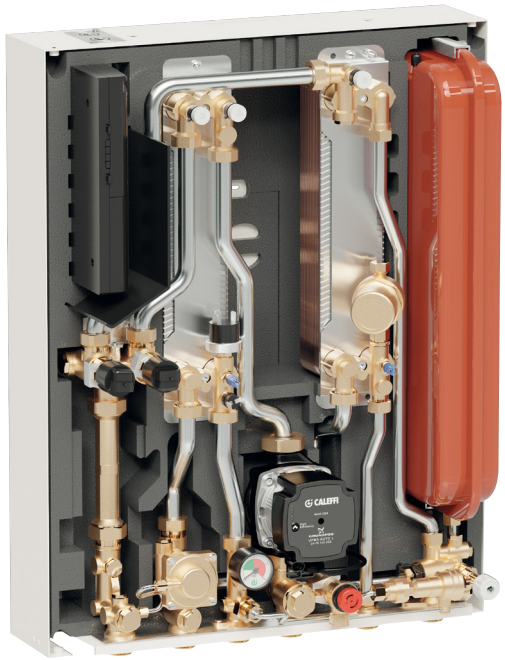
SATK series indirect wall-mounted heat interface unit
Instantaneous DHW production

SATK32 series

01310/21 EN
replaces 01310/19 EN



Features

The SATK32 HIU is the most compact, complete and efficient solution for enclosures in individual dwellings for use in:
- district heating
- centralised systems that require high static pressures or thermal medium temperatures, which are not suitable for use in domestic systems and constitute a potential hazard.

SATK32 series heat interface units keep the primary and secondary water completely separate.
This type of device is useful when designing or redesigning the heating and domestic hot water systems of apartment buildings under renovation, as well as facilitating any maintenance required in the individual dwellings, as it eliminates the risk of impurities contaminating the entire centralised distribution network.
The electronic regulation controls the secondary circuit flow temperatures, acting on the primary circuit flow rates by means of modulating valves. High-performance exchangers for DHW production helps to minimise the central heating system return temperature, allowing a significant reduction in primary circulation flow rates.
This leads to lower energy needs for pumping, in addition to benefits in terms of lower costs of the primary distribution system.

SATK32 series HIU are designed to meet the needs of the various parties involved. SATK32 offers solutions to make installation as easy as possible, various advanced electronic functions aimed at maximizing system efficiency and the possibility of remote control of the product, for maintenance and monitoring.

Product range

SATK32103	Indirect wall-mounted HIU for instantaneous domestic hot water production, capacity 50 kW[1]
SATK32105	Indirect wall-mounted HIU for instantaneous domestic hot water production, capacity 60 kW[1]
SATK32107	Indirect wall-mounted HIU for instantaneous domestic hot water production, primary at low temperature, capacity 62 kW[1]

Functional characteristics

Standard functions

- Heating range
  - LOW temperature setting 25–45 °C
  - MEDIUM/HIGH temperature setting 45–75 °C

  Set point regulation
- DHW production range 42–60 °C

Optional functions

Domestic cycle:	programmable DHW pre-heating function return temperature controller
Heating cycle:	return temperature control modulating temperature control with compensated set point weather compensated temperature control primary flow rate limitation

[1] *Primary side head > 50 kPa, flow temperature 70 °C, DHW 10 - 50 °C*

Characteristics of central heating systems with instantaneous DHW production - SATK series heat interface unit

Lighter distribution network
Unlike centralised systems with DHW production in the central heating system, heat interface units make it possible to eliminate 2 of the 5 pipes that must be routed into the apartments. An initial and important benefit is obtained in terms of lower capital investments and installation costs of the distribution networks.

Easy and transparent metering
Metering of consumption is achieved by means of a heat meter (for consumption related to space heating and DHW production) and a single water meter for the total amount of domestic water without dual metering for DHW and DCW.

Standard UNI 9182 states that in the distribution of DHW the water must be delivered at the design temperature within 30 seconds of initial tapping. This may result in the need to lay the recirculation line in the apartment, making it particularly difficult to meter DHW consumption because not all the water that enters the dwelling is actual consumption. Such recirculation networks are also afflicted by serious balancing problems, since each branch must carry a limited flow rate.
Systems with instantaneous DHW do not require recirculation and the speed of response of a heat interface unit depends solely on its position inside the dwelling and the speed of its internal regulation. The SATK series heat interface units are equipped with electronic control that continually acts on stepper type modulating valves in order to guarantee that DHW temperature remains constant even in the presence of sudden changes in the tapped flow rate. To further reduce response times of the unit the exchanger pre-heating option can be activated to keep the unit constantly at operating temperature.

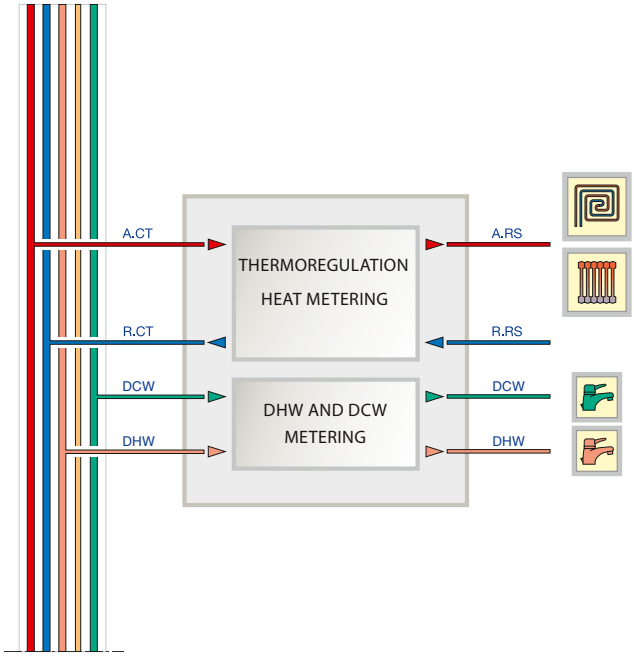
No risk of legionnaires' disease
Local DHW production eliminates the condition for the development of the Legionella bacteria because hot water is produced only when needed. This dispenses with the need for anti Legionella thermal disinfection of the distribution network.

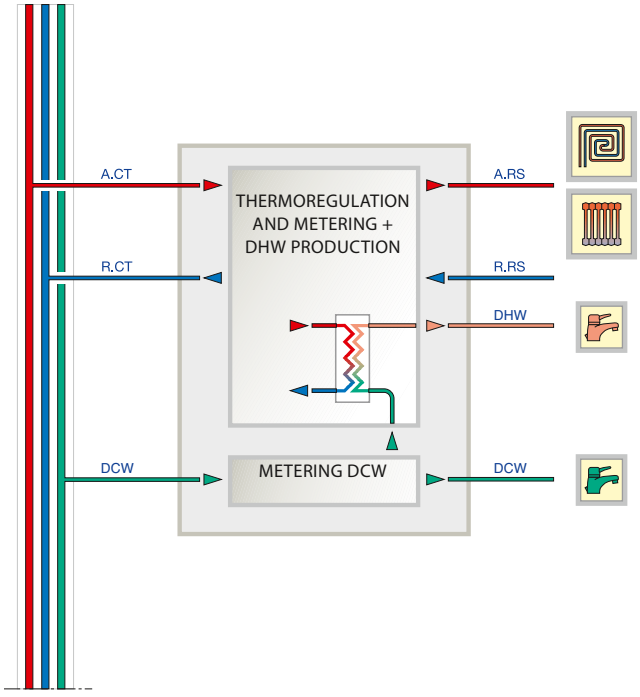
DHW production priority with respect to heating
In the case of a heating request simultaneous with a DHW tapping, priority is given to the production of DHW. In this way, performance and comfort are maximized, making all the primary flow rate available for a possible tapping peak.

Designed for integration with renewable energy sources
The two-way design, together with the electronic flow control, minimizes the return temperature and makes it possible to integrate alternative energies and use low temperature heat sources.

Simple and reduced maintenance
The greatest risk for an instantaneous DHW production system, either it consists in a domestic boiler or a heat interface unit, is the creation of limescale in the plate heat exchanger. The higher the temperature of the domestic hot water, the greater the risk of precipitation of limescale.
The electronic control ensures that DHW production is directly at the temperature of use set by the user (without using thermostatic mixing valves downstream of the exchanger), the water temperature in the exchanger is the minimum possible.
In addition to this, at the end of a tapping, the primary modulating valve closes in an extremely fast way and therefore ensures that there is no overheating of the water, at this point still, inside the exchanger. The exchange efficiency is therefore optimized, while the risk of limescale creation is minimised.

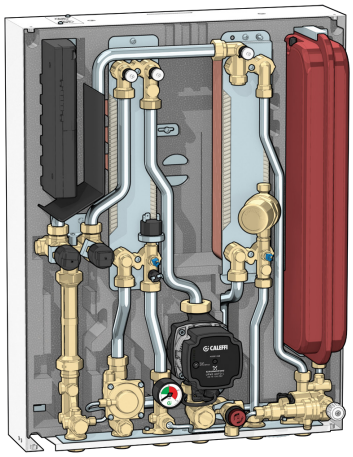
SATK series heat interface units are designed so that it is extremely easy to access the components during maintenance . The removal of the main components does not require the need to intervene on other parts of the product.

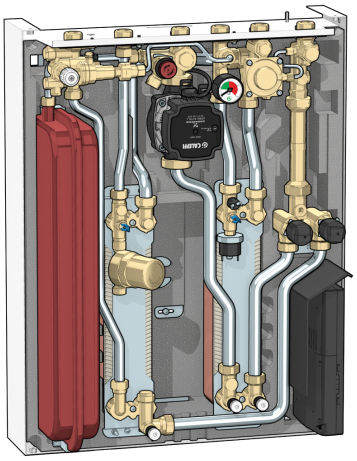




INSTALLATION

The SATK32 heat interface unit can be installed either with the connections facing downwards or upwards.
This is possible for the careful design choices to guarantee maximum installation flexibility.

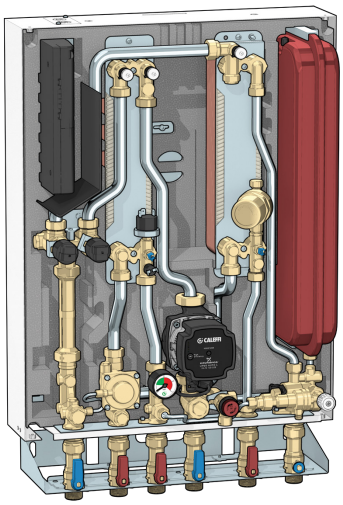


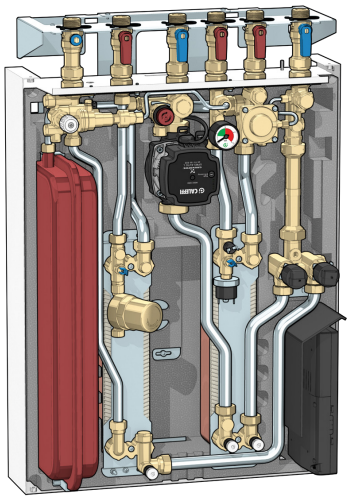


The installation is facilitated thanks to the use of a wall bracket, supplied in the package, and the optional template (code 789023) that is used for "plug and play" connection. The 789023 template is used to divide the installation into several steps:

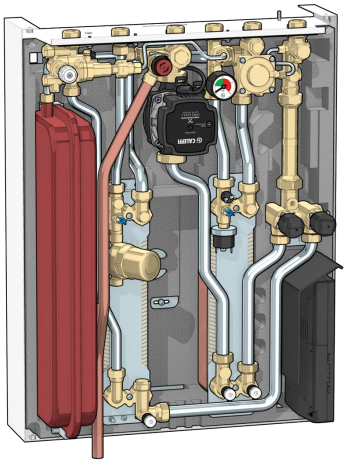
- making the hydraulic connections between the template and the system, without risking to damage the heat interface unit when doing the works;
- complete washing of the system, by creating a hydraulic short-circuit with flexible pipes applied to the template;
- installation of the heat interface unit only when the works are completed, quickly and easily because of the special telescopic joints.

The 789023 template is also reversible (top-bottom).





In case of installation with upward connections, it is necessary to convey the safety relief valve drain through the heat interface unit housing. For this purpose a dedicated drain pipe has been created, code 789832.



Remote control use

The HIU control device has the dual function of user interface and room chrono-thermostat. It can be installed either on the heat interface unit or on the wall, in a position where the temperature detected is significant for the heating function control.

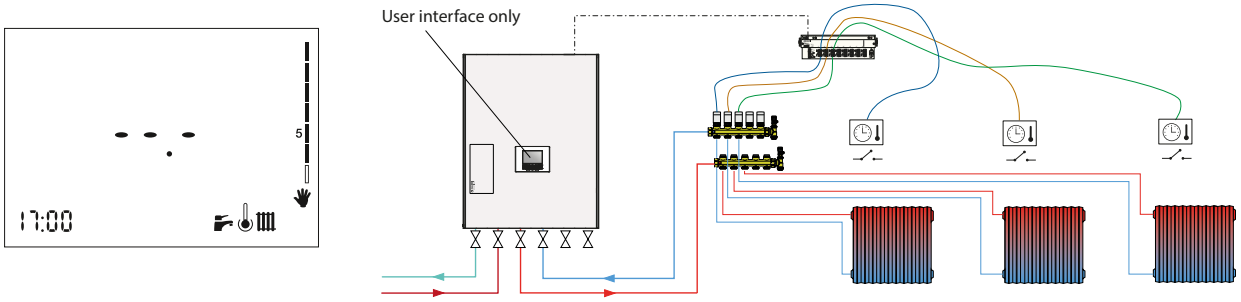
If the control device is fitted in the dedicated location on the cover of the HIU, the thermostat function can be disabled. Each zone in the apartment must have its own independent chrono-thermostat (drawing 1).

Alternatively, always leaving the remote control on the heat interface unit, it will be possible to keep the clock function active, in order to set the domestic heating system operating time bands (applicable to all the zones controlled by external thermostats) (drawing 2).

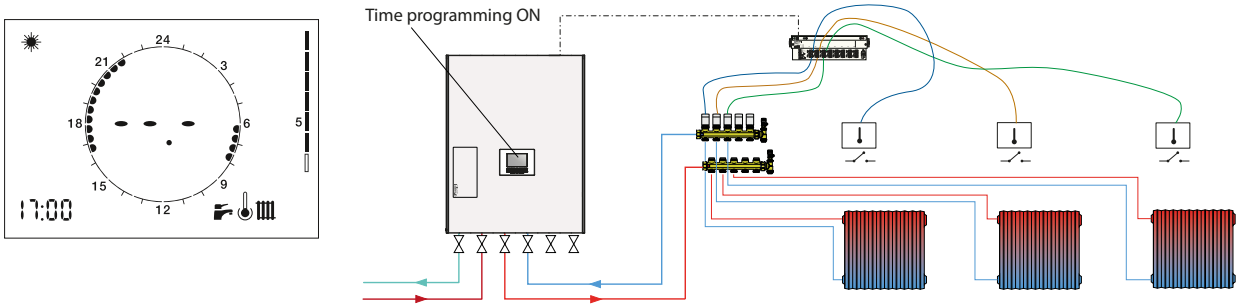
Finally, the remote control can be used as a single apartment chrono-thermostat or used to service a single zone in a multi-zone building unit (and, therefore, with a distribution manifold fitted with control valves) (drawing 3).

In the latter case, the control valve of the corresponding zone will be driven using the dedicated contact on the heat interface unit.
The "AUX" contact is normally programmed to close when the heating call comes from the remote control. The remaining external room thermostats can instead be connected as usual to the respective zone valves and, through a control bar, some relays, or through the auxiliary microswitch of the valve motor, a free contact will be sent to the heat interface unit for the consent to the heating function.

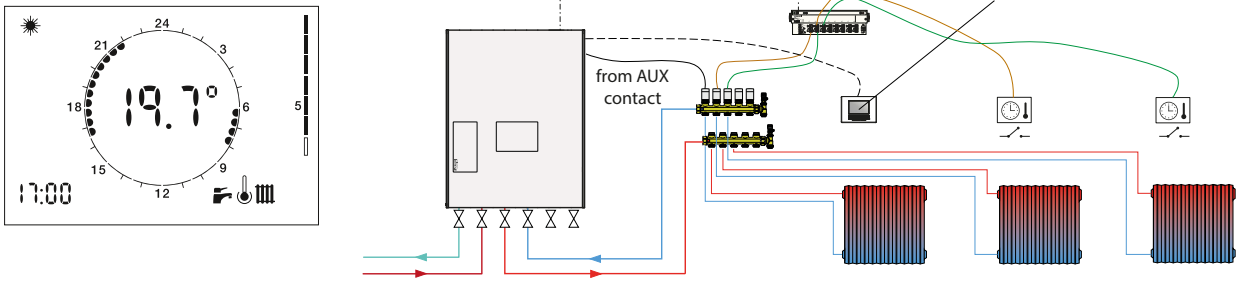
The remote control does not require a battery. The power supply is obtained from the same two wires used for data exchange, which are supplied in low voltage (3 V).



1 - HIU interface only (no clock, no thermostat)



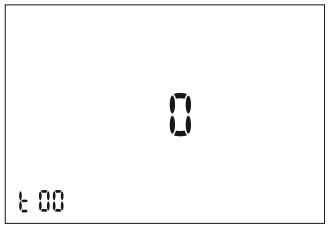
2 - Remote control in clock mode (no thermostat)



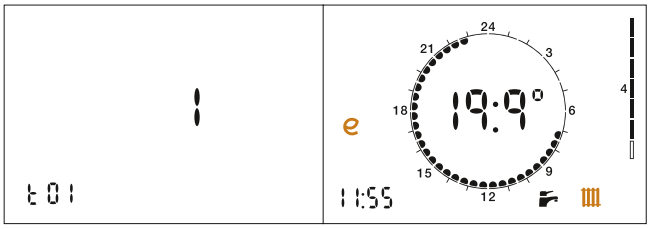
3 - Remote control in zone chrono-thermostat mode

HEATING FUNCTION

HIU setting at HIGH/LOW temperature
The HIU is set at LOW temperature by default (underfloor heating). To change this setting and supply a system with high temperature emitters go to the technical menu and set parameter t00 to 0

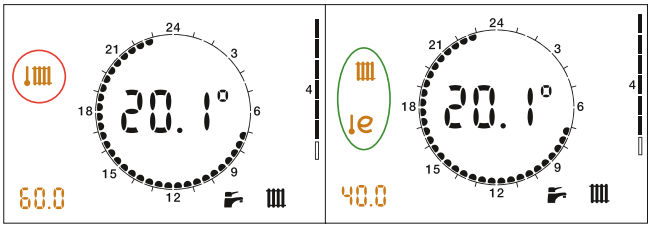


DEFAULT SETTING: set point regulation (technical parameter t01 = 0)
When heating cycle activation is requested by the room thermostat, the circulation pump is powered while the modulating valve is opened gradually until the set point temperature is reached.
At the end of the heating cycle, the circulation pump comes to a stop and the modulating valve is closed. The heating cycle ON condition is indicated by the blinking symbol.

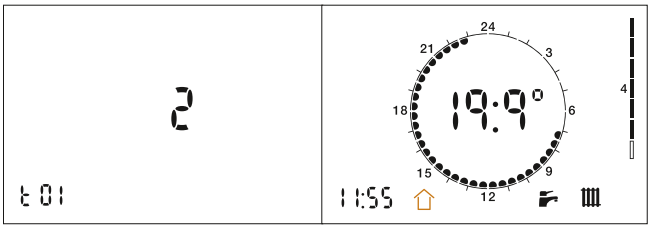


- **OPTIONAL SETTING: primary return temperature limit (technical parameter t01 = 1)**
  When heating cycle activation is requested by the room thermostat, the circulation pump is powered while the modulating valve is opened gradually until the set point temperature is reached, if the return temperature is lower than or equal to the set limit value. If this condition is not met, the flow temperature is reduced (by a maximum of 15 °C for HIU in HIGH temperature, and maximum 3 °C if in LOW temperature), in order to restore the temperature to within the limit values. When the function intervenes, the icon e appears on the display.

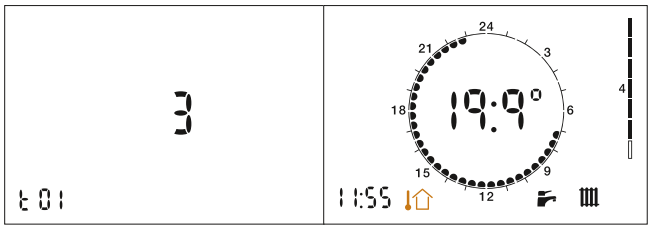
Flow/primary return limit temperature range
The flow temperature range, identified graphically by the symbol in the red circle, is:
25–45 °C for heat interface units in LOW temperature
45–75 °C for heat interface units in HIGH temperature
The primary return limit temperature range, identified by the symbols in the green circle, is:
15–42 °C for heat interface units in LOW temperature
30–70 °C for heat interface units in HIGH temperature

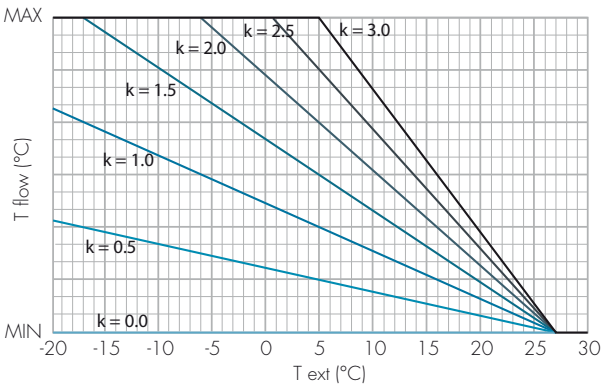


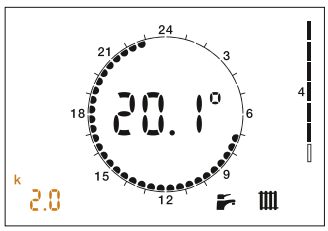
- **OPTIONAL SETTING: modulating temperature control with compensated set point (technical parameter t01 = 2)**
  When the function is enabled, the flow temperature is modified (± 10 °C with respect to the set point for HIU in HIGH temperature, ± 3 °C if in LOW temperature) according to the temperature detected by the return probe in order to maintain this latter temperature value constant. This keeps the actual thermal output of the slab - and therefore the ambient thermal load - under control. The thermal response time of the system is thus minimised.
  If the function is enabled the display shows the symbol ⌂.



- **OPTIONAL SETTING: outside compensated temperature control (technical parameter t01 = 3)**
  When the function is enabled, the flow temperature is calculated based on the temperature detected by the outside probe, in accordance with the curve shown below. The display shows the symbol ⌂.







T MAX is the set point that has been set.
T MIN is 45 °C for heat interface units in HIGH temperature, 25 °C for LOW temperature

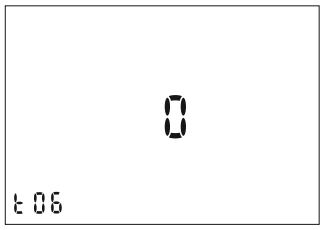
DHW FUNCTION

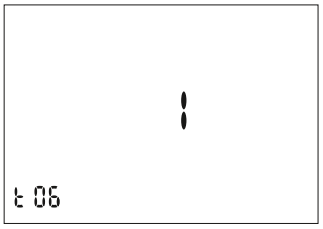
The DHW cycle always takes priority over the heating cycle.

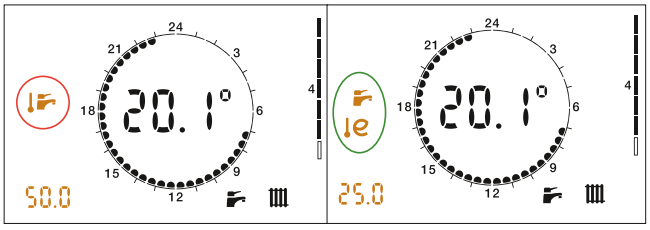
DEFAULT SETTING: fixed DHW set point (parameter t06=0)
When DHW cycle is activated due to water request (detected by the domestic water flow meter), the controller pilots the opening of the modulating valve so as to keep the temperature detected by the domestic water probe at the selected set point value.
When tapping ends, the modulating valve is fully closed.
The DHW cycle ON condition is indicated by the blinking symbol.

OPTIONAL SETTING: primary return temperature limit (technical parameter t06 = 1)
When DHW cycle activation is requested, due to DHW tapping by the user (detected by the domestic water flow meter), the regulator modulates the valve opening in order to adjust the temperature detected by the domestic water probe to the DHW set point value if the return temperature is less than or equal to the set limit. If this condition is not met, the flow temperature is reduced (by a maximum of 7 °C down to a temperature that can be no less than 40 °C), in order to restore the return temperature within the set limit values.

Flow/return limit temperature range
The settable DHW temperature (identified by the symbol in the red circle) is in the range 42–60 °C, the return temperature limit (symbol in the green circle) can be set in the range 15–45 °C.







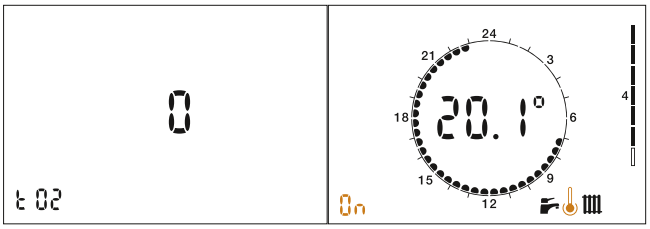
DHW COMFORT FUNCTIONS PREHEATING/RECIRCULATION

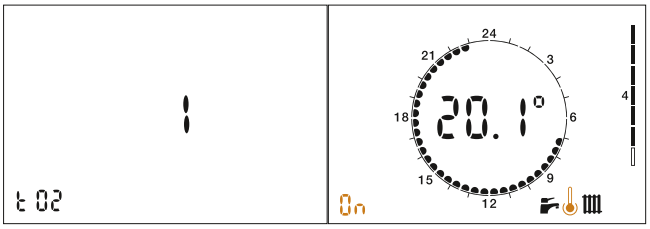
The comfort function can alternatively be preheating to the DHW exchanger or DHW recirculation management. They are activated by setting the comfort function to ON or PROG.

DEFAULT SETTING: domestic water exchanger preheating (parameter t02=0)
During periods when the domestic water cycle is not used, if the DHW probe detects a low temperature with respect to the SET value, the regulator partially opens the domestic hot water modulating valve for the time required (max. 5 min.) to bring the exchanger to the condition wherein it can assure rapid DHW production.
The active pre-heating cycle is indicated by the blinking symbol.
This function is less of a priority than any domestic water or heating cycles.

OPTIONAL SETTING: management of DHW recirculation in the apartment (technical parameter t02 = 1)
As an alternative to the DHW comfort function it is possible to manage the DHW recirculation in the apartment through a similar logic. During periods of non-use of the domestic water cycle, when the DHW sensor detects a low temperature with respect to the SET value, the controller, by means of the auxiliary contact, powers the recirculation pump (not supplied) generating a DHW cycle that will be maintained active for a pre-set time (2 minutes). To change this time interval, it is possible to use parameter t09 in the technical menu (1 unit = 10 seconds).
The recirculation pump must necessarily be supplied through the auxiliary microswitch. Parameter t02=1 disables the other functions of the AUX contact (see pages 4 and 8).

The comfort function can be enabled according to a time programming on a weekly basis, defined by the user.





N.B.: An appropriately dimensioned expansion vessel must be provided for a DHW recirculation system.

Return temperature limitation in heating mode

A design aimed at containing the return temperature to the building central heating system or substation is essential for energy efficiency. A low return temperature means, for example:

- that at the same power output, the thermal medium flow rate will be lower, thanks to the high temperature difference on the primary side. This results in pipes with in average smaller diameter, lower power pumps and consequent lower operating costs;
- less thermal losses, because of the lower temperature of the fluid and to the reduced tube surface;
- that it is possible to exploit low temperature heat sources (heat pumps, solar heat, waste heat from industrial processes) and, in the case of condensing generators, to maximize their efficiency.

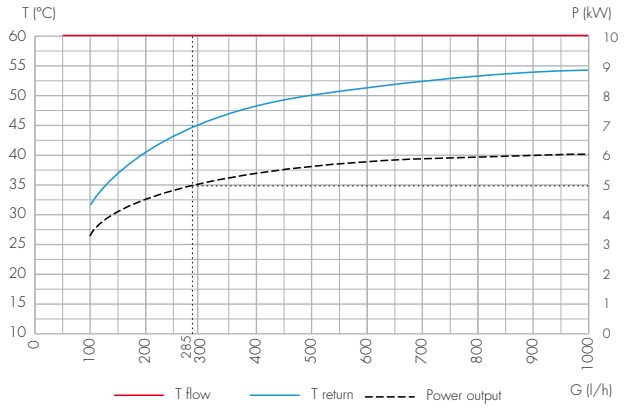
In the case of underfloor heating systems, the return temperature is naturally low and, normally, there are no particular balancing problems of the apartment circuits. The situation is completely different in the case of high temperature terminals such as radiators and convectors. The figure on the left shows the exchanged power trend (right axis) and the return temperature (left axis) in a radiator system with nominal power of 9 kW (ΔT_n = 50 °C), depending on the supply flow rate, with inlet temperature of 60 °C.
Assuming that such radiators have been chosen in order to obtain a exchanged power of 5 kW with a temperature difference of 15 °C, it is observed that the design flow rate would be approximately 300 l/h.

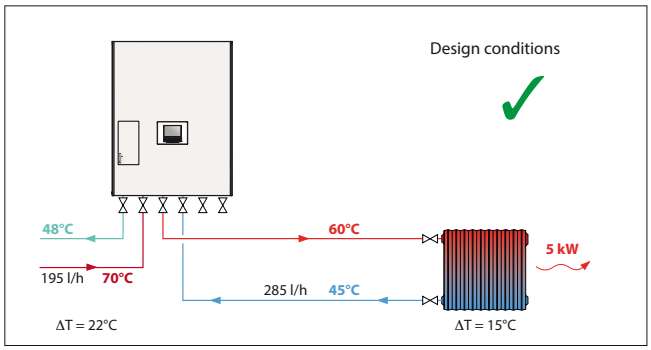
An incorrect balancing, due to the impossibility of measuring the effective flow rate to the radiator, causes a sharp reduction in the temperature difference. Low flow rates, in order of magnitude of some tens of l/h per radiator, are difficult to control by acting on the lockshield valve, normally the only available balancing device.

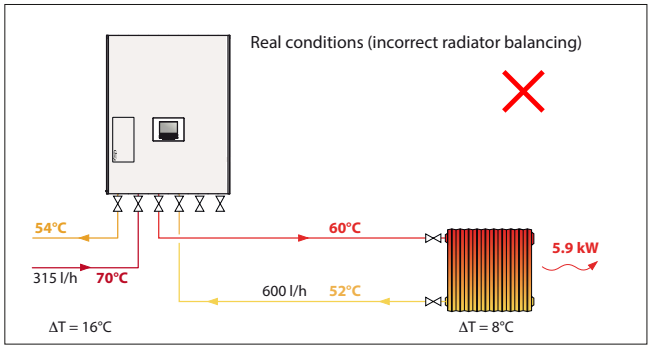
The return temperature control function available in the SATK32 heat interface unit provides a useful tool to compensate for an incorrect balancing. By enabling this function, the SATK32 interface will ask to indicate, in addition to the flow set point, also the return temperature limit (in heating mode) that must be maintained. The control logic becomes the following:

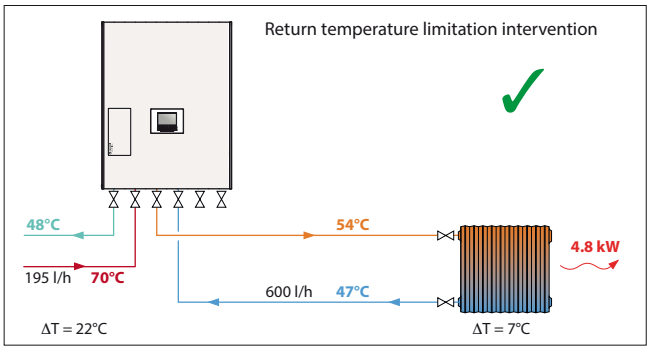
- If *T return <= T return*, *limit* then *T flow = T flow, set*
- If *T return > T return*, *limit* then *T flow* is lowered so as to return *T return* within the limit set.

The maximum flow rate reduction temperature is 15 °C if the heat interface unit is set at high temperature (flow temperature 45–75 °C), of 3 °C if set at low temperature (25–45 °C).
In the previous example, an incorrect balancing creating a flow rate more than twice the design value, e.g. 600 l/h, the HIU would react by reducing the flow temperature to about 54 °C (from the initial 60 °C), restoring the return temperature within the limits (see drawings at the side).
It should be noted, however, that this function does not completely replace the hydraulic circuits balancing of the apartment, but is designed to compensate for the natural inaccuracies due to practical difficulties.



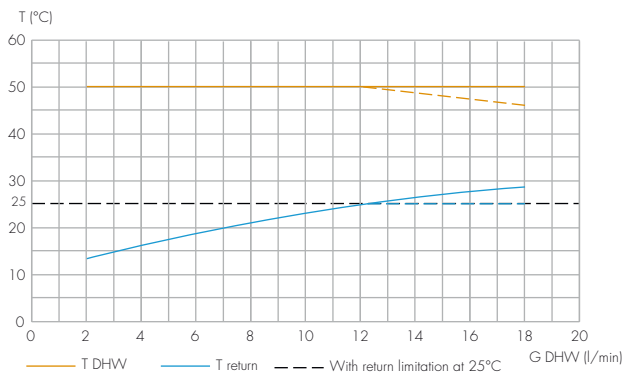






Return temperature limitation in DHW mode

Even in DHW production mode it is possible to enable a similar function which, by acting on the DHW production temperature (with a maximum reduction of 7 °C with respect to the set point, and with DHW never less than 40 °C), allows to not exceed a pre-set limit on the primary return temperature.
As the demand for DHW increases, keeping the production temperature stable at the set value, the return temperature tends to increase. By setting a limit to the latter, it is possible to observe a behaviour like the one shown aside, with a slight reduction in temperature for high flow rates where, generally, the user requires a low temperature (use for shower/filling bathtub)



Flow rate maximum limitation
Hydraulically, the SATK32 heat interface unit consists of two parallel exchangers, supplied by two independent modulating valves. Both valves are under the control of a differential pressure regulating valve (DPCV) which makes invariant the pressure head to which the valves are subjected with respect to the conditions on the primary network. Because of this hydraulic design, the regulation is "(differential) pressure independent" and it is possible to determine, with reasonable accuracy, the relationship between flow rate to the exchanger and modulating valve position.
In particular, by setting the opening limit of the valves using the technical menu of the remote control, it is possible to limit the maximum flow rate that each exchanger can receive.
This limitation has a particular meaning for the heating function: the modern building units are normally subject to low thermal loads and, consequently, require low flow rates during operation in heating mode. However, the heat interface unit is normally sized for the supply of domestic hot water, with typically higher flow rates.
A limit on the flow rate used in heating mode prevents situations in which, due to simultaneous activations of various users (typically in the morning or in the evening), with cold starts (for example with radiators off for several hours and, therefore, cold), there is a situation of hydraulic unbalancing due to flow rates well beyond the design values. In fact, when the heat interface unit is started, it would detect a high difference between set point and actual temperature, and would react by opening the modulating valve to service the heating exchanger far beyond the value that will be reached in stationary conditions.

The flow limitation is achieved by setting the maximum valve opening percentage, by means of a specific technical parameter. The (indicative) correspondence between opening rate and flow rate is shown in the two graphs aside.

Comfort function programming
The comfort function (normally pre-heating of the domestic hot water exchanger) can be programmed weekly on a 30 minute basis, in order to limit it to the strictly necessary periods, obtaining the best compromise between comfort and energy saving.

Other functions of the electronic controller

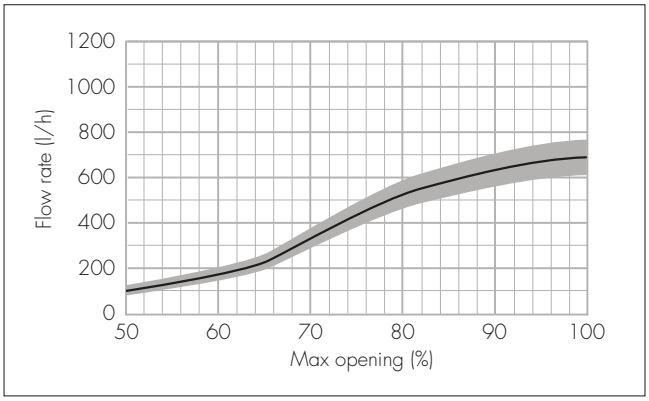
- **Auxiliary contact**

The heat interface unit is provided with an output contact (max 230 V, max 3 A) which can be programmed to close when certain events occur. Each event linked to operation of the HIU is linked to a numerical value, according to the following table:

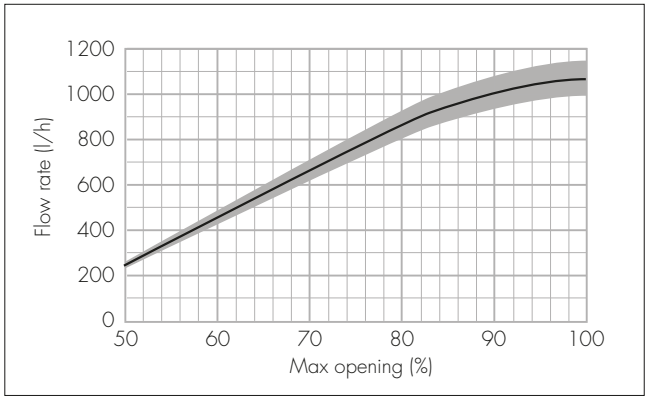
Event/condition	Value
DHW tapping in progress	1
Heating cycle in progress	2
DHW comfort cycle in progress	4
HIU OFF	8
Error not active	16
Error active	32

example Driving an external primary flow pump, normally OFF.
The contact must be closed if any HIU function is active (DHW production, heating, comfort)

The related parameter (t05) must therefore be set to:
1 + 2 + 4 = 7



Flow rate vs. max motor opening - primary heating



Flow rate vs. max motor opening - primary DHW

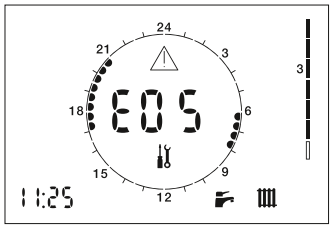
- **Anti-Legionnaires function**
  It is possible, using the technical menu, to enable a daily thermal disinfection of the heat exchanger, carried out between 3:00 am and 3:30 am.
  If this function is enabled, it is necessary to use appropriate anti-scald devices to protect the user.

- **Modulating valve reset to zero**
  Immediately after the electric ignition, the portion of modulating valves installed are reset to zero.

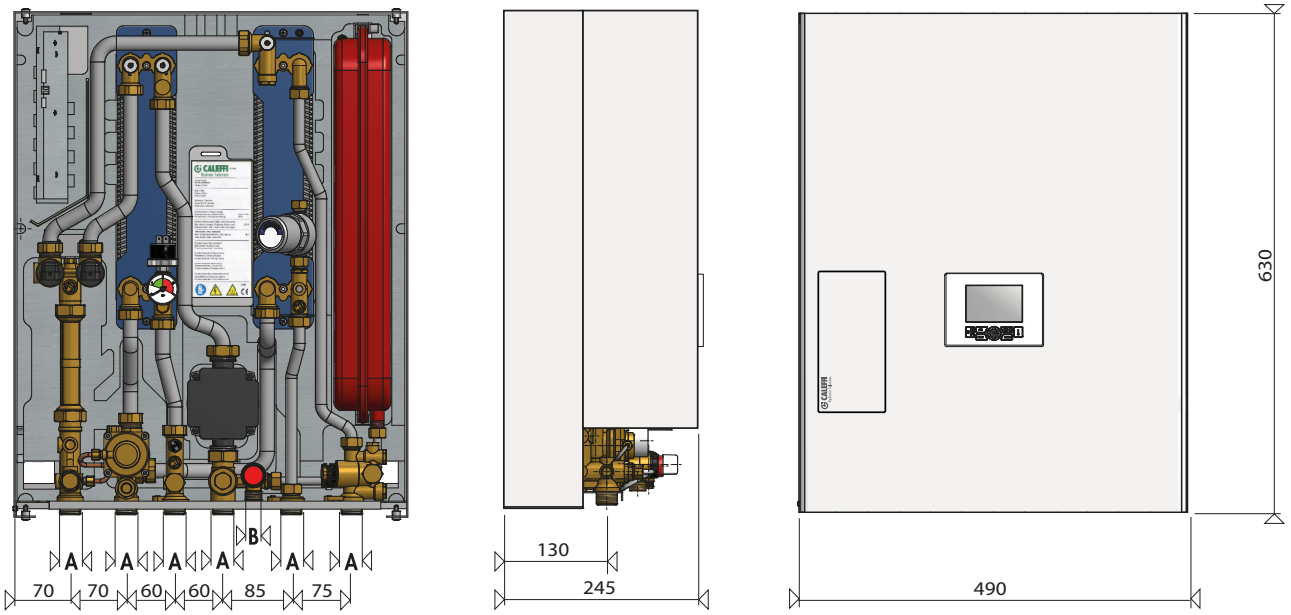
- **Pump anti-clog**
  When the pump is not in use, it is powered on for a period of 5 seconds every 24 hours.

- **Modulating valve anti-seizing**
  The anti-seizing cycle for the modulating valve is run every 24 hours.

- **Error diagnostics**
  In the event of functional anomalies, the remote control shows an error code corresponding to the problem detected.



Dimensions



SATK32 technical specifications

Medium:		water
Maximum percentage of glycol:		30 %
Maximum medium temperature:		90 °C
Max. working pressure:	- primary circuit:	1,6 MPa (16 bar)
	- secondary circuit:	0,3 MPa (3 bar)
	- domestic circuit:	1 MPa (10 bar)
Primary circuit nominal flow rate:		1,2 m³/h
		1.1 m³/h (cod. SATK32107)
Nominal pressure loss on primary circuit:		Δp 50 kPa (0,5 bar)
Maximum head on primary circuit:		Δp 600 kPa (6 bar)
Domestic water circuit max. flow rate:		24 l/min (0,4 l/s)
Minimum flow to activate domestic water flow meter:		1,5 l/min ±0,3
Electric supply:		230 V (AC) ±10 % 50Hz
Max power consumption:		80 W
Protection class:		IP 40
Pump:		UPM3 15-70
Actuators:		stepper 24 V
Probes:		NTC 10 kΩ
Safety relief valve setting:		0,3 MPa (3 bar)
Safety thermostat:		55 °C ±3
Expansion vessel:	- capacity:	7 l
	- pre-charge value:	0,1 MPa (1 bar)
Pressure switch:	- opening:	40 kPa (0,4 bar)
	- closing:	80 kPa (0,8 bar)

Materials

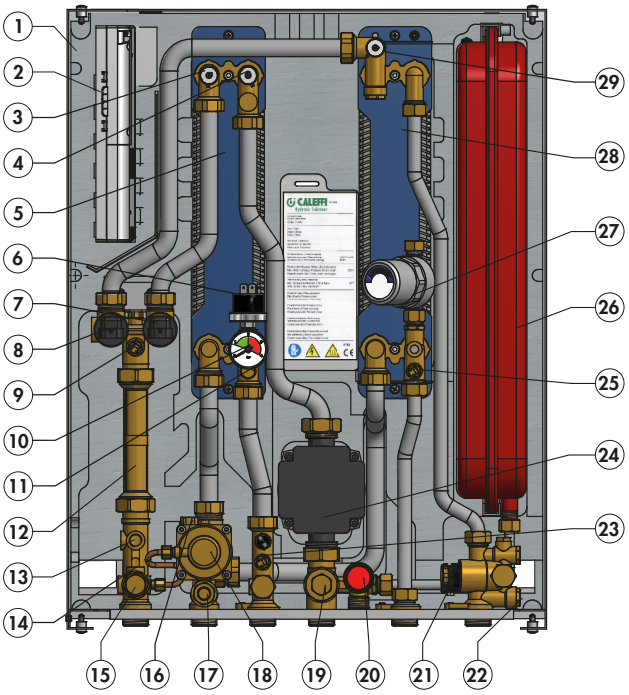
Components:	brass EN12165 CW617N
Connecting pipes:	steel
Frame:	painted steel RAL 9010
Exchanger:	stainless steel brazed with copper

Insulation

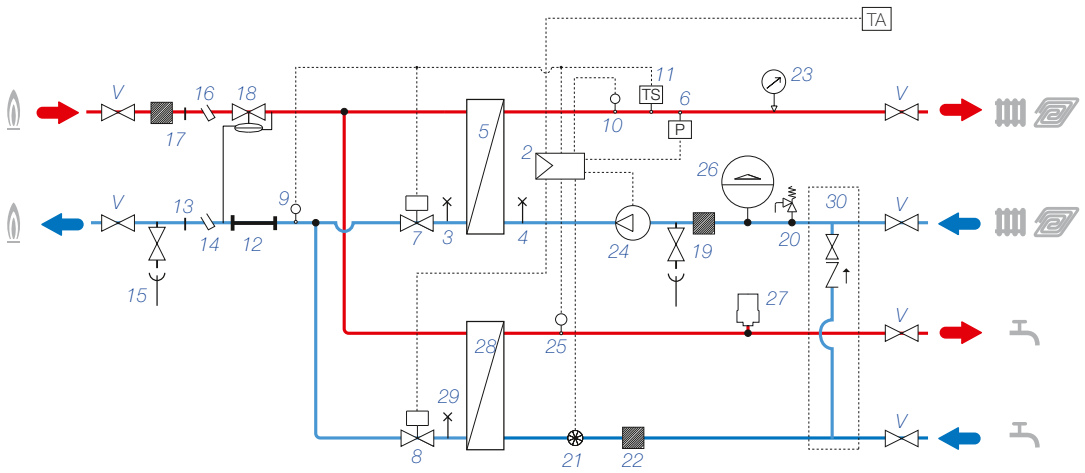
Material:	EPP
Density:	45 kg/m³
Working temperature range:	3-90 °C
Thermal conductivity:	0,04 W/(mK)

Characteristic components

1. Frame
2. Electronic controller
3. Heating exchanger primary circuit air venting/drain
4. Heating secondary circuit air venting/drain
5. Heating exchanger
6. Pressure switch
7. 2-way modulating valve - Heating
8. 2-way modulating valve - DHW
9. Return temperature probe
10. Heating flow temperature probe
11. Safety thermostat
12. 130 mm heat meter template
13. 1/4" F pressure test port
14. Connection for M10x1 heat meter return probe
15. Primary drain cock
16. Connection for M10x1 heat meter flow probe
17. Mesh strainer + 1/4" F pressure test port
18. Differential pressure regulating valve
19. Secondary drain cock + mesh strainer
20. Safety relief valve
21. Flow meter (turbine + sensor)
22. Mesh strainer
23. Pressure gauge
24. Pump
25. DHW temperature probe
26. Expansion vessel
27. Water hammer arrester
28. DHW exchanger
29. DHW exchanger primary circuit air venting/drain

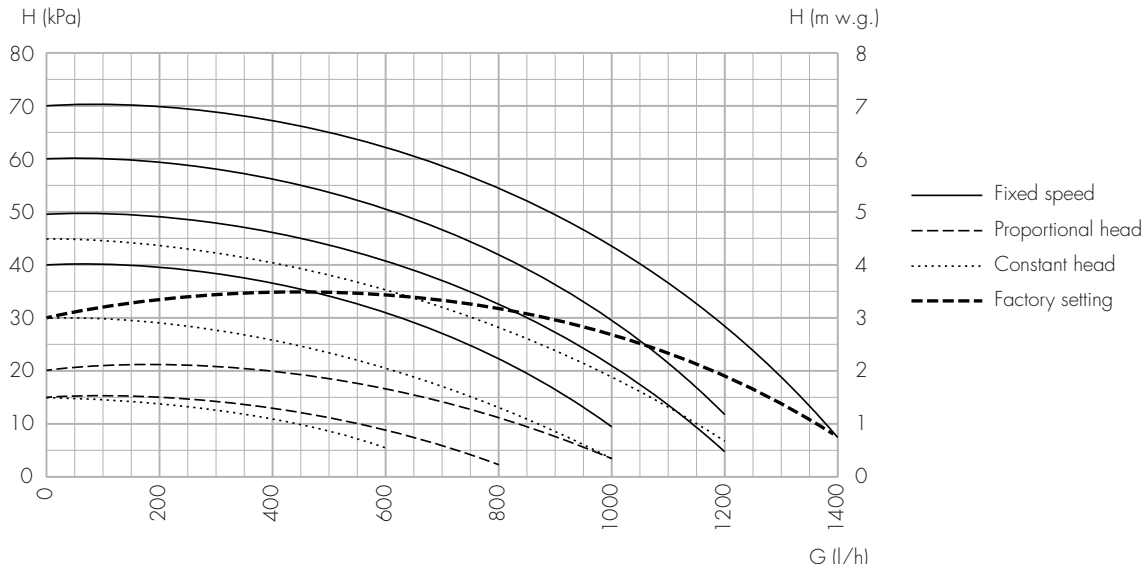


Hydraulic diagram



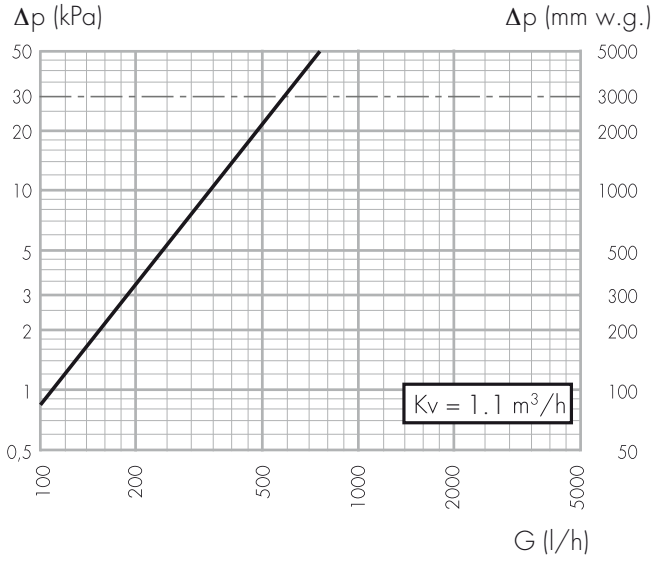
30. Filling unit with CB-type backflow preventer code 572120 (optional)

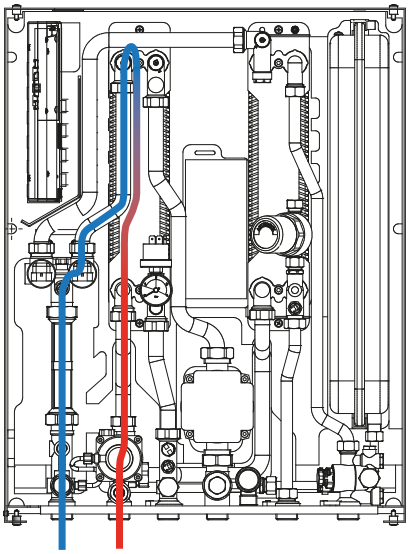
Pump residual head



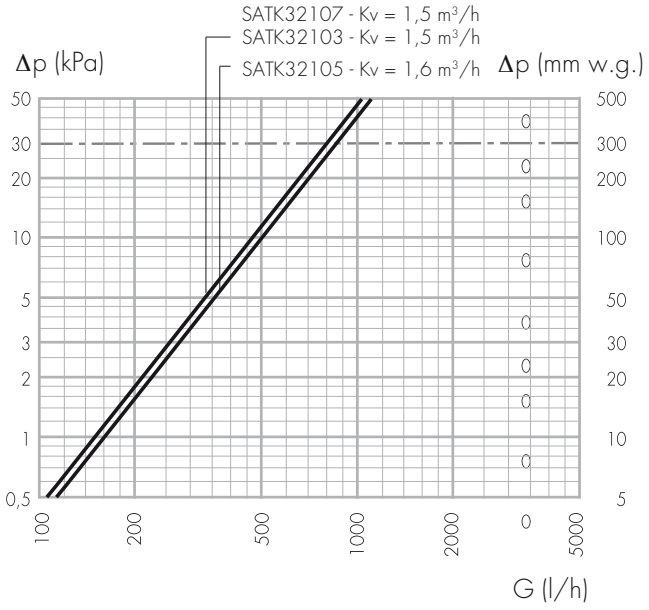
Hydraulic characteristics

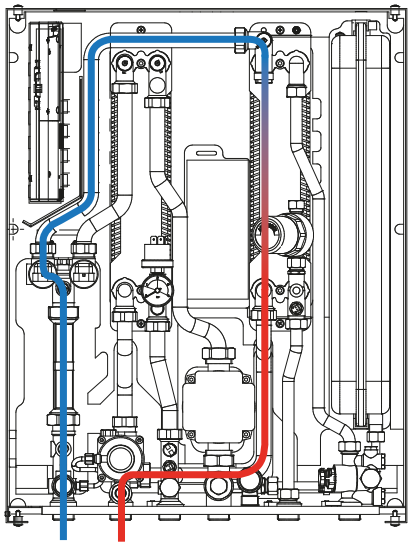
Heating function - primary



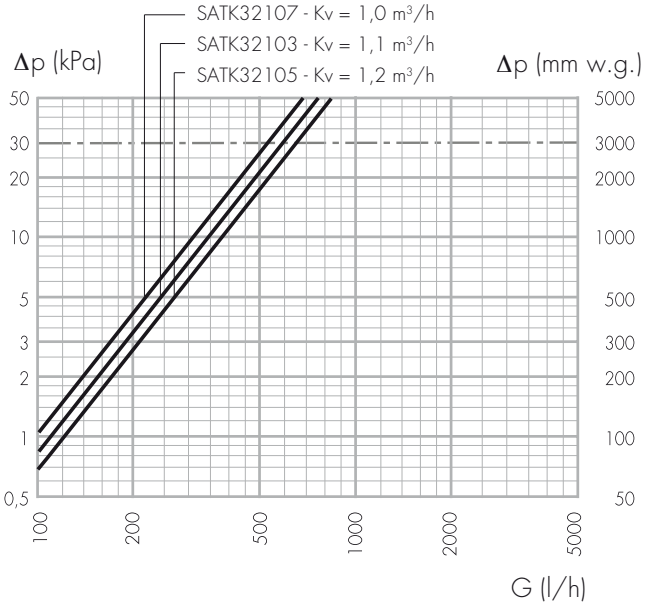


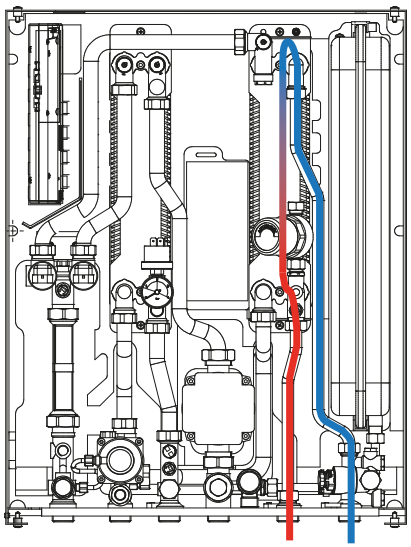
DHW function - primary





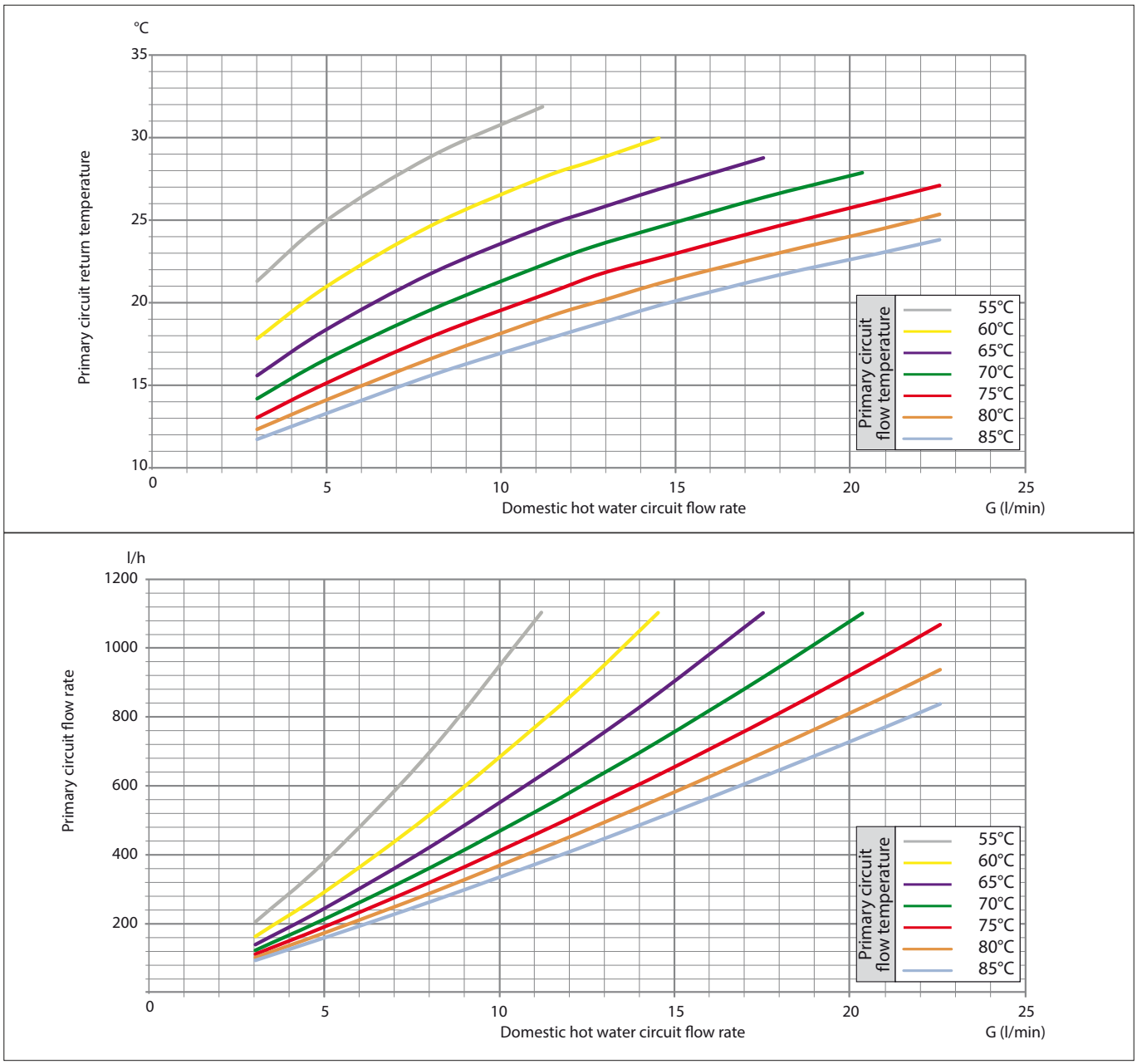
DHW function - secondary





SATK32103 series domestic water production performance diagrams

DHW 10 – 48 °C, primary Δp > 50 kPa



SATK32103 domestic water production performance tables
DHW 10-48 °C, max Δp on domestic side 1,5 bar

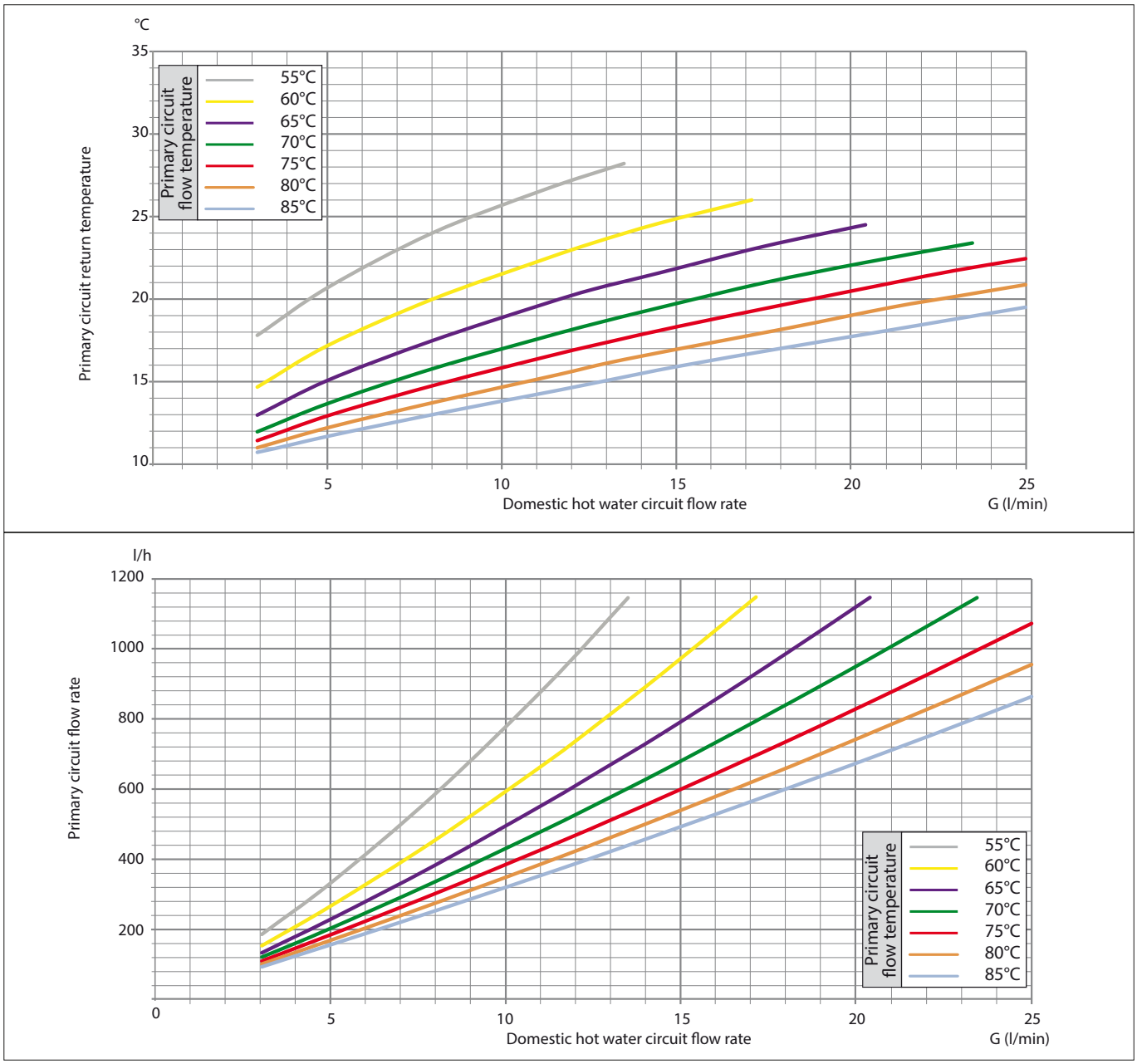
Primary circuit temperature (°C)	Domestic water flow rate (l/min)	Primary return temperature (°C)	Primary flow rate (l/h)	Power (kW)
55	11.2	32	1100	30
60	14.4	30	1100	38
65	17.4	29	1100	46
70	20.2	28	1100	54
75	22.5	27	1070	60
80	22.5	25	934	60
85	22.5	24	842	60

Performance with DHW flow rate 22,5 l/min
(Δp domestic hot water 1,5 bar)

Primary circuit temperature (°C)	Domestic water temperature (°C)	Primary return temperature (°C)	Power (kW)
55	36	23	41
60	39	24	46
65	42	25	51
70	46	26	56
75	49	28	61
80	52	29	66
85	55	30	71

SATK32105 series domestic water production performance diagrams

DHW 10 – 48 °C, primary Δp > 50 kPa



SATK32105 domestic water production performance tables
DHW 10-48 °C, max Δp on domestic side 1,5 bar

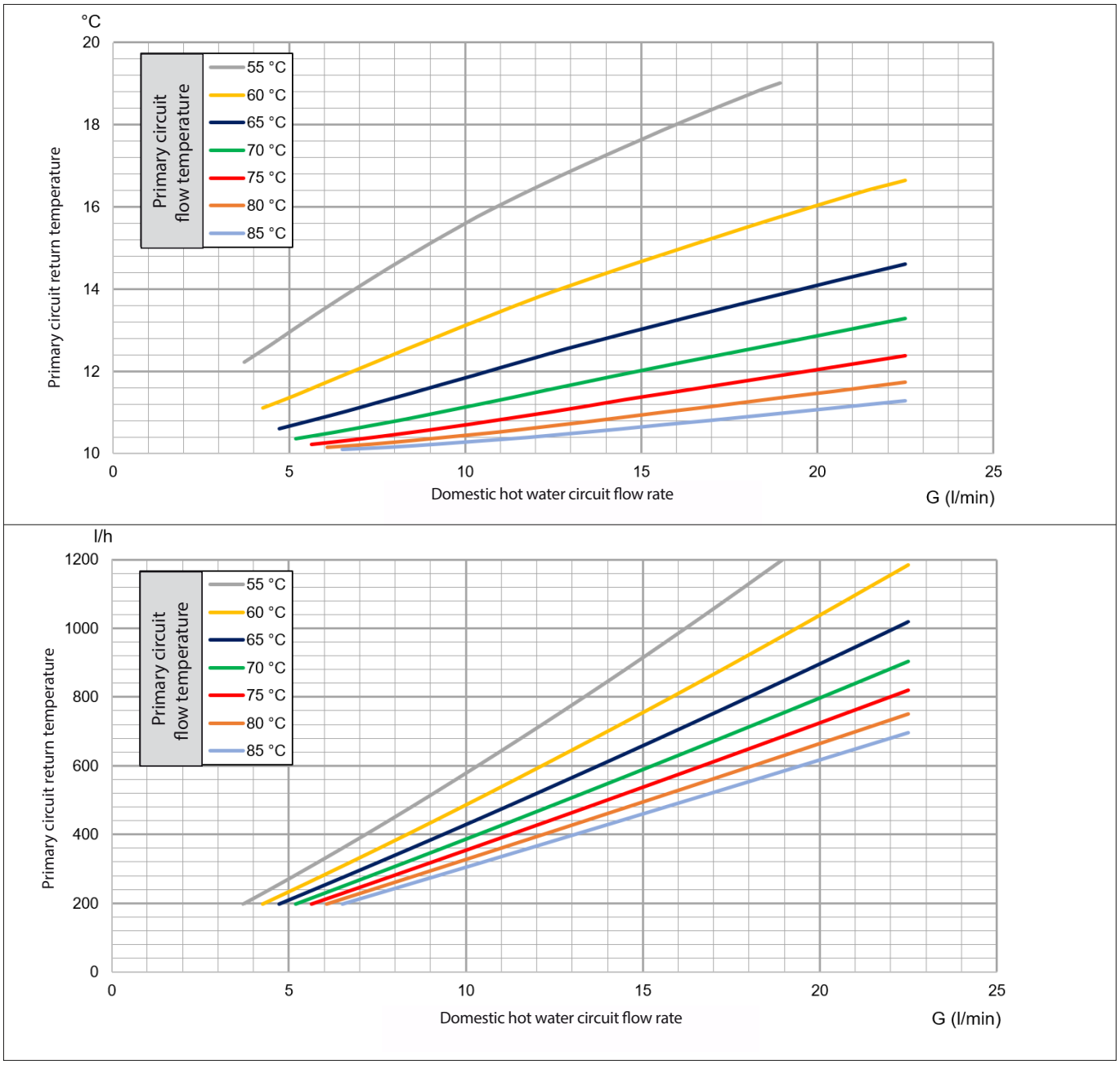
Primary circuit temperature (°C)	Domestic water flow rate (l/min)	Primary return temperature (°C)	Primary flow rate (l/h)	Power (kW)
55	13.5	28	1150	36
60	17.1	26	1150	45
65	20.3	24	1150	54
70	23.3	23	1150	63
75	24.0	22	1030	64
80	24.0	20	920	64
85	24.0	19	830	64

Performance with DHW flow rate 24 l/min
(Δp domestic hot water 1,5 bar)

Primary circuit temperature (°C)	Domestic water temperature (°C)	Primary return temperature (°C)	Power (kW)
55	38	20	46
60	41	21	52
65	44	22	57
70	47	23	63
75	51	24	68
80	54	25	74
85	57	26	79

SATK32107 series domestic water production performance diagrams

DHW 10 – 48 °C, primary Δp > 50 kPa



SATK32107 domestic water production performance tables
DHW 10-48 °C, max Δp on domestic side 1,5 bar

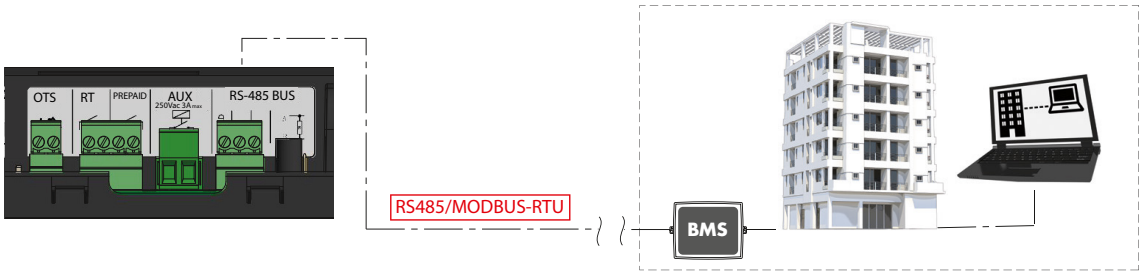
Primary circuit temperature (°C)	Domestic water flow rate (l/min)	Primary return temperature (°C)	Primary flow rate (l/h)	Power (kW)
55	11,2	16	664	30
60	14,4	15	731	38
65	17,4	14	783	46
70	20,2	13	822	54
75	22,5	12	837	60
80	22,5	12	770	60
85	22,5	11	715	60

Performance with DHW flow rate 24 l/min
(Δp domestic hot water 1,5 bar)

Primary circuit temperature (°C)	Domestic water temperature (°C)	Primary return temperature (°C)	Power (kW)
55	36	12	41
60	39	12	45
65	42	12	50
70	46	13	56
75	49	13	61
80	52	13	66
85	55	13	70

REMOTE CONTROL IN MODBUS-RTU PROTOCOL

The SATK32 heat interface unit is set up to communicate with BMS (Building Management Systems) through the Modbus RTU protocol, thanks to the RS-485 serial port integrated in the control unit.



Therefore all the settings available locally, as well as a series of additional information, are accessible through Modbus communication.

The information available on Modbus protocol is structured according to the following scheme:

Status information (operating mode, errors, temperatures detected ...)
Room thermostat settings (set points, heating/comfort function programming, technical parameters);
Technical settings of the heat interface unit (parameters T00, T01 ...);
Technical information about the heat interface unit (serial number, firmware version);
Heat interface unit use data (life days, hours in heating mode, DHW cycles performed ...).

Each control unit has its own unique serial number that can be used to remotely set the Modbus primary address, on which the communication is based.
Therefore it is not necessary to make this setting locally, it only requires, during installation, a mapping of the controller serial number matching with the apartment where it is located.
The list of Modbus registers with description of their encoding and the telegram for setting the primary address by serial number are described in the document "Guide to MODBUS registers for SATK22 and SATK32 series HIUs", available on request.
The transmission parameters are as follows:

- databits: 8
- stop bit: 1
- parity: none
- baudrate: 9600 baud/s

COMPLETION CODES

789110

Manual flushing by-pass for SATK32.
System side connections: 3/4" F.
Heat interface unit side connections: 3/4" M.

572120

Filling unit with CB-type backflow preventer for SATK32.

789023

Assembly template with shut-off valves for SATK32.

789540

Recess mounting meter box with galvanized base and door painted in **RAL 9010** for interior use.

Includes:
- pair of 3/4" manual shut-off valves,
- pair of temperature pockets,
- heat meter mounting template
- fittings for DCW meter.

Code	Connection	Size (mm)
789540	3/4"	350 x 380 x 110
789540 002	3/4"	276 x 400 only bottom plate

OPTIONS

789832	Drain conveyor pipe for SATK32
789833	External probe for SATK32

SPECIFICATION SUMMARY

Code SATK32103

Two-way indirect wall-mounted HIU (double exchanger) for heating at low temperature (25–45 °C) or high temperature (45–75 °C) and instantaneous domestic hot water production (42–60 °C) complete with: electronic controller, thermal safety thermostat, heating modulating valve, heating temperature probe, Grundfos UPM3 AUTO L 15-70 pump (EEI<0.2), fittings for heat meter, DHW production modulating valve, DHW temperature probe, 2 plate heat exchangers, return temperature probe, DHW priority flow meter, air vent cocks, primary and secondary side drain cock, primary flow side and secondary return side filter, safety relief valve (3 bar), expansion vessel (7 l) , pressure switch, pressure gauge, DPCV valve with fixed setting on primary side, 1/4''F pressure test ports for Δp test, water hammer arrester, remote user interface with room thermostat function. Dimensions W 490 x H 630 x D 245 mm. Electronic functions that can be activated: preheating of the heat exchanger with weekly programming on an hourly basis, return temperature control with differentiated set point for heating mode and DHW mode, flow temperature compensation based either on return temperature or on external temperature, primary flow limitation with differentiated set points for heating mode and DHW mode, anti-legionella function, programmable auxiliary contact. Remote management by Modbus protocol. Medium: water. Maximum percentage of glycol: 30 %. Maximum medium temperature: 90 °C. Maximum working pressure: primary circuit: 16 bar, primary circuit: 3 bar, domestic circuit: 10 bar. Nominal DHW exchanger capacity: 50 kW (primary flow 70 °C, DHW 10–50 °C). DHW max flow rate 24 l/min. Nominal heating exchanger capacity: 15 kW, maximum primary circuit flow rate: 1,1 m³/h. Minimum flow to activate domestic flow meter: 2 l/min ±0,3. Electric supply: 230 V (AC) ±10 % 50Hz. Maximum power consumption 80 W. Protection class: IP 40. Motors: stepper 24 V with quick opening (< 4 seconds). Probes: NTC 10 kΩ. Materials: components: brass EN12165 CW617N. Steel connecting pipes Complete insulation in black EPP. External frame and cover in RAL9010 painted steel.

Code SATK32105

Two-way indirect wall-mounted HIU (double exchanger) for heating at low temperature (25–45 °C) or high temperature (45–75 °C) and instantaneous domestic hot water production (42–60 °C) complete with: electronic controller, thermal safety thermostat, heating modulating valve, heating temperature probe, Grundfos UPM3 AUTO L 15-70 pump (EEI<0.2), fittings for heat meter, DHW production modulating valve, DHW temperature probe, 2 plate heat exchangers, return temperature probe, DHW priority flow meter, air vent cocks, primary and secondary side drain cock, primary flow side and secondary return side filter, safety relief valve (3 bar), expansion vessel (7 l) , pressure switch, pressure gauge, DPCV valve with fixed setting on primary side, 1/4”F pressure test ports for Δp test, water hammer arrester, remote user interface with room thermostat function. Dimensions W 490 x H 630 x D 245 mm. Electronic functions that can be activated: preheating of the heat exchanger with weekly programming on an hourly basis, return temperature control with differentiated set point for heating mode and DHW mode, flow temperature compensation based either on return temperature or on external temperature, primary flow limitation with differentiated set points for heating mode and DHW mode, anti-legionella function, programmable auxiliary contact. Remote management by Modbus protocol. Medium: water. Maximum percentage of glycol: 30 %. Maximum medium temperature: 90 °C. Maximum working pressure: primary circuit: 16 bar, primary circuit: 3 bar, domestic circuit: 10 bar. Nominal DHW exchanger capacity: 60 kW (primary flow 70 °C, DHW 10–50 °C). DHW max flow rate 24 l/min. Nominal heating exchanger capacity: 15 kW, maximum primary circuit flow rate: 1,1 m³/h. Minimum flow to activate domestic flow meter: 2 l/min ±0,3. Electric supply: 230 V (AC) ±10 % 50Hz. Maximum power consumption 80 W. Protection class: IP 40. Motors: stepper 24 V with quick opening (< 4 seconds). Probes: NTC 10 kΩ. Materials: components: brass EN12165 CW617N. Steel connecting pipes Complete insulation in black EPP. External frame and cover in RAL9010 painted steel.

Code SATK32107

Two-way indirect wall-mounted HIU (double exchanger) for heating at low temperature (25–45 °C) or high temperature (45–75 °C) and instantaneous domestic hot water production (42–60 °C) complete with: electronic controller, thermal safety thermostat, heating modulating valve, heating temperature probe, Grundfos UPM3 AUTO L 15-70 pump (EEI<0.2), fittings for heat meter, DHW production modulating valve, DHW temperature probe, 2 plate heat exchangers, return temperature probe, DHW priority flow meter, air vent cocks, primary and secondary side drain cock, primary flow side and secondary return side filter, safety relief valve (3 bar), expansion vessel (7 l) , pressure switch, pressure gauge, DPCV valve with fixed setting on primary side, 1/4”F pressure test ports for Dp test, water hammer arrester, remote user interface with room thermostat function. Dimensions W 490 x H 630 x D 245 mm. Electronic functions that can be activated: preheating of the heat exchanger with weekly programming on an hourly basis, return temperature control with differentiated set point for heating mode and DHW mode, flow temperature compensation based either on return temperature or on external temperature, primary flow limitation with differentiated set points for heating mode and DHW mode, anti-legionella function, programmable auxiliary contact. Remote management by Modbus protocol. Medium: water. Maximum percentage of glycol: 30 %. Maximum medium temperature: 90 °C. Maximum working pressure: primary circuit: 16 bar, primary circuit: 3 bar, domestic circuit: 10 bar. Nominal DHW exchanger capacity: 62 kW (primary flow 70 °C, DHW 10–50 °C). DHW max flow rate 22.5 l/min. Nominal heating exchanger capacity: 15 kW, maximum primary circuit flow rate: 1.1 m³/h. Minimum flow to activate domestic flow meter: 2 l/min ±0,3. Electric supply: 230 V (AC) ±10 % 50Hz. Maximum power consumption 80 W. Protection class: IP 40. Motors: stepper 24 V with quick opening (< 4 seconds). Probes: NTC 10 kΩ. Materials: components: brass EN12165 CW617N. Steel connecting pipes Complete insulation in black EPP. External frame and cover in RAL9010 painted steel.

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