gridspertise
accelerating your electric future
GLOBY-M Single Phase Meter

gridspertise GLOBY-M Single Phase Meter Instruction Manual

Contents

gridspertise
accelerating your electric future

gridspertise GLOBY-M Single Phase Meter

- Document Number: DMI A B 007222
- Issue: I
- Date: 05/08/2024
- Drafted by: TD/EP/MTC – M. Castrini, S. Offidani
- Checked by: TD/EP/MTC – A. Signorini
- Approved by: TD/EP/MTC – A. Signorini

AMENDMENT REGISTER

Description of change

- First Issue

NAME

- M.C./S.O.

ISSUE

- I

DATE

- 05.08.2024

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 Single-phase meter belonging to Gridspertise's meter family "GLOBY" named "GLOBY-M". In this document are collected all the information useful for the operator that will have to install the CE 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:

APPLICATION FIELD

- This document is applicable to the alternate current and voltage electronic single-phase meter "GLOBY-M".
- GLOBY-M is a direct single phase bidirectional electronic meter for measuring Active and Reactive Energy on low voltage networks (under 10 kW).
- The frequency supported by meter is 50 Hz or 60 Hz
- The meter is calibrated at the nominal frequency of the network where it is intended to be installed (60 Hz).
- The meter has a standard reference voltage equal to 120V or 220V or 230 V or 240 V or 120V…240V (factory configurable) and reference currents, Istart=0,02 A Imin = 0.25A, Iref = 5 A and Imax = 100 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 relay.

The following table summarizes all the main general information:

Model	***GLOBY-M***
Manufacturer's name	Gridspertise S.r.L. Via Ombrone, 2 – 00198 – Rome – Italy
Type	Bidirectional single phase meter for the measurement of active and reactive energy
Protective class	Double Insulation/Class II
Rated impulse voltage	6000 V CAT III
Utilization category (UC)	UC3
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)
Self-consumption	Voltage circuits: xxx W (@220V) and xxx W (230V) Current Circuits: xxx W
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	IEC 62052 – 11 IEC 62053 – 21 & IEC 62053 – 23 EN 50470 – 1 & EN 50470 – 3 CLC/TR 50579 EN 62052 – 31
Accuracy class: – *Active energy* – *Reactive energy*	– 1 (IEC 62053-21) or B/A (EN 50470-3) – 2 (IEC 62053-23)
Meter Constant	4.000 pulses/kWh 4.000 pulses/kvarh
Refrence Voltage	220V or 230V
Reference current and current range	Istart = 0,02 A Imin = 0,25 A Iref = 5 A Imax = 100 A

REFERENCE REGULATIONS AND STANDARD USED IN THE DOCUMENT

The manufacturer must apply reference standards listed below in the latest edition.

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).*
· IEC EN 60898	*Electrical accessories – Circuit-breakers for over current protection for household and similar.*
· IEC EN 60947-3	*Switches, disconnectors, switch-disconnectors and fuse combination units.*
· IEC EN 62056-21	*Data exchange for meter Reading, tariff and load control – Direct local data exchange.*
· IEC EN 60387	*Symbols for alternating-current electricity meters.*
· IEC EN 62058-11	*Electricity Metering Equipment (a.c.) – Acceptance Inspection –* *Part.11: General Acceptance inspection methods.*
· IEC 62053-61	*Electricity metering equipment (a.c.) – Particular requirements – Part 61: Power consumption and voltage requirements*
· CLC EN 50065-1	*Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148, 5 kHz Part 1: General requirements, frequency bands and electromagnetic disturbances.*
· EN 62059-31	*Electricity metering equipment. Dependability. Accelerated reliability testing. Elevated temperature and humidity.*
· 2014/32/UE	*Directive of the European parliament and of the council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of measuring instruments*
· IEC/EN 62054-21	*Electricity metering (a.c.) – Tariff and load control – Part 21: Particular requirements for time switches*
· Welmec 7.2	*Software Guide*
· IEC EN 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.*
· IEC EN 60529	*Degrees of protection provided by enclosures (IP Code).*
· IEC EN 62059-11	*Electricity metering equipment – Dependability, Part 11: General concepts.*
· IEC EN 62059-21	*Electricity metering equipment – Dependability, Part 21: Collection of meter dependability data from the field.*

· 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.*

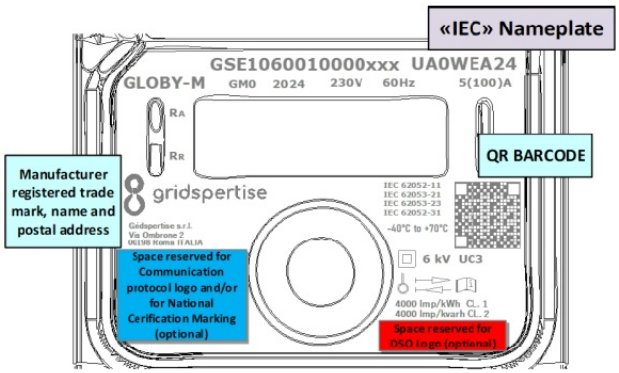
ACRONYMS LIST

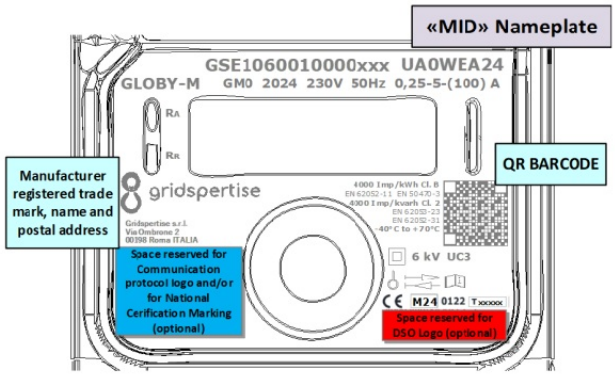
- GLOBY-M: Single-Phase Bi-Directional Electronic Meter
- LVM: Low Voltage Manager
- CERCO: Low Voltage Concentrator
- DLC: Distribution Line Carrier
- HHU: Hand Held Unit
- LV: Low Voltage
- PCB: Circuit board
- LCD: Liquid Circuit Display
- SMMC: Monitoring and control measurement system

MARKING

NAMEPLATE

The external cover of CE is marked with a nameplate that is indelible, non transferable, distinct and legible from outside the meter. On the terminal cover could be included the DSO logo also.



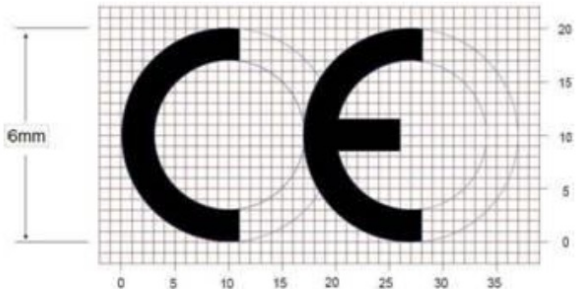


The nameplate reported in the previous pictures are an example that includes relevant and optional information. Other possible layout including additional information can be possible assuring that relevant information according to MID/IEC, Safety and RED will be always present. The explanation of the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

	Description	**Relevant = R** **Optional = O**
GLOBY-M	*Identification of Meter Model*	R
GM0	*Gridspertise Homologation Number of the CE*	R
2024	*Year of manufacturing of the meter*	R
230 V	*Reference voltage* *This field may vary according to the factory configur ation. Allowed values are:* – *120V* – *220V* – *230V* – *240V*	R
50 Hz	*Reference frequency (Hertz)* *This field may vary according to the factory configur ation. Allowed values are:* – *50 Hz* – *60 Hz*	R
5(100)A	*Iref and Imax current of the measuring system*	R (IEC)

“GLOBY-M Single phase Meter Safety Instruction Card”

0,25-5(100)A	*Imin, Iref and Imax current of the measuring system .* *This field may vary according to the factory configur ation*	R (MID)
GSE1060010000xxx	Meter serial number	R
UA0WEA24	*Meter code*	R
4000 imp/kWh	*Meter constant active energy*	R
4000 imp/kvarh	*Meter constant reactive energy*	R
Cl.1	*Meter class indices active energy*	R (IEC)
Cl.2	*Meter class indices reactive energy*	R
Cl. B	*Meter class indices active energy*	R(MID)
-40 °C to 70 °C	*Operating Temperature Range*	R

IEC 62052-11	*Electricity metering equipment (AC) – General requirements, tests and test condition*	O
IEC 62053-21	*Electricity metering equipment – Particular requirements – Part 21: Static meters for AC active energy (classes 0,5, 1 and 2)*	O (IEC)
IEC 62053-23	*Static meter for measurement of electrical reactive energy for alternate current.*	O
IEC 62052-31	*Electricity metering equipment (a.c.) – General requirements, tests and tests conditions – Part 31: Product safety requirements and tests*	O(IEC)
EN 50470-3	*Electricity metering equipment (AC) – Particular requirements – Static meters for active energy (class indexes A, B and C)*	O(MID)
EN 62052-31	*Electricity metering equipment (a.c.) – General requirements, tests and tests conditions – Part 31: Product safety requirements and tests*	For safety Standard
	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	*Rated impulse voltage*	R
UC3	*Utilization Category (UC)*	R
Space reserved for Communication protocol logo and/or for National Cerification Marking (optional)	*Space reserved for national type approval marking (if any) and for communication protocol marking (if any)*	Depending on the installation country
	*Meter graphic symbol with one measuring element*	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
	*This symbol warnings the installer to consult local regulations and the installation manual for the necessary protection requirements before installation.*	R

CUT-OFF DEVICE

- The single-phase meter GLOBY-M integrates a cut-off device used to control the power supply. The cut-off device is implemented by a latching relay. The meter is designed in order to integrate latching relays provided by different vendors.
- The relay will be provided already assembled with input/output terminals, shunt and Current Transformer.

The re-connection of cut-off device, can be performed in two ways:

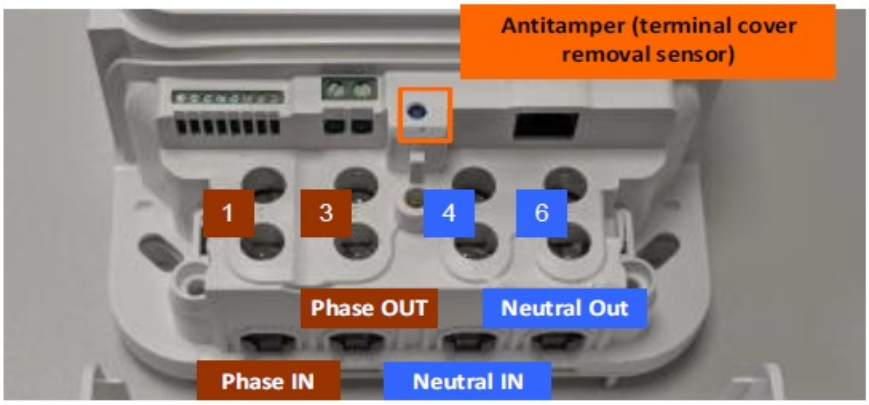
- Locally: pushing the meter's front button;
- Remotely: via remote protocol command or automatically, after the circuit ZLOAD has checked the variation of impedance between phase- neutral or phase – phase conductors (It is considered as an option for the production of meters). It can be performed
- by the customer opening and closing the main breaker installed after the meter in the customer network.
- This device has no protection capabilities and it can be used to "open" or "close" the output terminals of the meter through appropriate software commands (e.g. expiration of the contract, tampering detection, bad payer, power consumption higher than a limit…)
- The customer has no way of opening the relay through any type of command, but it can only, by pressing the button, close it (if the closure is enabled by the software).
- The "open" circuit position is indicated in the meter display by activating a dedicated icon.
- When the relay is open, the icon shown in the side image is active on the display.
- In this case, the output terminals are not powered.

When the relay is closed, the icon previously showed is not active on the display. In this case, the output terminals are ***powered.***

TERMINALS

GLOBY-M's input and output terminals are located on the front side of the meter (protected through the terminal cover) and they are marked with simbols "1", "3", "4" e "6" to indicate:

- 1 -> Phase line input
- 3 -> Phase line output
- 4 -> Neutral input
- 6 -> Neutral output



For more details please refer to section 7.4.

PACKAGING

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 CE, 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.

SAFETY INSTRUCTIONS

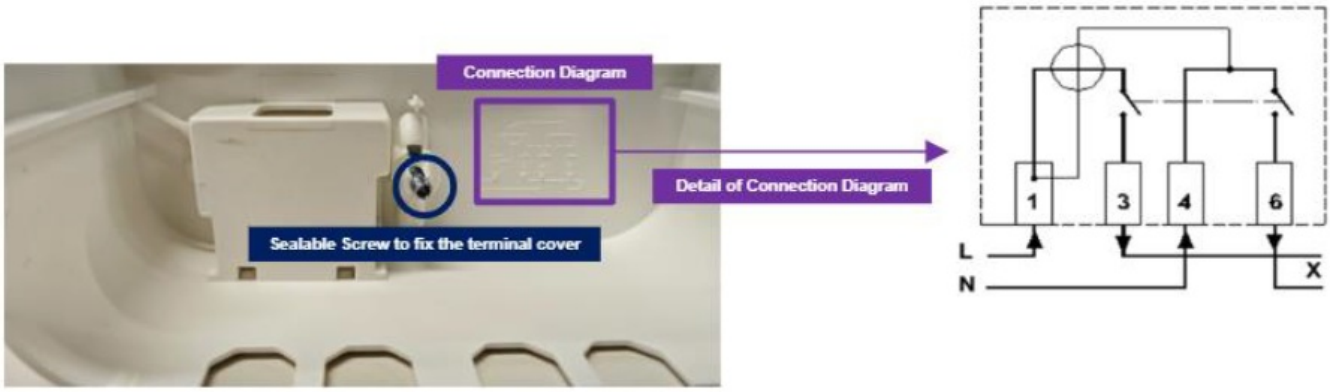
Read all available product documentation before assembling and commissioning. Incorrect handling of this

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.

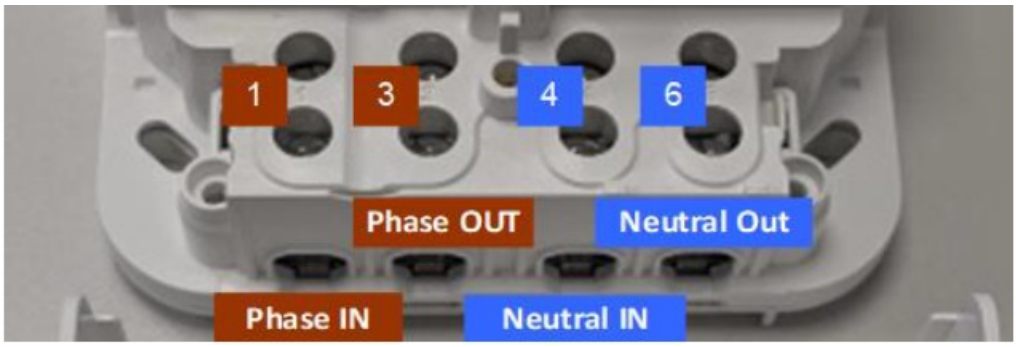
OPERATING INSTRUCTIONS

GLOBY-M must be firmly fixed in a vertical position through two holes and one bracket as per DIN 43857 (please refer to the image on the side).

GLOBY-M 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 4 and 50 mm2. The fixing screws of the cables must be tightened with a torque of 6 Nm.

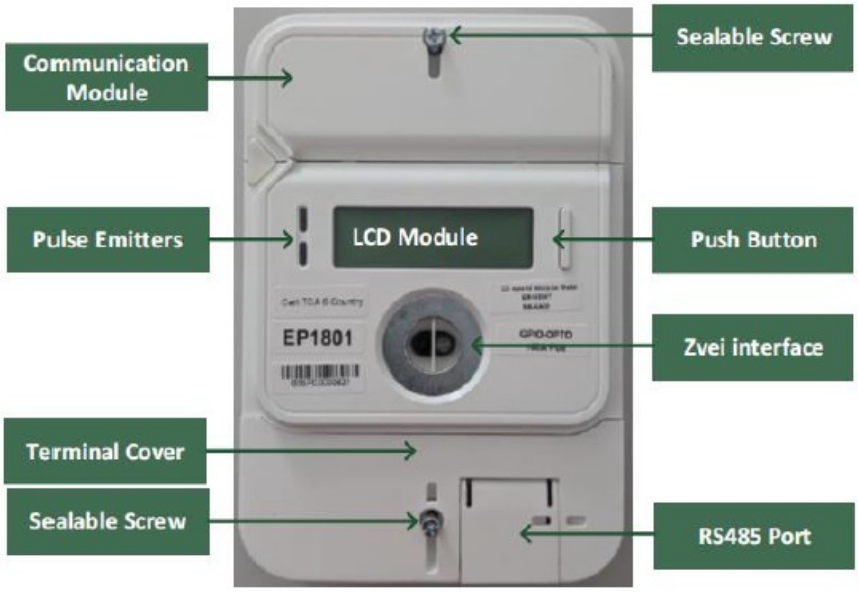


Once the input/output terminals have been connected, the terminal cover has to be installed in order to prevent any type of accidental contact with the metal parts connected to the mains voltage. The conductors must be connected to the terminals only by authorized and qualified personnel. Once the terminal cover has been installed and fixed through a sealable 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.

DOCUMENTATION

INTRODUCTION

- The “GLOBY-M” is a bi-directional single phase electronic energy meters for the measurement of active and reactive energy (a.c. current) that support multi modulation communication on Distribution Line Carrier.
- 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 a sample of “GLOBY-M” is showed.



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

MANUFACTURER INFORMATION

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

EQUIPMENT CHARACTERISTICS

The electrical characteristics of the CE are the following:

Type	***Reference Voltage*** **(V)**	***Reference Frequency*** **(Hz)**	**Reference currents (A)**				
			Starting **IST**	***Minimum*** **IMIN**	***Transitional*** **ITR**	**Refence IREF**	**Max IMAX**
Single phase	120 V / 220 V / 230 V / 240 V	50 Hz / 60 Hz	0,02	0,25	0,5	5	100

VOLTAGE FIELD

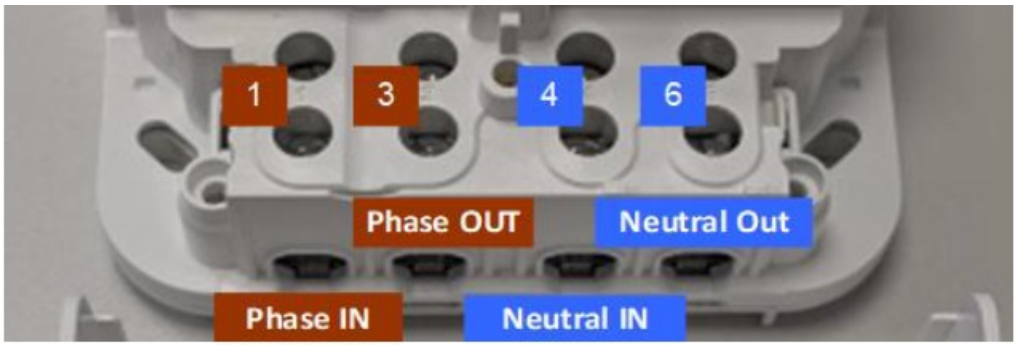
- Nominal voltageVn = 120 V or 220 V or 230 V or 240 V
- Operating range0,80 Vn ÷ 1,15 Vn
- Limit range of operation 0,0 Vn ÷ 1,15 Vn

MAIN SUPPLY OVERVOLTAGE

- Permanent 130% Vn
- Temporary (0,5 s) 190% Vn

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-M” 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 line input

- 3 -> Phase line output
- 4 -> Neutral input
- 6 -> 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 4 mm2 to 50mm2;
- The tightening torque of the screws to fix the output terminals has to be 6 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).

PROTECTIVE CLASS

The meter is compliant to protective class II.

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;
- Relay;
- 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.
- 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 sealable 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.

The CE is not equipped with:

- auxiliary power supply

- supply for external devices
- replaceable batteries

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 moulded 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.

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.

INFORMATION FOR USE
The CE “GLOBY-M” 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…).

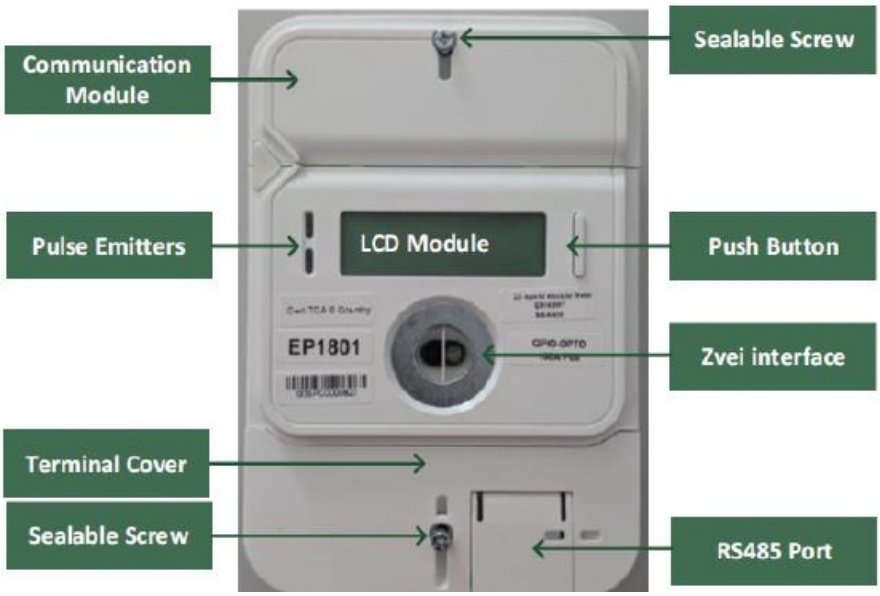
16. Remote programming and initialization of tariff system and contractual parameters
17. Remote synchronisation of Clock/calendar. Synchronisation doesn't affect historical data and it can be managed to prevent difference of more than a programmable threshold (e.g. 3 minutes) between the official time 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-M" is aimed at measurement of active and reactive energy (a.c. current). It is possible:

- to have information about the contractual/billing data (please refer the following section) using the push button and display;
- power on the output terminals using the push button (only if the closure of the relay is enabled).

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 will start to blink: one blink every 0.25 Wh measured. The pulse emitter is normally linked to the measurement of active energy, however, for service reasons, it is possible to configure the meter to monitor the reactive one. In this way, when the meter

detects consumption / production of reactive energy, the pulse emitter will begin to flash: it will flash every 0.25 varh 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.



DISPLAY

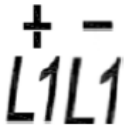
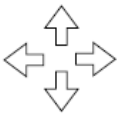
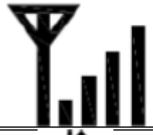
The CE is equipped with a display through which the messages that are configured by the DSO are shown. The display of these messages can be “automatic” (the information will scroll on the display without any interaction) or “manually” (through the use of the button on the front of the meter). The “manual” display allows the management of a “tree” menu, which can be navigated through short and long presses of the button (the short press goes to the next message, while the long one activates another submenu). 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;
- Power Consumption;
- Instantaneous Voltage and Current
- Etc…

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:

- Date and time;
- Positive active energy totalizer
- Software version and checksum

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 line indicator icon L2 is not used by the single phase meter.*
	*The line indicator icon L3 is not used by the single phase meter.*
	*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 after pressing the button can be caused or by the incorrect feeding of the CE (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.

CUT-OFF DEVICE

Through the relay located inside the meter it is possible to power on or power off the output circuit of the meter. Other details on the Cut-off device are available on section 5.2 The meter implements a software functionality that can manage the disconnection of the customer in the following cases:

- Instantaneous absorbed power is higher than a programmable limit (chosen in conformity to the Imax of the meter);
- Current absorbed is higher than the available based on the contractual power;
- The customer is a bad payer;
- The customer is out of contract;
- The meter detects a tampering action.

In the two three cases e in the case of magnetic tampering detection, it is possible to power on again the meter without the need to contact the supplier. In the other cases, the output terminals cannot be power on again without the intervent of the DSO of the meter.

COMPATIBILITY REQUIREMENTS WITH INTERFACES, SUB-UNITS OR MEASURING INSTRUMENTS

GLOBY-M is equipped with:

- ZVEI optical interface compliant with IEC / CEI EN 62056-21 for local
- The pulse emitters, one for active energy and one for reactive energy

Communication module:

- **GNG3 – HYBRID RF + PLC MODULE:**
- This module implements a hybrid 915MHz RF module, FCC and CENELEC-A band PLC module that can be used to allow hybrid communication between the meter and the low voltage concentrator. The hybrid module is on a specific board with its own µC,
- RF transceiver and RF power amplifier; this board is connected to the meter µC by UART port. Hybrid module µC embeds a BE controller for Bluetooth communication only for operation.

This device is installed, already assembled in the meter, during the manufacturing process and are certified according to the applicable regulations for radio modules (RED/FCC).

MAINTENANCE AND ASSISTANCE

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

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 more dirty soiled, it should be replaced.

CONFORMITY

The GLOBY-M 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 harmonization of the laws of the Member States relating to the making available on the market of measuring instruments (recast).
- Direttiva 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.
- 2014/32/UE Directive of the European Parliament and of the council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of measuring instruments

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 harmonization 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:

- IEC EN 62052-11 Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 11: Metering equipment
- IEC EN 62053-21 Electricity metering equipment (AC) – Particular requirements – Part 21: Static meters for active energy (classes 1 and 2)
- IEC EN 62053-23 Electricity metering equipment (AC) – Particular requirements – Part 23: Static meters for reactive energy (classes 2 and 3)
- IEC 62053-61 Electricity metering equipment (a.c.) – Particular requirements – Part 61: Power consumption and voltage requirements
- CEI EN 50470-1 Electricity metering equipment (a.c.). Part 1: General requirements, tests and tests conditions – Metering equipment (class index A, B, C).
- CEI EN 50470-3 Electricity metering equipment (a.c.). Part 3: Particular requirements – Static meters for active energy (class index A, B, C).
- CLC EN 50065-1 Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz Part 1: General requirements, frequency bands and electromagnetic disturbances.

- IEC EN 60529 Degrees of protection provided by enclosures (IP Code)
- EN 62056-21 Electricity metering – Data exchange for meter reading, tariff and load control – Part 21: Direct local data exchange
- IEC EN 62058-11 Electricity metering equipment (AC) – Acceptance inspection – Part 11: General acceptance inspection methods
- IEC EN 62058-31 Electricity metering equipment (AC) – Acceptance inspection – Part 31: Particular requirements for static meters for active energy (classes 0.2S, 0.5S, 1 and 2.
- EN 62059-31 Electricity metering equipment. Dependability. Accelerated reliability testing. Elevated temperature and humidity.
- 2014/32/UE Directive of the European parliament and of the council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of measuring instruments
- IEC/EN 62054-21 Electricity metering (a.c.) – Tariff and load control – Part 21: Particular requirements for time switches
- Welmec 7.2 Software Guide
- IEC 62052-31 Electricity metering equipment (AC) – General requirements, tests and test conditions
- Part 31: Product safety requirements and tests
- EN 62311 – 2020 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)
- EN 62368-1: 2020 Audio/video, information and communication technology equipment Part 1: safety requirements
- ETSI EN 301 489-3 (V2.3.2) 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
- 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 (V2.2.3) 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.

Documents / Resources

	gridspertise GLOBY-M Single Phase Meter [pdf] Instruction Manual GLOBYMGNG3, 2BLES-GM0943, gm0943, GLOBY-M Single Phase Meter, GLOBY-M, Single Phase Meter, Phase Meter, Meter

References

- **User Manual**