

Product Information

Contents

1. Introduction

2. Two-zone control pack

3. Wiring centre for two zones (VR61)

4. VR61 wiring connections

5. What is the VR81?

6. What boilers can be used with the two zone control pack?

7. Control of hot water cylinders

7.1 ecoTEC plus system, ecoTEC 46 / 65 and ecoCRAFT 3 boilers

7.2 ecoTEC plus open vent boilers

8. What underfloor equipment is needed?

Appendix - Hydraulic schematics and wiring diagrams

1.0 Two radiator heating zones

2.0 ecoTEC plus 400 series - open vent boiler hydraulic schematic

2.1 ecoTEC plus 400 series wiring diagram

3.0 ecoTEC plus 600 series - system boiler hydraulic schematic

3.1 ecoTEC plus 600 series system boiler wiring diagram

4.0 ecoTEC 46 / 65 hydraulic schematic

4.1 ecoCRAFT 3 hydraulic schematic

4.2 ecoTEC 46/65 and ecoCRAFT 3 wiring diagram

Product Information

1. Introduction

The Building Regulations require that rooms over 150m² have to be controlled by two independent time and temperature controlled zones. To make it easier for installers to comply with the Building Regulations a two zone control pack has been created. This consists of a weather compensator (VRC430), second zone control (VR81), standard cylinder NTC (VR10) and the wiring centre (VR61).

The bulletin also explains the use of these controls with the **VR61** and aims to make it clear how to give the correct advice to customers so they can obtain the appropriate equipment from an underfloor heating manufacturer.

This bulletin should also be read in conjunction with a previous product information bulletin **PI 240 08 control accessories VR61 and VR81**.

2. Two-zone control pack

Article Number	EAN	Description	Availability	List Price
0020076351	4024074569207	2 zone control pack	1 st November 2008	£277

Contents of two heating zone control pack:

Description	Quantity
Weather compensator (VRC430) for temperature control of one heating zone	X1
Second zone control (VR81) to control temperature of second heating zone	X1
Wiring centre (VR61) for two heating zones	X1
Standard NTC sensor (VR10) for hot water cylinder	X1

The items that form the two-zone control pack are not packed together in a box, the items are picked together when the article number is ordered and shipped together. **Note:** Additional motorised valves and external pumps need to be sourced separately

3. Wiring centre for two zones (VR61)

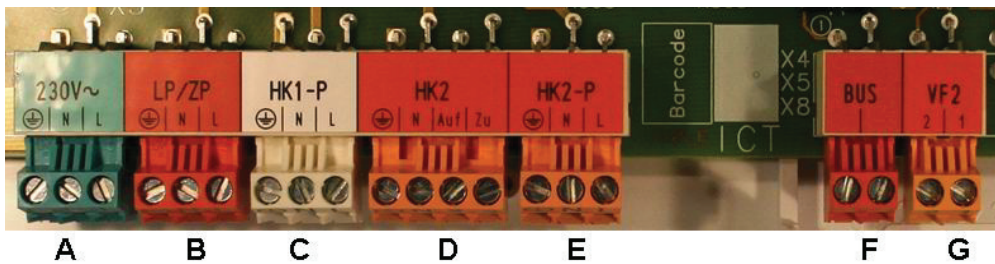
The VR61 is a two zone wiring centre for use with the VRC430 weather compensator only. This wiring centre can be used to control two central heating zones in the configuration shown in the table below.

Heating circuit 1 (HK1)	Heating circuit 2 (HK2)	Description
Direct	Direct	Two radiator circuits or two underfloor circuits with the same flow temperature (hydraulic schematic 9.8)
Direct	Mixed	One radiator circuit and one mixed different temperature (typically underfloor) circuit or two underfloor circuits at different flow temperatures (hydraulic schematics 9.1, 9.3, 9.5 and 9.6)

In addition to the above configuration the VR61 can also control a cylinder primary loading pump (LP) or secondary circulation pump (ZP).

Product Information

4. VR61 wiring connections



Key to wiring connections

Key	Description	Comments
A	230 volt mains supply	3A fused supply
B	LP/ ZP - cylinder primary loading pump (LP) controlled by hot water channel on VRC430 or secondary circulation pump (ZP) timed by circulation pump channel on VRC430	Default for this connection is ZP (secondary circulation pump) this must be changed on VRC430 screen A3 if cylinder primary loading pump control is required
C	Heating circuit 1 connections	Connect pump if different temperature circuit used or motorised zone valve if same temp circuits used
D	Heating circuit 2 mixing valve connection	Motor open motor closed 3-port mixing valve (not used if same temperature circuits used)
E	Heating circuit 2 connections	Connect pump if different temperature circuit used or motorised zone valve if same temp circuits used
F	eBUS connection	Low voltage (24v) 0.75mm ² conductors
G	Heating circuit 2 NTC connection	Used with different temperature mixed circuit to control operation of mixing valve (supplied with VR61)

5. What is the VR81?

The **VR81** is a remote room temperature sensor for use with the VRC430 only and provides the room temperature control for the second heating zone, it is connected via eBUS to the other components in the system.



When combined with the VR61 and VRC430 the VR81 is **necessary** to provide the temperature sensing for one of the heating zones, whilst the VRC430 senses the temperature in the other. Both controls must be wall mounted in either zone 1 or zone 2 with the VRC430 mounted in one zone and the VR81 in the other zone.

Configuring the VR81

The VR81 has a default configuration to operate as a remote control. To ensure that the VR81 controls heating zone 2 and the VRC430 controls heating zone 1, the VR81 control must first be configured during commissioning. An “address” must be set on the VR81. As explained in the manual, access the installer mode by pressing and holding the “click and turn” knob until the spanner symbol appears. Then turn the dial to select “A2”. This correctly assigns the VR81 to control heating zone 2. (This configuration can be reversed so that the VRC430 controls zone 2 and the VR81 controls zone 1 by changing “Base display (G1)” on the VRC430 to HC2 in installation assistant screen A2 and VR81 to A1)

Note: only one VR81 can be used with the VRC430 or VR61 combination

Product Information

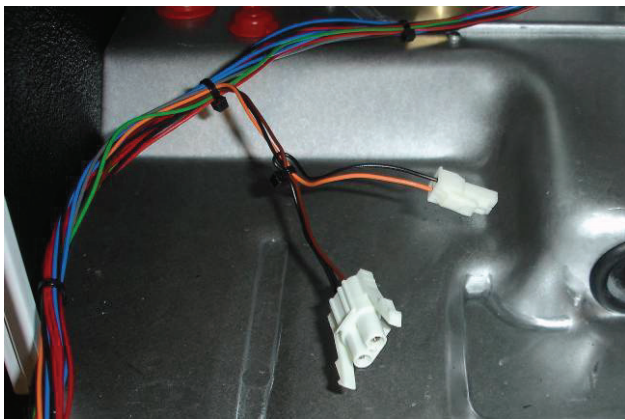
6. What boilers can be used with the two zone control pack?

The ecoTEC eBUS boilers, including the ecoTEC 46 and 65 wall hung commercial and ecoCRAFT 3 boiler range can be used with the VR61.

7. Control of hot water cylinders

7.1 ecoTEC plus system, ecoTEC 46 / 65 and ecoCRAFT 3 boilers

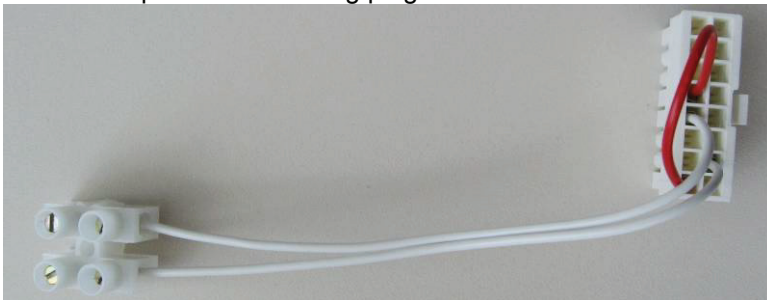
A standard NTC sensor (VR10) which has bare ended wires is supplied with the two zone control pack and is required to measure the cylinder temperature. This has to be connected to the orange and black wires located in the bottom left hand section of the boiler (shown below); this will then bring the boiler on following a demand for hot water.



The standard NTC sensor (VR10) is supplied with bare wires, the connector has to be cut off and the wires joined with a connector block (not supplied by Vaillant)

7.2 ecoTEC plus open vent boilers

In order to fit the standard NTC sensor (VR10) to the ecoTEC plus open vent boiler an additional harness is required (as shown below) this can be obtained by contacting Rochester Technical department and asking for the *ecoTEC open vent, cylinder NTC harness*. The harness is connected to plug X2 on the main PCB and replaces the existing plug. The VR10 sensor can now be fitted to the connector blocks.



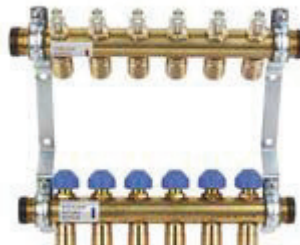
Important Note: cylinders in the two-zone heating system can only be controlled using an NTC sensor VR10. The cylinder must have a suitable positioned dry pocket, such as the Vaillant uniSTOR cylinder. The sensor is connected from the cylinder directly to the boiler - **not** to the wiring centre.

Product Information

8. What underfloor equipment is needed?

The VR61 can only control a motorised mixing valve and pump, therefore if an installer intends to install an underfloor system it is **important** that the following equipment is obtained from external suppliers to allow it to be controlled by Vaillant equipment:

- Mechanical manifold (without actuators)



- Motorised mixing valve (motor open / motor closed type connected to HK2 on VR61)



- Pump (sized to match underfloor pipe connected to HK2-P on VR61)



- Pipe - underfloor heating pipe only



- Pipe stat (shuts down underfloor pump in the event of overheat, set to prevent damage to floor material. Wired in series with underfloor pump connections)



- Automatic Differential bypass



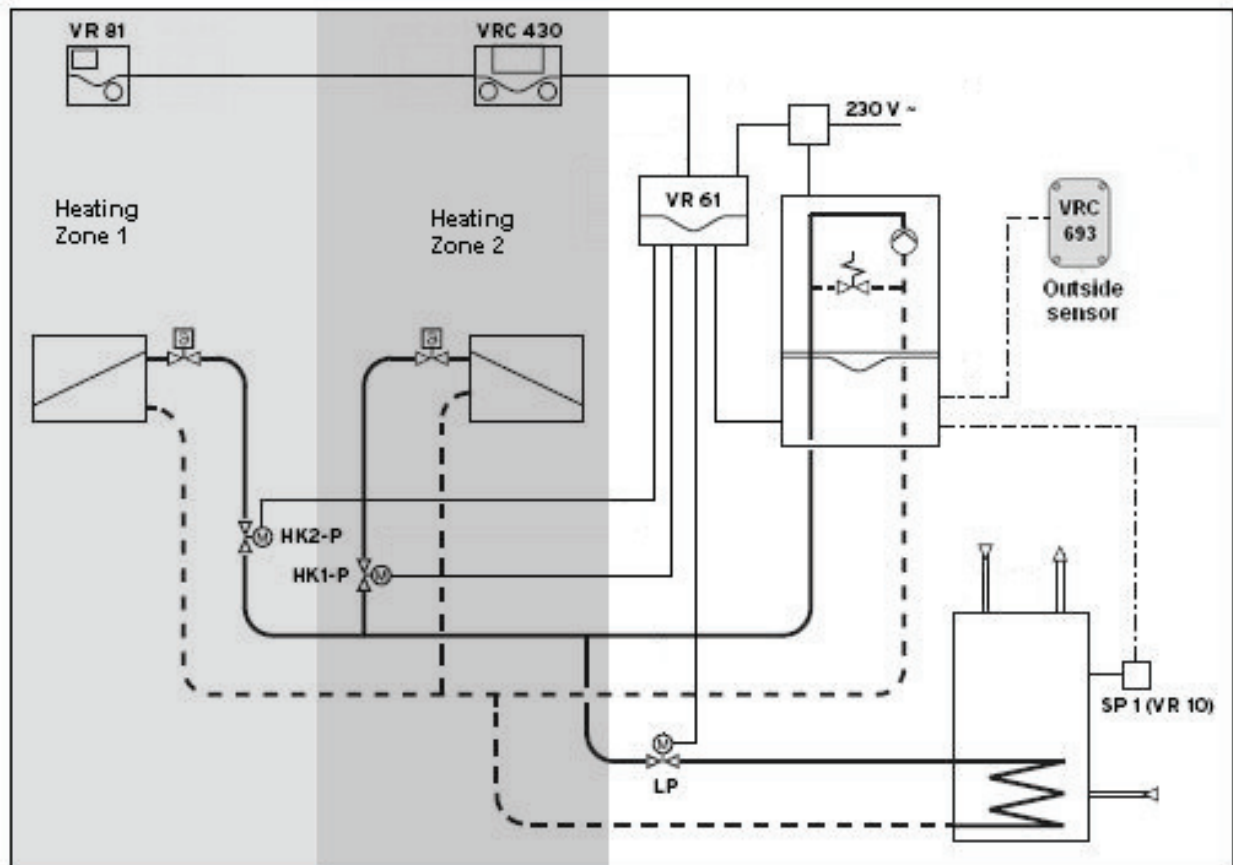
Note: Underfloor heating individual room control cannot be linked into Vaillant control systems

Product Information

Appendix 1 - hydraulic schematics and wiring diagrams

The following pages give detailed hydraulic schematics and wiring diagrams for open vent, system, ecoTEC 46 / 65 and ecoCRAFT 3 boilers.

1.0 Zone configuration hydraulic schematic - all boilers



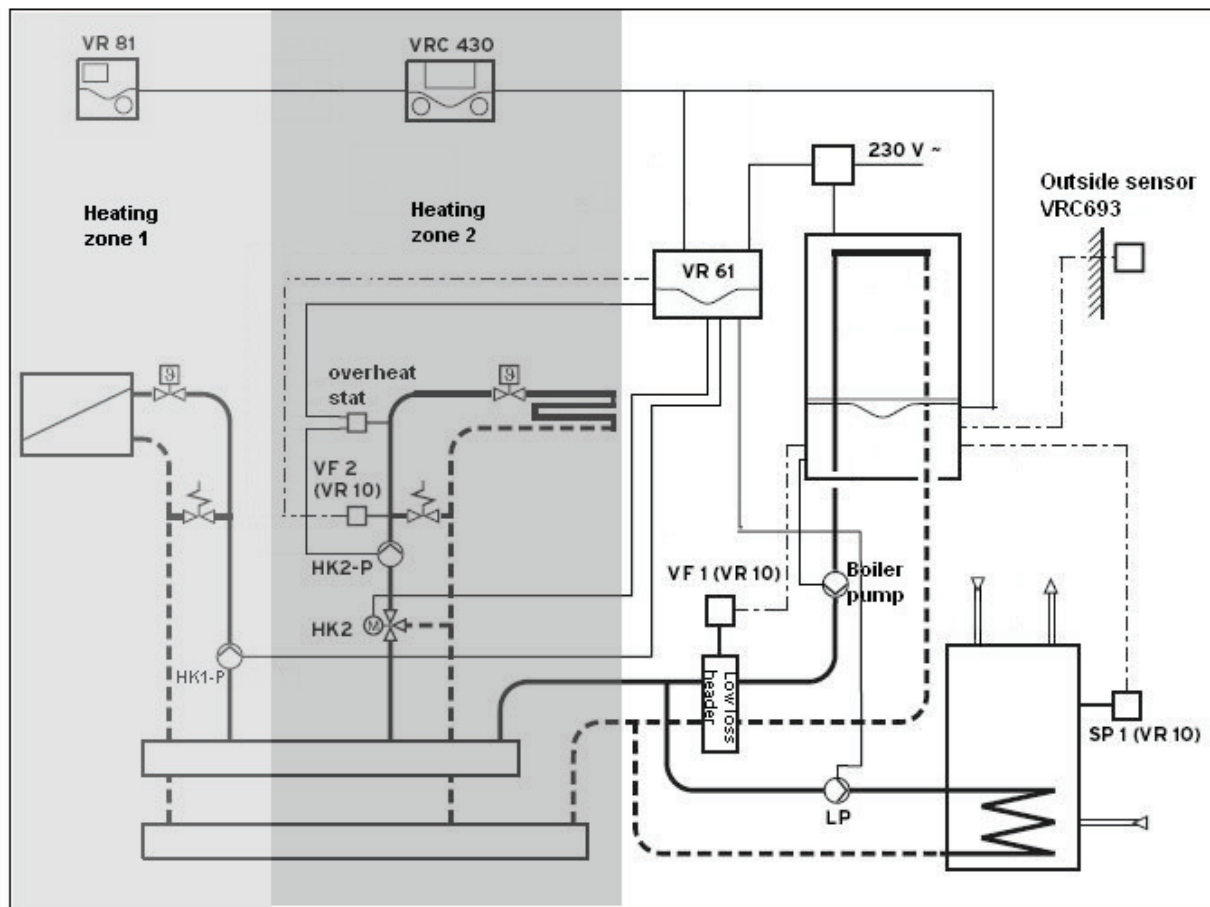
The above schematic depicts an ecoTEC plus sealed system boiler (other boiler types may require additional system components which have not been shown) and shows an example of two heating zones that have the same temperature water supplied to each. Instead of pumps, motorised zone valves are fitted to control each heating zone and hot water cylinder to give independent control. The motorised zone valves for the heating zones are wired to terminals HK1-P and HK2-P on the VR61, connection HK2 is not used.

Note: If the above schematic is used a parameter on the VRC430 **must** be changed, heating circuit 2 (HC2) type must be changed from “**Mixing Circuit**” to “**Zone**” on Screen A2 - installation assistant.

A low loss header may not be required for this type of installation but if additional heating pumps are required then a low loss header should be considered.

Product Information

1.0 ecoTEC plus 400 series - open vent boiler hydraulic schematic



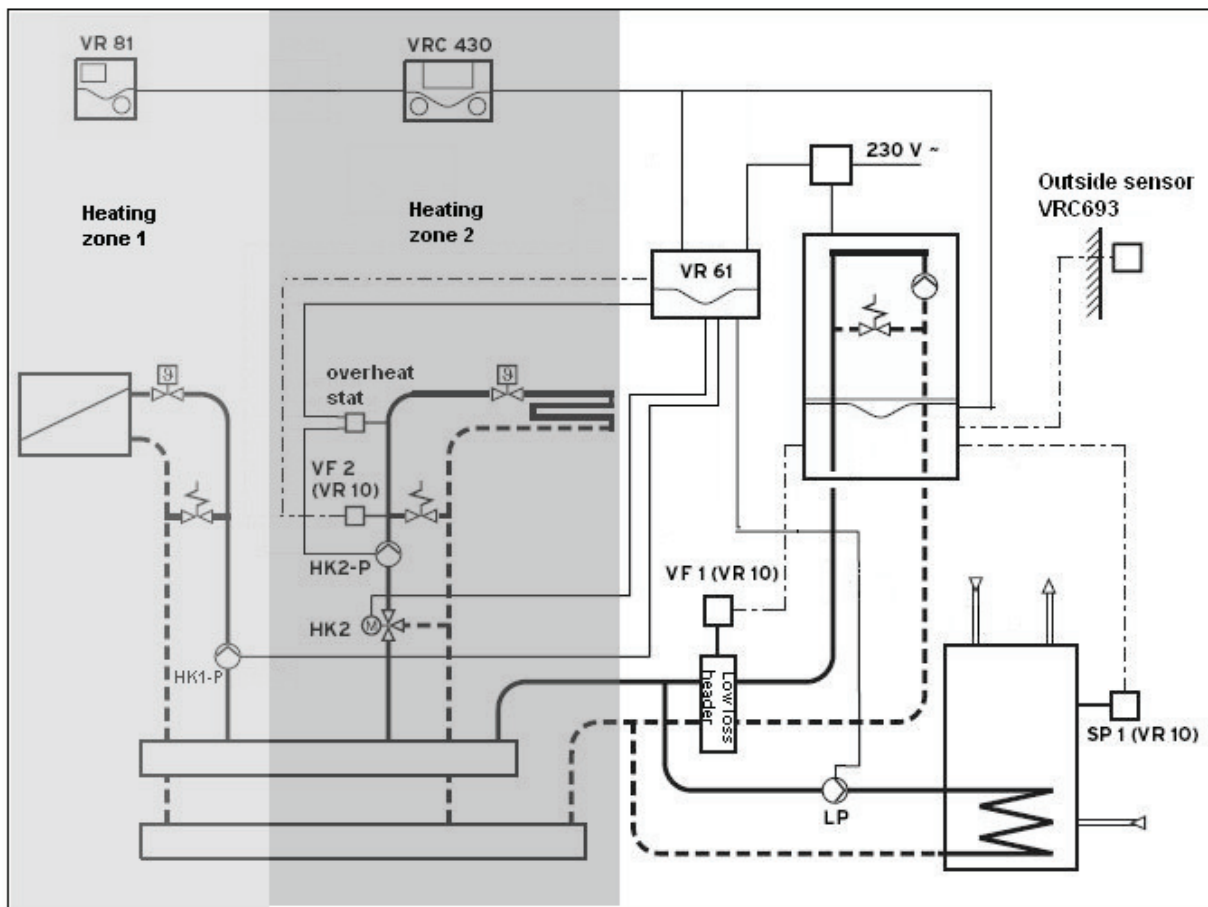
Note: F&E tank omitted for clarity

The diagram above shows an ecoTEC plus 400 series open vent boiler installation with two heating zones of different flow temperatures and a hot water cylinder.

A low loss header **must** be used when different temperature multiple heating circuits are used to allow correct circulation of water through the boiler, without a low loss header the pumps in the heating and underfloor circuits might conflict against the boiler pump and cause circulation problems in the boiler and possibly overheating. A system bypass for an open vent boiler is not required when using a low loss header. Further details of low loss headers can be found in Product Info bulletin **PI240 08 control accessories VR61 and VR81**.

Product Information

2.0 ecoTEC plus 600 series - system boiler hydraulic schematic

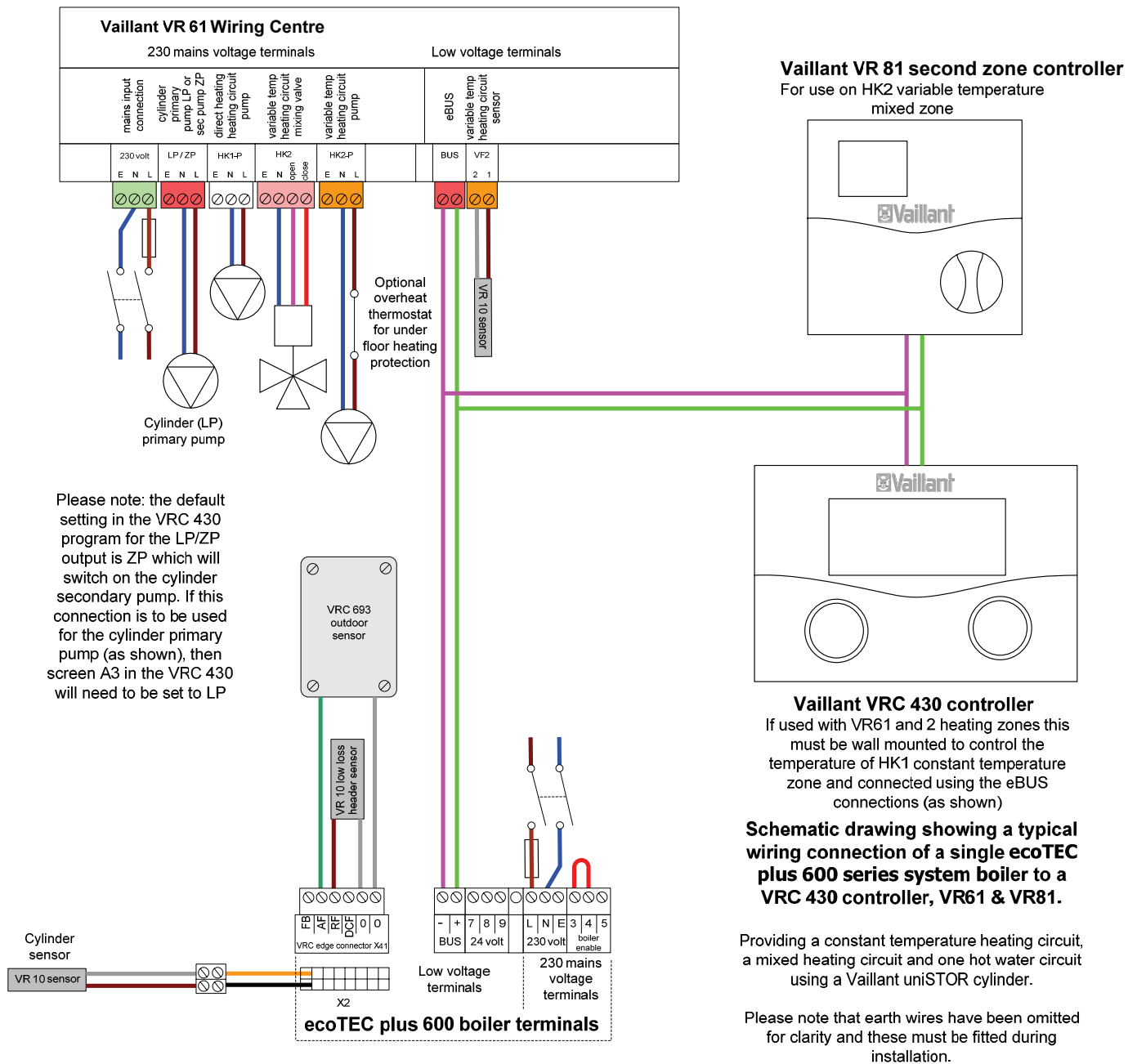


The diagram above shows an ecoTEC plus 600 series system boiler installation with two heating zones and hot water cylinder. The VR40 and ZP may be omitted if a secondary circulation pump is not used.

A low loss header **must** be used when multiple heating circuits are used to allow correct circulation of water through the boiler, without a low loss header the pumps in the heating and underfloor circuits might conflict and work against the boiler pump and cause circulation problems in the boiler and possibly overheating. Further details of low loss headers can be found in Product Info bulletin **PI240 08 control accessories VR61 and VR81**.

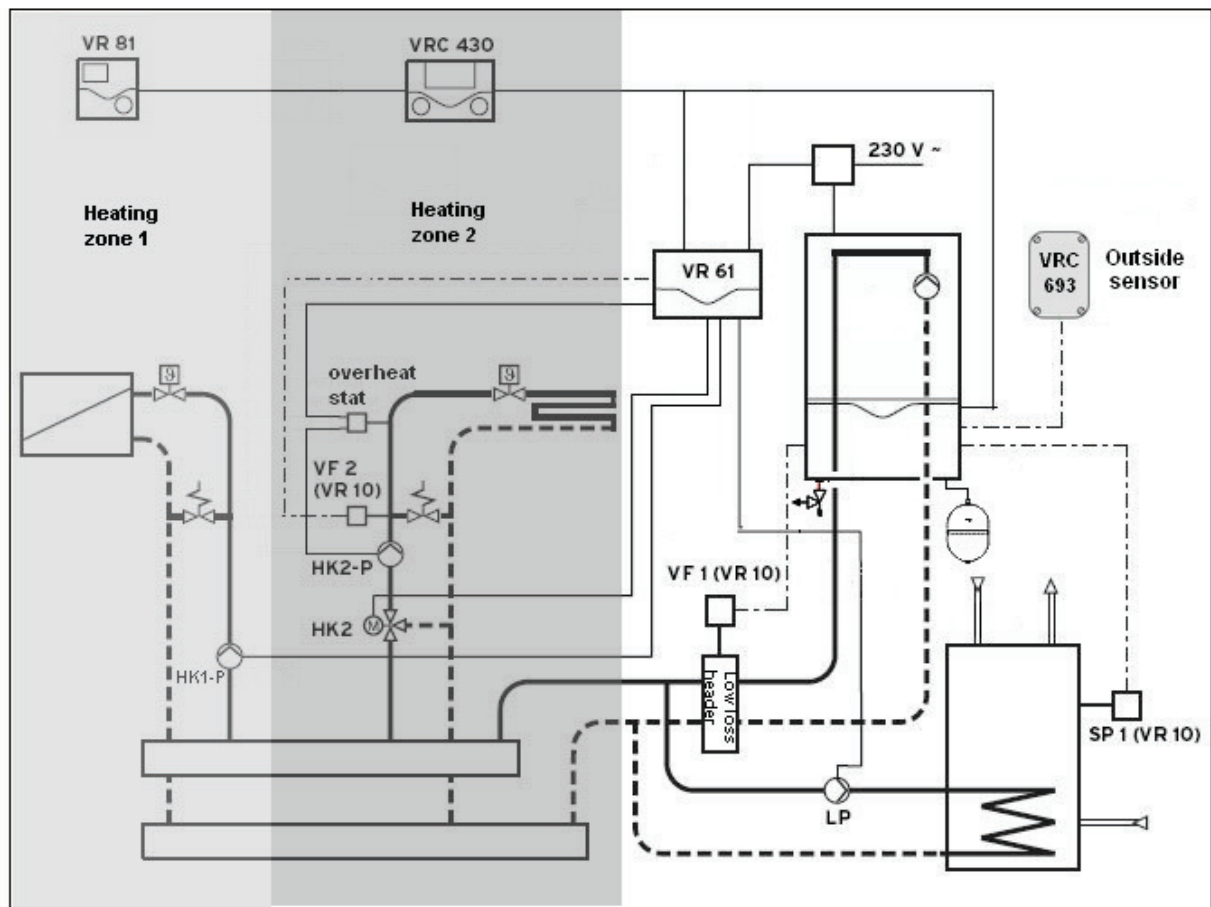
Product Information

2.1 ecoTEC plus 600 series system boiler wiring diagram



Product Information

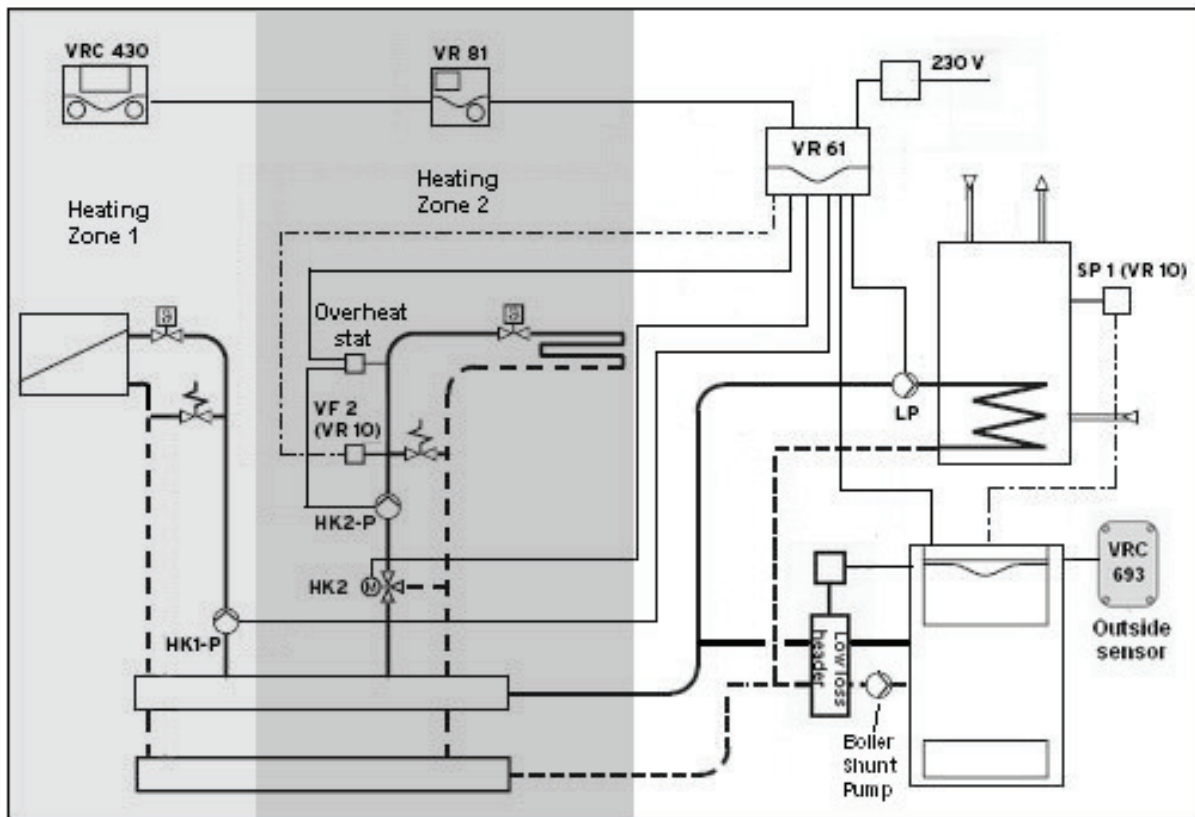
3.0 ecoTEC 46 / 65 hydraulic schematic



The diagram above shows an ecoTEC 46 or 65kW boiler installation with two different temperature heating zones and hot water cylinder. A low loss header **must** be used when multiple heating circuits are used to allow correct circulation of water through the boiler, without a low loss header the pumps in the heating and underfloor circuits might conflict and work against the boiler pump and cause circulation problems in the boiler and possibly overheating. Further details of low loss headers can be found in Product Info bulletin **PI240 08 control accessories VR61 and VR81**.

Product Information

3.1 ecoCRAFT 3 hydraulic schematic



The diagram above shows an ecoCRAFT 3 boiler installation with two different temperature heating zones and hot water cylinder. A low loss header **must** be used when multiple heating circuits are used to allow correct circulation of water through the boiler, without a low loss header the pumps in the heating and underfloor circuits might conflict and work against the boiler pump and cause circulation problems in the boiler and possibly overheating. Further details of low loss headers can be found in Product Info bulletin **PI240 08 control accessories VR61 and VR81**.

