General Guide

The following guide illustrates how Wundafloor warm water underfloor heating systems can be coupled together with the majority of central heating plumbing and control systems.

The majority of modern central heating systems make use of motorised valves, often called Zone valves, to divide different heating systems and hot water generation i.e. Radiators, Under Floor Heating and Hot water cylinder.

Systems using combination boilers will also need zone valves if separate systems of heating require different times and temperatures.

Quite often ground and first floors are controlled separately as they may have different uses. The zone valve acts like a relay, meaning any system can call the boiler/heat source without other areas being activated.

If the underfloor system is being incorporated alongside a radiator system it is even more important that these areas are controlled independently as ‘heat up’ and ‘cooling off’ times are different. We recommend the ‘S’ plan layout is adopted as this allows for more variety in zoning, and should be very familiar to qualified plumber/electricians. The schematics show typical S-plan heating systems with under floor heating incorporated.

NOTE:
An Auto By-Pass valve (ABV) should be incorporated in all systems.

NOTE:
If a Heat pump manifold has been supplied then there will be no pump on the manifold. Therefore the relay on the H-Box wiring centre is used to switch on a shunt pump which will send primary water from a buffer tank or the heatpump itself to the manifolds.

Wundafloor does not supply:
- ‘S’ plan wiring centre
- Cylinder thermostat
- Hot water time clock
- Auto bypass valve

Motorised / Zone valves and Pipe stats are available if requested.
Section A 1A : Schematic - System Boiler with hot water cylinder, radiators & UFH
Section A  2A : Typical wiring scheme for multi-zone UHF system with a System Boiler

This drawing is for guidance only. All installations should be undertaken by a qualified person only.

Wundafloor wiring centre used with multiple Programmable thermostats on UFH system.

Some Earths & Neutrals omitted for clarity

Wiring Key

<table>
<thead>
<tr>
<th></th>
<th>Orange</th>
<th>Grey</th>
<th>Brown</th>
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<td>O</td>
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<td>B</td>
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</tr>
</tbody>
</table>
Section A 3A : Typical wiring scheme for single zone UHF system with a System Boiler

This drawing is for guidance only. All installations should be undertaken by a qualified person only.
Section B  1B : Schematic - Combination Boiler with Radiators & UHF
Section B  2B: Typical wiring scheme for multi zone UFH system with a Combination Boiler

- Combi Boiler + Time Clock
- RAD room stat
- Underfloor Heating pump
- S-Plan Wiring centre
- Wundafloor wiring centre used with multiple Programmable thermostats on UFH system.
- Some Earths & Neutrals omitted for clarity

This drawing is for guidance only. All installations should be undertaken by a qualified person only.

Wiring Key:
- 0 Orange
- G Grey
- B Brown

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Section B  3B : Typical wiring scheme for single zone UHF system with a Combination Boiler

This drawing is for guidance only. All installations should be undertaken by a qualified person only.

**Wiring Key**

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>Orange</td>
</tr>
<tr>
<td>G</td>
<td>Grey</td>
</tr>
<tr>
<td>B</td>
<td>Brown</td>
</tr>
</tbody>
</table>
Section C  1C: Schematic - Adding single area UFH to an existing radiator system

- Combi or System Boiler
- HWC
- Under Floor Heating system supplied by Wunda
- Radiators

* Connections to existing radiator flow & return
Section C  2C: Wiring schematic for single zone kit added to radiator system

This is when a single zone underfloor heating kit is connected to an existing radiator system without an individual zone valve for the UFH and therefore unable to call the boiler/heat source independently for heat.

Although a room thermostat or programmable thermostat can be used to control air temperature, this area can only be ON when the existing heating system is ON.

When this is the case, a pipe thermostat can be attached to the heating mains flow, so that the new area of the underfloor knows when hot water is available and therefore stops the pump running when no heat is available.

This drawing is for guidance only. All installations should be undertaken by a qualified person only.
This diagram shows how a Danfoss FHV-R is connected to an existing radiator system.

Please note:
- The valve should be used with a maximum of 100m of 16mm Wundapipe.
- The valve must be positioned on the return from the heated floor.
- It is recommended that isolation valves are used for filling and maintenance.
- The supply pipework must not be less than 15mm.
- The heating engineer must check that there is adequate flow available from the heating mains.
Section D

1D: Schematic - Wiring Centre - H-Box-12 V1.2 (current model)

(identifiable by model No. ZDA0003-V1.2 on PCB and addition of L.E.D.)

**Technical Data.**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>230V AC, 50/60Hz</td>
</tr>
<tr>
<td>Output voltage</td>
<td>230V AC, 50/60Hz</td>
</tr>
<tr>
<td>Max. Load</td>
<td>4A</td>
</tr>
<tr>
<td>Number of zone outputs</td>
<td>12 zones</td>
</tr>
<tr>
<td>Relay Output (2 minutes delay)</td>
<td>Left Hand: 1 x potential free relay output</td>
</tr>
<tr>
<td></td>
<td>Right Hand: 1 x independent relay output</td>
</tr>
<tr>
<td></td>
<td>(230V AC, 3A)</td>
</tr>
<tr>
<td></td>
<td>Two Relays will be engaged whenever one or</td>
</tr>
<tr>
<td></td>
<td>more thermostats call for heating.</td>
</tr>
<tr>
<td></td>
<td>The relays will be disengaged when all the</td>
</tr>
<tr>
<td></td>
<td>zone thermostats stop heating activity</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>0°C-50°C</td>
</tr>
<tr>
<td>Dimension (mm)</td>
<td>310 W x 110 H x 55 D</td>
</tr>
</tbody>
</table>

*Voltage Free Switch*

- With Optional Link fitted - Can be used as a 230v switch live output to zone valve or boiler/heat source
- Without Optional Link fitted - Can be used as low voltage switching for Boiler/heat source
Section D  2D : Schematic - Wiring Centre - H-Box-12 (previous model - no LED on PCB)

Technical Data.

- **Supply voltage**: 230V AC, 50/60Hz
- **Output voltage**: 230V AC, 50/60Hz
- **Max. Load**: 4A
- **Number of zone outputs**: 12 zones
- **Relay Output (2 minutes delay)**: Left Hand: 1 x potential free relay output, Right Hand: 1 x independent relay output (230V AC, 3A), Two Relays will be engaged whenever one or more thermostats call for heating, The relays will be disengaged when all the zone thermostats stop heating activity
- **Ambient temperature**: 0°C - 50°C
- **Dimension (mm)**: 310 W x 110 H x 55 D

*Voltage Free Switch*
- With Optional Link fitted - Can be used as a 230V switch live output to zone valve or boiler/heat source
- Without Optional Link fitted - Can be used as low voltage switching for Boiler/heat source

<table>
<thead>
<tr>
<th>Room thermostat</th>
<th>Terminal</th>
<th>Note</th>
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<tbody>
<tr>
<td>T6360C</td>
<td>2 6 3</td>
<td>Link 3-5</td>
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<tr>
<td>RTC86.13</td>
<td>1 2 4</td>
<td>Sensor 6 - 7</td>
</tr>
<tr>
<td>RTC84.13</td>
<td>1 2 4</td>
<td></td>
</tr>
<tr>
<td>E91.713</td>
<td>1 2 4</td>
<td>Sensor 6 - 7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transformer</th>
<th>Ground</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Manifold pump</td>
<td>Optional Link*</td>
<td></td>
</tr>
<tr>
<td>Boiler / zone valve switch</td>
<td>Voltage free OR with link 230V</td>
<td></td>
</tr>
<tr>
<td>From main heating controls</td>
<td>Power input (230VAC, 50/60Hz)</td>
<td></td>
</tr>
</tbody>
</table>

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Section E  Installing Wet Room Thermostats

Unit can be used as a floor temperature sensor or an air temperature sensor.

* models: RTC86.13, RTC75.713T & E91.713 can be used with a probe

For floor temperature sensing, place probe midway between pipe circuit runs to monitor average floor temperature.

For air temperature, place unit on outside wall of wet room in desired location at height of 1500 mm from floor level.

Check distance between thermostat’s terminal block and probe casing location of wet room’s interior wall is no more than 3 metres.

Do not trim probe sensor to length to ensure the probe wire is long enough to span the distance between the unit’s terminal block, to go through prepared hole through wall and exit into supplied probe housing fixed onto interior wall of wet room at 1500 mm from wet room floor level.

Ensure hole is sealed between wall space and probe housing so that only the wet room air temperature is detected.
**Technical Data**

- **Voltage**: AC230V
- **Current**: Max 3A
- **Wireless Frequency Output**: 433Mhz
- **Effective Transmission Distance**: 200m in empty space
- **Ambient Temperature**: -5~50°C
- **Pump Linkage**: 230V sub-output
- **Boiler/Zone Valve Linkage**: Volt free or 230V with link
- **Protective Housing**: IP40
- **Weight**: 1 KG

**NOTE:**

Pump and switch relays have a 3 minute delay.

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**Voltage Free Switch**

- With Optional Link fitted - Can be used as a 230v switch live output to zone valve or boiler/heat source
- Without Optional Link fitted - Can be used as low voltage switching for Boiler/heat source

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Max 3 actuators can be connected to one channel

Manifold Pump

*Optional link*
Section G  Schematic - Wireless Receiver (single zone) E8.413RF / E8.423RF

E8.413RF

<table>
<thead>
<tr>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
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<th>2</th>
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<tbody>
<tr>
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<td></td>
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</tr>
<tr>
<td>L1</td>
<td>N1</td>
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<tr>
<td>3A</td>
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E8.423RF

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<tr>
<td>Sensor* (External Probe)</td>
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<tr>
<td>Potential free output</td>
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<td>3A</td>
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<tr>
<td>Main Control circuit</td>
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Technical Data
- Voltage: AC230V
- Current: Max 3A
- Wireless Frequency Output: 433Mhz
- Effective Transmission Distance: 200m empty space
- External Limitation Value: 30°C, 40°C and 50°C if external probe is fitted. (Factory setting 30°C)
- Limitation Switch Differential: -2°C
- Ambient Temperature: -5°C – 50°C
- Protective housing: Ip20
- Housing Material: Anti Flammable PC

*OPTIONAL (not supplied with receiver)
Tech support opening hours are subject to change - please visit our website for the latest information