

# CET B-RF

## *Wireless Electronic Hot Water Cylinder Thermostat User & Installation Instructions*



Certification Mark

*Danfoss*

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# Installation Instructions

## Product overview

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The CET B-RF is a battery powered cylinder thermostat which measures cylinder temperature using a strap-on temperature sensor. The sensor is fitted to the cylinder wall and wired to the thermostat, which is normally located adjacent to the cylinder.

To avoid the need for wiring, the thermostat and boiler or zone valve communicate to each other using secure RF wireless communication. A receiver unit is mounted next to the boiler or control valve and responds to commands issued by the wireless thermostat.

## Specification

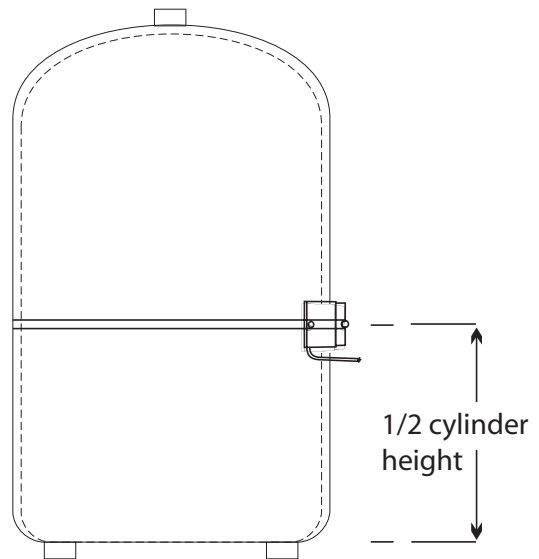
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<b>Product specification (Thermostat)</b>	
Power supply :	2 x AA/LR6/MN1500 alkaline batteries
Transmitter frequency:	433.92MHz
Transmitter range:	30 metres line of sight
Temperature range:	40 - 65°C
Max. temp of thermostat:	45°C
Design standard:	EN60730-2-9 (EN300220 for RF)
Dimensions, mm:	85 wide x 86 high x 42 deep
Control pollution:	Degree 2
Ball Hardness	75°C
Temperature accuracy	±1°C
<b>RX receiver unit:</b> see instructions packed with receiver	

## Installation - Thermostat

**!** *This product should only be installed by a qualified electrician or competent heating installer and should be in accordance with the current edition of the IEEE wiring regulations.*

1. The clamp on sensor should be mounted onto the cylinder wall at a height equivalent to  $\frac{1}{2}$  the height of the cylinder. Care should be taken to remove any insulation material from the cylinder and to ensure that the copper surface of the cylinder is clean. See diagram opposite for details.

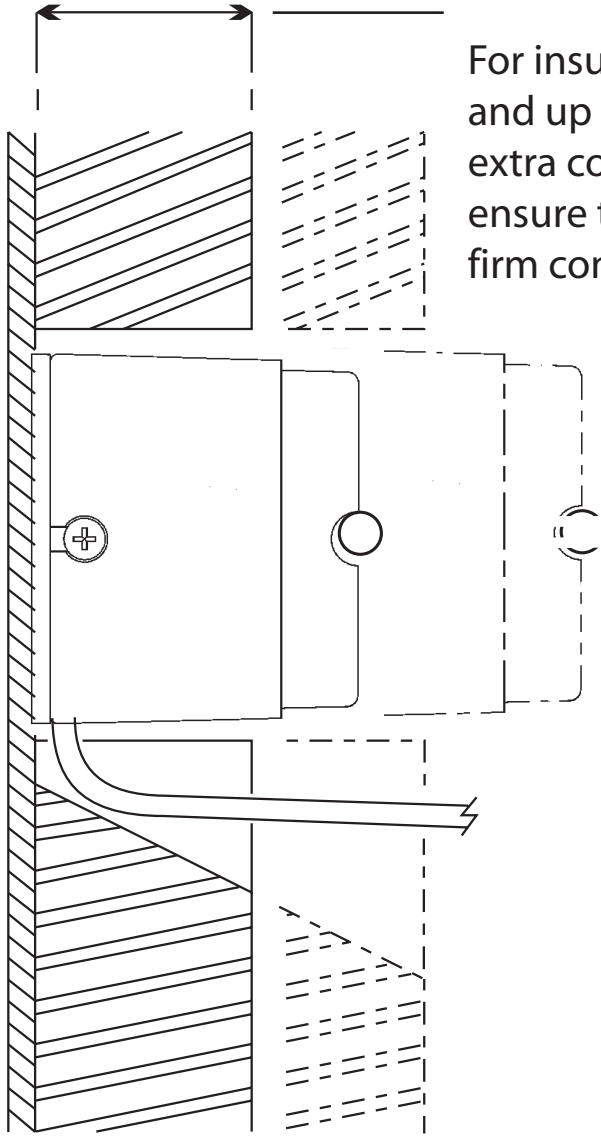


## Thermostat installation

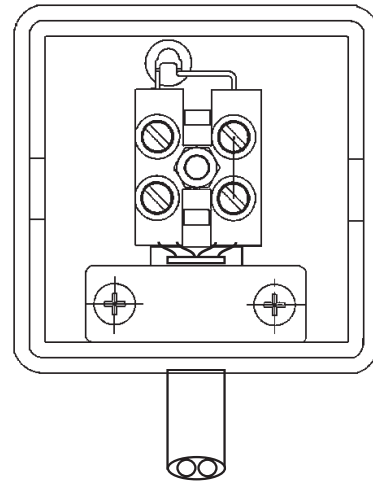
2. Before attaching the sensor to the cylinder using the strap provided, connect a 2-core cable to the sensor to allow interconnection to the thermostat setting unit.
3. Apply the contact paste provided to the part of the sensor in contact with the cylinder and clamp the sensor to the cylinder wall.

A spacer piece is provided for use with cylinders that have thick insulation (see opposite).

4. Mount the thermostat wallplate on to a wall next to the cylinder. Connect the cable from the sensor to terminals 2 & 3 of the wallplate (see wiring diagram on page 8).
5. Now mount the thermostat setting unit onto the wallplate and secure using the two screws on the bottom of the wallplate.

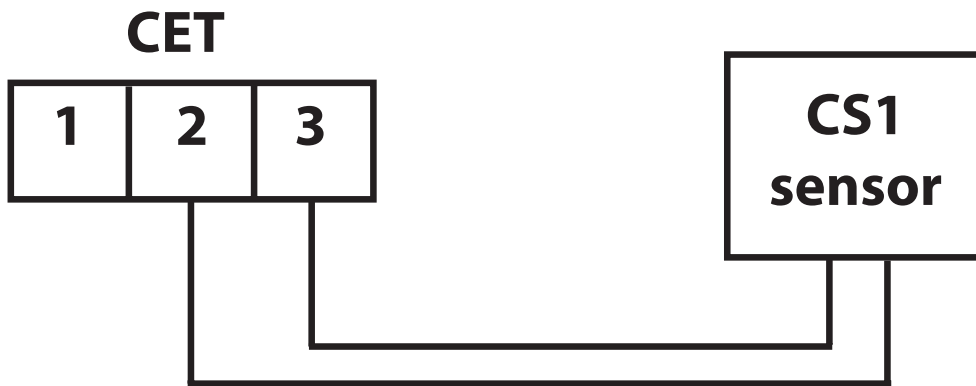


For insulation thicker than 25mm and up to 55mm thick, use the extra cover supplied as a spacer to ensure that the sensor is held in firm contact with the cylinder wall.



## Sensor Wiring

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Cable specification: minimum cross section 0.5mm<sup>2</sup>

## Installation - RX Receiver unit

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1. Mount the RX wallplate onto the wall - cable access must be from behind or below the wallplate.

Typical wiring diagrams, showing the interconnection between time controls and zone valves, are shown on pages 11-14.

**NOTE:** *Earth connections are for customer use only.*

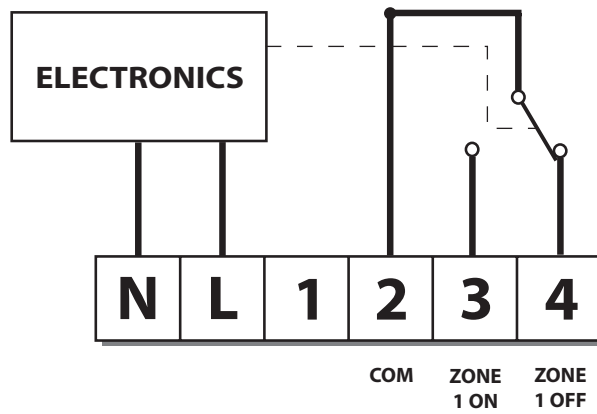
2. The RX receiver may now be mounted onto the wallplate and secured using the two screws on the bottom of the wallplate.

**!** *Important note: Please ensure that when positioning the thermostat setting unit that there are no large metal obstructions, ie cylinder or boiler case, sitting in between the thermostat and the RX receiver unit as these will block radio communication and prevent the thermostat from operating correctly.*

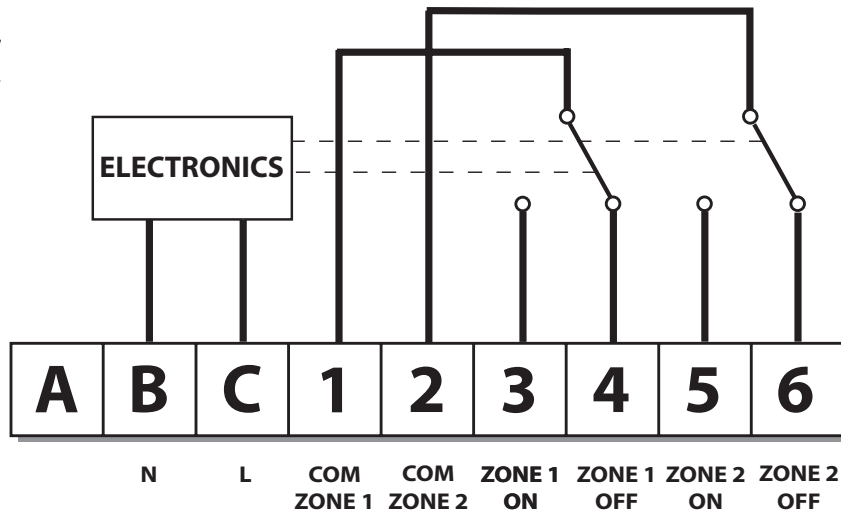
## Receiver Wiring (RF only)

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**RX1**

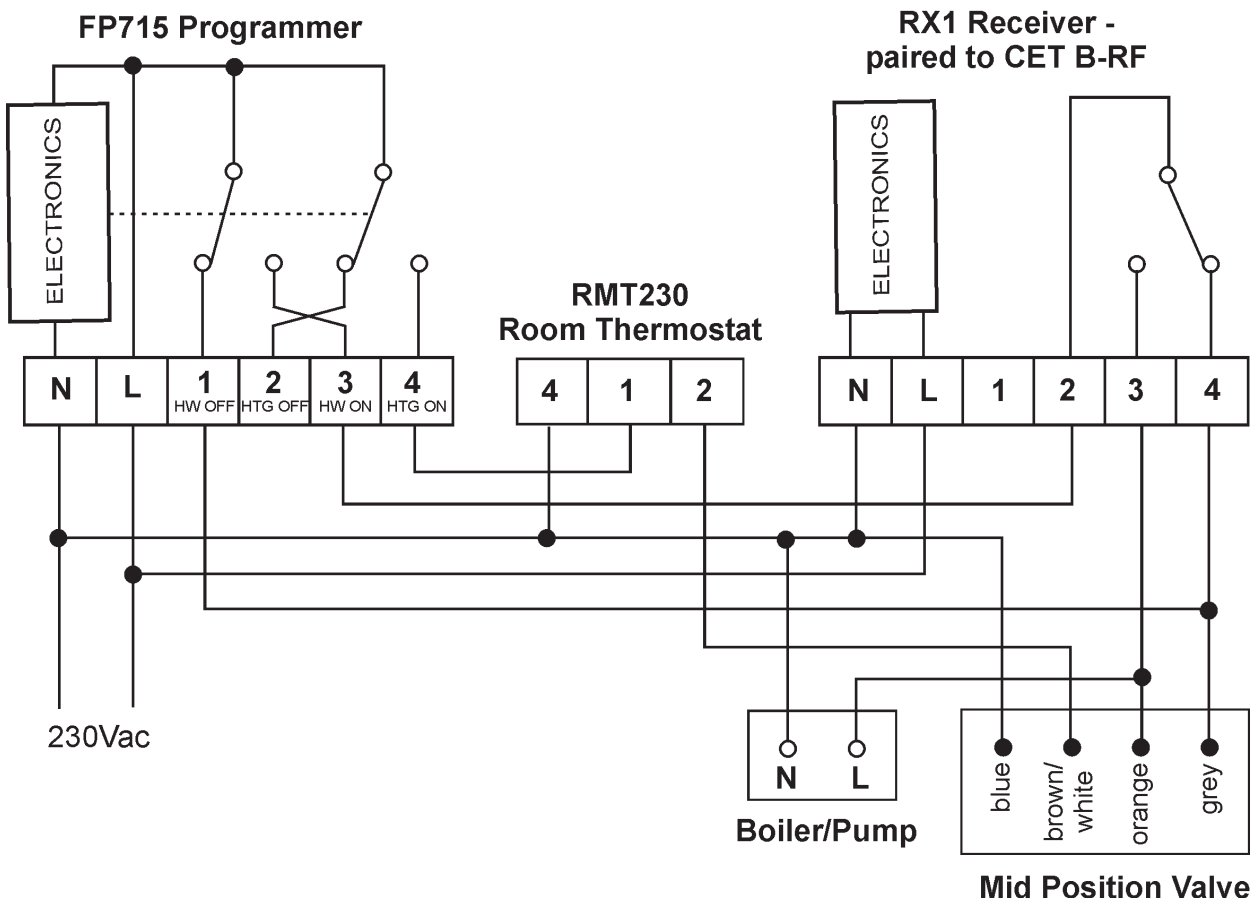


**RX2C**



- Note 1) For mains voltage operated systems link terminal 2 to mains live supply.  
 2) Power supply to unit must not be switched by timeswitch.

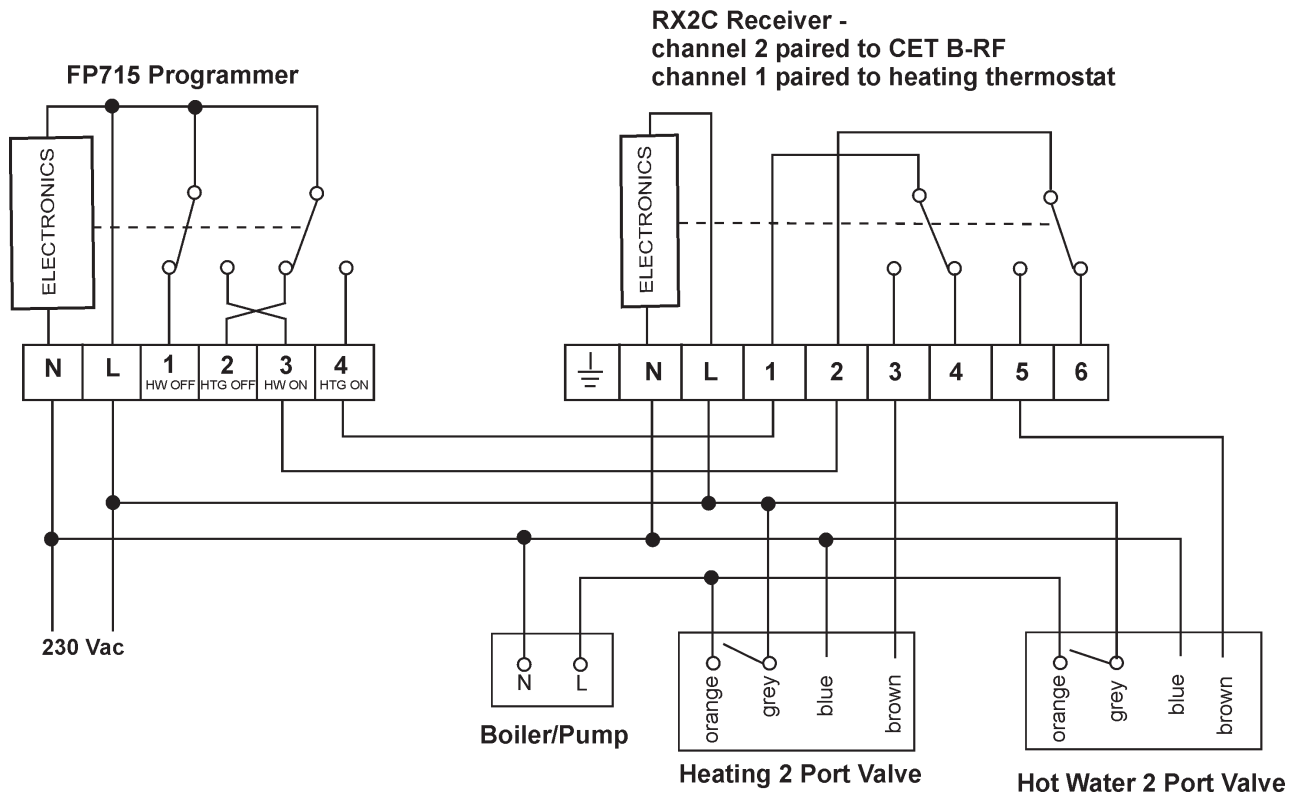
# Hard Wired Heating with Wireless Hot Water Control, 3 Port Mid-Position Valve



Hard wired heating, 3-port

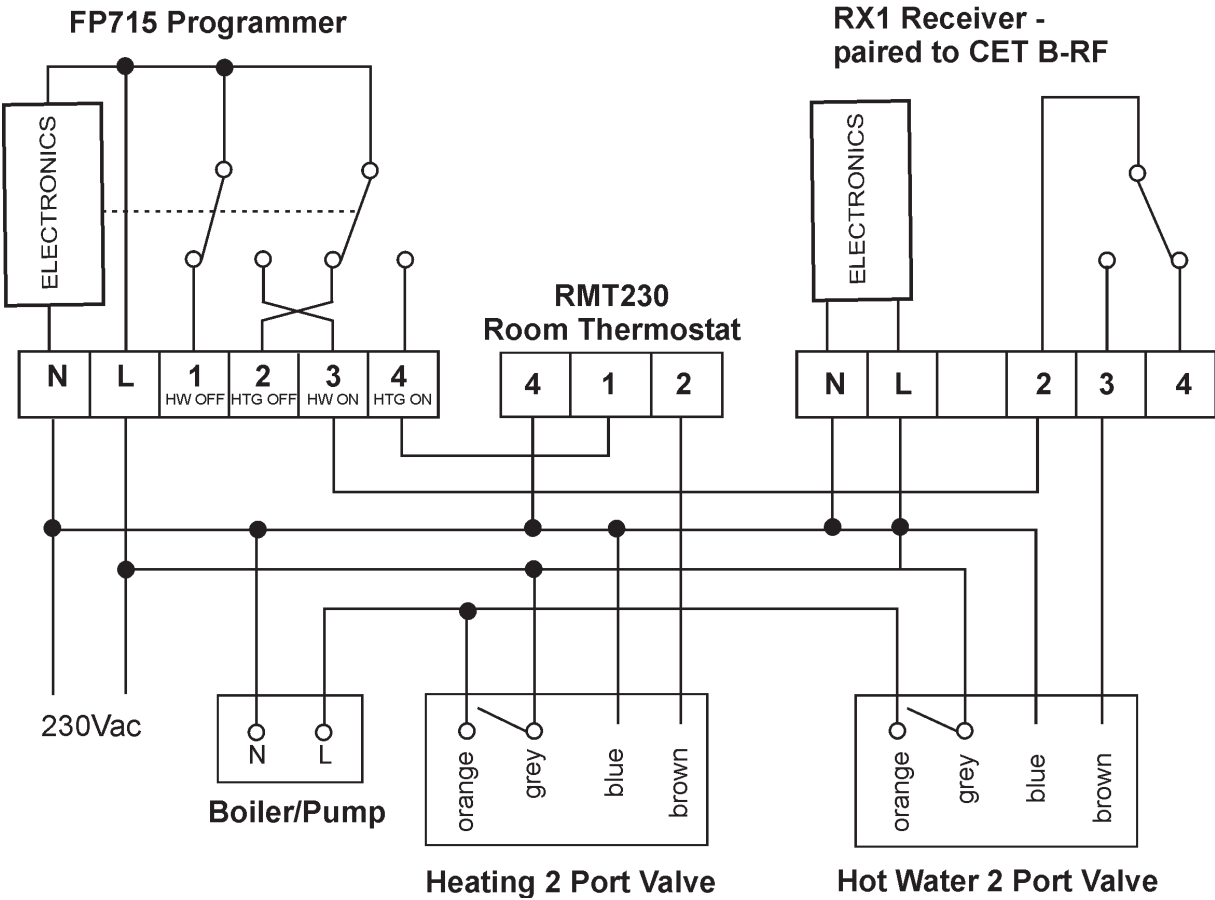
# Wireless heating, 2 x 2-port

## Wireless Heating and Hot Water Control, using 2 x 2 Port Valves

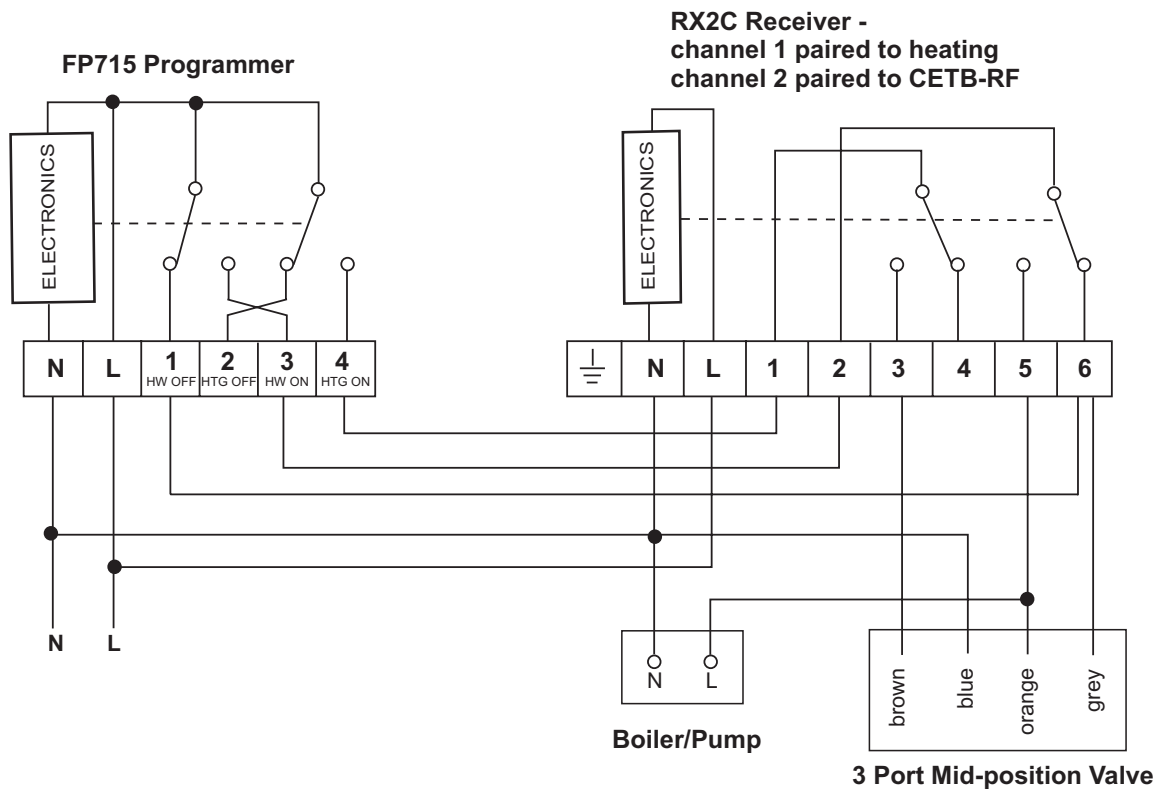


# Hard Wired Heating with Wireless Hot Water Control, 2 x 2 Port Valves

Hard wired heating, 2 x 2-port



# Wireless Heating & Hot Water Control, with 3 Port Mid Position Valve



## Commissioning Instructions

*If the thermostat and receiver have been supplied together in a combined pack the units have been paired in the factory and no commissioning is required (RX1 only).*

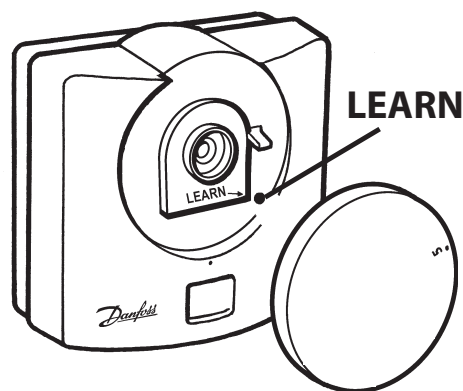
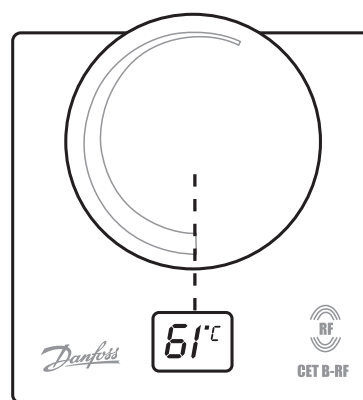
**Step 1** Ensure that the power to the RX1 is turned on and that the programmer is calling.

**Step 2** **CET B-RF**

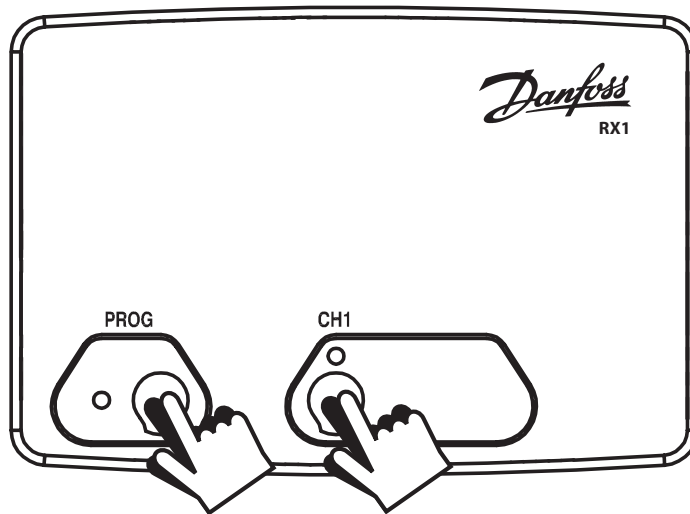
Turn the thermostat dial so the widest end of the setting line is lined up with the LCD display (see opposite).

Remove dial, press & hold **LEARN** button for 3 seconds (located under setting dial).

**Do not replace the setting dial yet.**



NOTE: Thermostat now transmits unique identity signal continuously for 5 mins.



- Step 3 RX1**  
Press and hold buttons **PROG** and **CH1** until green LED light flashes once
- Step 4 RX2C**  
For RX2C repeat steps 2 and 3 for channel 2
- Step 5 CET B-RF**  
Replace the thermostat dial, ensuring the widest end of the setting line is lined up with the LCD display.

Test the controls in the normal way to ensure that boiler, pump and associated control valve(s) operate in the correct sequence.

Having tested the controls, the thermostat should be set to the required temperature. This can be read directly from the LCD display as the setting knob is moved.



## 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.

## User Instructions

### Setting the temperature

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To alter the temperature that the thermostat controls at, simply turn the setting dial on the thermostat. As the setting dial is moved the small LCD display will show the selected temperature.

**Please Note:** *In order to reduce the risk of Legionella infection, it is recommended that water be stored at not less than 60°C.*

### Display

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Once the required temperature is set, the LCD display will show the temperature of the water in the cylinder close to the position where the sensor is located.

A small flame icon is lit in the display whenever the thermostat is calling for heat. Please note that the boiler will only run when both the thermostat and the time control are calling.

## **Battery replacement**

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Batteries will last in excess of two years. When batteries need to be changed a battery icon will flash in the display.

To change the batteries loosen the two screws on the base of the thermostat and lift thermostat off base plate. Batteries are located in the rear of the thermostat unit and should be replaced using two high quality AA size alkaline cells.



**For a large print version of these  
instructions please contact the  
Marketing Services Department on  
0845 121 7400.**

This product complies with the following EC Directives:

**Electro-Magnetic Compatibility Directive.**

**(EMC) (89\336\EEC), (92\31\EEC)**

**Low Voltage Directive.**

**(LVD) (73\23\EEC), (93\68\EEC)**



## **For problems relating to your heating controls ...**

*Visit our website:*

**[www.danfoss-randall.co.uk](http://www.danfoss-randall.co.uk)**

*Email our technical department:*

**[drl\\_technical@danfoss.com](mailto:drl_technical@danfoss.com)**

*Call our technical department*

**0845 121 7505**

*(8.45-5.15 Mon-Thurs, 8.45-4.45 Fri)*

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The Danfoss logo is written in a stylized, cursive script font.

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