

GE556Y304

Figure 1

Description

The GE556 user satellites are the ideal metering solution in condominium systems with the centralised production of heating water and zone-based distribution, where there is a need to produce sanitary hot water locally (in each individual apartment). With the aid of the satellites, a delivery pipe and a return pipe distribute energy for heating both rooms and sanitary water; in addition to this, there is just one pipe for the sanitary cold water. This avoids the need to install pipes for sanitary hot water distribution and the relative recirculation.

Versions and product codes

Product code	Main functions	Exchanger power
GE556Y301	Priority valve	44 kW
GE556Y302	Priority valve	58 kW
GE556Y303	thermostatic command and dynamic balancing	58 kW
GE556Y304	solar thermal integration	44 kW
GE556Y305	for external boiler (opt.)	external
GE556Y314	softened water management	44 kW
GE556Y306	with built-in boiler	10 kW - 44 kW

Table 1 – GE556 satellites (the ones in bold are those dealt with in this technical datasheet)

Technical data

- Max. working temperature: 90 °C.
- Max. working pressure: 16 bar (10 bar with plastic spacer).

Main characteristics

- Connections 3/4".
- Primary side: filter with stainless steel basket and housing for delivery temperature probe.
- Sanitary hot water production: flow switch, priority valve, thermostatic mixer for temperature adjustment, and instantaneous heat exchanger
- Heating side: adjustment lockshield valve and 3-way motorised zone valve.
- Box with terminal board for electric connections.
- Suitable for insertion in a template (flush-mounting).
- Suitable for installation of heat energy meter and sanitary water meter, via the plastic spacers.
- Possibility of bypass via shut-off valve with green handle.

Version GE556Y304 implements the following functions:

- ON-OFF control of the heating system.
- Instantaneous production of sanitary hot water via a thermostatic valve and integrated plate heat exchanger.
- Use of pre-heated water for sanitary hot water production.
- Mixing of sanitary water for sending to the users.
- Direct measurement of the energy consumption for heating and sanitary hot water production.
- Direct measurement of the consumption of sanitary cold water.
- Direct measurement of the consumption of sanitary hot water.

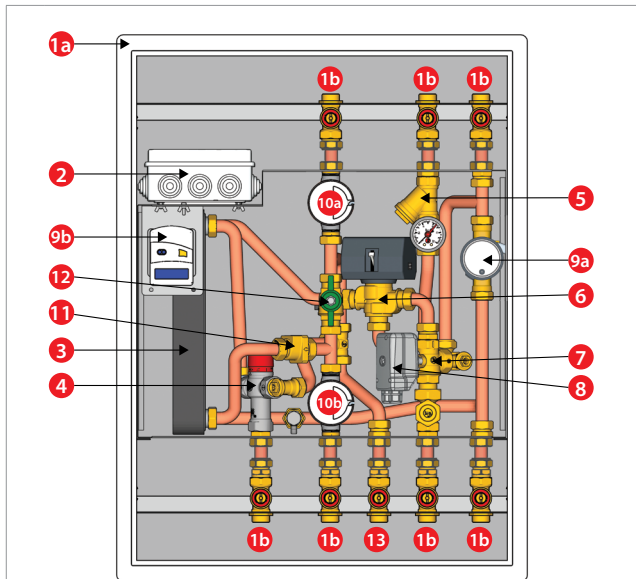
The satellite components are fitted on a sheet metal frame that can be inserted in the appropriate flush-mounting template (GE551Y056) for worksite installation.

On the heating delivery unit there is a filter, a Manometer, a balancing lockshield valve and a motorised 3-way zone valve. On the return unit there is a plastic spacer for inserting the heat energy meter. The insulated stainless steel plate exchanger produces sanitary hot water in combination with the motorised priority valve that is activated by the sanitary circuit flow switch. The thermostatic mixer allows you to adjust the temperature of the sanitary water sent to users, within a series of 38-60 °C.



Components

The GE556304 satellite consists of a frame housing the various components. In order for them to function correctly, you must order a series of optional accessories (listed below) separately.



Legend	
1a	Template for installation on a worksite - flush-mounting (optional)
1b	Valves included with the template, for satellite-template connection (optional)
2	Box with terminal board for electric connections
3	Insulated exchanger
4	Thermostatic mixer
5	Y-filter
6	Priority valve
7	3-way motorised zone valve
8	Motor for 2-way zone valve (optional)
9a	Heat energy meter - volumetric part (optional)
9b	Heat energy meter - display (optional)
10a	Sanitary cold water meter (optional)
10b	Sanitary hot water meter (optional)
11	Flow switch
12	Shut-off valve for bypass
13	Kit with additional shut-off valve, to be installed in the template (optional)

Figure 2 - GE556Y303 satellite with optional accessories

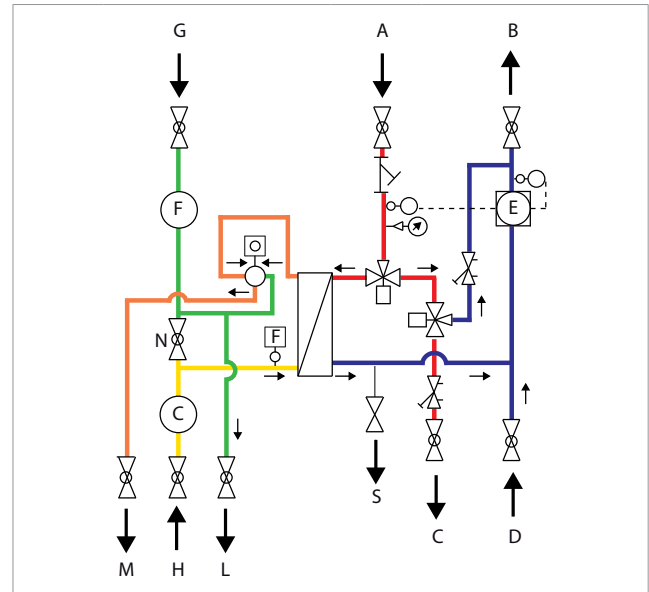
Optional accessories

- Heat energy meter, GE552 series (fig.2-9a, 9b).
- Sanitary water meter, GE552-2 series (fig.2-10a, 10b).
- Template for flush-mounting installation, GE551-2 series (fig.2-1a, 1b).
- Motor for zone valve, K270 or K272 series (24 V or 230 V) (fig.2-8).
- Kit with additional shut-off valve, to be installed in the template (fig.2-13).
- Components for data centralisation via M-BUS (GE552-4 series) or via Wireless M-BUS (GE552-W series).
- Kit for rinsing and pressure test, and pipe kit for connecting the satellite to the template, GE551-5 series.

Note.

- within the satellite there is an adjustment lockshield valve for balancing the heating circuits. No device is envisaged for balancing SHW production circuits: if necessary, you can fit one on the distribution system side.
- If there is no sanitary water meter, the sanitary cold water inlet in the satellite can be set from below (inlet L in figure 3, with the connection G closed and no check valve).

Operation



Legend			
A) Primary delivery		H) Inlet of sanitary water pre-heated by solar thermal energy	
B) Primary return		L) Sanitary cold water outlet	
C) Heating system delivery		M) Mixed sanitary hot water outlet	
D) Heating system return		N) Shut-off valve for bypass	
G) Sanitary cold water inlet		S) Drainage	
	3-way zone valve Priority valve		Temperature probe
	Thermostatic mixer		Flow switch
	Shut-off valve		Filter
	Drain tap		Heat energy meter (optional)
	Balancing lockshield valve		Sanitary cold water meter (optional)
	Heat exchanger		Sanitary hot water meter (optional)
	Manometer		

Figure 3 – Operating flow

This configuration allows the mixer to always work with sanitary water from the water mains on the cold side: this guarantees the “anti-scald” function. Valve (N) in figure 3 is closed during summer operation. Open valve (N) and close the valve upstream from the sanitary hot water meter (C) to guarantee the winter bypass (with the possible drainage of the solar thermal energy).



Technical data - Heating and sanitary hot water

Primary circuit

- Max. temperature: 90 °C
- Max. working pressure 16 bar (10 bar with plastic spacer)
- Nominal flow rate on primary circuit: 1000 l/h

Heating circuit

- Max. heating power: can be adjusted via the flow rate adjustment lockshield valve

Sanitary hot water production

- Power for sanitary hot water production with inlet 75 °C, flow rate 1000 l/h on the primary line and ΔT = 35 °C on the secondary line (50 °C - 15 °C): 44 kW
- Corresponding sanitary hot water flow rate: 18 l/min
- Min. hot water withdrawal 2,5 l/min

Priority valve

- Power voltage/frequency: 230V / 50 Hz
- Total absorbed electric power: 6 VA
- Hydraulic switchover time: 6 seconds

Thermostatic mixer

- Complying with A.S.S.E. 1017
- Adjustment precision ± 1 °C (adjustment in table 2)

Position	1	2	3	4	5
Mixing temperature	38 °C	43,5 °C	49 °C	54,5 °C	60 °C

Table 2 – Thermostatic mixer adjustment

Sanitary hot water production

Sanitary			Flow rate [l/h] and temperature of primary outlet (sanitary 15-50 °C)			
l/min	l/h	kW	75 °C	70 °C	65 °C	60 °C
12	720	29	580 (31 °C)	700 (33,8 °C)	880 (36,3 °C)	1330 (40,9 °C)
15	900	37	780 (34,2 °C)	960 (36,9 °C)	1260 (39,8 °C)	-
17	1020	41	920 (35,8 °C)	1140 (38,4 °C)	1540 (41,6 °C)	-
18	1080	44,1	1000 (36,6 °C)	1240 (39,3 °C)	1700 (42,6 °C)	-
19	1140	46	1070 (37,4 °C)	1340 (40 °C)	-	-
20	1200	49	1150 (38,1 °C)	1450 (40,8 °C)	-	-

Table 3 – Power and flow rate data for primary circuit and sanitary water production

Installation

Satellite installation usually requires the use of a flush-mounting template GE551Y056 for worksite installation.

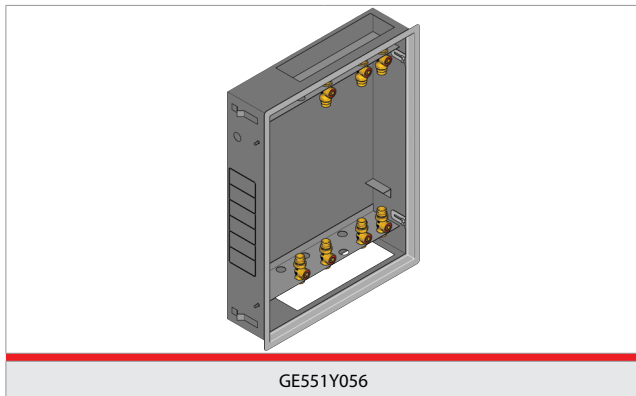


Figure 4 – Flush-mounting template

To connect the satellite to the template, you will need the kit GE551Y112 and the additional valve kit GE500Y251.

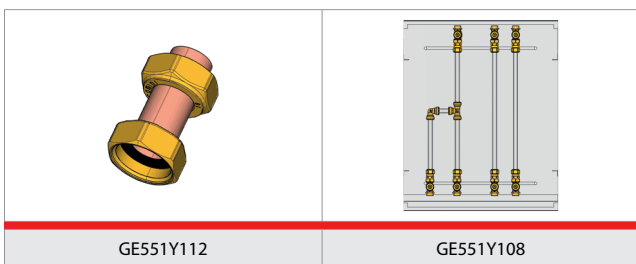


Figure 5 – Assembly kit (left) and pipe kit (right)

1) Installing the template.

You are advised to install only the template on the worksite (fig.4), to avoid damaging the meters and so that you can subsequently rinse out the systems and perform the pressure tests.

2) Rinsing out the system

It's important to rinse out the system before installing the energy meters. Use the GE551Y018 rinsing pipe kit (fig.15).

3) Installing the satellite

After rinsing out the system, you can remove the rinsing pipe kit and install the satellite frame (fig.5). To install the GE556 satellite in the template, you must use the GE551Y112 kit.

Follow the instructions in figure 6 to fix the energy meter display unit (optional) on the appropriate plate.

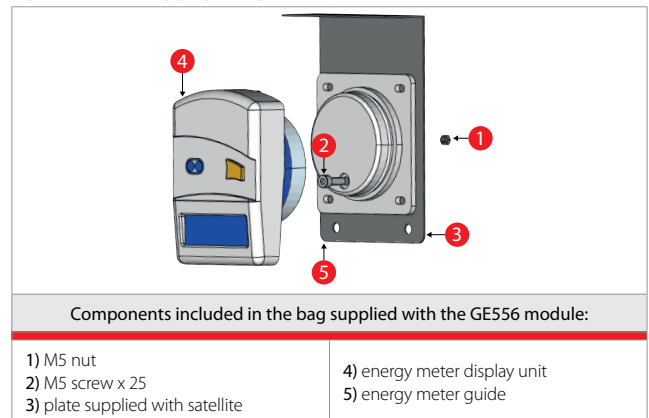


Figure 6 – Fixing the energy meter display unit

4) Testing the system

After making the installations, test the pressurised system.



Correct installation

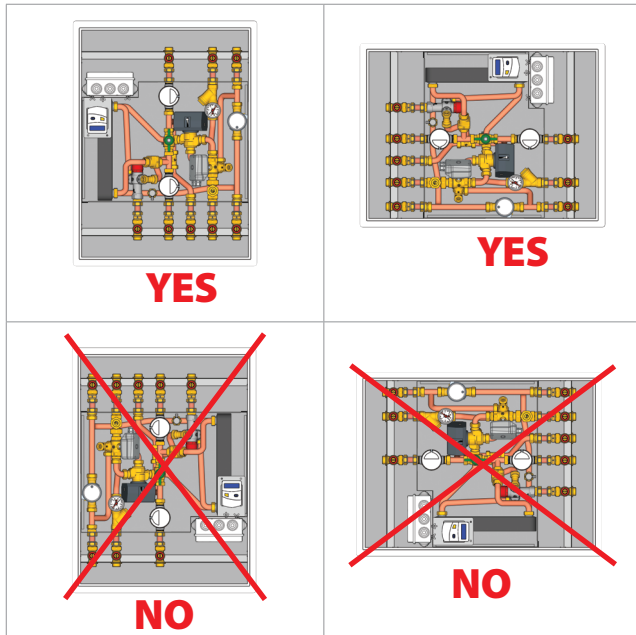


Figure 7 – Correct and incorrect assembly

Factory adjustments

- Thermostatic mixer: position 3 (49 °C).
- Cold side lockshield valve on thermostatic mixer: 3/4 turn opening.
- Heating lockshield valve: fully open.
- Primary bypass lockshield valve: fully open.

Installing the check valve on the sanitary water circuit (optional)

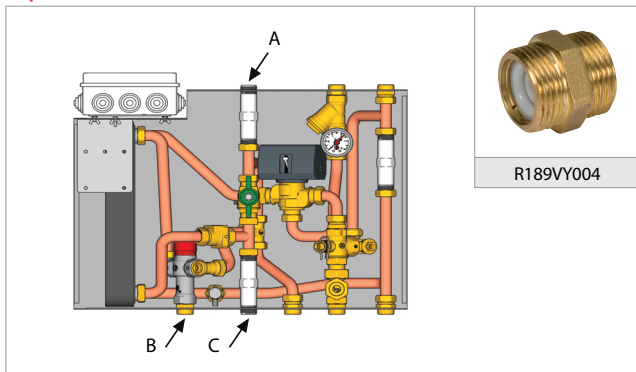


Figure 8 – Positioning the sanitary water check valves (optional)

The R189VY004 sanitary water check valve is integrated in a nipple (R189V series). To install the check valve on the satellite, replace the original nipple A and/or B and/or C (figure 19) with the R189VY004 nipple fitted with a check valve. Be sure to respect the flow directions (the flows are from the top downwards - see figure 3).

Data centralisation via M-BUS (GE552-4 series)

M-BUS is a Standard that fully complies with European Standard EN 1434. Apart from the possibility of reading the information directly on the display of the meters assembled in the user satellites, the consumption data can also be read from a distance, thanks to transmission via a connection to the M-BUS signal network. The M-BUS (Meter-BUS) system is a signal network developed specifically for the exchange of consumption data and remote meter reading. The transmission device is a simple non-shielded, 2-wire, twisted cable. The energy meters of the GE552 (GE552Y158-159-160) series are equipped with a built-in M-BUS interface; when requested, they send the measured data via the M-BUS network to a central unit that makes the data available locally or remotely (via modem), depending on the needs of the individual system. The energy meters also have two inputs for the signals of sanitary water flow rate meters fitted with an impulsive output; in this way, apart from the data energy, also the hot and sanitary cold water consumption data can be centralised via M-BUS.

Components for M-BUS centralisation

- **GE552Y006:** M-BUS central unit, 20 addresses.
- **GE552Y007:** M-BUS central unit, 60 addresses.
- **GE552Y008:** M-BUS central unit, 120 addresses.
- **GE552Y010:** M-BUS central unit, 250 addresses.
- **GE552Y041:** GSM modem for remote control of consumption data.
- **GE552Y042:** analogue modem for remote control of consumption data.
- **GE552Y033:** software for downloading consumption info from files.

Data centralisation via Wireless M-BUS (GE552-W series)

The centralisation of the wireless M-Bus (868 MHz) complies with EN 868 13757 MHz. Apart from the possibility of reading the information directly on the display of the meters assembled in the user satellites, the consumption data can also be read from a distance, thanks to transmission via radio. The Wireless M-BUS system is a signal network developed specifically for the exchange of consumption data and the remote reading of meters and meters. The energy meters of the GE552 (GE552Y156-157) series are suitable for the installation of the GE552Y017 wireless interface, via which they send (when requested) the measured data to a central unit that makes the data available locally or remotely, depending on the needs of the individual system. The sanitary water meters GE552-2 (GE552Y124-125-126-127) are also suitable for the installation of the GE552Y016 wireless interface, via which they send (when requested) the measured data to a central unit. The consumption data can be transmitted via radio, in the following ways:

- **WALK-BY MODE** data sent to a personal computer and received thanks to an antenna (GE552Y043) connected to the USB port.
- **REMOTE MODE** data sent to a concentrator (GE552Y044), which allows:
 - the remote transmission of read data to programmable e-mail addresses;
 - the remote transmission of the data to a PC, via the GSM/GPRS network;
 - the local downloading of data onto a PC (connected via the USB port).

Components for Wireless M-BUS centralisation

- **GE552Y044:** concentrator and wireless data transmitter, up to 300 devices.
- **GE552Y043:** wireless data receiver antenna.
- **GE552Y045:** Wireless signal repeater.
- **GE552Y017:** wireless module for heat energy meters (GE552Y156-157)
- **GE552Y016:** wireless module for sanitary water meter (GE552Y124-125-126-127)
- **GE552Y034:** software for configuring the sanitary water meter (GE552Y124-125-126-127) and downloading consumption data from files
- **GE552Y035:** software for configuring the heat energy meters (GE552Y156-157) and downloading consumption data from files



Electric connections

At the top left of the satellite there is an IP55 electric box. This contains the terminals for connecting the internal devices (optional) (K270/K272 motor for the zone valve and heat energy meter) and for data centralisation via M-BUS. The terminal board also acts as a support for the outward connection of the power supply (24 V~ or 230 V~) of the timed thermostat enabling contact and the M-BUS cable that links all the boxes and the central M-BUS unit.



Warning.
Interventions on electrical components must only be carried out by qualified personnel.
Ensure that the power supply is suspended while the connections are being carried out.

1) Electric connections: terminal board

Follow the indications given in Table 5.

2) Electric connections: diverting valve command

The diverting valve is commanded by the flow switch, via the electronic card (figure 10) that is powered at 230 V.

3) Electric connections: K270/K272 motor (optional)

Connect the K270/K272 motor to the terminal board using the indications in Tables 4 and 5.

4) Electric connections: external connections

Use a 2-wire cable with a section of 0,5 mm². It is not necessary to respect any particular polarity when connecting it to the terminals. With regards the connection of the timed ambient thermostat, consent for the opening of the zone valve must be given via the normally open contact of the thermostat itself (NO contact - see figure 21).

When making the connection between the timed ambient thermostat contact and the terminal board (terminals 6 and 7), use a 2-wire cable with a section of 0,5 mm². It is not necessary to respect any particular polarity when making the connections.

5) Electric connections for M-BUS centralisation (optional)

External M-BUS connections

To connect the M-BUS data transmission cable to the concentrator, use terminal 1 (RED wire L1+) and terminal 2 (GREEN wire L2-) of the terminal board - see figure 9. A non-shielded, 2-wire, twisted cable is needed, with a maximum line capacity of 150 pF/m (16 or 18 AWG).

Heat energy meters

With regards the heat energy meters, the meter's M-BUS communication module must be connected to terminal 9 (RED wire L1+) and terminal 10 (GREEN wire L2-) of the terminal board.

Sanitary meters

Use the auxiliary terminals 3, 4, 5. Follow the instructions provided with the meters.

Terminal identifier	Wire sheath colour
14	RED
15	BROWN
16	BLUE

Table 4 – Description of the electric connections for the K270/K272 motor.

Terminal identifier	Function
1	EXTERNAL CONNECTION cable transmitting M-BUS data to the data concentrator: connection of RED wire L1+ (cable Ø 0,8 mm, twisted, 2-wire, non-shielded, with a maximum line capacity of 150 pF/m)
2	EXTERNAL CONNECTION cable transmitting M-BUS data to the data concentrator: connection of GREEN wire L2- (cable Ø 0,8 mm, twisted, 2-wire, non-shielded, with a maximum line capacity of 150 pF/m)
3	INTERNAL CONNECTION for M-BUS centralisation of sanitary meters with impulse output
4	INTERNAL CONNECTION for M-BUS centralisation of sanitary meters with impulse output
5	INTERNAL CONNECTION for M-BUS centralisation of sanitary meters with impulse output
6	EXTERNAL CONNECTION connection to the timed ambient thermostat, to the common C terminal of the internal contact (section 0,5 mm ²)
7	EXTERNAL CONNECTION connection of power supply 24 V~ or 230 V~ (section 0,5 mm ²). Make sure the following parallel connection is also present: EXTERNAL CONNECTION connection to the timed ambient thermostat, to the NO terminal of the internal contact (section 0,5 mm ²)
8	EXTERNAL CONNECTION connection of power supply 24 V~ or 230 V~ (section 0,5 mm ²)
9	INTERNAL CONNECTION connection of PINK wire L1+ of the heat energy meter.
10	INTERNAL CONNECTION connection of GREY wire L2- of the heat energy meter.
11	INTERNAL CONNECTION for M-BUS centralisation of sanitary meters with impulse output
12	INTERNAL CONNECTION for M-BUS centralisation of sanitary meters with impulse output
13	INTERNAL CONNECTION for M-BUS centralisation of sanitary meters with impulse output
14	INTERNAL CONNECTION connection to the K270/K272 motor for the zone valve, RED wire
15	INTERNAL CONNECTION connection to the K270/K272 motor for the zone valve, BROWN wire.
16	INTERNAL CONNECTION connection to the K270/K272 motor for the zone valve, BLUE wire

Table 5 – Description of the electric connections for the terminal board

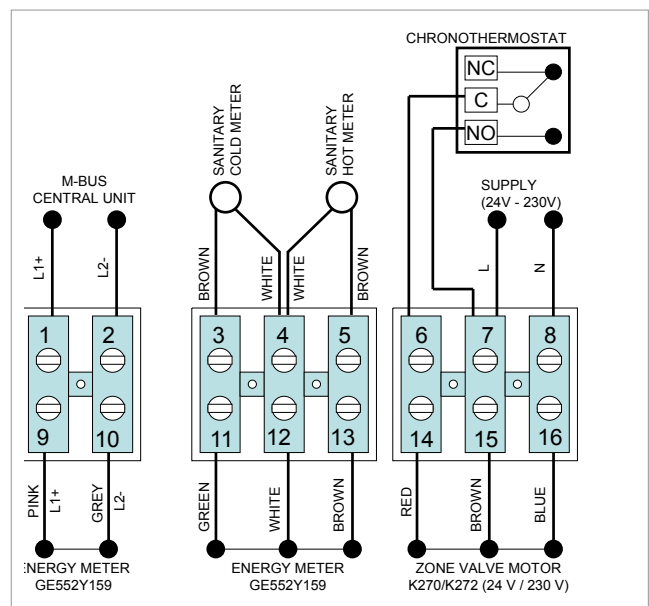


Figure 9 - Electric connections of the terminal board



Note.
In the case of data centralisation via Wireless M-Bus, terminals 1, 2, 3, 4, 5, 9, 10, 11, 12, 13, 14, 15 are not used.

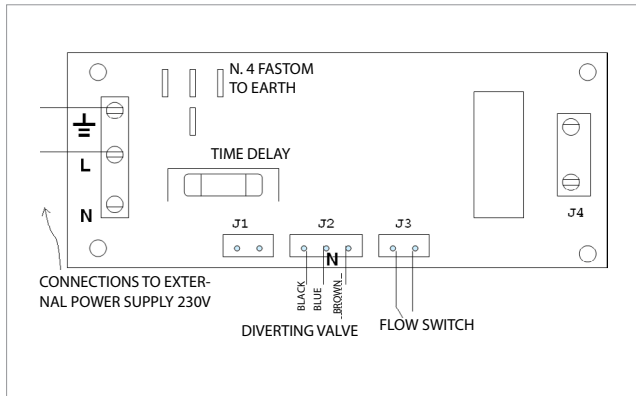


Figure 10 – Electronic card for priority valve command

Product specifications

GE556Y304

User satellite for centralised systems, for managing heating and sanitary hot water production, with additional inlet for pre-heated water. Connections 3/4". PRIMARY SIDE: filter with stainless steel basket and housing for delivery temperature probe. Sanitary hot water production: flow switch, priority valve, thermostatic mixer for temperature adjustment, and instantaneous heat exchanger with 44kW power (with Primary: 75 °C and 1 m³/h flow rate. Secondary: ΔT = 50 °C - 15 °C and 18 l/min flow rate). Heating side: adjustment lockshield valve and 3-way motorised zone valve. Suitable for installation of heat energy meter and sanitary water meter, via the plastic spacers (centre distance 110 mm). IP55 box with terminal board for electric connections. Suitable for insertion in a template. Max. working temperature 90 °C. Max. working pressure 16 bar (10 bar with plastic spacer). Frame dimensions 540x390x155 mm (LxHxD).

The satellite can be completed by separately ordering: heat energy meters of the GE552 series. Sanitary water meter, GE552-2 series. Template (with shut-off valves) in painted sheet metal (RAL9010) with lockable door and adjustable frame depth; flush-mounting version 570x770x165 mm (LxHxD), code GE551Y056. Actuator K270 or K272 for 3-way zone valve. Kit for rinsing and pressure test, code GE551Y108. Kit of pipes for connecting the satellite to the template, code GE551Y112. Kit with additional valve, code GE500Y251. Components for centralisation and remote control of consumption data via M-BUS (GE552-4 series), or components for centralisation and remote control of consumption data via Wireless M-BUS (GE552-W series).

Dimensions

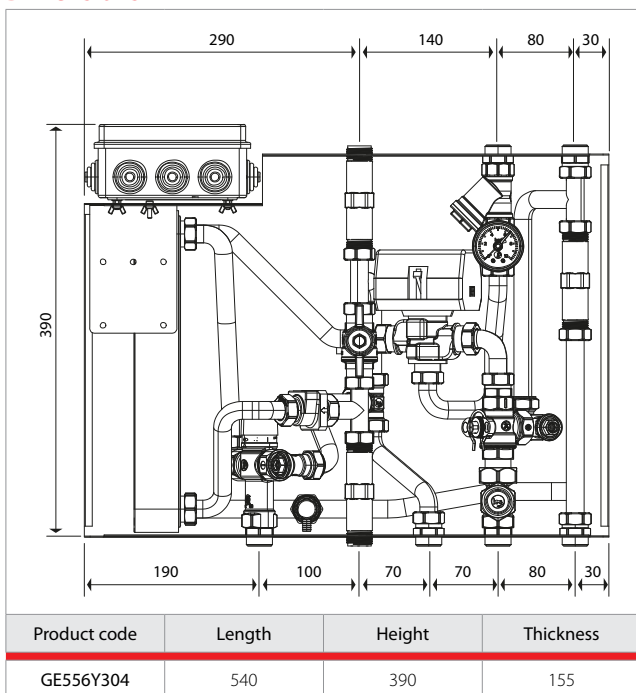


Figure 11 - Dimensions in mm

Reference Standards

- UNI EN 1434
- Directive 2004/22/EC
- EN 60751
- EN 61107
- EN 13757
- A.S.S.E. 1017

Additional information

For further information, visit the website www.giacomini.com or contact the technical service: ☎ +39 0322 923372 📠 +39 0322 923255 ✉ consulenza.prodotti@giacomini.com
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