



Give your customers
complete control

Baxi uSense 2 Wired Smart Thermostat **Gateway Installation guide**

BAXI |  uSense 2

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You can find more detailed instructions at www.baxi.co.uk

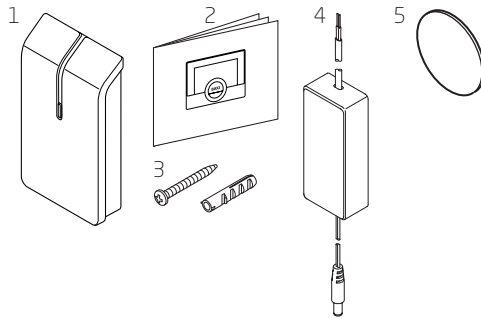
⚠ Warning: High Voltage wiring must only be installed and worked on by a suitably qualified person.

1. Compatibility

This Gateway & Power Adapter Kit is only required for certain products in the Baxi range, see the table below. The Baxi uSense 2 Wired Smart Thermostat is compatible with all appliances using the 230 V switched live and also has OpenTherm and RBUS capability

<h2>Compatibility</h2>		
The Baxi uSense 2 Smart Room Thermostat is compatible with		
<ul style="list-style-type: none"> • All Baxi, Potterton & Main Combi boilers • Baxi Air Source Heat Pumps (ASHP). 		
An additional uSense 2 Gateway & Power Adapter Kit Accessory may also be required (see table below)		
Range	Baxi uSense 2 Part Number : 7775937	uSense 2 Gateway & Power Adapter Kit (sold seperately) Part Number : 7822453
Baxi 200 Combi 2 Ranges	✓	✗
Baxi 400 Combi 2 Ranges	✓	✗
Baxi 600 Combi 2 Ranges	✓	✗
Baxi 800 Combi 2 Ranges	✓	✗
Baxi Assure 500 Combi 2 Ranges	✓	✗
All other Baxi, Potterton & Main Combi Ranges	✓	✓
Baxi Split ASHP (Heat Pump)	✓	✗
Baxi Assure Mono ASHP (Heat Pump)	✓	✓
Baxi HP40 Mono 2 AWHP (Heat Pump)	✓	✗
Baxi Assure HP50 Mono 2 AWHP (Heat Pump)	✓	✗
<p>(i) Baxi uSense 2 is Boiler Plus Compliant <u>when</u> fitted via OpenTherm or RBUS connection.</p> <p>(ii) For multiple zones a Baxi uSense 2, Gateway & Power Adapter Kit is required for each zone.</p> <p>(iii) This control is NOT compatible with System or Heat Only Boilers.</p>		

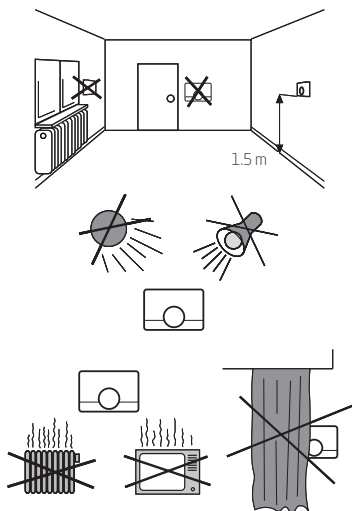
2. In the box



Gateway package:

- 1 The gateway
- 2 Installation guide
- 3 Screw and plug fixings
- 4 230 V power adaptor
- 5 Adhesive pad for power adaptor

3. Before you start



⚠ Warning: High Voltage wiring must only be installed and worked on by a suitably qualified person.

Wear appropriate Personal Protection Equipment e.g. protective gloves, safety footwear etc.

Positioning the uSense 2:

The room unit must be positioned taking into account the following factors:

- On an internal wall
- Away from draughts
- 1.2-1.5 m from the floor
- Not behind doors, bookcases or other objects
- Not in direct sunlight
- In a room where the user spends most of their time
- Away from heat sources (fireplace, radiators, light, candles, etc.)
- The maximum cable length from the gateway to the room unit is 50 m

Prior to installation make sure to:

- 1. Isolate the power to the heating and control system and make safe (remove or lock off fuse)**
- 2. Check that the power has been isolated using suitable test equipment**

4. Installation

The gateway

When connecting the gateway to an appliance that has an existing programmer and/or thermostat, it is essential that the function of all wiring is established prior to work. Make sure you identify the L (live), N (neutral), E (earth), common and call for heat switched live correctly before connecting. **Incorrect wiring will result in damage to the gateway, room unit and appliance which will invalidate the warranty.**

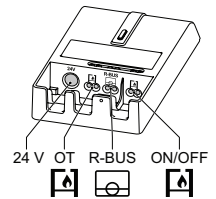
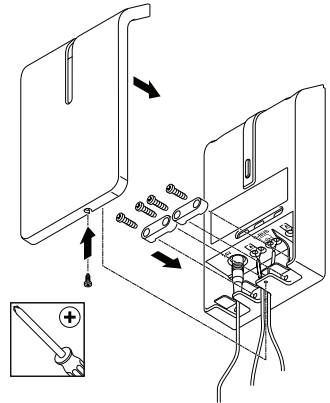
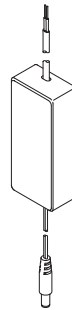
Fix the gateway in position

Determine the position of the gateway. It should be close to either the appliance or control system junction box. Make sure there is enough space around the gateway for installation and maintenance, including screwdriver access.

Run power to the gateway

Use the power adaptor supplied to connect the gateway to the L (live) and N (neutral) connectors on the appliance or junction box. Connect the plugged end of the power adaptor into the 24 V terminal on the gateway.

1. All cables must be supported
2. The power adaptor and wiring **must not** be inside the appliance
3. The power adaptor **must** be supported (adhesive pad is supplied for this)



Installation of 230V switched connection (See next page if using OpenTherm)

Connect the system control wiring to the gateway

Read in conjunction with the appliance installation and service manual

Gateway terminals - **ON/OFF**
are for 230 V switching

Gateway terminals - **OT** are for OpenTherm
connection to compatible appliances

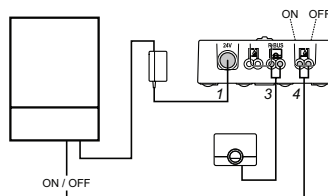
Gateway terminals - **R-BUS** are for
connection to the uSense room unit

**⚠ These components are low
voltage - 230 V will damage
the room unit and gateway.**

Please see diagram on page 7

To connect using the ON/OFF terminals

1. Connect the common from the appliance
or junction box to the **ON** terminal
on the gateway
2. Connect the switch live terminal or junction box
to the **OFF** terminal on the gateway
3. The cable used must be 0.75 mm multi strand
flexible cable conforming to BS 50525-2-11



- 1: 24V Power supply
3: Room unit
4: ON/OFF controlled appliance

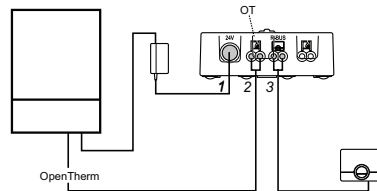
Installation of OpenTherm connections

To connect using the OT terminals

1. Connect the OpenTherm connectors on the appliance to the **OT** terminals on the gateway

⚠ **Do not connect 230 V to these terminals or it will damage the gateway**

2. These will communicate with the appliance to control the heating and other functions
3. These connections can be made using bell wire. There is no polarity at the OT terminals

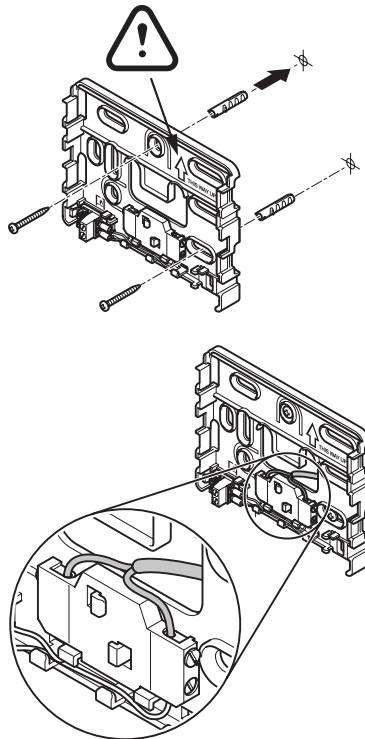


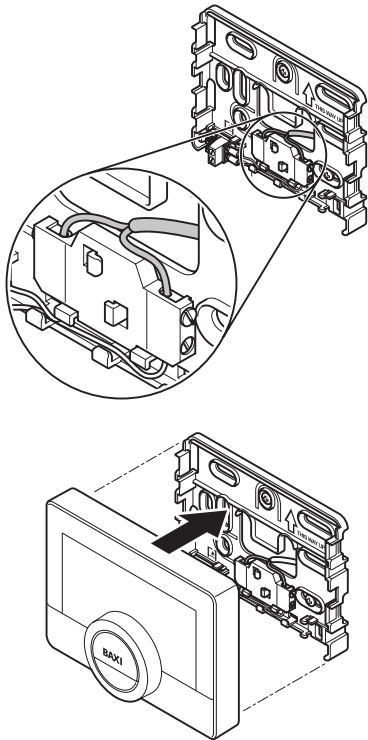
- 1: 24 V Power supply
- 2: OpenTherm controlled appliance
- 3: Room unit

To connect the gateway to the uSense 2 using the R-BUS terminals

1. Choose a suitable location for the uSense 2 thermostat (see Before you start section on page 5)
2. Remove existing thermostat (if applicable)
3. Fix the room unit backplate to the wall using the screws provided
4. Either use existing thermostat wires or run new wires from the gateway (there is no polarity - either wire can be connected to either position)
5. Trim the wires coming out of the wall, connect them into the connector block on the room unit backplate

continued opposite



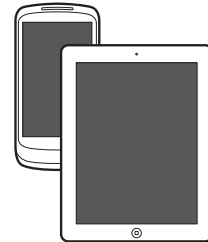


6. Slacken the screws at the sides of the connectors and insert each wire into the top at either side of the connector, then re-tighten the screws
7. Make sure the wires are as flat as possible against the back plate so that they do not interfere with the controller when it is mounted in position
8. Press the room unit onto the backplate until it clicks into place
9. Connect the other end of the wires to the **R-BUS** terminals in the gateway (there is no polarity - either wire can be connected to either position)
10. ⚠ **The connection between the room unit and gateway is low voltage, 230 V will damage the room unit and gateway!**

Set up the uSense 2 room unit

Before turning on the power to the gateway, room unit and heating system, preliminary electrical tests should be carried out.

1. These should be carried out using a suitable meter, and include checks for earth continuity, resistance to earth, short circuit and polarity
2. Turn on the power to the gateway and check that the gateway and room unit power up. See page 19 for LED key
3. Download the Baxi Thermostat App and create a uSense account



5. OpenTherm hot water control

The uSense 2 room unit will override the hot water temperature controls on your appliance (OpenTherm only).

1. The room unit will automatically default the hot water temperature to 60 °C when connected by OpenTherm
2. The room unit will automatically default the heating flow temperature to 80 °C when connected by OpenTherm
3. These settings can be adjusted to your required comfort level using the uSense 2 room unit only (the appliance controls and App can't adjust these settings when the room unit is connected with OpenTherm)

6. Outdoor sensor

Connecting to an outdoor sensor

If an outdoor sensor weather compensator is connected in conjunction with the uSense 2 (OpenTherm installations only) you can **ONLY** adjust the heating curve on the Baxi Thermostat App (you **CANNOT** adjust using the room unit or appliance controls).

1. Open the Baxi Thermostat App
2. Click on the installer menu
3. Click on advance settings
4. Enter service code 0012 **Remember to re-enter this code to disable installer access when you finish adjusting the heating curve**
5. You will see a message 'Your access level has been updated'
6. Click OK
7. Click on heating curve
8. Change the curve to suit the requirements of the user in accordance with the recommendations of the sensor manufacturer
9. Do not adjust any other settings in the Advanced Feature menu, as they may affect the correct operation of the appliance
10. Either completely close the App or re-enter the code to cancel the access level so that your customer can't adjust important settings

7. Technical specifications

uSense 2 room unit

Dimensions

Width x height x depth (maximum dimensions)	120 x 90 x 27 mm
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Power supply

R-Bus connection voltage	24 V \pm 5%
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Maximum power consumption	1.5 W
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Electrical connection

Maximum cable length for dedicated room unit R-Bus	50 m
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Ambient conditions

Storage temperature	25 - 70 °C
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Relative humidity	5 - 95 °C Condensation is not allowed
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Operating conditions	0 - 60 °C
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uSense 2 room unit

Technical data

Room temperature measurement range	5 - 60 °C
Maximum temperature deviation at 20 °C	0.3 °C
Maximum room control overshoot after pre-heating	1 °C
Temperature variation	+/- 0.25 °C
Outside temperature	Refer to appliance documentation
Temperature control area	10 - 30 °C

Compliant with standards:

EMC: 108/2004/EC, EN 55022, 55014

Immunity: EN2-6-61000

EN2-6-61000 (EMC part 6.2 generic standards)

ETSI-EN 17-489 301 (electromagnetic compatibility and radio spectrum matters)

R&TTE Directive 5/1999/EC

EN 1-60950 (ITE - Safety - Part 1: general requirements)

Low voltage directive (95/2006/EC)

WEEE directive (96/2002/EC) (disposal requirements)

Drop test: IEC 32-2-60068

Protection classification: IP22

ErP Fiche Information**On modulating
appliance****On modulating
appliance, with
outdoor sensor****On On/Off
appliance**

Class

V

VI

IV

Contribution to space heating
energy efficiency

3%

4%

2%

Gateway

Temperature	
Input	24 V, 4 W
R-BUS	24 V, 100 mA
ON/OFF	Max. 70 W 30 VDC 230 VAC
OpenTherm	4.0 compliant
Temperature	0 °C - 60 °C
Insulation class	IP21

8. Gateway LED key

The LED on the gateway indicates the following modes and faults:



Starting up



Gateway in operation



No appliance detected (check connections and wiring)



No room unit detected (check connections and wiring)



Internal error (turn all power off, reinstate and perform setting procedure again)

For technical support call 0344 871 1545

For tech support

 0344 871 1545

Opening hours

Monday - Friday, 8.00am-6.00pm

Weekends and Bank Holidays, 8.30am-2.00pm

Please note calls may be recorded for training and monitoring purposes



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