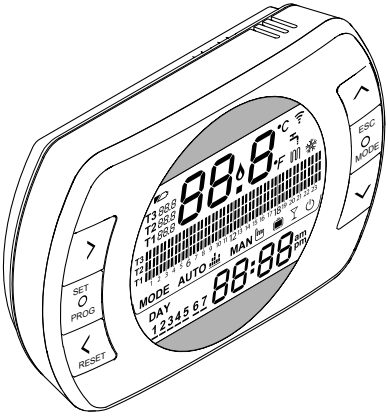
Installer and User Manual

BeSMART

Thermostat | WiFi Box and boiler RF receiver

EN Installer and User Manual



Dear Customer,
Thank you for choosing the **BeSMART control.** This control device for heating (and cooling) systems and boilers is easily installed and, if used correctly, offers better quality comfort as well as energy savings.
This thermostat has been designed to support a maximum of 2 A at 30 VDC or 0.25 A at 230 VAC (specifications for internal relay to switch the boiler "room thermostat" connection).

⚠ If the device is installed by a third party, please ensure that this manual is given to the end user.

⚠ These instructions must be kept by the user.

COMPLIANCE

The **BeSMART** remote control panel complies with:
- Electromagnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU

CE

The following symbols are used in some parts of the manual:

⚠ **CAUTION=** for tasks which require particular care and suitable preparation.

⊖ **FORBIDDEN =** for tasks which MUST NOT be performed**.**

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1 GENERAL INFORMATION

1.1 General notices

Please read this manual before installing and using the device.

⚠ Risk of electric shock. This device should be installed by a qualified professional and in line with the standards in force for electrical installations. Always disconnect the power supply before installing.

⚠ Note to the installer:
- Most of the product parameters are factory set. If the device is activated without a WiFi connection, the date and time should be set on the thermostat as a minimum (this information is wiped every time the batteries are removed and if not updated via the web). All other settings – such as linking the receiver and the transmitter (for the WiFi Box), usage mode and temperatures – are pre-configured.

⚠ These instructions must be read together with the sections of the boiler manual regarding the room thermostat/boiler remote control. It is recommended that the device be installed by qualified technicians.

⚠ The **BeSMART** should be installed in the most accessible room for you as regards controlling the room temperature (usually the living room).

⚠ As per the standards, the **BeSMART** should be positioned 1.5 m from the floor to make sure that you can easily read the display.

⚠ The **BeSMART** is powered by 2 x AA batteries.

⚠ The **BeSMART** must be kept away from sources of heat or air currents as these may affect the accuracy of the readings from the incorporated room sensor.

⚠ Do not open the **BeSMART** for any reason, unless to replace the batteries; it does not require any maintenance to operate.

⚠ Do not press on the liquid crystal display glass as this may damage the glass and cause problems with reading the display.

⚠ To clean the display, use a dry cloth only. Any seepage would damage the liquid crystal display.

With the WiFi Box connected in ON/OFF mode to the boiler or another appliance via cable, should all of the thermostats be faulty or the batteries be flat, the Box switches OFF (after 12 minutes) if it was ON, or it remains OFF (no heating/cooling heat request). From the app, you can manually force the WiFi Box relay on or off.

With the WiFi Box connected in OTBus mode to the boiler via cable, should all the thermostats be faulty or the batteries flat, the Box will remain in the last operating mode. The boiler (in heating mode) can be forced on and off manually using the APP.

With the **BeSMART** connected (ON/OFF) to the boiler or another device via cable, should all the thermostats be faulty or the batteries flat, the thermostat relay will remain in the last operating mode.

Should the power supply to the WiFi Box connected in ON/OFF mode fail, the Box remains in the last operating state. It does not maintain the OFF state.

With the WiFi Box connected in OTBus mode to the boiler via cable, should there be a power outage, the WiFi box remains in the last operating mode.

1.2 What is the BeSMART for?

The **BeSMART** allows you to check the temperature in your house and the operation of your boiler without you needing to access it. For reasons of space optimisation, your boiler may be located outside (for example, on a terrace or balcony or in an outdoor space); the **BeSMART**, on the other hand, is usually installed in the largest room in the house, where it can be easily checked and adjusted.
Where installed in systems with a boiler which is not equipped with the specific communication bus, the **BeSMART** only allows you to check the temperature in your house and does not allow you to control the boiler remotely (domestic hot water temperature and boiler settings/alarms cannot be managed).
For both types of installation, the **BeSMART** system allows you to check the temperature in different zones in your house, where there are zone valves and each one of these is connected to a single additional **BeSMART** (multi-zone management).
If the **BeSMART** is installed together with the WiFi Box and you have a WiFi internet connection in your home, the **BeSMART** system allows you to carry out the same functions available via the **BeSMART** itself remotely on a smartphone.

1.3 Modes of use

The **BeSMART** means you can manage your domestic heating in a more sophisticated way; you can decide how and when the boiler will come on to heat your living spaces. In addition, it allows you to set the domestic hot water temperature, without having to access the boiler panel (where connected to the boiler via OTBus or a specific communication bus). The purpose of this manual is to explain each of these ways of using the device and the related functions.

1.4 Glossary of technical terms

Heating water: the water in the radiators that has been heated by the boiler.

Domestic hot water: the water heated by the boiler which is dispensed from the domestic taps.

Fault code: this code shows on the display to flag any boiler or **BeSMART** faults.

Original set-up: this is the control panel configuration after turning on the device for the first time or after a reset.

Display: this is the liquid crystal panel where each of the symbols corresponding to the various functions are shown.

Anti-freeze function: this function ensures that any drops in temperature do not cause the water inside the pipes to freeze and cause damage to the heating system. This function is activated when the room temperature drops below 5°C (**this value can be changed by the qualified technical service**).

NOTE
This function is active only if the boiler is in the correct operating condition (i.e. powered and not blocked).

Restore factory settings: this restores the control panel to its original set-up, resetting any user programming excluding the system clock.

Summer: the heating system is not active in this mode (for example, during the summer).
The boiler can dispense domestic hot water. If correctly connected and configured (in cooling mode), the **BeSMART** can be used to manage a cooling system in the summer, turning the relay on in ON/OFF mode, in the opposite way to the winter operating mode. The relay keeps the user request connected (e.g. a zone valve) until the room temperature falls below a certain level.
The cooling mode requires a specific system and generator for this purpose.

Winter: the **BeSMART** dispenses domestic hot water and hot water for heating in this mode.

T1 anti-freeze temperature: this is the temperature used when the rooms are not lived in.

T2 economy temperature: this is the temperature used when the rooms are not lived in during the day, at night or when you are on holiday.

T3 comfort temperature: this is the temperature at which you obtain ideal room heating during the day.

Room temperature: this is the temperature in the room where the **BeSMART** is installed (see "NOTE 1" to page 8).

Room setpoint temperature: this is the desired room temperature.

External temperature: this is the temperature outside, read using an external probe connected to the boiler or read in another way (see "NOTE 2" to page 8).

Heating curve: this is the relationship between the external temperature and the heating flow temperature. Where external temperature data are available (via an external probe or other method), the heating flow temperature is automatically adjusted as the external temperature varies in order to maintain a constant temperature in the room. The heating curve must be set by the installer on the basis of the geographical location and type of system.

Connection via OTBus communication bus: this is a communication mode between the **BeSMART** and the boiler, where a series of information is exchanged between the two electronic systems. This **proprietary** connection can be used as opposed to the simple ON/OFF (open/closed contact) and is set by the boiler manufacturer specifically for the **BeSMART**.
Check the compatibility of your boiler with the OTBus connection first.

ON/OFF connection (boiler room thermostat): this is the simple communication method between the **BeSMART** and the boiler (or any other unit capable of receiving this command), where the relay on the **BeSMART** (or on the WiFi Box/receiver) sends an on/off request via the room thermostat (TA) contact on the boiler. The ON/OFF connection is also used when a request is made to another system component such as a zone valve or similar.

The **BeSMART** ON/OFF contact always maintains the same technical characteristics (**BeSMART** relay, WiFi Box relay, boiler RF receiver relay) wherever it is positioned and these must be respected when connecting the relay and the components it controls via cable. **NOTE:** Never exceed the maximum electrical loads.

NOTE 1
The display range for the room temperature is between -7°C and +50°C.

NOTE 2
The display range for the external temperature is between -40°C and +60°C. Temperatures outside of these ranges are shown as three dashes "- - -".

1.5 BeSMART control Class Declaration, according to the ErP Directive

With reference to Delegated Regulation (EU) No. 811/2013, the data in the table can be used to complete the product data sheets and energy labelling of space heaters, combination heaters, packages of space heater, temperature control devices and solar devices.

Manufacturer/Brand	Model
RIELLO SpA / **BeSMART**	**BeSMART**

Possible **BeSMART** configurations, the relative configuration classes and the energy contribution to the system.

Boiler characteristics	BeSMART configuration	Class and contribution
Boiler with fixed delivery temperature (ON/OFF control)	**BeSMART** ON/OFF connection	I = 1%
Boiler with variable delivery temperature (controlled by communication bus)	Connection via communication bus to the **BeSMART**. Delivery temperature to the boiler calculated on the basis of one room temperature only	V = 3%
Boiler with variable delivery temperature (controlled by communication bus)	Connection via communication bus to the **BeSMART**. Delivery temperature to the boiler calculated on the basis of the room temperature and the external temperature (given by the external probe or via the web).	VI = 4%

Boiler characteristics	BeSMART configuration	Class and contribution
Boiler with variable delivery temperature (controlled by communication bus)	Connection via communication bus to the **BeSMART**. Delivery temperature to the boiler calculated on the basis of at least 3 distinct room temperatures. At least 3 **BeSMART**s (sensors) connected to at least 3 zone valves (actuators) are required.	VIII = 5%

Definition of classes

Class I – On/off room thermostat: a room thermostat that controls the on/off operation of a heater. Performance parameters, including switching differential and room temperature control accuracy are determined by the thermostat's mechanical construction.

Class V – Modulating room thermostat, for use with modulating heaters: an electronic room thermostat that varies the flow temperature of the water leaving the heater dependent upon measured room temperature deviation from room thermostat set point. Control is achieved by modulating the output of the heater.

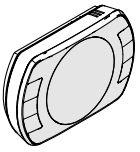
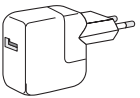
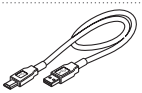
Class VI – Weather compensator and room sensor, for use with modulating heaters: a heater flow temperature control that varies the flow temperature of water leaving the heater dependent upon prevailing outside temperature and selected weather compensation curve. A room temperature sensor monitors room temperature and adjusts the compensation curve parallel displacement to improve room comfort. Control is achieved by modulating the output of the heater.

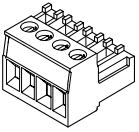
Class VIII – Multi-sensor room temperature control, for use with modulating heaters: an electronic control, equipped with 3 or more room sensors, that varies the flow temperature of the water leaving the heater dependent upon the aggregated measured room temperature deviation from room sensor set points. Control is achieved by modulating the output of the heater.

2 INSTALLATION

2.1 Contents of the package

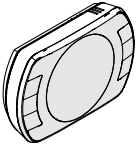
The WiFi **BeSMART** package contains the following components:

Qty	Component	Description
1		**BeSMART** = boiler remote control with room programmable thermostat function (*) or room programmable thermostat (**). (*) where there is an active OTBus connection in one of the following configurations: between the WiFi Box and the boiler, between the RF receiver (optional) and the boiler, between the **BeSMART** and the boiler, (**) where the TA connection between the WiFi Box and the boiler is active
1		WiFi Box = device for communicating with the **BeSMART** programmable thermostat. It can operate with the boiler RF receiver (optional) via radio frequency, with the boiler itself via cable (provided as standard) and with your home router via a WiFi connection. Magnetic back so that it can be attached to the boiler's metal casing.
1		USB power adapter
1		USB cable A – USB Mini B = WiFi Box power cable
1		USB cable A = cable connecting the WiFi Box and the boiler
2		1.5V AA batteries
2		Quick guide
1		Installer/User Manual

Qty	Component	Description
2		Screws with plugs
1		OTBus connector (only for boilers without one) for an OTBus connection between the WiFi Box and the boiler or the boiler RF receivers (optional) and the boiler or the **BeSMART** and the boiler. It can also be used to connect the external probe (optional).

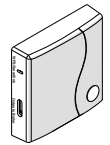
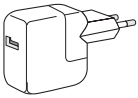
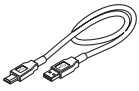
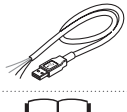
If installing additional **BeSMART**s or boiler RF receivers, you must follow the procedure to link them to the WiFi Box (see "3.14 Linking function" to page 74).

The **BeSMART** package contains the following components:

Qty	Component	Description
1		**BeSMART** = boiler remote control with room programmable thermostat function (*) or room programmable thermostat (**). (*) where there is an active OTBus connection in one of the following configurations: between the WiFi Box (optional) and the boiler, between the RF receiver (optional) and the boiler, and between the **BeSMART** and the boiler, (**) where the TA connection between the WiFi Box (optional) and the boiler is active
2		1.5V AA batteries
1		Quick guide
1		Installer/User Manual
2		Screws with plugs

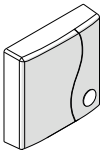
If installing additional **BeSMART**s or boiler RF receivers, you must follow the procedure to link them to the WiFi Box (see "3.14 Linking function" to page 74).

The WiFi Box kit contains the following components:

Qty	Component	Description
1		WIFI Box
1		USB power adapter
1		USB cable A – USB Mini B = WiFi Box power cable
1		USB cable A = cable connecting the WiFi Box and the boiler
1		Quick guide
1		Installer/User Manual

If installing additional **BeSMART**s or boiler RF receivers, you must follow the procedure to link them to the WiFi Box (see "3.14 Linking function" to page 74).

The Boiler RF receiver kit contains the following components:

Boiler RF receiver		
Qty	**Component**	**Description**
1		Boiler RF receiver
1		Quick guide

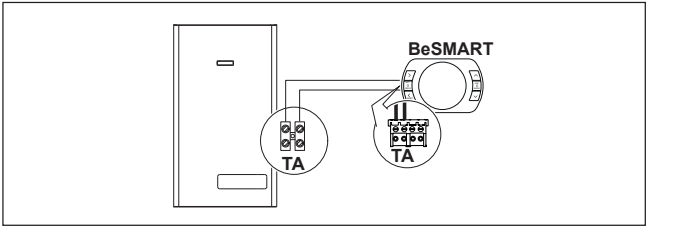
If installing additional **BeSMART**s or boiler RF receivers, you must follow the procedure to link them to the WiFi Box (see "3.14 Linking function" to page 74).

2.2 Practical installation diagrams

Key	
RF	Radio frequency communication (868 MHz)
WiFi	WiFi communication (2.4 GHz)
	WiFi modem/router
	Internet connection
	Smartphone/Tablet (Android/IOS)
L	Line
N	Neutral
TA	Room thermostat connection, dry contact ON/OFF (max 0.25 A @ 230 V)
OT	OTBus protocol connection, contact for proprietary communication protocol
	Zone valve without limit switch
	Zone valve with limit switch

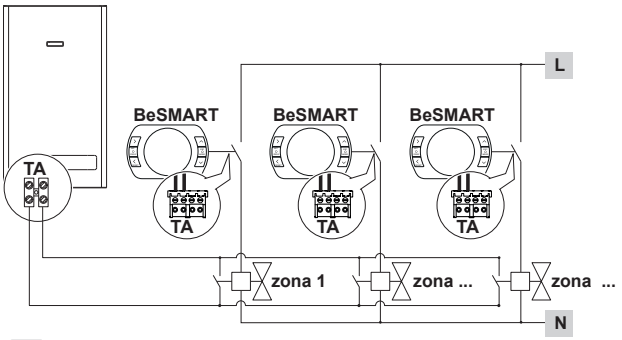
2.2.1 Diagram 1

ON/OFF programmable thermostat for heating (TA).
Single heating zone in ON/OFF mode.



2.2.2 Diagram 2

ON/OFF programmable thermostat for heating (TA).
Multi-zone heating in ON/OFF mode.

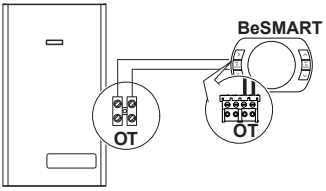


Up to 8 areas if WiFi Box is available.
Up to 7 areas with boiler RF receiver connected to the boiler.

For information on wireless management of the zone valves, please see "Diagram 16" - "Diagram 17"

2.2.3 Diagram 3

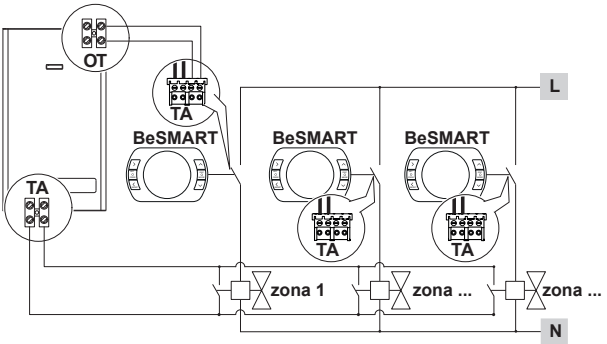
Modulating programmable thermostat/remote control.
Single heating zone in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.



2.2.4 Diagram 4

Modulating programmable thermostat/remote control and ON/OFF programmable thermostat for heating (TA).
Single zone in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Multi-zone heating in ON/OFF mode.

Set the boiler to "zone valve" mode. Request procedure from Technical Assistance Centre.



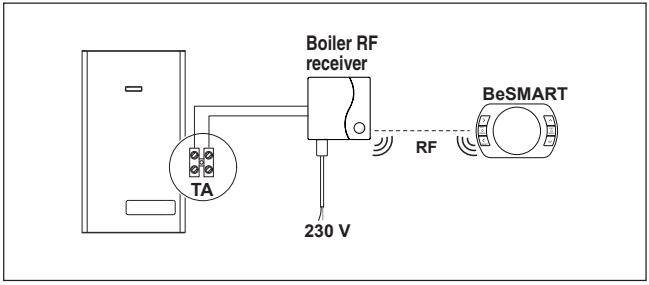
Up to 8 areas if WiFi Box is available.
Up to 7 areas with boiler RF receiver connected to the boiler.

For information on wireless management of the zone valves, please see "Diagram 16" - "Diagram 17"

2.2.5 Diagram 5

ON/OFF programmable thermostat for heating (TA).
Single heating zone in ON/OFF mode.
Wireless installation.

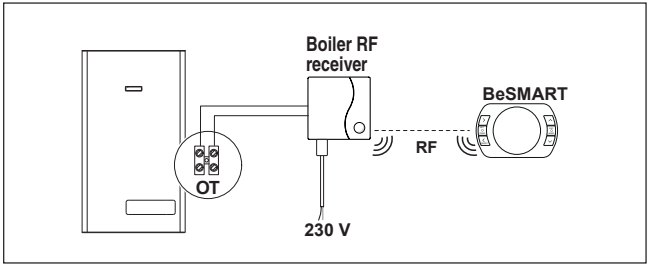
⚠ **Only one BeSMART can be connected to the boiler RF receiver.**



2.2.6 Diagram 6

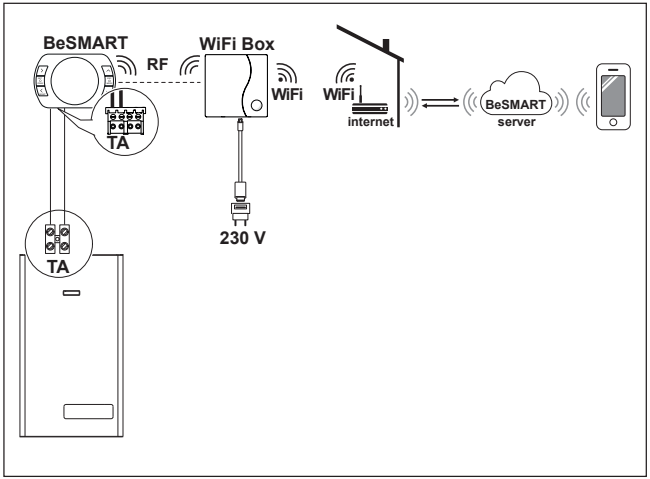
Modulating programmable thermostat/remote control.
Single heating zone in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Wireless installation.

⚠ **Only one BeSMART can be connected to the boiler RF receiver.**



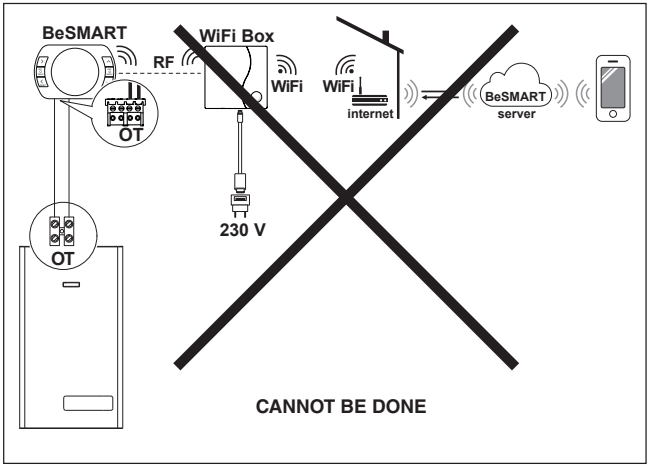
2.2.7 Diagram 7

ON/OFF programmable thermostat for heating (TA) with remote control via WiFi.
Single heating zone in ON/OFF mode.



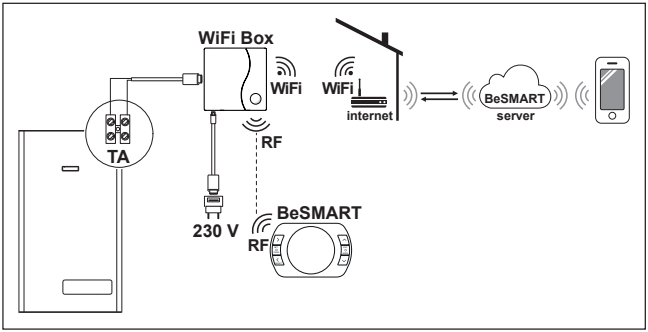
2.2.8 Diagram 8

Modulating programmable thermostat/remote control with remote control via WiFi.
Single heating zone in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.



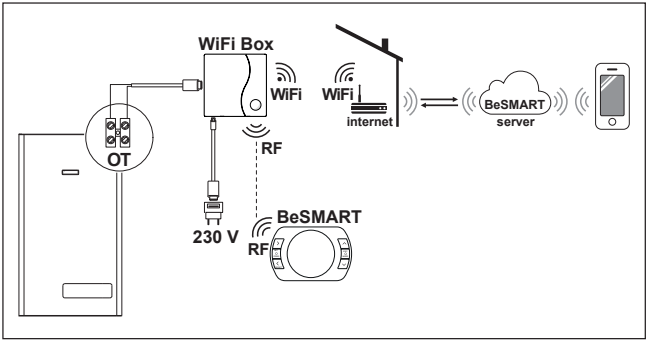
2.2.9 Diagram 9

ON/OFF programmable thermostat for heating (TA) with remote control via WiFi.
Wireless installation.



2.2.10 Diagram 10

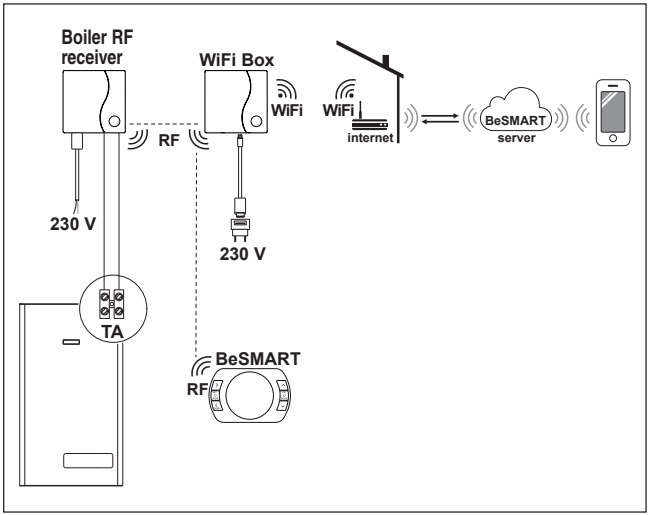
Modulating programmable thermostat/remote control, , with remote control via WiFi.
Single heating zone in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Wireless installation.



2.2.11 Diagram 11

ON/OFF programmable thermostat for heating (TA) with remote control via WiFi.
Single heating zone in ON/OFF mode.
With boiler RF receiver to be inserted if the WiFi signal at the boiler is weak or lacking.
Wireless installation.

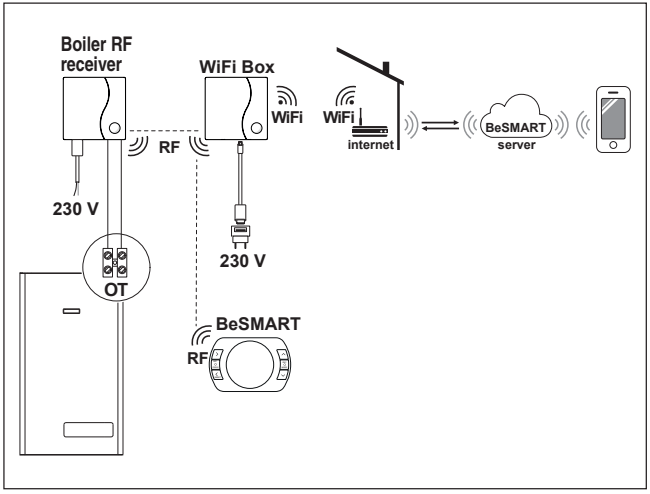
To extend the WiFi signal it is possible to use the WiFi EXTENDER accessory in alternative to the Boiler RF Receiver



2.2.12 Diagram 12

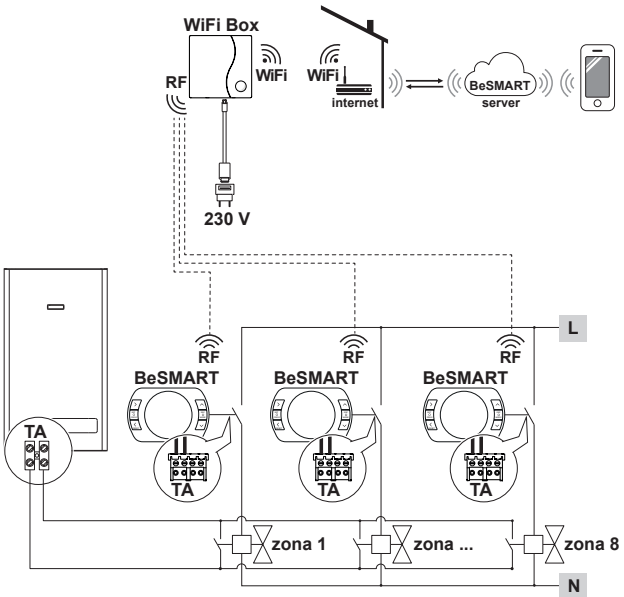
Modulating programmable thermostat/remote control with remote control via WiFi.
Single heating zone in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
With boiler RF receiver to be inserted if the WiFi signal at the boiler is weak or lacking.
Wireless installation.

To extend the WiFi signal it is possible to use the WiFi EXTENDER accessory in alternative to the Boiler RF Receiver



2.2.13 Diagram 13

ON/OFF programmable thermostat for heating (TA) with remote control via WiFi.
Multi-zone heating in ON/OFF mode.



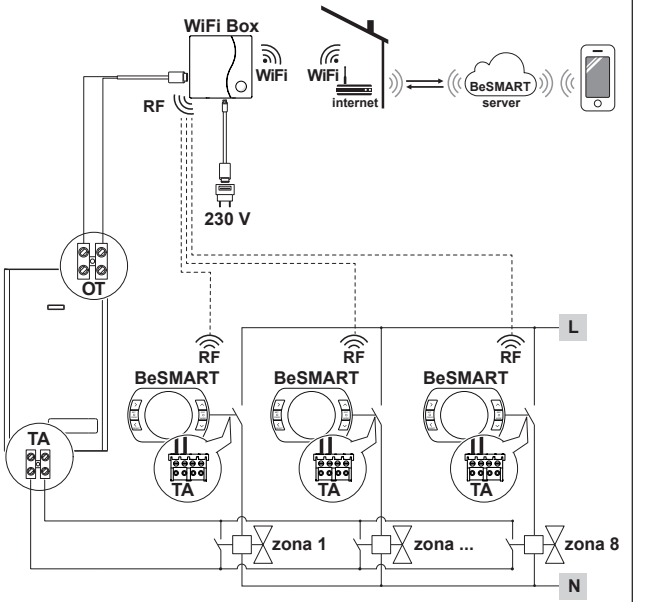
Up to 8 zones

For information on wireless management of the zone valves, please see "Diagram 16" - "Diagram 17"

2.2.14 Diagram 14

Modulating programmable thermostat/remote control with remote control via WiFi.
Multi-zone heating system in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Thermoregulation for every zone with automatic selection of the maximum request temperature between the different zones.

Set the boiler to "zone valve" mode. Chiedere procedura a Centro Tecnico di Assistenza.



Up to 8 zones

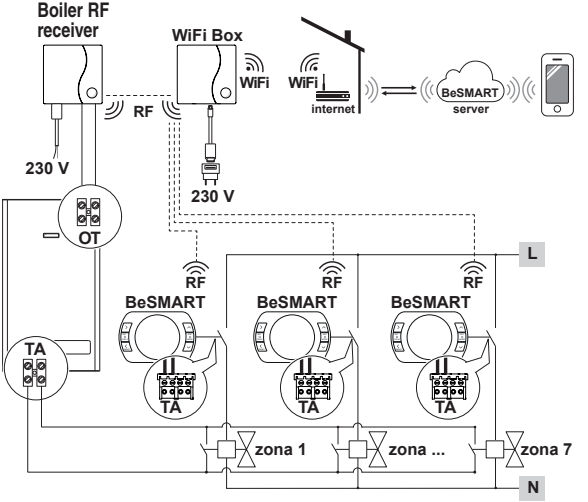
For information on wireless management of the zone valves, please see "Diagram 16" - "Diagram 17"

2.2.15 Diagram 15

Modulating programmable thermostat/remote control with remote control via WiFi.
Multi-zone heating system in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Thermoregulation for every zone with automatic selection of the maximum request temperature between the different zones.
With boiler RF receiver to be inserted if the WiFi signal at the boiler is weak or lacking.

To extend the WiFi signal it is possible to use the WiFi EXTENDER accessory in alternative to the Boiler RF Receiver

Set the boiler to "zone valve" mode. Chiedere procedura a Centro Tecnico di Assistenza.

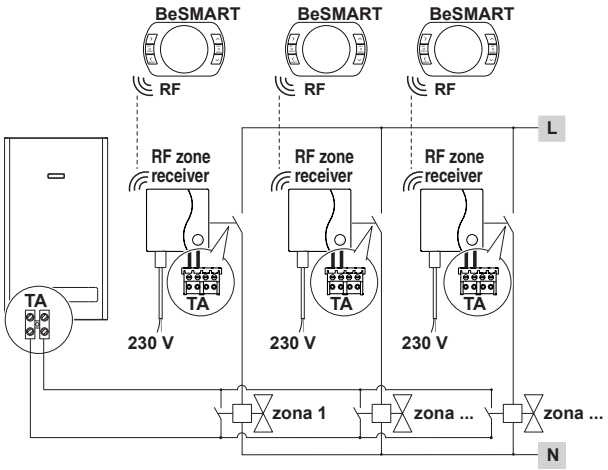


Up to 7 zones with "Boiler RF Receiver".

For information on wireless management of the zone valves, please see "Diagram 16" - "Diagram 17"

2.2.16 Diagram 16

Wireless management of the zone valves via RF zone receiver. Generic use both in system ON/OFF mode and in OT mode, with or without WiFi.

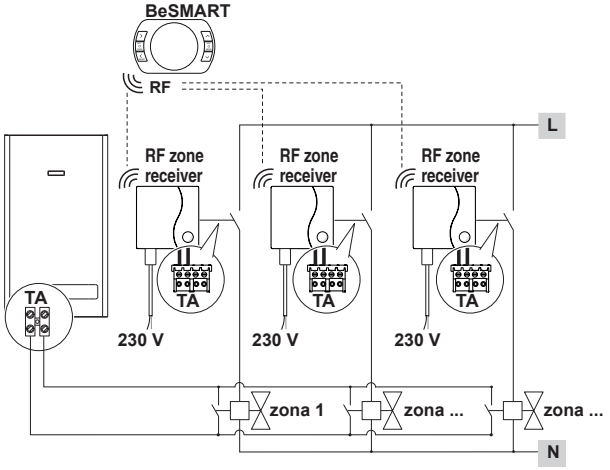


Up to 8 areas if WiFi Box is available.
Up to 7 areas with boiler RF receiver connected to the boiler.

Set the RF receiver to the RF zone receiver mode (see paragraph 3.13 "Configuring the RF receiver").

2.2.17 Diagram 17

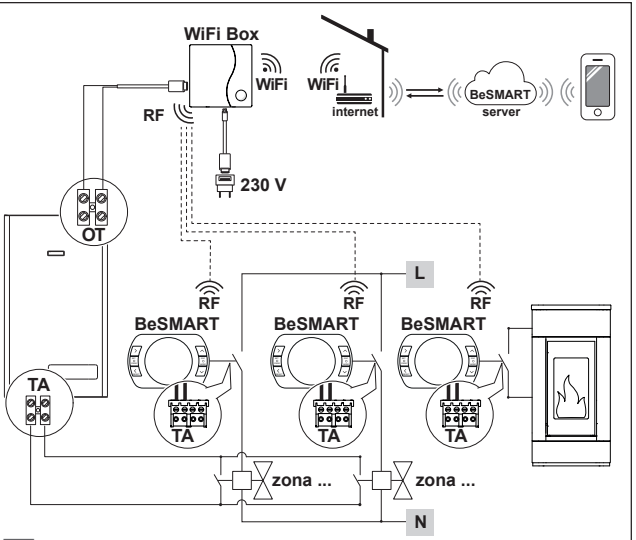
Wireless management of various devices controlled by just one BeSMART and of zone valves via RF zone receiver.



Set the RF receiver to the RF zone receiver mode (see paragraph 3.13 “Configuring the RF receiver”).

2.2.18 Diagram 18

Management of the area with alternative power source separate from the boiler.
Modulating programmable thermostat/remote control with remote control via WiFi and ON/OFF programmable thermostat (TA), with remote control via WiFi.
Multi-zone heating system in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Thermoregulation for every zone with automatic selection of the maximum request temperature between the different zones.
Multi-zone heating in ON/OFF mode.



Set the boiler to "zone valve" mode.

Up to 8 zones

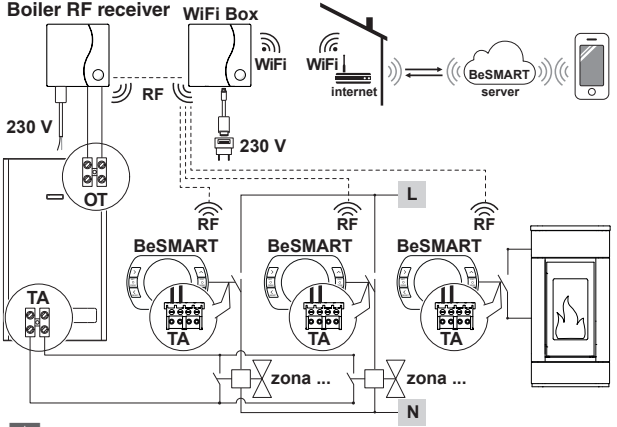
For information on wireless management of the zone valves, please see "Diagram 16" - "Diagram 17"

Set parameter 29 of the alternative power source area to OFF.

2.2.19 Diagram 19

Management of the area with alternative power source separate from the boiler.
Modulating programmable thermostat/remote control with remote control via WiFi and ON/OFF programmable thermostat (TA).
Multi-zone heating system in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Thermoregulation for every zone with automatic selection of the maximum request temperature between the different zones.
With boiler RF receiver to be inserted if the WiFi signal at the boiler is weak or lacking.
Multi-zone heating in ON/OFF mode.

⚠ **To extend the WiFi signal it is possible to use the WiFi EXTENDER accessory in alternative to the Boiler RF Receiver.**



⚠ **Set the boiler to "zone valve" mode.**

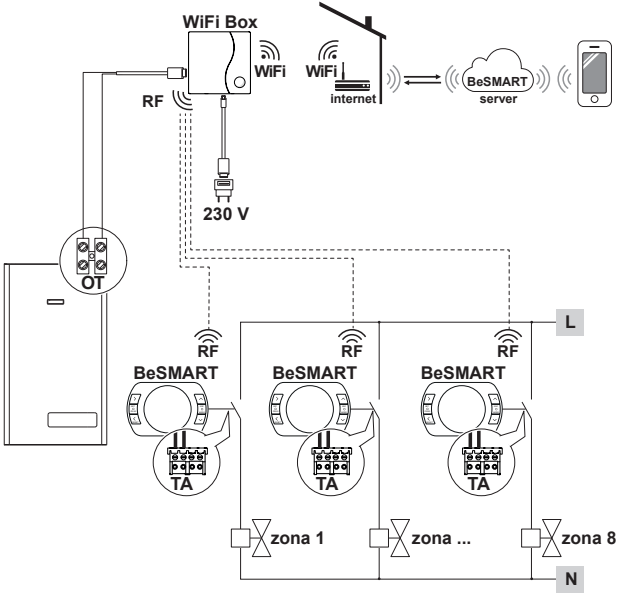
Up to 7 zones

For information on wireless management of the zone valves, please see "Diagram 16" - "Diagram 17"

Set parameter 29 of the alternative power source area to OFF.

2.2.20 Diagram 20

Modulating programmable thermostat/remote control with remote control via WiFi.
Multi-zone heating system in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Thermoregulation for every zone with automatic selection of the maximum request temperature between the different zones.



Up to 8 zones

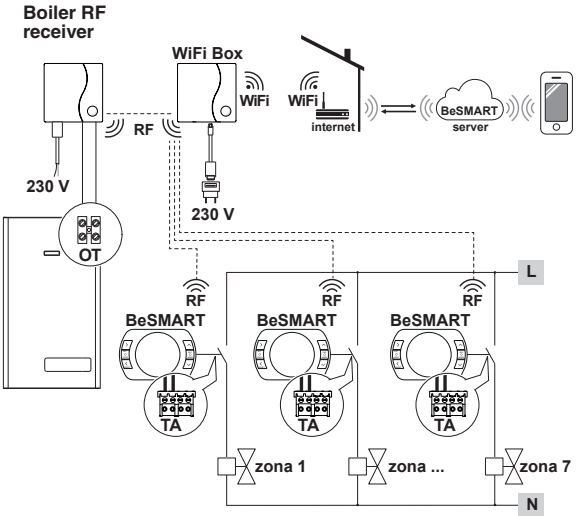
Set parameter 32 according to zone valve opening time.

There cannot be any RF zone receivers where parameter 32 is a value other than 0.

2.2.21 Diagram 21

Modulating programmable thermostat/remote control with remote control via WiFi.
Multi-zone heating system in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Thermoregulation for every zone with automatic selection of the maximum request temperature between the different zones.
With boiler RF receiver to be inserted if the WiFi signal at the boiler is weak or lacking.

To extend the WiFi signal it is possible to use the WiFi EXTENDER accessory in alternative to the Boiler RF Receiver



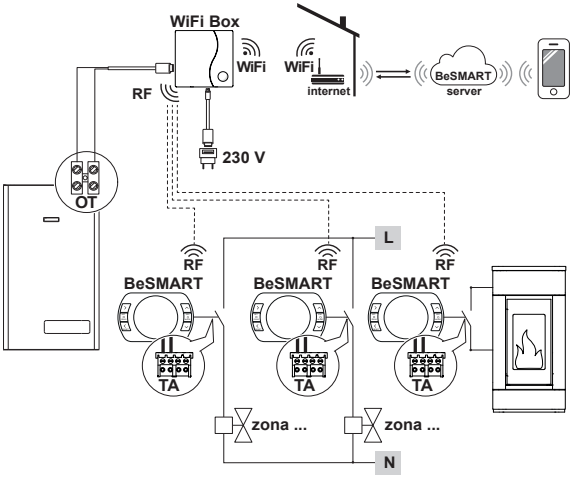
Up to 7 zones with "Boiler RF Receiver".

Set parameter 32 according to zone valve opening time.

There cannot be any RF zone receivers where parameter 32 is a value other than 0.

2.2.22 Diagram 22

Management of the area with alternative power source separate from the boiler.
Modulating programmable thermostat/remote control with remote control via WiFi and ON/OFF programmable thermostat (TA), with remote control via WiFi.
Multi-zone heating system in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Thermoregulation for every zone with automatic selection of the maximum request temperature between the different zones.
Multi-zone heating in ON/OFF mode.



Up to 8 zones

Set parameter 29 of the alternative power source area to OFF.

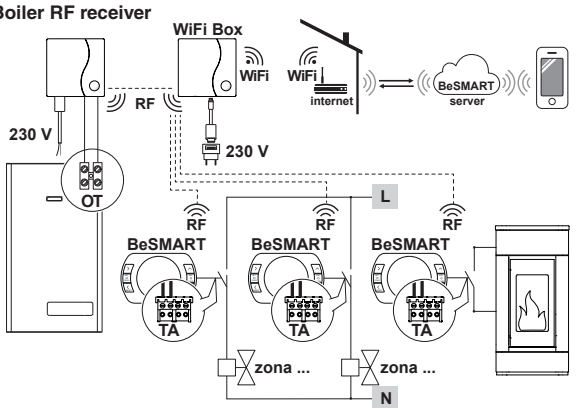
Set parameter 32 according to zone valve opening time.

There cannot be any RF zone receivers where parameter 32 is a value other than 0.

2.2.23 Diagram 23

Management of the area with alternative power source separate from the boiler.
Modulating programmable thermostat/remote control with remote control via WiFi and ON/OFF programmable thermostat (TA).
Multi-zone heating system in modulating thermoregulation mode.
OT: full control of boiler, heating, DHW, alarms and settings.
Thermoregulation for every zone with automatic selection of the maximum request temperature between the different zones.
With boiler RF receiver to be inserted if the WiFi signal at the boiler is weak or lacking.
Multi-zone heating in ON/OFF mode.

To extend the WiFi signal it is possible to use the WiFi EXTENDER accessory in alternative to the Boiler RF Receiver.



Up to 7 zones

Set parameter 29 of the alternative power source area to OFF.

Set parameter 32 according to zone valve opening time.

There cannot be any RF zone receivers where parameter 32 is a value other than 0.

If installing additional **BeSMART**s, follow the procedure to link these **BeSMART**s to the WiFi Box (see "3.14 Linking function" to page 74).

When installing a boiler RF Receiver connected to the boiler, it is necessary to perform the connecting procedure to the WiFi Box (see "3.14 Linking function" to page 74).

When installing one or more boiler RF Receivers connected to one or more **BeSMART** it is necessary to perform the connecting procedure to the **BeSMART** thermostat (see "3.14 Linking function" to page 74).

2.3 Technical Data

Description		Thermostat BeSMART		Units
Battery power supply		2 x 1.5 - AA		V
Battery life		18 months (normal use)		
Dry contact relay output electrical power (room thermostat)	at 30 VCC/VDC	min	1	mA
		max	2	A
	at 230 VAC/VAC	max	0.25	A
Radio frequency band (RF)		868		MhZ
Room temperature setting		1 - 35 Resolution 0.2		°C
Room temperature display		-9.9 - 50 Resolution 0.2		°C
Factory set temperatures T3 = Comfort		21		°C
T2 = Economy		16		°C
T1 = Anti-freeze		5		°C
Maximum cable length between the WiFi Box and the boiler OTBus terminal or the **BeSMART** and the boiler OTBus terminal		30		m
Maximum open-field distance between the WiFi Box and the **BeSMART** or between the WiFi Box and the boiler RF receiver (RF connection)		40		m
Size (W x H x D)		135 x 89 x 28		mm

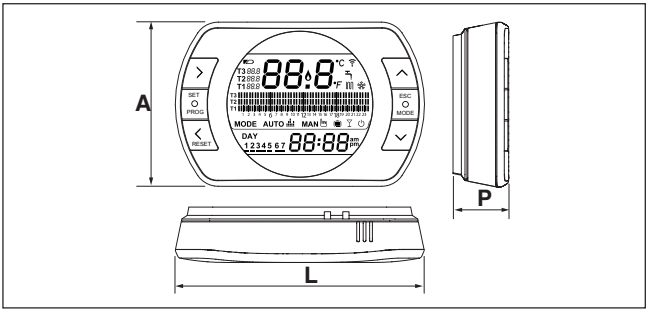
Description		Thermostat BeSMART	Units
Distance between holes for wall connection	electrical box 503	83.5	mm
	electrical box DIN	60.3	mm

Description		WiFi Box		Units
Transformer power supply	Input	100-240 / 0.1		VAC/A
	Output	5 - 1		VCC-VDC/A
Dry contact relay output electrical power (room thermostat)	at 30 VCC/VDC	min.	1	mA
		max	2	A
	at 230 VAC/VAC	max	0.25	A
Radio frequency band (RF)		868		MhZ
WiFi band		IEEE 802.11 b/g/n		
		2.4		GHz
Monthly data traffic (30 days)		16.95		MB
Maximum consumption		0.5		W
Maximum length of WiFi Box cables – boiler connection via cables		30		m
Minimum operating room temperature		-15		°C
WiFi signal percentage to guarantee correct **BeSMART** system operation		40		%

Description		Boiler RF receiver		Units
Transformer power supply	Input	100-240 / 0,1		VAC/A
	Output	5 - 1		VCC-VDC/A
Dry contact relay output electrical power (room thermostat)	at 30 VCC/VDC	min.	1	mA
		max	2	A
	at 230 VAC/VAC	max	0,25	A
Maximum consumption		1,2		W
Maximum length of WiFi Box cables – boiler connection via cables		30		m
Minimum operating room temperature		-15		°C

2.4 Dimensions

		Units
W - Width	135	mm
H - Height	89	mm
D - Depth	28	mm



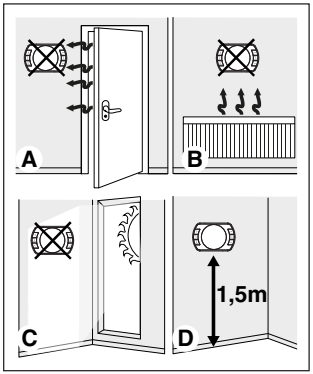
2.5 Three-phase installation

Preparation

Before installing the device

Check that the thermostat is compatible with the boiler (see boiler installer manual).
The wireless **BeSMART** thermostat can be installed anywhere, however the most suitable place should be chosen taking into account the following:

- Avoid draughts (A).
- Do not install above sources of heat (B).
- Avoid direct sunlight (C).
- Position at the appropriate height (D).



Wireless installation does not require any wiring, making the process very simple.
The **BeSMART** thermostat can also be installed with wiring, to replace any existing thermostat, provided compatibility is checked in advance.
Before installing the boiler control unit (WiFi Box), disconnect the boiler from the power supply.

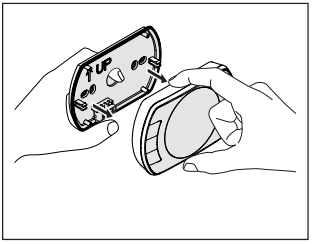
Installation

The following tools are required:

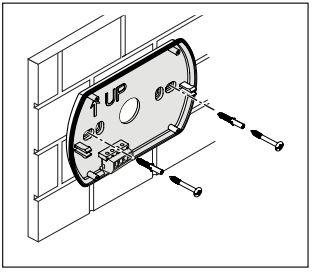
- Phillips screwdriver
- Small slotted screwdriver
- Pliers and wire strippers

Installing the BeSMART

Remove the **BeSMART** from its base;



Fix the **BeSMART** base to the wall or electrical box using the screws provided.
Using screws other than those PROVIDED may compromise the correct closure of the plastic. Make sure that the screw head is correctly inserted in the hole.



The **BeSMART** can be installed in one of the following ways:

Wireless

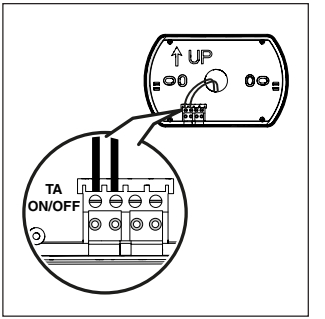
No wiring is required.
Please check the maximum open-field distances shown in the **BeSMART** thermostat technical data.

Loss of radio frequency communication is flagged with alarm E82. Distances which exceed the maximum may occasionally generate an E82 alarm, causing incorrect system operation.

Wired in ON/OFF mode (room thermostat contact on **BeSMART** base)

When replacing old thermostats or as a new wired ON/OFF installation. The **BeSMART** can be connected to a boiler, zone valve or other device. The electrical load on the **BeSMART** room thermostat contact must not exceed the specifications for the relay itself (see "2.3 Technical Data" to page 34). Should the electrical load not be compatible with the technical characteristics indicated in the **BeSMART** thermostat technical data, it is recommended that you use an additional separation relay.

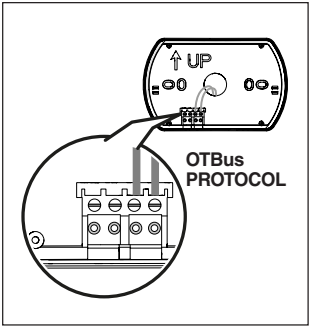
Connect the cables from the boiler room thermostat terminal or the power supply for any zone valves to the **BeSMART** room thermostat terminal.



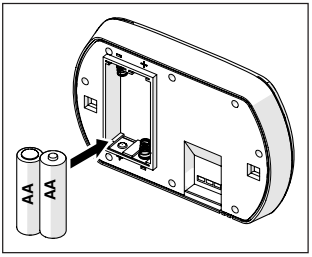
Wired in OTBus mode (OTBus contact on **BeSMART** base).

Direct connection via two wires to the boiler equipped with the same communication protocol.
We recommend checking the maximum cable length between the WiFi Box and the boiler OTBus terminal or **BeSMART** and the boiler OTBus terminal (see 2.3 “Technical data” on page 13). For the electrical connection to the boiler, please see the boiler manual.

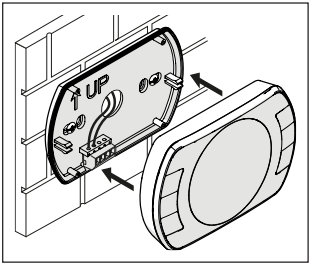
⚠ A wired connection via OTBus between the **BeSMART** and the boiler is recommended in the absence of a WiFi Box. With the above connection and a WiFi Box, only one zone can be controlled and operation via the APP is not guaranteed.



Insert the 2 x AA batteries provided, with correct polarity.



Fit the **BeSMART** onto the base;



Installing the WiFi Box

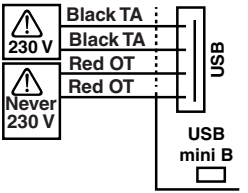
Description of the WiFi Box

The WiFi Box communicates with the **BeSMART** thermostat or with the boiler RF receiver only via radio frequency (wireless).

OUTPUTS

The WiFi Box contains a relay (see "2.3 Technical Data" to page 34) which replicates the **BeSMART** thermostat relays linked to it. It is ON if at least 1 of the **BeSMART** relays is ON, and OFF if all of the **BeSMART** relays are OFF.
The WiFi Box can be wired to the boiler OTBus connection. This transforms the WiFi Box into a wireless receiver of an OTBus command. All of the information available in the **BeSMART** via the OTBus connection is repeated to the receiver which wires it to the boiler; it is therefore an example of complex radio frequency communication.
The relay and OTBus outputs are identified on the WiFi Box by the term OUTPUTS and are available via a USB plug.

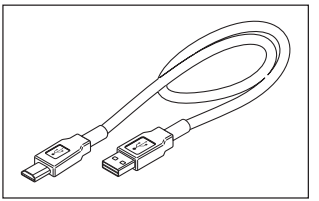
The position and distinction between the 2 outputs on the USB plug are given below.



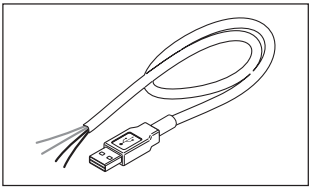
USB Outputs/Boiler:
Dry contact TA
ON/OFF relay
max 2 A at 30 VDC
max 0.25 A at 230 VAC
OTBus protocol contact
Never 230 V

Power supply:
USB mini B 5V - 1A
WiFi: IEEE 802.11 b/g/n - 2.4 GHz
Radio frequency: 868 MHz
Power consumption: 0.5 W

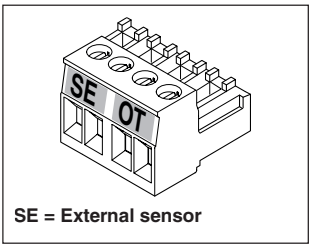
Two USB cables are also supplied, one to provide power via the USB power adapter and the other to connect the WiFi Box to the boiler.
The cable to connect it to the electrical power supply is a USB mini.



The USB cable to connect the device to the boiler has an end with 4 terminals.



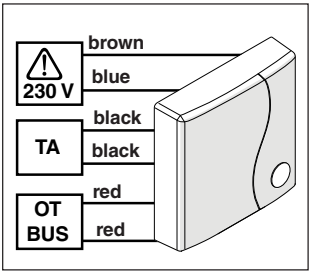
The black terminals are for the ON/OFF connection and are to be connected to the “boiler room thermostat” output.
The red terminals are for the connection via OTBus and are to be connected to the “OTBus” output on the boiler.



SE = External sensor

If there is a Boiler RF receiver installed in the system, these do nothing other than repeat everything that happens in the WiFi Box on a RF receiver with the same outputs (ON/OFF and OTBus) which use the same wiring colours: Red = OTBus, Black = ON/OFF

Following you find information on the boiler RF receiver and a description of its electric connection (6 wires)



WiFi Box connection via OTBus (only for boilers equipped with a compatible OTBus protocol)

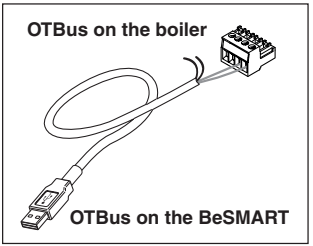
Connect the red wires of the USB cable to the boiler OTBus terminal (please consult the boiler installer manual). Should the boiler not be equipped with an OTBus terminal, you can use an OTBus connector provided in the WiFi **BeSMART** package (only for boilers without one).

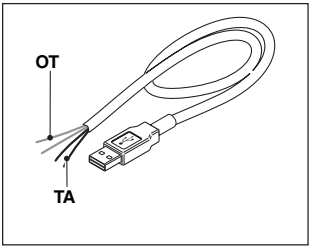
⚠ Only one of the **BeSMART** system components (**BeSMART**, WiFi Box or boiler RF receiver) must be connected to the boiler via cable via OTBus.

ON/OFF WiFi Box connection

Connect the black wires of the USB cable to the boiler room thermostat terminal (it is recommended that you consult the boiler installer manual).

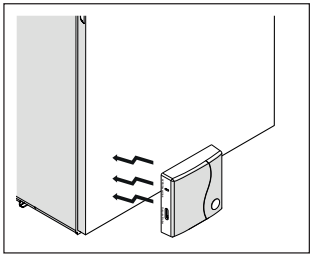
⚠ In the case of **BeSMART** thermostats wired in ON/OFF mode, or zone valve microswitches, it is recommended that you connect these to the boiler room thermostat terminal and wire the WiFi Box to the boiler via OTBus only (only for boilers equipped with a compatible OTBus protocol).



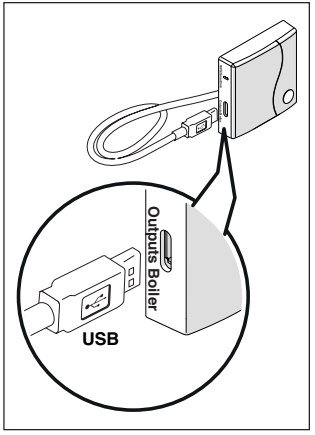


Black cables = TA (ON/OFF)
Red cables = OTBus communication protocol

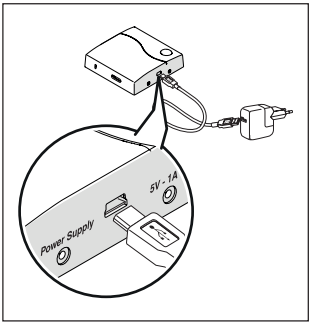
Attach the WiFi Box to the boiler casing using the magnet on the back;



Connect the USB connector on the previously connected cable to the WiFi Box OUTPUTS/BOILER output;



Power the WiFi Box via the relevant cable and power adapter provided.



Resetting the OTBus connection auto-configuration function

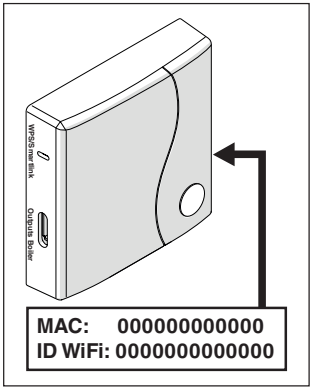
The **BeSMART** is configured to function in ON/OFF mode.
Should it be connected to an OTBus communication bus (wired or wireless/radio frequency), the **BeSMART** auto-configures to the "Boiler remote control" operating mode.
To restore the thermostat to its original operating mode (ON/OFF), remove and then reinsert the batteries.

⚠ The alarm E82 may be triggered by a change of operating mode from OTBus to ON/OFF or vice versa.

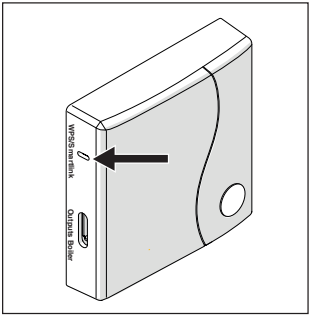
Installing and configuring the smartphone APP

Download the APP on your smartphone or tablet;

Create a user account;



Match the WiFi ID of the WiFi Box to the user account.
If you need to link other thermostats and/or boiler RF receivers to the WiFi Box via radio frequency, press the clear button on the WiFi Box for 5 seconds until the LEDs flash at the same time and set the device to be linked to the same operating mode (see "3.14 Linking function" to page 74). After making these links, the system automatically resumes normal operation.



Link you home modem password to the WiFi Box via one of the following methods.

⚠ Smartphones or tablets must be connected to the WiFI network that will be matched to the WiFi Box.

Smart Link

- Press the Smart Link button on the WiFi Box once with an appropriate implement.
- The green and red LEDs start flashing frequently.
- Select the “Configure WiFi” field from the drop-down menu in the APP, insert your home modem password and press the “Connect” button.

The process is complete if the APP displays the message “Connection complete”.

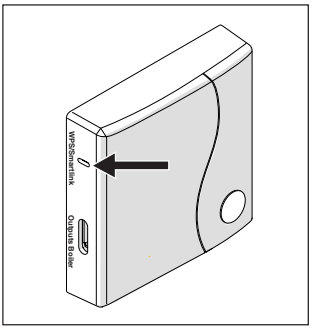
⚠ Once online, the system requires up to 4 minutes to auto-configure.

WPS (only for modems with this function)

- Set your home modem to WPS mode.
- Press the WPS button on the WiFi Box using an appropriate implement and hold for 5 seconds until the red and green LEDs flash frequently.

The link has been made if the red LED on the WiFi Box flashes frequently after a few seconds.

⚠ Once online, the system requires up to 4 minutes to auto-configure.

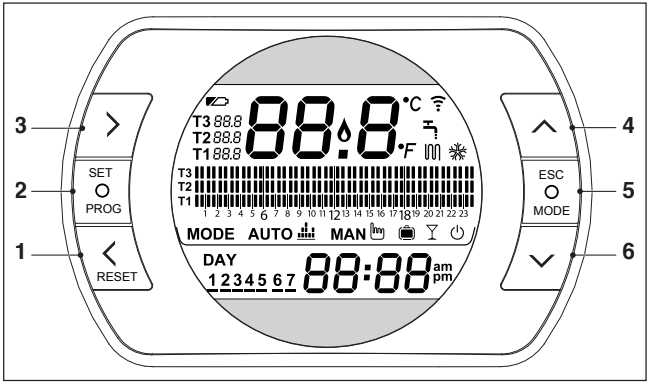


Restart the WiFi router at the end of the operation.

NOTE
For further information, please see the **BeSMART** APP manual.

3 COMMISSIONING

3.1 User interface



1 **BACK button** = allows you to select the desired field, reset an alarm or activate the ONE HOUR BOOSTER function

2 **SET/PROG button** = allows you to access the menus or selected field and save

3 **FORWARD button** = allows you to select the desired field or activate the special ADVANCE function

4 **UP button** = increases the field selected or displays the room temperature for the current time period

5 **ESC/MODE button** = allows you to select the operating mode, exit programming, activate the link function or activate the special SEMI-AUTOMATIC FILLING function

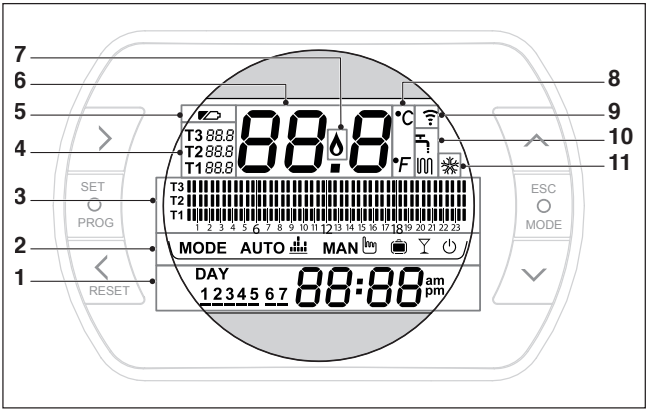
ESC = escape

MODE = select the operating mode:

AUTO	AUTO
MAN	MANUAL
	HOLIDAY
	PARTY
	SUMMER (if OTBus available)
	OFF

6 **DOWN button** = decreases the field selected or displays the room temperature for the current time period

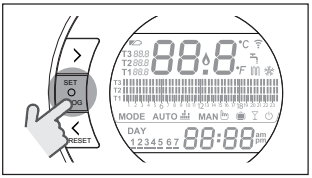
3.2 Display



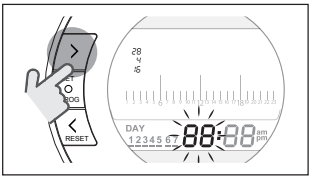
1 **Date and time**
2 **Operating mode**
3 **Time program** for heating/DHW
4 **Room setpoint temperature** desired, in relation to the heating program. If the summer/domestic hot water mode is set, it displays the domestic hot water setpoint temperature (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).
5 **Batteries running low**
6 **Room temperature** read by the **BeSMART** thermostat
7 **Flame detection** (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol) or heating request if the **BeSMART** system is in ON/OFF mode
8 **Unit of measure** (°C/°F)
9 **Heating or DHW mode active**
10 **Radio frequency communication** active with the WiFi Box or with the boiler RF receiver
11 **Cooling mode active**

3.3 Setting the date and time

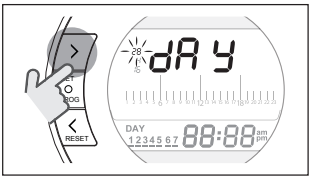
From the HOME screen, press the SET/PROGRAM button twice.



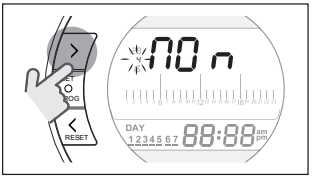
Select the desired field (hours, minutes or day) using the FORWARD ❯ or BACK ❮ button (time, minutes, day, month and year).



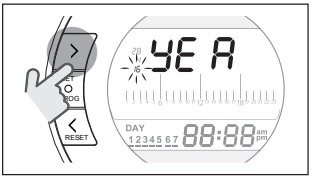
When day is selected, the corresponding number flashes and the message dAY is displayed.



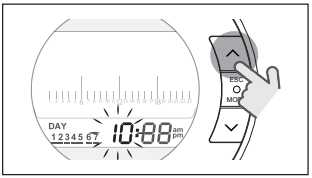
When month is selected, the corresponding number flashes and the message Non is displayed.



When year is selected, the corresponding number flashes and the message YEA is displayed.



Change the value using the UP ⌃ or DOWN ⌄ buttons.

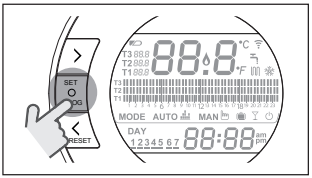


Press the SET/PROG button to save and return to the programming menu, press ESC/MODE to save and exit the programming menu, or wait 30 seconds to automatically save the value and return to the home screen.

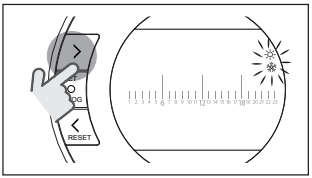
3.4 Setting the heating/ cooling mode

The **BeSMART** is default set to heating mode.
In heating mode, the **BeSMART** activates a request for heat when the room temperature is **below** the set temperature.
In cooling mode, the **BeSMART** activates an ON request (where there is a cooling system) when the room temperature is **above** the set temperature.

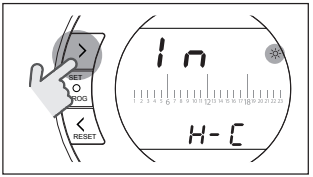
From the HOME screen, press the SET/PROGRAM button to open the user menu.



Press the FORWARD ❯ or BACK ❮ button to select the field HEATING/ COOLING.

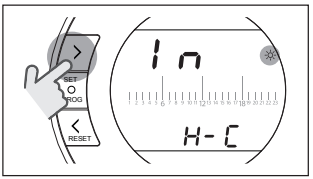


Press the SET/PROG button to set.

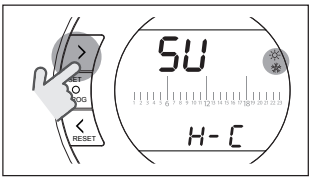


Press the UP ^ or DOWN v button to select the desired mode.

IN=WINTER
Heating mode.



SU=SUMMER
Cooling mode.

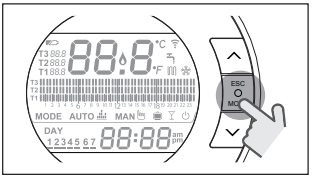


Press the SET/PROG button to save and return to the programming menu, press ESC/MODE to save and exit the programming menu, or wait 30 seconds to automatically save the value and return to the HOME screen.

If at least one **BeSMART** thermostat is in cooling mode, the heating request via OTBus is not considered.

3.5 Setting the operating mode

From the HOME screen, press ESC/ MODE repeatedly



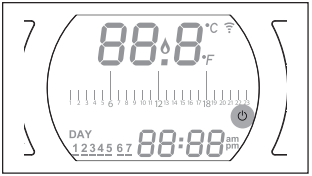
to select one of the following modes:

3.5.1 OFF mode

In OFF mode, the **BeSMART** guarantees the minimum room temperature set at parameter 01 from the PL technical menu only.

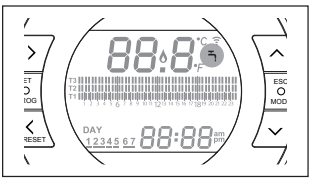
NOTE
Only if the boiler is in the correct operating condition (i.e. powered and not blocked).

In case of an OTBus connection between the WiFi Box and the boiler (including other types of connection via OTBus), the boiler remains OFF if all the **BeSMART** thermostats in the system are OFF. When the boiler is OFF it does not provide any heating or **domestic hot water.**



3.5.2 SUMMER/DHW mode

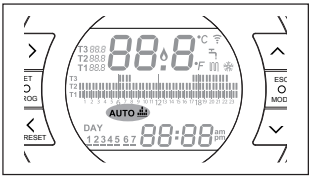
BeSMART in SUMMER/DOMESTIC HOT WATER mode. In this mode, the boiler provides domestic hot water where requested (instant boiler).
If the parameter 24 CLOC is set to ON; the **BeSMART** follows the time periods set in the user-programming menu for DHW, pre-heating the water in the storage tank (only for boilers with integrated tank).
The minimum room temperature set at parameter 01 from the PL technical menu is, however, guaranteed.
In case of an OTBus connection between the WiFi Box and the boiler (including other types of connection via OTBus), the boiler remains in SUMMER mode if at least one of the thermostats is in summer mode and the others are OFF.



3.5.3 WINTER/AUTOMATIC mode
AUTO

In Winter/AUTOMATIC mode, the **BeSMART** follows the time program set in the user-programming menu for heating.
In case of an OTBus connection between the WiFi Box and the boiler (including other types of connection via OTBus), the boiler remains in Winter/AUTOMATIC mode if at least one of the thermostats is in heating mode.

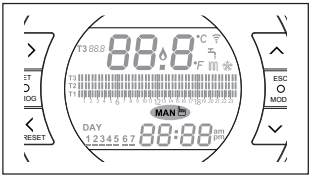
For installations with multiple **BeSMART** thermostats connected via OTBus, if one of these devices is in **cooling** mode, the heating request to the boiler is not considered.



3.5.4 WINTER/MANUAL mode
MAN

BeSMART in Winter/MANUAL mode, the **BeSMART** programmable thermostat takes the T3 room setpoint temperature (comfort), ignoring the heating time program.
In case of an OTBus connection between the WiFi Box and the boiler (including other types of connection via OTBus), the boiler remains in Winter/MANUAL mode if at least one of the thermostats is in heating mode.

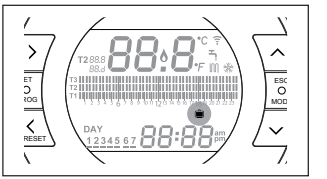
For installations with multiple **BeSMART** thermostats connected via OTBus, if one of these devices is in **cooling** mode, the heating request to the boiler is not considered.



3.5.5 WINTER/HOLIDAY mode

In HOLIDAY mode, the **BeSMART** takes the T2 room setpoint temperature (economy), ignoring the heating time program, for the days set with the FORWARD ❯ or BACK ❮ buttons.
The **BeSMART** returns to AUTO mode **AUTO** once the days set in HOLIDAY mode have lapsed.
In case of an OTBus connection between the WiFi Box and the boiler (including other types of connection via OTBus), the boiler remains in Winter/HOLIDAY mode if at least one of the thermostats is in heating mode.

For installations with multiple **BeSMART** thermostats connected via OTBus, if one of these devices is in **cooling** mode, the heating request to the boiler is not considered.

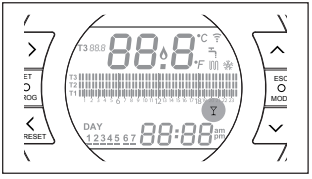


3.5.6 WINTER/PARTY mode

In PARTY mode, the **BeSMART** takes the T3 room setpoint temperature (comfort), ignoring the heating time program, until midnight of the current day, and then automatically switches back to AUTO mode AUTO.

In case of an OTBus connection between the WiFi Box and the boiler (including other types of connection via OTBus), the boiler remains in Winter/PARTY mode if at least one of the thermostats is in heating mode.

For installations with multiple **BeSMART** thermostats connected via OTBus, if one of these devices is in **cooling** mode, the heating request to the boiler is not considered.

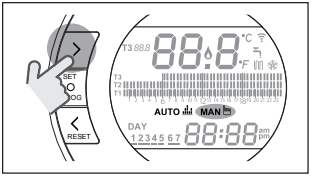


3.6 Setting the extra functions

3.6.1 ADVANCE function for AUTOMATIC operating mode

The ADVANCE function allows you to bring forward the next heating/cooling time period and the relative room setpoint temperature desired, or to disable the heating time period if it is already running.

To activate/deactivate the ADVANCE function, from the HOME screen press the FORWARD button (if active, the MAN icon is displayed).

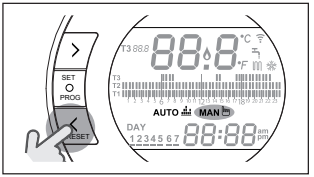


3.6.2 ONE HOUR BOOSTER function for AUTOMATIC operating mode

The ONE HOUR BOOSTER function allows you to activate the heating/cooling time period and the relative T3 room temperature (comfort) for 60 minutes, if it is not already in operation.

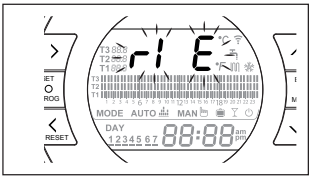
If the heating time period relative to the T3 room setpoint temperature (comfort) is already running, by activating the function the time period is extended by one hour, but not beyond midnight of the current day.

To activate/deactivate the ONE HOUR BOOSTER function, from the HOME screen press the BACK button ❮ (if active, the MAN icon is displayed).

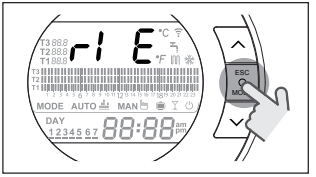


3.6.3 SEMI-AUTOMATIC FILLING function

The SEMI-AUTOMATIC FILLING function allows the correct system pressure to be restored and is only available for boilers equipped with the relevant function (if OTBus connection available between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).
If the rIE alarm is quick flash (0,5 sec.) on the HOME screen in the room temperature field,



press the ESC/MODE button and hold for 5 seconds to start semi-automatic filling (the message rIE will stop flashing and remain on). When releasing the button ESC/MODE the rIE message starts flashing slowly (2 secs) until the end of the function.

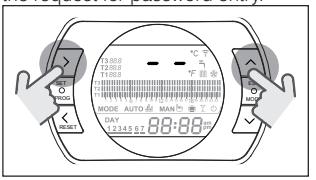


Once the system pressure has been restored, the **BeSMART** automatically returns to the normal HOME screen display.

⚠ If the SEMI-AUTOMATIC FILLING function is not carried out within 90 seconds, the rIE alarm flashes quickly (1sec.) and is displayed on the HOME page again.

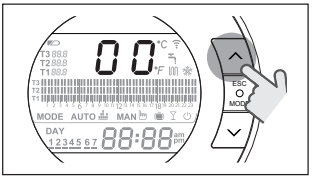
3.6.4 KEY-LOCK function

In the main menu press the FORWARD ❯ and UP ❮ buttons for 5 seconds simultaneously to display the request for password entry.

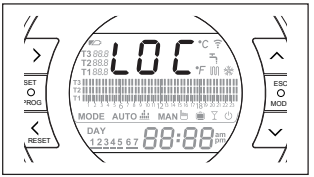


If the password has never been set, the symbols "--" are displayed; set the new password using the UP ❮ and DOWN ❯ buttons and press SET to confirm and return to the main menu with the buttons disabled.
The new password is then saved. The password value must be between "0" and "99". The default value is not set "--".

If the password has already been set, "00" is displayed; enter the password using the UP ∧ and DOWN ∨ buttons and press SET to confirm.



If the password entry is correct and the button function is enabled, the text "LOC" is displayed for 5 seconds in place of the ambient temperature, and the functions of all individual buttons are disabled.



If the password entry is incorrect, the display returns to the main menu.

When the keypad is blocked and any button is pressed, the text “LOC” is displayed for 5 seconds.

To re-enable button functions, press the buttons FORWARD ❯ and UP ∧ simultaneously for 5 seconds, after which the password is requested.

If the password entry is correct, the text "UnL" is displayed for 5 seconds in place of the ambient temperature, and the functions of all buttons are re-enabled.

If the password entry is incorrect, the text "LOC" is displayed for 5 seconds in place of the ambient temperature, and the functions of all individual buttons remain disabled.

Reset password - key lock

To reset the password press the FORWARD ❯ and UP ∧ buttons at the same time and hold for 5 seconds; you are then asked to enter the password and “00” is displayed. Press the BACK ❮ and DOWN ∨ buttons at the same time and hold for 5 seconds to reset the old password and “--” is displayed.

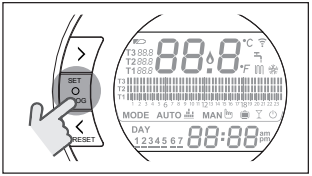
Press SET/PROG to return to the home screen without entering the password (with the buttons unlocked) or set a new password using the UP ∧ and DOWN ∨ buttons and confirm using SET/PROG, returning to the main screen either with the buttons disabled, “LOC” (where the last status was “UnL”) or with the buttons enabled, “UnL” (where the last status was “LOC”).

When the power is turned ON, the buttons show the same status as when the power was switched off.

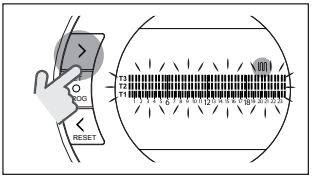
If the password is not entered after 2 minutes, the device returns to the main screen.

3.7 Setting the heating/ cooling time program in automatic operating mode

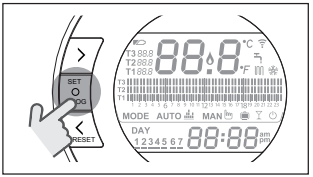
From the HOME screen, press the SET/PROGRAM button to open the user menu.



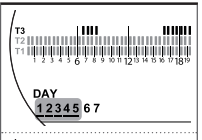
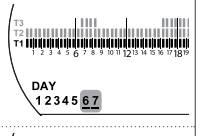
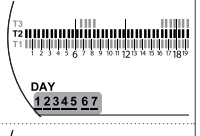
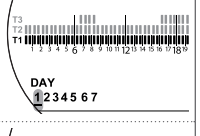
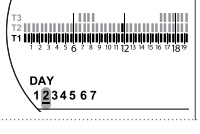
Press the FORWARD ❯ or BACK ❮ button to select the field HEATING/ COOLING TIME PROGRAM.

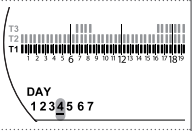
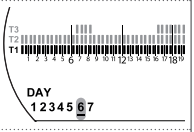
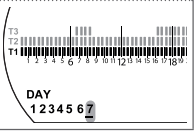


Press the SET/PROG button to set.



Press the FORWARD ❯ or BACK ❮ button to select the day or period of the week to be changed.

Monday Friday	
Saturday Sunday	
Monday Sunday	
Monday	
Tuesday	

Days	Display
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

Press the SET/PROGRAM button to confirm the day or period of the week to be changed.

Press the FORWARD ❯ or BACK ❮ button to select the time segment to be changed.

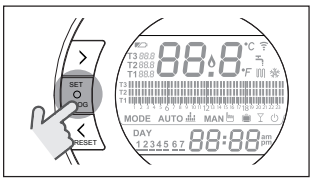
Press the ESC/MODE button to select the desired room setpoint temperature (T1, T2, T3).

Press the UP button ^ to copy the previous setting to the following time segment (the DOWN v button can be used to go back or copy the setting to the previous time segment).

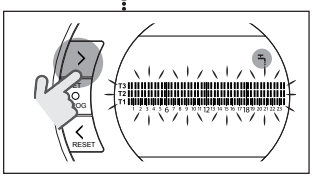
Press the SET/PROG button to save and return to the programming menu, press ESC/MODE to save and exit the programming menu, or wait 30 seconds to automatically save the value and return to the HOME screen.

3.8 Setting the DHW time program

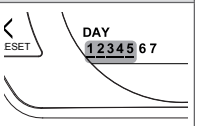
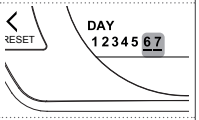
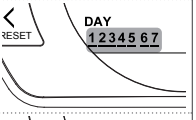
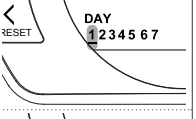
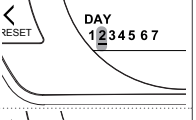
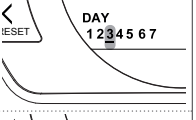
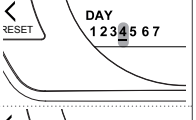
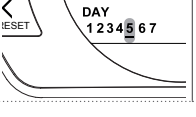
This function is available only if the parameter 24 CLOC is set to ON.
The time periods are default set to ON (domestic hot water function active).
From the HOME screen, press the SET/PROGRAM button to open the user menu.

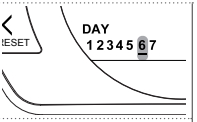
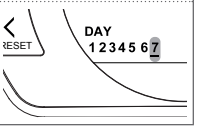


Press the FORWARD ❯ or BACK ❮ button to select the field DHW TIME PROGRAM.



Press the SET/PROG button to set.
Press the FORWARD ❯ or BACK ❮ button to select the day or period of the week to be changed.

Days	Display
Monday Friday	
Saturday Sunday	
Monday Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Saturday	
Sunday	

Press the SET/PROGRAM button to confirm the day or period of the week to be changed.

Press the FORWARD ❯ or BACK ❮ button to select the time segment to be changed.

Press the ESC/MODE button to activate or deactivate the domestic hot water function.

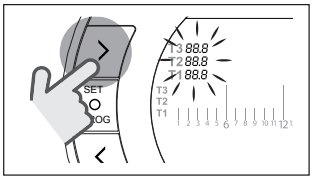
Press the UP button ^ to copy the previous setting to the following time segment (the DOWN v button can be used to go back or copy the setting to the previous time segment).

Press the SET/PROG button to save and return to the programming menu, press ESC/MODE to save and exit the programming menu, or wait 30 seconds to automatically save the value and return to the HOME screen.

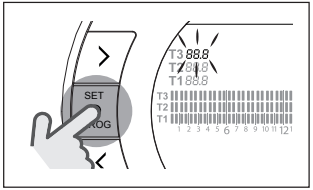
3.9 Setting the heating/ cooling room setpoint temperature

To change the T1/T2/T3 room setpoint temperature, press the SET/ PROGRAM button from the HOME screen to enter the user menu.

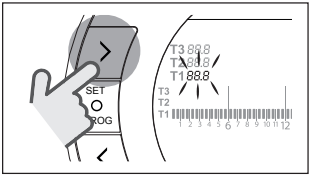
Press the FORWARD ❯ or BACK ❮ button to select the field HEATING/ COOLING TEMPERATURE.

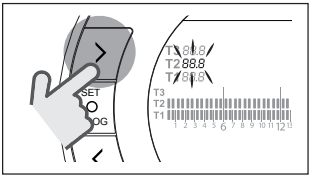


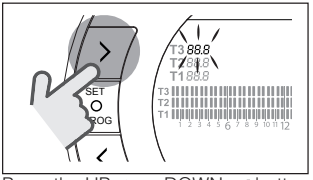
Press the SET/PROG button to set.



Press the FORWARD ❯ or BACK ❮ button to select the temperature to be changed.







Press the UP ⌃ or DOWN ⌄ button to modify the selected room setpoint temperature.

⚠ The T3 temperature (comfort) cannot be higher than 35°C or less than or equal to T2 (economy).

⚠ The T2 temperature (economy) cannot be higher than or equal to T3 (comfort) or less than or equal to T1 (anti-freeze).

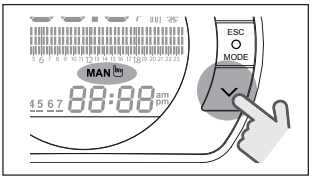
The T1 temperature (anti-freeze) cannot be higher than or equal to T2 (economy) or less than 1°C.

Press the SET/PROG button to save and return to the programming menu, press ESC/MODE to save and exit the programming menu, or wait 30 seconds to automatically save the value and return to the HOME screen.

The room setpoint temperatures can also be modified instantly if the **BeSMART** is in the operating mode corresponding to the room setpoint temperature to be modified.

3.9.1 Setting the temperature in MANUAL mode

From the HOME screen, press the UP ∧ or DOWN ∨ button to set the desired T3 (comfort) room setpoint temperature.

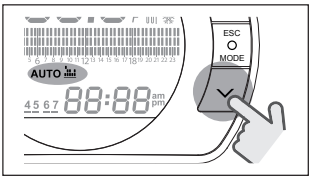


The room setpoint temperature set cannot be less than or equal to the T2 temperature (economy).

Press the SET/PROG button to save and return to the HOME screen, press ESC/MODE to save and return to the HOME screen, or wait 5 seconds to automatically save the value and return to the HOME screen.

3.9.2 Setting the temperature in AUTOMATIC mode

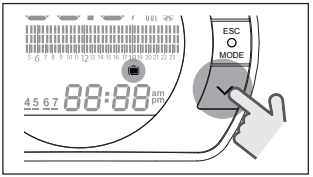
From the HOME screen, press the UP ∧ or DOWN ∨ button to set the desired room setpoint temperature for the current time period.



Press the SET/PROG button to save and return to the HOME screen, press ESC/MODE to save and return to the HOME screen, or wait 5 seconds to automatically save the value and return to the HOME screen.

3.9.3 Setting the temperature in HOLIDAY mode

From the HOME screen, press the UP ∧ or DOWN ∨ button to set the desired T2 (economy) room setpoint temperature.

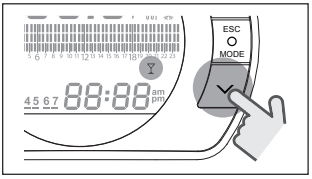


The room setpoint temperature set cannot be higher than or equal to T3 (comfort) or less than or equal to T1 (anti-freeze).

Press the SET/PROG button to save and return to the HOME screen, press ESC/MODE to save and return to the HOME screen, or wait 5 seconds to automatically save the value and return to the HOME screen.

3.9.4 Setting the temperature in PARTY mode

Press the UP ∧ or DOWN ∨ button on the HOME screen to set the desired room setpoint temperature.



The room temperature set cannot be less than or equal to the desired T3 (comfort) room setpoint temperature.

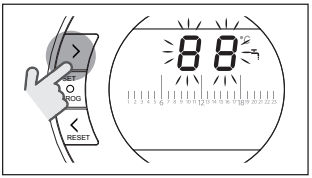
⚠ The room setpoint temperature set cannot be less than or equal to the T2 temperature (economy).

Press the SET/PROG button to save and return to the HOME screen, press ESC/MODE to save and return to the HOME screen, or wait 5 seconds to automatically save the value and return to the HOME screen.

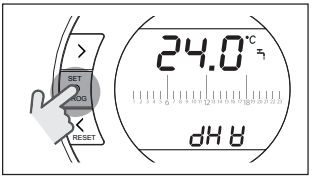
3.10 Setting the DHW setpoint temperature

From the HOME screen, press the SET/PROGRAM button to open the user menu.

Press the FORWARD ❯ or BACK ❮ button to select the field DOMESTIC HOT WATER TEMPERATURE.



Press the SET/PROG button to set.

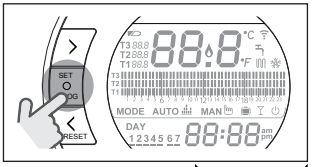


Press the UP ∧ or DOWN ∨ button to modify the domestic hot water setpoint temperature.
Press the SET/PROG button to save and return to the programming menu, press ESC/MODE to save and exit the programming menu, or wait 30 seconds to automatically save the value and return to the HOME screen.

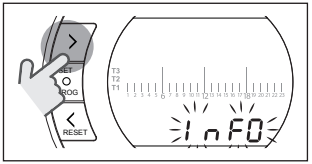
3.11 Displaying operating information

This function (available with OT-Bus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol) allows you to display the boiler probe values and some boiler operating statuses.

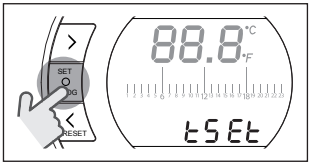
From the HOME screen, press the SET/PROGRAM button to open the user menu.



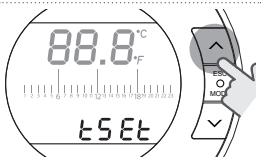
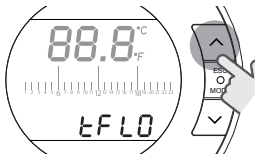
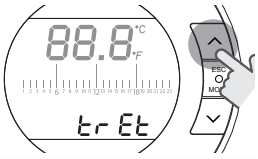
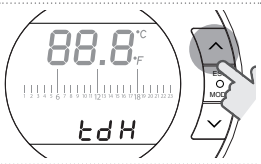
Press the FORWARD ❯ or BACK ❮ button to select the field InFO.

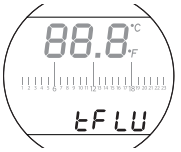


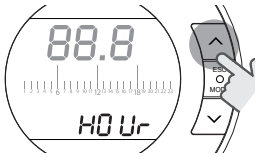
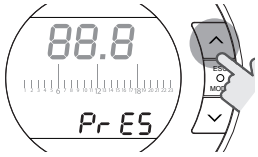
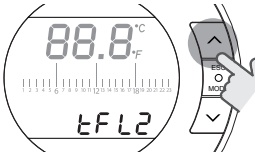
Press the SET/PROGRAM button to display this field.



Press the UP ∧ or DOWN ∨ button to select the desired parameter and wait until it is displayed.

Parameter	Description
tSEt 	Heating delivery setpoint calculated by the **BeSMART** (shown only if the **BeSMART** has received a heating request). The value calculated by the **BeSMART** may differ from the real heating delivery setpoint delivered by the boiler, if the minimum boiler heating setpoint parameter is higher than this value. **EXAMPLE:** The heating delivery setpoint calculated by the **BeSMART** is 30°C, the minimum boiler heating setpoint parameter is 40°C, the real heating delivery setpoint delivered by the boiler is 40°C.
tFLO 	Temperature read by the boiler heating delivery probe (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).
trEt 	Temperature read by the boiler heating return probe (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).
tdH 	Temperature read by the boiler DHW probe (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).

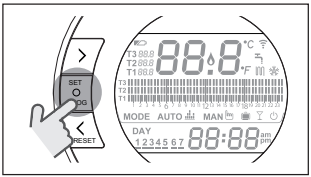
Parameter	Description
tFLU 	Temperature read by the boiler flue gas probe (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).
tESt 	Temperature read by the external probe connected to the boiler or the external temperature communicated via the APP (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).
MOdU 	Boiler fan speed percentage (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). The value 0.0 corresponds to the MINIMUM DOMESTIC HOT WATER POWER; the value 100 corresponds to the MAXIMUM DOMESTIC HOT WATER POWER.
FLOr 	Flow meter rate in litres/minute, where a flow meter is available (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).

Parameter	Description
HOUr 	Number of operating hours in high condensation mode (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).
PrES 	System pressure (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).
tFl2 	Temperature read by the delivery probe in the second heating circuit (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol).

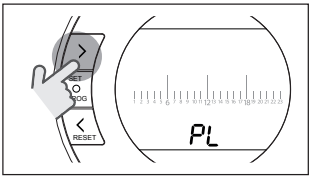
Press the SET/PROG button to save and return to the programming menu, press ESC/MODE to save and exit the programming menu, or wait 180 seconds to automatically save the value and return to the HOME screen.

3.12 Technical menu – Advanced programming

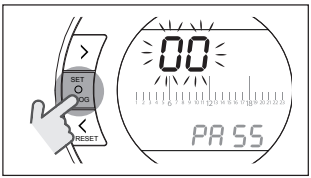
From the HOME screen, press the SET/PROGRAM button to open the user menu.



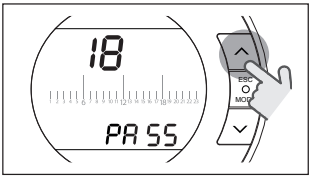
Press the FORWARD ❯ or BACK ❮ button to select the field PL.



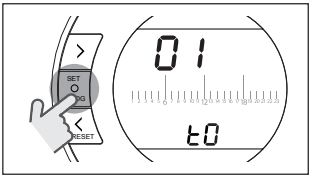
Press the SET/PROG button to set.



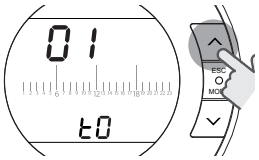
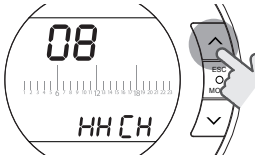
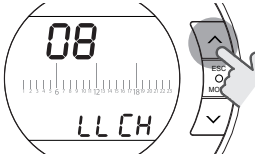
Press the UP ∧ or DOWN ∨ button to insert the installer password (password = 18).

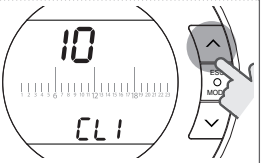


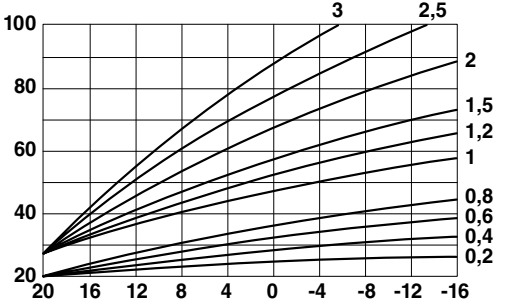
Press the SET/PROG button to set.



Press the FORWARD ❯ or BACK ❮ button to select the desired parameter.
Press the SET/PROGRAM button to set the selected parameter. For parameters 08 to 19, use the FORWARD ❯ or BACK ❮ button to select the 2 sub-parameters.
Press the UP ∧ or DOWN ∨ button to modify the selected parameter.
Press the SET/PROG button to save and return to the technical menu, press ESC/MODE to save and exit the technical menu, or wait 120 seconds to automatically save the value and return to the HOME screen.

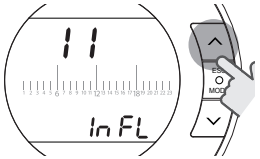
Parameter	Description
01 t0 	Minimum safety temperature. The value can be set from 1 to 10°C. Default set to 3°C. Should the **BeSMART** room probe detect a temperature below the parameter set, a heating request is generated – only when HEATING in operating modes SUMMER/ DOMESTIC HOT WATER and OFF – taking into account the hysteresis set under the HOn and HOFF parameters.
08 HHCH 	Maximun local central heating temperature setpoint (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). Value can be set to between 80°C and LLCH +5°C for high-temperature heating. Value can be set to between 45°C and LLCH +5°C for low-temperature heating.
08 LLCH 	Minimum heating setpoint temperature (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). The value can be set from 10°C to HHCH –5°C.

Parameter	Description
10 CLI 	Thermoregulation curve with external probe connected to the boiler or external web probe via the APP (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). Default set to 1.2°C. The value can be set from 0.2°C to 3°C. The parameter in question affects the calculation of the heating delivery setpoint temperature.



T Mand risc = T Mand Curva + (CLI * InFL * ΔT Amb)

T Mand Curva = Delivery temperature calculated using the thermoregulation curve set under parameter CLI
CLI = thermoregulation curve
InFL = room influence
ΔT Amb = (room temperature set) – (current room temperature)

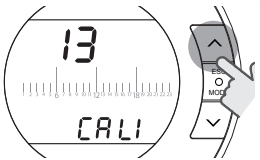
Parameter	Description
11 InFL 	Influence of room probe on calculation of heating delivery setpoint temperature (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). Default set to 10. The value can be set from 0°C to 20°C.

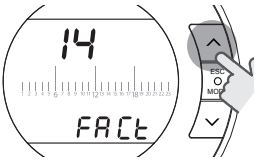
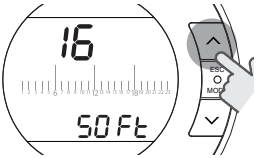
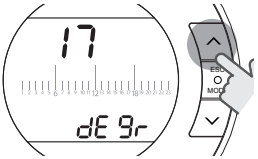
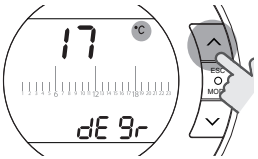
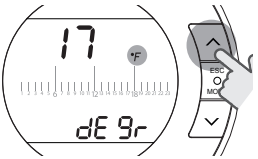
T Mand risc= T Mand Curva + (CLI * InFL * ΔT Amb)

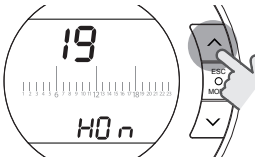
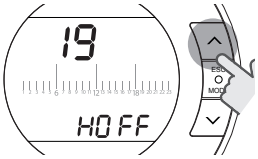
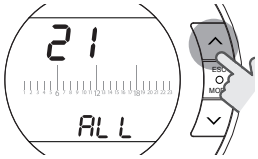
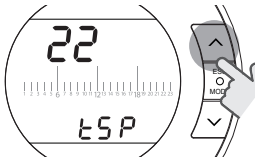
T Mand Curva = Delivery temperature calculated using the thermoregulation curve set under parameter CLI
CLI = thermoregulation curve
InFL = room influence
ΔT Amb = (room temperature set) – (current room temperature)

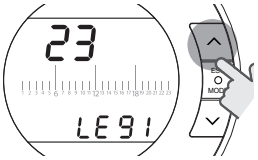
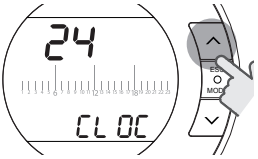
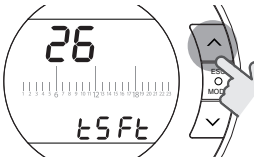
⚠ Setting the parameter InFL=0, with the external probe disconnected from the boiler and the web external probe not enabled on the app, the heating delivery temperature (for the area controlled by **BeSMART**) is the same as the temperature set under parameter LLCH.

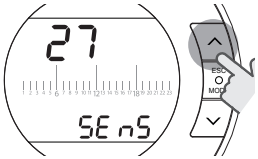
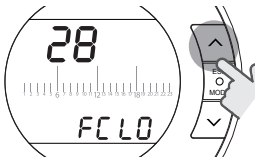
⚠ By setting parameter InFL >0, with the external sensor not connected to the boiler and the web external sensor not enabled on the app, the heating delivery temperature (for the zone controlled by BeSMART) is as follows:
Heating del. T = LLCH + (InFL * ΔT Amb)

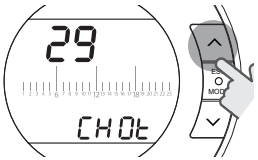
13 CALI 	Correction of the temperature detected by the **BeSMART** room probe. The value can be set with a hysteresis of +-7°C.

Parameter	Description
14 FACt 	Restore factory settings. The value can be set from 0 to 1. By setting this parameter to 1, the **BeSMART** values are restored to the default setting, excluding the date and time and the domestic hot water temperature.
16 SOFt 	**BeSMART** software version. Read-only parameter.
17 dEgr 	Setting the unit of measure. The value can be set to °C or °F. The default setting is °C (degrees Centigrade). This parameter allows you to set and view temperatures on the degrees Centigrade or degrees Fahrenheit scale.
	

Parameter	Description
19 HOn 	Setting the ON hysteresis for heating or cooling requests. The value can be set from 0°C to 2°C; the default setting is 0.4°C. The **BeSMART** processes an ON request below the target room temperature set (desired room setpoint – H On) if the heating mode is active, or above the target room temperature set (desired room setpoint + H On) if the cooling mode is active.
19 HOFF 	Setting the OFF hysteresis for heating or cooling requests. The value can be set from 0°C to 2°C; the default setting is 0.1°C. The **BeSMART** processes an OFF request above the target room temperature set (desired room setpoint + H OFF) if the heating mode is active, or below the target room temperature set (desired room setpoint – H OFF) if the cooling mode is active.
21 ALL 	Alarm history display (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). The last 9 alarms generated by the boiler and saved by the **BeSMART** are shown.
22 tSP 	Setting boiler parameters (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). This parameter is set by the Authorised Service Centre.

Parameter	Description
23 LEgI 	Enabling the anti-legionella function for boilers with domestic hot water tank (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). Default set to OFF. Value settable to ON or OFF. If this parameter is set to ON, every 20 cycles of DHW request, a request is activated for boiler top-up with DHW delivery setpoint of 60°C at the time 01.00 on the next day. If the 20 cycles are not reached within one week, a request is activated for boiler top-up with DHW delivery setpoint of 60°C at the time 01.00 on the seventh day
24 CLOC 	Enabling domestic hot water timer for boilers with domestic hot water tank (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). Default set to OFF. This value can be set to ON or OFF. Setting this parameter to ON, the domestic hot water time periods can be programmed, as explained in "3.8 Setting the DHW time program" to page 55.
26 tSFt 	The parameter will only be shown if the SEnS parameter is OFF (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). Default set to 10°C. The value can be set from 1°C to 20°C. The value set for this parameter will be subtracted from the heating delivery setpoint calculated by the **BeSMART** (tSEt), only in AUTO **AUTO** operating mode, during the T2 (economy) or T1 (anti-freeze) time period.

Parameter	Description
27 SEnS 	Enabling/disabling room sensor to activate pure climate control (thermoregulation from a single external probe). Default set to ON. This value can be set to ON or OFF. In AUTO AUTO, MAN MAN and PARTY operating modes only, by setting this parameter to OFF the heating/cooling request is processed as follows: – In ON/OFF mode, the heating/cooling request is always active (relay closed) if the T3 (comfort) time period is active. – In OTBus mode, the heating request is always active (only with the external probe connected to the boiler or the external web probe via the APP) and the heating setpoint temperature is calculated using the external probe value only. The value set for parameter 26 (tSFt) is subtracted from the heating delivery setpoint calculated by the **BeSMART** (tSEt), only in AUTO AUTO operating mode, during the T2 (economy) or T1 (anti-freeze) time period. ⚠ This function uses one **BeSMART** only.
28 FCLO 	Time display setting. Default set to 24-hour clock. The format can be set to the 12- or 24-hour clock. Setting the parameter to 12H, the field is display in the 12-hour a.m./p.m. format.

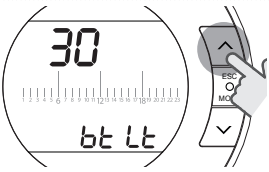
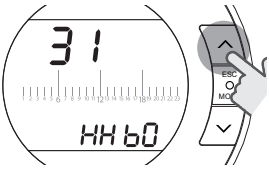
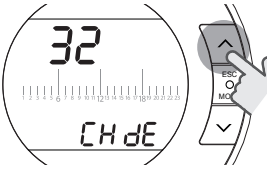
Parameter	Description
29 CHOt 	Enabling/disabling heat request via OTBus (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). Default set to ON. This value can be set to ON, OF0 and OFF. The central heating or cooling request follows the rules shown in the table. For RF zone receivers and on the same thermostat, the ON/OFF contact follows the normal rules.

CH Request	Par. 29	BeSMART		Wifi box		RF boiler receiver		RF zone receiver	
		OT	Relay	OT	Relay	OT	Relay	OT	Relay
ON	OFF	off	on	off	off	off	off	-	(*)
ON	OF0	off	on	off	on	off	on	-	ON
ON	ON	on	on	on	on	on	on	-	ON

Cool Request	Par. 29	BeSMART		Wifi box		RF boiler receiver		RF zone receiver	
		OT	Relay	OT	Relay	OT	Relay	OT	Relay
ON	OFF	off	on	off	off	off	off	-	(*)
ON	OF0	off	on	off	on	off	on	-	ON
ON	ON	off	on	off	on	off	on	-	ON

off= request in progress not met
on= request in progress met

(*) = not supported. To ensure the relay-controlled zone valve operates, use a **BeSMART** wired to the zone valve.

Parameter	Description
30 btlt 	Enabling/disabling backlighting. Value can be set to ON/OFF. By setting the value to ON, backlighting is enabled. From the HOME screen, turn the backlighting on using the UP ∧ and DOWN ∨ buttons. Backlighting times out 5 seconds after the last button was pressed. By setting the value to OFF, backlighting is disabled, i.e. it is not turned on with each intervention, prolonging battery life. Press the SET/PROG or ESC/MODE button to return to the home screen.
31 HHbO 	Maximun boilerl central heating temperature setpoint (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol). The value can be set between 80°C and 40°C (for high temperature heating) or from 45°C to 20°C (for low temperature heating). This parameter has to be set by the Authorised Service Centre.
32 CHdE 	A delay on heating requests is applied on the RF channel only in the direction of the Wifi box and the boiler receiver, and can be used on systems with zone valves without the limit switch to delay start-up of the boiler until the valves are completely open. The heating request, activated by the timer thermostat with local relay remains instant. If the parameter is set at 0 the delay is not active; if set to another value the delay depends on the value set in the parameter. The parameter can be set from 0 to 255 sec. in intervals of 5 sec. and the default value is 0.
00 EHlt	Press the SET/PROG button or ESC/MODE to return to the HOME screen.

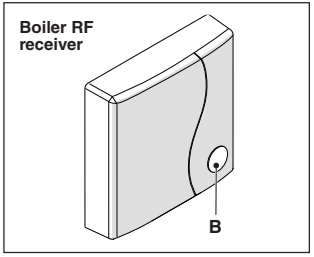
3.13 RF receiver configuration

The RF receiver can be configured to be used as a boiler RF receiver or as an RF receiver for the zone valve.
The receiver is factory set as the boiler RF receiver.

To configure the RF receiver proceed as follows:

- Power up the receiver
- Press button B once during the two seconds in which the green and red leds remain lit.

The operating mode of the RF receiver switches from boiler RF receiver to zone valve RF receiver and vice versa.



The change in configuration is identifiable by the different flashing mode of the green led.

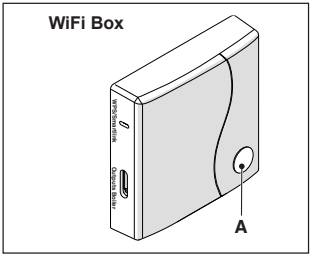
Configured as boiler RF receiver		
	Green LED	Red LED
Relay Off	0.5 sec. on 0.5 sec. off	-
Relay On	0.2 sec. on 0.2 sec. off	-

Configured as zone receiver		
	Green LED	Red LED
Relay Off	2 sec. on 2 sec. off	-
Relay On	1 sec. on 1 sec. off	-

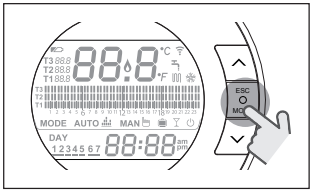
NOTE
If the receiver is configured as a boiler RF receiver, the Opentherm connection to the boiler should be detached to enable display of the flashing green led.

3.14 Linking function

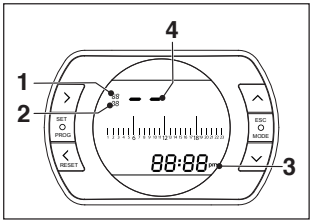
BeSMART linking with the WiFi Box
The **BeSMART** and the WiFi Box in the WiFi **BeSMART** package are already linked.If installing an additional **BeSMART**, follow the procedure below. Ensure that the **BeSMART** and the WiFi Box are connected to a power source and there are no alarms. Press the prismatic dome clear LED button (A) and hold for 5 seconds until the green and red LEDs slow flashing (1 seconds) at the same time (once linked the flash will return to normal).



From the **BeSMART** HOME screen, press the ESC/MODE button and hold for 5 seconds to display the following (alternating) information.

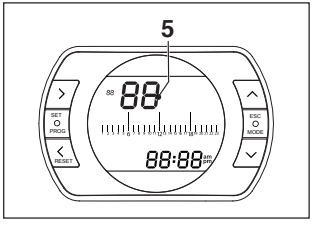


EXAMPLE OF LINKED BESMART



1 Radio frequency channel
2 Receiver (WiFi Box) number
3 Radio frequency address
4 number of the thermostat assigned by the WiFi Box (in the event of several linked thermostats) – identifying the zone.

EXAMPLE OF LINKED BESMART



5 number of the transmitter (BeSMART)

To complete the link, press the SET/PROGRAM button or wait for BeSMART to return to the HOME screen.

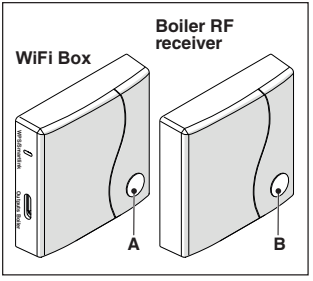
⚠ This may take up to 2 minutes, after which the **BeSMART** automatically returns to the HOME screen.

Should the link not be successful, please contact the Authorised Service Centre.

NOTE
When replacing the WiFi Box it is necessary to repeat the linking again between the WiFi Box and BeSMART.

Linking the boiler RF receiver to the WiFi Box

If installing a boiler RF receiver, please follow the procedure below.
Press the prismatic dome clear LED button (A) on the **WiFi Box** and hold for 5 seconds until the green and red LEDs slow flash at the same time (1 sec).
Press and hold again for 5 seconds until the green and red LEDs momentarily switch off and then flash slowly (every 2 seconds).



Press the prismatic dome clear LED button (B) on the boiler RF receiver

and hold for 5 seconds.
The green and red LEDs of the WiFi Box flash quickly (0.5 sec) and at the same time to indicate the successful connection.
Press the button on the WiFi Box again to confirm.

The boiler RF receiver auto-configures to normal operating mode.

⚠ The light indicators on the boiler RF receivers could differ from what is indicated in section "4 Alarms and operating statuses" to page 78

⚠ This may take up to 2 minutes, after which the **BeSMART** automatically returns to the HOME screen.

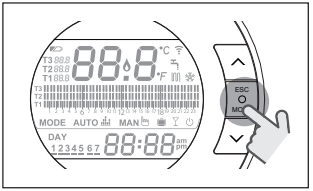
Should the link not be successful, please contact the Authorised Service Centre.

NOTE
When replacing the WiFi Box it is necessary to repeat the linking again between the boiler RF receiver and the WiFi box.

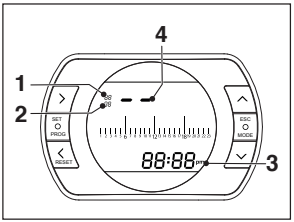
Linking the RF receiver to the BeSMART
The **BeSMART** programmable thermostat can be linked to a wireless receiver if you want to replicate the relay functionality on the thermostat in a remote zone (e.g. zone valve), which is not accessible with a cable (wireless access).
Follow the procedure below to link them:
Press the prismatic dome clear LED button on the boiler RF receiver and hold for 5 seconds until the green and red LEDs slow flash (1 seconds) at the same time (once linked the flash returns to normal).

⚠ The light indicators on the boiler RF receivers could differ from what is indicated in section "4 Alarms and operating statuses" to page 78

From the **BeSMART** HOME screen, press the ESC/MODE button and hold for 5 seconds to display the following (alternating) information:

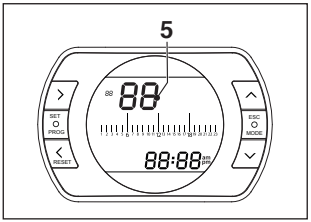


EXAMPLE OF LINKED BESMART



1 Channel (usually 11)
2 Address (usually 00)
3 Thermostat ID (unequivocal, also shown on the app/server)
4 number of the thermostat assigned by the WiFi Box (in the event of several linked thermostats) – identifying the zone.

EXAMPLE OF LINKED BESMART



5 number of the transmitter (BeSMART)

Checking the number assigned to the thermostat in the vent of a multizone (several thermostats (paired with a WiFi Box

Put the thermostat in RF pairing mode by pressing the MODE button for 5 seconds. Press the FORWARD › button once: the number that appears in the position under address (2) indicates the number assigned to the thermostat (or identifying the zone served by the thermostat).
Press PROG to exit.

To complete the link, press the SET/PROGRAM button or wait for **BeSMART** to return to the HOME .screen

⚠ This may take up to 2 minutes, after which the **BeSMART** automatically returns to the HOME screen.

Should the link not be successful, please contact the Authorised Service Centre.

NOTE

When replacing the WiFi Box it is necessary to repeat the linking between the zone RF receiver and **BeSMART**

3.15 Resetting the WiFi Box

To perform a full reset of the WiFi Box, deleting the full list of coupled devices (thermostats and receivers):

- press the clear prismatic round LED button (A) on the WiFi Box and hold for 5 seconds until the green and red LEDs both start to flash slowly (1 sec).
- press the Smart Link button on the WiFi Box once using a suitable instrument

The clear LED remains off for 1 second to confirm the operation was successful.

At the end of this operation the linking should be carried out again between:

- WiFi Box and thermostats
- Zone RF thermostats and receivers.

4 ALARMS AND OPERATING STATUSES

4.1 LED notification lights for the WiFi Box and boiler RF receiver **

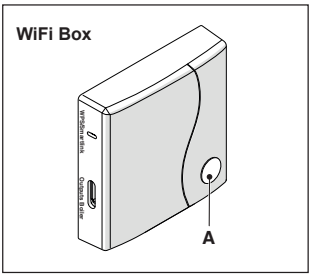
LED Green	LED Red	Status
F05		Relay = closed (only for ON/OFF connections)
F1		Relay = open (only for ON/OFF connections)
ON		OTBus connection = OK (for OTBus connection)
ON	**F01**	Boiler alarm (only for OTBus connection)
F05 **F1** **ON (OTBus)**	**ON**	Network or RF error
F05	**F05**	WPS mode active – Wait for WPS signal from the router*
	F05	WPS signal accepted*
F05	**F05**	Smartlink mode active*
F1	**F1**	Encoded RF mode active

* Only for WiFi Box

** The notification lights on Boiler RF receivers may differ with respect to the table.

LED
ON = remains on
F05 = quick flash (every 0.5 seconds)
F1 = slow flash (every 1 second)

Operation of the prismatic dome clear LED button on the WiFi Box and boiler RF receiver



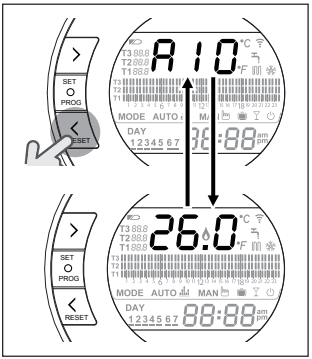
In case of a boiler alarm (available with OTBus connection between the WiFi Box and the boiler or the RF receiver and the boiler or the **BeSMART** and the boiler, if provided for by the OTBus protocol), the alarm can be reset by pressing the prismatic dome clear LED button (A) (for alarm A99, reset from the boiler).

The reset performed by the boiler RF receiver could differ from what has been described.

With an ON/OFF connection, the relay can be activated or deactivated by pressing the prismatic dome clear LED button (A).

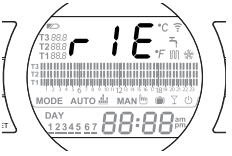
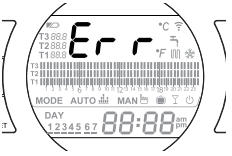
4.2 Boiler and BeSMART alarms

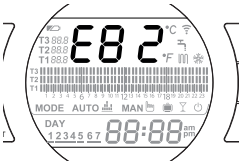
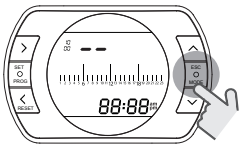
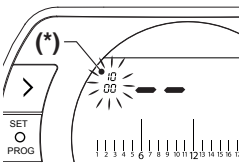
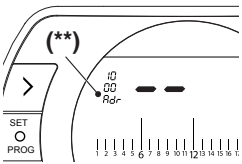
The alarm is shown in alternation with the room temperature detected by the **BeSMART** on the display.

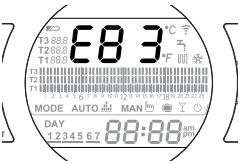
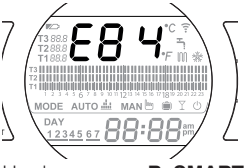
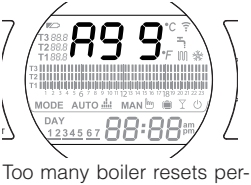


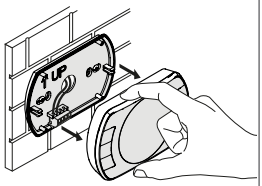
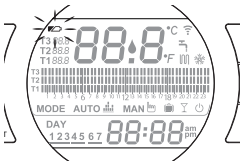
In case of a boiler alarm (available with OTBus connection between the WiFi Box and the boiler, if provided for by the OTBus protocol), the alarm can be reset by pressing the BACK/RESET button ‹ (for alarm A99, reset from the boiler).

The **BeSMART** alarms (rIE, E82, E83) and the temporary boiler alarms may be automatically reset once the fault has been resolved.

Alarm	Description	Solution
rIE	 Semi-automatic fill function.	– See "3.6.3 SEMI-AUTOMATIC FILLING function" to page 52 – Check the system pressure. – Should you not be able to remove the alarm, please contact the Authorised Service Centre.
Err	 **BeSMART** room temperature sensor damaged. Cannot be repaired.	– Replace the **BeSMART**. – Contact the Authorised Service Centre.

Alarm	Description	Solution
E82	 Communication failure between the **BeSMART** and the WiFi Box. **RESET:**   (*) do not modify using the UP ∧ and DOWN ∨ buttons.  (**) if the number 1 shows instead of the message “Adr”, press the FORWARD > button until “Adr” does show.	- Check the distance between the **BeSMART** and the WiFi Box (see "2.3 Technical Data" to page 34). - Remove and then reinsert the batteries. - Check that the WiFi Box is connected to a power source. - Check the coupling between the **BeSMART** and the WiFi Box (see "3.14 Linking function" to page 74). - Contact the Authorised Service Centre. **To reset:** - From the HOME screen on the programmable thermostat BeSMART, press the ESC/MODE button and hold for 5 seconds until two dashes are shown on the display. - Press the ESC/MODE button a second time and hold for 5 seconds until the number (*) at the top left starts flashing. - Press the ESC/MODE button a third time and hold for 5 seconds until the message “Adr” (**) is displayed. - Press the SET/PROG button twice to confirm. - Remove both batteries for a few seconds, then put them back.

Alarm	Description	Solution
E83	 OTBus communication failure between the WiFi Box and the boiler or the **BeSMART** and the boiler.	– Check the OTBus electrical connection and the maximum distance between the WiFi Box and the boiler OTBus terminal or between the **BeSMART** and the boiler OTBus terminal (see "2.3 Technical Data" to page 34). – Contact the Authorised Service Centre.
E84	 Hardware error **BeSMART**. Cannot be repaired.	– Replace the **BeSMART**. – Contact the Authorised Service Centre.
A01-99	Boiler alarm.	– See boiler manual.
A43	 Boiler air purging cycle in progress	– Wait for the boiler air purging cycle is finished
A99	 Too many boiler resets performed via remote control.	– Reset from the boiler.

Alarm	Description	Solution
	  Batteries running low	To replace the batteries, remove the **BeSMART** from its base. – Replace the batteries. – Check that the contacts are not rusty. – Replace the **BeSMART**. – Contact the Authorised Service Centre. ⚠ Replace the batteries as soon as possible. When the low battery warning is on, correct operation of the **BeSMART** and any RF communication is no longer guaranteed.

Alarm	Description
A01-A10	Burner ignition/detection failure after numerous attempts
A02-A20	Limit thermostat tripped
A03-A30	Flue gas thermostat and/or safety thermostat and/or air pressure switch and/or fan fault
A04-A40	Primary circuit pressure insufficient
A06-A60	DHW NTC probe anomaly
A07-A70	Alarm relating to heating NTC probe and/or delivery NTC probe and/or excessive differential between the delivery and return NTC probes
A08-A80	NTC return probe alarm and/or excessive differential between the combustion probes
A09-A90	NTC smoke probe alarm or exchanger dirty and combustion non coherent
A77	Low external temperature limit thermostat tripped
A99	Too many resets performed via remote control

The alarm history can be viewed under the parameter ALL from the advanced programming menu.
For details of boiler alarms, please see the boiler installer manual.

BeSmart 03 (02/19)

The company reserves the right to make changes to the features and data contained in this manual at any time and without notice, in order to improve the products. This manual therefore cannot be considered as a contract with third parties.