

SATK20 & SATK30

heat interface unit



Installation Operation & Maintenance Instructions

SATK20 & SATK30 heat interface unit

SATK20



SATK30



Function

SATK20 and SATK30 Heat Interface Units (HIU) control the heating and domestic hot water generation in an individual apartment within a centralised boiler or district heating system.

NOTE: Due to the specification ordered, or the country of destination, the actual unit may differ from those shown.

Content

Function and product range	1
Safety instructions	1
Dimensions and technical specification	3
Installation	4
First operation	5
Electronic controller	6
Safety and alarms	7
SATK20103 and SATK20203 components	8
SATK20303 components	10
SATK30103 components	12
SATK30105 components	12
Maintenance	14
Electric connections	16
Trouble shooting and solution	27

Product Range

- SATK20103** Direct wall-mounted HIU for **LOW** temperature heating, instantaneous domestic hot water production.
- SATK20203** Direct wall-mounted HIU for **MEDIUM** temperature heating, instantaneous domestic hot water production.
- SATK20303** Direct wall-mounted HIU for **HIGH** temperature heating, instantaneous domestic hot water production.
- SATK30103** Indirect wall-mounted HIU, instantaneous DHW production - with **50 kW** heat exchanger.
- SATK30105** Indirect wall-mounted HIU, instantaneous DHW production - with **75 kW** heat exchanger..

Safety Instructions

WARNING These instructions must be read and understood before installing and maintaining the HIU.
CAUTION! 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, commissioned and maintained correctly in accordance with the instructions provided in this manual, it may not work correctly and may endanger the user.
- 3 Flush the pipework thoroughly before installing the HIU to remove any particles, rust, incrustations, limescale, welding slag and any other contaminants.
The water circuits must be clean and free from debris.
- 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.

SATK20 & SATK30 heat interface unit

Safety Instructions

- 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. Failure to do so may result the HIU becoming damaged or working incorrectly.
- 8 Any use of the HIU other than it's 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.

NOTE: Risk of electric shock. Live parts. Shut off the electric supply before opening the HIU cover.

- 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, switch 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 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. Check that the earth connection has been made to the highest of standards under current legislation.
- 6 Electrical installation must only be carried out by a qualified technician, in accordance with current requirements.

Underfloor Heating Manifold Connection

NOTE: When connecting directly onto an underfloor heating manifold precautions should be made to ensure correction circulation around the tertiary circuit on heating start-up.

Our recommendation is to utilise a heating enable time delay underfloor heating wiring centre or manifold zone valves/actuators that incorporate an axillary micro switch.

Hydraulically, circulation can be made via an automatic differential pressure bypass linking to tertiary flow and return at the outlet of the HIU.

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

General Information

- Please leave the manual as a reference guide for the user.
- Dispose of any packaging in an appropriate manner, most of which can be recycled.
- In this Installation, Operation and Maintenance guide we have endeavoured to make the information as accurate as possible.

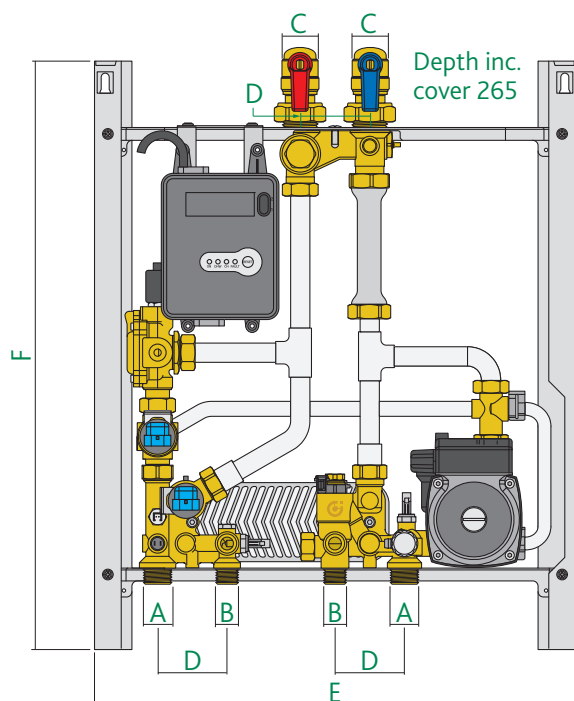
We cannot accept any responsibility should it be found that in any respect the information is inaccurate or incomplete or becomes so as a result of further developments or changes to the products.

Material

Components:	brass BS EN 12165 CW617N
Pipes:	stainless steel
Frame:	RAL 9010 sprayed steel
Protective shell cover:	PPE
Exchanger:	brazed stainless steel

SATK20 & SATK30 heat interface unit

Dimensions - SATK20

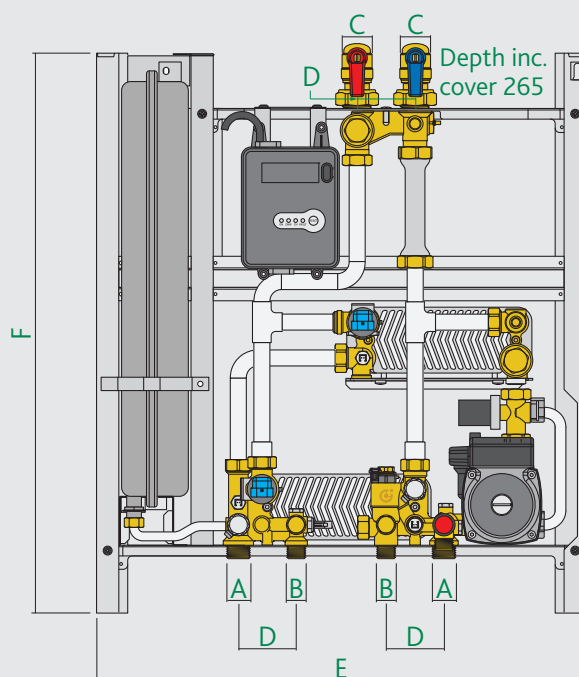


A	B	C	D	E	F	kg
G¾B	G½B	G¾B	65	450	550	16

Technical Specification

Medium:	Water
Max. percentage of glycol	30%
Max. temperature:	85°C
Max. static working pressure:	Primary: 16 bar
	Secondary: 10 bar
	Domestic hot water: 10 bar
Primary differential pressure capability:	1.65 bar
Optionally available:	6 bar
Nom. DHW heat exchanger net output:	50 kW
Max. recommended primary circuit flow rate:	1.2 m³/h
DHW circuit max. flow rate:	18 l/m (0.3 l/s)
Min. flow rate to activate domestic flow sensor:	2.7 l/m ±0.3
Max. differential pressure on domestic water modulating valve:	Δp 1.65 bar
Max. differential pressure on mixing valve:	Δp 1.65 bar
Power supply:	230 V (ac) ±10% 50 Hz
Power consumption:	105 W (SATK 20203)
Protection class:	IP 40
Pump:	UPS 15/60
Pump bypass setting:	0.45 bar
Actuator:	stepper 24 V
Probes:	NTC 10 kΩ
Safety thermostat:	55°C ±3
Optionally available:	
Differential pressure control valve:	15 kPa
Alternative differential pressure:	30 kPa

Dimensions - SATK30



A	B	C	D	E	F	kg
G¾B	G½B	G¾B	65	550	630	19

Technical Specification

Medium:	Water
Max. percentage of glycol	30%
Max. temperature:	85°C
Max. static working pressure:	Primary: 16 bar
	Secondary: 3 bar
	Domestic hot water: 10 bar
Primary differential pressure capability:	1.65 bar
Optionally available:	6 bar
Nom. heating exchanger net output:	15 kW
Nom. DHW heat exchanger net output:	50 kW
Max. recommended primary circuit flow rate:	1.2 m³/h
DHW circuit max. flow rate:	18 l/m (0.3 l/s)
Min. flow rate to activate domestic flow sensor:	2.7 l/m ±0.3
Max. differential pressure on domestic water modulating valve:	Δp 1.65 bar
Power supply:	230 V (ac) ±10% 50 Hz
Power consumption:	105 W
Protection class:	IP 40
Pump:	UPS 15/60
Pump bypass setting:	0.45 bar
Actuator:	stepper 24 V
Probes:	NTC 10 kΩ
Safety relief valve setting:	3 bar
Safety thermostat:	55°C ±3
Expansion vessel:	7.5 litre
Pressure switch:	opening 0.4 bar - closing 0.8 bar

SATK20 & SATK30 heat interface unit

Installation

The SATK series HIUs are 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 recommended that electrical devices are NOT placed underneath the HIU, as they may be damaged in the event of discharge from the safety valve, if it is not connected to a discharge tundish (SATK30103), or in the event of leaks occurring at the 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.

NOTE for all models:

If a non-return valve is fitted into the domestic hot water (DHW) cold water inlet, provision **MUST** be made to accommodate the expansion of the DHW contained within the HIU.

Preparation

After establishing the position where the HIU will be installed, perform the following operations:

- Mark the holes required for securing the HIU to the wall.
- Mark the position of the water pipe connections.

Check the measurements again before installing pipework and electrical cables.

Hydraulic connections:

- 1 connection to the pipework from the centralised boiler plant
- 2 heating circuit connection
- 3 domestic water circuit connection
- 4 discharge from safety relief valve

Electrical:

- 1 electric supply line 230 V (ac) – 50 Hz
- 2 time clock/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)

The whole system should be thoroughly flushed to remove any debris that may be in the supply pipework to the HIU and to the domestic hot water and heating pipework in the apartment before connecting the HIU.

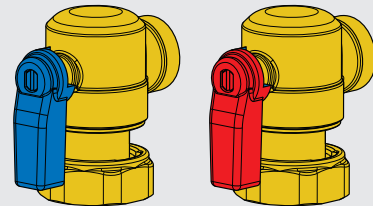
Fix the HIU to the wall

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.

Isolation Valves

Depending on the specification ordered, the HIU may be supplied with a variety of isolation valves. We recommend that all connections are fitted with isolation valves to allow any maintenance work to be carried out.

We would also recommend that the primary system includes a flushing bypass, with an isolation valve, immediately upstream of the HIU, to allow the primary system to be flushed prior to the first operation of the unit.



Electrical 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 in doubt, contact a qualified technician to thoroughly check the electrical system.

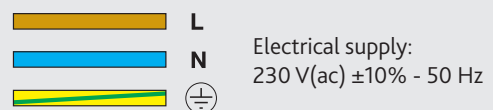
Electrical safety of the appliance is only achieved when it is correctly connected to an effective earthing system, constructed as specified in current safety regulations. This is a compulsory safety requirement.

Connection to the main supply

The device is supplied with an electric supply cable - plug not supplied.

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 as specified below, observing the LIVE (L) - NEUTRAL (N) polarities and the earth connection.

This line must be connected to a circuit breaker device.



Connection to the timeclock/thermostat

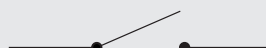
The SATK series HIU includes a connection, suitable for a time clock/thermostat, allowing the tenant to control individual apartment heating requirements

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

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



Room thermostat



SATK20 & SATK30 heat interface unit

First Operation

Filling the central heating system

Open the isolation valves on the connections to the centralised boiler plant to fill and pressurise the system to the design pressure.

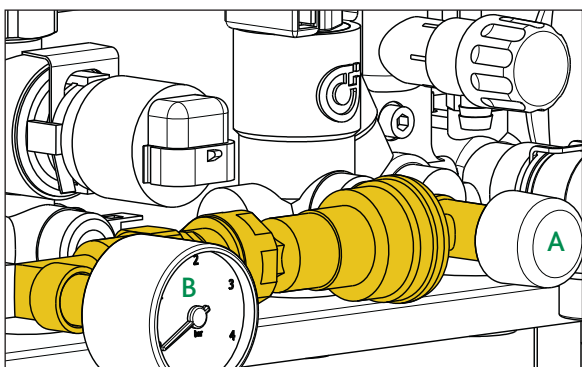
Once completed, vent the system and check the system pressure again, repeat the filling process if necessary.

Filling the secondary circuit (SATK30103 & SATK30105 only)

The SATK30103 and SATK30105 HIUs are fitted with a filling loop complete with double check valve and isolation valves.

The first time the system is filled, or for re-pressurising following a heating circuit pressure switch fault indication, restore the system pressure (1.2 to 2 bar) by opening the cock (A) and monitoring the value using the pressure gauge (B).

Once the correct pressure has been reached, close the cock (A), vent the system and check its pressure again, repeat the filling process if necessary.



NOTE: For UK markets, a filling loop is supplied in lieu of the back-flow preventer.

System start-up

Before switching on the HIU, visually check all joints are water tight and the electric wiring is complete and correct. After finishing the check, activate the electric supply to the HIU and check for the presence of any error signals.

If any error signals are indicated, eliminate the faults indicated and proceed as described below, setting the domestic water temperature and the heating controller to the desired temperatures and times. Check that the operating cycles are correct.

Except for the SATK20303 HIGH temperature HIU, which does not have an integral pump the following applies;

Once the HIU is hydraulically filled (primary and secondary), the HIU should be left permanently connected to the mains supply and switched on. This allows the unit to operate its pump anti-clog protocol. In addition, all hydraulic services, to and from the HIU should be left un-isolated.

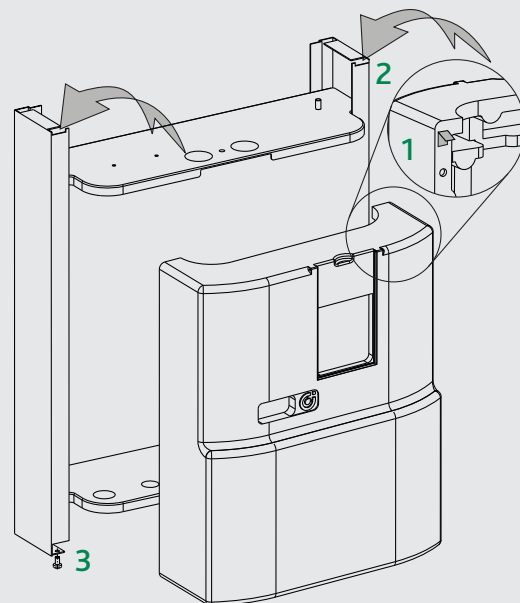
Fitting the cover

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).

Fitting the cover



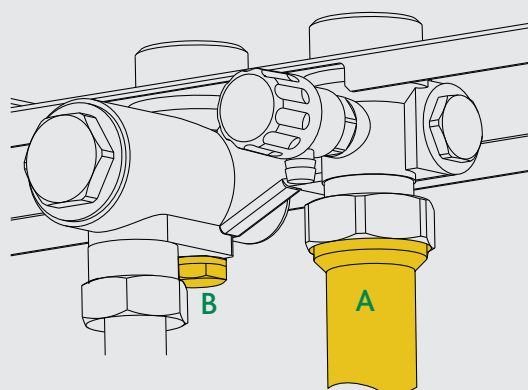
Heat meter installation

The HIU is designed to include a compact heat meter.

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

- cut off the electric supply
- remove the cover
- close the isolating valves
- empty the HIU using the drain cocks provided
- remove the spacer piece (A)
- remove the blanking plug (B)
- install the flow probe in the 1/4" pocket (B) provided
- install the flow meter on the return pipe.

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



Automatic controller function

Pump anti-clog

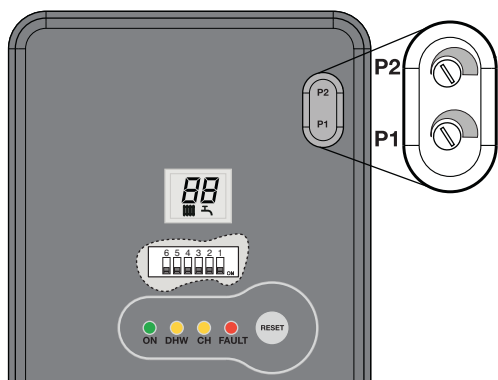
When the pump is not in use, it is powered on for a period of 5 seconds every 24 hours.

Mixing valve/modulating valve anti-clog

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

SATK20 & SATK30 heat interface unit

Electronic Controller



Operating Principle

All heating and domestic hot water functions offered by SATK20 and SATK30 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.

• Indicator LED

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



• Reset key



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

• Setting the temperatures

These allow the specified temperatures for the heating and domestic water cycles to be set and view the relative values on the display.



P2 Heating temperature



P1 Domestic water temperature

• LED display

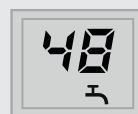
Shows the heating and domestic hot water set point temperatures and the error codes.

• Stand-by:

The following alternate every 5 seconds on the display:



Heating temperature set point



Domestic water temperature set point

• Heating cycle ON:



The set point temperature is shown while the symbol flashes:

• Domestic water cycle ON:



The set point temperature is shown while the symbol flashes:

Table 1 – factory default settings

CODE	SWITCH SETTING						SET	
	6	5	4	3	2	1	HEATING	DHW
SATK20103 LOW temperature							25 to 45°C	42 to 60°C
SATK20203 MEDIUM temperature							50 to 75°C	42 to 60°C
SATK20303 HIGH temperature							Max 85°C	42 to 60°C
SATK30103 & SATK30105 HIGH temperature setting							50 to 75°C	42 to 60°C

OFF Factory set (do not change)

OFF May be changed to activate optional functions
 Switch 1: modulating temperature regulation with compensated set point
 Switch 2-3: change SATK30103 & SATK30105 setting to Low Temperature
 Switch 5: domestic water preheating function

SATK20 & SATK30 heat interface unit

Safety and alarms

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

Heating circuit pressure switch fault - Error code: 4

SATK30103 - at LOW/HIGH temperature setting



The SATK30 HIU continuously monitors the pressure in the apartments secondary heating circuit. If the pressure falls in this circuit, the pressure switch is activated, the circulation pump shuts down and the and the regulating valve closes.

Heating cycle activation is indicated by a flashing fault LED on the electronic controller. This fault does not affect the generation of the domestic hot water.

Removing a fault

Once the correct pressure has been achieved on the heating circuit, the fault can be reset. (see page 5).

Probe fault

If the domestic water temperature probe fails, domestic water generation will cease immediately. Heating performance will not be affected.

If the heating probe fails, the heating will cease immediately. The domestic water generation will not be affected. The probe fault is indicated by a flashing fault LED on the electronic controller.

Heating probe fault - Error code: 5



Domestic water probe fault - Error code: 6



Compensation probe fault - Error code: 15

SATK20103 - LOW temperature

SATK30103 - at LOW temperature setting



Removing a fault

Normal operation will be restored once the probe is replaced. (see page 15).

Safety thermostat cutout - Error code: 69

SATK20103 - LOW temperature

SATK30103 - at LOW temperature setting



The HIU is configured to support low temperature heating (low temperature models only), constantly monitors the heating flow temperature and includes a safety thermostat.

If the thermostat is activated during a general cycle, the circulation pump will immediately stop, the mixing valve and safety lock valve (SATK20103) will close. Safety thermostat activation is indicated by a steady, red fault LED on the electronic controller. This fault locks all functions.

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

After the user has reset the isolation 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

Before resetting the controller, the manual reset button will need to be pressed.



Safety valve fault - Error code: 76

SATK20103 - LOW temperature



Removing a fault

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

Safety setting incorrect - Error code: 76



Removing fault 79

Restore correct switch setting according to Table 1

Automatic controller function

Reset mixing/modulating valve to zero

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

SATK20 & SATK30 heat interface unit

Components - SATK20103 LOW Temperature HIU

Item	Component
1	Frame
2	Electronic controller
3	Thermal safety relief valve
4	Heating mixing valve
5	DHW production modulating valve
6	Heat flow temperature probe
7	Thermal safety thermostat
8	DHW temperature probe
9	DHW heat exchanger
10	Drain cock
11	UPS 15-60 pump
12	Protective pump by-pass
13	Flow temp. compensation return probe
14	DHW priority flow meter
15	Heat meter spool piece
16	Air vent cock
17	System strainer/heat meter flow probe pocket
18	Primary circuit isolating valve

Functional characteristics

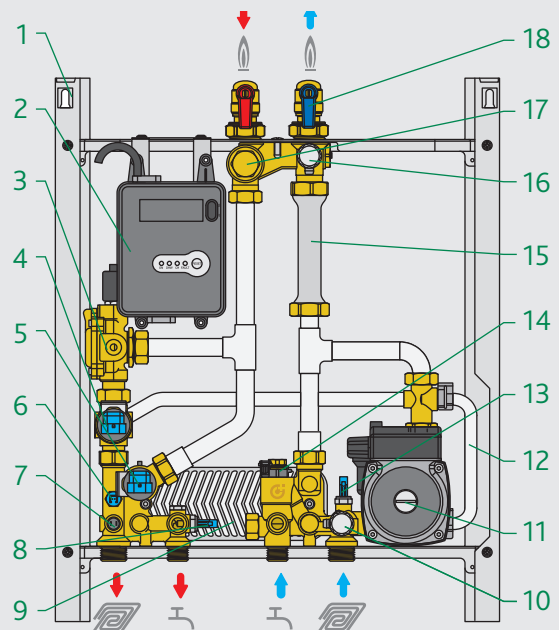
Heating range: 25 to 45°C

Set point regulation

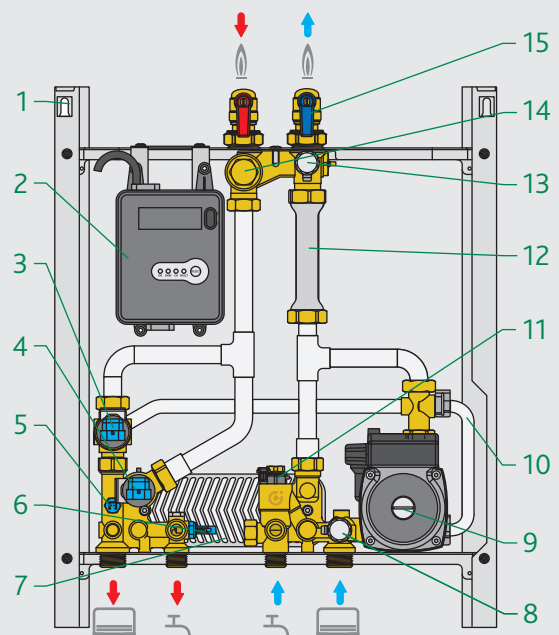
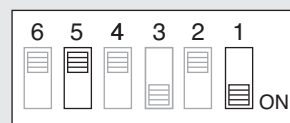
DHW production range: 42 to 60°C

Optional functions

Domestic water cycle: domestic water preheating function
 Heating cycle: modulating temperature regulation with compensated set point
 floor slab heating function



Factory settings



Factory settings



Components - SATK20203 MEDIUM Temperature HIU

Item	Component
1	Frame
2	Electronic controller
3	Heat mixing valve
4	DHW production modulating valve
5	Heating flow temperature probe
6	DHW temperature probe
7	DHW heat exchanger
8	Drain cock
9	UPS 15-60 pump
10	Protective pump by-pass
11	DHW priority flow meter
12	Heat meter spool piece
13	Air vent cock
14	System strainer/heat meter flow probe pocket
15	Primary circuit isolating valve

Functional characteristics

Heating range: 50 to 75°C

Set point regulation

DHW production range: 42 to 60°C

Optional functions

Domestic water cycle: domestic water preheating function

SATK20 & SATK30 heat interface unit

Operating Cycles SATK20 Low and Medium Temperature

Domestic water generation: This cycle always takes priority over the heating cycle.

When a tap or shower is turned on (detected by the domestic water flow meter) the DHW cycle is activated, the controller pilots the modulating valve opening so as to adjust the temperature detected by the domestic water probe to the selected set point value.

When the tap or shower is turned off, the modulating valve is fully closed.

The active domestic water cycle is signalled by the yellow DHW LED which comes on.

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

Heating cycle: Set point regulation

When space heating 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 active heating cycle is signalled by the yellow CH LED which comes on.

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

Under floor heating function: SATK20103 - LOW temperature

This cycle aids the drying of the underfloor heating screed 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 under floor heating drying function is in operation.

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, 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.

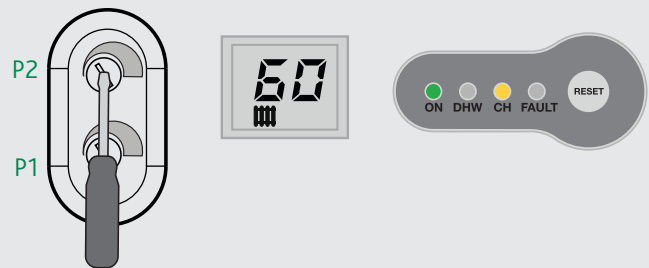
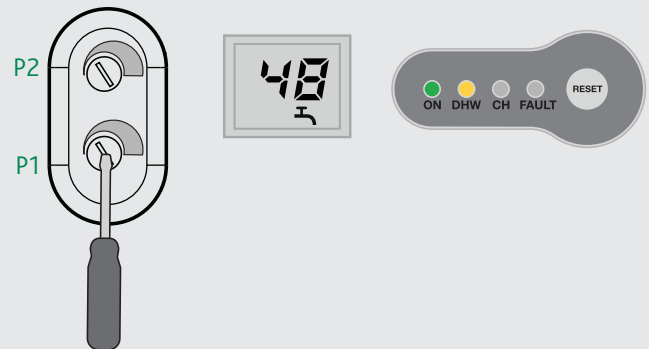
Optional functions - to activate/deactivate the optional functions the electric power supply must always be turned off.

Domestic water generation: DHW preheating 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 water modulating valve for the time required (max. 5 mins) to bring the temperature detected up to a value 5°C below the set point value.

Operating Cycles SATK20



SATK20 & SATK30 heat interface unit

Operating Cycles SATK20 Low and Medium Temperature

Domestic water generation: DHW preheating function

The domestic water preheating 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 SATK20103 - LOW temperature

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 under floor heating and therefore the ambient thermal load under control. The thermal response time of the system is thus minimised.

Safety and alarms

Error codes associated with faults signalled by the lighting up of the FAULT LED are also shown on the display (see page 7).

Operating Cycles SATK20



Components - SATK20303 HIGH Temperature HIU

Item	Component
1	Frame
2	Electronic controller
3	Heat 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 spool piece
10	Air vent cock
11	System strainer/heat meter flow probe pocket
12	Primary circuit isolating valve

Functional characteristics

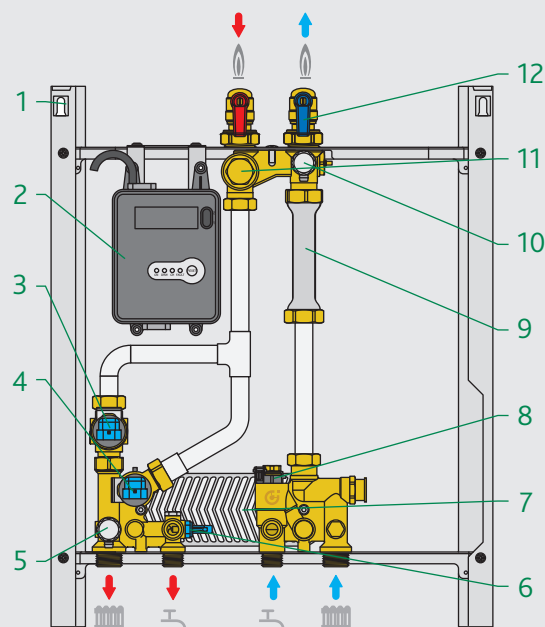
Max. heating temp.
ON/OFF regulation: 85°C

Set point regulation

DHW production range: 42 to 60°C

Optional functions

Domestic water cycle: domestic water preheating function



Factory settings



SATK20 & SATK30 heat interface unit

Operating Cycles SATK20 High Temperature

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 the yellow CH LED which comes on.

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 water generation

Domestic water 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 water modulating valve for the time required (max. 5 mins) to bring the temperature detected up to a value 5°C below the set point value.

The domestic water preheating function is signalled by the flashing yellow DHW LED.

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

Safety and alarms

Error codes associated with faults are signalled by the illumination of the FAULT LED are also shown on the display (see page 7).

Factory settings SATL30103 & SATK30105

SATK30103 & SATK30105 are factory set to support HIGH temperature heating (50 to 75°C), with the following switch settings.



To modify the factory settings and enable the HIU to support LOW temperature systems (25 to 45°C), proceed as follows.

- 1 Switch off the electricity power supply to the HIU
- 2 Set the switches 2 and 3 with the ON-OFF setting

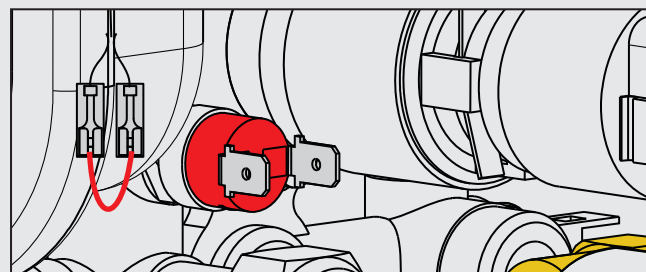


Operating Cycles SATK20



Factory settings

- 3 Remove the safety thermostat jumper cable and connect the cables to the thermostat.
- 4 Switch on the electricity power supply to the HIU.



SATK20 & SATK30 heat interface unit

Components - SATK30

Item	Component
1	Primary isolation valve
2	Drain cock
3	Heat meter spool piece - replaced by heat meter when fitted
4	Primary filter and heat meter probe pocket
5	Heating circuit on/off valve
7	Modulating primary control valve (DHW)
8	Plate heat exchanger (DHW)
9	DHW temperature sensor
10	DHW flow switch
11	Electronic control unit
12	Room controller (not supplied)
13	Plate heat exchanger (space heating)
14	Heating flow temperature sensor
15	Temperature control stat
16	Strainer (heating circuit)
17	Pump safety bypass and DP switch
18	Pump
19	Expansion vessel
20	Safety relief valve - 3 bar
21	Heating return temperature sensor
22	Pressure gauge
23	Filling loop isolation valve*
24	Filling loop double check valve*
25	Filling loop*
*	Not shown on Components illustration

Functional characteristics - SATK30103

Heating range:

- LOW temperature setting 25 to 45°C
- MEDIUM/HIGH temperature setting 50 to 75°C

Set point regulation

DHW production range: 42 to 60°C

Heat exchanger capacity

SATK30103	up to 50 kW
SATK30105	up to 75 kW

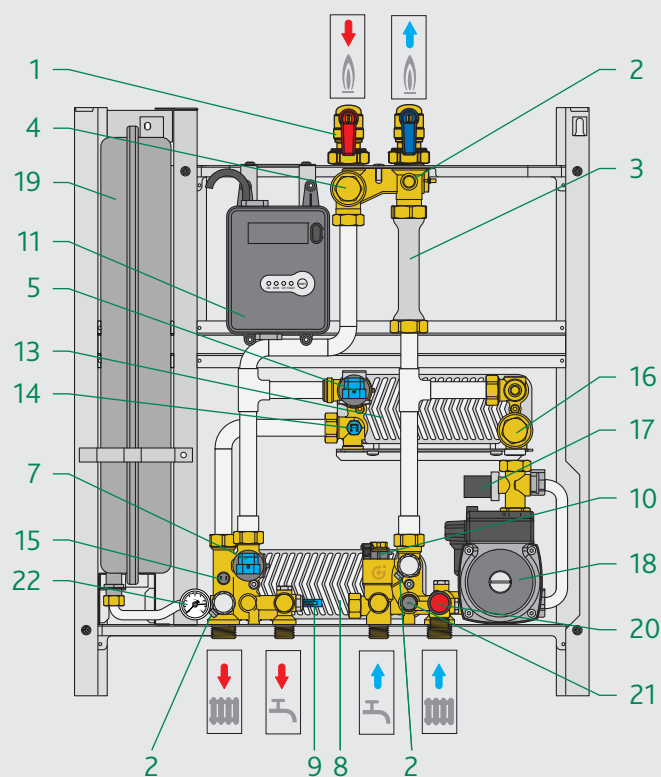
Optional functions

Domestic water cycle: domestic water preheating function

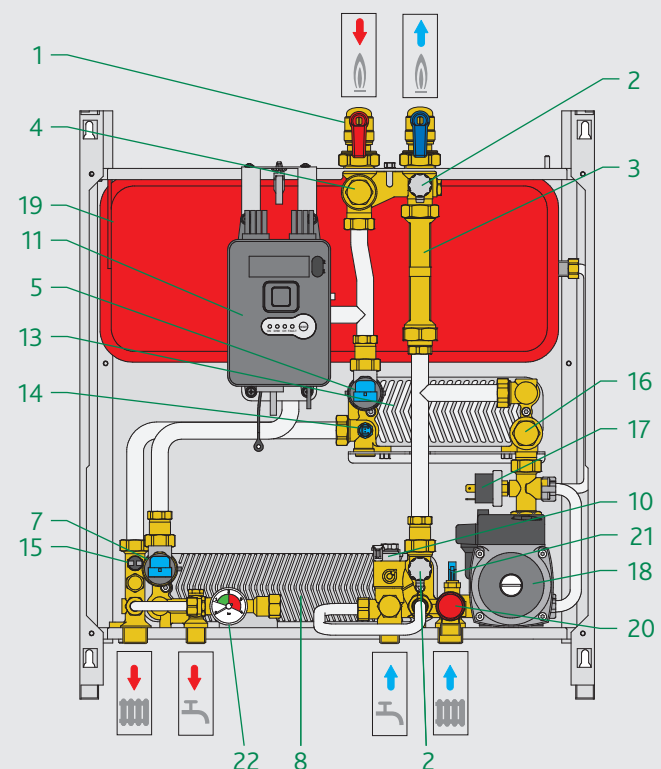
Heating cycle at LOW temperature setting:

modulating temperature regulation with compensated set point
under floor heating screed drying cycle

Components - SATK30103



Components - SATK30103



SATK20 & SATK30 heat interface unit

Operating Cycles SATK30

Domestic water generation: This cycle always takes priority over the heating cycle.

When a tap or shower is turned on (detected by the domestic water flow meter) the DHW cycle is activated, the controller pilots the modulating valve opening so as to adjust the temperature detected by the domestic water probe to the selected set point value.

When the tap or shower is turned off, the modulating valve is fully closed.

The active domestic water cycle is signalled by the yellow DHW LED which comes on.

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

Heating cycle: Set point regulation

When space heating 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 active heating cycle is signalled by the yellow CH LED which comes on.

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

Under floor heating function: LOW temperature setting

This cycle aids the drying of the underfloor heating screed 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 under floor heating drying function is in operation.

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, 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.

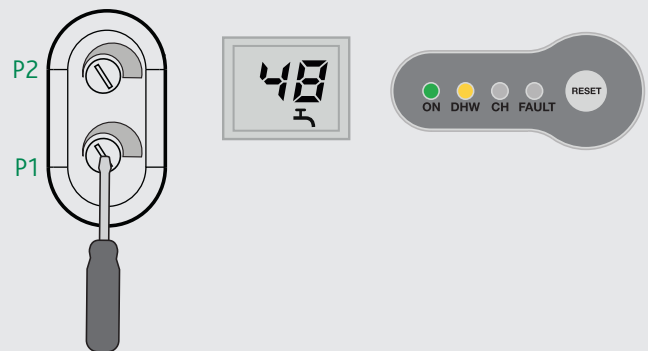
Optional functions - to activate/deactivate the optional functions the electric power supply must always be turned off.

Domestic water generation: DHW preheating 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 water modulating valve for the time required (max. 5 mins) to bring the temperature detected up to a value 5°C below the set point value.

Operating Cycles SATK30



SATK20 & SATK30 heat interface unit

Operating Cycles SATK30

Domestic water generation: DHW preheating function

The domestic water preheating 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 - LOW temperature setting

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 under floor - and therefore the ambient thermal load - under control. The thermal response time of the system is thus minimised.

Safety and alarms

Error codes associated with faults signalled by the lighting up of the FAULT LED are also shown on the display (see page 7).

Maintenance

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

Regular maintenance guarantees better efficiency and helps to save energy.

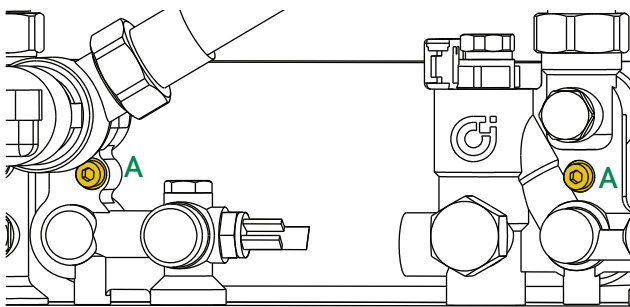
Before carrying out any maintenance, repair or part replacement work, proceed as follows:

- Switch off the electric supply
- Remove the cover
- Close the shut-off valves
- Empty the HIU using the drain cocks provided.

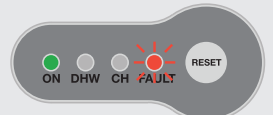
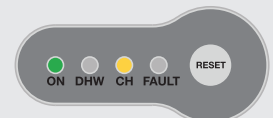
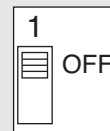
Heat exchanger replacement

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

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



Operating Cycles SATK30



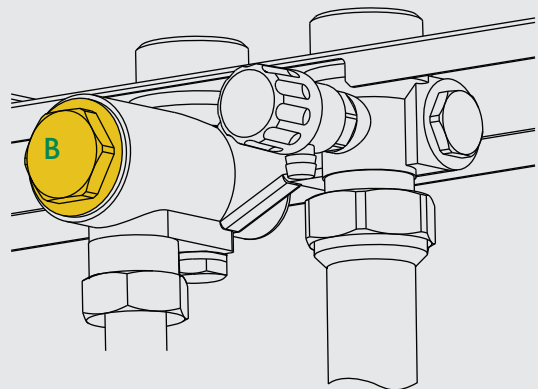
Maintenance

Strainer cleaning

All HIU's have a strainer on the inlet water from the centralised heating system and for the SATK30103 and SATK30105, a second strainer is located on the secondary circuit.

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

- Unscrew the cap (B).
- Remove the strainer mesh, flush thoroughly with clean water to remove debris.
- Replace the strainer mesh.
- Screw the cap back into position.

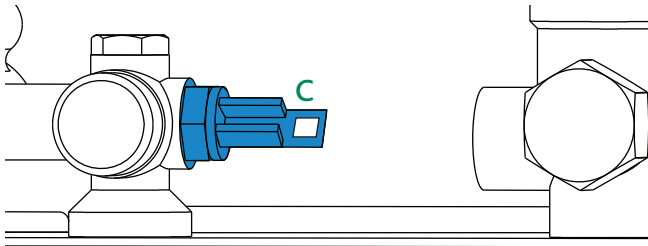


SATK20 & SATK30 heat interface unit

Maintenance

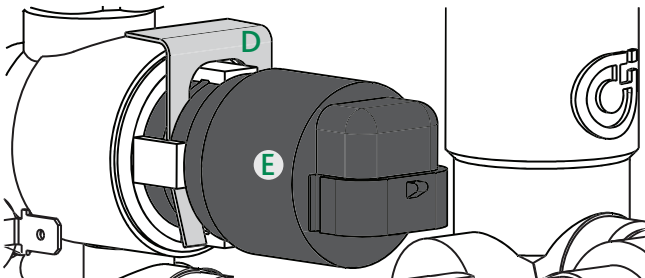
Temperature probe replacement

- Disconnect the probe cable, lightly folding the tab (C) and extracting the connector (see page 16).
- Unscrew the probe
- Fit the new probe
- Reconnect the connector respecting the only possible way it can be inserted.



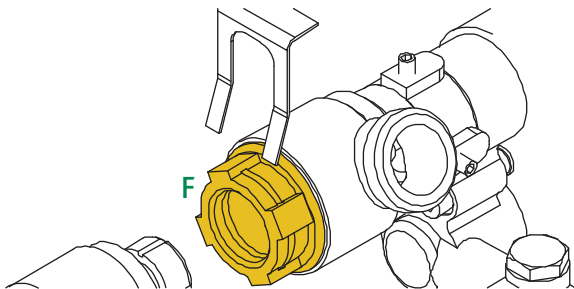
Replacing the valve actuator

- Disconnect the actuator cable, lightly pressing the tab on the connector and extracting it (see page 16).
- 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.



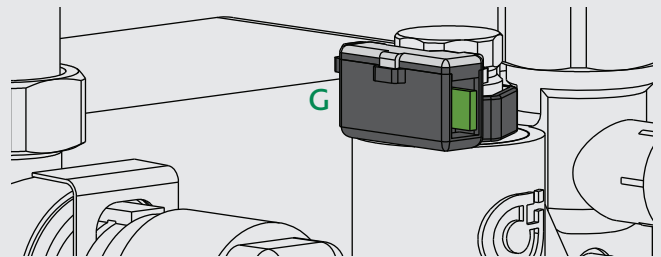
Replacing the valve obturator

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



Replacing the DHW priority flow meter

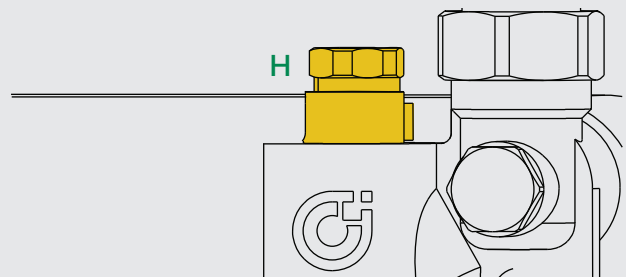
- Disconnect the flow meter cable by means of the connector (see page 16).
- Extract the flow sensor (G).
- Position the new sensor.
- Reconnect the connector respecting the only possible way it can be inserted.



Replacing or cleaning the DHW priority flow meter turbine

Extract the flow sensor

- Unscrew and remove the cartridge (H)
- Remove any impurities present or change the cartridge if necessary
- Screw in the cartridge
- Reposition the flow sensor.



When carrying out maintenance on the electrical system, for the connections follow the diagram on page 15.

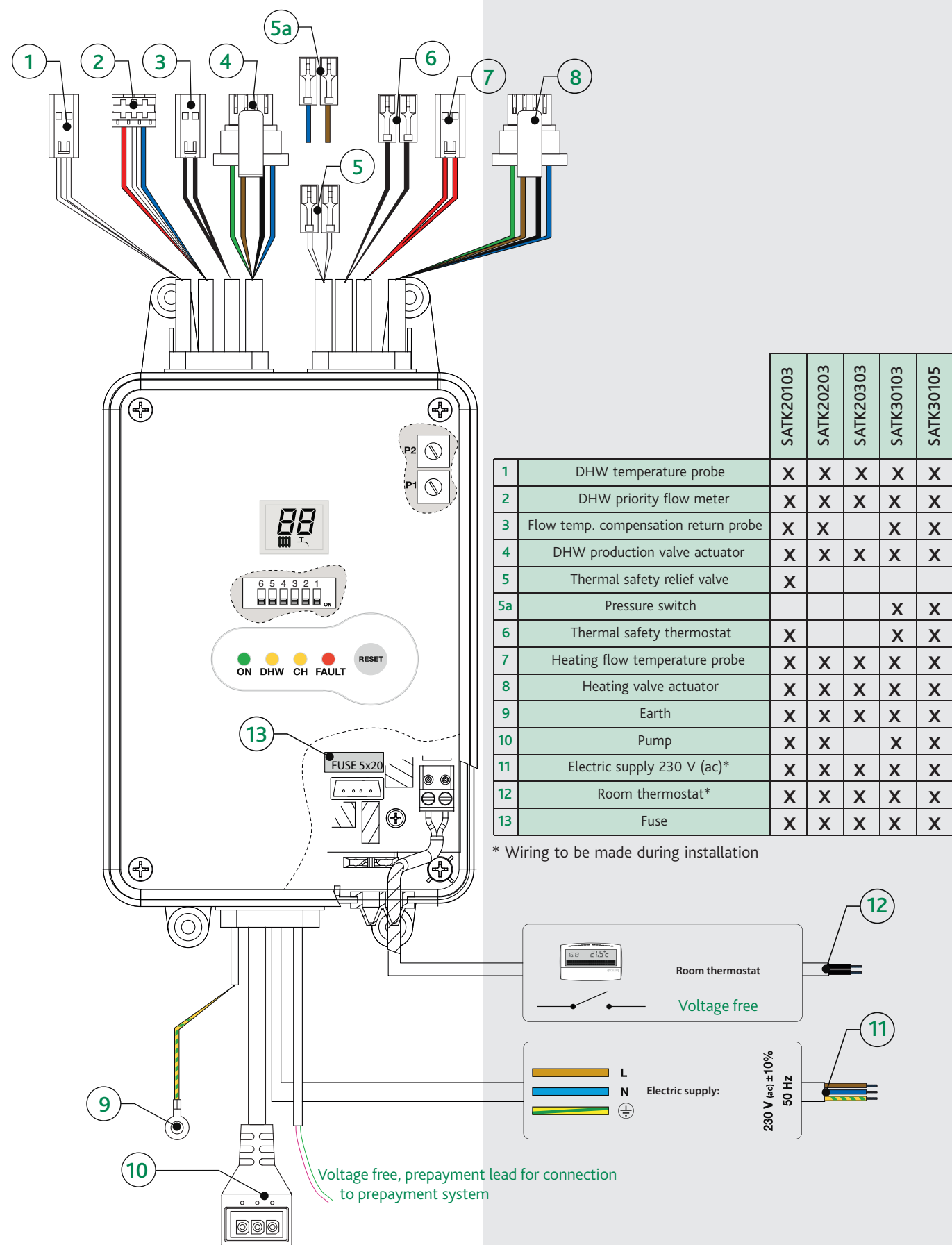
After concluding maintenance, refill the system and check the operations described in the chapter "Commissioning" and re-fit the cover.

For information regarding spare parts or other technical information, please contact Altecnic.

Only genuine Altecnic re-placement components should be used.

SATK20 & SATK30 heat interface unit

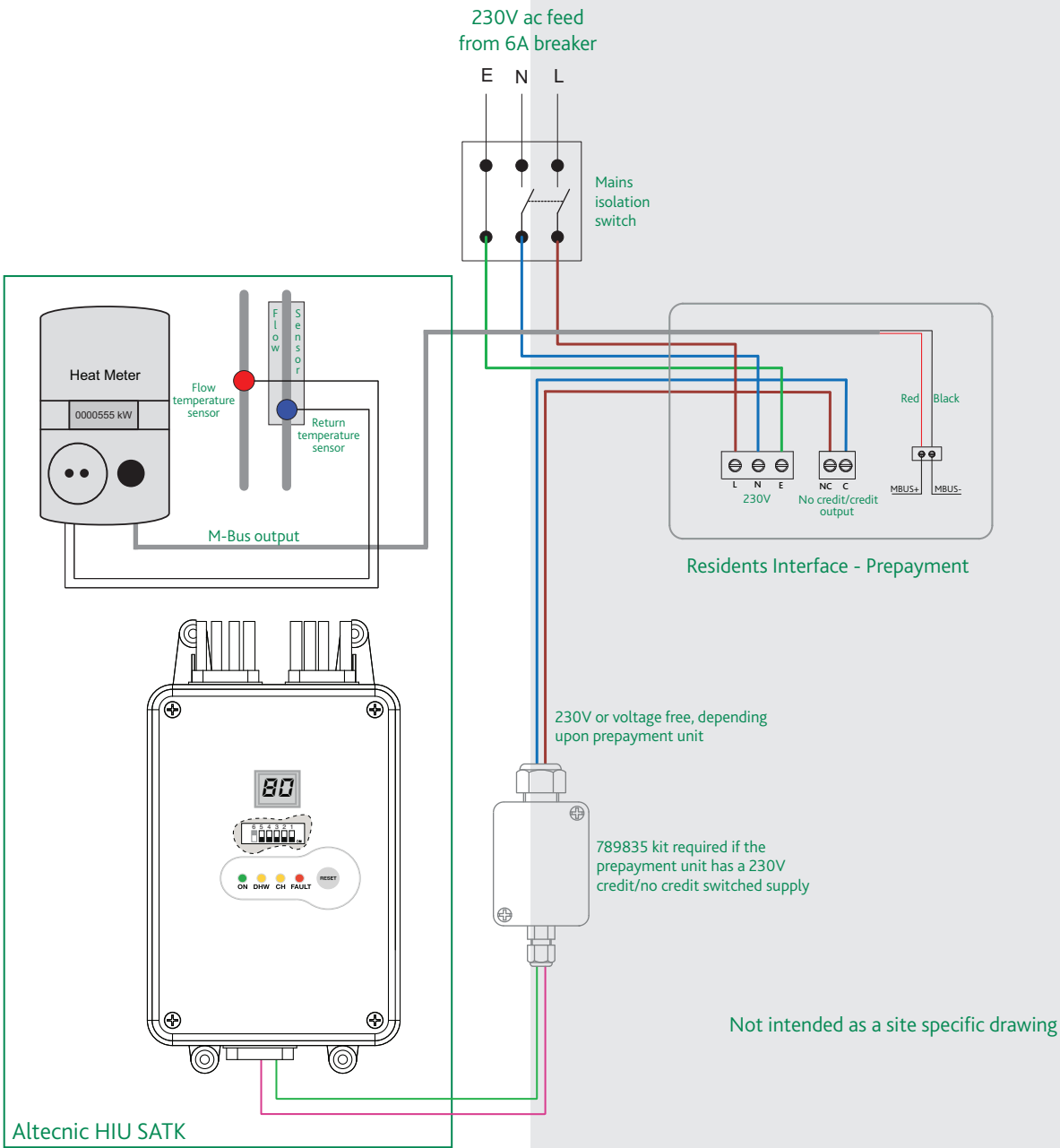
Electrical Wiring



SATK20 & SATK30 heat interface unit

Electrical Wiring with Prepayment Meter

Typical Electrical Connections



SATK20 & SATK30 heat interface unit

Fault Finding

Fault	Indications	Possible Cause of Fault	Operations to be Performed
The water is not heating	DHW LED on	primary circuit isolating valve closed	open the isolating valve
		modulating valve actuator connector disconnected	re-connect actuator connector
		modulating valve actuator disconnected from valve body	re-connect 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	restore correct connection
		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	contact person in charge of system
	FAULT led lit + error code 6 active	DHW temperature probe disconnected	re-connect probe
		DHW temperature probe faulty	call qualified personnel to have it replaced
	FAULT led lit + error code 79 active	DHW temperature probe faulty	restore correct switch setting
	DHW Led off	DHW priority flow meter disconnected	re-connect flow meter
		DHW priority flow meter faulty	call qualified personnel to have it replaced
	all LEDs are off	electricity power supply switched off	switch on electricity 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
		HIU strainer clogged	call qualified personnel to have it serviced
		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
		modulating valve actuator connector disconnected	re-connect actuator connector
		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
The hot water temperature reached 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
Hot water flow rate is insufficient	DHW led on	HIU strainer clogged	call qualified personnel to have it replaced
		possible domestic water system shut-off valves partly open	open the valves
		centralised domestic circuit cold water flow rate insufficient	call qualified personnel to have it serviced
The is no hot water flow	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
		HIU strainer completely clogged	call qualified personnel to have it serviced
		heat exchanger completely blocked	call qualified personnel to have it serviced

SATK20 & SATK30 heat interface unit

Fault Finding

Fault	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	restore correct connection
		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	timer/thermostat time setting incorrect	check programming of timer/thermostat
		timer/thermostat not working	check timer/thermostat
	all leds are off	electric supply switched off	restore HIU electric supply
		protection fuse burnt out	restore HIU electric supply
	FAULT led lit + error code 4 active	heating circuit pressure too low	restore system pressure
	FAULT led lit + error code 5 active	heating temperature probe faulty	call qualified personnel to have it replaced
	FAULT led lit + error code 15 active	compensation temperature probe faulty	call qualified personnel to have it replaced
	FAULT led lit + error code 69 active	safety thermostat cut in	call qualified personnel to have it serviced
	FAULT led lit + error code 76 active	safety relief valve faulty	call qualified personnel to have it serviced
	FAULT led lit + error code 79 active	incorrect switch setting	restore correct switch settings

© Patents & Design Altecnic 2022

Altecnic Ltd retains all rights (including patents, designs and copyrights, trademarks and any other intellectual property rights) in relation to all information provided on or via the website, brochures or any other documents, including all texts, graphics and logos, contained on the website, in brochures or in any other documents published in the name of or on behalf of Altecnic Ltd in any form, without prior written consent of Altecnic Ltd.

Altecnic Ltd Mustang Drive, Stafford, Staffordshire ST16 1GW

T: +44 (0)1785 218200 E: sales@altecnic.co.uk

Registered in England No: 02095101

altecnic.co.uk

IOM 028 03-01-22

E & O.E

© Altecnic Limited. 2022

ALTECNIC™

altecnic
CALEFFI group