

DIRECT ENERGY METERING

In Giacomini's product portfolio there is a complete range of Heat Interface Units for direct energy metering in the condominium area. The units are able to supply both heating and DHW, or just heating or DHW, for each individual apartment.

For DHW production, each unit is equipped with a heat exchanger and priority valve. The heat exchanger ensures the physical separation between the primary heating water and the DHW, allowing the production of the same only in case of demand

Why choose a multi-user distribution with Heat Interface Units

- Small technical spaces required
- Optimization of system costs: 3 pipes are enough (heating delivery, heating return, DCW); 4 or 5 pipes are not required (DHW and DHW recirculation don't need to be installed) as for systems with centralized boiler
- Energy saving and reduction of the diameter of the risers, when the primary return temperature

from the user. The absence of a DHW cylinder reduces energy losses, also allowing the unit to be more compact, lighter and more economical. Some types of units may have a second heat exchanger on the heating side: this occurs when particular conditions exist on the primary side, such as excessively high pressure or corrosion risks. The temperatures and flow rates of DHW and heating can be controlled through various regulation systems, integrated in the unit.

is controlled in the electronic units (by means of a flow regulation)

- With local DHW production, compared to centralized production, the pipes are shorter and the risks of stagnation is lower (anti-legionella prevention)
- A single energy meter (volumetric or ultrasonic) for individual metering of DHW and heating

APPLICATION EXAMPLE



System C, Individual Heat Interface Units

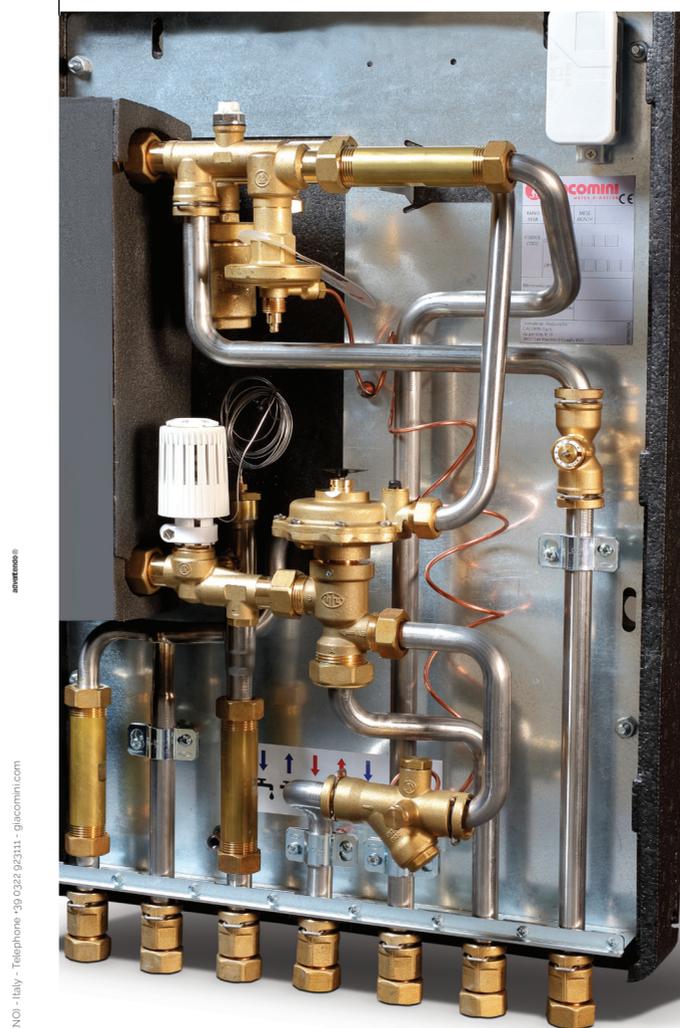
Condominium with apartments, central heat source in the cellar and individual satellites for heating and DHW production in each apartment. In the case of a district heating system, the heat source is replaced by a substation.

Main characteristics

- One single central heat source - with supply and fume venting - for the entire building
- Centralized production of primary 'technical' water and 3-pipe distribution: delivery, return and DCW
- One individual HIU for each residential unit for heating and local DHW production
- Local heating with radiators or radiant floor/ceiling systems
- Local instantaneous production of DHW (with heat exchanger) with priority on heating
- Individual energy metering for heating and DHW production integrated in the HIU
- Domestic water consumption metering with water meter for each residential unit

Code	MAIN COMPONENTS										☐	☒	
	Primary connections from above	Primary connections from below	Heat exchanger 16 plates (34 kW)	Heat exchanger 26 plates (42 kW)	Heat exchanger 36 plates (50 kW)	Low temperature heating (standard version)	Low/high temperature heating (standard version)	High temperature heating (compact version)	Without thermostatic by-pass*	With thermostatic by-pass			
SM556A10100	✓		✓			✓			✓			1	-
SM556A10180	✓		✓			✓						1	-
SM556A10200	✓		✓				✓					1	-
SM556A10280	✓		✓				✓					1	-
SM556A10C00	✓		✓					✓	✓			1	-
SM556A10CB0	✓		✓					✓	✓			1	-
SM556A20100	✓			✓		✓			✓			1	-
SM556A20180	✓			✓		✓						1	-
SM556A20200	✓			✓			✓		✓			1	-
SM556A20280	✓			✓			✓					1	-
SM556A20C00	✓			✓				✓	✓			1	-
SM556A20CB0	✓			✓				✓	✓			1	-
SM556A30100	✓				✓	✓			✓			1	-
SM556A30180	✓				✓	✓						1	-
SM556A30200	✓				✓		✓		✓			1	-
SM556A30280	✓				✓		✓					1	-
SM556A30C00	✓				✓	✓		✓	✓			1	-
SM556A30CB0	✓				✓	✓		✓	✓			1	-
SM556B10100		✓	✓			✓			✓			1	-
SM556B10180		✓	✓			✓						1	-
SM556B10200		✓	✓				✓		✓			1	-
SM556B10280		✓	✓				✓					1	-
SM556B10C00		✓	✓					✓	✓			1	-
SM556B10CB0		✓	✓					✓	✓			1	-
SM556B20100		✓		✓		✓			✓			1	-
SM556B20180		✓		✓		✓						1	-
SM556B20200		✓		✓			✓		✓			1	-
SM556B20280		✓		✓			✓					1	-
SM556B20C00		✓		✓				✓	✓			1	-
SM556B20CB0		✓		✓				✓	✓			1	-
SM556B30100		✓			✓	✓			✓			1	-
SM556B30180		✓			✓	✓						1	-
SM556B30200		✓			✓		✓		✓			1	-
SM556B30280		✓			✓		✓					1	-
SM556B30C00		✓			✓	✓		✓	✓			1	-
SM556B30CB0		✓			✓	✓		✓	✓			1	-

* The thermostatic by-pass kit can also be ordered separately at a later date with the code GE550Y040



Energy Management

EE0019 FEB2023

GE556-SM modular ultracompact satellite

enhanced quality and unbeatable reliability.

USER SATELLITES FOR DIRECT ENERGY METERING

GE556-SM

Modular user satellite for the metering of thermal energy consumption for heating and domestic hot water production (DHW) in modern autonomous systems with centralized heat production (e.g. district heating).

The GE556-SM satellite can be configured according to the different system requirements.

with connections of the primary circuit from above or below and with different types of heat exchangers for domestic hot water production. It is provided in the following versions:

- standard: for low temperature or low/high temperature heating systems
- compact: for high temperature heating systems



SM556B30200 STANDARD VERSION



SM556B30C00 COMPACT VERSION

NEW

Main features

- Hydraulic connections: telescopic system with flat seat rotating shell G 3/4" F
- Priority valve for domestic water production
- Thermostatic control valve for domestic water production
- Compact differential pressure control valve
- Water hammering shock absorber for the

domestic water circuit

- Insulation through shell in expanded polypropylene
- Suitable for the installation of the thermal energy meter and the cold and hot domestic water meter, replacing the brass sockets



COMPARISON TABLE A / B / C SYSTEMS CHARACTERISTICS

Characteristic	Icon	System A	System B	System C
Installation - material and labour	Material and labour complexity	TEC ECO A single heat generator, with fuel supply and fume venting, and a single DHW boiler	TEC ECO An individual boiler, with gas feed and fume venting, in every residential unit	TEC ECO A heat generator, sol. valve with primary buffer vessel, or a central substation and a satellite in each residential unit
	Need for a central technical room (cellar or attic)	TEC ECO Yes, with dimensions depending on the heat generator, boiler and other accessories	TEC ECO No, possibly a small space for heat generator for heating of the common parts	TEC ECO Yes, with dimensions depending on the heat generator, sol. valve with buffer, or the substation and other accessories
	Vertical tube distribution	TEC ECO 5-pipe distribution (delivery-return-DCW-DHW-recirculation) in a specific shaft increases the cost and heat loss	TEC ECO Local distribution, without specific shaft, reduces material/labour costs and heat loss	TEC ECO 3-pipe distribution (delivery-return-DCW) in a specific shaft increases the material/labour cost
	Need for a technical room in the residential unit	TEC ECO No	TEC ECO Yes, a small technical room or a dedicated space (bathroom, kitchen, closet, ...)	TEC ECO Yes, a small technical room or a dedicated space (bathroom, kitchen, closet, ...)
	Hydronic balancing	TEC ECO COM Static balancing based on rated power (maximum)	TEC ECO COM Easy to balance because they are small individual systems	TEC ECO COM The satellites are equipped with modern components for easy and effective balancing (DPC valves, thermostatic bypass, ...)
Comfort - safety of the system	Comfort DHW	COM Recirculation (with pump and clock) with central choice of the ° and availability of the DHW; the scope and duration of DHW are limited	COM The production of DHW is done locally and instantaneously, with ° and free availability and with high and prolonged flow	COM The production of DHW is done locally and instantaneously, with ° and free availability and with high and prolonged flow
	Risk of bacterial proliferation (Legionnaires Disease) in the DHW	COM Boiler ° control and disinfection are essential - the recommended temperature for DHW is 60°C	COM Individual installations are generally considered non-hazardous, subject to any national laws	COM Individual installations are generally considered non-hazardous, subject to any national laws
	Central room ° control for residential unit	ECO COM Since the radiators are connected on several columns, central control with programmable thermostat is very difficult	ECO COM Easy control via programmable central thermostat	ECO COM Easy control via programmable central thermostat
Comfort - management of the system	Remote control	ECO COM Since the radiators are connected on different columns, remote control is only possible with programmable thermostats for radiators (e.g. Klimadomotic TRV)	ECO COM The new individual thermostats and boilers can be controlled remotely from a PC or via smartphone	ECO COM The new electronic satellites can be controlled remotely from a PC or via smartphone
	Safety	COM All you need is a single fuel supply and a single central fume venting system	COM Each individual boiler must be supplied with gas and connected to a fume venting system	COM All you need is a single fuel supply and a single central fume venting system
	Cost of use, maintenance and after-sales service	ECO All you need is a single heat generator with mandatory periodic maintenance - in case of technical failure the entire building is involved	ECO Periodic maintenance is mandatory for each individual boiler - in case of technical failure only one residential unit is involved	ECO Mandatory periodic maintenance for the central generator and each satellite (limited and components are easily accessible)
Economic aspect of the system	Installed power	TEC ECO The power of the central generator takes into account the simultaneity factor for the production of DHW and is therefore much smaller than the total power in system B	TEC ECO Each individual boiler is dimensioned on the basis of individual DHW production (without simultaneity factor) and therefore the total power of all boilers is very large	TEC ECO The power of the central generator is the sum of the powers for heating and for the production of DHW, with simultaneity factor, of all the residential units
	Energy consumption	ECO High due to the storage of DHW throughout the building in the central boiler and due to the 5-pipe distribution	ECO Medium because each boiler is sized on the basis of DHW needs (necessary only 3% of the time) and therefore oversized for heating	ECO Low because the generator is sized on actual consumption of DHW, because of priority direct DHW production and 3-pipe distribution
	Energy efficiency	ECO Low because of often old heat generator with low efficiency, boiler with DHW storage and high ° heating systems	ECO Function of modulation of gas condensing boilers because they are oversized for the production of DHW (only 3% of the time is needed)	ECO High because high-efficiency modern heat source, low ° radiant systems and control of the primary return ° in electronic satellites
Environment - climate	Allocation of heating and domestic hot water costs	ECO * Central thermal energy metering for heating and DHW production * indirect metering with allocators on radiators and with domestic water meters for residential unit * Local reading of consumption	ECO * Gas consumption reading for residential unit * DCW consumption reading for residential unit * Local reading of consumption	ECO * Individual direct metering of thermal energy for heating and DHW production, integrated into the satellites * Individual metering with water meters for domestic hot water, integrated or not in the satellites * Centralised or remote reading of consumption
	Choice of classic or renewable energy source (2)	TEC ECO Normally, these plants run on gas or diesel, but it is relatively easy to switch to renewable sources	TEC ECO These plants have an individual connection to the gas grid and therefore it is very difficult to switch to renewable sources	TEC ECO It is very easy to power these plants with classic energy sources and renewable sources
Environment - climate	Connection to district heating system (primary)	TEC ECO Relatively easy, replacing the central heat generator with a central substation according to the characteristics of the building	TEC ECO Very difficult because one has to replace individual boilers with special satellites in each residential unit and add a central substation	TEC ECO Very easy, replacing the central heat generator with a central substation

(1) In accordance with German legislation - always check local/national legislation
 (2) classic energy source = gas or diesel - renewable source = heat pump, district heating, solar, biomass, ...

SYSTEM A

Central generator/heat source

Central generator/heat source for central heating and DHW production.



Main characteristics

- A single central generator/heat source - with feed and fume venting - for the entire building
- Centralised production of heating water
- Centralised production and storage of DHW
- 5-pipe distribution: flow and return heating, cold water and domestic hot

- Indirect metering of heating energy with individual cost allocators on the radiators
- Central metering of the energy for DHW production
- Metering of DCW water consumption with individual water meter for residential unit

SYSTEM B

Individual generators/heat sources

Individual generator/heat source for heating and local DHW production.



Main characteristics

- A single individual generator/heat source, with feed and fume venting, for residential unit
- Local production of heating water for radiators or radiant floor systems
- Direct local production (with heat exchanger) of DHW with priority over heating

- Local 4-pipe distribution: flow and return heating, cold water and domestic hot water (DCW - DHW)
- Energy metering for heating and DHW production on the power supply unit
- Metering of DCW water consumption with individual water meter for residential unit

SYSTEM C

Individual satellites

Central generator/heat source or substation with individual satellites for heating and local DHW production.



Main characteristics

- A single central generator/heat source - with feed and fume venting - for the entire building
- For district heating systems, the heat generator is substituted with a substation
- Centralised production of primary water and 3-pipe distribution: delivery, return and DCW
- An individual satellite per residential unit for heating and local DHW

- Local heating with radiators or radiant floor or ceiling systems
- Direct local production (with heat exchanger) of DHW with priority over heating
- Individual energy metering for heating and DHW production in the satellite
- Metering of DCW water consumption with individual water meter for residential unit