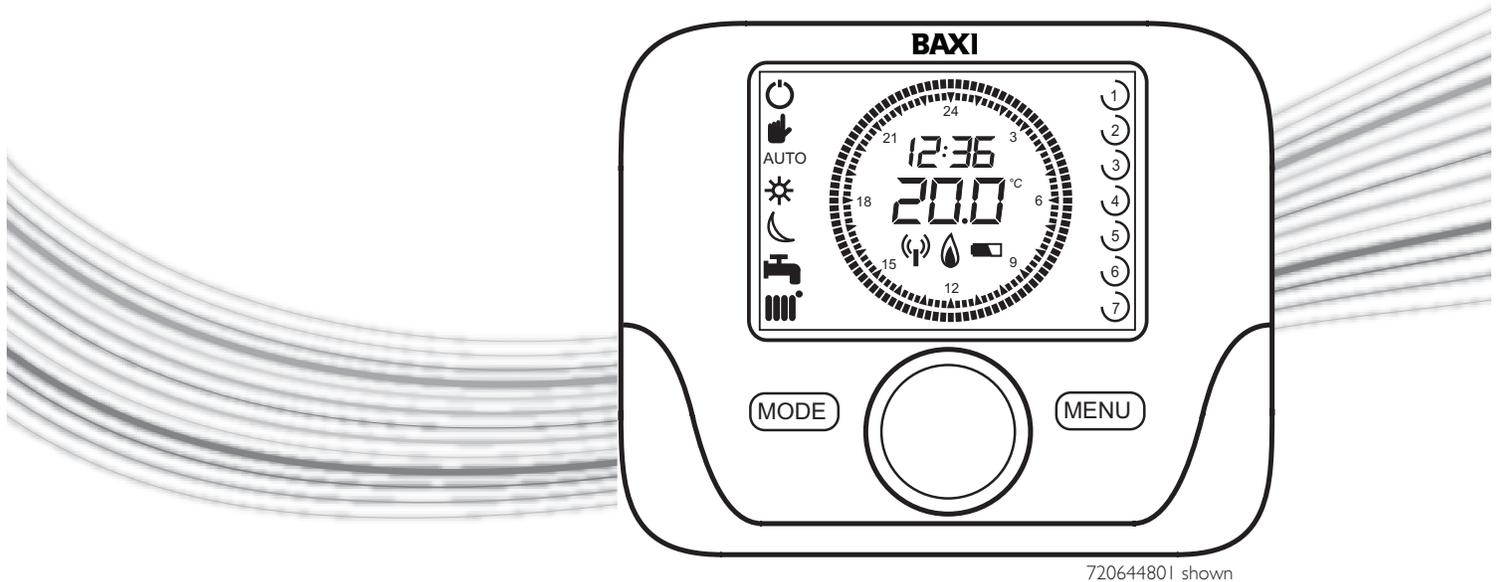


Installation & User's Instructions



720644801 shown

- Part No. 720644701 7 day Wired Digital Programmer & Room Sensor
- Part No. 720644801 7 day Wireless Digital Programmer & Room Sensor
- Part No. 720644901 24hr Wireless Digital Programmer & Room Sensor

Please keep these instructions in a safe place. If you move house, please hand them over to the next occupier.

1.0 Contents

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Kit contents

	720644701	720644801	720644901
Programmer & Room Sensor - 7 day Wired	1	-	-
Programmer & Room Sensor - 7 day Wireless	-	1	-
Programmer & Room Sensor - 24hr Wireless	-	-	1
Receiver	-	1	1
Batteries (AA/LR6)	-	2	2
Fixing Screws	2	4	4
Rawlplugs	2	4	4
Instructions	1	1	1

Table 1. Kit contents

2.0 Introduction

2.1 General Introduction

1. Specification of Units.

720644701 7 day Wired (for use with Neta-tec & Duo-tec) is wired directly to your boiler unit (Fig. 3).

720644801 7 Day Wireless & 720644901 24h Wireless (for use with Neta-tec, Duo-tec & Megaflo Compact) are operated remotely via radio frequency wireless transmission to a Radio Frequency Receiver fitted close to the boiler unit (Fig. 4).

2. The sensor constantly monitors the temperature of the room in which it is installed. It can be operated in four temperature modes, 'Hi' (or 'COMFORT'), 'Lo' (or 'REDUCED'), 'Frost Protection', or left in 'Automatic' (AUTO) to operate as programmed.

3. Depending on the settings, the boiler will run the 'Hi' COMFORT settings during a heating demand and the 'Lo' REDUCED setting for overnight periods or times when the property is left unoccupied.

2.2 Wireless versions (720644801 & 720644901)

1. The units require 2 AA type alkaline batteries (Supplied). Installation of the batteries is shown in Fig. 12.

2. If the battery symbol is seen flashing in the digital display (Fig. 5) the batteries need replacing. See Fig. 12 for details.

NOTE: If the batteries are left flat the unit will only retain its settings for a maximum of one week.

3. The batteries have a lifespan of approximately 2 years. Batteries should be changed within this timescale as a precaution.

NOTE: If the batteries are flat the boiler will return to a default setting of Boiler ON.

4. The Clock Function will need to be checked every time the batteries are replaced.

2.3 Technical Specifications

Insulation Class II

IPX Rating IP44

Operating Temperature -5°C to 50°C

Transmission Frequency 868MHz
(Wireless only)

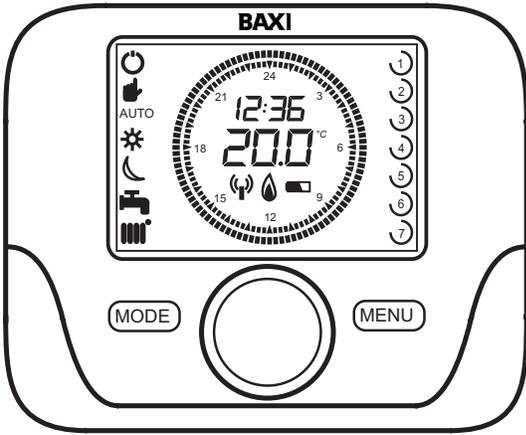


Fig. 1 Programmer & Room Sensor (720644801 shown)

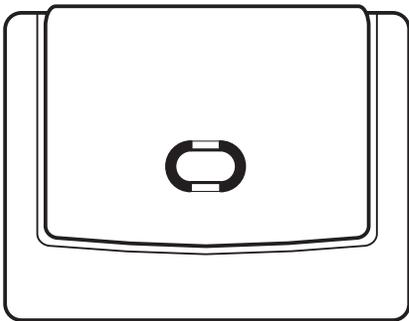


Fig. 2 Receiver

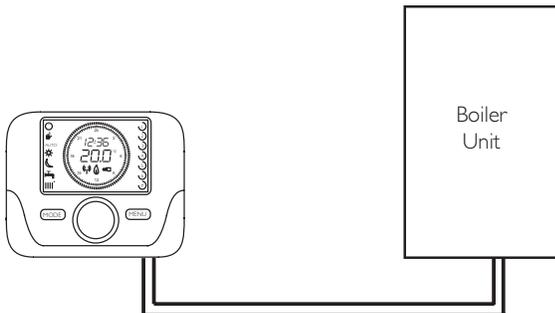


Fig. 3 Programmer & Room Sensor - Wired version

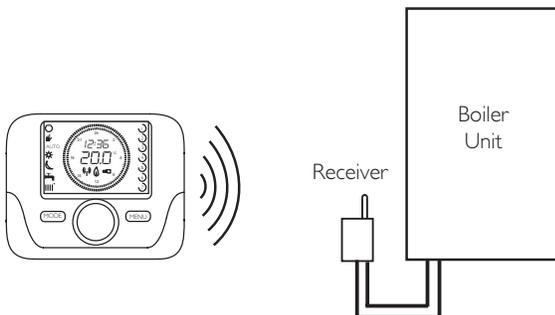


Fig. 4 Programmer & Room Sensor - Wireless version

3.1 Description of Functions

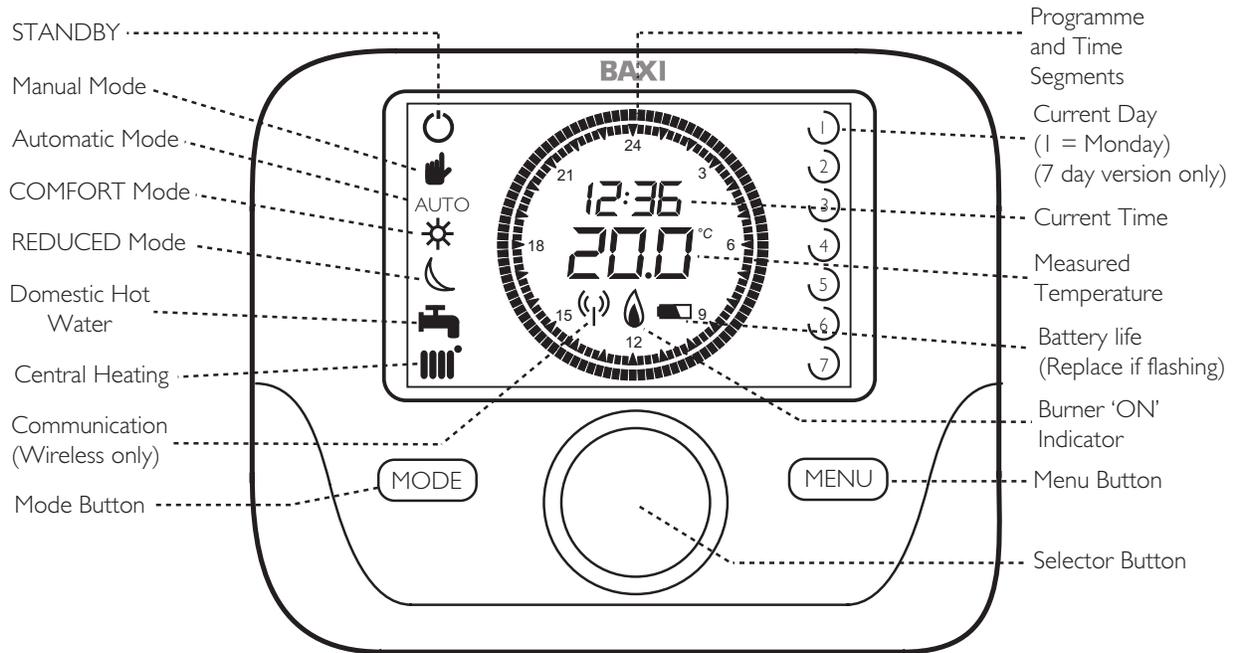


Fig 5. Programmer & Room Sensor front view with functions

Symbol	Meaning	Symbol	Meaning	Symbol	Meaning
	Press the MENU Button		Day of the week 1 = MON (7 day only)		Domestic Hot Water (flashing = selected)
	Press the MODE Button		Day of the week selected (7 day only)		Signal Strength (flashing = no signal)
	Rotate the Selector Button		Standby selected	AUTO	Boiler runs using User defined times
	Press the Selector Button		Central Heating (flashing = selected)		Boiler in REDUCED Mode
12:36	Time (flashing = selected)	20.0°C	Temperature (flashing = selected)		Boiler in COMFORT Mode

Table 2 Programmer & Room Sensor symbols & meanings

4.0 Installation & Wiring

4.1 Installation

720644701 7 day Wired

1. This Programmer & Room Sensor will take full control of the boiler once fitted. All the boiler functions are transferred to the Programmer & Room Sensor except Chimney, Commissioning and the Combustion Adjustment functions (Refer to the Boiler Instruction Manual).

2. The boiler must be fully commissioned before fitting this Programmer & Room Sensor.

NOTE: Communication between the boiler and the Programmer & Room Sensor can take up to 2 minutes to establish. During this time, the boiler may attempt to fire prior to communication being established.

3. If necessary, control can be transferred back to the boiler. Either remove the unit from its cradle, or remove the plug from the Receiver, then turn the power to the boiler off and back on.

4.2 Connecting 720644701 7 day Wired

NOTE: The yellow link wire across terminals 1 & 2 on the Boiler terminal block 'M1' must be removed when fitting this Low Voltage control system. Fig. 6.

1. Power down the boiler.
2. Remove the backplate from the unit by pressing down on the rear tab and easing apart. Fig. 12.
3. Identify a suitable site to locate the Programmer & Room Sensor. See Fig. 8 for guidance on where to locate the unit.
4. Use a suitable grade of wire when connecting the Programmer & Room Sensor to the boiler. A specification of $2 \times 0.75\text{mm}^2$ with a maximum length of 50m should be used.
4. Pass the wires through the access slots in the backplate and wire the terminals as shown in Fig. 6.
5. Screw the backplate to the wall using the fixings provided and reattach the Programmer & Room Sensor.
6. Turn the power back on.

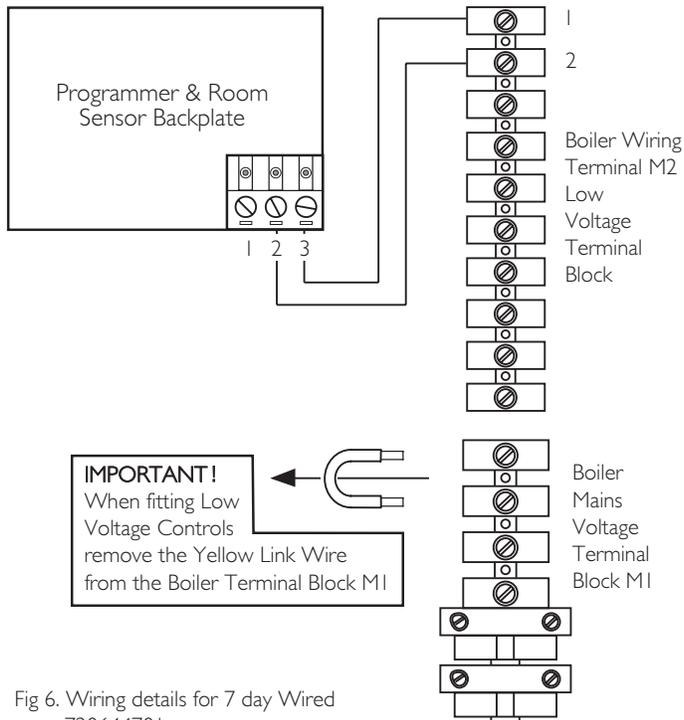


Fig. 6. Wiring details for 7 day Wired 720644701

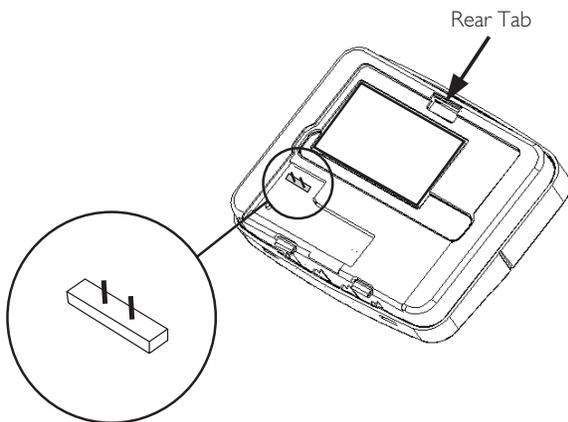


Fig. 7 Connector Pins

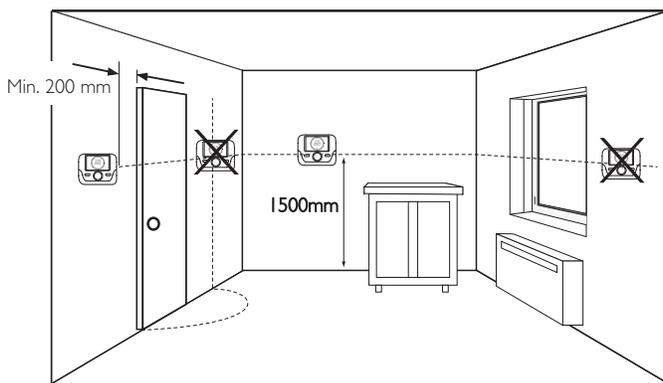


Fig. 8. Location positions

4.0 Installation & Wiring (cont.)

4.3 Connecting 720644801 7 day Wireless & 720644901 24h Wireless.

NOTE: The yellow link wire across terminals 1 & 2 on the Boiler terminal block 'M1' must be removed when fitting this Low Voltage control system. Fig. 9.

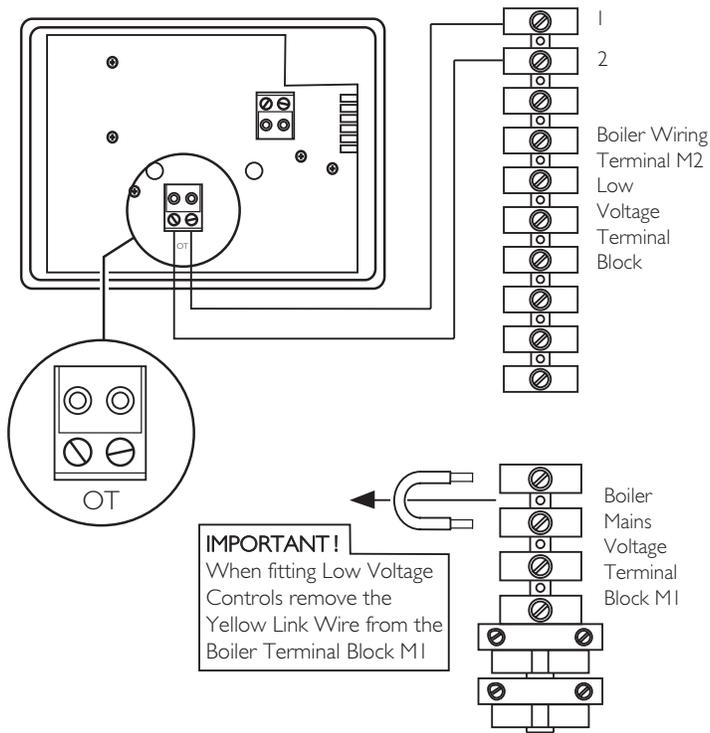


Fig. 9. Receiver Backplate

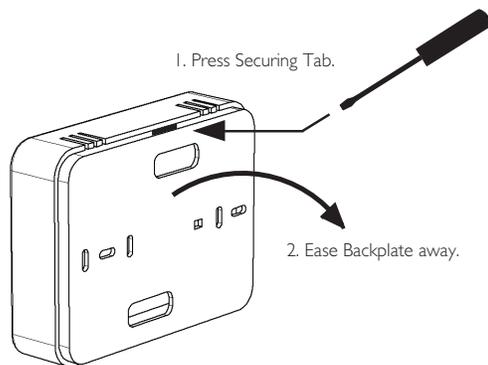


Fig 10. Receiver & Access Tab

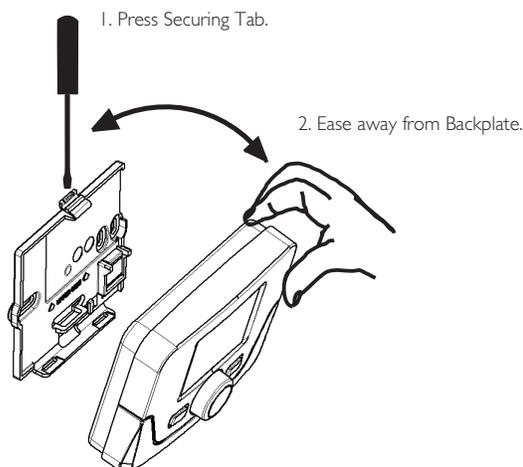


Fig. 12. Accessing batteries

1. The Receiver should be wired to the boiler as shown in Fig 9.
2. Turn the power to the boiler off.
3. Remove the Receiver backplate by carefully prising it away from the body. Fig. 10.
4. Route the wires through the rear of the backplate panel. If a surface mount is required it will be necessary to break off the appropriate tabs to give the wire access.
5. Connect the wires to the 'OT' connection on the terminal block. Fig. 9. Note this is removable for ease of wiring.
6. Connect the other end of the wire to the terminals on the boiler. Please refer to the boiler manual for wiring details.
7. Fix the Receiver to the wall using the fixings provided and refit the front cover ensuring the correct orientation. Fig 11.
8. Fit the batteries to the Programmer & Room Sensor. Fig 12.

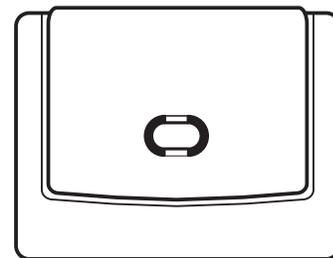
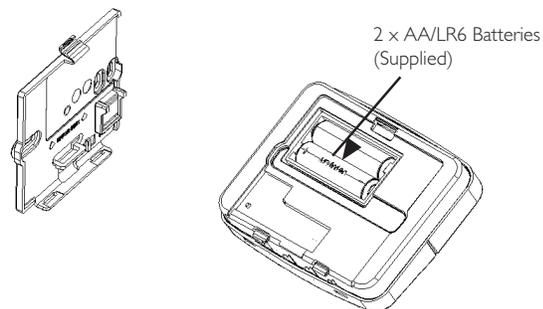


Fig 11. Completed Receiver



5.0 Wireless Room Unit

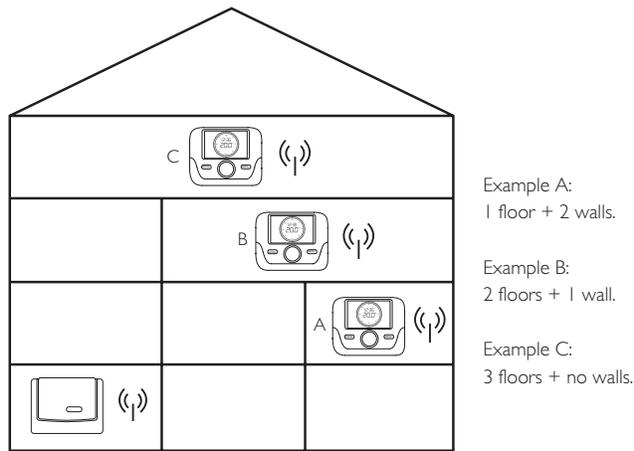


Fig. 13 Maximum permitted separation

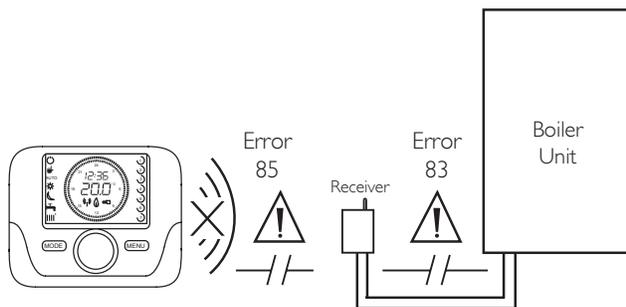


Fig. 14 Remote unit Error Codes

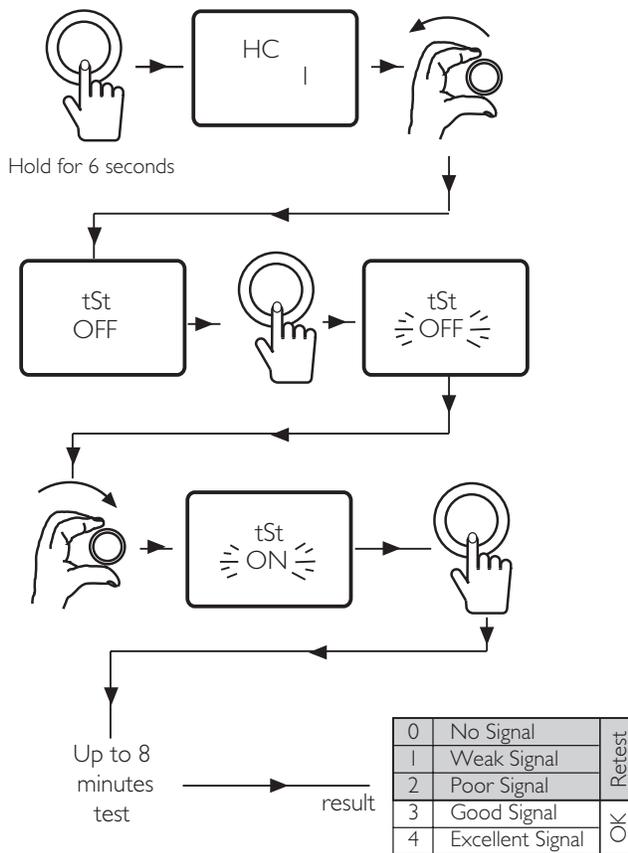


Fig. 15 Signal Strength Test

5.1 Boiler & Programmer Communication

1. The units are pre-synced so should communicate with each other when powered up.

NOTE: Communication between the boiler and the Programmer & Room Sensor can take up to 2 minutes to establish. **During this time, the boiler may attempt to fire prior to communication being established.**

2. If Error codes 83 or 85 are seen during commissioning, there is a communication problem.

3. Error 83 is due to the Receiver not communicating with the boiler. Check the wiring between the Receiver and boiler. Fig. 9

4. Error 85 is due to the Programmer & Room Sensor not communicating with the Receiver. The Programmer & Room Sensor is either out of range or has not synchronized correctly. Check the unit's location (Fig. 13) or proceed to the Manual Sync process in Section 6.0

5. If Error 85 is seen after commissioning, check:

- The Programmer and Room Sensor and the Receiver are within range of each other. See Fig. 13 and Section 5.2
- The units are synchronized correctly. Section 6.1.
- The wiring is correct between the Receiver and boiler. Fig. 9

6. The maximum distance between the Receiver and the Programmer & Room Sensor will depend on the layout of the house. For a typical house, a guideline of 3 floors or walls can be used, as shown in Fig. 13.

5.2 Test for Signal Strength

Before mounting the Programmer & Room Sensor to the wall, perform the following test to determine the signal strength. Fig. 15.

1. Press and hold the Selector Button for approximately 6 seconds and HC 1 will be seen in the display.

2. Rotate the Selector Button until 'tSt OFF' is seen in the display.

3. Press the Selector Button and OFF will flash. Rotate the Selector Button until ON is seen.

4. Press the Selector Button to start the signal strength test. The test may last for up to 8 minutes. During this time, numbers ranging from 0 to 4 are displayed. '0' indicates no signal available and '4' shows excellent signal strength Fig. 15. Baxi recommends locating the unit to give a signal strength of 3 or 4. If the signal is low, move the unit to a more suitable location and retest.

5. Press the Selector Button at any time to interrupt the test or press MENU to escape once the test has finished.

6. If the Manual Sync. process needs to be carried out see Section 6.0.

6.0 Manual Sync. Function

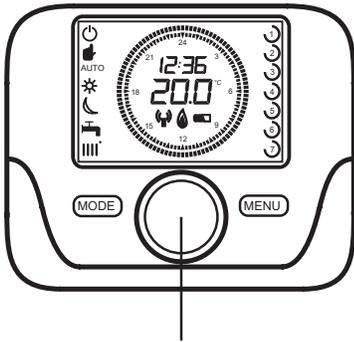


Fig. 16. Programmer & Room Sensor Selector Button

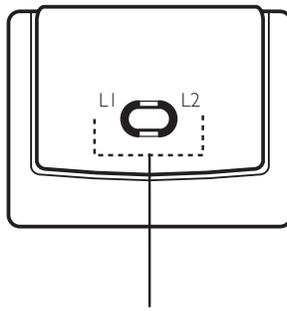


Fig. 17. Receiver LED Display & Button

6.1 Synchronizing 720644801 7 day Wireless & 720644901 24h Wireless

The Programmer & Room Sensor and the Receiver can be synchronized using the method shown in Fig. 18 as follows:

1. Start by setting up the Programmer & Room Sensor. Press and hold the Selector Button (Fig. 16) for approx. 6 seconds. 'HC 1' will be seen on the display.
2. Rotate the Selector Button until 'SnC OFF' is seen in the display.
3. Press the Selector Button and 'OFF' will flash. This display will only remain on the screen for approximately 60 seconds.

4. Now set up the Receiver. LED 'L1' will be flashing. Fig. 18. One of the following conditions will be seen.

1	One flash every 2 secs	Boiler and Controller Synchronized.
2	Two flashes every 2 secs	Communication error
3	Three flashes every 2 secs	No communication yet
4	Flash for 1 sec	NA for Sync
5	1 sec flash every 1 sec	Synchronization initialisation

See Fig. 27 for detailed description

5. If one flash is seen every 2 seconds, the boiler and Programmer & Room Sensor are already synchronized. Return to the Programmer & Room Sensor and press Menu twice to exit the Synchronization menu.

6. If L1 shows 3 flashes every 2 seconds the units are not synchronized. Press and hold the Receiver Button until the rapid flash at L1 changes to a slow flash.

7. Return to the Programmer & Room Sensor where 'SnC OFF' will be flashing. Rotate the Selector Button until 'SnC ON' is seen. Press the Selector Button and the display shows 4, 3, 2, 1 counting down. When this process is complete, the unit will display 'End' if synchronization has been successful. Press the Selector Button to return to the 'SnC OFF' screen then press MENU to escape.

8. If Error 85 is still displayed, the unit hasn't synchronized correctly. Return to the beginning and repeat the process.

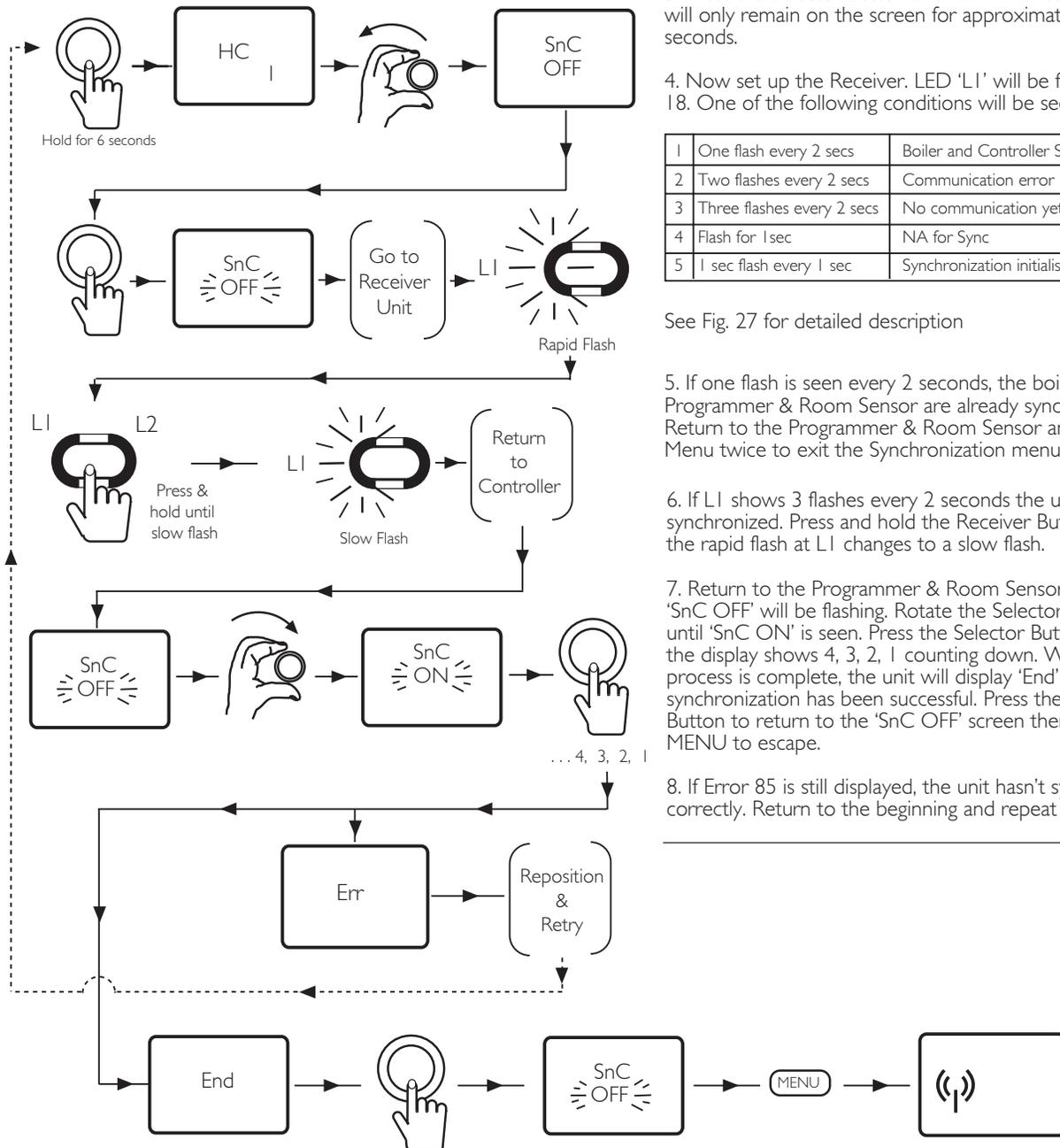


Fig. 18. Manual Sync Process Diagram

7.0 Standby & Operating Mode

7.1 Standby and Operating modes

1. The controller can be set to either Standby Mode or Operating Mode. In Standby, both the Central Heating and Domestic Hot Water functions are switched OFF.

2. In Standby the Boiler Frost Protection function is still activated and will fire the boiler if the temperature in the boiler drops below 4°C.

3. In Operating Mode, the boiler will respond to any preset Central Heating or Domestic Hot Water demand.

4. The screen display shows the current settings. Fig 19 shows the unit in Standby Mode. Fig 20 shows Operating Mode.

7.2 Changing Standby and Operating Mode settings

1. To change the unit's settings, follow the flow diagram shown in Fig 21.

2. Press the Mode button and the Standby symbol will flash and 'OFF' is shown in the main display. The Central Heating and Domestic Hot Water symbols can also be seen.

3. Press the Selector Button once and 'OFF' will flash. The Central Heating and Domestic Hot Water symbols disappear.

4. Rotate the Selector Button clockwise until 'On' is seen in the display.

5. Press the Selector Button once to confirm the selection and then 'Menu' to return to the main screen. If Menu isn't pressed the display will return to the Main screen after approximately 2 seconds. The unit is now in 'Operating Mode'.

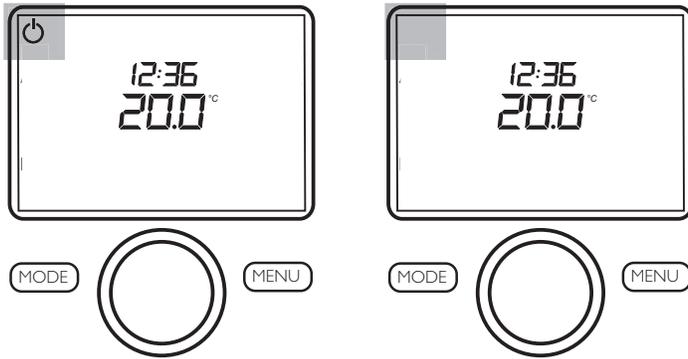


Fig 19. Unit in Standby Mode.

Fig 20. Standby turned off.

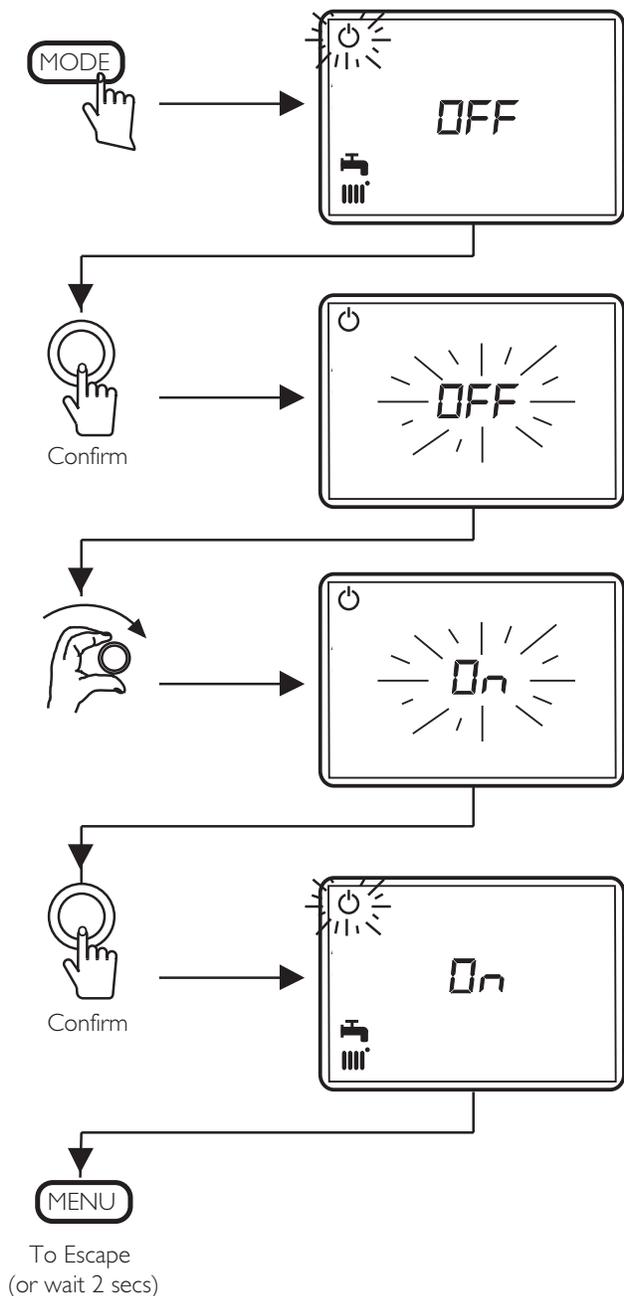


Fig 21. Standby & Operating Mode Diagram

AUTO	In AUTO, the boiler will heat the property to the temperature set on the i-THINK Controller during the programmed timed Heating periods
 	In REDUCED mode, the boiler will maintain a minimum temperature in the property. If at any time, day or night, the temperature falls below this value the boiler will fire until the temperature is achieved.
 	In COMFORT, the boiler will constantly heat the property to the temperature set on the i-THINK Controller. NOTE: This will continue until the boiler is taken out of COMFORT mode.
OFF	Heating or Hot Water set to OFF
 	COMFORT room temperature
 	REDUCED room temperature
	Domestic Hot Water setting
Time Band 	Hourly Central Heating programme
Time Band 	Hourly Domestic Hot Water programme

Table 3. Display Icons

8.0 Central Heating & Domestic Hot Water ON

8.1 Setting Central Heating to ON

1. Press the MODE button and rotate the Selector Button until the flashing Central Heating symbol is seen in the display. Fig. 22.

2. Press the Selector Button once to confirm the setting and the OFF will flash.

3. Rotate the Selector Button to scroll through the options available. In Central Heating, these are AUTO, REDUCED, COMFORT and OFF. Press the Selector Button to confirm the setting.

4. Press MENU to escape, or wait 3 seconds and the unit will return automatically to the main display screen.

NOTE: A delay during this process will cause the unit to revert back to the main screen. If this happens the process must be restarted.

8.2 Manual Override of Room Temperature

1. The Room Temperature can be increased or decreased during a heating period by rotating the Selector Button to give the required temperature. Press the Selector Button to confirm the new setting.

2. The set temperature will return to the 'Comfort' mode value at the next heating demand period.

8.3 Setting Domestic Hot Water to ON

1. For Combi boilers it is recommended that the Domestic Hot Water setting is left in the 'ON' position. If it is necessary to alter the setting follow the process shown in Fig 22.

8.4 Service Warning

1. If the symbol 'Sd' appears in the display please contact **heateam** as your boiler may require servicing. The contact telephone number is shown on the back page.

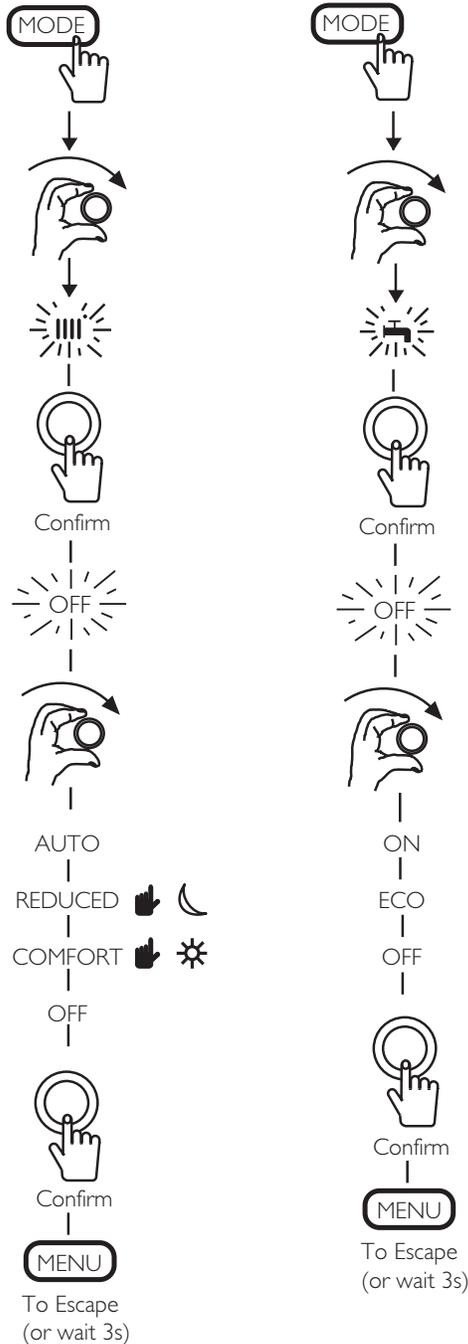


Fig 22. Central Heating & Domestic Hot Water activation

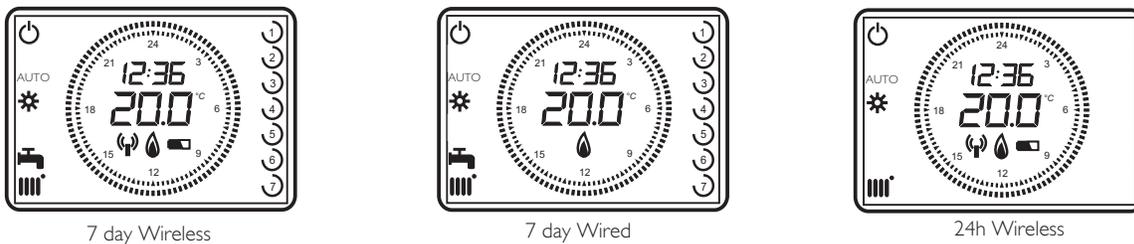


Fig 23. Typical Operating Modes.

9.0 Temperature Settings

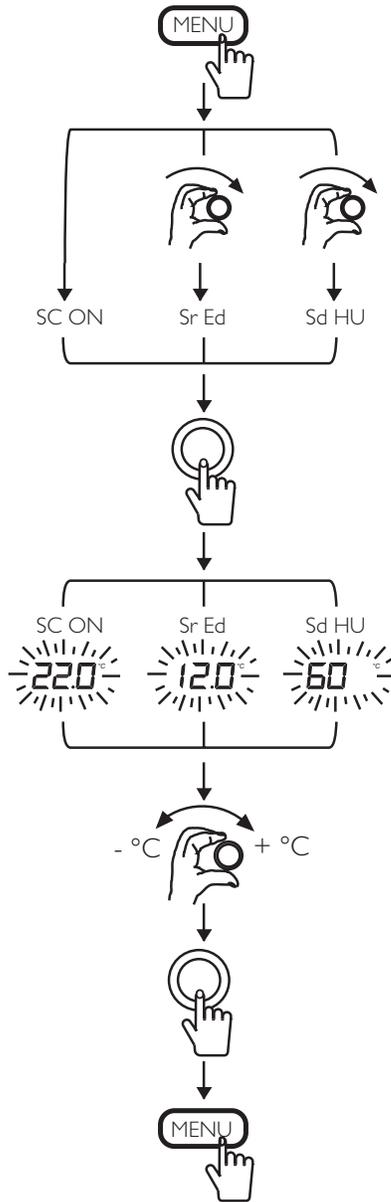


Fig 24. Temperature adjustment diagram

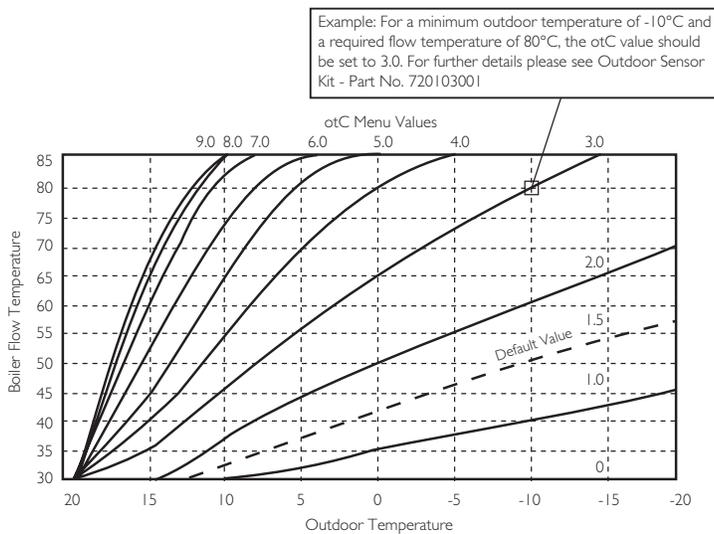


Fig 25. Outdoor Sensor Curve Graph

9.1 Setting the Room Temperature (Comfort)

1. To set the Room Temperature, press the MENU button and SC ON will appear in the display with the current Room Comfort Set Point shown.

2. Press the Selector Button and the Comfort Set Point will flash. This set point can be adjusted up or down by rotating the Selector Button.

3. Press the Selector Button again to confirm the set point and then press MENU to return to the main display screen.

The Comfort Set Point is now confirmed.

9.2 Manual Override of COMFORT setting

The Comfort Set Point can be increased or decreased during a heating period by rotating the Selector Button to give the required temperature. Press the Selector Button to confirm the new setting. The set temperature will return to the previous COMFORT mode value at the next heating demand period.

9.3 Setting the REDUCED Temperature

1. To adjust the REDUCED set point, press the MENU button and rotate the Selector Button until 'Sr Ed' appears in the display.

2. Press the Selector Button to access the menu. The current set point will be seen flashing. The set point can be adjusted up or down by rotating the Selector Button.

3. Press the Selector Button again to confirm the set point and then press MENU to return to the main display screen.

The REDUCED temperature is now confirmed.

9.4 Setting the Domestic Hot Water

1. To set the Domestic Hot Water temperature, press the MENU button and rotate the Selector Button until 'Sd HU' appears in the display.

2. Press the Selector Button and the current temperature set point will flash. The temperature can be adjusted up or down by rotating the Selector Button.

3. Press the Selector Button again to confirm the temperature and then press MENU to return to the main display screen.

The Domestic Hot Water temperature is now confirmed.

9.5 Setting the Outdoor Sensor Curve

1. To adjust the Outdoor Sensor value press and hold the Selector Button for approximately 6 seconds to access the parameter menu. Rotate the Selector Button until 'otC' is seen in the display and press the Selector Button to access.

2. Set the required temperature compensation value from the graph (Fig. 25) by rotating the Selector Button and pressing to confirm. Press 'MENU' until the main screen is displayed.

NOTE: This function can not be set or displayed from the boiler front panel when the Programmer and Room Sensor Controller is fitted.

10.0 Setting the Time & Day

10.1 To Set the Time.

1. From the main display screen press MENU and rotate the Selector Button until the clock is displayed. Fig. 26.
2. Press the Selector Button once and the hour will flash. Rotate the Selector Button to increase or decrease the time. Press the Selector Button once to confirm the hour setting. The minutes display will now flash.
3. Rotate the Selector Button to set the minutes and press the Selector Button once to confirm. The time is now set. Press MENU until the main screen is displayed.

NOTE: The clock will not update automatically so will require manual adjustment.

10.2 To Set the Day (720644701 7 day Wired & 720644801 7 day Wireless only).

1. Set the Time as described above. Once the Time is confirmed by pressing the Selector Button, the day symbols on the right hand side of the screen will flash.
2. Rotate the Selector Button set the day. Monday = 1, Tuesday = 2 etc. The current day is shown in a small circle. Press the Selector Button to confirm.
3. The correct time and day should now be shown in the display. Press MENU once to return to the main display screen.

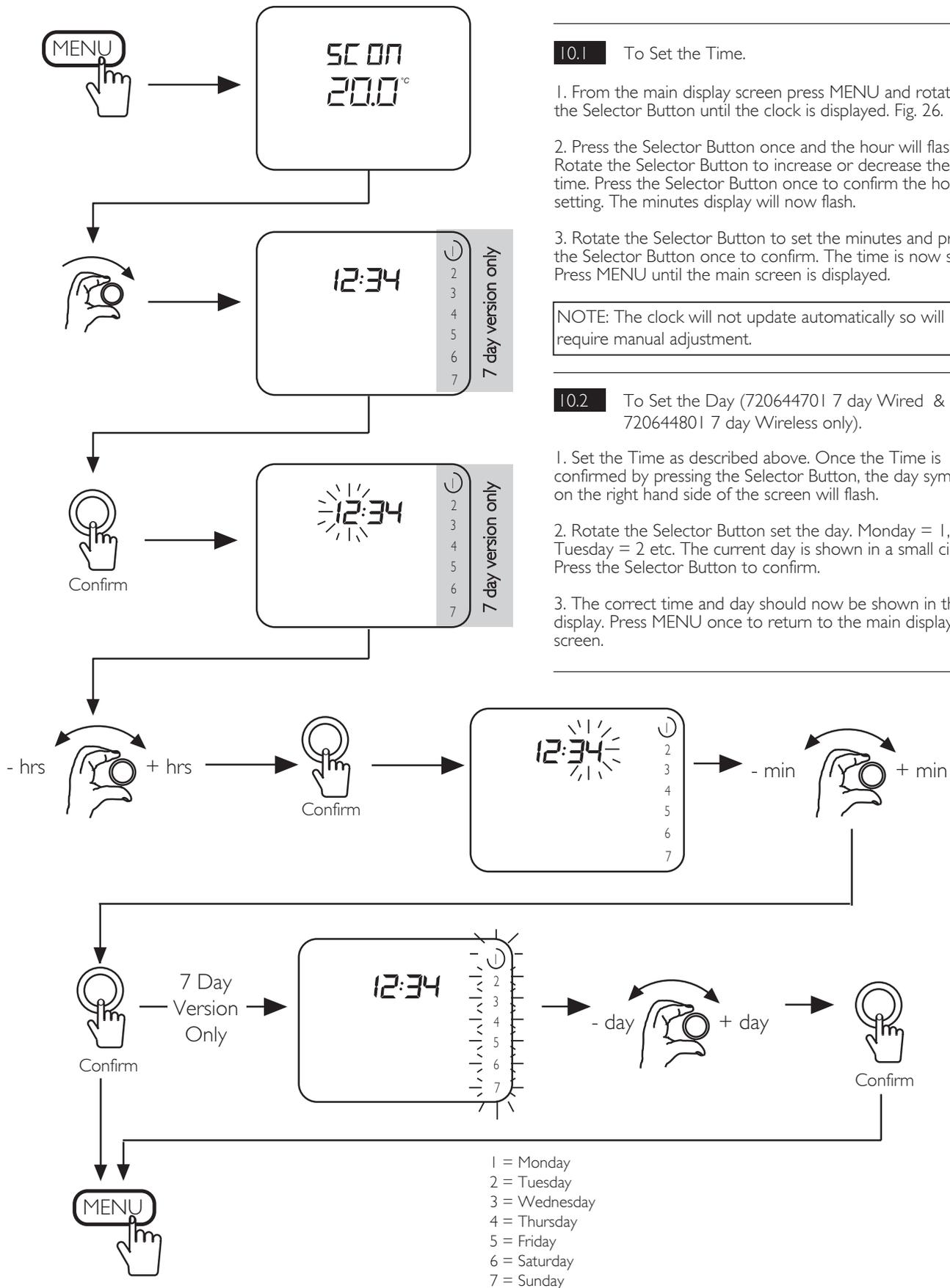


Fig. 26. Setting the Time & Day

11.1 Setting the Central Heating

1. Press the MENU button and rotate the Selector Button until 'PCH' is seen in the screen. Fig. 27. Press the Selector Button once.

7-day version only: Press the Selector Button once and 'Day 1' (Monday) will be seen flashing. The display can be set to either 7 individual days, 5 weekdays and 2 weekend, or 7 days identical. The 24h version does not have 'Day' function displayed.

2. To set the day sequence, rotate the Selector Button until the required day is displayed. Press the Selector Button to confirm.

3. The screen displays the time and the letters 'Pr' flashing. Press the Selector Button again and 'On 1' flashes. (Pr = current setting, Pr 1, Pr 2 & Pr 3 are presets).

4. Press the Selector Button again and the time flashes. The first Timed 'On' period can now be set. Rotate the Selector Button to set the desired Central Heating start time.

5. Press the Selector Button to confirm and the first timed 'Off' period flashes. Use the Selector Button to set the required off period. Press the Selector Button once to confirm.

6. Repeat the above process for 'On 2', 'Off 2', 'On 3' and 'Off 3' time periods. If only 2 Heating periods are required set 'On 2' and 'Off 2' to the same time (e.g. 12:00).

7. After 'Off 3' has been set the screen will show the 'On 1' time flashing again. If Programming is complete, press 'MENU' repeatedly to return to the main display screen.

11.2 Setting the Domestic Hot Water

1. Press MENU and rotate Selector Button until 'PdHU' is displayed. Fig. 27. Press the Selector Button to confirm and repeat the sequence as described above.

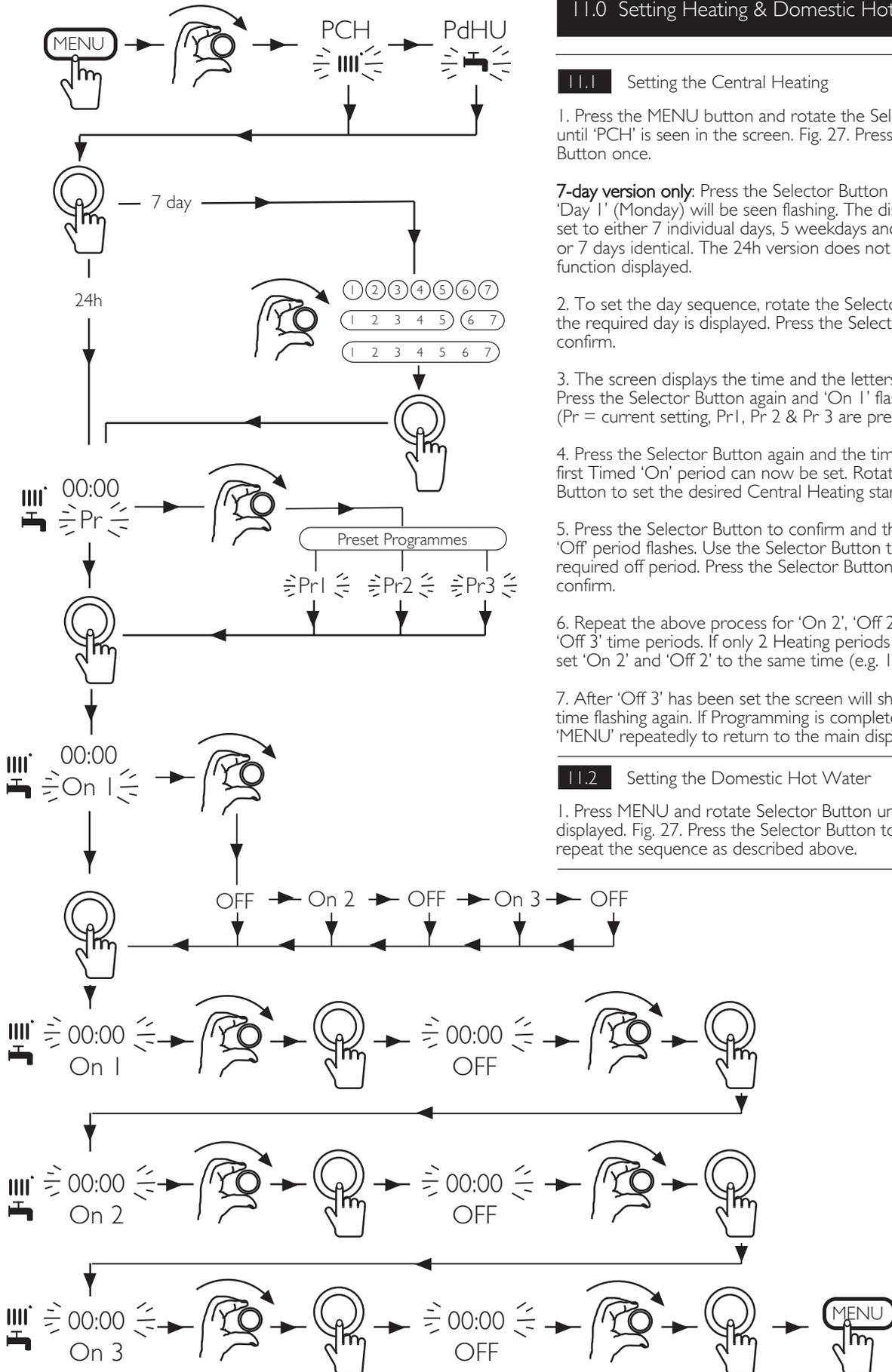


Fig. 27. Setting Central Heating & Domestic Hot Water

12.1 Programmer & Room Sensor Functions

1. To access the Menu, press and hold the Selector Button for approximately 6 seconds. The parameters can be accessed by rotating the Selector Button.

Display	Description	Default
HC	Assigns the Programmer & Room Sensor to heating circuit.	1
.Ao	Sets the Programmer & Room Sensor as Master (CEn).	CEn
rtE	Enables the USER to adjust the reduced room temperature setting	Enabled
dh	Enables the USER to adjust the DHW temperature and hourly programming	Enabled
rEL	Sets the DHW mode: 24h: DHW always active CHP: DHW is enabled according to the CH hourly programme DhP: DHW is enabled according to the DHW hourly programme	Combi 24h
oFS	Sets the offset of the room sensor. Used to correct the temperature value read by the sensor if this differs from the actual temperature.	0
Un	Selects the temperature unit of measurement (°C or °F)	°C
SoFt	Displays the software version	Read only
oSt	Not used	N/A
oSp	Not used	N/A
tLr	Not used	N/A
ICE	Enables / Disables room anti-freeze function (from +4° C to reduced room temperature) OFF = disabled 4°C = settable	4°C
otC	Sets the kt curve for external weather sensor 720103001 (0.1 – 9.0). (See Section 9.5)	1.5
rtS	Enables (ON) / Disables (OFF) the room sensor.	ON
Mod.	Enables (ON) / Disables (OFF) room temperature modulation.	ON
ULt	Sets the maximum CH flow temperature (Max CH)	85°C *
TSP	Accesses the "Pxx" board parameters menu	---
Snc	Synchronization of Programmer & Room Sensor (720644801 & 720644901) with the boiler. Refer to Sections 5 and 6 of this manual	
TSt	Radio transmission test (WIRELESS only). The function lasts 8 minutes or when the Selector Button is pressed. The display shows the numbers 1 to 4 (1=25% - 4=100%)	
End	To return to the main screen.	

* Adjustment is required for Low Temperature or Underfloor heating systems.

Table 4. Parameter codes

13.0 Error Codes

13.1 Error Codes

1. Some error codes can be reset. If an error code is seen in the display use the reset procedure to try and remove the fault. Fig. 29.

2. Press the Selector Button once and rotate immediately until 'rSt' is shown in the display.

3. Press the Selector Button again and the error should reset. If the error doesn't reset, consult the boiler manual for further information.

13.2 Resetting the 'sd' - Service Due Code

1. Press the Selector Button once and '000' will be displayed.

2. Rotate the Selector Button until '015' is seen in the display.

3. Press the Selector Button once and 'Service Due' will clear. Fig. 30.

NOTE: Resetting this function without completing the required service will invalidate your warranty.

13.3 Boiler Control

1. If necessary, control can be transferred back to the boiler. Either remove the unit from its cradle, or remove the plug from the Receiver, then turn the power to the boiler off and back on.

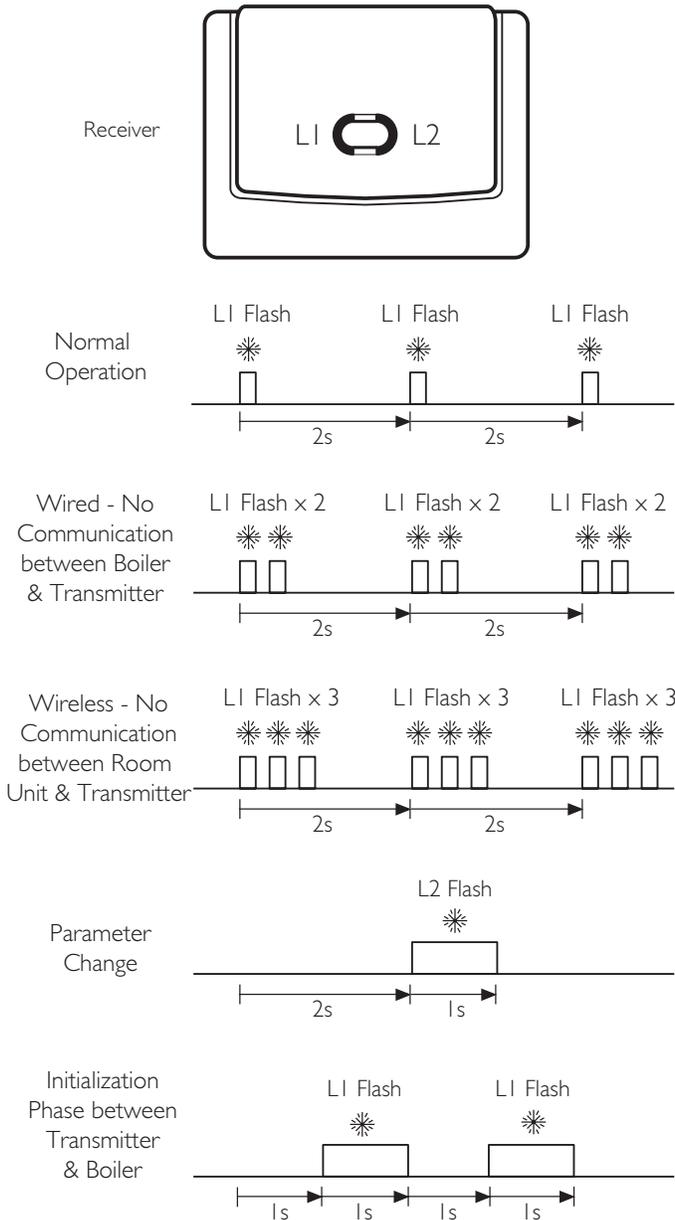


Fig 28. Receiver status indicator LEDs

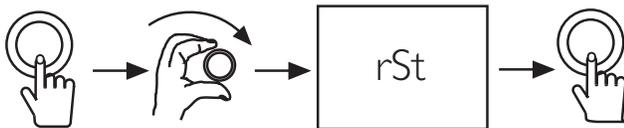


Fig 29. Resetting Error Codes



Fig 30. Resetting the Service Due Code.

E 09	Gas Valve Connection Cable
E 15	Gas Valve Fault
E 20	Central Heating NTC Fault
E 28	Flue NTC Fault
E 40	Central Heating Return NTC Fault
E 55	Calibration Required
E 109	Pre-circulation Fault
E 110	Safety Thermostat Operated
E 117	Primary System Water Pressure Too High
E 118	Primary System Water Pressure Too Low
E 125	Circulation Fault (Primary)
E 128	Flame Failure
E 130	Flue NTC Operated
E 133	Interruption Of Gas Supply or Flame Failure
E 134	Elapsed Time - Gas Valve Open Without Gas
E 135	Interruption Of Gas Supply (Internal Error)
E 154	Flow/Return Sensor Temperature Test
E 160	Fan or Fan Wiring Fault
E 270	Circulation Fault (Dry Fire)
E 321	Hot Water NTC Fault
E 384	False Flame

Programmer & Room Sensor Error Codes (See Sec. 5.1)

83	Error between Boiler & Receiver
85	Error between Programmer & Room Sensor & Receiver

Table 5. Error Codes

All descriptions and illustrations provided in this leaflet have been carefully prepared but we reserve the right to make changes and improvements in our products which may affect the accuracy of the information contained in this leaflet. All goods are sold subject to our standard Conditions of Sale which are available on request.

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Comp No. 720898904 (12/11)