Technical Guide
Open Meter

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THE GETIS 2.0 THREE-PHASE ELECTRONIC METER

AcegasApsAmga

The electronic meter

The Gridspertise electronic meter lets electricity distributors implement a remote management system of some of the world's most advanced smart meters, in this way increasing simplicity, transparency, speed, and interaction methods and contractual relationships between power companies and their customers.

The "2.0" electronic meter enables the implementation of European regulation indications included in the European Commission's so-called "Third Energy Package".

Today **Gridspertise** has developed the second generation meter, and these new "2.0" electronic meters will gradually replace those previously installed.

The second-generation meter will bring the most modern metering technologies to the homes and businesses of customers connected in the power grid, offering increasingly timely and accurate information and enabling innovative services that improve the management of customer needs and help them optimize consumption.

METER QUALITY

This electronic meter complies with the MID Directive - European Directive 2014/32/EU (implemented by Legislative Decree 84/2016) - on the harmonisation of Member State legislation regulating the entry in the market of measurement instruments and their application in measurement functions for reasons of public interest, environmental protection, consumer protection, and much more.

In accordance with the MID Directive, these meters have been certified by a notified body and accredited at European level in compliance with the European Union legislation applicable: In particular, the compliance assessment process included the execution of laboratory tests in the same way as for the previous generation in accordance with the relevant harmonised Union legislation: CEI EN 50470-1, CEI EN 50470-3.

In order to ensure high quality levels in the production process, also the electronic meter production sites are subject to a certification process under the European MID Directive and regular surveillance visits by the notified body. Final inspection and acceptance tests are also carried out at each production site in order to ensure the metrological quality of each batch produced. Thanks to these quality guarantees, the new Gridspertise electronic meter bears both the CE marking and the supplementary metrological marking consisting of the capital letter M and the last two digits of the year of marking inscribed in a rectangle. These two marks certify the conformity of the meter to the MID European Directive and to Legislative Decree 84/2016 that implements the same.

Glossary

DISTRIBUTOR

Power distributor to end customers.
The distributor’s activities include:

- connection, consisting in connecting customers and producers to the power mains that the concessionaire manages, develops, and services;
- distribution, consisting in the transport and transformation of electricity respectively withdrawn and fed-in by customers and producers connected in the power grid with the expected characteristics (e.g. power and voltage);
- metering, consisting in installing and servicing meters, reading and recording power measurements and making them available.

VENDOR

The vendor is the natural or legal person who sells electricity to end customers and issues the bill. The vendor is also called the trader or supplier.

PRODUCER

The producer is the natural or legal person who produces electricity, who is or will be the owner of the Delivery Point and who will have the electricity production plant at disposal.

END CUSTOMER

The end customer is the natural or legal person who does not conduct distribution activities and who withdraws electricity from the distributor's power mains (possibly through internal user networks and direct lines) for his/her own end use.

CONTRACTUALLY STIPULATED POWER

This is the power level indicated in the contracts and made available by the supplier. This power value is defined according to the customer's needs at the moment of contract stipulation with the vendor on the basis of the type (and number) of electrical appliances normally used. For most homes, and therefore for domestic customers, the power stipulated is 3 kW.

AVAILABLE POWER

This is the maximum power withdrawable.

KWH (KILOWATT HOUR)

The KWH is the unit in which electricity is measured, representing the power absorbed in 1 hour by an appliance with a power of 1 kW. Power consumption is invoiced in kWh in the electricity bill.

KW (KILOWATT)

The KW is the unit in which electrical power is measured. The power used and the power available are expressed in kW in the electricity bill.

TIME SLOTS

Electricity is priced depending on when it us used: during the day, when the demand for electricity is greater, it costs more; in the evening, at night, and during holidays, it costs less.

METER READING

The meter reading is the number that appears on the meter display on a certain date (reading date) detected directly by the distributor and communicated to the supplier.

CONSUMPTION

These is the KWH value consumed between two readings: the difference between the value indicated by the meter at the latest reading and the value indicated by the meter at the previous reading.

The Remote Management System

The Remote Management System is the solution for remote electronic meter management. The electronic meter, or smart meter, the concentrator (installed in medium- to low-voltage transformer booths) for the collection of the data recorded by the meters connected to it, and the central system for the remote management of the meters and the processing of billing information are all part of the system's sophisticated architecture. The central system manages the operation of the entire system and integrates operations with the distributor's business processes.

The meter and the data concentrator communicate through waves conveyed on the distribution network (Power Line Communication - PLC or through RF channel 169 MHz), while the concentrator and the central system communicate through the public telephone network (GSM, GPRS, UMTS or LTE).
The operations centre manages the acquisition of measurement data and secure contract operations.

THE ADVANTAGES OF THE NEW SYSTEM

The new remote management system and its technological innovations allow **even more benefits than first generation meters**.

Value-added services for the end customer.

- The new metering and remote management system creates the conditions for greater awareness and information on energy use, thus enabling new services.
  The daily availability of much more data on consumption – and production, whenever power generators (photovoltaic panels, for example) are present – permits the extraction of detailed reports also extended to additional technical parameters and allows "when" and "how" power is consumed to be analysed in depth:
  This allows customers to plan their daily activities better and market operators to formulate commercial proposals more suited to real needs.

More efficient Power Grid management.
The new remote management system also enables improvements in overall Electricity Service quality by increasing the data available for more efficient Power Grid management: voltage values can be managed in greater detail and faults can be detected faster for example, in this way reducing the duration of interruptions.

A WAY TO UNDERSTAND AND MANAGE CONSUMPTION BETTER

This button can be used to display various information on the liquid crystal display.

For example, you can:

- check how much power you have consumed, divided into different time slots;
- examine the daily consumption trend in detail thanks to the measurement data divided by each quarter of an hour;
- see the power actually being absorbed at any time.

Answers to Frequently Asked Questions (FAQ)

Where will the new meter be installed?

The new meter will be installed in exactly the same place where the old meter is currently located.
Therefore, no modifications to the existing housing are necessary.

What advantages does replacing an old meter with a new one bring me?

The new meter introduces new features and provides access to detailed consumption information, such as checks on how much power you have consumed divided into different time slots, on daily consumption levels in detail thanks to metering data provided for each quarter of an hour, and on how much power has been absorbed at any time.
This information is visible on the display, but if your provider enables this service, data and graphs on your consumption can be viewed and downloaded via web or with an app on your smartphone. You will also continue to benefit from all the previous meter's functions: without any need to communicate the meter reading, you can take advantage of the prices for time slots and see the power effectively withdrawn at any time.

What happens when higher power loads are withdrawn?

As with the previous electronic meter, the new electronic meter allows the availability of 10% higher power than the value stipulated in the contract for unlimited time. Customers with 15 kW contracts will be able to withdraw up to 16.5 kW power with no limits on time, for example. If this 16.5 kW consumption is exceeded, an additional 20.9 kW can be withdrawn for at least another three hours. If more than 20.9 kW is withdrawn, the power control device will trigger in two minutes.

The electronic meter's power control device has triggered. Why?

There are three possible reasons:

A) too many electrical appliances are being used at the same time and consuming more power than allowed;

B) there is a malfunction in the system or in one of the appliances being used

C) all the electric power stipulated in the contract (15 kW) is being taken from only one electric phase.

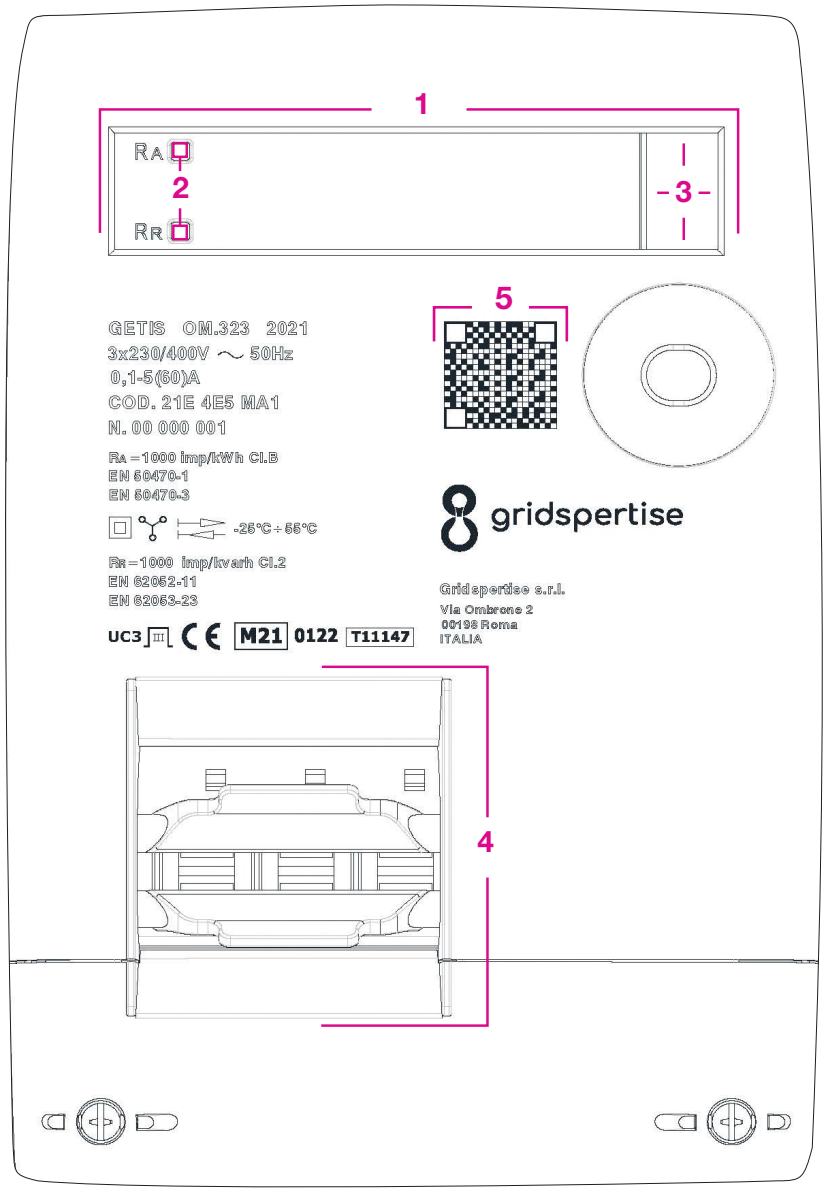
Is the new meter equipped with a "life saver"?

Coherent with CEI standards, like the old meter, the new meter is not equipped with any "life-saver" function and therefore cannot replace the devices specified by the law for the safety of indoor electric systems.

How is the data collected by the new meter processed?

The distributor uses the information and/or data acquired by the meters for purposes strictly linked to the performance of activities regarding services of electric connection, distribution and metering. Said information and/or data will be communicated by the distributor only to the subjects to whom they are due by law or the competent authorities; metering data will be communicated to vendors only and exclusively by the methods and channels defined by AEEGSI.

A closer look at the meter



1. The Display

The display at the centre of the electronic meter shows a great deal of information. Press the reading button on the right (3) again and again for all the information below.
Always pay attention to the indication in the display's lower left corner

- when the symbol "L1L2L3" appears, the meter is operating correctly;
- when the symbol "!" appears and the electricity is on in the house, this symbol can be ignored.

Otherwise, if a power failure has occurred, contact our operators at the Toll-Free number indicated on the bill.

2. Consumption indicators

These are the two small LED lights on the left next to the display (1).
When flashing, electricity is being consumed.
The higher the consumption, the faster they flash.

3. Read button

The button allows you to query the meter's display (1):

- press the button to switch to the next element;
- prolonged press of the button: list and explanation of Symbols;
- no press of the button for 15 seconds: return to Start.

4. Power supply control device

This is the switch on the left at the bottom.
Caution:
As in the previous meter, this device is no substitute for safety devices, such as the automatic circuit breaker specified by current legislation, neither does it replace the disconnection, protection and manoeuvring devices specified by technical regulations (CEI 64-8 Standard).

N.B. THE QR CODE (5.) is for the exclusive use of Gridspertise.

METER CONSULTATION MENU STRUCTURE

1. GENERAL INFO

1.1. POD Code*

1.2. Contractually stipulated power*

1.3. PESSE Group*

1.4. Time slot

1.5. Instantaneous power

2. VENDOR INFO

2.1. Customer Code**

2.2. Vendor's Commercial Name **

2.3. Vendor's contact telephone number **

2.4. Contract Start Date **

2.5. Reason for current limiter triggering **

* These messages can be configured to the Power Distributor's requirements, and for such reason the sequence and methods of display of these messages may vary depending on the configuration chosen by the latter.

** This information will not be displayed on the display unless explicitly requested by the vendor.

Pressing the button in succession permits the consultation of the following information on the display.

1. GENERAL INFO

WHAT YOU'RE LOOKING FOR	WHAT YOU SEE ON THE DISPLAY	WHAT IT MEANS
POD*	IT001E123456789	This code shows the power delivery point and the position of the meter.
Contractually stipulated power*	Pot. Contr.= 003,0	This is power stipulated in the contract in force expressed in kW (kilowatts).
PESSE Group*	XXX XXX XXX	PESSE is the acronym for Emergency Plan for the Safety of the National Electricity System, the group to which the customer is linked for a potential scheduled power disconnection ordered by TERNA when the emergency plan is activated.
Time slot in progress*	Time slot F3...	This is the price time slot to which meter readings refer. A maximum 6 price times slots are available during the day.
Instantaneous power*	Inst. Pow. = 013,200	These are the kW withdrawn at the moment of display reading.

2. VENDOR INFO

WHAT YOU'RE LOOKING FOR	WHAT YOU SEE ON THE DISPLAY	WHAT IT MEANS
POD* Customer Code**	123 456 789	This is the personal number that identifies the supply contract.
Vendor's Commercial Name**	Vendor	This is the code that identifies the power supply company.
Vendor's contact phone number**		
Contract Start Date**		
Reason for current limiter triggering**		

METER CONSULTATION MENU STRUCTURE

3. POWER CONSUMPTION READING

3.1. Current period

3.2. Billing Period -1

3.3. Billing Period -2*

3.4. Billing Period -3*

3.5. Billing Period -4*

3.6. Billing Period -5*

3.7. Billing Period -6*

* These messages can be configured to the Power Distributor's requirements, and for such reason the sequence and methods of display of these messages may vary depending on the configuration chosen by the latter.

** This information will not be displayed on the display unless explicitly requested by the vendor.

Pressing the button in succession permits the consultation of the following information on the display.

3. POWER CONSUMPTION READING
(for a specific billing period)

WHAT YOU'RE LOOKING FOR	WHAT YOU SEE ON THE DISPLAY	WHAT IT MEANS
The reading of the total energy counters corresponding to time slots:	POWER CONSUMPTION READING	The set of energy and power information recorded by the meter begins.
Reading of the active power in the billing period*	A1 + = 000019 A2 + = 000019 A3 + = 000019	This indicates the total kilo volt-ampere reactive power (kvarh) fed-in and expressed in kilowatt hours recorded by the electronic meter for the price time slot displayed at the moment of display reading.
Reading of the reactive power in the billing period*	R1 + L= 000019 R2 + L= 000019 R3 + L= 000019	This indicates the total active power in kWh (kilowatt hours) recorded by the electronic meter for the price time slot displayed at the moment of display reading.
The maximum power withdrawn during the billing period*	P1 + Max= 001,019 P2 + Max= 001,019 P3 + Max= 001,019	This indicates the maximum power withdrawn and expressed in kW (kilowatts) recorded by the electronic meter for the price time slot displayed at the moment of display reading.
Current Period/Billing Period -n - The date* - The time*	Current Period/Billing Period -n - Date 26/05/2016 - Time 16:03:04	Current Period/Billing Period -n - This is the current date (at the time of display) or the cut-off date of the individual billing period expressed in "day, month, year". - This is the current time (at the time of display) or the cut-off time of the single billing period expressed in "hours, minutes, seconds".
Customer Code**	123 456 789	This is the personal number that identifies the supply contract in the indicated billing period.
Vendor's Commercial Name**		
Vendor's contact phone number**		

METER CONSULTATION MENU STRUCTURE

4. FED-IN READING
(only for bidirectional supplies from producers)

4.1. Current period

4.2. Billing Period -1

4.3. Billing Period -2*

4.4. Billing Period -3*

4.5. Billing Period -4*

4.6. Billing Period -5*

4.7. Billing Period -6*

* These messages can be configured to the Power Distributor's requirements, and for such reason the sequence and methods of display of these messages may vary depending on the configuration chosen by the latter.

** This information will not be displayed on the display unless explicitly requested by the vendor.

Pressing the button in succession permits the consultation of the following information on the display.

4. FED-IN READING
(for a determined billing period) only for bidirectional supplies from producers

WHAT YOU'RE LOOKING FOR	WHAT YOU SEE ON THE DISPLAY	WHAT IT MEANS
The reading of the total power fed-in.* Current and previous billing periods.*	FED-IN READING	
Reading of the active power fed-in during the billing period*	A1 + = 000019 A2 + = 000019 A3 + = 000019	This indicates the total active energy fed-in and expressed in kWh (kilowatt hours) recorded by the electronic meter for the time slot displayed at the moment of display reading.
Reading of the reactive energy fed-in during the billing period*	R1 + L= 000019 R2 + L= 000019 R3 + L= 000019	This indicates the total kilo volt-ampere reactive power (kvarh) fed-in and expressed in kilowatt hours recorded by the electronic meter for the price time slot displayed at the moment of display reading.
The maximum power withdrawn during the billing period*	P1 + Max= 001,019 P2 + Max= 001,019 P3 + Max= 001,019	This indicates the maximum power withdrawn and expressed in kW (kilowatts) recorded by the electronic meter for the price time slot displayed at the moment of display reading.
Current Period/Billing Period -n - The date* - The time*	Current Period/Billing Period -n - Date 26/05/2016 - Time 16:03:04	Current Period/Billing Period -n - This is the current date (at the time of display) or the cut-off date of the individual billing period expressed in "day, month, year". - This is the current time (at the time of display) or the cut-off time of the single billing period expressed in "hours, minutes, seconds".
Customer Code**	123 456 789	This is the personal number that identifies the supply contract in the indicated billing period.
Vendor's Commercial Name**		
Vendor's contact phone number **		

METER CONSULTATION MENU STRUCTURE

5. A+ CURVE READING

5.1. Day 1 to 38, with sample every 15 min.

6. LETTURA CURVA R+L

6.1. Day 1 to 38, with sample every 15 min.

7. LETTURA CURVA A-

(only for bidirectional supplies from producers)

7.1. Day 1 to 38, with sample every 15 min.

* These messages can be configured to the Power Distributor's requirements, and for such reason the sequence and methods of display of these messages may vary depending on the configuration chosen by the latter.

Pressing the button in succession permits the consultation of the following information on the display.

5. A+ CURVE READING

WHAT YOU'RE LOOKING FOR	WHAT YOU SEE ON THE DISPLAY	WHAT IT MEANS
Sample*	24:00000001,042 23:45000001,042 23:30000001,042	For each day, the display shows the consumptions of active power in predefined equal periods of 15 minutes each. Each reading shows the moment the period ended (in hours and minutes) and the consumption in kWh (kilowatt hours).

6. R+L CURVE READING

WHAT YOU'RE LOOKING FOR	WHAT YOU SEE ON THE DISPLAY	WHAT IT MEANS
Sample*	24:00000001,042 23:45000001,042 23:30000001,042	For each day, the display shows the consumptions of reactive power in predefined equal periods of 15 minutes each. Each reading shows the moment the period ended (in hours and minutes) and the consumption in kvarh (kilo volt-ampere reactive power/hour).

7. A CURVE READING

only for bidirectional supplies from producers

SE CERCHI	WHAT YOU SEE ON THE DISPLAY	WHAT IT MEANS
Sample*	24:00000001,042 23:45000001,042 23:30000001,042	For each day, the display shows the consumptions of active power in predefined equal periods of 15 minutes each. Each reading shows the moment the period ended (in hours and minutes) and the consumption in kWh (kilowatt hours).

METER CONSULTATION MENU STRUCTURE

8. R+L CURVE READING

8.1. Day 1 to 38, with sample every 15 min.

9. POWER READING

* These messages can be configured to the Power Distributor's requirements, and for such reason the sequence and methods of display of these messages may vary depending on the configuration chosen by the latter.

Pressing the button in succession permits the consultation of the following information on the display.

8. R+L CURVE READING

only for bidirectional supplies from producers

WHAT YOU'RE LOOKING FOR	WHAT YOU SEE ON THE DISPLAY	WHAT IT MEANS
Sample*	24:00000001,042 23:45000001,042 23:30000001,042	For each day, the display shows the consumptions of reactive power in predefined equal periods of 15 minutes each. Each reading shows the moment the period ended (in hours and minutes) and the consumption in kvarh (kilo volt-ampere reactive power/hour)

9. POWER READING

WHAT YOU'RE LOOKING FOR	WHAT YOU SEE ON THE DISPLAY	WHAT IT MEANS
Maximum value withdrawn on the current day*	Abs. Pow. = 0016,200	This indicates the maximum average power withdrawn recorded in 15 minutes expressed in kW (kilowatts) recorded by the electronic meter for the current day.
Maximum value withdrawn on the current day*	Abs. Pow. = 0016,200	This indicates the maximum average power withdrawn recorded in 15 minutes expressed in kW (kilowatts) recorded by the electronic meter for the current day.

PLEASE NOTE:

Pressing the button for more than 2 seconds, the words "Symbols and SW Ver." appear. In this mode, each press of the button provides an explanation for the different symbols on the display and information on the software installed in the meter; the software information is technical data that guarantees the authenticity and compliance of such software with MID requirements.

The "Symbols and Ver. SW" display mode disappears after 15 seconds and normal message display reappears.

Additional warnings against power overload are available.

The electronic meter constantly monitors the power absorbed and compares it with the power available. When too much power is being consumed, the meter sends a message to the display.

If a power supply contract has been stipulated for the supply of 15 kW, and if the instantaneous power measured is between 16.5 and 20.9 kW, the following messages will be displayed:

- after 2 minutes REDUCE POWER OVERLOAD (*)
- after 92 minutes RISK OF POWER DISCONNECTION (*)

When the electronic power meter reads that instantaneous power has dropped below the 16.5 kW limit, the alarm messages disappear.

When the power supply control device intervenes (the switch "trips" and the utility is temporarily "disconnected"), the instantaneous power value read on the display is not the value that caused power to be disconnected.

After power disconnection, the message below is highlighted on the display:

- POWER DISCONNECTED BY POWER OVERLOAD (*)

This message remains on display until the after the switch has been switched on again and the customer has identified the causes of temporary power disconnection.

When the instantaneous power value read by the electronic meter exceeds 20.9 kW, the message transmission intervals are shorter:

- after around 1 second, REDUCE POWER OVERLOAD (*)
- after 1 minute, RISK OF POWER DISCONNECTION (*)

DECLARATION OF CONFORMITY

The manufacturer, Gridspertise S.r.l., declares that the type of GETIS radio equipment - three-phase meter - complies with Directive 2014/53/EU.
The full text of the EU Declaration of Conformity is available on the following website:

https://www.gridspertise.com/solutions/smart-metering-devices

The radio module is for the exclusive use of the meter’s distributor as a substitute or complement to the main transmission module.
The certification of the meter’s software is indicated on the meter’s display.
The RF radio module operates in the 169.400 MHz ÷ 169.475 MHz band with a transmission power of less than 0.5 W whereas the Bluetooth radio module operates in the BLE 2400 MHz ÷ 2483.5 MHz communication band with a power of less than 2.0 mW in accordance with Ministry of Communications Decree No. 235 dated 9.10.2007 issued on 2 October 2007, Official Gazette.

*** The power absorption percentage value greater than the available power value will be displayed with the message FOR MORE THAN XXX% or else only the message "on one phase" will appear when power has been disconnected because all the power stipulated is being taken from just one phase.**