GE552, GE552W

Volumetric thermal energy meters fit for centralization Wired M-Bus or Wireless M-Bus

Energy Management

Datasheet
1079EN 11/2022

GE552
Wired M-Bus

GE552-W
Wireless M-Bus

Volumetric thermal energy meters, dual register, fit for centralization with wired M-Bus or Wireless M-Bus.
Consisting of a splitable display on the volumetric part, 3 pulse inlets for domestic water meters and 2 temperature probes (delivery and return), Long Life double battery (10 years), CE marking and certificates in compliance with the MID 2014/32/EU directive.

Versions and product codes

Wired M-Bus centralization (GE552)

PRODUCT CODE	CONNECTIONS		INSTALLATION CENTER DISTANCE [mm]	NOMINAL FLOW RATE Qp [m³/h]	POWER SUPPLY
GE552Y158	DN15	G 3/4"M	110	0,6	Long Life double battery
GE552Y159	DN15	G 3/4"M	110	1,5	Long Life double battery
GE552Y160	DN20	G 1"M	130	2,5	Long Life double battery

Wireless M-Bus centralization (GE552-W) **For use with GE552Y058 datalogger only**

PRODUCT CODE	CONNECTIONS		INSTALLATION CENTER DISTANCE [mm]	NOMINAL FLOW RATE [m³/h]	POWER SUPPLY
GE552W159	DN15	G 3/4"M	110	1,5	Long Life double battery
GE552W160	DN20	G 1"M	130	2,5	Long Life double battery

GIACOMINI WATER E-MOTION

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Main characteristics

Volumetric part — Electronic part (display)

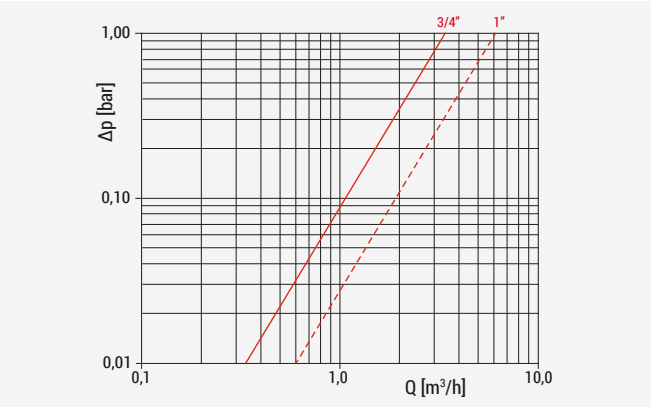
Their highly compact structure makes the meters fit for almost every installation need. Adjustable and splitable electronic part (display) for installation also in small metering cabinets.
3 pulse inlets for domestic water meters, 2 temperature probes and Long Life double battery (10 years). User-friendly single button.
Display easy to read that shows every significant working status.
Ideal metering results along the entire period of use thanks to their reliability and dynamic measurements.
The cutting-edge electronic components free of electromagnetic interferences make these meters the right choice when compact devices are required.

Technical data

Electronic part (display)
- Display: 8-digit LCD + special symbols
- Temperature range: 0÷105 °C
- Temperature variation range: 3÷80 K
- Storage temperature range: 5÷55 °C
- Temperature resolution: 0,01 °C
- Metering frequency: 30 seconds
- Heat quantity representation: MWh
- Data backup: once a day
- Data memory: saving of all monthly values for the entire period
- Interface: M-Bus and Wireless M-Bus based on product code
- Power supply: Long Life double lithium battery, 3,6 V, 10 years
- Protection class: IP65
- Environmental class: C
- Mechanical class: M1
- Electromagnetic class: E1

Temperature probes
- High-precision platinum resistor: Pt1000
- Probe dimensions: 45 x 5 mm (DS 27,5)
- Temperature range: 0÷105 °C
- Cable length: 1,5 m
- Installation point:
  - Delivery: direct immersion or in immersion housing (existing systems)
  - Return: integrated in the meter volumetric part

Volumetric part
- Fluids: water, glycol-based solutions (max 50 %)
- Temperature range: 10÷90 °C
- Nominal flow rate: PN16
- Min pressure (to prevent cavitation): 0,3 bar
- Loss of pressure at Qp: ≤ 0,25 bar
- Installation position: horizontal, horizontally slanted by 90° or vertical
- Protection class: IP54
- Installation: on return circuit
- Cable length up to the electronic part: 1,2 m
- Connection for temperature probes: M10x1
- Precision class: 3



PRODUCT CODE	CONNECTIONS		INSTALLATION CENTER DISTANCE [mm]	NOMINAL FLOW RATE Qp [m³/h]	MAX FLOW RATE Qs [m³/h]	MIN FLOW RATE Qi [l/h]
GE552Y158	DN15	G 3/4"M	110	0,6	1,2	12
GE552Y159	DN15	G 3/4"M	110	1,5	3,0	30
GE552Y160	DN20	G 1"M	130	2,5	5,0	50
GE552W159	DN15	G 3/4"M	110	1,5	3,0	30
GE552W160	DN20	G 1"M	130	2,5	5,0	50

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Pulse inlets

The pulsing value of the 3 inlets can be prompted on the display.

Technical data

- Max load: 30 Vdc / 20 mA
- I/O 1, 2, 3: Open Drain, channel n FET
- Button ratio: 1:1 (out) 1:5 (in)
- Inflow frequency: max 1 Hz
- Cable length: 1,5 m
- Cable diameter: 3,8 mm (4 threads)

Connections

CABLE COLOR	CONNECTION	MEANING
White	I/O 1	Inlet / Outlet 1
Yellow	I/O 2	Inlet / Outlet 2
Green	I/O 3	Inlet / Outlet 3
Brown	GND	Grounding shared by I/O 1, 2, 3

Wired M-Bus interface (GE552Y158/159/160)

The M-Bus integrated interface complies with standard UNI EN 1434-3 and transmits data at a 2400 baud speed.
In addition to the heating and cooling energy data, it can transmit the information read by the three additional inlets.

Technical data

- Cable length: 1,5 m
- Cable diameter: 3,8 mm (2 threads)

NOTE. The meter is powered electrically in case of M-Bus connection.

Connections

CABLE COLOR	CONNECTION	MEANING
Brown	M-Bus 1	M-Bus 1 line
White	M-Bus 2	M-Bus 2 line

Wireless M-Bus interface (GE552W159/160)

Energy meters including an integrated radio interface with antenna are marked on the top cover with this symbol:
The radio interface is always deactivated upon delivery.
No specific software is required on the meter to activate the device.
However, the factory preset "sleep" mode must be deactivated.
The devices in sleep mode (display SLEEP 1) must be activated by pressing and holding the button for at least 5 seconds, until the energy indicator appears.
Once activated, the energy meter can be acquired and loaded through the Giacomini web server of the GE552Y058 datalogger and the GE552Y053 signal repeater.
The datalogger already includes the global cryptographic keys for the energy meters; just enable them from the search setup menu to find the device that will be read to provide the data available.

Technical data

- Frequency: 868 Mhz
- Radio protocol: Wireless M-Bus (EN 13757-4) according to Open Metering Standard (OMS).
  Various radio protocols available.
- Data transmission: unidirectional, standard T1mode, 128 bit cryptographic key AES
- Transmission range: standard 120 seconds
- Transmission power: up to 25 mW

Example of transmitted data

EXAMPLE	HEAT METER	UNIT OF MEASUREMENT
Type	Heat	
Manufacturer	ZRI	
Serial n.	12345678	
Version	12	
Main energy meter	123456	kWh
Main volume meter	123456	l
Energy meter (consumption) on fix day	119230	kWh
Fix day	01.01.2019	
Flow rate volume	127	l/h
Power	2828	W
Delivery temperature	44,3	°C
Return temperature	25,1	°C
Error code	0	
Energy of past month	121234	kWh

Installation

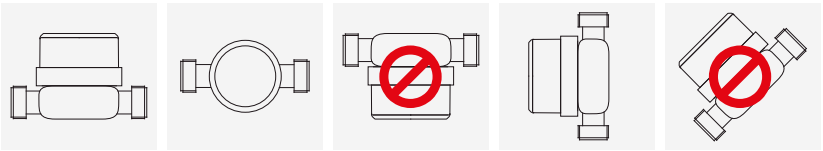
⚠ WARNING. The max temperature of the water inside the volumetric part must not exceed 90 °C.
Upon installation, make sure there are no hot water leaks that may cause burns.
Only qualified operators should install the unit. Refer to the meter instructions before installing the device.

The meter volumetric part can be installed by replacing the spacer on the modules and/or metering HIU. There is no need of adapters or other components for connection.
The return circuit temperature probe is integrated in the flow rate metering section.

Comply with the law provisions and standards in force, specifically to EN 1434 parts 1 and 6.
The energy meters are provided with an M-Bus (GE552) or Wireless M-Bus (GE552-W) communication interface and are therefore part of a data transmission network. For this reason, their installation must also comply to the reference standards for electronic devices.

How to install the meter

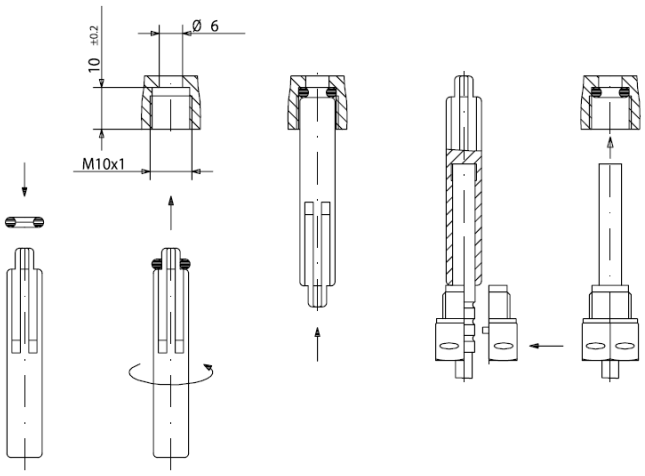
- Flush the system thoroughly before installing the thermal energy meters.
- Ball valves must be installed upstream and downstream the volumetric part.
- Make sure the flow direction (shown by an arrow on the meter side) is correct.
- The use of devices that change the flow direction is forbidden.
- The meters must be installed horizontally or vertically, do not install with the electronic unit facing down.



- Install in horizontal pipes or with descending/ascending flows.
- To prevent the formation of air pockets, do not install the device in the highest point of the hydraulic circuit.
- Consider the meter dimensions; the distance between two EAS sections must be at least 135 mm.
- Leave at least 1 m between the meter and any electromagnetic source such as switches, actuators or circulators.
- Place at a min distance of 20 cm from any electric wire.
- Leave at least 3 cm of free space around the meter.
- Use only new gaskets, clean the seal surface and inspect for tear and wear.
- Place the display where desired.

How to install the temperature probes

- Do not remove the factory-installed return probe and all the standard protection seals.
- The probe wires have different colors: red=delivery; blue=return.
- Do not bend, extend or cut the wires!
- Do not tamper the seal on the probe.
- Remove completely any cap or gasket of the ball valve.
- Fit the O-Ring correctly using the pin (the additional O-Ring is a spare one) and rotate it slightly to insert it according to EN 1434.
- Fit the O-Ring correctly using the other end of the installation kit (pin).
- Insert the two halves of the plastic adapter in the three grooves of the probe and press them together.
- Use the installation and positioning support.
- Fit the probe in the installation position and tighten the 12-side piece all the way through (torque 3-5 Nm).
- Seal the installation point of the probe that may be integrated in the flow sensor.
- To prevent tampering, place the seals as soon as the installation is complete.



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Start up

- Slowly open the valve, depressurize and flush the line, and prevent water hammers.
- The meter "sleep" mode (display SLEEP1) can be deactivated by pressing and holding the button for at least 5 seconds.
- Check the system sealing.
- When the system in ON, make sure the display shows the flow rate and that the temperatures correspond to the actual ones.
- Wait for the updated temperature value to appear on the display (1-2 seconds).
- Place the seals on the devices to prevent tampering.

Maintenance

The device doesn't require maintenance: repairs may be carried out only by the manufacturer.

NOTE. Wipe the surfaces with a wet cloth; do not use aggressive or abrasive cleaning products.

NOTE. The duration of the calibration period depends on the country of installation; comply with the national standards of reference.

Status symbols / Error codes

The symbols of the table below are clear indicators of the meter status.
The status can be read on the main display only.
A blinking triangle may simply indicate specific conditions of the system and not necessarily a failure of the device.
Contact our technical support service only when the triangle blinks uninterruptedly.

Status symbols

SYMBOL	STATUS	ACTION
	External power supply	
	Flow rate	-
	Warning!	System/device failure
	Blinking symbol: data transmission	-
	Solid symbol: optical interface active	
	Failure	Instrument replacement

Error code

CODE	STATUS	ACTION
1	Temperature not included in the display range	Check the temperature probes
2	Temperature not included in the display range	Check the temperature probes
3	Return probe short circuit	Check the temperature probes
4	Return probe interruption	Check the temperature probes
5	Delivery probe short circuit	Check the temperature probes
6	Delivery probe interruption	Check the temperature probes
7	Battery voltage	Replace the instrument
8	Hardware failure	Replace the instrument
9	Hardware failure	Replace the instrument
100	Hardware failure	Replace the instrument
800	Wireless interface	Replace the instrument
1000	Battery almost exhaust	Replace the device/battery*
2000	Calibration period expired	Replace the instrument

* The battery must be replaced only abroad for certification purposes

NOTE. The error codes indicate the errors read by the energy meter.
In case of multiple errors, the sum of the error symbols will be displayed:
ex. error 1005 = error 1000 and error 5.

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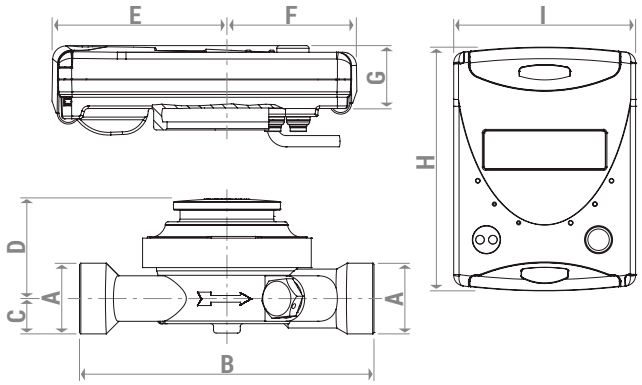
Dimensions



PRODUCT CODE	A	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]
GE552Y158	G 3/4"M	110							
GE552Y159	G 3/4"M	110							
GE552Y160	G 1"M	130	21	40	61	53	25	114	85
GE552W159	G 3/4"M	110							
GE552W160	G 1"M	130							

⚠ WARNING. Leave at least 30 mm of space for installation.

Compliance with MID Directive

When used for commercial transactions, energy meters are classified as measurement instruments subject to legal metrology standards. GE552 and GE552-W meters comply to the provisions of Directive 2014/32/EU for measuring instruments (MID Directive - Measurement Instrument Directive), received in Italy by Law Decree dated 2 February 2007, n. 22 (Government Gazette n. 64 of 17 March 2007). The compliance certificate n° DE12 MI004 PTB010 was issued by the PTB metrology institute (Physikalisch-Technische Bundesanstalt).

✎ **NOTE.** The additional metrological marking is on the front of every device, next to the CE symbol, and it includes an "M" followed by the last two numbers of the marking year inside a rectangle.

Reference standards

- UNI EN 1434 - Energy meters
- UNI 10200 - Allocation of heating costs
- Law Decree 2 February 2007, n. 22 Implementation of Directive 2014/32/EU for measuring instruments

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Product specifications

GE552Y158
Volumetric thermal energy meter, dual register, for heating and cooling consumption metering. Connections G 3/4"M, DN15. Nominal flow rate 0,6 m^3/h. Max flow rate 1,2 m^3/h. Adjustable and splitable LCD display, 8 digits + special characters. Powered by Long Life double lithium battery, 3,6 V, 10 years. 2 Pt1000 temperature probes with 1,5 m connection cable. 3 pulse inlets for connection of domestic water meters. Protection class IP65. Installation center distance 110 mm. Volumetric part temperature range 10÷90 °C. Electronic part temperature range 0÷105 °C. Nominal pressure 16 bar. MID certificate. M-Bus communication interface according to UNI EN 1434-3.

GE552Y159
Volumetric thermal energy meter, dual register, for heating and cooling consumption metering. Connections G 3/4"M, DN15. Nominal flow rate 1,5 m^3/h. Max flow rate 3,0 m^3/h. Adjustable and splitable LCD display, 8 digits + special characters. Powered by Long Life double lithium battery, 3,6 V, 10 years. 2 Pt1000 temperature probes with 1,5 m connection cable. 3 pulse inlets for connection of domestic water meters. Protection class IP65. Installation center distance 110 mm. Volumetric part temperature range 10÷90 °C. Electronic part temperature range 0÷105 °C. Nominal pressure 16 bar. MID certificate. M-Bus communication interface according to UNI EN 1434-3.

GE552Y160
Volumetric thermal energy meter, dual register, for heating and cooling consumption metering. Connections G 1"M, DN20. Nominal flow rate 3,0 m^3/h. Max flow rate 5,0 m^3/h. Adjustable and splitable LCD display, 8 digits + special characters. Powered by Long Life double lithium battery, 3,6 V, 10 years. 2 Pt1000 temperature probes with 1,5 m connection cable. 3 pulse inlets for connection of domestic water meters. Protection class IP65. Installation center distance 130 mm. Volumetric part temperature range 10÷90 °C. Electronic part temperature range 0÷105 °C. Nominal pressure 16 bar. MID certificate. M-Bus communication interface according to UNI EN 1434-3.

GE552W159
Volumetric thermal energy meter, dual register, for heating and cooling consumption metering. Connections G 3/4"M, DN15. Nominal flow rate 1,5 m^3/h. Max flow rate 3,0 m^3/h. Adjustable and splitable LCD display, 8 digits + special characters. Powered by Long Life double lithium battery, 3,6 V, 10 years. 2 Pt1000 temperature probes with 1,5 m connection cable. 3 pulse inlets for connection of domestic water meters. Protection class IP65. Installation center distance 110 mm. Volumetric part temperature range 10÷90 °C. Electronic part temperature range 0÷105 °C. Nominal pressure 16 bar. MID certificate. M-Bus communication interface according to UNI EN 13757-4 OMS standard. Frequency: 868 Mhz. Data transmission: unidirectional, standard T1mode, 128 bit cryptographic key AES. Transmission range: standard 120 seconds. Transmission power: up to 25 mW.

GE552W160
Volumetric thermal energy meter, dual register, for heating and cooling consumption metering. Connections G 1"M, DN15. Nominal flow rate 3,0 m^3/h. Max flow rate 5,0 m^3/h. Adjustable and splitable LCD display, 8 digits + special characters. Powered by Long Life double lithium battery, 3,6 V, 10 years. 2 Pt1000 temperature probes with 1,5 m connection cable. 3 pulse inlets for connection of domestic water meters. Protection class IP65. Installation center distance 130 mm. Volumetric part temperature range 10÷90 °C. Electronic part temperature range 0÷105 °C. Nominal pressure 16 bar. MID certificate. M-Bus communication interface according to UNI EN 13757-4 OMS standard. Frequency: 868 Mhz. Data transmission: unidirectional, standard T1mode, 128 bit cryptographic key AES. Transmission range: standard 120 seconds. Transmission power: up to 25 mW.

Safety Warning. Installation, commissioning and periodical maintenance of the product must be carried out by qualified operators in compliance with national regulations and/or local standards. A qualified installer must take all required measures, including use of Individual Protection Devices, for his and others' safety. An improper installation may damage people, animals or objects towards which Giacomini S.p.A. may not be held liable.

Package Disposal. Carton boxes: paper recycling. Plastic bags and bubble wrap: plastic recycling.

Additional information. For more information, go to giacomini.com or contact our technical assistance service. This document provides only general indications. Giacomini S.p.A. may change at any time, without notice and for technical or commercial reasons, the items included herewith. The information included in this technical sheet do not exempt the user from strictly complying with the rules and good practice standards in force.

Product Disposal. Do not dispose of product as municipal waste at the end of its life cycle. Dispose of product at a special recycling platform managed by local authorities or at retailers providing this type of service.

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