

SATK wall-mounted heat interface unit

Fitted for connection to DHW storage



SATK40 series



The latest generation of heat interface units SATK40 series regulate user heat requirements and DHW production through connection to the apartment storage.

Since these are two-way systems with the specific feature of keeping the primary and secondary thermal medium strictly segregated, they are particularly suitable both for variable flow centralised systems with condensing boilers or remote district heating, and for systems characterised by high static pressure values.

The connection to an individual storage (not supplied) allows a significant reduction in the power of the central heating system, the flow rates and the number of required boiler cut-ins. In the design stage, these conditions result in savings in the selection of boilers, pumps, diameters of the risers and in lower design temperatures, with a consequent reduction of heat losses.

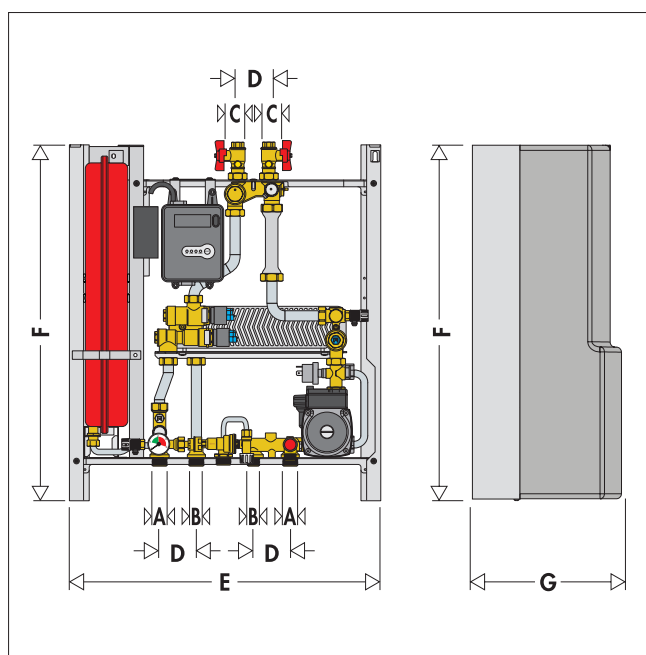
These benefits augment the intrinsic advantages of a normal variable flow system.

Thanks to their compact design, the heat interface units can be mounted inside the dwelling, thus allowing the individual user to control both the production of domestic hot water and regulation of low or high temperature heating systems independently.

Electronic control of all operating and diagnostic cycles, plus the facility to incorporate a heat meter that makes it possible to allocate costs fairly and in proportion to the actual usage of the heating services, makes SATK40 a complete, modern and highly performing heat interface unit.

- **Set point regulation or modulating temperature regulation with compensated set point**
- **Heating range**
 - **LOW** temperature setting 25–45°C
 - **MEDIUM/HIGH** temperature setting 50–75°C

Dimensions



A	B	C	D	E	F	G
3/4" M	3/4" M	3/4" F	65	550	630	265

Technical specifications

Medium:	water
Maximum glycol percentage:	30%
Maximum medium temperature:	85°C
Maximum working pressure:	- primary circuit: 16 bar
	- secondary circuit: 3 bar
Nominal heat exchanger capacity:	40 kW
Maximum recommended primary circuit flow rate:	1,2 m ³ /h
Max. differential pressure on modulating valve	$\Delta p = 1,5$ bar
Electric supply:	230 V (ac) $\pm 10\%$ 50Hz
Power consumption:	- SATK40103 105 W
	- SATK40103HE 75 W
Protection class:	IP 40
Pump:	- SATK40103 UPS 15-60
	- SATK40103HE UPS2 15-60
Pump by-pass setting:	0,45 bar
Actuators:	stepper 24 V
Probes:	NTC 10 k Ω
Safety relief valve setting:	3 bar
Safety thermostat:	55°C ± 3
Expansion vessel:	- capacity 7 l
	- pre-charge value: 1 bar
Pressure switch:	opening 0,4 bar - closing 0,8 bar

Materials

Components:	brass EN12165 CW617N
Fitting pipes:	steel
Frame:	RAL 9010 painted steel
Protective shell cover:	EPP
Heat exchanger:	braze welded stainless steel

SATK40103 DHW production in storage

SATK40103HE DHW production in storage with high-efficiency pump



Functional characteristics

Heating range

- LOW temperature setting 25–45°C
- HIGH temperature setting 50–75°C

Optional functions

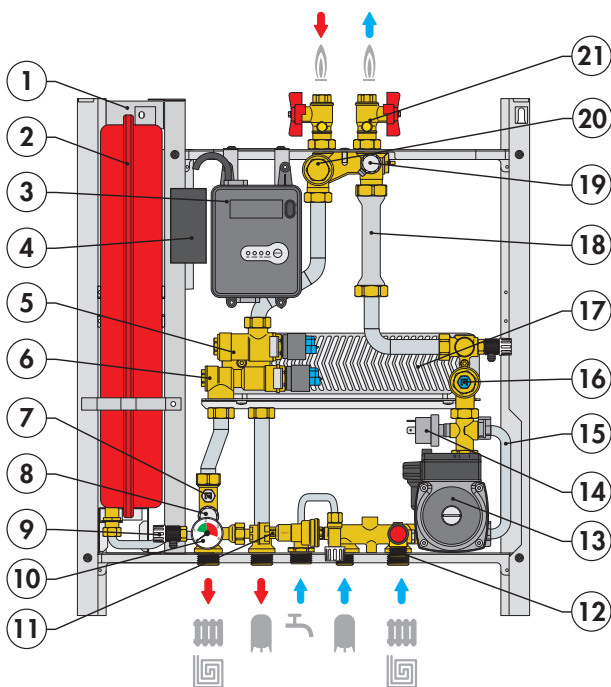
Heating cycle:

- modulating temperature regulation with compensated set point

Domestic water cycle:

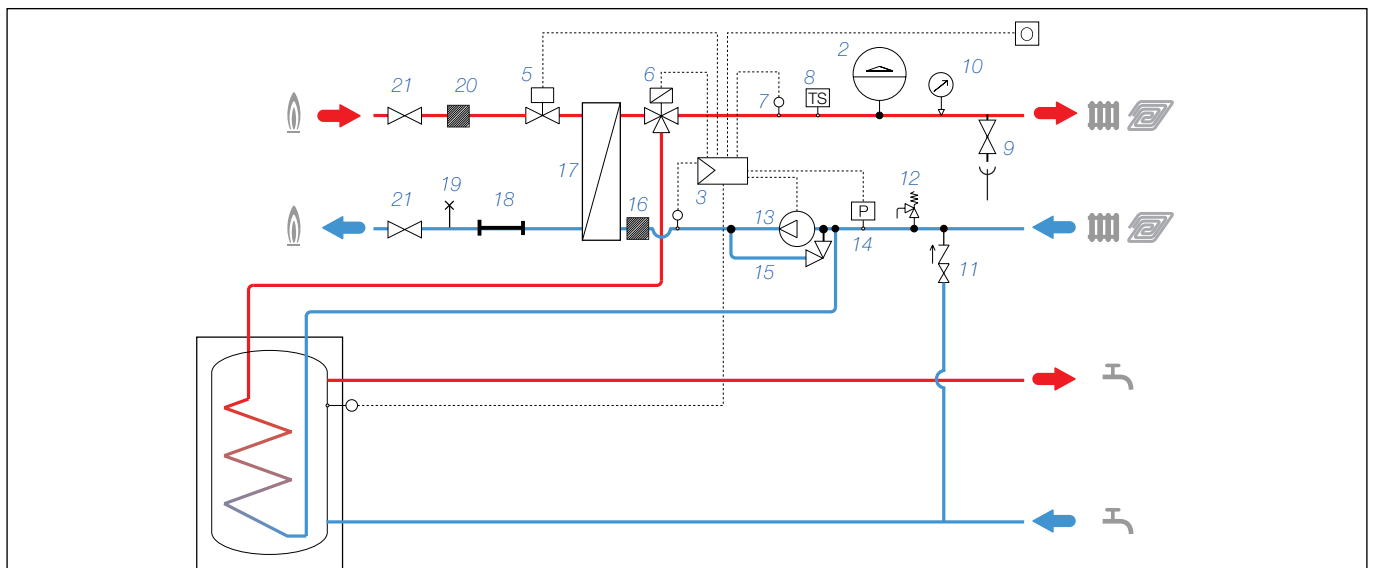
- DHW circuit absolute priority disabling

Characteristic components



1. Frame
2. Expansion vessel
3. Electronic regulator
4. Electrical connections box
5. 2-way modulating valve (primary circuit)
6. Diverting valve
7. Heating flow temperature probe
8. Thermal safety thermostat
9. Secondary heating drain cock
10. Pressure gauge
11. Filling loop with backflow preventer
12. Safety relief valve
13. Pump
14. Pressure switch
15. Protective pump by-pass
16. Flow temperature compensation probe / secondary circuit strainer
17. Heat exchanger
18. Heat meter spacer template
19. Primary air vent cock
20. Primary circuit strainer/heat meter flow probe pocket
21. Primary circuit shut-off valves

Hydraulic-functional diagram



Operating cycles

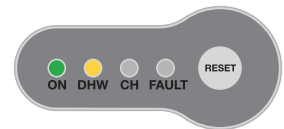
Domestic water cycle

This cycle takes priority over the heating cycle.

The domestic water cycle, when active, is indicated by the steady yellow DHW LED while the symbol is blinking.

In response to a request for execution of the DHW cycle due to tripping of the storage thermostat, the regulator opens the modulating valve fully, switches the diverter valve towards the storage circuit, and starts the circulation pump without monitoring the temperature of the water transferred to the storage (ON-OFF control). The temperature of the domestic hot water held in the storage must be set using the storage thermostat (not supplied).

When the storage temperature is reached the circulation pump is stopped and the modulating valve is closed.



Heating cycle

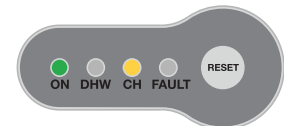
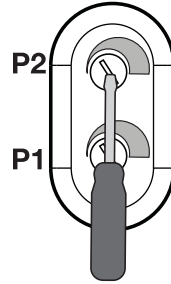
Set point regulation

The active heating cycle is signalled by the yellow CH LED which comes on while the symbol is blinking.

In response to a heating cycle request from 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 temperature set point can be set using trimmer P2 and shown on the display.



Floor slab heating function

(at LOW temperature setting)

The function is activated by pressing and holding the RESET button for 8 seconds, and is signalled by the yellow CH LED, which switches on in flashing mode.

This facilitates the laying of low temperature underfloor heating systems. This function can only be activated and executed if there are no faults.

The function has a duration of 240 hours, and is carried out by simulating a request to run in heating mode starting from a set point of 25°C and rising in regular intervals to a temperature of 45°C. Once the maximum set point has been reached, the function is executed in reverse following the same procedure (from the maximum to the minimum set point).

This function has priority over heating and domestic hot water cycles, and can be suspended at any time by pressing and holding the RESET button for 8 seconds.



Optional functions

(to activate/deactivate the optional functions the electric power supply must always be turned off!).

Heating cycle

Modulating temperature regulation with compensated set point

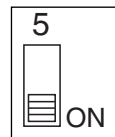
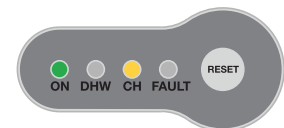
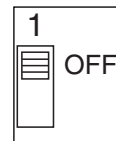
The function is enabled by setting dip switch 1 to the OFF position. When the function is enabled, the flow temperature is modified according to the temperature detected by the compensation probe. This keeps the actual thermal output of the slab - and therefore the ambient thermal load - under control. The thermal response time of the system is thus minimised.

DHW circuit absolute priority disabling

Heating the storage cylinder may need relatively long times so the possible concurrent need to perform a heating cycle would be significantly delayed thus compromising the comfort level in the apartment.

To avoid this problem the absolute priority assigned to the DHW cycle can be disabled by setting dip switch 5 to ON. In this case, during periods of concurrent requests of the operating cycles the regulator apportion 10 minutes long time intervals between the two cycles.

The active cycle is signalled by flashing of the corresponding LED while the inactive cycle LED remains steady on. Trimmer P1 and the display are used to set and display the duration (from 1 to 9 minutes) of the storage heating stage within the above indicated period (e.g. setting 6 minutes, this will be the duration of the DHW cycle while the heating cycle will proceed for 4 minutes).



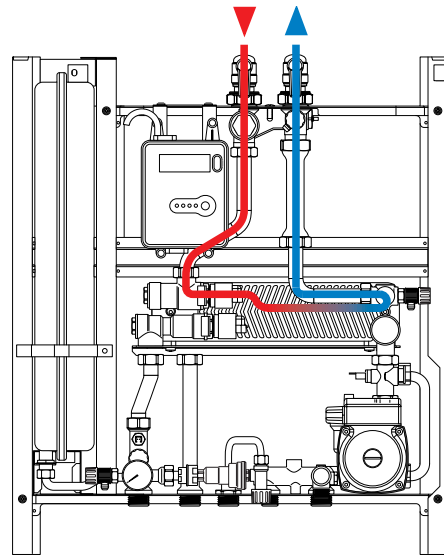
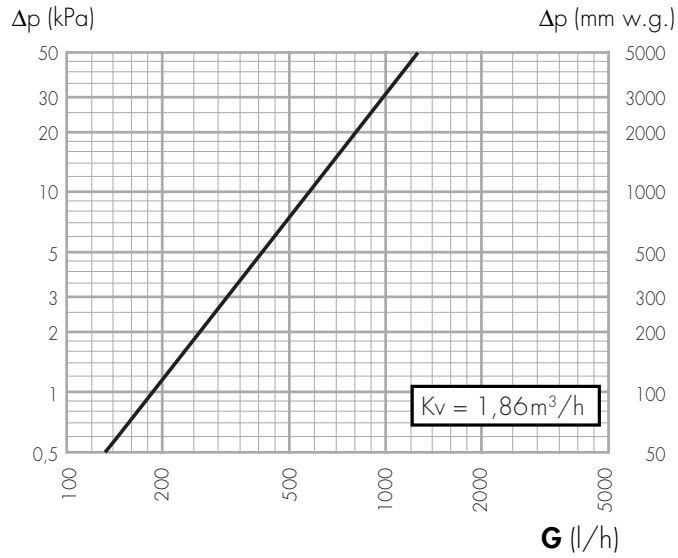
Safety and alarms

Error codes associated with faults signalled by the lighting up of the FAULT LED are also shown on the display.

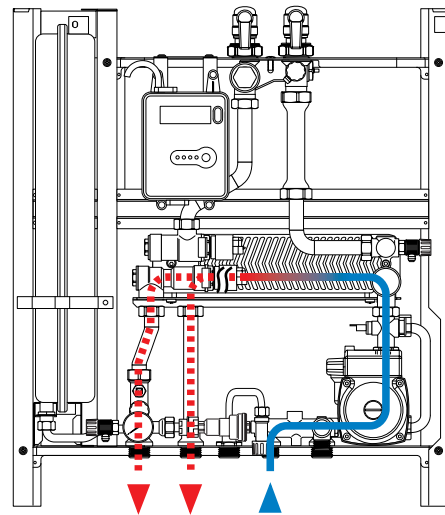
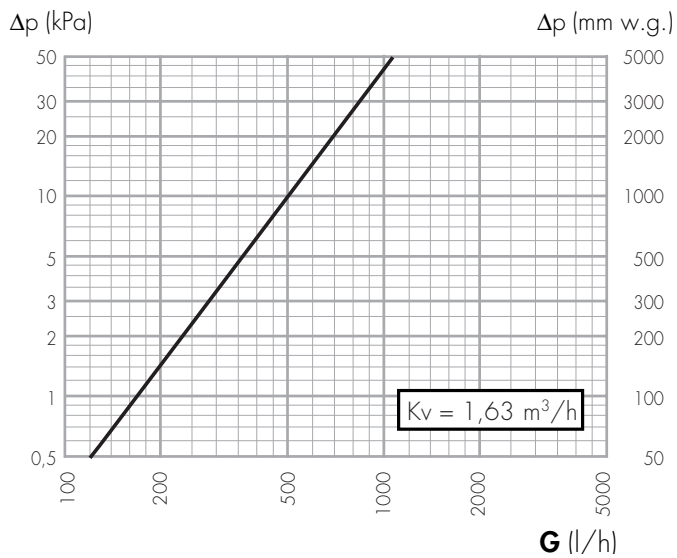


Hydraulic characteristics

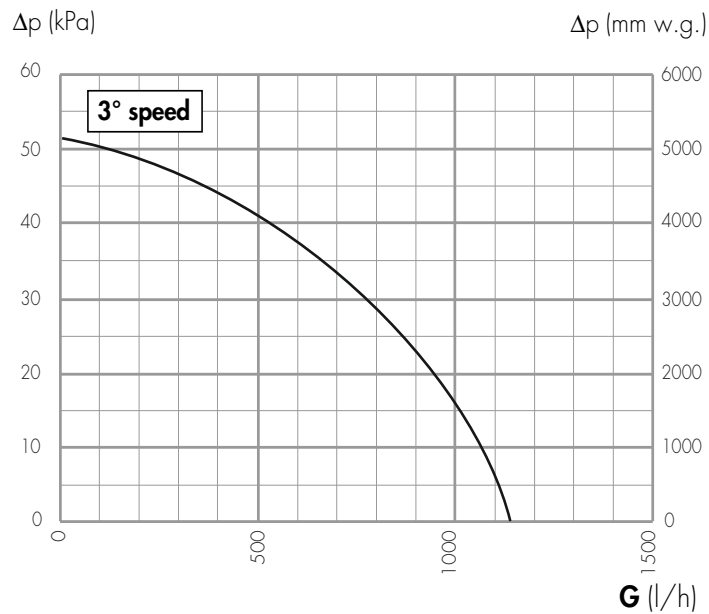
Heat exchanger - Primary circuit



DHW function / heating function



Head available at connections



Completion codes

75540.K CONTECA direct heat meter



Direct heat meter for SATK series and/or meter box code 789540. Equipped with an 8-digit liquid crystal display.
24 V (ac) 50 Hz - 1 W centralized power supply.



Complies with directive 2004/22/EC (MI001)

Code	Connection	Meas. type	Q _{nom} m ³ /h	Q _{min} l/h
755404K	1/2"	single nozzle	1,5	30
755405K	3/4"	single nozzle	2,5	50



7890 Hydraulic backplate

Hydraulic backplate painted in RAL9010, including bottom-up system connection. Includes:
 - frame,
 - steel pipes,
 - pair of 3/4" M manual shut-off valves.
 Depth: 60 mm.

Code

789030

7891



Differential pressure regulating valve. Brass body. Complete with capillary connection to the flow pipe. Max. working pressure: 10 bar. Differential pressure fixed setting: 15 kPa - 30 kPa. Length of Ø 3 mm capillary pipe: 1,5 m.

Code

789120* regulator kit Δp - 15 kPa

789140** regulator kit Δp - 30 kPa

* 15 kPa suitable for radiator-based heating system
 ** 30 kPa suitable for underfloor heating and fan-coils



789540 Meter box

Recess-mounting meter box with galvanized base and RAL 9010 painted door **for interior installation** and finishing frame.
 Includes:
 - pair of 3/4" M manual shut-off valves,
 - pair of temperature pockets,
 - heat meter template,
 - fittings for DCW.

Code	Connection	Size (mm)
789540	3/4"	350 x 380 x 110



789540 002 Wall mounting template

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

Code	Connection	Size (mm)
789540 002	3/4"	276 x 400

7000 Domestic water function

Domestic water meter kit consisting of:
 - BALLSTOP shut-off ball valve with check valve;
 - volumetric flow meter (MI001);
 - shut-off ball valve with male terminal;
 - flushing pipe;
 - mounting bracket.



Complies with directive 2004/22/EC (MI001)

Code

700052	DCW 3/4" with local reading
700053	DCW 3/4" with pulse output



789100

System flushing valve with manual by-pass control. System side connections: 1" M. User side connections: 3/4" M.

Code

789100

SPECIFICATION SUMMARY

Code **SATK40**103 / **SATK40**103HE

Wall-mounted two-way indirect heat interface units with set-point regulation for low temperature (25–45°C) and medium/high temperature heating (50-75°C) and domestic hot water production in storage cylinder, complete with: electronic regulator, thermal safety thermostat, primary circuit modulating valve, heating temperature probe, pump (SATK40103: UPS 15-60, SATK40103HE: UPS2 15-60), with protective by-pass, fitted for heat meter installation, priority valve, plate heat exchanger, flow temperature compensation probe, electrical connections box, strainers on primary and secondary circuits, filling unit with backflow preventer, pressure relief valve (3 bar), expansion vessel (7 l), pressure switch and pressure gauge. Dimensions W 550 x H 630 x D 265 mm. Medium: water. Maximum glycol percentage: 30%. Maximum medium temperature: 85°C. Maximum working pressure: - primary circuit: 16 bar, secondary circuit: 3 bar. Nominal heat exchanger capacity: 40 kW. Maximum recommended primary circuit flow rate: 1,2 m³/h. Maximum differential pressure on valves: 1,5 bar. Electric supply: 230 V (ac) ±10% 50 Hz. Power consumption: -SATK40103: 105 W, -SATK40103HE: 75 W. Protection class: IP 40. Actuators: stepper 24 V. Probes: NTC 10 kΩ. Materials: -components: brass EN 12165 CW617N, -connection pipes: steel, -cover: grey EPP.

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