

For the competent person

Installation instructions



## Heat pump control module

VWZ AI VWL X/2 A

UK

**Publisher/manufacturer**

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# 1 Safety

## 1.1 Action-related warnings

### Classification of action-related warnings

The action-related warnings are classified in accordance with the severity of the possible danger using the following warning signs and signal words:

#### Warning symbols and signal words



#### **Danger!**

Imminent danger to life or risk of severe personal injury



#### **Danger!**

Risk of death from electric shock



#### **Warning.**

Risk of minor personal injury



#### **Caution.**

Risk of material or environmental damage

## 1.2 General safety information

### 1.2.1 Installation by competent persons only

The product must be installed by a qualified competent person who is responsible for compliance with the applicable requirements, regulations and directives.

- ▶ Read through these installation instructions carefully.
- ▶ Carry out the activities that are described in these installation instructions.
- ▶ During the installation, observe the following safety instructions and regulations.

### 1.2.2 Material damage due to unsuitable installation room

If you are installing the product in a moist environment, the electronics may be damaged by moisture.

- ▶ Only install the product in dry rooms.

### 1.2.3 Danger due to error functions

- ▶ Ensure that the heating system is in a technically perfect condition.
- ▶ Ensure that no safety or monitoring devices have been removed, bridged or disabled.
- ▶ Immediately rectify any faults and damage that may affect safety.
- ▶ At lengths of over 10 m, 230 V supply lines must be laid separately from sensor or bus lines.
- ▶ Secure all supply lines in the casing using the cable terminals.
- ▶ Do not use the unit's free terminals as supports for other wiring.

## 1.3 Regulations (directives, laws, standards)

### 1.3.1 Requirements for lines

- ▶ Use standard commercial lines for the wiring.
- ▶ Use sheathed cables for 230 V lines (e.g. NYM 3 x 1.5).
- ▶ Do **not** use any flexible cables for 230 V lines.

Type of line	Min. cross-section
Cross-section of 230 V supply line (pump or mixer mains cable)	≥ 1.5 mm <sup>2</sup>
Cross-section of eBUS line (extra-low voltage)	≥ 0.75 mm <sup>2</sup>
Cross-section of sensor line (extra-low voltage)	≥ 0.75 mm <sup>2</sup>

Type of line	Max. length
Sensor lines	≤ 50 m
Bus lines	≤ 300 m

### 1.3.2 Regulations (directives, laws, standards)

All wiring must be in accordance with Building Regulations Part P and BS 7671 (IEE Wiring Regulations), and must be carried out by a suitably qualified person.

### 1.3.3 CE label

The CE label shows that the products comply with the basic requirements of all applicable directives as stated on the identification plate.

The declaration of conformity can be viewed at the manufacturer's site.

## 1.4 Intended use

In the event of inappropriate or improper use, damage to the product and other property may arise.

This product is a system component which is used with the **VRC 470** controller as of version /3 to control heating circuits and the hot water supply in conjunction with a heat pump.

Intended use includes the following:

- observing the included operating, installation and servicing instructions for the Vaillant product and any other system components
- compliance with all inspection and maintenance conditions listed in the instructions.

This product can be used by children over eight years old and also by persons with limited physical, sensory or mental capabilities or insufficient experience and/or knowledge if they are supervised or have been provided with instructions on how to safely use the product, and they understand the risks resulting from using the product. Children must not play with the product. Cleaning and user maintenance work must not be carried out by children unless they are supervised.

Any other use that is not specified in these instructions, or use beyond that specified in this document shall be considered improper use. Any direct commercial or industrial use is also deemed to be improper.

#### **Caution.**

Improper use of any kind is prohibited.

## 2 Notes on the documentation

### 2 Notes on the documentation

#### 2.1 Observing other applicable documents

- ▶ You must observe all the operating and installation instructions included with the system components.

#### 2.2 Document storage

- ▶ Pass these instructions and all other applicable documents and, if necessary, any required tools to the system operator.

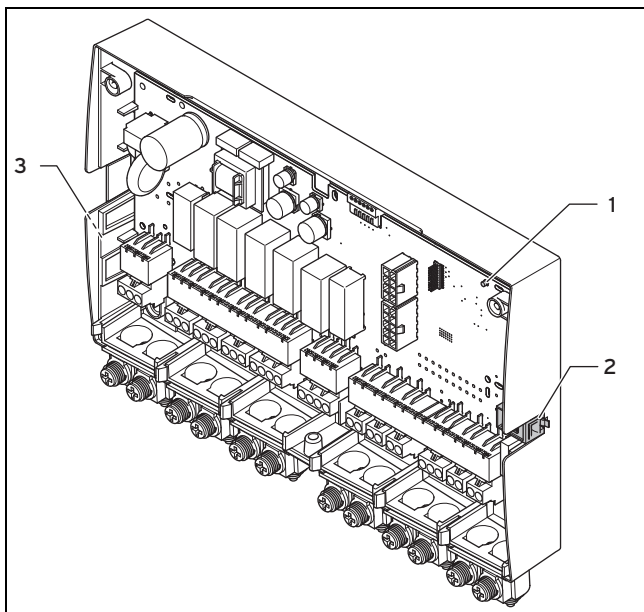
#### 2.3 Applicability of the instructions

These instructions apply to products with the following article numbers only:

Product	Article number
VWZ AI VWL X/2 A West	0020117049
VWZ AI VWL X/2 A East	0020139944

## 3 Product overview

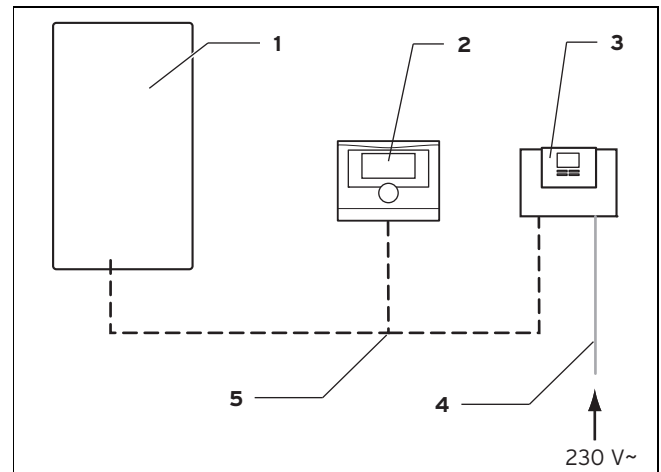
### 3.1 Overview of functional elements



- 1 LED
- 2 Diagnostic socket (for later use)
- 3 Identification plate

### 3.2 Connecting the mains connection line to the eBUS in the system

#### Connection diagram



- 1 Heat pump
- 2 Controller
- 3 VWZ AI VWL X/2 A
- 4 230 V mains connection line (on-site)
- 5 eBUS line

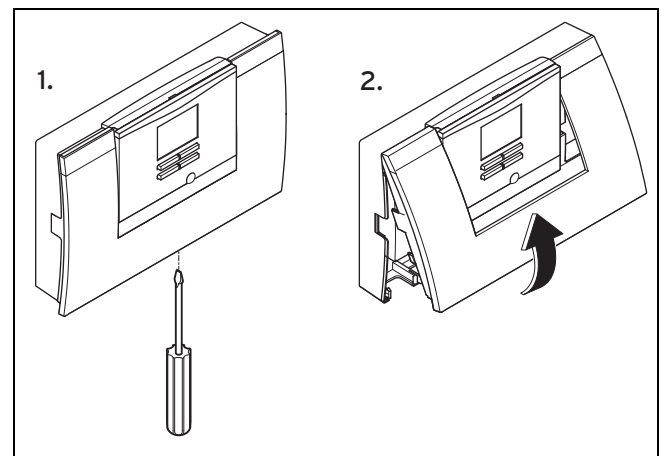
The product is connected to the power supply on-site. You can branch the eBUS connection to the product at any part of the eBUS system.

### 3.3 Scope of delivery

Quantity	Description
1	VWZ AI VWL X/2 A
2	VR 10 standard sensor
1	Installation accessories (bolts and rawl plugs)
1	Installation instructions

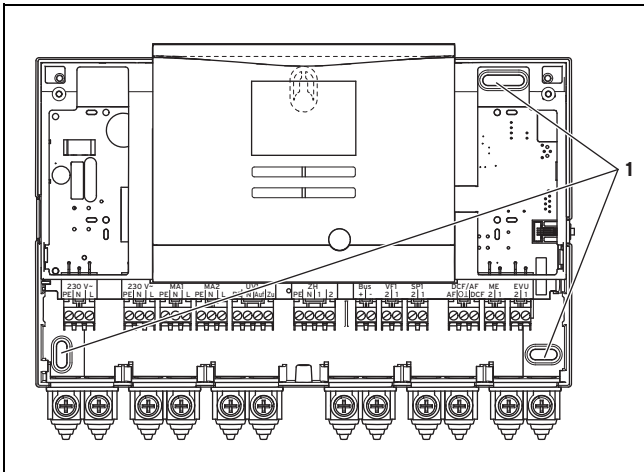
## 4 Installation

### 4.1 Opening the casing



1. Unscrew the bolt from the underside of the casing.
2. Pull the casing cover slightly forwards at the lower edge.
3. Lift the casing cover upwards.

#### 4.2 Installing the product



1. Mount the product and the supplied installation accessory on the wall. Use the fixing points (1) for this.
2. Connect the product. (→ Page 6)

#### 4.3 Closing the casing

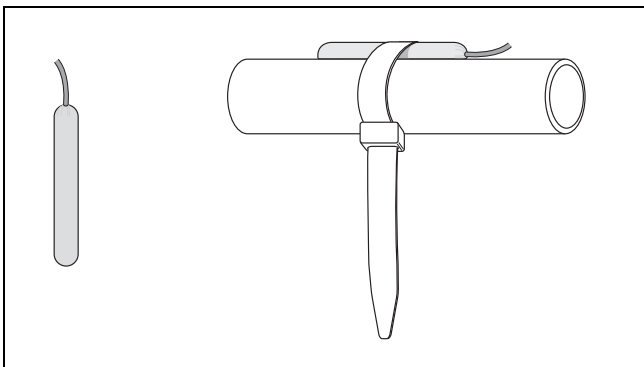
1. Insert the casing cover at the top into the hinges.
2. Fold down the casing cover.
3. Screw the bolt into the underside of the casing.

#### 4.4 Installing the VR 10 standard sensor



**Note**

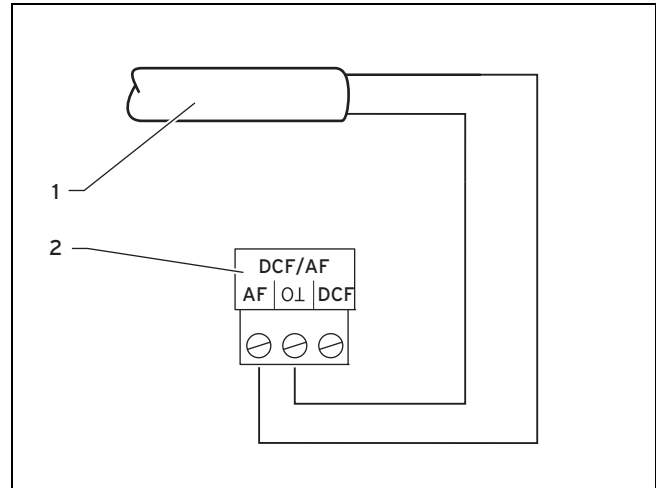
You can use the **VR 10** as a cylinder temperature sensor (for example, as an immersion sensor in a cylinder dry pocket), as a flow temperature sensor (for example, in the low loss header) or as a surface mount sensor. We recommend that the pipe with the sensor be insulated to ensure optimum temperature recording.



- ▶ If you use the **VR 10** as a surface mount sensor, secure the **VR 10** to a return/flow pipe using the enclosed strap.

#### 4.5 Installing the external temperature sensor

##### Installing the external temperature sensor



- 1 Connection cable to the VRC 693 external temperature sensor
- 2 Connector in the product

- ▶ Install the external temperature sensor in accordance with its enclosed installation manual.

### 5 Electrical installation



**Danger!**

**Risk of death from live connections!**

There is a risk of death from electric shock when working on the open product and in the electronics box of the heat pump.

- ▶ Before working on the product and in the heat pump's electronics box, switch off the power supply.
- ▶ Secure the power supply against being switched on again.



**Danger!**

**Risk of damage caused by incorrect installation.**

Connecting wires that have been stripped too far may cause short circuits and damage the electronics if a strand accidentally comes loose.

- ▶ Only strip the outer sheathing of flexible cables to a maximum of 2.5 cm to prevent short circuits.
- ▶ Lay the lines correctly.
- ▶ Use strain reliefs.

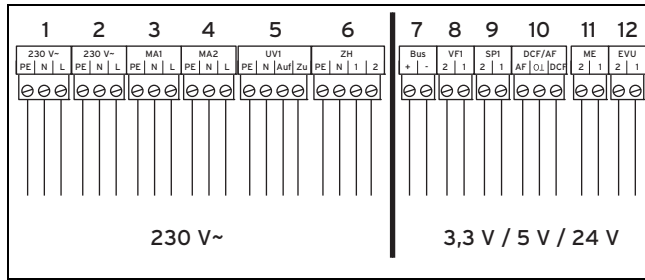
# 6 Start-up

## 5.1 Connecting the product



### Note

The mains connection cable and the eBUS line are not included in the scope of delivery.



- |                                  |  |
|----------------------------------|--|
| 1 Mains connection               | 7 VRC 470 controller                             |
| 2 Mains connection (alternative) | 8 Flow temperature sensor                        |
| 3 Multi-function output 1        | 9 Cylinder temperature sensor                    |
| 4 Multi-function output 2        | 10 DCF receiver with external temperature sensor |
| 5 Diverter valve                 | 11 Multi-function input                          |
| 6 Auxiliary boiler               | 12 EVU contact                                   |

- Connect the product using a fixed connection and a partition with a contact opening of at least 3 mm (e.g. fuses or power switches).
- Wire the product in accordance with the illustration.



### Note

If the diverter valve should be in the position for cylinder charging, 230 V is output to the "Open" contact. If the diverter valve should not be in the position for cylinder charging, 230 V is output to the "Closed" contact.



### Note

The EVU contact is used to connect a blocking signal (can be configured on the controller).

Contact open: Operation permitted  
Contact closed: Operation blocked

- Secure all lines in the product using the enclosed strain reliefs.
- Close the casing. (→ Page 5)

## 6 Start-up

### 6.1 Starting up the product

- Ensure that the casing is closed when starting up the product.
- Start up the product together with the controller (→ Installation instructions for the controller).

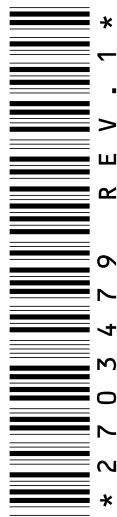
## 7 Customer service

To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement. Please contact Vaillant Service Solutions (0870 6060 777) for further details.

## 8 Technical data

	VWZ AI VWL X/2 A
Operating voltage $U_{max}$	230 V
Power consumption	$\leq 2$ V·A
Contact loading of the output relay	$\leq 2$ A
Total current	$\leq 4$ A
Sensor operating voltage	3.3 V
Cross-section of eBUS line (extra-low voltage)	$\geq 0.75$ mm <sup>2</sup>
Cross-section of sensor line (extra-low voltage)	$\geq 0.75$ mm <sup>2</sup>
Cross-section of 230 V supply line (pump or mixer mains cable)	$\geq 1.5$ mm <sup>2</sup>
Level of protection	IP 20
Protection class	II
Maximum ambient temperature	40 °C
Height	174 mm
Width	272 mm
Depth	52 mm





0020151756\_01 ■ 30.04.2013

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