Drayton

Digistat+C RF

RF Cylinder Thermostat

Models:

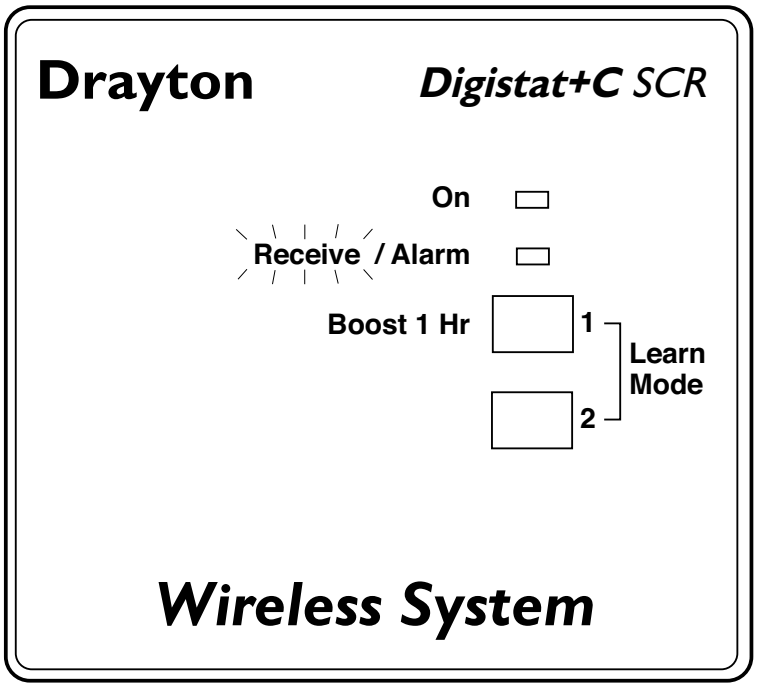
13616/13618/13619

Invensys Controls Europe
Technical Helpline: +44 (0) 845 130 7722
www.draytoncontrols.co.uk

energy saving®
recommended
Certification Mark

Installation Guide

INSTALLATION OF SCR



If you do not have the knowledge to install the SCR safely then you must arrange for a competent electrician to install it for you. Wiring must conform to the current IEE wiring regulations.

Prior to commencing the installation you must ensure the mains supply is switched off.

Installation Instructions

Read all installation and commissioning instructions before proceeding.
Do not switch on until ready to commission.

The system wiring must be able to be fully disconnected from the mains supply by a switch incorporated in the fixed wiring having a contact separation of at least 3mm on both poles. Fused at 3A.

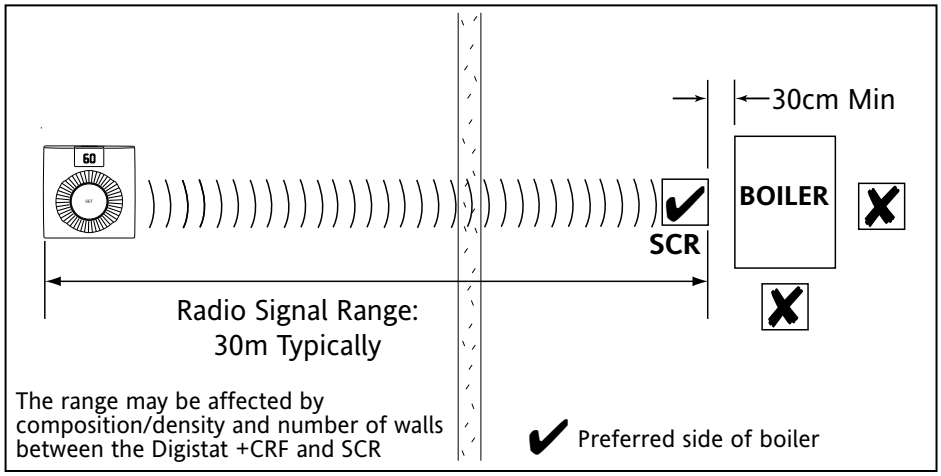
Location

The Digistat+C SCR (receiver) should be mounted in a convenient position, close to the boiler or central heating system wiring centre. (Care should be taken not to mount the SCR in a position where it is surrounded by metal objects or mains voltage cable, as this may interfere with the radio signal).

For the best performance install in an open space, at least 30cm distance from any metal objects including wall boxes and boiler housing.

It is recommended that the SCR is mounted on the wall nearest the final location of the Digistat+C RF thermostat and not less than 30cm from the boiler side panel.

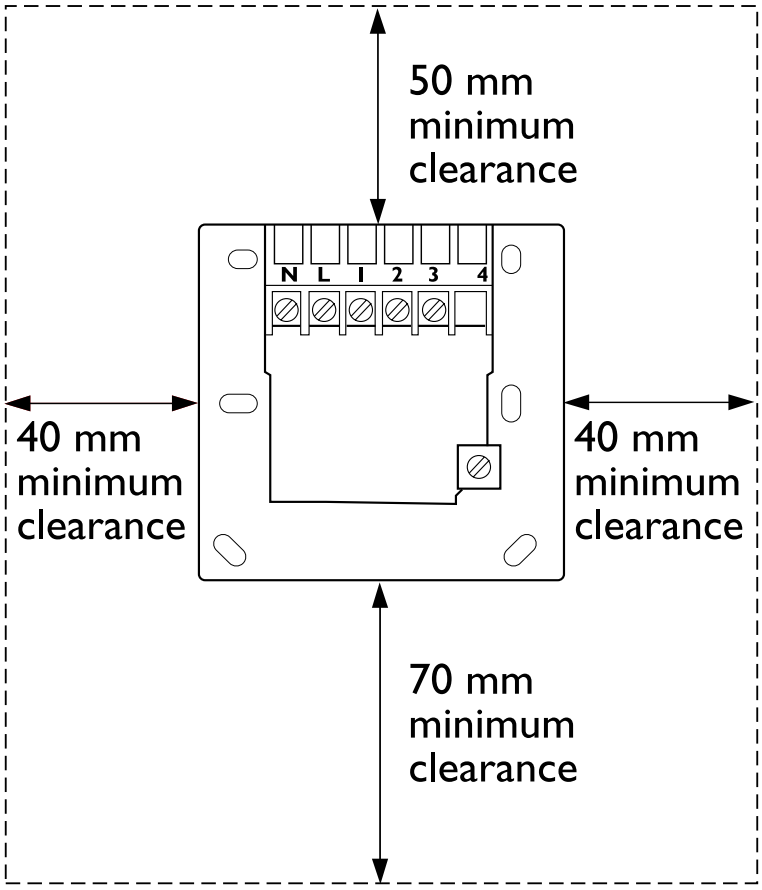
Warning: Installing the SCR too close to the metal side panel or mains cables may interfere with the radio signal.

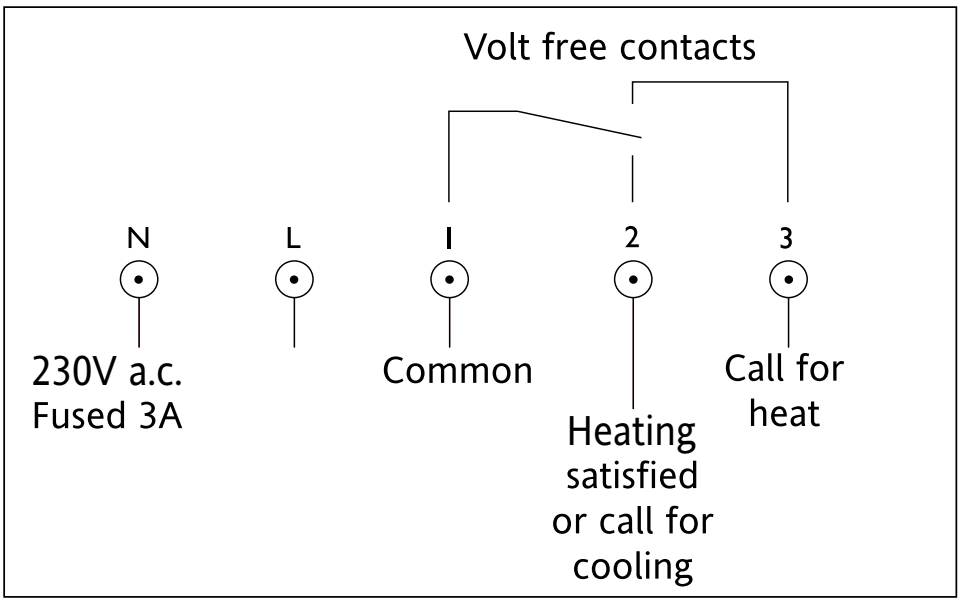


Fixing (minimum wall plate clearances shown)

1. Loosen the securing screws, remove the wallplate, and if surface wiring is to be used, snap out the cable entry strip on the bottom edge of the wallplate with a pair of pliers.
2. Fix the wallplate, terminals at the top, either direct onto the flat wall using wall plugs and no 6 x1" wood screws or on a flush mounting single conduit box using M3.5 x 14 screws. Minimum wallplate clearances are shown.
3. Complete the wiring to the SCR wallplate in accordance with the relevant diagram, to comply with current IEE wiring regulations.
4. Place the SCR onto the wallplate and tighten the securing screws.

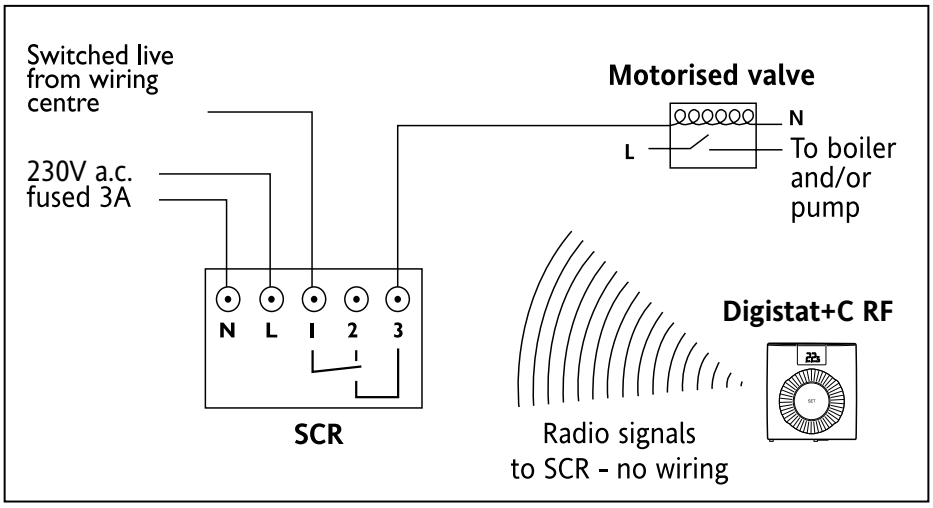
SCR wallplate clearances





This product is double insulated and does not require an earth connection. The SCR should be wired to the combi boiler or central heating wiring using the correct type of cable or flex. The SCR should be wired in to replace hard wired room or programmable thermostats shown on the system or boiler wiring diagrams. Always check other manufacturers instructions for compatibility.

DHW Cylinder Thermostat



COMMISSIONING THE 'WIRELESS SYSTEM'

Standard for all models

IMPORTANT: MULTIZONE INSTALLATIONS ONLY
If more than one 'wireless system' is fitted within the same property. ie. for controlling 2 or more zones (multi-zone) it is essential that the Digistat RF units are matched correctly to the relevant SCR. This is easily achieved by commissioning each Digistat and SCR in turn.

1. Install (see installation instructions) and turn power on to the SCR (receiver). If a separate programmer is fitted, ensure that it is switched on. The red LED should come on.
2. Push the 'Boost 1 Hr' button on the SCR once. The green LED should also come on. Check to see if the boiler and/or motorised valve are working.
3. To enter 'learn' mode push the button marked 1 followed by 2 (Boost 1 Hr) and hold both depressed together. The red LED should flash for 2 seconds and then go out signifying the SCR is in learn mode. Release both buttons.
4. The red and green LED's should both now be on.
5. Take the *Digistat+C RF* and hold it within sight of the SCR (no closer than one metre).
6. Insert the batteries into the holder and slide them into the *Digistat+C RF* until the drawer clicks into place.
7. The *Digistat+C RF* should now display the 'E2' and the RF symbol '📡'. If the unit has been stored in a cold place, it may take time to warm up.
8. As soon as the battery compartment is slid back into place, the red LED on the SCR should flash for 7 seconds and then go out.
9. If the red LED remains on, slide down the battery drawer on the *Digistat+C RF*, check the battery positions are correct, and once the display has faded, repeat steps 6 to 8.
10. Increase the 'SET' temperature on the *Digistat+C RF* by rotating the dial clockwise until a flame symbol appears, in the left hand segment of the display.
11. The red LED on the SCR should flash for 7 seconds. This confirms that the radio signal is being sent and received. After 7 seconds the red LED should go out and the green one come on.
12. Check to confirm that the boiler and/or motorised valves are working.
13. Decrease the 'SET' temperature on the *Digistat+C RF* by rotating the dial anticlockwise until the flame symbol disappears.
14. The red LED on the SCR should flash for 7 seconds. After 7 seconds both the red and green LEDs should go out. Check that the boiler and/or motorised valve have powered down.
15. Place the *Digistat+C RF* in the chosen operating position, (see *Digistat+C RF* location section) and repeat steps 10 to 14. Once you have confirmed the system operates correctly, the *Digistat+C RF* transmitter unit and sensor can be installed. When the sensor is wired to the transmitter unit, the display will change after approx. 30 seconds to show the current setpoint and 'E2' will disappear (see installation instructions).

During normal operation the red LED on the SCR will flash for 7 seconds each time a radio signal is received from the Digistat RF. This will occur approximately every 5 minutes.

The green LED on the SCR denotes a call for heat (ON).

Once the system has been successfully commissioned, buttons 1 and 2 on the SCR should not be pressed simultaneously, unless a replacement Digistat RF or SCR is fitted.

COMMISSIONING THE CYLINDER THERMOSTAT

To assist with commissioning or checking the system operation, there is a positive OFF setting outside the temperature scale on the cylinder thermostat. First adjust the minimum temperature setting to 40ºC as described in the user guide, then rotate the dial fully anticlockwise for OFF.

Location

Cylinder Thermostat

The transmitter should be located in a convenient position for the end user, close to the domestic hot water cylinder being controlled.

Signal Strength

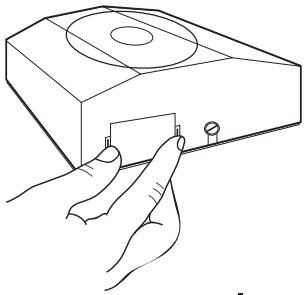
Before fixing the *Digistat+C RF* to the wall it is recommended to first check the signal strength from that location.
To do this, remove the batteries, press and hold the 'set' button whilst refitting the batteries, keep the 'set' button held and after a few seconds the display will show 'rF' which indicates that the *Digistat+C RF* is continuously sending an OFF signal to the SCR (receiver). Leave the *Digistat+C RF* in position and return to view the SCR. If the red LED is continuously flashing, this indicates a good signal. If the red LED is not flashing, this indicates a poor signal and you need to reposition the *Digistat+C RF* until the red LED is flashing.
When the signal strength has been confirmed remove the batteries to cancel the test and follow the installation instructions.

Before Installation

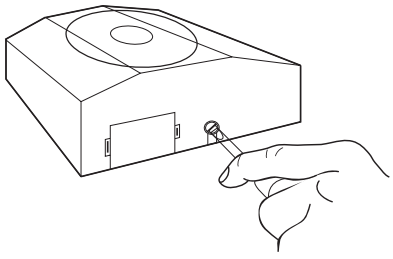
If you do not have the knowledge to install the thermostat safely then you must arrange for a competent electrician to install it for you. Wiring must conform to the current IEE wiring regulations.

Prior to commencing the installation you must ensure the mains supply is switched off.

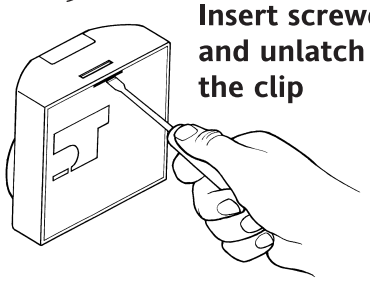
Remove battery compartment



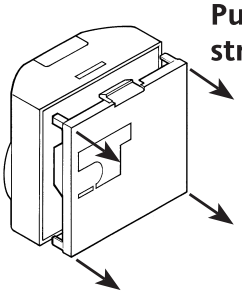
Loosen screw



Insert screwdriver and unlatch the clip



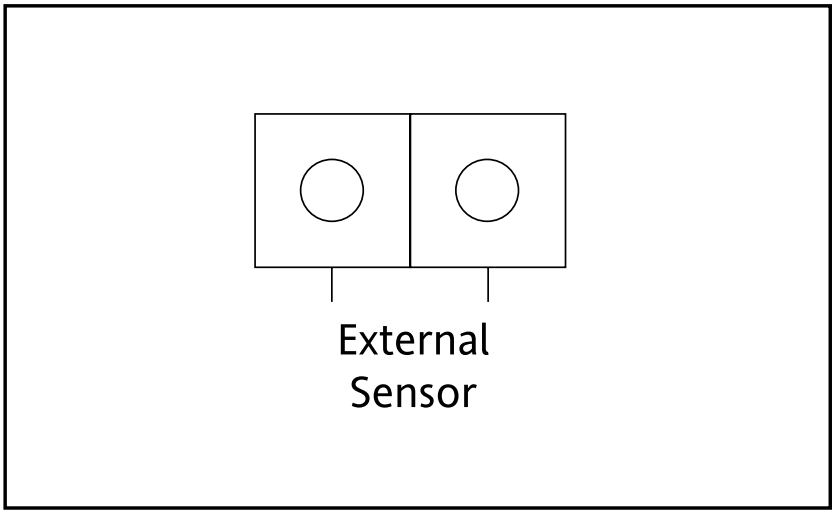
Pull back plate straight off



To wire the external sensor, snap out the cable entry strip on the bottom right edge of the thermostat cover.

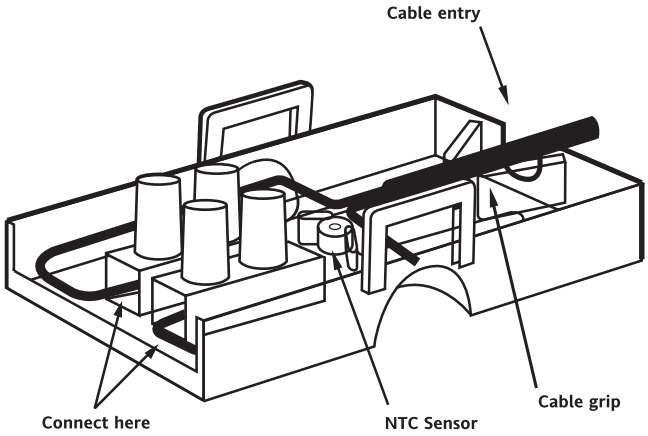
WIRING

Cylinder Thermostat

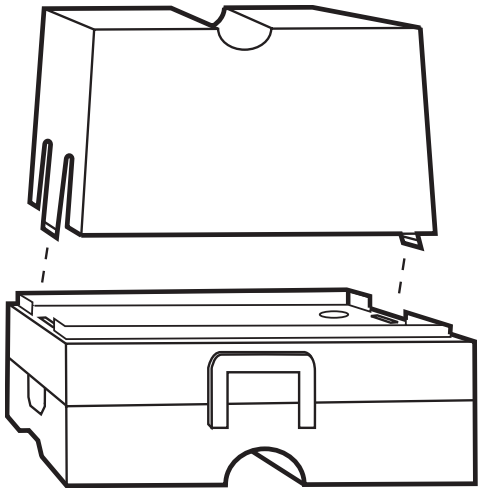


Cylinder Thermostat sensor

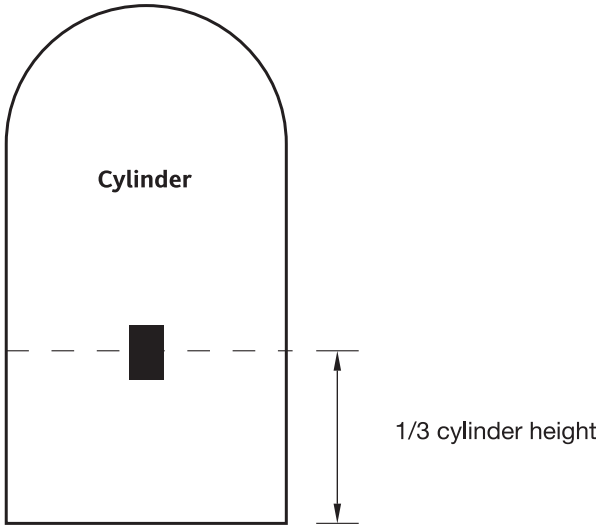
Unclip the housing to show the terminal block. First, connect a 2-core cable to the *Digistat+C RF* transmitter, cut to the required length to reach the sensor position. Connect to the sensor in the position shown and fold wires back through the cable grip & out through the cable entry, re-assemble the housing.



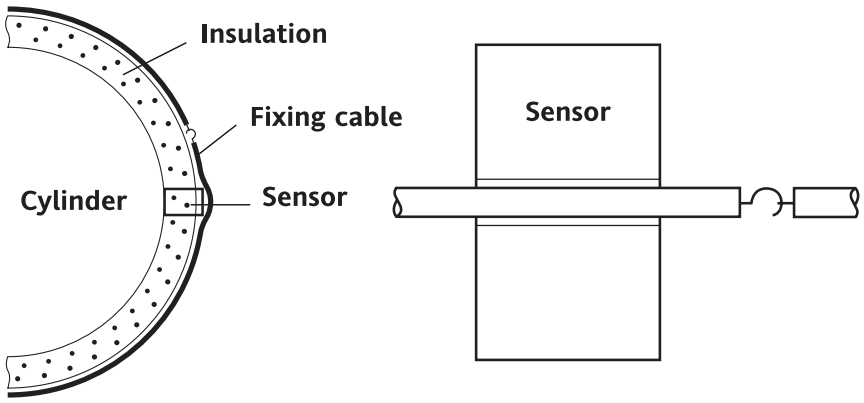
Clip the spacer provided onto the sensor housing.



The sensor should be installed approximately one third of the way up the hot water cylinder. With pre-insulated cylinders, mark the position and size, and remove just enough insulation to allow the sensor to fit against the metal of the cylinder in the recess formed.



The plastic covered spring fixing cable should be cut to an un-stretched length of approximately 60-75mm (2½"-3") less than the circumference of the cylinder and the hook and eyelet should be screwed into the ends. Stretch the cable round the cylinder, over the insulation, and position it in the groove across the front of the sensor housing. Engage the hook and eyelet.



FAULT DIAGNOSIS

If the display shows E2, the following faults could have occurred

1. External temperature sensor has failed.

2. Ambient temperature is outside product operating temperature range.

3. External sensor has been wired incorrectly.

DIGISTAT+C RF TRANSMITTER/SENSOR

Power Supply:	2 x AA Size, 1.5V alkaline batteries
Radio frequency:	433 MHz
Radio Signal Range:	30m typically. The range may be affected by the composition / density and number of walls between the Digistat +C RF and SCR.
Temperature Range:	40 to 70°C
Control Accuracy:	+0/-8°C
Ambient Temperature:	Operating 0°C to 50°C Storage –20°C to 55°C
Mounting:	
Transmitter:	Suitable for surface or conduit box mounting
Sensor:	Direct mounting onto cylinder
Wiring:	Ø 0.5mm^2 2 core cable between sensor and Digistat+C RF transmitter

SINGLE CHANNEL RECEIVER (SCR)

Power Supply:	230V a.c.
Switch Type & Rating:	SPDT (voltage free) 2(1)A 230V a.c. or 24V a.c./d.c.
Wiring:	Designed for fixed wiring only, to comply with current IEE wiring regulations (BS7671).
Reception Frequency:	433 MHz
Relevant EC Directives:	2006/95/EC Low Voltage Directive 2004/108/EC Electromagnetic Compatibility Directive 1999/5/EC R&TTE Directive 2006/66/EC Battery Directive
Applied Standards:	EN60730-1; EN60730-2-9 ETSI EN 300 220-3, ETSI EN 301 489-3

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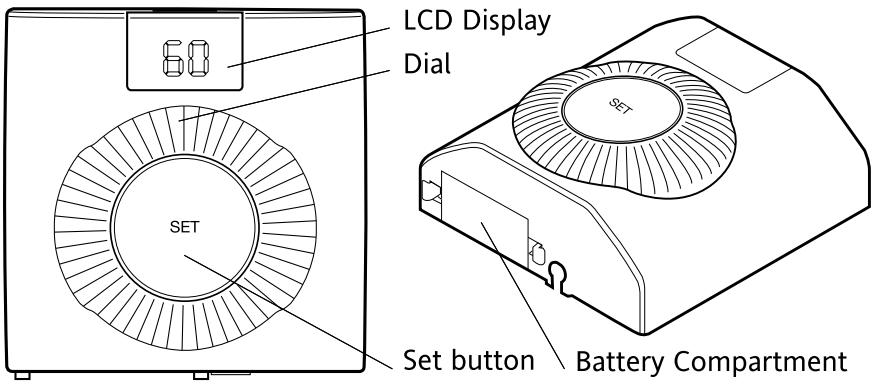
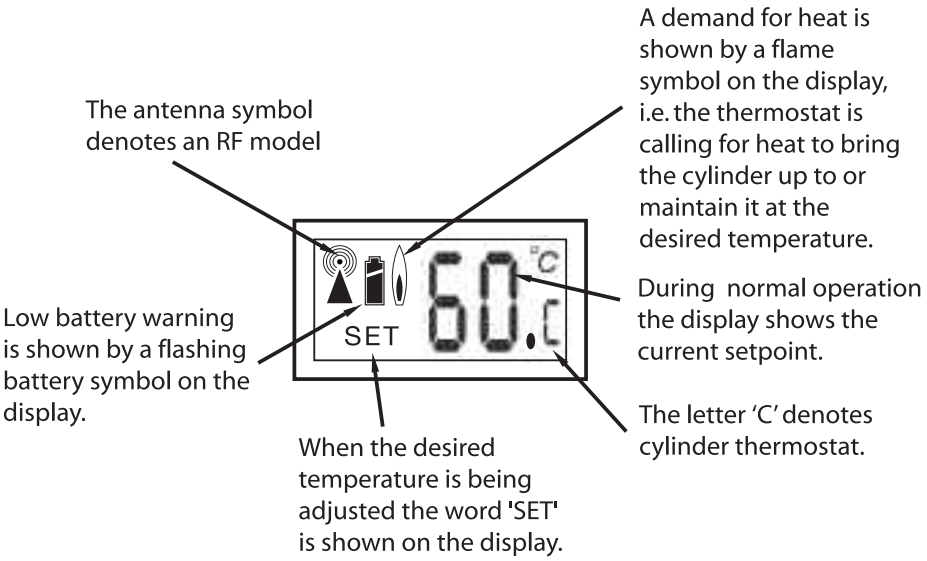
Your new thermostat with digital display.



Thermostat Display – Features & Characters



FEATURES

This product has the following user adjustable settings,

- Required temperature (temperature setpoint)
- Minimum & Maximum temperature settings

Simple Setting or Operating

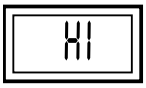
To set the required temperature

- **The display normally shows the current setpoint.**
- **To adjust the required temperature, turn the dial clockwise to increase or anti-clockwise to decrease, (1 click = 5°C), the LCD will display the temperature setpoint as it is being adjusted and 'SET' will be displayed. After a few seconds the display will return to normal operation and will display the current setpoint.**

ADVANCED FEATURES

To change the user adjustable settings

- To enter the ‘User’ menu, press and hold the ‘Set’ button for more than 5 but less than 10 seconds – the display will show ‘Hi’ as shown,



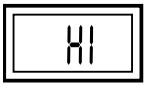
- If the dial is turned clockwise one click then ‘Lo’ (Minimum temperature setting) will be displayed and if turned one more click clockwise then ‘HI’ (Maximum temperature setting) will be displayed.

Default Settings

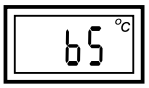
The maximum and minimum setpoints are preset in the factory to 65°C and 60°C respectively.

Changing the Maximum Temperature Setting

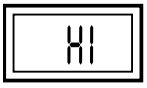
- To adjust the maximum temperature setting enter the user menu as described above, then rotate the dial clockwise until ‘HI’ is showing.



- Then press the ‘Set’ button once, the current setting is shown.



- Rotate the dial clockwise to increase the maximum temperature setting (max. 70°C) and anti-clockwise to reduce the maximum temperature setting (min 40°C or min temp. setting). Press the ‘Set’ button to confirm, the display will show,

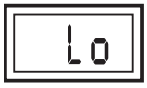


Changing the Minimum Temperature Setting

- To adjust the minimum temperature setting enter the user menu as described above, then rotate the dial clockwise until ‘Lo’ is showing.

- Then press the ‘Set’ button, the current setting is shown.

- Rotate the dial clockwise to increase the minimum temperature setting (max. 70°C or max. temp. setting) and anti-clockwise to reduce the minimum temperature setting (min 40°C). Press the ‘Set’ button to confirm, the display will show,



While adjusting the settings within the menu, when you reach the maximum or minimum possible setting the display will flash to indicate you cannot adjust the product further.

To return to normal operation, either press the ‘Set’ button for more than 5sec or wait for 1 minute and it will return automatically.

SCR RECEIVER

SCR (Receiver) Normal Operating Mode

- Once the 'Wireless System' has been commissioned, there should be little need for any user interaction with the SCR.
- During normal operation the red and green LEDs will occasionally be on, these signify the following;

Green LED

The green LED will be on when there is a demand for heating, and off when there is no demand.

Red LED

The red LED will flash for 7 seconds, approximately every 5 minutes. This denotes that a radio signal is being received from the *Digistat+C RF* unit.

Situations Requiring Attention

Red LED continually flashing

- This denotes that the batteries in the *Digistat+C RF* unit are approaching the end of their life (see 'battery replacement').

Red LED continually on

- This denotes that the SCR has been unable to receive a radio signal from the *Digistat+C RF* unit. This may be caused by the batteries being dead (see 'battery replacement') or some temporary interference with the radio signal.
- To resend and test the signal, go to the *Digistat+C RF* unit and open the battery drawer, after a few seconds (the display will go blank) close the battery drawer and then reset to your desired temperature. If the radio signal has been successfully transmitted and received, the red LED will flash for 7 seconds then go off.
- If the red LED stays on, there may be some other fault that will require the attention of a heating engineer/electrician.

Manual Overide

- The hot water can be manually switched on and off by using the 'Boost 1 Hr' button on the SCR in a fault situation, even though the red LED will stay on until a satisfactory signal is reinstated. When the hot water is turned on by pressing the 'Boost 1 Hr' button, it will time out after 1 hour and return to OFF.
- Once the SCR receives a satisfactory signal again, it will automatically reset itself for normal operation.

TAMPER PROOFING

To tamper proof the product i.e. prevent unauthorised adjustment of the product set the Min and Max temperatures to the same desired value.

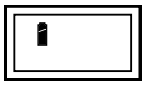
FAULT DIAGNOSIS

If the display shows E2, the following faults could have occurred

1. External temperature sensor has failed.
2. Ambient temperature is outside product operating temperature range.
3. External sensor has been wired incorrectly.

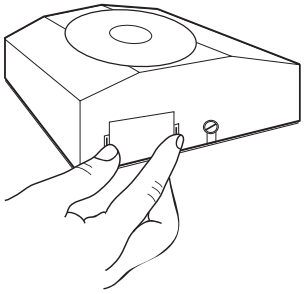
BATTERY REPLACEMENT

- When the batteries are getting low (approx 30 days battery life remaining) the battery symbol will flash in the display, it is recommended to change the batteries during this period.
- After approx 30 days, a continuous battery symbol only will be shown in the display and the unit will remain OFF.



How to replace the batteries

Remove battery compartment



Remove the battery compartment by pinching the tabs and withdrawing downwards. Replace the spent batteries with 2 x AA 1.5V alkaline batteries ensuring correct orientation. Replace the battery compartment pressing fully home.

Proper Battery Recycling

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

In compliance with the EU Directive 2006/66/EC, the button cell battery located on the printed circuit board inside this product, can be removed at the end of product life, by professional personnel only.

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What is a cylinder thermostat?

... an explanation for householders

A cylinder thermostat switches on and off the heat supply from the boiler to the hot-water cylinder. It works by sensing the temperature of the water inside the cylinder, switching on the water heating when the temperature falls below the thermostat setting, and switching it off once this set temperature has been reached.

Turning a cylinder thermostat to a higher setting will not make the water heat up any faster. How quickly the water heats up depends on the design of the heating system, for example, the size of boiler and the heat exchanger inside the cylinder.

The water heating will not work if a time switch or programmer has switched it off. And the cylinder thermostat will not always switch the boiler off, because the boiler sometimes needs to heat the radiators.

Cylinder thermostats are usually fitted between one quarter and one third of the way up the cylinder. The cylinder thermostat will have a temperature scale marked on it, and it should be set at between 60°C and 65°C, then left to do its job. This temperature is high enough to kill off harmful bacteria in the water, but raising the temperature of the stored hot water any higher will result in wasted energy and increase the risk of scalding.

If you have a boiler control thermostat, it should always be set to a higher temperature than that of the cylinder thermostat. In most boilers, a single boiler thermostat controls the temperature of water sent to both the cylinder and radiators, although in some there are two separate boiler thermostats.