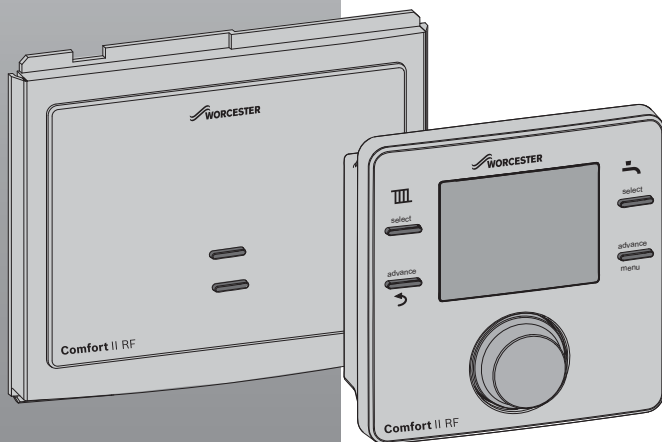# Installation and operating instructions

Radio Frequency Twin Channel Programmable Room Thermostat and Receiver

Greenstar Comfort II RF

For EMS compatible Worcester Greenstar condensing boilers

6720810965-00.1Wo

UK/IE

WORCESTER

Bosch Group

Contents

1 Key to symbols and safety instructions

1.1 Key to symbols

Warnings

⚠	Warnings in this document are identified by a warning triangle printed against a grey background. Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

- **NOTICE** indicates a situation that could result in damage to property or equipment.
- **CAUTION** indicates a situation that could result in minor to medium injury.
- **WARNING** indicates a situation that could result in severe injury or death.
- **DANGER** indicates a situation that will result in severe injury or death.

Important information

ℹ	This symbol indicates important information where there is no risk to people or property.

Additional symbols

Symbol	Explanation
▶	Step in an action sequence
→	Cross-reference to another part of the document
•	List entry
–	List entry (second level)

Abbreviations

CH	=	Central Heating
DHW	=	Domestic Hot Water
RF	=	Radio Frequency
DST	=	Daylight Savings Time
BST	=	British Summer Time
GMT	=	Greenwich mean time
RPB	=	Rotary Push Button

Definitions (DST/BST)

Daylight Saving Time (DST) and British Summer Time (BST) begins on the last Sunday in March at 1:00am GMT and clocks are put forward by one hour.
British Summer Time (BST) ends on the last Sunday in October at 2:00am BST and the clocks are put back by one hour.

1.2 General safety instructions

These installation instructions are intended for heating engineers, and electricians.

- ▶ Read any installation instructions (boiler, heating controls, etc.) carefully before starting the installation.
- ▶ Observe the safety instructions and warnings.
- ▶ Observe national and regional regulations, technical rules and guidelines.
- ▶ Record all work carried out.

Appliance operation

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision. (BS EN 60335-1 2012)

Installation, commissioning and servicing

Installation, commissioning and servicing must only be carried out by a competent engineer.

- ▶ Only use original spares.

Electrical work

Electrical work must only be carried out by a qualified electrician.

- ▶ Before starting electrical work:
  - Isolate the mains electrical supply and secure against unintentional re-connection.
  - Check for zero voltage.
- ▶ Also observe connection diagrams of other system components.

Handover to the user

When handing over, instruct the user how to operate the heating system and inform him about its operating conditions.

- ▶ Explain how to operate the heating system and draw the user's attention to any safety-relevant action.
- ▶ Explain that modifications and repairs must only be carried out by an authorised contractor.
- ▶ Advise the user to have the system serviced annually by a competent engineer.
- ▶ Leave the this instruction manual with the user or at the appliance.

2 Comfort II RF

The Comfort II RF comprises a wall mounted twin channel RF programmable room thermostat and a boiler or wall mounted RF receiver.

2.1 Programmable room thermostat

The wall mounted unit is a twin channel RF Programmable room thermostat. The Programmable room thermostat is for central heating and hot water control with modulating/enhanced load compensating boiler regulation. Up to six time and temperature periods can be set to control central heating as well as up to three ON and Off times to control hot water.

This enhance load compensating function enables an intelligent conversation with the boiler to achieve the desired room temperature in the most efficient way possible. To help save the customer money by burning less fuel, and to minimise room temperature "overshoot" the boilers burner may stop firing just prior to the desired room temperature being reached. This behaviour including reduced radiator temperature is perfectly normal. The customer should simply set a temperature on the thermostat that they are comfortable with and allow the room thermostat and boiler to do their work.

All programming and adjustment is conveniently done from the Programmable room thermostat making the Comfort II RF an excellent solution if your boiler is not easily accessible.

The unit has user and installer menus to allow the setting of the temperatures, time programs, monitoring of system information, setting current time/date, daylight savings, maintenance schedules, and pairing the device with the Receiver.
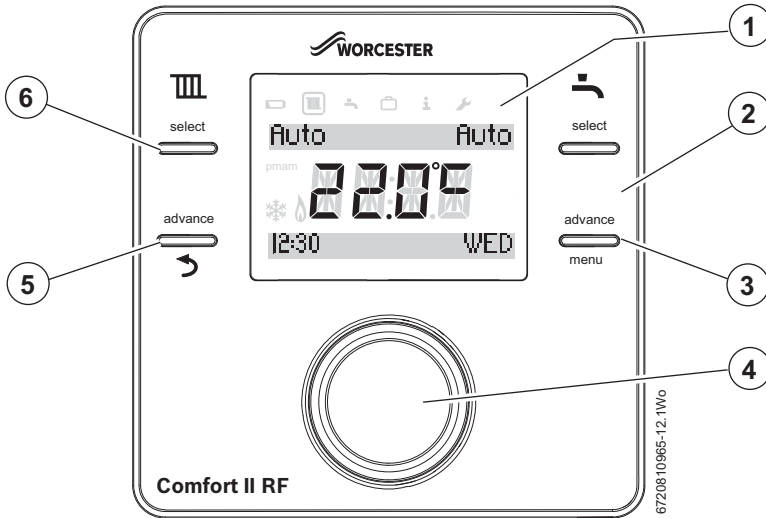
Fig. 1   Programmable room thermostat

1	Display	Temperature, time, date, CH and HW program selection, fault codes, menu symbols and operational symbols
2	Hot water program selection	ON, OFF, AUTO, ONCE
3	Hot water (HW) program advance button / user menu selection button	Only functional in AUTO mode. Pressed once, advances the timer to the next programmed ON or OFF time, pressed again, returns to the current program. Hold the button down for more than 3 seconds to enter the user menu program
4	Rotary push button knob	Turn or press to select or confirm settings
5	Central heating program advance button / Back button	Only functional in AUTO mode. Pressed once, advances the timer to the next programmed ON or OFF time, pressed again, returns to the current program. When in the menu functions this button return to next higher level
6	Cental heating program selection	ON, OFF, AUTO

2.2 Receiver

This unit is only used in conjunction with the Programmable room thermostat.

The unit can be mounted in the boiler fascia, refer to your boiler Installation, Commissioning and Servicing instruction manual for fitting instructions.

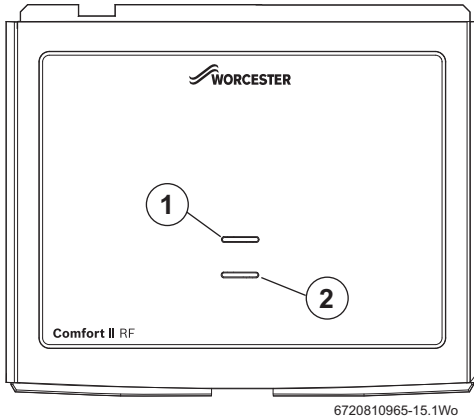The unit can also be wall mounted and hard-wired to the boiler via the EMS BUS connections.

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Fig. 2

[1]   Fault indicator/Pairing indicator
[2]   Override button/Pairing button

3 Comfort II RF installation

⚠ **CAUTION:** Mains supplies
▶ Isolate the mains supplies to the boiler before starting any work, and follow all relevant safety precautions

Refer to the boiler's Installation, Commissioning and Servicing instruction manual for information on the boiler.

Refer to this manual for detailed information on installing and using the Comfort II RF.

A brief overview of the Comfort II RF installation procedure is listed below:

▶ Isolate the boiler
▶ Remove any panels or casings required to gain access to the control panel
▶ Mount the Receiver (boiler fascia or a suitable wall location using the optional Wall Mounting Plate Kit, this will require wiring between the boiler EMS BUS connections and Wall Mounting Plate)
▶ Turn the boiler on
▶ Insert batteries in the Programmable Room thermostat

▶ Set time and date on the Programmable room thermostat
▶ The units will automatically connect to each other
▶ Ensure that the signal strength is adequate at the Programmable room thermostat before mounting in a suitable reference room → Section 5.1.4 Info - Signal strength on page 12

The Comfort II RF Programmable room thermostat consists of two units: the Receiver that mounts into the boiler fascia or, with an optional wall mounting kit, onto the wall and the Programmable room thermostat which mounts on a wall in a suitable reference room

3.1 Receiver mounting

There are two methods of mounting the Receiver:

· In the boiler fascia
· On the wall (optional wall mounting kit 7 733 600 039) If your boiler is mounted remotely i.e. in the loft or an outbuilding, you may want the Receiver to be conveniently located for easy access

Boiler fascia mounted

Refer to your boiler's Installation, Commissioning and Serving instruction manual for mounting the Receiver into the boiler fascia.

Wall mounted

Choose a convenient wall location, approximately 1.2 metres from the floor, to mount the Timer.

The Receiver is a radio frequency (RF) device and as such is flexible for positioning.

EMS connection

⚠ **NOTICE: EMS Connections**
▶ **The Programmer must NOT be connected to the boiler's 230 volt supply or an external 230 volt supply.**

ℹ ▶ Ensure that the EMS cable is at least 100mm away from any power cables to eliminate any mains interference
▶ EMS connections are not polarity sensitive

Run a two core cable from the boiler to the Receiver location. Use an electrical cable with a minimum rating of H05VV-F.

For cable runs up to:

▶ 100 metres, use $0.50mm^2$ conductor cross sectional area
▶ 300 metres, use $1.5mm^2$ conductor cross sectional area

Connect the cable to the EMS bus point connections on the boiler control circuit board, refer to the Installation, Commissioning and Servicing instruction manual for your boiler to locate the EMS connections.

Optional wall mounting kit

	The Comfort II RF connects to your boiler's EMS BUS connections only, on an edge connector identified either with **B B** or ⬛ **EMS** .

Using the wall plate as a template, mark the position of the mounting screws.

The optional wall mounting kit contains:
- 2 x countersunk screws
- 2 x plastic wall plugs
- Wall plate
- Top retainer

▶ Drill two holes to suit the size and depth of the wall plugs
▶ Fit the wall plugs
▶ Feed the two core cable through the back of the wall plate
▶ Fit the wall plate [1], ensuring that it is level and tighten the screws to secure
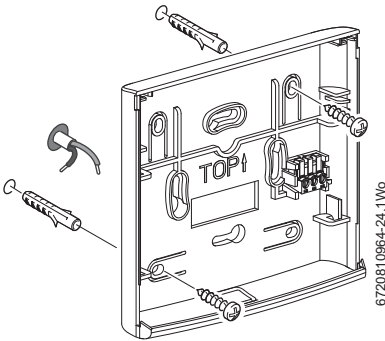▶ Connect the two core cable to the terminal block, one core to each outer connection, ignore the middle connection

Fig. 3   Receiver wall plate mounting

▶ Engage the four clips on the back of the Receiver [2] with the four slots on the wall plate as shown in figure 4
▶ Push the Receiver down into the body of the wall plate to secure
▶ Engage the tabs on the top retainer [3] into the slots on the wall plate [1] and push down onto the Receiver to secure
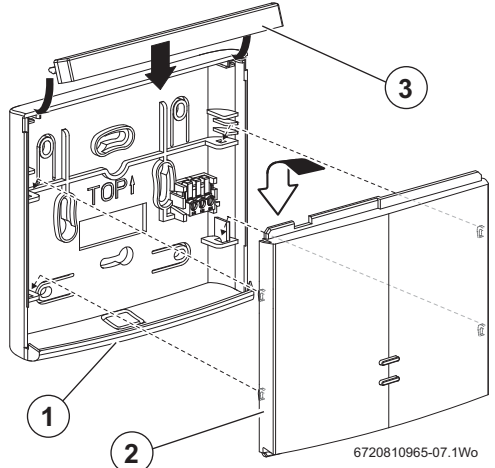
Fig. 4   Fitting the Receiver to wall plate assembly

3.2   Programmable room thermostat mounting

The Programmable room thermostat is a radio frequency device and as such is flexible for positioning, there is no requirement to hard wire the device.

The thermostat requires free air flow and should be mounted in an open area and not obscured by curtains or furniture. The thermostat should be mounted no closer than 300mm to metal objects, including metal wall boxes.

Mount the thermostat on a wall that is not subject to direct sunlight or draughts, preferably on an inside wall at 1.2 metres above the floor.

The thermostat must not be directly influenced by radiators or other appliances giving off heat, such as televisions or table lamps.

Fig. 5   Device location

Wall mounting plate

To remove the wall mounting plate:

1. Insert a suitable flat bladed screwdriver into the slot on the bottom edge of the thermostat
2. Twist the screwdriver gently until the bottom catch is released.
3. Remove the wall plate from the programmable room thermostat.

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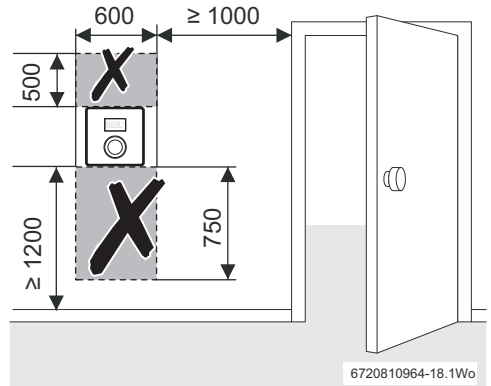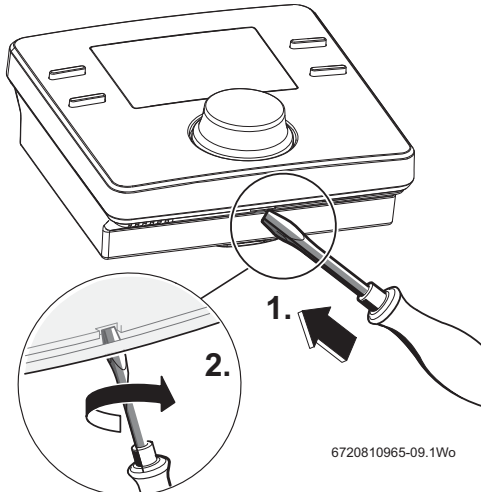
Fig. 7   Wall plate mounting

Fitting the batteries

> ℹ️ Ensure that the batteries are the correct type (LR6/AA) and oriented as shown in figure 8

▶ Insert the batteries ensuring that the positive **+** end of the battery is inserted into the positive **+** terminal of the holder.

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Fig. 6   Remove back plate

Wall mounting

Before mounting the room Programmable room thermostat on the wall, it is good practice to find a position that affords good signal strength.

If the signal strength is low, try another position in that room until the best possible signal strength is obtained, refer to section 5.1 to enter the User menu and then the paragraph **Signal strength** in section 5.1.4.

Using the wall plate as a template, mark the position of the mounting screws.

The wall mounting kit provided with the Programmable room thermostat contains:

· 2 x countersunk screws
· 2 x plastic wall plugs
▶ Drill two holes to suit the size and depth of the wall plugs
▶ Fit the wall plugs
▶ Fit the screws, but leave a sufficient amount proud to allow the wall plate to be fitted over the screw heads
▶ Fit the wall plate, ensuring that it is level and tighten the screws to secure

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Fig. 8   Fitting the batteries

▶ Fit the thermostat to the wall plate, locating the catches [1] on the top edge and then snap the bottom edge into place

3.3   Date and time set up

▶ Turn the boiler ON

> ℹ️ **The Programmable Room thermostat and Receiver are factory set and "Paired" to each other, so that they are fully operational.**

The Programmable room thermostat will initially display an error code A21 "No wireless signal to EMS interface", refer to chapter 7 for information on fault codes.

When they have established RF communications with each other, the display will revert to a factory default time and date with the control in "Auto" mode for both heating and hot water.

The Programmable room thermostat will display the current room temperature.

i	**Set the current time and date** ▶ Hold the menu button down for more than 3 seconds to enter the user menu, turn the knob to select Settings and press to enter ▶ Refer to section 5.1.5 **Settings - Time/ Date** for setting the Time and Date, and clock format

3.4 Pairing/Unpairing the units

i	**The Programmable room thermostat and Receiver are delivered together and are factory paired, they automatically connect when the system is switched on. There is no need to pair/unpair the units during installation, unless there is a problem with one or both the units**. If a faulty unit is replaced with a new unit, then the existing unit must be unpaired before the two units can be paired. If the units have to be paired/unpaired, all units must be in the same pairing/unpairing mode.

3.4.1 Programmable room thermostat - Installer menu - Radio settings - Pairing/Unpairing mode

The Programmable room thermostat Pairing/Unpairing function is found under the Installer menu, in Radio settings and Pair.

To enter the Installer menu, press the menu button and return button for more than three seconds.

Six icons are shown across the top of the display:

1. Heating 🔲

2. Hot water 🔲

3. Holiday 🔲

4. Info 🔲

5. Settings 🔧

6. Installer setting 🔧

Turn the knob to select the Installer icon 🔧 and press the knob to enter the function.

▶ Turn the knob to select **Radio settings**

▶ Press the knob to display **Pairing**, that is RF pairing of the devices in the system

▶ Turn the knob to display **Unpairing** or **Pairing**

▶ If **Pairing** is chosen, press the knob and pairing is displayed with advancing dashes, when the pairing is completed a number is displayed confirming the number of Programmable room thermostats connected, typically one unit.

▶ If **Unpairing** is chosen, press the knob and **Unpairing** is displayed with advancing dashes, when the unpairing is completed a 0 is displayed confirming that the Programmable room thermostat has been disconnected

3.4.2 Receiver - Pair/Unpair

With the Programmable room thermostat in the pairing mode, press the override push button on the Receiver for more than five seconds but less than 10 to enter the pairing mode. The LED with flash two quarter second flashes at the beginning of a five second period to indicate the pairing function.

With the Programmable room thermostat in the unpairing mode, press the override push button on the Receiver for more than 10 seconds to enter the unpairing mode. The LED will flash five quarter second flashes at he beginning of a five second period to indicate the unpairing function.

4 Operation

The Programmable room thermostat is supplied with factory set default CH times and temperature periods and DHW ON and OFF times that are shown in the table below. These settings can be reset according to the homeowner's requirements via the User menu function on the Programmable room thermostat, → section 5.1. The times and temperatures can be reset to the factory setting via the User menu → section 5.1.5. Settings - Reset all.

	06:30	08:30	16:30	22:30
CH	1st	2nd	3rd	4th
CH TEMP	20 °C	16 °C	21 °C	10 °C
DHW	ON	OFF	ON	OFF

4.1 Normal operation

During normal operation the display shows:
- current room temperature
- the operational modes of the central heating and hot water
- the current time and day, with am or pm for the 12 hour time format are displayed when the screen is back lit, but are not displayed when the screen dims after 20 seconds of inactivity

Low battery

A battery symbol indicates the batteries require replacing, refer to section 9.1

Burner ON indicator

The symbol is shown when the boiler is firing and heating up, there can be up to a six minute delay between the boiler indication and the programmer display.

Low RF signal strength

The **A21** fault code indicates no RF signal, refer to section 5.2 Installer/Radio settings and section 6.2 Pairing/Unpairing.

4.2   Programmable room thermostat

During normal operation the display shows:

• the operational mode for the central heating, are either **ON**, **OFF**, **AUTO**, or **ADV** press the Central heating **select** button to choose either:
  – **ON** = heating is permanently on
  – **OFF** = heating is permanently off
  – **AUTO** = programmed times and temperatures for heating
• In the Auto mode, press the Advance button once to move to the next on or off time, press for a second time to return to the current programme
• the operational modes for the hot water, are either **ON**, **OFF**, **ONCE, AUTO** or **ADV**, press the **HW** select button to choose either:
  – **ON** = hot water is permanently on
  – **OFF** = hot water is permanently off
  – **ONCE** = hot water is on from the first programmed on time to the last programmed off time
  – **AUTO** = programmed times for hot water
• In the Auto mode, press the Advance button once to move to the next on or off time, press for a second time to return to the current programme
• the current time and day,
• am or pm for the 12 hour time format
• Graphical indication of the current time/temperature settings, the black markers indicate half hour time periods, and the height of the markers gives an approximation of the temperature setting. The flashing black marker indicates the current time position in the programmed sequence.
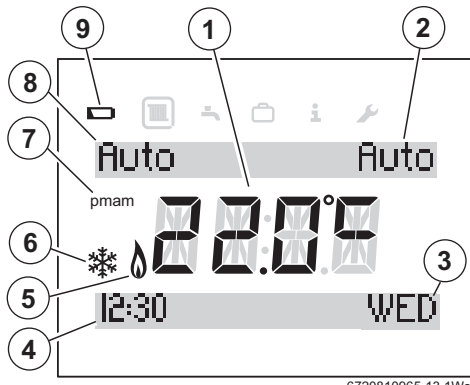

Fig. 9   Display elements

1. Current room temperature
2. HW operational status
3. Current day
4. Current time

5. Burner ON - display when boiler is heating (can be up to 6 minutes delay)
6. Frost protection - displayed when boiler is set to OFF
7. am or pm indication when in the 12 hour clock format
8. Central heating operational status
9. Battery condition indicator

4.2.1   Room temperature indication in Auto mode

When the Programmable room thermostat is in the **Auto** mode, pressing the knob once and releasing will display the current desired room temperature setting, and also when the next temperature increase time is scheduled. The example shown below indicates that the room temperature is 15 ℃ until 16:30 (4:30pm).

Fig. 10   Heating

4.2.2   Room temperature indication in the On mode

When the Programmable room thermostat is in the **On** mode, pressing the knob once and releasing will display "Permanently" and the temperature that is permanently set.
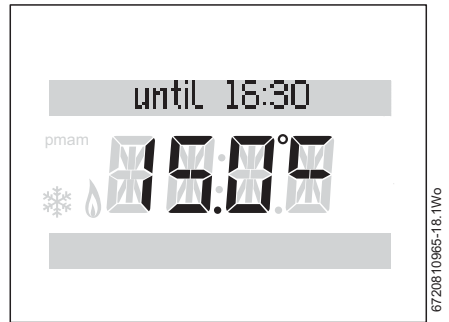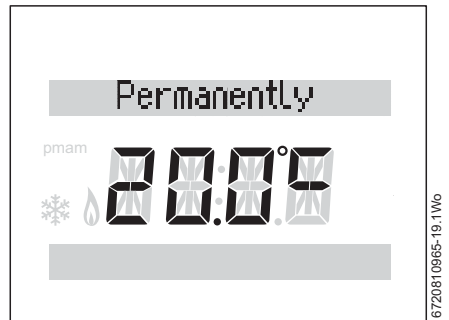

Fig. 11   Permanently ON

4.2.3   Room temperature indication in the Off mode

When the Programmable room thermostat is in the **Off** mode, pressing the knob once and releasing will display "Permanently"and the temperature of 5 ℃.

After three seconds the display will revert back to show the actual room temperature and also the frost symbol indicating

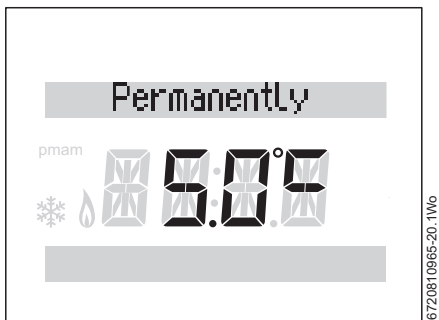that if the room temperature goes below 5 ℃ the boiler will come on and maintain that temperature to prevent freezing.

Fig. 12   Permanently OFF

4.2.4 Setting a new room temperature

Under normal operation the display shows the current room temperature.

When the **Auto** or **On** mode, turn the knob anti-clockwise to decrease the temperature or clockwise to increase. The new temperature setting will flash for three seconds.

The display will briefly show the new temperature up to the next time period change.

Fig. 13   Set target temperature

5   Programmable room thermostat settings

There are two levels of settings:

1. User
2. Installer

5.1   User

Press the menu button for more than three seconds to enter the User setting area of the Timer/programmer.

Five icons are shown across the top of the display:

1. Heating (CH) 🖵
2. Hot Water (HW) 🖵

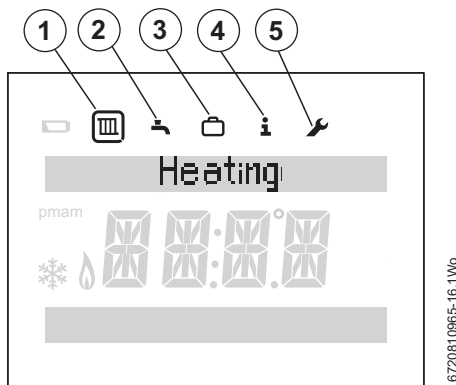3. Holiday 🖵
4. Info 🖵
5. Settings 🖵

Fig. 14   User menu

Turn the knob to select an icon, the icon is encircled to confirm the selection, and press the knob to enter that section.

> ℹ The display will dim after 20 seconds of inactivity and remain dimmed until a button is pressed or the knob is turned/pressed. After 60 seconds of inactivity the display will return to normal operation.

5.1.1 Heating 🖵

The top line of the display shows the words Time programs plus flashing arrow heads at each end, this indicates that there are more programs available:

1. Time programs

Time programs

Select **Time programs** with the knob, and press to enter. Press the Return button ↩ at any time to return to the previous higher level.

In the Time program you can set up to 6 time and temperature periods for CH.

Using the knob you can select various combinations of days, for example:

▶ Mon to Fri
▶ Sat and Sun
▶ Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday

Whether you choose to set the same times for Monday to Friday and different times for Saturday and Sunday or set times for individual days the setting operation is the same.

▶ Select the desired day(s) using the knob
▶ Press the knob to select **Time setting 1**, this should be the first on time in the morning

- The hours flash, turn the knob to select the hours setting
- Press the knob to confirm
- The minutes flash, turn the knob to select the minutes
- Press the knob to confirm
- **Temp. setting 1** flashes, this will be the temperature that is comfortable for your home during the first time period
- Turn the knob to set the required temperature and press the knob to confirm
- **Time setting 2** hours flash, this will be the time that you want the temperature set lower, maybe while the house is unoccupied
- Turn the knob to select the hours setting and press the knob to confirm
- The minutes flash, turn the knob to select the minutes and press the knob to confirm
- Press the knob to confirm
- **Temp. setting 2** flashes, this will be the temperature that is set for the second time period, this should be the lowest temperature that you want the house to be at while it is unoccupied
- Turn the knob to set the required temperature and press the knob to confirm
- **Time setting 3** hours flash, this will be the time that the temperature is set to another value, maybe higher because the house is occupied now for the afternoon/evening and you would like your heating on
- Repeat the process to set the hours and minutes for **Time setting 3**
- **Temp. setting 3** flashes, this will be the temperature that is set for the third time period, this should be the temperature that you want the house to be at during the afternoon/evening when the house is occupied
- Repeat the process to set to set the required temperature for **Temp. setting 3**
- **Time setting 4** hours flash, this will be the time that the temperature is set to another value, maybe lower for the night time period
- Repeat the process to set the hours and minutes for **Time setting 4**
- **Temp. setting 4** flashes, this will be the temperature that is set for the fourth time period, this should be the temperature that you want the house to cool down to during the night
- Repeat the process to set to set the required temperature for **Temp. setting 4**
- If you require time and temperature settings, repeat the whole process for the **Time settings 5, 6** and **Temp. setting 5**

> **i** If the **Time settings 5 and 6** are not required, at the end of **Temp. setting 4** repeatedly press the knob to cycle through the third period without making any settings.

If after setting the time periods 5 and 6 you decide that you no longer require it and wish to disable it, follow these steps:

- In the Time program, cycle through time periods by just pressing the knob to accept the time and temperature setting until you reach time setting 5
- Turn the knob to set the flashing hours to 00
- Press to accept and the minutes flash
- Turn the knob clockwise to 00 and then the display changes to just dashes and time period 5 is disabled
- Repeat this process for temperature setting 5 and time setting 6

5.1.2 HW 🔲 (Hot water)

The top line of the display shows the words Time programs plus flashing arrow heads at each end, this indicates that there are more programs:

1. Time programs

This Time program is used to set your required ON and OFF times for the hot water. The Programmer has default time settings as shown below:

	06:30	08:30	16:30	22:30
DHW	ON	OFF	ON	OFF

Time programs

Select DHW programs with the knob, and press to enter.

In the DHW program you can select ON and OFF times for the hot water heating, there are three ON and three OFF programs. Using the knob you can select various combinations of days or individual days:

- Mon to Fri
- Sat and Sun
- Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday

Whether you choose to set the same times for Monday to Friday and different times for Saturday and Sunday or set times for individual days the setting operation is the same.

- Select the desired day(s) using the knob
- Press the knob to select the first DHW **ON** setting
- The hours flash
- Turn the knob to select the desired hours setting
- Press the knob to confirm
- The minutes flash
- Turn the knob to select the desired minutes
- Press the knob to confirm
- The first DHW **OFF** hours flash
- Turn the knob to select the desired hours setting

- ▶ Press the knob to confirm
- ▶ The minutes flash
- ▶ Turn the knob to select the desired minutes
- ▶ Press the knob to confirm
- ▶ Now the second DHW **ON** hours flash
- ▶ Repeat the process to set the hours and minutes for the seconding DHW **ON** times
- ▶ Repeat the process for the second DHW **OFF** times

> **i** If the third DHW period is not required repeatedly press the knob to cycle through the third period without making any settings.

- ▶ Repeat the whole process for the third DHW **ON** and **OFF** times, if required

If after setting the third DHW time period you decide that you no longer require it and wish to disable it, follow these steps:

- ▶ In the Time program, cycle through DHW time periods 1 and 2 by just pressing the knob to accept the time setting until you reach period 3
- ▶ Turn the knob to set the flashing hours to 00
- ▶ Press to accept and the minutes flash
- ▶ Turn the knob clockwise to 00 and then the display changes to just dashes and period 3 is disabled

5.1.3 Holiday function 🗔

Turn the knob to select the **Holiday** function

- ▶ Press the knob to enter the program and **OFF** is displayed
- ▶ Press the knob and **OFF** flashes
- ▶ If **ON** is selected and the knob pressed, two day/months selections are displayed and the first day of the holiday period flashes
- ▶ Turn the knob to select the desired day
- ▶ Press the knob to confirm the month now flashes
- ▶ Turn the knob to select the desired month
- ▶ Press the knob to confirm
- ▶ Now the last day of the holiday period flashes
- ▶ Turn the knob to select the desired day
- ▶ Press the knob to confirm and the month now flashes
- ▶ Turn the knob to select the desired month
- ▶ Press the knob to confirm
- ▶ **Holiday** will be displayed when the function is active
- ▶ Press the Return button to leave the program after setting.

When the Holiday function is set, via this program, the function will become active at midnight of the day set and inactive at midnight on the last day set.

During the holiday period the hot water and CH functions are off and will return to normal operation at the end of the holiday period. The Frost symbol will be displayed, indicating that the boiler is OFF but is protected when the temperature falls below 5 °C.

To cancel the holiday function:

- ▶ Press the menu key for more than three seconds to enter user menus and select **Holiday, ON** will be displayed.
- ▶ Press the knob and **ON** flashes, turn the knob to select **OFF**
- ▶ Press the knob to confirm **OFF**
- ▶ Press the return button ↩ to go back to the normal display

5.1.4 Info ⓘ

Turn the knob to select **Info** and press the knob, two menus are available:

1. DHW
2. Signal strength

DHW

1. Turn the knob to select **DHW** and press to enter. The current temperature of the DHW is displayed:

a. Actual temp

- ▶ Press the Return button to go back to **DHW**

Signal strength

Turn the knob to select **Signal strength** and press the knob to enter the function.

The signal strength is displayed as a number from 0 to 10 in the area where the temperature is normally displayed.

0	=	no signal
1 - 3	=	weak signal
4 - 6	=	acceptable signal
7 - 10	=	very good signal

5.1.5 Setting 🔧

- ▶ Turn the knob to select **Settings** and press to enter the function. Three sub programs are displayed:

1. Language
2. Time/date
3. Format
4. Reset all

1. Language

This function allows you to choose the language used by the Programmer, by default is set to English (EN).

- ▶ Turn the knob to select language, EN flashes, select either:
  - – EN (English)
  - – NL (Dutch)
  - – dE (German)
- ▶ Press the knob to confirm the desired language

2. Time/Date

This function allows the current time and date to be set, this would be used on initial set up of the Programmer or if the time and date were lost due to the boiler being switched off for an extended period of time.

Turn the knob to select **Time/date** and press to enter the function:

- ▶ Press the knob to select clock time
- ▶ Press the knob and the hours flash
- ▶ Turn the knob to select the correct hour
- ▶ Press the knob to confirm the selection and minutes flash
- ▶ Turn the knob to select the correct minutes
- ▶ Press the knob to confirm the selection
- ▶ Turn the knob to display the date set up
- ▶ Press the knob to select the function, the day flashes
- ▶ Turn the knob to select the correct day
- ▶ Press the knob to confirm the correct day and the month flashes
- ▶ Turn the knob to select the correct month
- ▶ Press the knob to confirm and the year flashes
- ▶ Turn the knob to select the correct year
- ▶ Press the knob to confirm to set the year
- ▶ Turn the knob to display the **DST** (Daylight savings time)
- ▶ Press the knob and **ON** flashes
- ▶ Turn the knob to select **ON** or **OFF**
- ▶ Press the knob to confirm the selection
- ▶ Press the return button ⤺ to go back to **Time/date** and turn the knob to select **Format**

3. Format

Press the knob to enter the format function and the following sub menus are available:

1. Date format
2. Time format
3. Sensor calib.
4. Contrast

Date format

This function allows you to change the way the date is displayed, by default the format is DD.MM.YYYY. Once the date and time have been set the date format can be set:

- ▶ Turn the knob to select the **Date format** function
- ▶ Press the knob to show the date format flashing
- ▶ Turn the knob to select either:
- ▶ DD.MM.YYYY
- ▶ MM/DD/YYYY
- ▶ When the desired format for the date has been selected, press the knob to confirm and wait a few seconds for the display to return to **Date format**

Time format

- ▶ Turn the knob to select **Time format**
- ▶ Press the knob and the time format is displayed flashing
- ▶ Turn the knob to select either:
  - – 12 hour

  - – 24 hour
- ▶ Press the knob to confirm once the choice has been made
- ▶ When the desired format has been selected, turn the knob to display **Sensor calib.**

Sensor calib.

If it is suspected that the temperature display is off by a few degrees and if there is a precision temperature gauge/meter available, the display can be offset by ± 5 ℃ to compensate. The default value is 0.0 ℃.

- ▶ Press the knob to enter the temperature offset function, the offset value is displayed, by default it is 0.0 ℃.
- ▶ Press the knob and the display flashes.
- ▶ Turn the knob to adjust the temperature offset, between -3 and +3 ℃.
- ▶ Press the knob to confirm the desired setting
- ▶ When the desired format has been selected, turn the knob to display **Contrast**

Contrast

- ▶ Press the knob to select **Contrast**, this function allows you to adjust the contrast of the screen, by default it is set to 10
- ▶ Press the knob to select **Contrast**
- ▶ The current contrast flashes
- ▶ Turn the knob to select from 0 to 20 the desired level of contrast
- ▶ Press the knob to confirm

Press the return button at any time to return to the next higher level, you can keep pressing the return button until you return to the normal display.

4. Reset all

Turn the knob to select **Reset all**, this function will reset all the Programmable Room thermostat user settings back to the factory default settings.
Any customised ON /OFF times and temperatures for heating or ON/OFF times for hot water or any other customised settings will have to be re-entered.
Any default settings are described at the beginning of the functional descriptions.
Turn the knob to select **Reset all**

- ▶ Press the knob and NO flashes
- ▶ If a reset is required turn the knob to select YES
- ▶ Press the knob to confirm
- ▶ Dashes progress across the screen until four are displayed briefly, then the display reverts to just showing **Reset all**

The Programmable room thermostat will be reset to factory default settings, as shown in the table below, any customised times for heating or hot water will have to be re-entered.

	06:30	08:30	16:30	22:30
CH	1st	2nd	3rd	4th
CH TEMP	20 ℃	16 ℃	21 ℃	10 ℃
DHW	ON	OFF	ON	OFF

5.2 Installer

These functions are only used by the installer/service engineer and are useful during both installation of the Comfort II RF to make adjustment to suit the heating system; during an annual service/inspection, or to assist with fault finding.

Press the menu button and return button for more than three seconds to enter the Installer setting area of the programmer.

Six icons are shown across the top of the display:

1. Heating (CH) [⊞]
2. Hot Water (HW) [🔧]
3. Holiday [📁]
4. Info [ℹ]
5. Settings [🔧]
6. Installer setting [⚒]

Selections 1 to 5 are the same as the Timer / programmer user menu, → section 5.1.

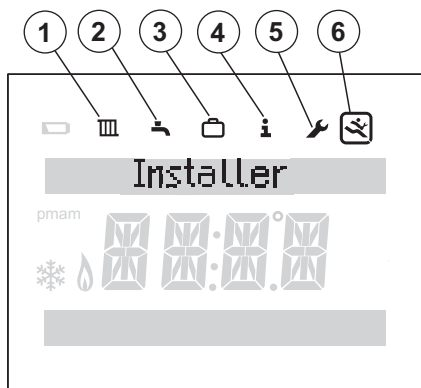Turn the knob to select the Installer icon [⚒] and press the knob to enter the function.

Fig. 15   Installer menu

Installer settings menu options

1. System data
2. Reset all
3. Heat circuit
4. Maintenance
5. System info
6. Radio settings

The menu options are displayed on the top line with flashing left and right arrows heads, indicating that there are other menu options available. Turning the knob will select each option in turn, eventually returning to the first option.

1. System data

▶ Turn the knob to select **System data**
▶ Press the knob to enter **System data** and **HC assignment** is displayed
▶ The display show the number **1**
▶ This indicates that there is only one heat circuit
▶ Press the Return button to go back to **System data**

2. Reset all

The Programmer Installer menus will be reset to factory default settings, any default settings are described at the beginning of the functional descriptions.

▶ Turn the knob to select **Reset all**
▶ Press the knob and **NO** flashes
▶ Turn the knob to select **NO** or **YES**
▶ Press the knob to confirm, if **YES** is chosen all menus within the Installer menu are reset back to default settings, four dashes progress across the display until the reset has taken place,
if **NO** is chosen, no reset takes place

3. Heat circuit

This function allows the Installer/Service engineer to set the maximum flow temperature for the central heating circuit to potentially increase the efficiency of the heating system, the default value is 85 ℃.

▶ Turn the knob to select **Heat circuit**
▶ Press the knob to display **Max flow** in ℃
▶ Press the knob and the temperature flashes
▶ Turn the knob to set the desired temperature for your system design requirements
▶ Press the knob to confirm
▶ Press the Return button to go back to **Heat circuit**

3. Maintenance

a. Fault history
   – Boiler faults
   – Cont. faults
b. Landlord func.
   – Maint. date
   – Maint. contact

a. Fault history

▶ Press the knob and **Boiler. faults** is displayed.
Boiler faults are displayed here and at the boiler, the Programmable Room thermostat may be located remotely from the boiler, so viewing the boiler faults at the Programmable Room thermostat may be useful

▶ Press the knob and the first of five faults is displayed with the fault code and occurrence date. The fault screens can be scrolled through using the knob. If no faults have occurred, the text **No fault** will be displayed

▶ Press the Return button to go back to **Boiler faults**

▶ Turn the knob and **Cont. faults** is displayed

▶ Press the knob and the first of five faults is displayed with the fault code and occurrence date. The fault screens can be scrolled through using the knob. If no faults have occurred, the text **No fault** will be displayed

▶ Press the Return button ↪ to go back to **Cont. faults**

▶ Or press the Return button ↪ again to go back to **Fault History**

▶ Turn the knob to select **Landlord func.** or press the Return button ↪ go back to **Maintenance**

b. Landlord func.

i	**Landlords:**
	▶ Call the Worcester Bosch technical support team for instructions of how to set the Maintenance message or contact telephone number.

This function is for social housing landlords only and enables a maintenance/annual service date to be set.

The maintenance reminder message "Maintenance" is displayed 30 days before the set date.

Along with the Maintenance message a contact telephone number will also be displayed.

The tenant should call this number to arrange a convenient date with the landlord for the service.

If the maintenance reminder message is not cleared or reset to a later date, by the service engineer, then 14 days after the scheduled maintenance date the controller will limit the room temperature set point to 18℃.

4. System info
1. Turn the knob to select **System info**
2. Press the knob and **Install date** is displayed
3. Press the knob and the install date is displayed
4. Press the knob to return to **Install date**
5. Turn the knob to select **SW controller**
6. Press the knob to display the software controller version
7. Press the knob to return to **SW controller**
8. Press the return button ↪ to go back to **System info**

5. Radio settings - Pair/Unpair

i	**The Programmable room thermostat and Receiver are delivered together and are factory paired, they will automatically connect when the system is switched on.**
	If the units have to be paired, all units must be in the pairing mode to be connected, refer to section 6.2 to put the Receiver into the pairing mode.

When the devices are being paired, the Programmable room thermostat and Receiver must be in the same mode of pairing. Refer to section 6.2 for pairing of the Receiver.

Ensure that the Programmable room thermostat is positioned as suggested in Section 3.1 and away from metal objects that might attenuate the RF signal.

Before mounting the Programmable room thermostat on the wall, it is good practice to find a position that affords good signal strength.

When the units have been paired, check the signal strength at the Programmable room thermostat. If the signal strength is low, try another position in that room until the best possible signal strength is obtained, refer to page 12, section 5.1.4 **Info** and the paragraph **Signal strength** for the Programmable room thermostat.

▶ Turn the knob to select **Radio settings**

▶ Press the knob to display **Pairing**, that is RF pairing of the devices in the system

▶ Turn the knob to display **Unpairing** or **Pairing**

▶ If **Pairing** is chosen, press the knob and pairing is displayed with advancing dashes, when the pairing between the devices has been made a number is displayed confirming the number of room thermostats connected

▶ If **Unpairing** is chosen, press the knob and **Unpairing** is displayed with advancing dashes, when the unpairing between the devices has been made the number 0 is displayed confirming that the room thermostat(s) have been disconnected

5.3   Key lock
When the **Key lock** is active, no user interaction with the units is possible, if a button is pressed or the knob turned/pressed the word **Key lock** is displayed.

Key lock ON
To activate the **Keylock**:
▶ Hold down the CH Select button and the knob at the same time for more than three seconds and the **Keylock** is active

Key lock OFF
To de-activate the **Key lock**:
▶ Hold down the CH Select button and knob at the same time for more than 3 seconds and the **Key lock** is de-activated

6 Receiver

The Receiver is paired with the Programmable room thermostat and they communicate via an RF signal. The Receiver unit has an Override/Pairing push button and a LED to indicate various sates of operation.

6.1 Override push button

If the RF signal between the Receiver and the Programmable room thermostat is lost the LED, on the Receiver, will flash once a second, indicating a local error (not a boiler fault).

During this time, the override push button can be briefly pressed once (less than 3 seconds) to override the Programmable room thermostat and maintain the boiler function for heating and hot water.

During override the LED will be on but will flash off briefly to indicate an override situation.

Press the override push button again briefly, to cancel the override feature.

6.2 Pairing/Unpairing

> **ℹ** **The Programmable room thermostat and Receiver are delivered together and are factory paired, they will automatically connect when the system is switched on.**
> If the units have to be paired, all units must be in the pairing mode to be connected, refer to section 5.2 Radio settings for putting the Programmable room thermostat into the mode.

If a unit becomes faulty and has to be replaced, then both units will need to be unpaired. The replacement unit, when fitted, and the original unit will need to be paired together.

Once the Programmer is in the unpairing mode, press the override push button on the Receiver for more than 10 seconds to put the Receiver in the unpairing mode.

The LED will flash five quarter second flashes at he beginning of a five second period to indicate the unpairing function.

When the faulty unit has been unpaired, the replacement unit can be fitted and paired with the Receiver.

Once the Programmer is in the pairing mode, press the Pairing button [2] on the Receiver for more than five seconds but less than 10 to enter the pairing mode. The LED [1] with flash two quarter second flashes at the beginning of a five second period to indicate the pairing function.
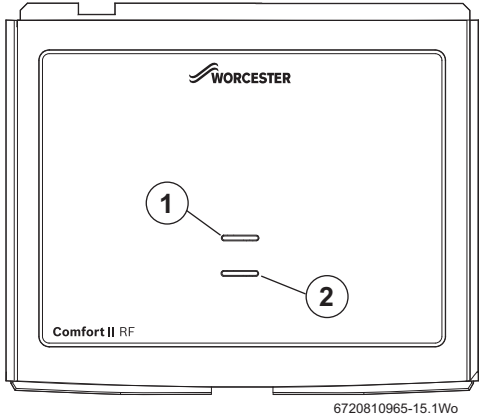

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Fig. 16   Receiver

[1]   LED (for flash codes refer to the table below)
[2]   Override button/Pairing button

	Green indicator LED	Indicates the status:
Normal operation	OFF	No central heating zone is calling for heat
	ON	One or more zones calling for heat
Manual override	Flashing off, for ¼ second over a 2 second period	Manual override is active
Pairing modes	2 x ¼ second flashes over 5 a sec. period	Pairing in operation
	5 x ¼ second flashes over 5 a sec. period	Unpairing in operation
Push button	Press for >5 seconds for pairing Press for >10 sec. for unpairing	Pairing or unpairing the Receiver with the Programmable room thermostat(s)
	Press once, briefly, for override, press again for no override	Manually switching the boiler ON or OFF

Table 1   Receiver LED flash codes

7 Troubleshooting

7.1 Temperature related faults

Problem	Cause	Remedy
The required room temperature has not been achieved.	Airlock	Bleed the radiators and vent the heating system.
	Low system pressure	Top up the system pressure via the filling link
	Time program	Is the heating on for long enough
	Flow temperature	Set a higher flow temperature
	Thermostat valve in reference room	Operate the TRV to ensure that it does not stick
		Fully open the TRV
The room temperature is higher that the set value	Check the Room thermostat location refer to section 3.2	Move the Room thermostat to a more suitable location

7.2 Programmable Room thermostat and Receiver related faults

7.2.1 Programmable Room thermostat

Faults will be display alternating between the fault code and the cause code.

Fault code	Cause code	Problem	Description	Remedy
A21	1001	No RF signal	All units powered and not showing low battery symbol	Check signal strength and reposition Room thermostat for better signal
A22	1002	No RF signal or pairing fault	All units powered and not showing low battery symbol	Repeat pairing
A23	1003	Room stat internal sensor failure	Internal room temperature sensor out of valid range	Replace RF Room thermostat
A24	1004	Remote RF unit has a fault	Another room thermostat in the system has a problem	Check other room thermostats within the system for fault codes
A27	1007	Unable to communicate with boiler's EMS bus	Boiler is EMS compatible but no communication	Replace EMS interface
A28	1008	Not paired	Unit is not paired	Unpair and pair all
Blank display or low battery symbol			Batteries are spent	Replace batteries

7.2.2 Receiver

If the LED is flashing at one flash per second then the Receiver has detected a fault.

Fault	Problem	Description	Remedy
Possible fault condition	Flashing 1 flash per second (1 Hertz)	Local programmer error. Not a boiler fault, possibly no RF connection with the Programmable room thermostat(s), at least one connection has been lost	Check the Programmable Room thermostats for fault code.

8   Servicing

These units can not be serviced.

Should either unit fail to function correctly check that the:

► Programmable room thermostat settings are correct

► RF signal link between the units is set up correctly, →
sections 6.2 and page 15 Radio settings

► Programmable room thermostat batteries are the correct
type, fitted correctly and are not exhausted.If in doubt, fit
new batteries → section 9.1.

9   Maintenance

These units require no maintenance apart from replacing used
batteries in the programmable room thermostat.

The outer casing can be wiped clean using a dry cloth, do not
used polish or detergents.

9.1   Programmable room thermostat battery replacement

If under normal operation the battery low symbol appears, the
batteries require replacing within 60 days or the programmed
settings will be lost.

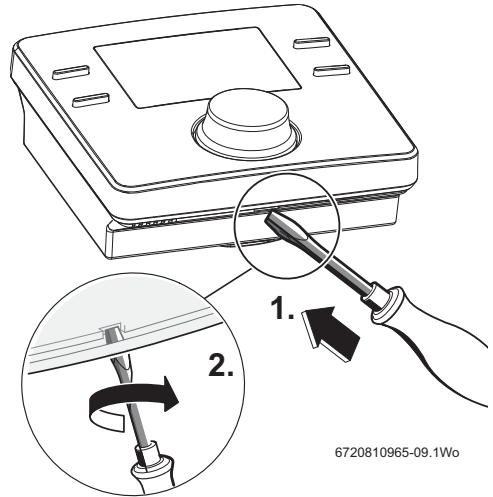Replace the batteries with the same type: LR6/AA 1.5V
alkaline.
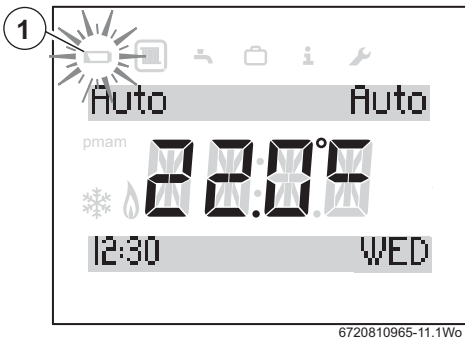
Fig. 17   Low battery indication

Battery access

To remove the room thermostat from the wall mounting plate:

1. Insert a suitable flat bladed screwdriver into the slot on the
   bottom edge of the device

2. Twist the screwdriver gently until the bottom catches are
   released.

3. Separate the Programmable room thermostat from the its
   wall plate.

Fig. 18   Remove back plate

Battery replacement

Replace the spent batteries with new ones of the same type
(AA), ensuring that they are installed in the correct orientation.

Insert the batteries ensuring that the positive **+** end of the
battery is inserted into the positive **+** terminal of the holder.

Fit the Programmable room thermostat to the wall plate,
locating the catches [1] on the top edge and then snap the
bottom edge into place.
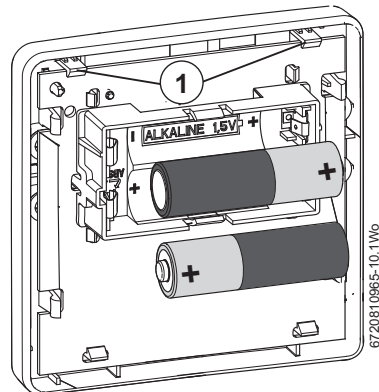
Fig. 19   Replace batteries

10   ErP Class

The data represented in the table below is required for the completion of Energy Related Product (ErP) Directive System Package fiche and, subsequently, the ErP system data label. ERP Labelling obligation applicable from 26th September 2015.

Supplier	Worcester Bosch Group
Model	Comfort II
ErP Class	V
Function and ERP description	**Load compensation** Modulating room thermostat, for use with modulating heaters: An electronic room thermostat that varies the flow temperature of the water leaving the heater dependant upon measured room temperature deviation from room thermostat set point. Control is achieved by modulating the output of the heater.
Additional seasonal space heating efficiency gain	**+3%**

11   Environment / disposal

Environmental protection is a fundamental corporate strategy of the Bosch Group.
The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed. We use the best possible technology and materials for protecting the environment taking account of economic considerations.

Packaging
We participate in the recycling programmes of the countries in which our products are sold to ensure optimum recycling. All of our packaging materials are environmentally compatible and can be recycled.

Electrical and electronic equipment

Scrap electrical and electronic equipment must be collected separately and returned to an environmentally compatible recycling facility (European Directive on waste electrical and electronic equipment).

Use the country specific return and collection system for the disposal of electrical and electronic equipment.

Battery recycling
Batteries, rechargeable or not, must not be disposed of into ordinary household waste. Instead, they must be recycled properly to protect the environment and cut down on the waste of precious resources. Your local waste management authority can supply details concerning the proper disposal of batteries.

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