Drayton

Digistat+1 & Digistat+1RF

Room Thermostat

Models:

RF710/22190/22192

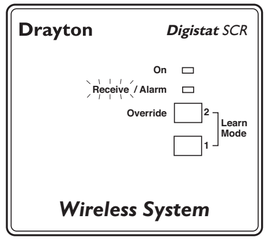
CE

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

Installation Guide

RF PRODUCT ONLY

INSTALLATION OF SCR (RF Models only)



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.

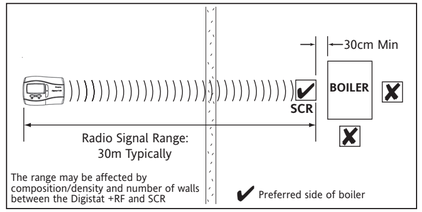
Location

The Digistat 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 +RF room thermostat and not less than 30cm from the boiler side panel.

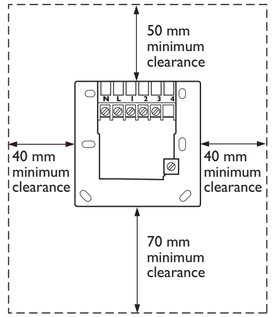
Warning: Installing the SCR too close to the metal side panel or mains cables may interfere with the radio signal.



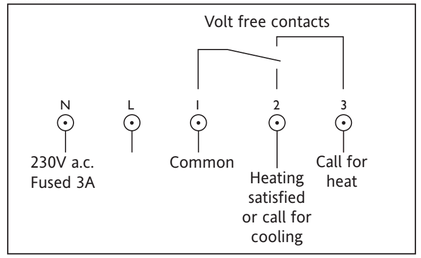
Fixing (minimum wall plate clearances shown)

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

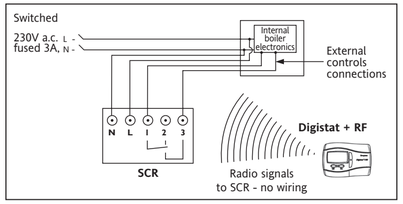


Electrical

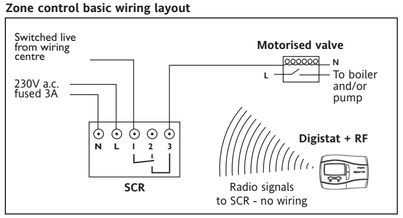


This product is double insulated and does not require an earth connection. The SCR should be wired to the combi boiler or central heating wiring using the correct type of cable or flex. The SCR should be wired in to replace hard wired room or programmable thermostats shown on the system or boiler wiring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

Combi boiler basic wiring layout



Zone control basic wiring layout



COMMISSIONING THE 'WIRELESS SYSTEM' (RF Models only)

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 'override' 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 (OVERRIDE) 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 RF and hold it within sight of the SCR (no closer than one metre).
6. Remove the battery cover and fit the batteries.
7. The Digistat RF should now display the actual room temperature. If the unit has been stored in a cold place, it may take time to warm up.
8. As soon as the batteries are fitted, the red LED on the SCR should flash for 7 seconds and then go out.
   The green LED may be on or off depending on the room temperature at the time of commissioning.
9. If the red LED remains on, remove the batteries on the Digistat 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 RF by pressing the + button 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 RF by pressing the - button 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 RF in the chosen operating position, (see Digistat RF location section) and repeat steps 10 to 14. Once you have confirmed the system operates correctly, fit and secure the Digistat RF to the wall (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.

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Tear here

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User Guide

TACMA THE ASSOCIATION OF CONTROLS MANUFACTURERS

Crystal Mark Clarity approved by Plain English Campaign

What is a room thermostat?

... An explanation for householders

A room thermostat simply switches the heating system on and off as necessary. It works by sensing the air temperature, switching on the heating when the air temperature falls below the thermostat setting, and switching it off once this set temperature has been reached.

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

Neither does the setting affect how quickly the room cools down. Turning a room thermostat to a lower setting will result in the room being controlled at a lower temperature, and saves energy.

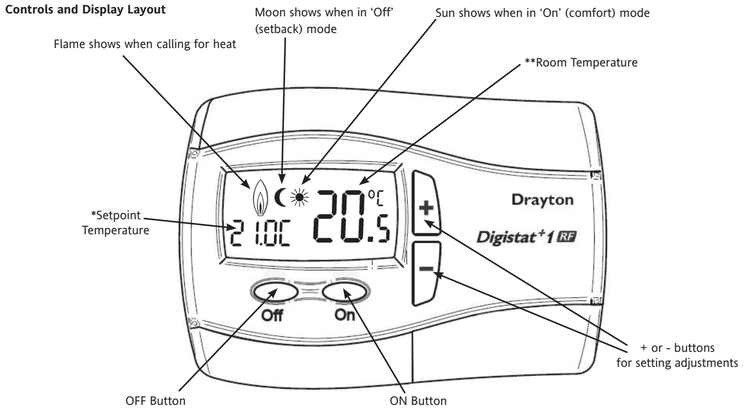
The heating system will not work if a time switch or programmer has switched it off.

The way to set and use your room thermostat is to find the lowest temperature setting that you are comfortable with, and then leave it alone to do its job. The best way to do this is to set the room thermostat to a low temperature – say 18°C – and then turn it up by one degree each day until you are comfortable with the temperature. You won't have to adjust the thermostat further. Any adjustment above this setting will waste energy and cost you more money.

If your heating system is a boiler with radiators, there will usually be only one room thermostat to control the whole house. But you can have different temperatures in individual rooms by installing thermostatic radiator valves (TRVs) on individual radiators. If you don't have TRVs, you should choose a temperature that is reasonable for the whole house. If you do have TRVs, you can choose a slightly higher setting to make sure that even the coldest room is comfortable, then prevent any overheating in other rooms by adjusting the TRVs.

Room thermostats need a free flow of air to sense the temperature, so they must not be covered by curtains or blocked by furniture. Nearby electric fires, televisions, wall or table lamps may prevent the thermostat from working properly.

Controls and Display Layout



* Temperature displayed while adjusting the settings. Once adjustment is complete and after 5 seconds this will disappear. When the OFF button is pushed the word 'OFF' is displayed here.
** When the OFF button is pushed the OFF temperature is displayed here.

FEATURES

This product has the following user adjustable settings

- Required room temperature (temperature setpoint)
- Off temperature setting
- On temperature setting
- Minimum & Maximum temperature settings

Simple Setting or Operating

To set the required room temperature

- **The display normally shows the current room temperature to within 0.5°C**
- **To adjust the required temperature, press the '+' button to increase the temperature setpoint or the '-' button to reduce the temperature setpoint. The LCD will display the temperature setpoint as it is being adjusted in the bottom left of the display.**

- **After a few seconds the display will return to normal operation and will display the actual room temperature & the Sun symbol.**

While adjusting the temperature during normal operation, when you reach the maximum or minimum possible setting the setpoint will flash to indicate you cannot adjust the product further.

To turn the Thermostat Off

- **Press the 'OFF' button and the display will be as shown**

- **If the room temperature falls below the off setpoint temperature, the product will control at the OFF temperature.**

To turn the Thermostat On

You can either:

1. **Press the 'ON' button and the display will show the On setpoint and the room temperature.**

After a few seconds the On setpoint will disappear from the display and the product will control at the On setpoint temperature.

2. **Press the '+' or '-' button and the display will show the Off setpoint and the room temperature.**

Now press the '+' or '-' buttons until the required setpoint temperature is shown.

After a few seconds the setpoint will disappear from the display and the product will control at the new temperature.

Note: The Digistat+1 Room Thermostat will only control the heating when the Timeswitch or Programer is in a timed On period.

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ADVANCED FEATURES

Adjusting the Setpoint using the On and Off buttons

The 'Off' button can also be used to adjust the temperature setting to a setback level and the 'On' button can also be used to adjust the temperature to a comfort level.

The setback feature is designed for those interested in saving energy and have a varied lifestyle. It means that when leaving the house for a shopping trip or a night out, the user can adjust the temperature to a lower level by pressing the 'Off' button, with the comfort level restored on their return by pushing the 'On 'button.

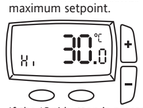
NB. This feature can be used to quickly adjust the temperature setpoint to a setback temperature for economy operation if for example, 'Off' Temperature = 15ºC and the On temperature can be used to quickly adjust the temperature setpoint to a comfort temperature if for example 'On' Temperature = 22ºC.

To change the user adjustable settings

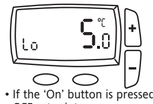
A range of user settings can be adjusted,

1. Maximum Temperature
2. Minimum Temperature
3. Off Temperature
4. On Temperature

- To enter the 'User' menu, press and hold the 'On & Off' button for more than 5 seconds – the display will show 'Hi' and the maximum setpoint.



- If the 'On' button is pressed the display will show 'Lo' and the minimum setpoint.

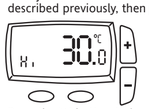


- If the 'On' button is pressed again the display will show 'OFF' and the OFF setpoint.

- If the 'On' button is pressed again the display will show On' and the On setpoint.

Changing the Maximum Temperature Setting

- To adjust the maximum temperature enter the user menu as described previously, then press the 'On' button until 'Hi' is shown.



- Press the '+' button to increase the maximum temperature setting (max. 30ºC) and the '-' button to reduce the maximum temperature setting (min. 5ºC or min temp setting).

Changing the Minimum Temperature Setting

- To adjust the minimum temperature enter the user menu as described previously, then press the 'On' button until 'Lo' is shown.

- Press the '+' button to increase the minimum temperature setting (max. 30ºC or max. temp. setting) and the '-' button to reduce the minimum temperature setting (min. 5ºC).

Changing the Off Temperature

- To adjust the 'Off' temperature enter the user menu as described previously, then press the 'On' button until 'Off' is shown.

- Press the '+' button to increase the Off temperature (max. 16ºC or max. temp. setting) and the '-' button to reduce the Off temperature (min. 5ºC or min. temp. setting).

Changing the On Temperature

- To adjust the 'On' temperature enter the user menu as described previously, then press the 'On' button until 'On' is shown.

- Press the '+' button to increase the On temperature (max. 30ºC or max. temp. setting) and the '-' button to reduce the On temperature (min. 5ºC or min. temp. setting).

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, e.g. you cannot set the on higher than the maximum temperature setting.

To return to normal operation, either press the 'on & off' buttons for more than 5 seconds or wait for 1 minute and it will return automatically.

TAMPER PROOFING (All Models)

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 (All Models)

If the display shows E1, the following faults could have occurred

1. Internal temperature sensor has failed.
2. Ambient temperature is outside product operating temperature range.

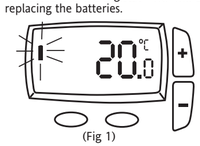
BATTERY REPLACEMENT (All models)

How do I know when to change the batteries.

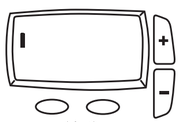
When the batteries start to run low a battery icon will flash in the display, to indicate "low battery" during this time the Digistat +1RF will function normally (see fig 1).

Please replace batteries with 2 x 1.5V IEC LR6 (AA) Alkaline batteries.

When the battery icon alone is shown in the display, the batteries are completely exhausted and the Digistat +1RF will cease to function (see fig 2). Re-activate by replacing the batteries.



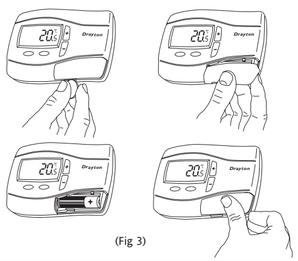
(Fig 1)



(Fig 2)

How to replace the batteries see fig 3.

Remove the battery cover using a coin. Replace the spent batteries with 2 x 1.5V IEC LR6 (AA) Alkaline batteries ensuring correct orientation. Replace the battery cover pressing fully home.



(Fig 3)

RF PRODUCT ONLY

SCR RECEIVER (RF Model only)

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+RF unit.

Situations Requiring Attention

Red LED continually flashing

- This denotes that the batteries in the Digistat+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+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+1RF unit and remove the batteries, after a few seconds (the display will go blank) refit the batteries 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 heating can be manually switched on and off by using the 'OVERRIDE' button on the SCR in a fault situation, even though the red LED will stay on until a satisfactory signal is reinstated.
- Once the SCR receives a satisfactory signal again, it will automatically reset itself for normal operation.

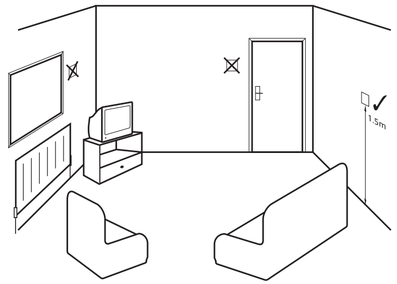
Proper Battery Recycling

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.

Location

Room Thermostat



Care should be taken to mount the thermostat in a position which is not subject to direct sunlight or draughts. Preferably it should be mounted on an inside wall about 1.5m (5ft) above the floor in a position where it can respond to room temperature but away from the direct influence of radiators or other appliances giving off heat.

Signal Strength (RF Models)

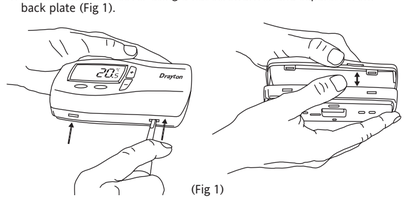
Before fixing the *Digistat+RF* to the wall it is recommended to first check the signal strength from that location.
To do this, remove the batteries, press and hold the '+' button whilst refitting the batteries, the display will show 'rF' which indicates that the *Digistat+RF* is continuously sending an OFF signal to the SCR (receiver). Leave the *Digistat+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+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 regulations.

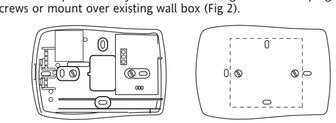
Prior to commencing the installation you must ensure the mains supply is switched off.

1. Remove the front cover using a flat screwdriver and separate from back plate (Fig 1).



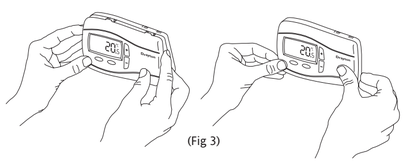
(Fig 1)

2. Fix the back plate directly onto the wall using suitable wall plugs and screws or mount over existing wall box (Fig 2).



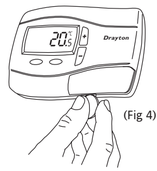
(Fig 2)

3. Replace the front cover by locating in position and pushing fully onto the back cover (Fig 3).



(Fig 3)

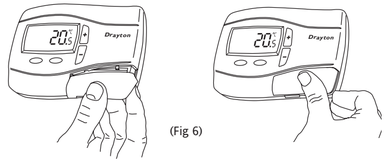
4. Remove the battery cover using a coin (Fig 4).
5. Install the 2 AA batteries provided (Fig 5).



(Fig 4)

(Fig 5)

6. Replace battery cover (fig 6).

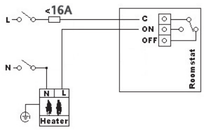


(Fig 6)

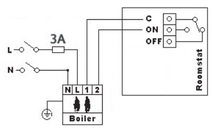
7. The Digistat +1RF is now installed and will automatically start to control the room temperature.

WIRING (Not RF Models)

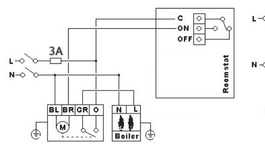
Electric Heat



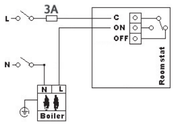
Combi Boiler



Basic Boiler with Zone Valve



Basic Boiler

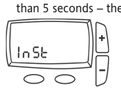


INSTALLER OPTIONS

The following installer options can be adjusted,

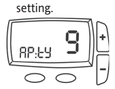
1. Application Type
2. System Capability

- To enter the 'Installer' menu, press and hold the 'Off & +' buttons for more than 5 seconds – the display will show 'Inst' (Installer menu) as shown,



Application Type

- Press the 'On' button until 'Ap:ty' (Application Type) is shown, with the current setting.



- Press the + or – buttons to select between,

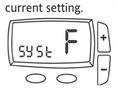
9 = Gas Boiler
0 = Oil Boiler
E = Electric Heat (Relay model only)

Once a value has been changed, pressing 'On' before exiting the menu will save the new setting.

System Capability

Adjust this setting to suit the heating system capability.

- Press the 'On' button until 'Syst' (System Capability) is shown, with the current setting.



- Press the + or – buttons to select between,

F = Fast – the house usually reaches setpoint in < 1 hour
S = Slow – the house usually reaches setpoint in > 1 hour

Once a value has been changed, pressing 'On' before exiting the menu will save the new setting.

To return to normal operation, either press and and hold the 'Off & +' buttons for more than 5 seconds or wait for 1 minute and it will return automatically.

FAULT DIAGNOSIS (All Models)

If the display shows E1, the following faults could have occurred

1. Internal temperature sensor has failed.
2. Ambient temperature is outside product operating temperature range.

Technical Data

DIGISTAT+, DIGISTAT+RF ROOM UNIT	
Power Supply:	2 x AA Size, 1.5V alkaline batteries
Switch Type & Rating: Relay version:	SPDT 16(2)A 230V a.c. Volt free
Min. recommended current:	10mA@24V a.c. (inductive)
Radio frequency: RF version:	433 MHz
Radio Signal Range: (RF Version)	30m typically. The range may be affected by the composition / density and number of walls between the Digistat RF and SCR.
Temperature Range: Control Accuracy:	5 to 30ºC + 0.5K @ 20ºC
Ambient Temperature:	Operating 0ºC to 40ºC / Storage –20ºC to 55ºC
Mounting:	Suitable for surface or conduit box mounting
Wiring: Relay:	Designed for fixed wiring only, to comply with current IEE wiring regulations (BS7671).
RF:	No wiring required
Ball Pressure Test:	75ºC
Pollution Degree:	2

DIGISTAT (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 EN 300 220-2; EN 301 489-3