

SATK series compact wall-mounted heat interface unit

SATK20 series

INSTRUCTIONS FOR INSTALLATION, COMMISSIONING AND MAINTENANCE



Function

The SATK series heat interface unit allows independent control of heat regulation and domestic hot water production within centralised heating systems.

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Product range

- SATK20103HE** Direct wall-mounted HIU for LOW temperature heating, instantaneous domestic hot water production, power capacity 40 kW
- SATK20203HE** Direct wall-mounted HIU for MEDIUM temperature heating, instantaneous domestic hot water production, power capacity 40 kW
- SATK20303** Direct wall-mounted HIU for HIGH temperature heating, instantaneous domestic hot water production, power capacity 40 kW
- SATK20403HE** Direct wall-mounted HIU for HIGH temperature heating, instantaneous domestic hot water production, power capacity 40 kW. With pump on the primary side.
- SATK20305** Direct wall-mounted HIU for HIGH temperature heating, instantaneous domestic hot water production, power capacity 65 kW

SAFETY INSTRUCTIONS

WARNINGS



These instructions must be read and understood before installing and maintaining the device. IMPORTANT! FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN A SAFETY HAZARD!

- 1 The device must be installed, commissioned and maintained by qualified technical personnel in accordance with national regulations and/or relevant local requirements.
- 2 If the device is not installed, pre-run checked and maintained correctly in accordance with the instructions provided in this manual, it may not work properly and may endanger the user.
- 3 Clean the pipes of any particles, rust, incrustations, limescale, welding slag and any other contaminants. The hydraulic circuit must be clean.
- 4 Make sure that all connection fittings are watertight.
- 5 When connecting water pipes, make sure that threaded connections are not mechanically overstressed. Over time this may result in breakage, causing water damage and/or personal injury.
- 6 Water temperatures higher than 50°C may cause severe burns. When installing, commissioning and maintaining the device, take the necessary precautions so that these temperatures will not be hazardous for people.
- 7 In the case of particularly hard or impure water, there must be suitable provision for filtering and treating the water before it enters the device, in accordance with current legislation. Otherwise the device may be damaged and will not work properly.
- 8 Any use of the device other than its intended use is prohibited.
- 9 Any coupling of the device with other system components must be made while taking the operational characteristics of both units into consideration.
- 10 An incorrect coupling could compromise the operation of the device and/or system.

IMPORTANT: Risk of electric shock. Live parts. Shut off the electric supply before opening the device box.

- 1 During installation and maintenance operations, always avoid direct contact with live or potentially hazardous parts.
- 2 The device must not be exposed to water drops or humidity, direct sunlight, the elements, heat sources or high intensity electromagnetic fields. This device cannot be used in areas at risk of explosion or fire.
- 3 The device must be connected to an independent bipolar switch. If work has to be done on the device, cut off the electric supply first. Do not use devices with automatic or time reset, or which may be reset accidentally.
- 4 Use suitable automatic protection devices in accordance with the electrical characteristics of the region where the device is installed and in compliance with current legislation.
- 5 The device must always be earthed before it is connected to the electric supply. If the device has to be removed, always disconnect the earth connection after disconnecting the electric supply conductors. Check that the earth connection has been made to the highest of standards under applicable legislation.
- 6 Electrical installation must only be carried out by a qualified technician, in accordance with legal requirements.
- 7 The device does not contain asbestos nor mercury.

Key to symbols



Primary circuit flow



Primary circuit return



Domestic hot water outlet



Domestic cold water inlet



Low temperature circuit flow



Low temperature circuit return



Medium temperature circuit flow



Medium temperature circuit return



High temperature circuit flow



High temperature circuit return

NOTES:

- 1 Install water hammer arresters to compensate for any overpressure in the domestic water circuit;
- 2 In the presence of hot water recirculation or if a non-return valve is fitted into the domestic cold water inlet, provision must be made to accommodate the expansion of the water contained within the system and the heat interface unit.
- 3 All hydraulic connections must be checked before pressurising the system. Vibration during transport may cause the connections to become loose. DO NOT APPLY EXCESSIVE TIGHTENING TORQUE otherwise the components may be damaged.

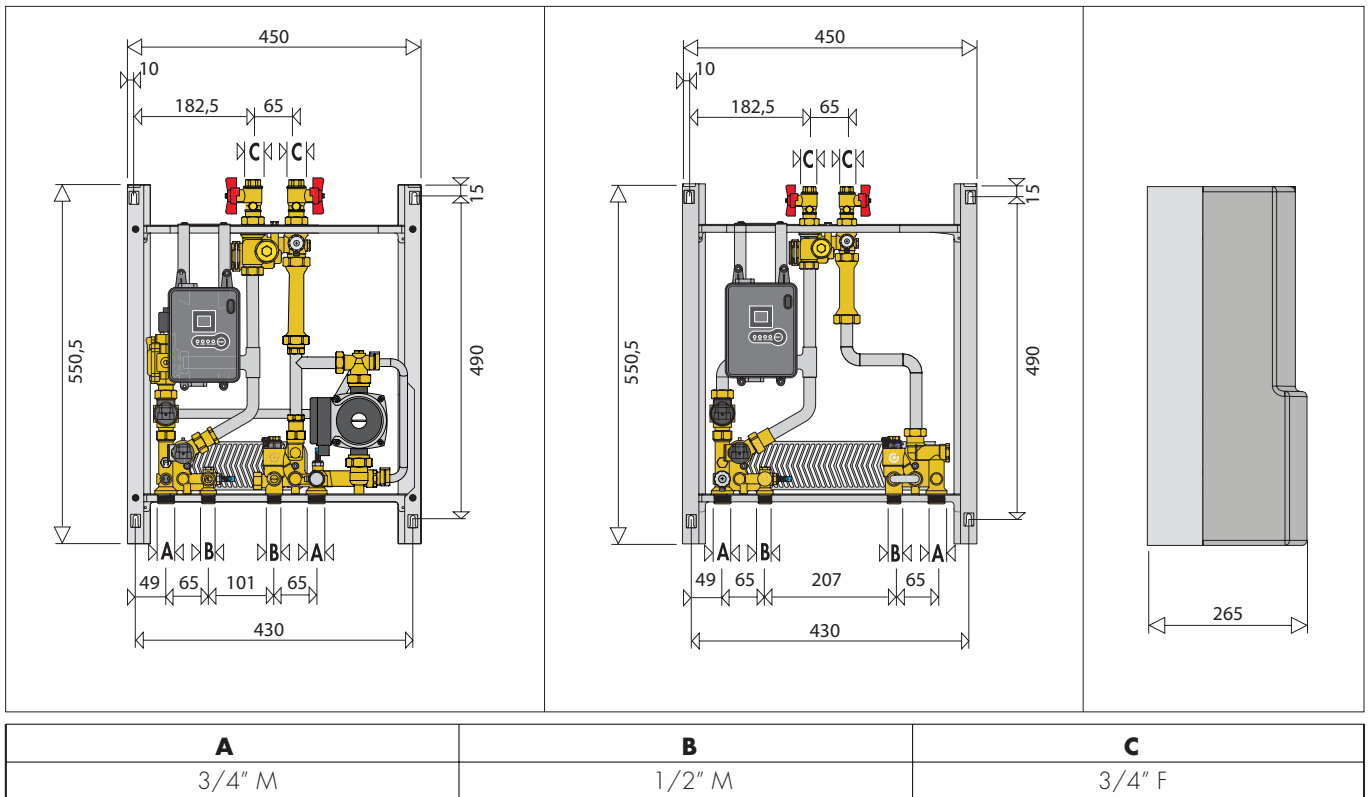
For the updated version of the technical documentation refer to www.caleffi.com

LEAVE THIS MANUAL AS A REFERENCE GUIDE FOR THE USER. DISPOSE OF IN ACCORDANCE WITH LOCAL REGULATIONS. THE MANUFACTURER RESERVES THE RIGHT TO CEASE PRODUCTION AT ANY TIME AND TO MAKE ANY CHANGES DEEMED USEFUL OR NECESSARY WITHOUT THE OBLIGATION OF PRIOR NOTICE.

Dimensions

SATK20103/203/303/403

SATK20305



SATK20103HE - SATK20203HE SATK20303 SATK20403HE technical specifications

Medium: water
 Maximum percentage of glycol: 30%
 Maximum medium temperature: 85°C

Maximum working pressure: - primary circuit: 1 MPa (10 bar)
 - domestic circuit: 1 MPa (10 bar)

Nominal DHW exchanger capacity: 40 kW
 Maximum recommended primary circuit flow rate: 1,2 m³/h
 Maximum DHW circuit flow rate: 18 l/min (0,3 l/s)
 Minimum flow to activate domestic water flow meter: 2,7 l/min ±0,3
 Maximum Δp on domestic water modulating valve: 90 kPa (0,9 bar)
 Maximum Δp on mixing valve: 90 kPa (0,9 bar)

Electric supply: 230 V (ac) ±10% 50 Hz
 Maximum power consumption: 75 W (80 W with UPM3 15-70)
 20 W on SATK20303

Protection class: IP 40
 Pump (not present on SATK20303): UPS2 15-60 (UPM3 15-70)
 Pump by-pass pressure setting: 45 kPa (0.45 bar)
 Actuators: stepper 24 V
 Probes: NTC 10 kΩ
 Safety thermostat (only on SATK20103HE): 55°C ±3

Materials

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

SATK20305 technical specifications

Medium: water
 Maximum percentage of glycol: 30%
 Maximum medium temperature: 85°C

Maximum working pressure: - primary circuit: 1 MPa (10 bar)
 - domestic circuit: 1 MPa (10 bar)

Nominal DHW exchanger capacity: 65 kW
 Maximum recommended primary circuit flow rate: 1,2 m³/h
 Maximum DHW circuit flow rate: 27 l/min (0,45 l/s)
 Minimum flow to activate domestic water flow meter: 2,7 l/min ±0,3
 Maximum Δp on domestic water modulating valve: 90 kPa (0,9 bar)
 Maximum Δp on mixing valve: 90 kPa (0,9 bar)

Electric supply: 230 V (ac) ±10% 50 Hz
 Maximum power consumption: 20 W
 Protection class: IP 40
 Actuators: stepper 24 V
 Probes: NTC 10 kΩ

Materials

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

Installation

The SATK series HIU is designed for installation in a sheltered domestic environment (or similar), therefore cannot be installed or used outdoors, i.e. in areas directly exposed to atmospheric agents. Outdoor installation may cause malfunctioning and hazards.

If the device is enclosed inside or between cabinets, sufficient space must be provided for routine maintenance procedures. It is advisable to avoid positioning electrical devices under the HIU to avoid the risk of damage in the event of leaks from hydraulic fittings. If this advice is not heeded, the manufacturer cannot be held responsible for any resulting damage.

In the event of a malfunction, fault or incorrect operation, the device should be deactivated; contact a qualified technician for assistance.

Preparation

After having established the point where the device has to be installed, perform the following operations:

- Mark the holes required for securing the HIU to the wall
- Mark the position of the hydraulic connections

Check the measurements again and begin laying the following lines:

Hydraulic (see page 5):

1. connection to the central system line
2. heating circuit connection
3. domestic water circuit connection

Electric (see page 13):

1. 230 V (ac) – 50 Hz electric supply line
2. chrono-thermostat/thermostat line (potential-free)
3. centralised bus line for heat meter data transmission (if required)
4. centralised electric supply line for heat meter (if required)

Before installation, it is recommended to carry out accurate flushing of all the pipes of the system in order to remove any residue or impurities that could endanger correct operation of the HIU.

Fix the HIU to the wall.

N.B.: *the wall anchors (not supplied) can only guarantee effective support if inserted correctly (in accordance with good technical practice) into walls built using solid or semi-solid bricks. If working with walls built using perforated bricks or blocks, mobile dividing panels or any masonry walls other than those indicated, a preliminary static test must be carried out on the support system.*

Electric connections

Make sure that the electrical system can withstand the maximum power consumption of the appliance, with particular emphasis on the cross-section of the cables.

If you have any doubts, contact a qualified technician to request a thorough check of the electrical system.

Electrical safety of the appliance is only achieved when it is correctly connected to an effective earthing system, made as specified in current safety regulations. This is a compulsory safety requirement.

Connection to the main supply

The device is supplied with an electric supply cable which is not fitted with a plug.

The device should be electrically connected to a 230 V (ac) single-phase + earth mains supply using the three-wire cable marked with the label shown alongside, observing the LIVE (L) - NEUTRAL (N) polarities and the earth connection. This line must be connected to a circuit breaker device.

Connection to the chrono-thermostat


The SATK series HIU is fitted for connection to a thermostat or chrono-thermostat, both standard and **OpenTherm**, for ambient temperature adjustment.

The connection to this device (**potential-free contact**) must be made with the two-wire cable marked with the label shown below.

Should it be necessary to extend this cable, use one with the same cross-section (max 1 mm²) and maximum length 30 m.

WARNING!
DO NOT CONNECT EXTERNAL VOLTAGE SUPPLY TO THESE TERMINALS

ATTENZIONE!
NON ALIMENTARE IN TENSIONE



Termostato ambiente
(Contatto pulito)
Room thermostat
(Volt free connection)

Raumthermostat
(Potenzialfreier Kontakt)
Sonde d'ambiance
(Contact sec)
Termostato de ambiente
(Contacto sin potencial)
Ruimtesensor
(Schoon contact)

Commissioning

Filling the central heating system

Open the shut-off valves on the connections to the centralised line and, in the central heating system, proceed with charging the system to the design pressure.

Once these procedures are complete, vent the system and check its pressure again (repeat the filling process if necessary)

System start-up

Before starting the HIU, visually check the hydraulic connection water-tightness and the electric wiring. After finishing the check, activate the electric supply to the HIU and check for the presence of any error signals.

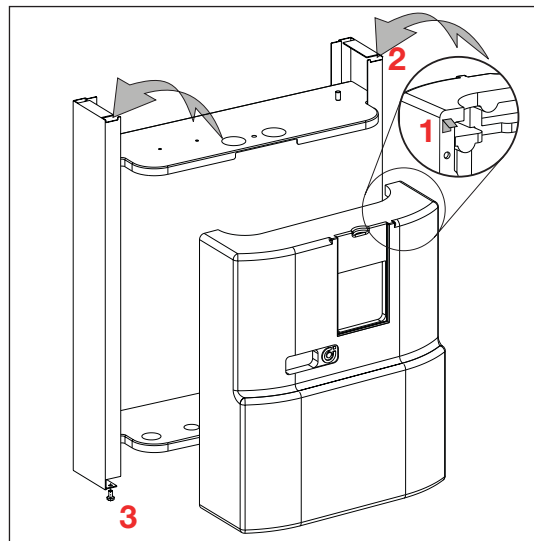
If there are any, eliminate the fault indicated and proceed as described below, setting the set point of the domestic water and heating cycles, programming the thermostat/chrono-thermostat according to the desired temperatures and times, and checking the operating cycles.




Fitting the cover

Place the casing over the frame, inserting the upper tabs (1) into the corresponding slots (2).

Place the lower part of the casing over the frame.

Tighten the screws (3).



| | | | |
|--|---|----------------------|----------------------------------|
|  | L | Alimentazione: | 230 V (ac) ±10% 50 Hz |
|  | N | Electric supply: | |
|  | ⊕ | Betriebspannung: | |
| | | Alimentation: | |
| | | Alimentación: | |
| | | Elektrische voeding: | |

Heat meter installation

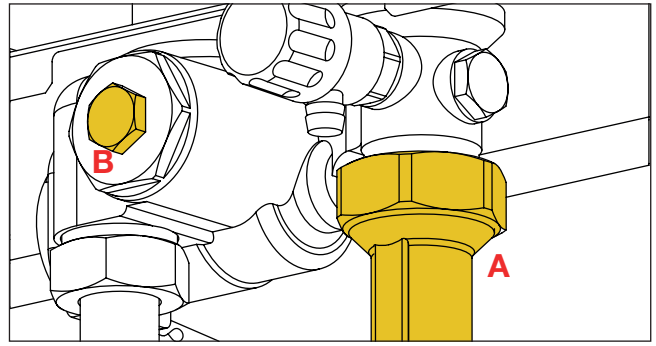
The HIU is designed to fit a compact heat meter (with incorporated return probe) with 1" threaded connections and 130 mm gauge.

Before carrying out any maintenance, repair or part replacement work, proceed as follows:

- cut off the electric supply
- remove the cover
- close the shut-off valves
- empty the HIU using the drain cocks provided

Proceed as described below to install the heat meter:

- remove the template (A)
- remove the cap (B)
- install the flow meter on the return pipe
- install the flow probe in the M10 pocket (B)



Please refer to the heat meter technical data sheets for further information.

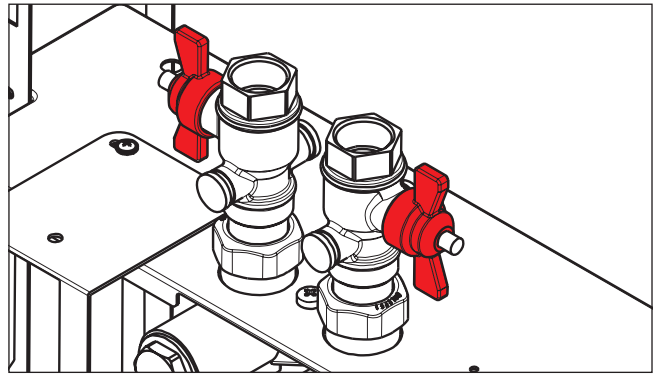
Hydraulic connections

Hydraulic connections to the centralised line must be implemented using the manual shut-off valves supplied with the HIU, which allow any necessary maintenance work to take place without having to empty the centralised system.

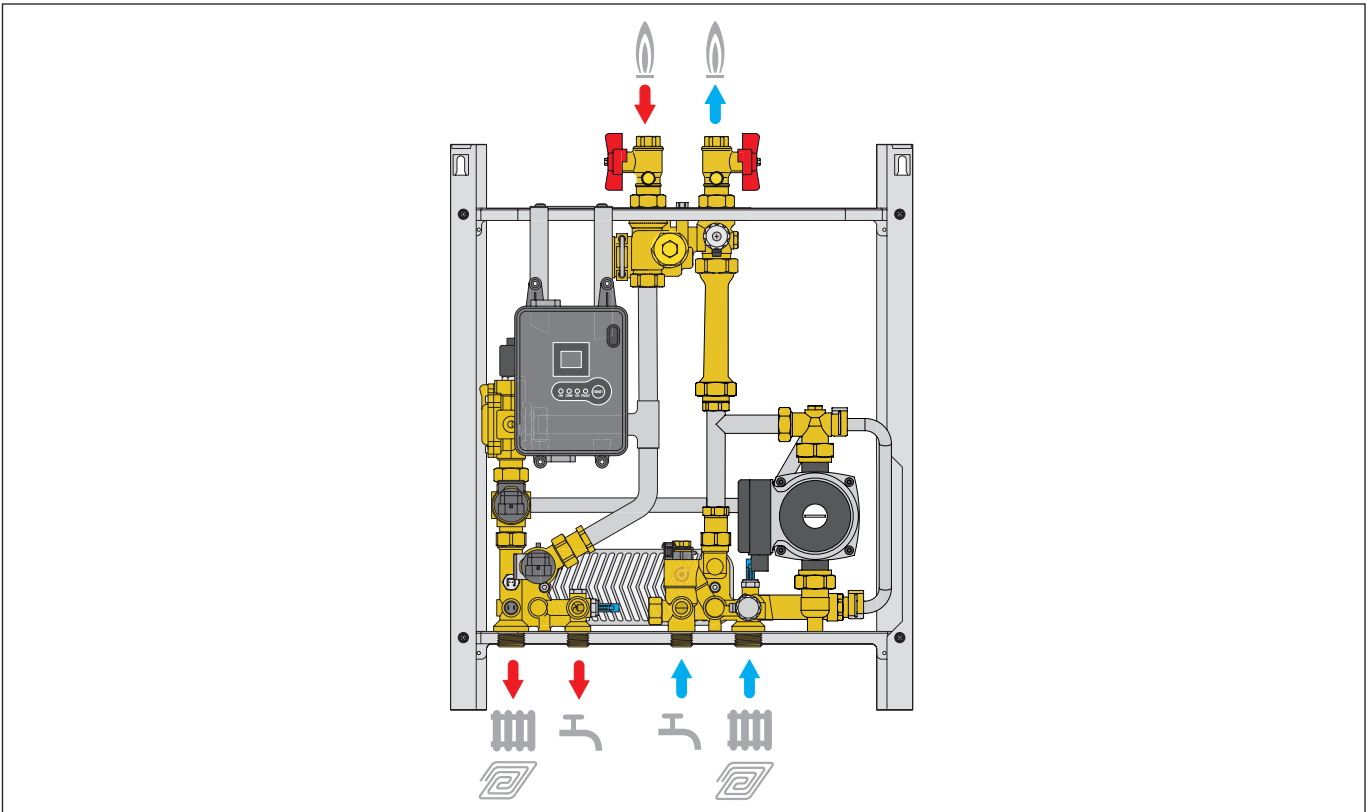
It is advisable to install manual shut-off valves (not supplied) also on the bottom connections to the apartment circuits.

Before installation, it is recommended to carry out accurate flushing of all the pipes of the system in order to remove any residue or impurities that could endanger correct operation of the HIU.

In order to facilitate these operations a manual bypass flushing valve is available (code 789100).



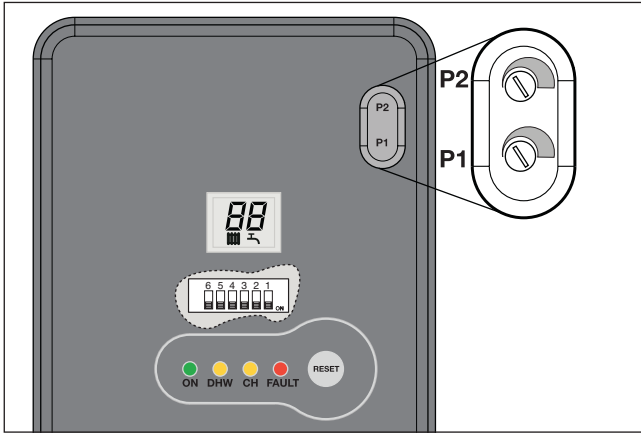
N.B. Install the valves as shown in the figure



N.B.:

- 1 Install water hammer arresters to compensate for any overpressure in the domestic water circuit;
- 2 In the presence of hot water recirculation or if a non-return valve is fitted into the domestic cold water inlet, provision must be made to accommodate the expansion of the water contained within the system and the heat interface unit;
- 3 All hydraulic connections must be checked before pressurising the system. Vibration during transport may cause the connections to become loose. **DO NOT APPLY EXCESSIVE TIGHTENING TORQUE** otherwise the components may be damaged.

Electronic regulator



Operating principle

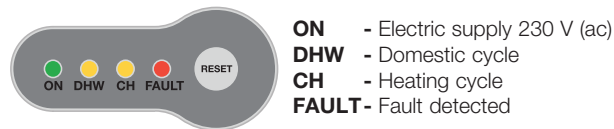
All heating and domestic hot water functions offered by SATK20 series HIUs are controlled by a digital controller. The controller is factory set with different parameters and settings depending on the model (Table 1). There are a number of specific DIP SWITCHES on the controller circuit board; the way these are configured will determine the settings of the various models and the optional functions enabled.

User interface

The user interface, built into the PCB, consists of the following devices:

• LED indicator

The various functions and faults are signalled by either flashing or steady illumination of the LEDs.



ON - Electric supply 230 V (ac)
DHW - Domestic cycle
CH - Heating cycle
FAULT - Fault detected

• RESET key



This allows restoration of normal function after the safety thermostat has been triggered and activation/deactivation of the floor slab heating function.

• Trimmers for set point settings

These allow setting of the temperature set point for the heating and domestic water cycle (on low and medium temperature models) and view the associated set value on the display.

P2 Heating cycle

P1 Domestic cycle

• LCD display

Allows viewing of heating and domestic hot water set point temperatures and the error codes.

Stand-by:

The following alternate every 5 seconds on the display:



Heating temperature set point
 (the return temperature is displayed if temperature regulation with compensated set point regulation is active, see page 9)



Domestic hot water temperature set point

Heating cycle ON:



The set point temperature is shown while the symbol flashes:
 (the return temperature is displayed if temperature regulation with compensated set point regulation is active, see page 9)

Domestic cycle ON:



The set point temperature is shown while the symbol flashes:

Table 1 - factory default settings

| CODE | SWITCH SETTING | | | | | | SET POINT | |
|---|----------------|---|---|---|---|---|-----------|-----------|
| | 6 | 5 | 4 | 3 | 2 | 1 | HEATING | DHW |
| SATK20103HE LOW temperature | see page 13 | | | | | | 25 – 45°C | 42 – 60°C |
| SATK20203HE MEDIUM temperature | | | | | | | 45 – 75°C | 42 – 60°C |
| SATK20303 / 20403HE / 20305 HIGH temperature | | | | | | | - | 42 – 60°C |

OFF **Factory set (do not change)**

ON

OFF **May be changed to activate optional functions**

ON **Switch 1: modulating temperature regulation with compensated set point**

ON **Switch 5: domestic hot water pre-heating function**

Safety and alarms

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

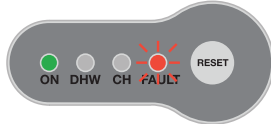
Probe fault

If a temperature probe fails, the associated cycle will be stopped immediately and disabled.

Any requests to run cycles not associated to the previous one will continue to run normally.

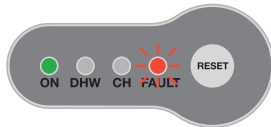
Heating probe fault

Error code: 5



Domestic hot water probe fault

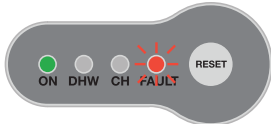
Error code: 6



Compensation probe fault

SATK20103HE - SATK20203HE

Error code: 15



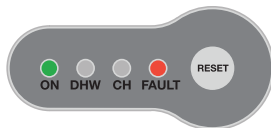
Removing a fault

Normal operating conditions are restored automatically once the faulty probe is working properly again (see page 12).

Safety thermostat cut-out

SATK20103HE - LOW temperature

Error code 69



The HIUs configured to support low temperature heating continuously monitor the safety thermostat controlling the flow temperature.

If the safety thermostat is activated during a general cycle, the heating circulation pump immediately comes to a stop and the modulating/mixing valve is completely closed. The thermal safety lock valve (SATK20103HE) is closed.

In the event of a power failure, the thermal safety valve prevents hot water from entering the heating system.

After the user has reset the block imposed by the safety thermostat, the shut-off valve can only be re-enabled when the mixing/modulating valves are completely closed again.

This means that if a domestic water cycle is in progress, the activation of the shut-off valve will be postponed until the end of that domestic water cycle.

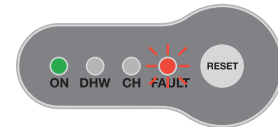
Removing a fault

To restore the operating mode press the manual RESET button.

Thermal safety valve fault

SATK20103HE - LOW temperature

Error code 76

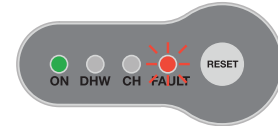


Removing a fault

Normal operating conditions are restored automatically once the faulty safety valve is working properly again.

Incorrect switch setting

Error code 79



Removing a fault

Restore correct switch setting according to table 1 (page 6).

Incorrect dip-switch configuration (heat interface unit disabled)

Error code 80



Removing a fault

The heat interface unit is disabled due to incorrect setting of the dip-switches. Restore correct setting according to table 1 (page 6).

Automatic controller functions

Reset mixing/modulating valve to zero

Immediately after the power supply has been switched on, the position of the installed mixing/modulating valves is 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.

Mixing valve/modulating valve anti-clog

The anti-clogging cycle for the mixing/modulating valve is run every 24 hours.



Characteristic components

1. Frame
2. Electronic regulator
3. Thermal safety relief valve
4. Heating mixing valve
5. DHW production modulating valve
6. Heating flow temperature probe
7. Thermal safety thermostat
8. DHW temperature probe
9. DHW heat exchanger
10. Drain cock
11. Flow temp. compensation return probe
12. Pump UPS2 15-60 or UPM3 15-70
13. DHW priority flow meter
14. Protective pump by-pass
15. Heat meter spacer template
16. Air vent cock
17. System strainer/heat meter flow probe pocket
18. Primary circuit shut-off valves

Functional characteristics

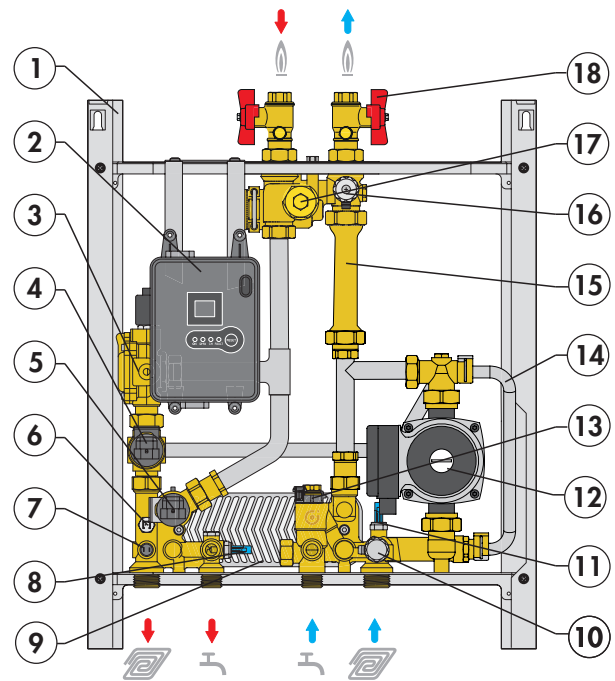
Heating range 25–45°C

Set point regulation

DHW production range 42–60°C

Optional functions

- Domestic cycle: - DHW pre-heating function
- Heating cycle: - modulating temperature regulation with compensated set point
- floor slab heating function



Factory settings



* see page 13

Characteristic components

1. Frame
2. Electronic regulator
3. Heating mixing valve
4. DHW production modulating valve
5. Heating flow temperature probe
6. DHW temperature probe
7. DHW heat exchanger
8. Drain cock
9. Flow temp. compensation return probe
10. Pump UPS2 15-60 or UPM3 15-70
11. Protective pump by-pass
12. DHW priority flow meter
13. Heat meter spacer template
14. Air vent cock
15. System strainer/heat meter flow probe pocket
16. Primary circuit shut-off valves

Functional characteristics

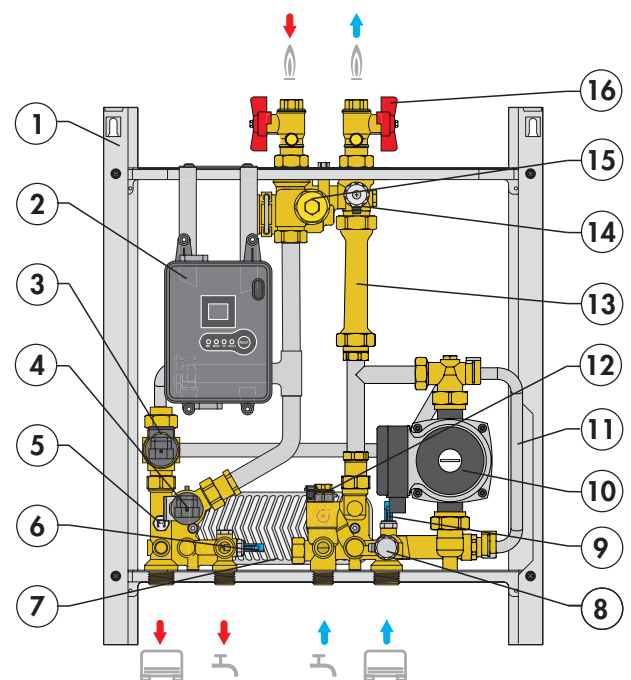
Heating range 45–75°C

Set point regulation

DHW production range 42–60°C

Optional functions

- Domestic cycle: - DHW pre-heating function
- Heating cycle: - modulating temperature regulation with compensated set point



Factory settings



Operating cycles

Domestic water cycle

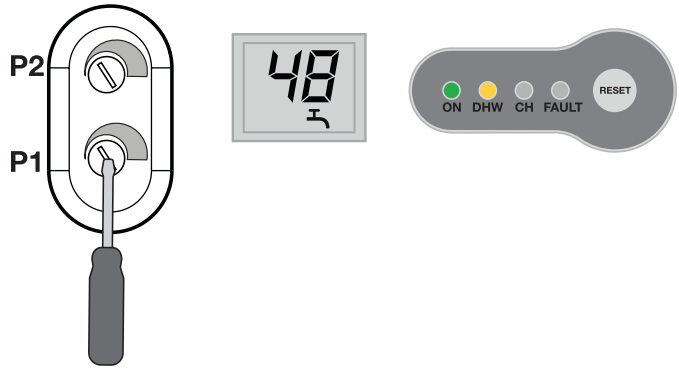
This cycle always takes priority over the heating cycle

When DHW cycle activation is requested due to DHW tapping by the user detected by the domestic water flow meter, the regulator controls the opening of the modulating valve in order to adjust the temperature detected by the domestic water probe to the selected set point value.

When tapping ends, the modulating valve is fully closed.

The active domestic hot water cycle is signalled by yellow DHW LED steady on.

The domestic hot water cycle temperature set point can be set using trimmer P1 and shown on the display.



Heating cycle

Set point regulation

When heating cycle activation is requested by the room thermostat, the circulation pump is powered while the mixing valve is activated gradually until the set point temperature is reached.

At the end of the heating cycle, the circulation pump comes to a stop and the valve is closed.

The active heating cycle is signalled by yellow CH LED steady on.

The heating cycle temperature set point can be set using trimmer P2 and shown on the display.



Floor slab heating function - SATK20103HE

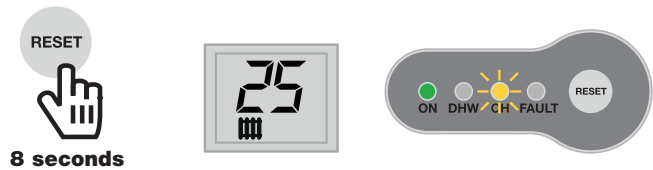
Facilitates the installation of underfloor heating systems at low temperatures. This function can only be activated and executed if there are no faults.

It can be activated by pressing and holding the RESET button for 8 seconds.

The yellow CH LED blinks while the floor slab heating function is in operation.

The function lasts 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, following the same procedures, in reverse (from the maximum set point to the minimum set point).

This function has priority over heating and 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!)

Domestic cycle

DHW pre-heating function

The function is enabled by setting dip switch 5 to the ON position.

During periods when the domestic water cycle is not used, if the DHW probe detects a temperature 10°C below the SET value, the controller 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 domestic hot water pre-heating function is signalled by the flashing yellow DHW LED.

This function is less of a priority than any domestic water or heating cycles.



Heating cycle

Modulating temperature regulation with compensated set point

SATK20103HE - SATK20203HE

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 (located on the user return pipe). This allows constant monitoring of the effective thermal output of the floor slab with the consequent minimisation of system response times.

If the function is enabled the display shows the return temperature, and the flow temperature is adjusted in accordance with the following formula:



$$\text{Flow temperature} = \text{Return temperature} + \Delta T$$

In **MEDIUM/HIGH** temperature configuration:

ΔT 8–22°C

In **LOW** temperature configuration:

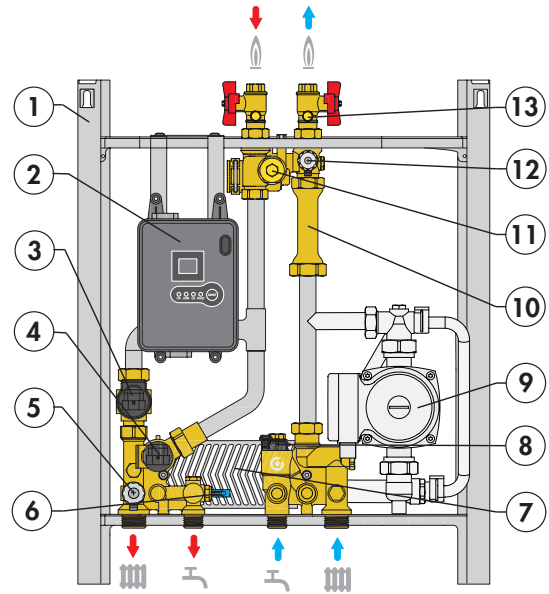
ΔT 2–8°C

SATK20303 HIGH temperature heat interface unit

SATK20403HE HIGH temperature heat interface unit with high efficiency pump on the primary side

Characteristic components

1. Frame
2. Electronic regulator
3. Heating ON/OFF valve
4. DHW production modulating valve
5. Drain cock
6. DHW temperature probe
7. DHW heat exchanger
8. DHW priority flow meter
9. Pump (SATK20403HE only) UPS2 15-60 or UPM3 15-70 with protective by-pass
10. Heat meter spacer template
11. System strainer/heat meter flow probe pocket
12. Air vent cock
13. Primary circuit shut-off valves



Functional characteristics

Maximum heating temp. 85°C
ON/OFF regulation

DHW production range 42–60°C

Optional functions

Domestic cycle: - DHW pre-heating function

Factory settings



Characteristic components

1. Frame
2. Electronic regulator
3. Heating ON/OFF valve
4. DHW production modulating valve
5. Drain cock
6. DHW temperature probe
7. DHW heat exchanger
8. DHW priority flow meter
9. Heat meter spacer template
10. Air vent cock
11. System strainer/heat meter flow probe pocket
12. Primary circuit shut-off valves

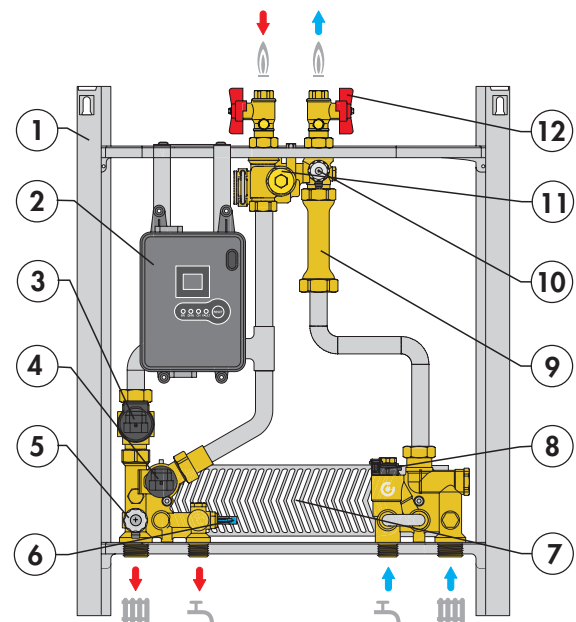
Functional characteristics

Maximum heating temp. 85°C
ON/OFF regulation

DHW production range 42–60°C

Optional functions

Domestic cycle: - DHW pre-heating function



Factory settings



Operating cycles

Domestic water cycle

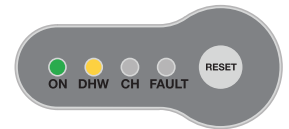
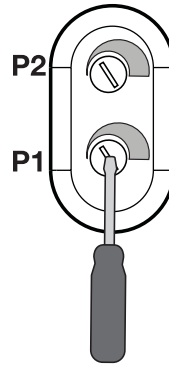
This cycle always takes priority over the heating cycle.

When DHW cycle activation is requested due to DHW tapping by the user detected by the domestic water flow meter, the regulator controls the opening of the modulating valve in order to adjust the temperature detected by the domestic water probe to the selected set point value.

When tapping ends, the modulating valve is fully closed.

The active domestic hot water cycle is signalled by yellow DHW LED steady on.

The general domestic water cycle temperature set point can be set using trimmer P1 and shown on the display.



Heating cycle

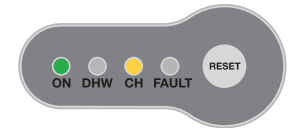
ON-OFF regulation

When the room thermostat requests the start of a heating cycle, the valve is opened completely, allowing water to circulate at the temperature supplied by the central heating system (ON-OFF regulation).

The valve is closed on completion of the heating cycle.

The active heating cycle is signalled by lighting of the yellow CH LED.

No value is shown on the display.



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

Domestic cycle

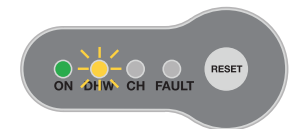
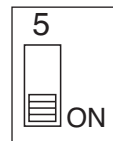
DHW pre-heating function

The function is enabled by setting dip switch 5 to the ON position.

During periods when the domestic water cycle is not used, if the DHW probe detects a temperature 10°C below the SET value, the controller partially opens the domestic hot water modulating valve for the time required (max. 5 minutes) to bring the exchanger to the condition wherein it can assure rapid DHW production.

The domestic hot water pre-heating function is signalled by the flashing yellow DHW LED.

This function is less of a priority than any domestic water or heating cycles.



Maintenance

All maintenance procedures should be carried out by an authorised technician.

Regular maintenance guarantees better efficiency and helps to save energy.

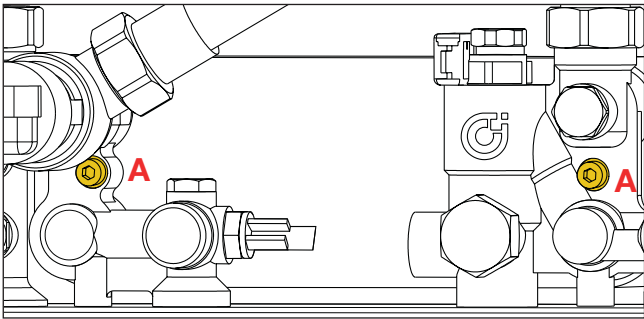
Before carrying out any maintenance, repair or part replacement work, proceed as follows:

- Cut off the electric supply
- Remove the cover
- Close the shut-off valves
- Empty the heat interface unit using the drain cocks provided.

Heat exchanger replacement

- Remove the heat exchanger, loosening the 2 hex socket head screws fixing it in place (A)
- Replace the heat exchanger and the O-Rings.
- Tighten the two fixing screws (A).

N.B. The pins fixing the heat exchanger are positioned in such a way as to allow it to be placed only in the correct direction.

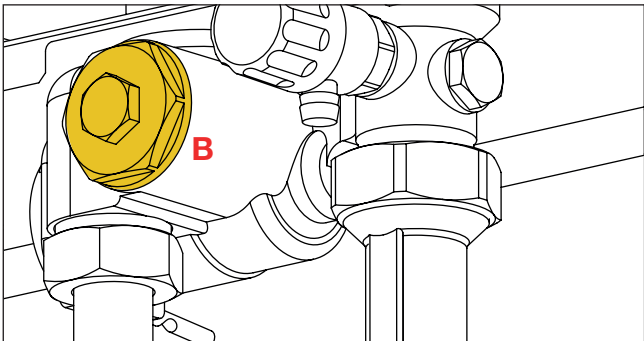


Strainer cleaning

All heat interface units have a strainer on the inlet for water from the centralised system.

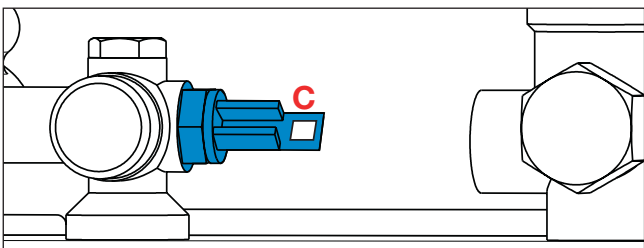
To clean these strainers, carry out the following maintenance procedure:

- Unscrew the cap (B)
- Remove the strainer mesh and discard any impurities
- Put the strainer mesh back in
- Screw the cap back on.



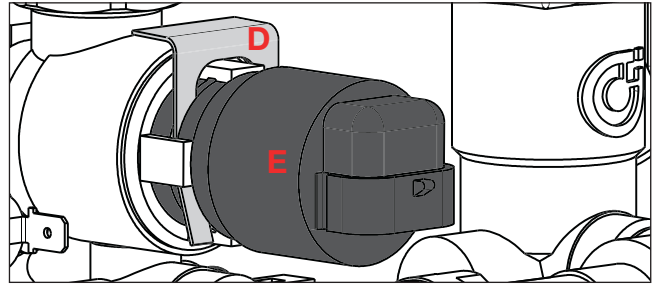
Temperature probe replacement

- Disconnect the probe cable, lightly folding the tab (C) and extracting the connector (see page 13, ref. 1-3-7)
- Unscrew the probe
- Fit the new probe
- Reconnect the connector respecting the only possible way it can be inserted.



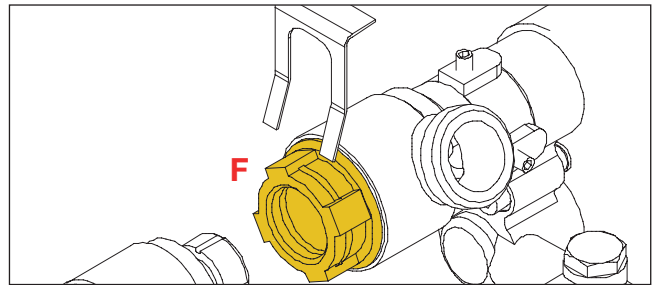
Replacing the valve actuator

- Disconnect the actuator cable, lightly pressing the tab on the connector and extracting it (see page 13, ref. 4-8)
- Extract the fixing clip (D) and then the actuator
- Position the new actuator (E)
- Insert the fixing clip, respecting the correct direction
- Reconnect the connector.



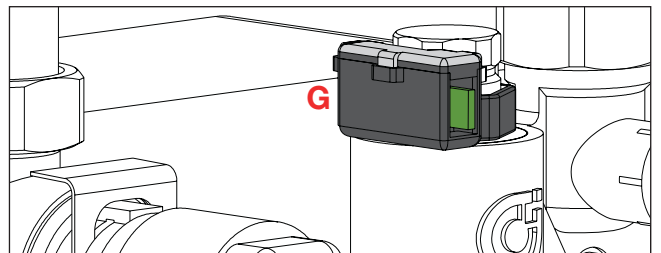
Replacing the valve obturator

- Disconnect the valve actuator (see previous paragraph)
- Extract the obturator, unscrewing the locking nut (F)
- Replace the obturator, screw on the locking nut (F) and then insert the actuator
- Insert the fixing clip, respecting the correct direction
- Reconnect the connector.



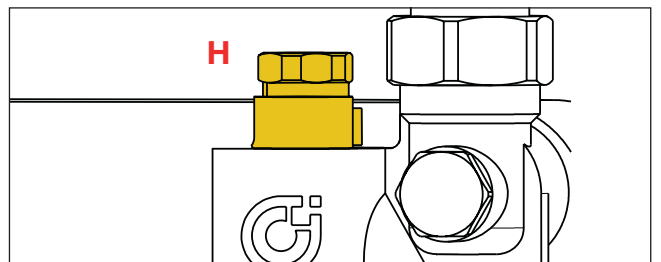
Replacing the DHW priority flow meter

- Disconnect the flow meter cable acting on the connector (see page 13, ref. 2)
- Extract the flow sensor (G)
- Position the new sensor
- Reconnect the connector respecting the only possible way it can be inserted.



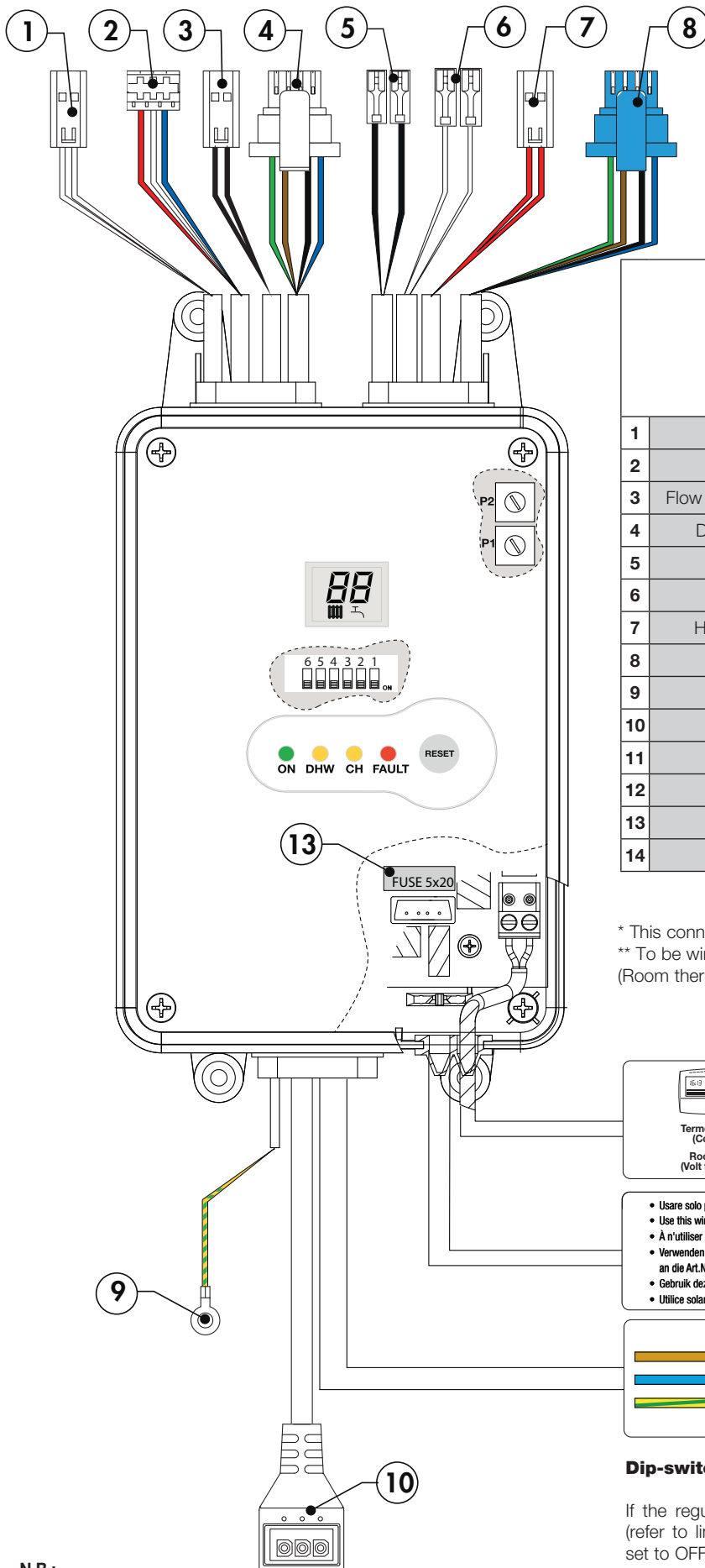
Replacing or cleaning the priority flow meter turbine and strainer

- Extract the flow sensor (G)
- Unscrew and remove the cartridge (H)
- Eliminate any impurities on the strainer mesh and, if necessary, change the cartridge
- Screw the cartridge back into place
- Refit the flow sensor.



When carrying out maintenance on the electrical part, for the connections follow the diagram on page 13. After concluding maintenance, proceed with the filling and checking operations described in the chapter "Commissioning" and fit the cover. If you require any information regarding spare parts, please contact Caleffi spa.

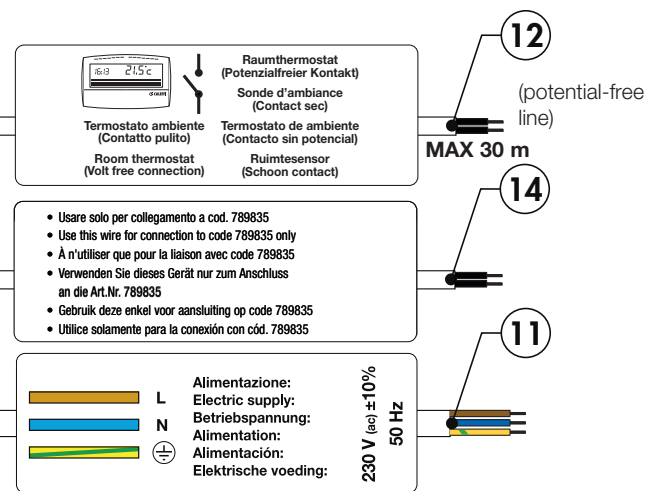
Electric connections



| | | SATK20103HE | SATK20203HE | SATK20303 SATK20305 | SATK20403HE |
|----|--------------------------------------|-------------|-------------|------------------------|-------------|
| 1 | DHW temperature probe | X | X | X | X |
| 2 | DHW priority flow meter | X | X | X | X |
| 3 | Flow temp. compensation return probe | X | X | | |
| 4 | DHW production valve actuator | X | X | X | X |
| 5 | Thermal safety thermostat | X | | | |
| 6 | Thermal safety valve | X | | | |
| 7 | Heating flow temperature probe | X | X | | |
| 8 | Heating valve actuator | X | X | X | X |
| 9 | Earth | X | X | X | X |
| 10 | Pump | X | X | | X |
| 11 | Electric supply 230V (ac)** | X | X | X | X |
| 12 | Room thermostat** | X | X | X | X |
| 13 | Fuse | X | X | X | X |
| 14 | HIU enabling | * | X | X | X |

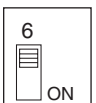
* This connection may not be available

** To be wired during installation
(Room thermostat not supplied)

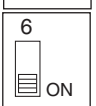


Dip-switch 6 configuration

If the regulator is equipped with the "HIU enabling" cable (refer to line 14 in the above table), dip-switch 6 must be set to OFF



Vice versa, if this connection is absent, the dip-switch must be set to ON.



N.B.:

The pump cable connector is polarised. Insert the connector correctly and do not attempt to force it in the wrong position.

Troubleshooting

| FAULT DESCRIPTION | INDICATIONS | POSSIBLE CAUSE OF FAULT | OPERATIONS TO BE PERFORMED |
|--|-------------------------------------|---|--|
| Water is not heated | DHW LED on | primary circuit shut-off valves closed | open the valves |
| | | modulating valve actuator connector disconnected | reconnect actuator connector |
| | | modulating valve actuator disconnected from valve body | reconnect actuator |
| | | modulating valve actuator faulty | call qualified personnel to have it replaced |
| | | DHW temperature probe cable inverted with heating probe | restore correct connection |
| | | presence of air in the system | vent the system |
| | | electronic controller not working | call qualified personnel to have it replaced |
| | | valve obturator blocked in closed position | call qualified personnel to have it replaced |
| | | centralised system not working/cold | contact person in charge of system |
| | FAULT LED on + error code 6 active | DHW temperature probe disconnected | reconnect probe |
| | | DHW temperature probe faulty | call qualified personnel to have it replaced |
| | FAULT LED on + error code 79 active | incorrect switch setting | restore correct switch setting |
| | FAULT LED on + error code 80 active | incorrect switch setting | restore correct switch setting |
| | DHW led off | DHW priority flow meter disconnected | reconnect flow meter |
| DHW priority flow meter faulty | | call qualified personnel to have it replaced | |
| all LEDs are off | No electric power supply | restore HIU electric supply | |
| | protection fuse burnt out | call qualified personnel to have it replaced | |
| The water is hot but does not reach the desired temperature | DHW LED on | domestic water cycle temperature set point too low | increase set point |
| | | Primary circuit strainer of the HIU clogged | call qualified personnel to have it serviced |
| | | heat exchanger partly clogged | call qualified personnel to have it serviced |
| | | modulating valve actuator faulty | call qualified personnel to have it replaced |
| | | valve obturator blocked in intermediate position | call qualified personnel to have it replaced |
| | | DHW temperature probe cable inverted with heating probe | restore correct connection |
| | | excessive demand for DHW | decrease demand |
| | | electronic controller not working | call qualified personnel to have it replaced |
| | | centralised system temperature insufficient | contact person in charge of system |
| | | primary circuit flow rate insufficient | contact person in charge of system |
| Hot water temperature is too high | DHW LED on | domestic water cycle temperature set point too high | decrease set point |
| | | DHW temperature probe cable inverted with heating probe | restore correct connection |
| | | modulating valve actuator faulty | call qualified personnel to have it replaced |
| | | valve obturator blocked in intermediate or open position | call qualified personnel to have it replaced |
| | | electronic controller not working | call qualified personnel to have it replaced |
| | | primary circuit excessive pressure | contact person in charge of system |
| Hot water flow rate is insufficient | DHW LED on | flow meter strainer clogged | call qualified personnel to have it serviced |
| | | possible domestic water system shut-off valves partially closed | open the valves |
| | | centralised domestic circuit cold water flow rate insufficient | call qualified personnel to have it serviced |
| Hot water flow rate is zero | DHW LED off | possible domestic water system shut-off valves closed | open the valves |
| | | no cold water in centralised domestic circuit | call qualified personnel to have it serviced |
| | | flow meter strainer completely clogged | call qualified personnel to have it serviced |
| | | heat exchanger completely blocked | call qualified personnel to have it serviced |

| FAULT DESCRIPTION | INDICATIONS | POSSIBLE CAUSE OF FAULT | OPERATIONS TO BE PERFORMED |
|---|---------------------------------------|---|---|
| The room is not reaching the desired temperature | CH LED on | heating cycle temperature set point too low | increase set point |
| | | chrono-thermostat temperature setting incorrect | check programming of chrono-thermostat |
| | | HIU strainer clogged | call qualified personnel to have it serviced |
| | | heating valve actuator faulty | call qualified personnel to have it replaced |
| | | heating valve obturator blocked | call qualified personnel to have it replaced |
| | | modulating valve actuator connector disconnected | reconnect actuator connector |
| | | DHW temperature probe cable inverted with heating probe | restore correct connection |
| | | presence of air in the system | vent the system |
| | | pump (if present) not working | call qualified personnel to have it replaced |
| | | pump cable (if present) not connected | restore connection |
| | | possible system shut-off valves/terminals closed | open the valves |
| | | centralised system temperature insufficient | contact person in charge of system |
| | | electronic controller not working | call qualified personnel to have it replaced |
| | | primary circuit flow rate insufficient | contact person in charge of system |
| | centralised system not working | contact person in charge of system | |
| | CH LED off | chrono-thermostat time setting incorrect | check programming of chrono-thermostat |
| | | chrono-thermostat not working | check chrono-thermostat |
| | all LEDs are off | Electric supply cut off | restore HIU electric supply |
| | | Protection fuse burnt out | call qualified personnel to have it replaced |
| | FAULT LED on + error code 5 active | heating temperature probe faulty | call qualified personnel to have it replaced |
| FAULT LED on + error code 15 active | compensation temperature probe faulty | call qualified personnel to have it replaced | |
| FAULT LED on + error code 69 active | safety thermostat cut-out | call qualified personnel to have it serviced | |
| FAULT LED on + error code 76 active | safety relief valve faulty | call qualified personnel to have it serviced | |
| FAULT LED on + error code 79 active | incorrect switch setting | restore correct switch setting | |
| FAULT LED on + error code 80 active | incorrect switch setting | restore correct switch setting | |
| Start-up of the heat interface unit heating function triggers the safety circuit breaker | All LEDs are off | pump connector inserted the wrong way round | check that the pump cable connector is inserted the right way round |

Commissioning checklist

| | Model | Checks to be performed | |
|----|---|--|--|
| 1 | all | Is the heat interface unit properly secured to the wall? | |
| 2 | all | Has the system flushing been carried out? | |
| 3 | all | Check strainers and clean them if necessary | |
| 4 | all | Is the heat meter (if present) connected? | |
| 5 | all | Is the heat meter (if present) connected to the building datalogger (if required)? | |
| 6 | all | Is the DCW line fitted with a pressure reducing valve? | |
| 7 | all | Is the system protected by water hammer arresters? | |
| 8 | all | Has the domestic exchanger pre-heating function (normally off) been activated (if required)? | |
| 9 | SATK20103HE SATK20203HE | Has the modulating temperature regulation with compensated set point (normally off) been activated (if required)? | |
| 10 | all | Is the heat interface unit connected to the 230 V (ac) electric supply? | |
| 11 | all | Is the room thermostat (potential-free contact) connected? | |
| 12 | all | Has the visual inspection of electrical connections inside the heat interface unit given a positive result? Are the connections compliant with specifications and made in accordance with best practices? | |
| 13 | all | Are the shut-off valves open? | |
| 14 | all | Has the visual inspection of the hydraulic connections given a positive result? | |
| 15 | all | Has the system been filled and vented? | |
| 16 | all | Is the heat interface unit powered (green "ON" LED lit)? | |
| 17 | all | No alarm code ("fault" LED lit) on heat interface unit regulator? | |
| 18 | all | Has the DHW temperature been set to the required value? (42-50°C recommended) | |
| 19 | SATK20103HE SATK20203HE | Has the heating flow temperature been set to a correct value? | |
| 20 | all | Is the primary circuit at working temperature? | |
| 21 | all | Check that "CH" LED lights approx. 10 seconds after the thermostat trips | |
| 22 | SATK20103HE SATK20203HE SATK20403HE | Check that the pump operates correctly on tripping of the thermostat (check that secondary flow pipes start to heat up) | |
| 23 | all | Simulate minimal DHW tapping (approx 3 l/min) and check that "DHW" LED lights and that water is supplied at the required temperature | |
| 24 | all | Simulate abundant DHW tapping and check, by means of the installed heat meter, that the primary circuit flow rate is sufficiently high | |