-S meter complies with the relevant harmonization standards of the European Union:

- **Directive 2014/32/EU (MID)** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making availabel on the market of measuring instruments (recast).
- **Directive 2014/35/UE (RED)** of the European Parliament and of the Council of 16 march 2014 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.

  The RED directive includes compliance with the following European directives:
  - **Directive 2014/30/UE (EMC)** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast).
  - **Directive 2014/35/UE (LVD)**

The conformity marks to the previous directives are among the data on the electronic meter plate, as shown in the images in paragraph 5.1.

Conformity is declared in relation to the following harmonized technical standards to which the meter complies:

- **CEI EN 50470-3** Electricity metering equipment (a.c.). Part 3: Particular requirements – Static meters for active energy (class index A, B, C).
- **EN IEC 62052-11** Electricity metering equipment - General Requirements, Tests and Test Conditions - art 11: Metering equipment.
- **EN IEC 62052-31** Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 31: Product safety requirements and tests
- **EN 62479 - 2010** Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)
- **ETSI EN 301 489-3 (V2.1.1)** ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
- **ETSI EN 300 220-1 (V3.1.1)** Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 1: Technical characteristics and methods of measurement
- **ETSI EN 300 220-4 (V1.1.1)** Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 4: Harmonized Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Metering device soperating in designated band 169.400 MHz to 169.475 MHz
- **ETSI EN 301 489-1 (V2.2.0)** ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU.
- **ETSI EN 301 489-17 (V3.1.1)** ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU.
- **ETSI EN 300 328 V2.1.1** Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU.

- **EN 62311:2008** Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)