Wireless Heating Control Packs
Catalogue
Danfoss Randall’s UK based sales and manufacturing site

Danfoss Randall Limited, Ampthill Road, Bedford, MK42 9ER

Reception
Tel: 0845 1217 400
Fax: 0845 1217 515

UK Sales
Tel: 0845 1217 500
Fax: 0845 1217 510

Devi Sales
Tel: 0845 434 9990
Fax: 0845 1217 510

Customer Service
Tel: 0845 1217 502

Training
Tel: 0845 1217 431
Fax: 0845 1217 513

Literature
Tel: 0845 1217 431
Fax: 0845 1217 513

Technical Support
Tel: 0845 1217 505
Fax: 0845 1217 510

Republic of Ireland
Reception
Tel: 1800 930 242

Sales
Tel: 1800 930 243
Fax: 1800 556 691

Technical Support
Tel: 1800 930 244

Efficient lean production facility

State of the art, temperature controlled auto assembly cell

On-site product testing laboratory used internally and externally for product validation and research

Photography Acknowledgements: Martin D’Hara, Yuri Arcurs, Erik Reis and Wavebreakmedia Ltd.
Contents

Wireless Control Packs

Product Selector ................................................................. 4

RET B-RF .................................................................................. 5
Dial Setting Room Thermostat

TP4000-RF .............................................................................. 6
Programmable Room Thermostat (24 Hour)

TP5000Si-RF .......................................................................... 7
Programmable Room Thermostat (24 Hour or 5/2 Day)

TP7000-RF .............................................................................. 8
Programmable Room Thermostat (24 Hour, 5/2 Day or 24 Hour)

CET B-RF .................................................................................. 9
Hot Water Thermostat

System Information .............................................................. 10-25

Combination Boiler System (1 Zone) ........................................ 10

2 Zone Pack ............................................................................ 12
Independent Heating Times

Mid Position Valve Systems (2 Zones) .................................... 14
With 2-Channel Programmer and Wireless Dial Setting Room Thermostat and Hot Water Thermostat

2 Port Valve Systems (2 Zones) ................................................ 16
With 2-Channel Programmer and Wireless Dial Setting Room Thermostat and Hot Water Thermostat

3 Zone Pack (Part L Compliant) .............................................. 18
With 2-Channel Programmer and Wireless Dial Setting Room Thermostat and Hot Water Thermostats

3 Zone Pack (Part L Compliant) .............................................. 20
With 2-Channel Programmer and Wireless Dial Setting Room Thermostat and Hot Water Thermostats

2 Port Valve Systems (2 Zones) ................................................ 22
With 2-Channel Programmer and Wireless Room Thermostat and Hot Water Thermostat for Unvented Hot Water Systems

3 Zone Pack (Part L Compliant) .............................................. 24
Single Channel Programmer and Wireless Room Thermostat.

Wiring Diagrams ...................................................................... 26
General Thermostat Advice ..................................................... 27
Installation Tips ...................................................................... 28

www.danfoss-randall.co.uk
### Wireless Room Thermostats including Control Packs with RX Receivers and Motorised Valves

<table>
<thead>
<tr>
<th>Contents</th>
<th>Dial Setting</th>
<th>Programmable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 Port Pack</td>
<td>3 Zones Part L</td>
</tr>
<tr>
<td>HP22 2 Port Valve</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>HS3 Mid Position Valve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RET B-RF</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>TP50005i-RF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TP7000-RF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CET B-RF</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>RX2C Receiver</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>RX1 Receiver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP715Si Programmer</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TS715Si Timeswitch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WC4B Wiring Centre</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Order No</td>
<td>087N6500V4</td>
<td>087N6500CB</td>
</tr>
<tr>
<td>Page</td>
<td>16</td>
<td>20</td>
</tr>
</tbody>
</table>

### Wireless Room Thermostats including Set Solution with RX1 Receiver (Battery Powered)

<table>
<thead>
<tr>
<th>Dial-setting</th>
<th>Programmable</th>
</tr>
</thead>
<tbody>
<tr>
<td>With LCD</td>
<td>24 Hour</td>
</tr>
<tr>
<td>RET B-RF</td>
<td>TP4000-RF</td>
</tr>
<tr>
<td>Order No</td>
<td>087N727600</td>
</tr>
<tr>
<td>Page</td>
<td>5</td>
</tr>
</tbody>
</table>

### Wireless Hot Water Thermostat including Set Solution with RX1 Receiver (Battery Powered)

<table>
<thead>
<tr>
<th>Dial Setting with LCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CET B-RF</td>
</tr>
<tr>
<td>Order No</td>
</tr>
<tr>
<td>Page</td>
</tr>
</tbody>
</table>

### Wireless Receivers for use with Wireless Room and Cylinder Thermostats (Mains Powered)

<table>
<thead>
<tr>
<th>Contact Details</th>
<th>Single Channel</th>
<th>Two Channel</th>
<th>Three Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 x SPDT</td>
<td>1 x SPDT</td>
<td>2 x SPDT</td>
</tr>
<tr>
<td>RX1</td>
<td>RX2</td>
<td>RX2C</td>
<td>RX3B</td>
</tr>
<tr>
<td>Order No</td>
<td>087N747600</td>
<td>087N747700</td>
<td>087N747900</td>
</tr>
</tbody>
</table>
Battery Powered Room Thermostat with Setting Dial

RET B-RF

The RET B-RF is a micro-processor powered room thermostat with many advanced features.

The significant difference between it and many other similar thermostats is that it retains the setting dial that so many consumers are fully accustomed to and which, generally speaking, can be set and adjusted by most people intuitively.

The RET B-RF also incorporates an LCD display which in normal operation displays actual room temperature. However, when the setting dial is moved, the display momentarily changes to show set temperature. The display also incorporates icons to indicate output status and low battery indication.

The RET B-RF utilises secure digital wireless signals to communicate with a receiver unit mounted adjacent to the boiler or in the airing cupboard. This removes the need for any fixed wiring between the thermostat and other controls, reducing installation time and eliminating the risk of damaging decoration and furnishing, particularly important when upgrading existing systems, or at time of boiler change.

Thermostats and receivers sold as sets are matched in the factory using a simple commissioning process, details of which can be found at the rear of this publication.

The RET B-RF is factory set for On/Off control normally used when controlling motorised valves. In systems where the thermostat directly controls the operation of the boiler, it can be set by the installer to chrono-proportional output. In this mode, the micro-processor imposes a defined number of operating cycles per hour on the systems, and within each cycle, determines the on and off time of the boiler dependant upon load. This type of control, which utilises an advanced PI control algorithm, significantly improves comfort and economy compared to regular On/Off control.

The RET B-RF is ideally suited for use in combi boiler systems and in systems where an additional time and temperature control zone is added to an existing heating system. All products are available in convenient boxed sets that include a single channel receiver. If the system is zoned and requires more than one thermostat, purchase thermostats as loose items and select a receiver unit with the appropriate number of channels from the table.

### Thermostat Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>RET B-RF</th>
<th>RET B-LS-RF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No - Without Receiver</td>
<td>087N727000</td>
<td>087N727200</td>
</tr>
<tr>
<td>Code No - Set with RX1 Receiver</td>
<td>087N727600</td>
<td>-</td>
</tr>
<tr>
<td>Auto/Off Selector Switch</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>Off, 5 - 30°C</td>
<td></td>
</tr>
<tr>
<td>Setting Dial and LCD Display</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chrono-proportional or On/Off Control</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Selectable Fahrenheit or Centigrade Scaling</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Transmitter Frequency</td>
<td>433.92 MHz</td>
<td></td>
</tr>
<tr>
<td>Transmitter Range</td>
<td>Typically 30 metres</td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td>2 x AA/LR6/MN 1500 Alkaline Batteries</td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>85 Wide x 86 High x 42 Deep</td>
<td></td>
</tr>
</tbody>
</table>

(1) Please ensure there are no large metal objects between thermostat and receiver, as these will interfere with radio signal.

### Receiver Options

<table>
<thead>
<tr>
<th>Receiver Options</th>
<th>RX1</th>
<th>RX2</th>
<th>RX2C</th>
<th>RX3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Codes</td>
<td>087N747700</td>
<td>087N747700</td>
<td>087N747900</td>
<td>087N747800</td>
</tr>
<tr>
<td>Single Zone Receiver</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Two Zone Receiver</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Three Zone Receiver</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Power Supply (receivers)</td>
<td>230 Vac ±15%, 50/60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Details, Commons Linked Internally</td>
<td>1 x SPDT</td>
<td>1 x SPDT</td>
<td>2 x SPST</td>
<td>1 x SPDT</td>
</tr>
<tr>
<td>Contact Details, Independent Commons, Volt Free</td>
<td>2 x SPDT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Rating</td>
<td>10-230 Vac, 3 (1) A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>138 Wide x 88 High x 32 Deep</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Programmable Room Thermostat TP4000-RF (24 Hour)**

Easy to use programmable thermostat providing different temperatures at different times of the day; ideal for Combi boiler installations.

The TP4000-RF programmable room thermostat combines the functions of a timeswitch and room thermostat into an easy to use unit, which provides up to six time and temperature events per day.

This flexibility allows the operation of the heating system to be matched to the lifestyle of the user, providing different temperatures at different times of the day.

The TP4000-RF is a 24-hour room thermostat, where the demand is for the same programme each day. Temporary adjustments can be made to control temperature but the override is cancelled at the beginning of the next event. It also has an easy to use ‘frost protection’ setting feature.

The TP4000-RF is designed with modern times in mind.

---

### Thermostat Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>TP4000-RF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No - Without Receiver</td>
<td>087N792000</td>
</tr>
<tr>
<td>Code No - Set with RX1 Receiver</td>
<td>087N792100</td>
</tr>
<tr>
<td>24 Programming</td>
<td></td>
</tr>
<tr>
<td>Temperature Range</td>
<td>Off, 5-30°C</td>
</tr>
<tr>
<td>LCD Display</td>
<td></td>
</tr>
<tr>
<td>On/Off Control</td>
<td></td>
</tr>
<tr>
<td>Selectable Fahrenheit or Centigrade Scaling</td>
<td></td>
</tr>
<tr>
<td>Transmitter Frequency</td>
<td>433.92 MHz</td>
</tr>
<tr>
<td>Transmitter Range</td>
<td>Typically 30 metres (1)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>2 x AA/LR6/MN 1500 Alkaline Batteries</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>85 Wide x 86 High x 42 Deep</td>
</tr>
</tbody>
</table>

(1) Please ensure there are no large metal objects between thermostat and receiver, as these will interfere with radio signal.

### Receiver Options

<table>
<thead>
<tr>
<th>Receiver Options</th>
<th>RX1</th>
<th>RX2</th>
<th>RX2C</th>
<th>RX3</th>
<th>RX3B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Codes</td>
<td>087N747600</td>
<td>087N747700</td>
<td>087N747900</td>
<td>087N747800</td>
<td>087N48400</td>
</tr>
<tr>
<td>Single Zone Receiver</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two Zone Receiver</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Three Zone Receiver</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Common Heat Demand Output</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Power Supply (receivers)</td>
<td>230 Vac ±15%, 50/60 Hz</td>
<td>1 x SPDT</td>
<td>1 x SPST</td>
<td>1 x SPDT</td>
<td>1 x SPDT</td>
</tr>
<tr>
<td>Contact Details, Commons Linked Internally</td>
<td>1 x SPDT</td>
<td>1 x SPST</td>
<td>2 x SPST</td>
<td>2 x SPST</td>
<td>1 x SPDT</td>
</tr>
<tr>
<td>Contact Details, Independent Commons, Volt Free</td>
<td>2 x SPDT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Rating</td>
<td>10-230 Vac, 3 (1) A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>138 Wide x 88 High x 32 Deep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A programmable thermostat which provides different temperatures at different times of the day; ideal for Combi boiler and floor heating installations.

The TP5000Si-RF is one of the easiest to use 5/2 day programmable thermostats on the market today. Providing up to 6 time and temperature events for each week-day, with a separate set of events for weekends, the TP5000Si-RF meets the lifestyle requirements of most households. The thermostat incorporates many useful features including a service interval function, factory set clock, frost setting and temporary temperature overrides.

Aesthetically attractive, with a slim design, the TP5000Si-RF utilises secure digital wireless signals to communicate with a receiver unit mounted adjacent to the boiler or in the airing cupboard. This removes the need for any fixed wiring between the thermostat and other controls, reducing installation time and eliminating the risk of damaging decoration and furnishing, particularly important when upgrading existing systems, or at time of boiler change. Thermostats and receivers sold as sets are matched in the factory using a simple commissioning process.

Chrono-proportional control is the standard setting for the TP5000Si-RF but advanced conventional ON/OFF control is an installer-set option. This modulating control mode uses a cycling pattern within which boiler on/off percentages are varied to satisfy heating requirements. Chrono-proportional cycling rates of 3, 6, 9 or 12 per hour can be selected.

**Service Interval Function**

The optional Service Interval Function incorporated into the TP5000Si-RF helps landlords meet the boiler servicing requirements of Gas Safety Regulation 36. The unit provides audible and visual warnings from 28 days before servicing is due and ultimately reduces the heating output should the due date pass. Full heating operation can only be restored by an authorised installer.

### Programmable Room Thermostat TP5000Si (24 Hour or 5/2 Day)

- Chrono-proportional or on/off
- Easy to programme and operate
- Up to 6 events per day
- Thermostat mode and frost protection
- Utilises secure digital wireless communication

### Ideal solution for system upgrades
- Set solutions include thermostat and receiver
- Can be combined with other Danfoss wireless thermostats
- Service interval function

### Wireless versions

<table>
<thead>
<tr>
<th>Code without receiver</th>
<th>Code for set c/w single channel receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>087N791200</td>
<td>087N791400</td>
</tr>
</tbody>
</table>

### Programmable operation

- 24 hour or 5/2 day

### Temperature range

- OFF, 5-30°C

### Clock display

- 24 hour

### Factory pre-set programmes

- Yes

### Room temperature override

- Yes
- Adjustable

### Display time or temperature option

- Yes

### Thermostat mode and frost protection

- Yes

### Weekend into weekday override

- Yes

### Control Type

- Chrono-proportional or on/off control

### Power supply, thermostats

- 2 x AA/MN1500/LR6 alkaline batteries

### Maximum ambient temperature

- 45°C

### Contact type and rating (hard-wired models)

- 10-230 Vac, 3(1)A

### Transmission frequency (RF models)

- 433.92 MHz

### Transmission range (RF models)

- 30 metres max.

### Dimensions (mm)

- 110 wide x 88 high x 28 deep

### Notes:

1. Memory is retained for 1 minute during battery change.
2. Please ensure there are no large metal objects between thermostat and receiver as these will interfere with radio signal.
3. Can be configured for remote temperature sensor, limit sensor, window contact or telephone activated switch contact.
4. Remote sensor is supplied as an accessory, if remote sensor is required order TS2 sensor, code 087N681100.

### Receivers (RF models)

<table>
<thead>
<tr>
<th>Code No.</th>
<th>RX-1</th>
<th>RX-2</th>
<th>RX-2C</th>
<th>RX-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No.</td>
<td>087N747600</td>
<td>087N747700</td>
<td>087N747900</td>
<td>087N747800</td>
</tr>
<tr>
<td>Number of zones receiver covers</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Power supply (receivers)</td>
<td>230 Vac, ±15%, 50/60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact details</td>
<td>1-SPDT</td>
<td>1-SPDT, 1-SPST</td>
<td>2-SPDT</td>
<td>1-SPDT, 2-SPST</td>
</tr>
<tr>
<td>Contact rating</td>
<td>10-230 Vac, 3(1)A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>138 wide x 88 high x 32 deep</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Programmable Room Thermostat
TP7000-RF (7 Day, 5/2 Day or 24 Hour)

For situations where a higher flexibility of control is required.

The TP7000-RF provides full 7-day programming with up to six different time and temperatures each day, ideal for households with more complex lifestyles.

This thermostat incorporates many advanced features including optimum start control and 99 day holiday programming options. This is in addition to many user features including frost setting, timed temporary temperature overrides and customisable LCD display settings.

Aesthetically attractive, with a slim design, the TP7000-RF utilises secure digital wireless signals to communicate with a receiver unit mounted adjacent to the boiler or in the airing cupboard. This removes the need for any fixed wiring between the thermostat and other controls, reducing installation time and eliminating the risk of damaging decoration and furnishing, particularly important when upgrading existing systems, or at time of boiler change. Thermostats and receivers sold as sets are matched in the factory using a simple commissioning process.

Chrono-proportional control is the standard setting for the TP7000-RF but advanced conventional ON/OFF control is an installer-set option. This modulating control mode uses a cycling pattern within which boiler on/off percentages are varied to satisfy heating requirements. Chrono-proportional cycling rates of 3, 6, 9 or 12 per hour can be selected.

• True 7 day programming
• 7 day or 5/2 day operation
• Up to 6 time and temperature changes per day
• Built-in holiday function
• Optimum Start Control
• Chrono-proportional or On/Off Control
• Convenient user overrides
• Wallplate construction

<table>
<thead>
<tr>
<th>Wireless versions</th>
<th>TP7000-RF</th>
<th>TP7000A-RF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No. - wireless model, built-in sensor</td>
<td>087N741000</td>
<td>087N741100</td>
</tr>
<tr>
<td>Code No. - wireless models, remote sensor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code No. - for set c/w RX-1 receiver (single channel)</td>
<td>087N741800</td>
<td></td>
</tr>
<tr>
<td>Temperature range (°C or °F display)</td>
<td>Off, 5-30°C (41-86°F)</td>
<td></td>
</tr>
<tr>
<td>Time and temperature events per day</td>
<td>Up to 6</td>
<td></td>
</tr>
<tr>
<td>Room temperature override</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display time or temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermostat mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extend function 1, 2 or 3 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holiday function, up to 99 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Type</td>
<td>Chrono-proportional or on/off control</td>
<td></td>
</tr>
<tr>
<td>Optimum start control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage rating of contacts (hard-wired models)</td>
<td>10-250 Vac, 50/60 Hz</td>
<td></td>
</tr>
<tr>
<td>Current rating of contacts (hard-wired models) (V)</td>
<td>3(1)A</td>
<td></td>
</tr>
<tr>
<td>Switching action of contacts (hard-wired models)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmitter frequency (wireless models)</td>
<td>433.92 MHz</td>
<td></td>
</tr>
<tr>
<td>Transmitter range (wireless models)</td>
<td>30 metres</td>
<td></td>
</tr>
<tr>
<td>Power supply (Memory is retained for 1 minute during battery change)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkaline batteries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum ambient temperature</td>
<td>45°C</td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>135 wide x 88 high x 28 deep</td>
<td></td>
</tr>
</tbody>
</table>

(1) TP7000M has battery back-up based upon Nickel Metal Hydride cell. This takes 6 days to fully charge, with a minimum of 24 hours before back-up service is available.
(2) Requires RX receiver unit, please see table below.
(3) When switching low voltage, contacts must carry a minimum of 10mA
(4) Please ensure no large metal objects between thermostat and receiver, as these will interfere with radio signal

<table>
<thead>
<tr>
<th>Receivers (RF models)</th>
<th>RX-1</th>
<th>RX-2</th>
<th>RX-2C</th>
<th>RX-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No.</td>
<td>087N747600</td>
<td>087N747700</td>
<td>087N747900</td>
<td>087N747800</td>
</tr>
<tr>
<td>Number of zones receiver covers</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Power supply (receivers)</td>
<td>230 Vac, ±15%, 50/60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact details</td>
<td>1-SPDT, 1-SPST</td>
<td>1-SPDT</td>
<td>2-SPDT</td>
<td>1-SPDT, 2-SPST</td>
</tr>
<tr>
<td>Contact rating</td>
<td>10-230 Vac, 3(1)A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>138 wide x 88 high x 32 deep</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS2 Remote Air Sensor</td>
</tr>
<tr>
<td>TS3 Remote Floor Sensor</td>
</tr>
<tr>
<td>Table Stand</td>
</tr>
</tbody>
</table>
The CET B-RF is a dial setting electronic cylinder thermostat which utilises a clamp-on sensor that is hard-wired to the thermostat control module which is normally mounted on an adjacent wall.

The CET B-RF incorporates an LCD which during normal operation displays actual cylinder temperature and thermostat output status. This changes momentarily to display set temperature whenever the setting dial is moved. Time control is provided by conventional time control.

Wireless hot water thermostats are a new concept and are particularly suited to system boilers which no longer require the heating and hot water zone valves to be located in the airing cupboard. Instead they can be located adjacent to the boiler to reduce the amount of field wiring and associated disruption. CET B-RF utilises secure digital wireless signals to communicate with receiver units that can be mounted up to 30 metres from the thermostat, doing away with the need for hard-wiring between the thermostats and other system components. Thermostats and receivers sold as sets are matched in the factory using a simple commissioning process, details of which can be found at the rear of this publication.

Combined with a wireless room thermostat, this type of control can significantly reduce the installation time and the risk of damage to furnishing and decoration associated with more traditional hard-wired solutions.

CET B-RF is available in a convenient boxed set that includes a single channel receiver. If the system is zoned and requires more than one thermostat, purchase thermostats as loose items and select a receiver unit with the appropriate number of channels.

**CET B-RF Thermostat Features**

- Dial setting thermostat
- Set solutions include thermostat and receiver
- Can be combined with other Danfoss wireless thermostats

### Thermostat Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>CET B-RF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No - Without Receiver</td>
<td>087N727700</td>
</tr>
<tr>
<td>Code No - Set with RX1 Receiver</td>
<td>087N727800</td>
</tr>
<tr>
<td>Dial-setting Thermostat with LCD</td>
<td>-</td>
</tr>
<tr>
<td>Programmable Thermostat with LCD</td>
<td>-</td>
</tr>
<tr>
<td>5/2 Day or 7 Day Programming Options</td>
<td>-</td>
</tr>
<tr>
<td>Up to 3 Time and Temperature changes per Day</td>
<td>-</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>Off, 40-65°C</td>
</tr>
<tr>
<td>Tank Mounting Temperature Sensor (°C)</td>
<td>-</td>
</tr>
<tr>
<td>1 Shot “Boost” Feature</td>
<td>-</td>
</tr>
<tr>
<td>Selectable Fahrenheit or Centigrade Scaling</td>
<td>-</td>
</tr>
<tr>
<td>Transmitter Frequency</td>
<td>433.92 MHz</td>
</tr>
<tr>
<td>Transmitter Range</td>
<td>Typically 30 metres (1)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>2 x AA/LR6/MN 1500 Alkaline Batteries</td>
</tr>
<tr>
<td>Dimensions (width x height x depth) mm</td>
<td>85 x 86 x 51</td>
</tr>
<tr>
<td>(1) Please ensure there are no large metal objects between thermostat and receiver, as these will interfere with radio signal</td>
<td></td>
</tr>
</tbody>
</table>

### Receivers (RF models)

<table>
<thead>
<tr>
<th>Receptors (RF models)</th>
<th>RX-1</th>
<th>RX-2</th>
<th>RX-2C</th>
<th>RX-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No.</td>
<td>087N747600</td>
<td>087N747700</td>
<td>087N747900</td>
<td>087N747800</td>
</tr>
<tr>
<td>Number of zones receiver covers</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Power supply (receivers)</td>
<td>230 Vac ±15%, 50/60 Hz</td>
<td>1-SPDT</td>
<td>1-SPDT, 1-SPST</td>
<td>1-SPDT, 2-SPST</td>
</tr>
<tr>
<td>Contact details</td>
<td>1-SPDT</td>
<td>1-SPDT, 1-SPST</td>
<td>2-SPDT</td>
<td>1-SPDT, 2-SPST</td>
</tr>
<tr>
<td>Contact rating</td>
<td>10-230 Vac, 3(1)A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>138 wide x 88 high x 32 deep</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Combination Boiler Systems

Application
Combination boiler systems are ideally suited to wireless room thermostat control, allowing the installation to be completed without the need for time consuming wiring to the room thermostat location. In addition to saving time, such solutions also reduce the disruption caused to homeowners normally associated with installing hard-wired solutions. There is also the added benefit of eliminating the risk of damage to furnishing, carpets and decoration that may occur during the installation of conventional wired solutions.

Combination Boilers with Built-in Time Controls
For such systems choose a simple dial-setting thermostat, type RET B-RF. The thermostat is located in the reference room and the thermostat receiver unit is mounted adjacent to the boiler. Wiring is limited to providing the RX receiver unit with power (normally looped out of the boiler mains terminals) plus two wires from the thermostat connections of the boiler to the output connections of the RX receiver. Contacts within the RX receiver are voltage free making the units compatible with all boiler types.

Pack Contents
Each set of controls for applications referred to above contain a wireless thermostat, (RET-B-RF, TP5000Si-RF or TP7000-RF), and a single channel RX1 receiver.

Installation Advice
Care must be taken to ensure that there are no large metal objects, such as domestic appliances or indeed the boiler case, sitting in the line between the thermostat and the receiver as these may block the wireless transmission from the thermostat. It is a sensible precaution to install the receiver, pair it to the thermostat (if bought as loose components) and test that the thermostat can communicate with the receiver from the intended installation location before fixing the thermostat to the wall. If communication is not possible, adjust the thermostat location until communication is established.

A detailed write-up of the ‘pairing’ process is given on page 27, 28 and 29 of this catalogue.

<table>
<thead>
<tr>
<th>Combi Boiler Thermostat Sets: Wireless Programmable Room and Receiver</th>
<th>Order No</th>
<th>Room Thermostat</th>
<th>Wireless Receiver Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set with Setting Dial Thermostat</td>
<td>087N727600</td>
<td>RET B-RF</td>
<td>RX1</td>
</tr>
<tr>
<td>Set with 5/2 Day Programming Options</td>
<td>087N791400</td>
<td>TP5000Si-RF</td>
<td>RX1</td>
</tr>
<tr>
<td>Set with 7 Day Programming Option</td>
<td>087N741800</td>
<td>TP7000-RF</td>
<td>RX1</td>
</tr>
</tbody>
</table>

(1) Sets comprise of thermostat and receiver unit only
(2) For description of individual products refer to pages 4-9
Schematic

Feed and expansion pipes are not shown for clarity.

Wiring Diagram

RX1

Please note:
To save energy and increase comfort, TRVs should also be fitted on all radiators in rooms without thermostats.
Application
Combination boiler systems are ideally suited to wireless room thermostat control, allowing the installation to be completed without the need for time consuming wiring to the room thermostat location. In addition to saving time, such solutions also reduce the disruption caused to homeowners normally associated with installing hard-wired solutions. There is also the added benefit of eliminating the risk of damage to furnishing, carpets and decoration that may occur during the installation of conventional wired solutions.

Combination Boilers without Built-in Time Controls
For Combination boilers without time control, or in situations where greater programming flexibility is demanded, two TP5000Si-RF programmable room thermostats can be used. The thermostats are located in the reference rooms and the thermostat receiver unit is mounted adjacent to the boiler. Wiring is limited to providing the RX receiver unit with power (normally looped out of the boiler mains terminals) plus two wires from the thermostat connections of the boiler to the output connections of the RX receiver. Contacts within the RX receiver are voltage free making the units compatible with all boiler types.

Pack Contents
Each set of controls contains two wireless thermostats, (TP5000Si-RF), a two channel RX2C receiver, two 22mm two-port zone valves and a WC4B wiring centre.

Installation Advice
Care must be taken to ensure that there are no large metal objects, such as domestic appliances or indeed the boiler case, sitting in the line between the thermostat and the receiver as these may block the wireless transmission from the thermostat. It is a sensible precaution to install the receiver, pair it to the thermostat (if bought as loose components) and test that the thermostat can communicate with the receiver from the intended installation location before fixing the thermostat to the wall. If communication is not possible, adjust the thermostat location until communication is established.

A detailed write-up of the 'pairing' process is given on page 27, 28 and 29 of this catalogue.

<table>
<thead>
<tr>
<th>Description</th>
<th>Order No</th>
<th>Room Thermostat</th>
<th>Wireless Receiver Unit</th>
<th>Two Port Valve</th>
<th>Wiring Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set with 5/2 Day Programming Options</td>
<td>087N6520DG</td>
<td>2 x TP5000Si-RF</td>
<td>RX2C</td>
<td>2 x HP22</td>
<td>WC4B</td>
</tr>
</tbody>
</table>

(1) Sets comprise of thermostat and receiver unit only
(2) For description of individual products refer to pages 4 - 9
Feed and expansion pipes are not shown for clarity.

Please note:
To save energy and increase comfort, TRVs should also be fitted on all radiators in rooms without thermostats.
Mid Position Valve Systems
With 2-channel programmer and wireless dial setting

Application
Boiler interlock must be provided to turn off the boiler when no heat demand is present. Traditionally this has been achieved using a conventional programmer, room thermostat and cylinder thermostat, hard-wired to motorised zone valves or a mid-position valve.

In boiler replacement situations, where system boilers are increasingly used, it is often convenient to locate mid-position valves adjacent to the boiler. Using wireless technology, both cylinder and room thermostat are able to communicate with a wireless receiver unit mounted adjacent to the mid-position valve and boiler. This totally eliminates the need for any hard-wiring between the thermostats and other system components. Not only does this reduce installation time, it also reduces the disruption and possible damage associated with normal hard-wired solutions.

Space Heating Controls
Where the customer wishes to retain a conventional programmer and dial-setting thermostats, as opposed to a programmable thermostat, temperature control of heating is achieved using a wireless dial setting thermostat, type RET B-RF. The room thermostat communicates with the heating channel of an RX2C wireless receiver. Time control of the heating is provided by the heating channel of a conventional hard-wired FP715Si programmer mounted adjacent to the receiver unit. Together the RX2C and the FP715Si control the heating operation of the mid-position valve that in turn provides the boiler interlock.

Hot Water Controls
Temperature control is achieved using a wireless dial-setting hot water thermostat, type CET B-RF. This thermostat communicates with the hot water channel of the RX2C. Time control of the hot water is provided by the hot water channel of a conventional hard-wired FP715Si programmer mounted adjacent to the receiver unit. Together the RX2C and the FP715Si control the hot water operation of the mid-position valve that in turn provides the boiler interlock. The thermostat is battery driven and requires no external power supply. Wiring to the thermostat is restricted to a short two-core cable between the wall mounted programming unit and the thermostat sensor which is clamped to the cylinder wall.

Pack Contents
The pack for this application includes an RET B-RF wireless dial setting room thermostat, a CET B-RF wireless hot water thermostat, an RX2C wireless receiver, an FP715Si hard-wired programmer, one 22mm mid-position valve and a WC4B wiring centre.

Installation Advice
Care must be taken to ensure that there are no large metal objects, such as domestic appliances or indeed the boiler case, sitting in the line between the thermostats and the receiver as these may block the wireless transmission from the thermostats. It is a sensible precaution to install the receiver, pair it to the thermostat, (if bought as loose components) and test that the thermostat can communicate to the receiver from the intended installation location before fixing the thermostat to the wall. If communication is not possible, adjust the thermostat location until communication is established.

Important Note: Thermostats and receivers listed on this page are not factory paired. A detailed write-up of the 'pairing' process is given on 27, 28 and 29 of this catalogue.

| 3 Port Valve Pack: Wireless Dial-setting Room and Hot Water Thermostats with Hard-wired Programmer |
|---|---|---|---|---|---|---|
| Description(1) | Order No | Room Thermostat | Hot Water Thermostat | Receiver | Wiring Centre | 3 Port Mid Position Valve | Programmer |
| Pack with 24 hour, 5/2 day or 7 day programming options | 087N6500V3 | RET B-RF | CET B-RF | RX2C | WC4B | 1 x HS3 | FP715Si |

(1) For a description of the individual products please refer to pages 4-9
(2) All valves are 22mm size
Mid Position Valve Systems
With 2-channel programmer and wireless dial setting room thermostat and hot water thermostat

Schematic

Wiring Diagram

Please note:
To save energy and increase comfort, TRVs should also be fitted on all radiators in rooms without thermostats.
Application
Boiler interlock must be provided to turn off the boiler when no heat demand is present. Traditionally this has been achieved using a conventional programmer, room thermostat and cylinder thermostat, hard-wired to motorised zone valves.

In boiler replacement situations, where system boilers are increasingly used, it is often convenient to locate motorised valves adjacent to the boiler. Using wireless technology, both cylinder and room thermostat are able to communicate with a wireless receiver unit mounted adjacent to the motorised valves and boiler. This totally eliminates the need for any hard-wiring between the thermostats and other system components. Not only does this reduce installation time, it also reduces the disruption and possible damage associated with normal hard-wired solutions.

Space Heating Controls
Where the customer wishes to retain a conventional programmer and dial-setting thermostats, as opposed to a programmable thermostat, temperature control of heating is achieved using a wireless dial setting thermostat, type RET B-RF. The room thermostat communicates with the heating channel of an RX2C wireless receiver. Time control of the heating is provided by the heating channel of a conventional hard-wired FP715Si programmer mounted adjacent to the receiver unit. Together the RX2C and the FP715Si control the heating zone valve that in turn provides the boiler interlock.

Hot Water Controls
Temperature control is achieved using a wireless dial-setting hot water thermostat, type CET B-RF. This thermostat communicates with the hot water channel of the RX2C. Time control of the hot water is provided by the hot water channel of a conventional hard-wired FP715Si programmer mounted adjacent to the receiver unit. Together the RX2C and the FP715Si control the hot water zone valve that in turn provides the boiler interlock.

The thermostat is battery driven and requires no external power supply. Wiring to the thermostat is restricted to a short two-core cable between the wall mounted programming unit and the thermostat sensor which is clamped to the cylinder wall.

Pack Contents
The pack for this application includes an RET B-RF wireless dial setting room thermostat, a CET B-RF wireless hot-water thermostat, an RX2C wireless receiver, an FP715Si hard-wired programmer, two 22mm two-port zone valves and a WC4B wiring centre.

Installation Advice
Care must be taken to ensure that there are no large metal objects, such as domestic appliances or indeed the boiler case, sitting in the line between the thermostats and the receiver as these may block the wireless transmission from the thermostats. It is a sensible precaution to install the receiver, pair it to the thermostat and test that the thermostat can communicate to the receiver from the intended installation location before fixing the thermostat to the wall. If communication is not possible, adjust the thermostat location until communication is established.

Important Note
Thermostats and receivers listed on this page are not factory paired. A detailed write-up of the ‘pairing’ process is given on 27, 28 and 2+ of this catalogue.

| 2 Port Valve Pack: Wireless Dial-setting Room and Hot Water Thermostats with Hard-wired Programmer |
|---|---|---|---|---|---|---|
| **Description**<sup>(1)</sup> | **Order No** | **Room Thermostat** | **Hot Water Thermostat** | **Receiver** | **Wiring Centre** | **2 Port Zone Valve** | **Programmer** |
| Pack with 24 hour, 5/2 day or 7 day programming options | 087N6500V4 | RET B-RF | CET B-RF | RX2C | WC4B | 2 x HP22 | FP715Si |

<sup>(1)</sup> For a description of the individual products please refer to page 4-9
<sup>(2)</sup> All valves are 22mm size
Port Valve Systems

With 2-channel programmer and wireless dial setting room thermostat and hot water thermostat

Schematic

Feed and expansion pipes are not shown for clarity.

Wiring Diagram

Please note:
To save energy and increase comfort, TRVs should also be fitted on all radiators in rooms without thermostats.
Application

Boiler interlock must be provided to turn off the boiler when no heat demand is present. Traditionally this has been achieved using a conventional programmer, room thermostat and cylinder thermostat, hard-wired to motorised zone valves.

In boiler replacement situations, where system boilers are increasingly used, it is often convenient to locate motorised valves adjacent to the boiler. Using wireless technology, both cylinder and room thermostat are able to communicate with a wireless receiver mounted adjacent to the motorised valves and boiler. This totally eliminates the need for any hard-wiring between the thermostats and other system components. Not only does this reduce installation time, it also reduces the disruption and possible damage associated with normal hard-wired solutions.

Space Heating Controls

Time and temperature control of heating is achieved using a wireless programmable room thermostat. The programmable room thermostat communicates with the heating channel of an RX2C wireless receiver which in turn controls the operation of the heating zone valve and the boiler interlock.

Hot Water Controls

Temperature control is achieved using a wireless dial-setting hot water thermostat, type CET B-RF. This thermostat communicates with the hot water channel of the RX2C. Time control of the hot water is provided by the hot water channel of a conventional hard-wired TS715Si programmer mounted adjacent to the receiver unit. Together the RX2C and the TS715Si control the hot water zone valve that in turn provides the boiler interlock.

The thermostat is battery driven and requires no external power supply. Wiring to the thermostat is restricted to a short two-core cable between the wall mounted programming unit and the thermostat sensor which is clamped to the cylinder wall.

Pack Contents

The pack for this application includes two TP5000Si-RF wireless programmable room thermostats, a CET B-RF wireless hot-water thermostat, an RX1 and an RX2C wireless receiver, a TS715Si hard-wired programmer, three 22mm two-port zone valves and a WC4B wiring centre.

Installation Advice

Care must be taken to ensure that there are no large metal objects, such as domestic appliances or indeed the boiler case, sitting in the line between the thermostats and the receiver as these may block the wireless transmission from the thermostats. It is a sensible precaution to install the receiver, pair it to the thermostat and test that the thermostat can communicate to the receiver from the intended installation location before fixing the thermostat to the wall. If communication is not possible, adjust the thermostat location until communication is established.

Important Note: Thermostats and receivers listed on this page are not factory paired.

A detailed write-up of the ‘pairing’ process is given on page 27, 28 and 29 of this catalogue.

<table>
<thead>
<tr>
<th>Description</th>
<th>Order No</th>
<th>Room Thermostat</th>
<th>Hot Water Thermostat</th>
<th>Receiver</th>
<th>Wiring Centre</th>
<th>2 Port Zone Valve</th>
<th>Programmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pack with 5/2 day programming options</td>
<td>087N6518CG</td>
<td>2 x TP5000Si-RF</td>
<td>CET B-RF</td>
<td>RX1 &amp; RX2C</td>
<td>WC4B</td>
<td>3 x HP22</td>
<td>TS715Si</td>
</tr>
</tbody>
</table>

(1) For a description of the individual products please refer to page 4-9
(2) All valves are 22mm size
19 Zone Pack (Part L Compliant) - Independent Heating Times

With single channel programmer and wireless dial setting room thermostat and hot water thermostat

Schematic

Feed and expansion pipes are not shown for clarity.

Wiring Diagram

* Refer to boiler wiring information for boiler with pump overrun.

Please note:
To save energy and increase comfort, TRVs should also be fitted on all radiators in rooms without thermostats.
3 Zone Pack (Part L Compliant) - Common Heating Times
With 2-channel programmer and wireless dial setting

Application
Boiler interlock must be provided to turn off the boiler when no heat demand is present. Traditionally this has been achieved using a conventional programmer, room thermostat and cylinder thermostat, hard-wired to motorised zone valves.

This pack is ideal for dwellings up to 150m².

In boiler replacement situations, where system boilers are increasingly used, it is often convenient to locate motorised valves adjacent to the boiler. Using wireless technology, both cylinder and room thermostat are able to communicate with a wireless receiver unit mounted adjacent to the motorised valves and boiler. This totally eliminates the need for any hard-wiring between the thermostats and other system components. Not only does this reduce installation time, it also reduces the disruption and possible damage associated with normal hard-wired solutions.

Space Heating Controls
Where the customer wishes to retain a conventional programmer and dial-setting thermostats, as opposed to a programmable thermostat, temperature control of heating is achieved using a wireless dial setting thermostat, type RET B-RF. The room thermostat communicates with the heating channel of an RX2C wireless receiver. Time control of the heating is provided by the heating channel of a conventional hard-wired FP715Si programmer mounted adjacent to the receiver unit. Together the RX2C and the FP715Si control the heating zone valve that in turn provides the boiler interlock.

Hot Water Controls
Temperature control is achieved using a wireless dial-setting hot water thermostat, type CET B-RF. This thermostat communicates with the hot water channel of the RX2C. Time control of the hot water is provided by the hot water channel of a conventional hard-wired FP715Si programmer mounted adjacent to the receiver unit. Together the RX2C and the FP715Si control the hot water zone valve that in turn provides the boiler interlock.

The thermostat is battery driven and requires no external power supply. Wiring to the thermostat is restricted to a short two-core cable between the wall mounted programming unit and the thermostat sensor which is clamped to the cylinder wall.

Pack Contents
The pack for this application includes an RET B-RF wireless dial setting room thermostat, a CET B-RF wireless hot-water thermostat, an RX1 and RX2C wireless receiver, an FP715Si hard-wired programmer, three 22mm two-port zone valves and a WC4B wiring centre.

Installation Advice
Care must be taken to ensure that there are no large metal objects, such as domestic appliances or indeed the boiler case, sitting in the line between the thermostats and the receiver as these may block the wireless transmission from the thermostats. It is a sensible precaution to install the receiver, pair it to the thermostat and test that the thermostat can communicate to the receiver from the intended installation location before fixing the thermostat to the wall. If communication is not possible, adjust the thermostat location until communication is established.

Important Note
Thermostats and receivers listed on this page are not factory paired. A detailed write-up of the ‘pairing’ process is given on page 27, 28 and 29 of this catalogue.

### Pack Contents
- RET B-RF Dial Setting Room Thermostat
- CET B-RF Dial Setting Hot Water Thermostat
- RX1 and RX2C Wireless Receivers
- FP715Si Hard-wired Programmer
- Three 22mm Two-Port Zone Valves
- WC4B Wiring Centre

### Installation Advice
- Care must be taken to ensure there are no large metal objects in the line between the thermostats and the receiver.
- It is advisable to test communication before installation.
- If necessary, adjust the thermostat location.

### Important Note
- Thermostats and receivers are not factory paired.
- Pairing details are provided on pages 27, 28, and 29.

### Hot Water Controls
- Temperature control using a wireless dial-setting hot water thermostat, type CET B-RF.
- The thermostat communicates with the hot water channel of the RX2C.
- Time control provided by the heating channel of a conventional hard-wired FP715Si programmer.
- Receiver, RX2C, and FP715Si control the hot water zone valve.

### Space Heating Controls
- Temperature control using a wireless dial-setting thermostat, type RET B-RF.
- The room thermostat communicates with the heating channel of an RX2C wireless receiver.
- Time control provided by the heating channel of a conventional hard-wired FP715Si programmer.
- Receiver, RX2C, and FP715Si control the heating zone valve.

---

### 3 Zone Pack: Wireless Dial-setting Room and Hot Water Thermostats with Hard-wired Programmer

<table>
<thead>
<tr>
<th>Description</th>
<th>Order No</th>
<th>Room Thermostat</th>
<th>Hot Water Thermostat</th>
<th>Receiver</th>
<th>Wiring Centre</th>
<th>2 Port Zone Valve</th>
<th>Programmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pack with 24 hour, 5/2 day or 7 day programming options</td>
<td>087N6500CB</td>
<td>2 x RET B-RF</td>
<td>CET B-RF</td>
<td>RX1 &amp; RX2C</td>
<td>WC4B</td>
<td>3 x HP22</td>
<td>FP715Si</td>
</tr>
</tbody>
</table>

(1) For a description of the individual products please refer to page 4-9
(2) All valves are 22mm size
**Zone Pack (Part L Compliant)**

Common Heating Times

With 2-channel programmer and wireless dial setting room thermostat and hot water thermostat

---

**Schematic**

Feed and expansion pipes are not shown for clarity.

---

**Wiring Diagram**

- **W4CB**
- **HP22 2 Port Valve**
  - Heating Zone 1
  - Heating Zone 2
  - Hot Water Zone 3
- **HP22 2 Port Valve**
- **RX1**
- **RX2C**
  - Ensure link is made between 1 and 2 on the RX2C backplate
- **Boiler**
- **Pump**
- **FP715Si**
- **Programmer**
- **Water Htg**
- **AUX. SW.**

* Refer to boiler wiring information for boiler with pump overrun.

---

**Please note:**

To save energy and increase comfort, TRVs should also be fitted on all radiators in rooms without thermostats.
Application
Boiler interlock must be provided to turn off the boiler when no heat demand is present. Traditionally this has been achieved using a conventional programmer, room thermostat and cylinder thermostat, hard-wired to motorised zone valves. If an unvented hot water storage vessel is installed, the motorised valve controlling the flow of water to the primary of the unit is supplied as part of the un-vented unit package and must be mounted in accordance with the manufacturer’s recommendations. The hot water thermostat is also integrated into the unit.

Space Heating Controls
Where the customer wishes to retain a conventional programmer and dial-setting thermostats, as opposed to a programmable thermostat, temperature control of heating is achieved using a wireless dial setting thermostat, type RET B-RF. The room thermostat communicates with the heating channel of an RX1 wireless receiver. Time control of the heating is provided by the heating channel of a conventional hard-wired FP715Si programmer mounted adjacent to the receiver unit. Together the RX1 and the FP715Si control the heating zone valve that in turn provides the boiler interlock.

Hot Water Controls
Temperature control is provided by the un-vented hot water vessel’s built-in thermostat. Time control of the hot water is provided by the hot water channel of the conventional hard-wired FP715Si 2-channel programmer. Together the built-in thermostat and the FP715Si control the hot water zone valve that is supplied as part of the unit. This in turn provides the boiler interlock. Wiring is required between the un-vented hot water unit and the programmer.

Pack Contents
The pack for this application includes an RET B-RF wireless dial setting room thermostat, an RX1 wireless receiver, an FP715Si hard-wired programmer, one 22mm two-port zone valve and a WC4B wiring centre.

Installation Advice
Care must be taken to ensure that there are no large metal objects, such as domestic appliances or indeed the boiler case, sitting in the line between the thermostats and the receiver as these may block the wireless transmission from the thermostats.

It is a sensible precaution to install the receiver, pair it to the thermostat and test that the thermostat can communicate to the receiver from the intended installation location before fixing the thermostat to the wall.

If communication is not possible, adjust the thermostat location until communication is established.

Important Note: Thermostats and receivers listed on this page are not factory paired. A detailed write-up of the ‘pairing’ process is given on page 27, 28 and 29 of this catalogue.

### 2 Port Valve Pack: Wireless Dial-setting Room and Hot Water Thermostats with Hard-wired Programmer

| Description(1) Order No Room Thermostat Hot Water Thermostat Receiver Wiring Centre 2 Port Zone Valve (2)(3) Programmer |
|-------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Pack with 24 hour, 5/2 day or 7 day programming options | 087N650055 RET B-RF (3) RX1 WC4B 1 x HP22 FP715Si |

(1) For a description of the individual products please refer to pages 4-9
(2) Heating valve is 22mm
(3) 2 Port valve and cylinder thermostat on unvented HW cylinder are part of unvented package and not included in the Controls Pack
Water thermostats for unvented hot water systems

Please note:
To save energy and increase comfort, TRVs should also be fitted on all radiators in rooms without thermostats.

Feed and expansion pipes are not shown for clarity.

Schematic

Wiring Diagram

Factory Links
Installer Links

Please note:
To save energy and increase comfort, TRVs should also be fitted on all radiators in rooms without thermostats.
3 Zone Pack (Part L Compliant)
Single channel programmer and wireless programmable room thermostat

Application
Boiler interlock must be provided to turn off the boiler when no heat demand is present. Traditionally, this has been achieved using a conventional programmer, room thermostat and cylinder thermostat, hard-wired to motorised zone valves.

This pack is ideal for dwellings up to 150m².

In boiler replacement situations, where system boilers are increasingly used, it is often convenient to locate motorised valves adjacent to the boiler. Using wireless technology, both cylinder and room thermostat are able to communicate with a wireless receiver unit mounted adjacent to the motorised valves and boiler. This totally eliminates the need for any hard-wiring between the thermostats and other system components. Not only does this reduce installation time, it also reduces the disruption and possible damage associated with normal hard-wired solutions.

Space Heating Controls
Time and temperature control of heating is achieved using a wireless programmable room thermostat. The programmable room thermostat communicates with the heating channel of an RX2C wireless receiver which in turn controls the operation of the heating zone valve and the boiler interlock.

Pack Contents
The pack for this application includes two TP5000Si-RF wireless programmable room thermostats, an RX2C wireless receiver, a TS715Si hard-wired programmer, two 22mm two-port zone valves and a WC4B wiring centre.

Installation Advice
Care must be taken to ensure that there are no large metal objects, such as domestic appliances or indeed the boiler case, sitting in the line between the thermostats and the receiver as these may block the wireless transmission from the thermostats. It is a sensible precaution to install the receiver, pair it to the thermostat and test that the thermostat can communicate to the receiver from the intended installation location before fixing the thermostat to the wall. If communication is not possible, adjust the thermostat location until communication is established.

Important Note: Thermostats and receivers listed on this page are not factory paired.

A detailed write-up of the ‘pairing’ process is given on page 27, 28 and 29 of this catalogue.

2 Port Valve Pack: Wireless Dial-setting Room and Hot Water Thermostats with Hard-wired Programmer

<table>
<thead>
<tr>
<th>Description</th>
<th>Order No</th>
<th>Room Thermostat</th>
<th>Receiver</th>
<th>Wiring Centre</th>
<th>2 Port Zone Valve</th>
<th>Programmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pack with 5/2 day programming options</td>
<td>087N6517DG</td>
<td>2 x TP5000Si-RF</td>
<td>RX2C</td>
<td>WC4B</td>
<td>2 x HP22</td>
<td>TS715Si</td>
</tr>
</tbody>
</table>

(1) For a description of the individual products please refer to page 4-9
(2) All valves are 22mm size
Zonable room thermostat

Schematic

Feed and expansion pipes are not shown for clarity.

Wiring Diagram

** Refer to boiler wiring information for boiler with pump overrun.

* Connect to unvented cylinder control. HW zone valve and required controls are supplied with unvented cylinder.

** Please note:**
To save energy and increase comfort, TRVs should also be fitted on all radiators in rooms without thermostats.
### Additional Information

#### Wiring Diagrams

**HP22**
- **A**
- **B**
- **C**
- **1**
- **2**
- **3**
- **4**
- **N**
- **L**

**RX1**
- **ELECTRONICS**
- **N**
- **L**
- **1**
- **2**
- **3**
- **4**
- **COM**
- **ZONE 1 ON**
- **ZONE 1 OFF**

**HS3**
- **ELECTRONICS**
- **N**
- **L**
- **1**
- **2**
- **3**
- **4**

**RX2C**
- **ELECTRONICS**
- **A**
- **B**
- **C**
- **1**
- **2**
- **3**
- **4**
- **5**
- **6**
- **N**
- **L**
- **COM**
- **ZONE 1 ON**
- **ZONE 1 OFF**
- **ZONE 2 ON**
- **ZONE 2 OFF**
- **ZONE 3 ON**
- **ZONE 3 OFF**

**CET B-RF**
- **ELECTRONICS**
- **1**
- **2**
- **3**

**RX2 and RX3**
- **ELECTRONICS**
- **A**
- **B**
- **C**
- **1**
- **2**
- **3**
- **4**
- **5**
- **6**
- **N**
- **L**
- **COM**
- **ZONE 1 ON**
- **ZONE 1 OFF**
- **ZONE 2 ON**
- **ZONE 2 OFF**
- **ZONE 3 ON**
- **ZONE 3 OFF**

**RX3B**
- **ELECTRONICS**
- **A**
- **B**
- **C**
- **1**
- **2**
- **3**
- **4**
- **5**
- **6**
- **N**
- **L**
- **HW**
- **PL**
- **HTG**
- **BOILER**
Room Thermostats
Room thermostats should be mounted in a typical room, often referred to as the reference room. It should be remembered that in a normal single zone heating system that the room thermostat will shut-off the whole of the heating system when it is satisfied. Locations with secondary heat sources such as gas fires should be avoided if reasonable whole house comfort levels are to be maintained.

Having chosen the room for the thermostat, ensure that the thermostat is not located on a cold outside wall or in a position where it might be unduly affected by draughts or by heat gain from electrical appliances or any other heat source including the sun.

Thermostats should normally be mounted at a height of about 1.5 metres above the floor. However, if the building occupants are for example wheelchair bound, then the thermostats height should be adjusted to sitting height.

Location of Wireless Room Thermostats
Generally the same rules highlighted above apply, however, additional care needs to be taken to ensure that the wireless room thermostat is able to communicate with it’s receiver module.

The line of sight range of Danfoss wireless thermostats is in excess of 30m, however, this range is reduced by the number of walls, floors and ceilings that the low power transmissions have to pass through before arriving at the receiver unit. It is not possible to put a figure on the range reduction per wall etc as this will depend entirely on the construction of the wall. For example a partition wall will offer significantly less resistance to radio energy than would a reinforced concrete structure with steel reinforcement. Other large metal objects such as a fridge and boiler cases can also impede the reception if they sit between the thermostat and the receiver unit.

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

Sensor Unit
The location of this remote sensor should follow the same rules as for a standard electric thermostat, in other words about half way up the cylinder wall. Insulation material should be carefully removed and the cylinder wall cleaned. The heat conducting paste supplied with the thermostat should be applied to the cylinder wall. A two-core flexible cable should be wired into the remote sensor and the sensor fixed to the cylinder wall using the clamping spring provided. Wiring from the sensor must be terminated in the wall plate of the setting unit.

Setting Unit
The setting unit should be fixed to the wall adjacent to the cylinder, care should be taken to ensure that the cylinder does not sit in the line between the setting unit location and the RX receiver unit as it will most likely block the wireless transmissions.

Please note that the hot water thermostat is battery powered and does not require an external electrical supply.

Receiver Options
All boxed sets come complete with the appropriate receiver. If additional zones are required purchase thermostats as loose items and select a receiver unit with the appropriate number of channels from the data table shown on page 7. All Controls Packs include a receiver unit appropriate to the pack application. Please note that the RX3B receiver is a special 2-channel receiver with a common heat demand relay.

Hot Water Thermostats
All Danfoss wireless hot water thermostats comprise a wall mounting setting unit that includes the wireless transmitter and battery power supply, plus a remote surface mounting sensor that is supplied with a clamping band to attach it to the cylinder wall.
**Good Practice Advice**

To avoid the potential for communication problems as a result of range, obstructions or large metal objects the following steps should be followed:

- Before mounting the RX receiver unit ensure that the boiler case or other large domestic appliances do not sit in line between it and the proposed thermostat positions.

- The receiver should be mounted and wired to the valve(s) or boiler that it is intended to control.

- The thermostats should be paired to the receiver channel sold as loose components and in control packs that they are intended to communicate to (please refer to the section below on 'thermostat pairing'). This process should be carried out with the thermostats being held in the hand adjacent to the RX receiver unit.

- Once paired the thermostat’s ability to communicate with the receiver should be tested whilst standing adjacent to the receiver. This can be done by increasing the thermostat set point to simulate a heat demand and by reducing the set point to simulate a satisfied demand. On a heat demand the appropriate channel of the receiver should switch on. A satisfied demand should switch the channel off.

- Having established that the ‘thermostat pairing’ has been correctly carried out, the thermostat should be taken to it’s intended installation position and the above test repeated. If communication is successful, the thermostat/setting unit can now be mounted to the wall.

**Thermostat Pairing**  
*(Loose thermostats and control packs only)*

All Danfoss wireless thermostats are assigned a unique number during manufacturing. This number is used in the packet of information transmitted by the thermostat and identifies the thermostat that is transmitting. Receivers and thermostats have to be paired on site as part of the commissioning process; this process writes the thermostat unique ID number into the receiver memory which is retained even if power is removed. Until a receiver is paired to a thermostat it will not react to any incoming signal. Once paired it will only react to the signal transmitted by the thermostat having the same unique ID number held in the receiver memory. This prevents neighbouring thermostats or other wireless devices on the same frequency from activating the receiver.

**Pairing RET B-RF and CET B-RF**

The following procedure should be followed to pair these products to RX receivers:

Turn the dial clockwise to the maximum setting and remove the setting dial.

*Do not refit the dial until after the pairing process has been completed.*

*This is important as any movement of the thermostat setting spindle cancels the “Learn” transmission.*

Press the “Learn” button. This will force the thermostat to transmit it’s ID code for five minutes.

Move to the RX receiver and press the channel button of the channel to which you wish to assign the thermostat. Then press the PROGRAMME button on the RX receiver.

*Important: the convention is to use channel 1 for heating and channel 2 for hot water. All wiring diagrams are based on this convention.*

The green LED adjacent to the PROG button will flash to confirm that the channel has been assigned as requested.

The pairing process for this thermostat is now complete and the setting dial can be refitted in the maximum position and adjusted to the required set-point.

If the installation has more than one wireless thermostat it is important to ensure that the “Learn” transmission of the thermostat that has just been paired to it’s receiver is cancelled before moving on to “Pair” the next thermostat and receiver or receiver channel. To cancel a “Learn” transmission simply move the thermostat setting dial until the LCD display changes.
Pairing the TP5000Si-RF and TP7000-RF

The following procedure should be followed to pair these products to RX receivers:

Drop the setting cover to reveal the programming buttons.

Press the following buttons to force the thermostat into ‘learn’ mode.

**TP5000Si-RF**

+ button and ▼

**TP7000-RF**

‘Learn’ button

Important: the convention is to use channel 1 for heating and channel 2 for hot water. All wiring diagrams are based on this convention.

The green LED adjacent to the PROGRAMME button will flash to confirm that the channel has been assigned as requested.

Press either the ▲ or ▼ button on the thermostat, this returns the thermostat to normal operation.

The ‘pairing’ process is now complete for this thermostat.

If the installation has more than one wireless thermostat it is important to ensure that the “Learn” transmission of the thermostat that has just been paired to it’s receiver is cancelled before moving on to “Pair” the next thermostat and receiver or receiver channel. To cancel a “Learn” transmission simply press either ▲ or ▼ buttons on the thermostat.

Do not touch any other buttons on the thermostat until advised to do so as this will cancel the ‘Learn’ transmission from the thermostat.

Move to the RX receiver and press the channel button of the channel to which you wish to assign the thermostat. Then press the PROGRAMME button on the RX receiver.
Today's high demand for energy-saving controls, plus the continual introduction of new products, has left many installers searching for answers. Optimum energy-efficiency in buildings increasingly calls for the use of advanced, more-effective controls. Some installers remain unaware of the latest, ground-breaking products that are essential to their continued professional success.

A great starting place for this information is www.danfoss-randall.co.uk. After many months of research, dedicated work, structured thought, imagination and unswerving attention to detail an easily navigable on-line encyclopaedia of clear and easily accessible information on controls for domestic, commercial and industrial heating/cooling applications is available. Visitors to the site will also find valuable advice, tips and detailed connection diagrams.

Navigation of the website is extremely quick and easy, and is helped by its cool, uncluttered style. With just a few clicks, product listings, selection tables and illustrations appear on screen instantly. Favourite products can be conveniently saved as a list for future visits.

Datasheets, instructions and user guides may be downloaded in pdf format and printed. Clear wiring connection diagrams for all popular controls are provided.

The 'Understanding Heating Controls' advice section explains controls usage and explodes many of the myths that have grown up surrounding domestic heating controls. This section can be easily downloaded and printed.

Full contact details are given to enable site visitors to obtain Sales Office support, order literature, obtain details of Training Seminars and pose specific controls problems to a Danfoss expert.
Warranty and Returns Policy

Danfoss offers a no quibble two year product warranty from date of manufacture on all products with the exception of DeviMat and cables which carry a 10 year warranty and DeviDry which has a 5 year warranty.

Whatever the nature of the fault or defect, i.e. manufacturing or installer, Danfoss will give a full credit for the product on a one-for-one basis.

All ‘in warranty’ returns are fully tested to original manufacturing specification. Reports are available within 10 working days.

The product warranty expiry details are clearly marked on all products. This warranty does not cover the associated costs of replacing the product in the field with the exception of for DeviMats and DeviCable.

**Customer Returns Procedure:**

- Customer requests a RMA number from Customer Services - Tel: 0845 1217 502
- Customer confirms details in writing to Customer Services and returns products to Danfoss Randall Ltd, Ampthill Road, Bedford MK42 9ER
- Products are checked and allocated individual identification.
- All products within warranty are tested and reports are generated.

Full details on the warranty and returns policy are available on request.