For the competent person

# Installation instructions


## VRT 350

VRT 350

**GB, IE**

Vaillant

## Legal information

| | |
|---|---|
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| Product: | VRT 350 |
| Target group: | Authorised competent person |
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**Publisher/manufacturer**

**Vaillant GmbH**

Berghauser Str. 40 ▮ D-42859 Remscheid
Telefon +49 21 91 18-0 ▮ Telefax +49 21 91 18-28 10
info@vaillant.de ▮ www.vaillant.de

# Contents

# 1 Notes on the documentation

## 1.1 Symbols and signs used

### Symbols

The following symbols may appear:

| | |
|---|---|
|  | Warning symbol |
|  | Information symbol |
| ▶ | Symbol for a required action. |
| ◁ | Symbol for the result of an action. |

## 1.2 Observing other applicable documents

► During installation, you must observe all the installation instructions for the assemblies and components of the system.

These installation instructions are enclosed with the various system parts and supplementary components.

► Furthermore, observe all operating instructions enclosed with components of the system.

## 1.3 Document storage

### Document handover

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

### Availability of documents

The system operator is responsible for storing the documents so that they are available when required.

## 1.4 Applicability of the instructions

These instructions apply for the following only:

### Article number

| | |
|---|---|
| **Great Britain** | 0020124475 |

# 2 Safety

## 2.1 Required personnel qualifications

This manual is intended for persons with the following qualifications.

### 2.1.1 Authorised competent person

The installation, assembly and removal, start-up, maintenance, repair and decommissioning of Vaillant products and accessories must only be carried out by authorised competent persons.

**Note**

Each competent person is qualified for specific activities on the basis of their training. They must only work on units if they have the required qualification.

When working on the units, the competent persons must observe all applicable directives, standards, laws and other regulations.

## 2.2 General safety information

### 2.2.1 Installation by skilled tradesmen only

The unit must be installed by a qualified, skilled tradesman, 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.

### 2.2.2 Risk of death from live connections

When working in the electronics box of the boiler, there is a risk of death from electric shock. Continuous voltage is present on the mains connection terminals, even if the main switch is turned off.

- Switch the main switch off before working on the electronics box of the boiler.
- Disconnect the boiler from the power mains by disconnecting the mains plug or by de-energising the boiler via a partition with a contact opening of at least 3 mm (e. g. fuses or power switches).
- Check that the boiler is de-energised.
- Secure the power supply against being switched on again.
- Open the electronics box only when the boiler is disconnected from the power supply.

### 2.2.3 Material damage due to unsuitable installation room

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

- The controller should only be installed in dry rooms.

### 2.2.4 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.
- ► Install the controller in a location where it is not covered by furniture, curtains, or other objects.
- ► If thermostatic control is activated, advise the operator that, in the room where the controller is mounted, all the radiator valves must be fully open.
- ► Do not use the unit's free terminals as supports for other wiring.
- ► At lengths of over 10 m, 230 V supply cables must be laid separately from sensor or bus lines.

## 2.3 CE label

CE labelling shows that, based on the type overview, the appliances comply with the basic requirements of the following directives:

– Electromagnetic compatibility directive (Council Directive 2004/108/EC)
– Low voltage directive (Council Directive 2006/95/EC)

## 2.4 Intended use

### State-of-the-art

The controller is a state-of-the-art unit manufactured in accordance with recognised safety regulations.

Even so, in the event of inappropriate or non-intended use, damage to the appliance and other property may arise.

The controller controls a heating installation with a Vaillant heater with eBUS interface in a way that is room-controlled and time-dependent.

The controller can control the hot water generation of a connected domestic hot water cylinder.

Operation is permissible with the following components and accessories:

– Domestic hot water cylinder (conventional)
– **VR 66** Control Centre

### Improper use

Any other use, or use beyond that specified, shall be considered improper use. Any direct commercial or industrial use is also deemed to be improper. The manufacturer/supplier is not liable for any resulting damage. The user alone bears the risk.

Improper use of any kind is prohibited.

### Other applicable documents

Intended use includes the following:

– observance of accompanying operating, installation and servicing instructions for the Vaillant product as well as for other parts and components of the system
– compliance with all inspection and maintenance conditions listed in the instructions.

# 3 Overview of the equipment

## 3.1 Identification plate

The identification plate is located on the rear of the controller's electronics module (PCB) and is no longer accessible from the outside after it has been installed on a wall in the living area.

The identification plate contains the following information:

| Information on the identification plate | Meaning |
|---|---|
| Serial number | For identification |
| **VRT** XXX | Unit designation |
| V | Operating voltage |
| mA | Current consumption |
| CE label | Unit complies with European standards and directives |
| Waste container | Proper disposal of the unit |

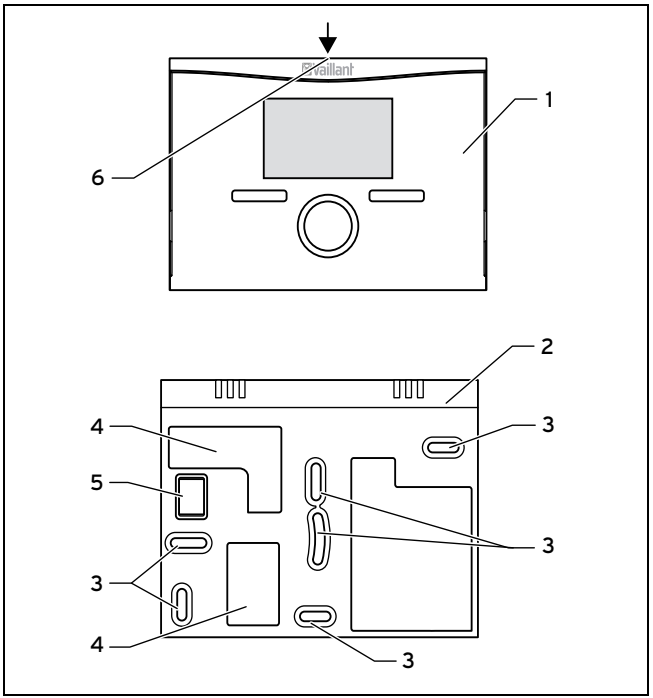
## 3.2 Scope of delivery

| Quantity | Component |
|---|---|
| 1 | Controller |
| 1 | Fastening material (2 bolts and 2 wall plugs) |
| 1 | Operating instructions |
| 1 | Installation instructions |

# 4 Installation

## 4.1 Fitting the controller in the living room

1. Fit the controller on an interior wall of the main living room in such a way that perfect recording of the room temperature is ensured.
   – Height: ≈ 1.5 m




1 Controller
2 Wall-mounting base
3 Mounting holes
4 Openings for cable duct
5 Pin header with terminals for the eBUS line
6 Slot for screwdriver

2. Mark the position on the wall. Take the eBUS line route into account when doing so.
3. Drill two holes matching the positions of the mounting holes **(3)**.
   – Diameter of mounting hole: 6 mm
4. Insert the eBUS line through one of the cable ducts **(4)**.
5. Insert the wall plugs supplied.
6. Use the screws supplied to secure the wall-mounting base.
7. Connect the eBUS line to the terminal block. (→ Page 10)
8. Carefully insert the controller in the wall mounting base. Ensure that the pin header **(5)** on the wall-mounting base fits into the controller connector provided.
9. Carefully press the controller into the wall-mounting base until the locking tabs on the controller are heard to latch into the sides of the wall-mounting base.

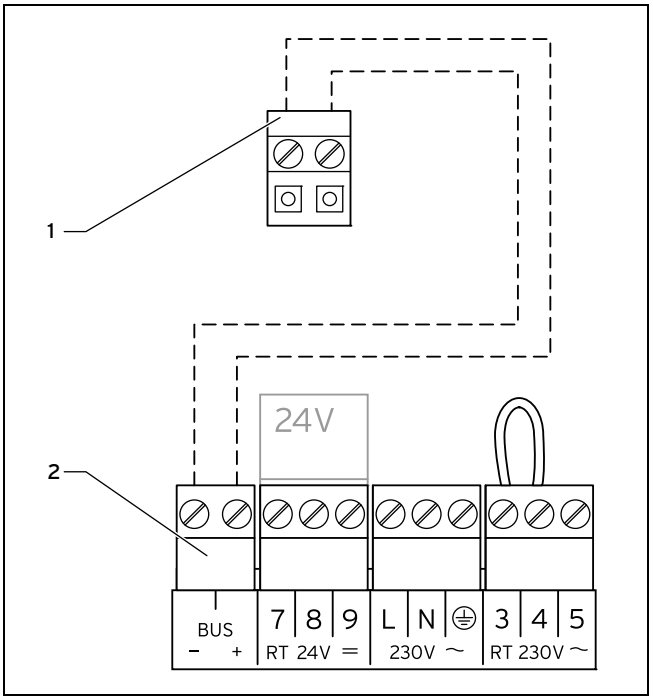
## 5 Electrical installation

When connecting the eBUS line, there is no need to pay attention to the polarity. If the two connections are switched around, communication is not affected.

If you want to use a **VR 66**, observe the installation instructions for the **VR 66** Control Centre.

## 5.1 Connect the controller to the boiler with a "3-4-5 Terminal"

1. Disconnect the power supply to the boiler.
2. Disconnect the boiler from the power mains by pulling out the mains plug or de-energising the boiler using a partition with a contact opening of at least 3 mm.
3. Secure the power supply to the boiler against being switched on again.
4. Check that there is no voltage in the boiler.



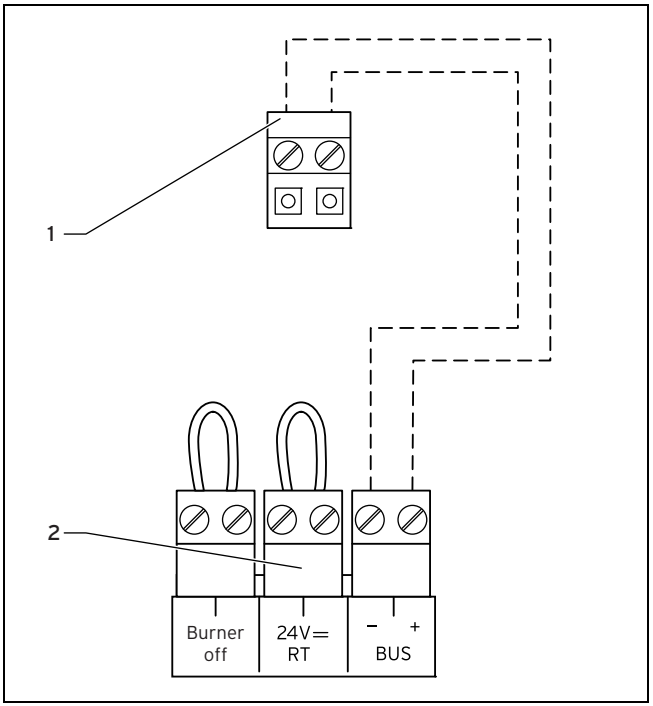

1 Controller terminal block 2 Boiler terminal block

5. Check whether the bridge is installed between terminals 3 and 4 on the PCB of the electronics box and, if required, install the bridge between terminals 3 and 4.
6. Connect the eBUS line to the terminal block **(1)** in the wall-mounting base of the controller.

7. Connect the eBUS line to the terminal block of the boiler **(2)**.

## 5.2 Connect the controller to the boiler with a "24V=RT terminal"

1. Disconnect the power supply to the boiler.
2. Disconnect the boiler from the power mains by pulling out the mains plug or de-energising the boiler using a partition with a contact opening of at least 3 mm.
3. Secure the power supply to the boiler against being switched on again.
4. Check that there is no voltage in the boiler.




1 Controller terminal block 2 Boiler terminal block

5. Check whether the bridge is installed between the 24 V=RT terminals on the PCB of the electronics box and, if required, install the bridge between the 24 V=RT terminals.

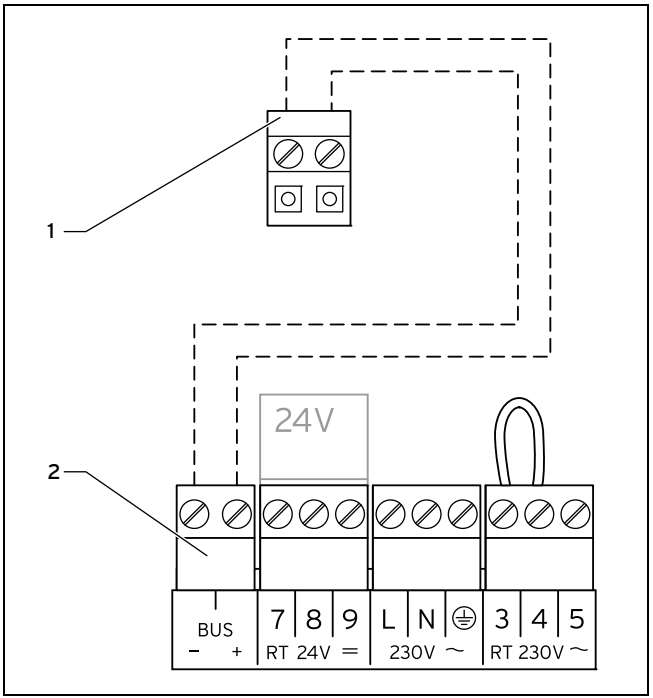
6. Connect the eBUS line to the terminal block **(1)** in the wall-mounting base of the controller.
7. Connect the eBUS line to the terminal block of the boiler **(2)**.

## 6 Electrical installation

When connecting the eBUS line, there is no need to pay attention to the polarity. If the two connections are switched around, communication is not affected.

### 6.1 Connect the controller to the boiler with a "3-4-5 Terminal"

1. Disconnect the power supply to the boiler.
2. Disconnect the boiler from the power mains by pulling out the mains plug or de-energising the boiler using a partition with a contact opening of at least 3 mm.
3. Secure the power supply to the boiler against being switched on again.
4. Check that there is no voltage in the boiler.



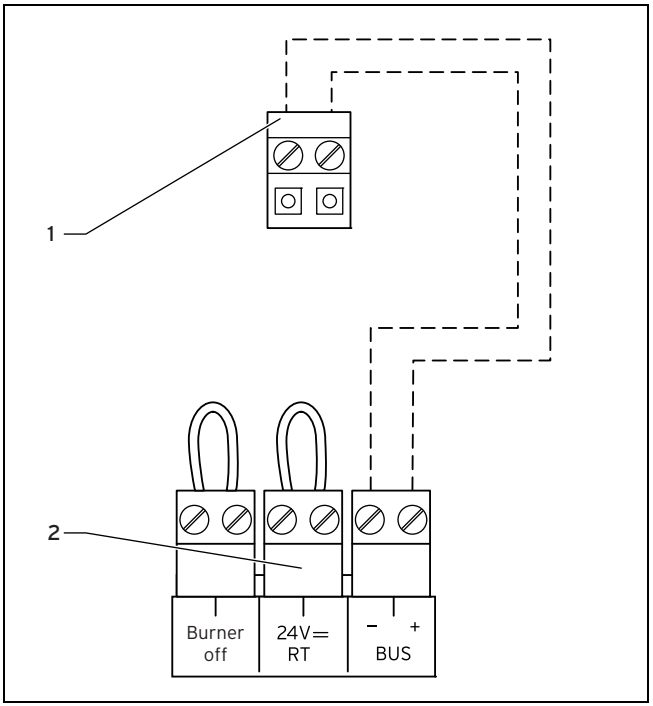

1 Controller terminal block 2 Boiler terminal block

5. Check whether the bridge is installed between terminals 3 and 4 on the PCB of the electronics box and, if required, install the bridge between terminals 3 and 4.
6. Connect the eBUS line to the terminal block **(1)** in the wall-mounting base of the controller.

7. Connect the eBUS line to the terminal block of the boiler **(2)**.

## 6.2 Connect the controller to the boiler with a "24V=RT terminal"

1. Disconnect the power supply to the boiler.
2. Disconnect the boiler from the power mains by pulling out the mains plug or de-energising the boiler using a partition with a contact opening of at least 3 mm.
3. Secure the power supply to the boiler against being switched on again.
4. Check that there is no voltage in the boiler.




1 Controller terminal block 2 Boiler terminal block

5. Check whether the bridge is installed between the 24 V=RT terminals on the PCB of the electronics box and, if required, install the bridge between the 24 V=RT terminals.

6. Connect the eBUS line to the terminal block **(1)** in the wall-mounting base of the controller.
7. Connect the eBUS line to the terminal block of the boiler **(2)**.

# 7 Start-up

When you start the controller for the first time after electrical installation or after replacement, the installation assistant starts automatically. You can use the installation assistant to make the main settings for the heating installation.

**Note**

To be able use the controller to set the temperature for the hot water generation and heating circuit, you must set the maximum value for the temperatures on the boiler. To do this, turn the boiler's rotary knobs as far as they go in a clockwise direction.

You can use the installation assistant to make the main settings for the heating installation.

The operating concept, an operation example, and the menu structure are all contained in the operating instructions of the controller.

All settings that you have made using the installation assistant can be changed again at a later time via the access level for the system operator **Installer level**. The read-out and settings options for the installer level are described in the Access level for the competent person (→ Page 17).

## 7.1 Overview of installation assistant set-up options

| Setting | Values | | Increment/Select | Factory preset | Setting |
|---|---|---|---|---|---|
| | Min. | Max. | | | |
| **Language** | | | Languages for selection | English | |
| **Zone**[2)] | | | None, 1, 2 | 0 | |
| **Control strategy**[3)] | | | Two point, analogue | Two point | |
| **Route adjustment**[1)] | -5 | +5 | 1 | 0 | |
| **Cylinder**[3)] | | | Active, Inactive | Active | |

1) Appears only if the value **Analogue** is set for the control strategy.
2) Appears only if a **VR 66** is connected.
3) Appears only in the display of the main controller with Zone 1 selected.

# 8 Operating

The controller has two operating levels, the access level for the operator and the access levels for the competent person.

The setting and read-out options for the operator, the operating concept and an operating example are described in the operating instructions for the controller.

## 8.1 Installer level overview

You can use the left-hand selection button **Menu** and the list entry **Installer level** to access the setting and read-out options.

Installer level (→ Page 17)

| Setting level | Values | | Unit | Increment/Select | Factory reset | Setting |
|---|---|---|---|---|---|---|
| | min. | max. | | | | |
| **Installer level →** | | | | | | |
| **Enter code** | 000 | 999 | | 1 | 000 | |
| | | | | | | |
| **Installer level → Service information → Enter contact details →** | | | | | | |
| ***Installer*** | *1* | *11* | *Figures* | *A to Z, 0 to 9, Space* | | |
| ***Phone*** | *1* | *12* | *Numbers* | *0 to 9, Space, Hyphen* | | |
| | | | | | | |
| **Installer level → Service information → Service date →** | | | | | | |
| ***Next service on*** | | | *Date* | | | |
| | | | | | | |

* If there is no fault, the status is **OK**. If there is a fault, **Fault** appears here and you can read the fault message in the Fault messages section.

1) Appears only if the value **Analogue** is set for the control type.

If the **VR 66** is connected, the functions shown in italics are only available for Zone 1 and these are only shown in the display for the main controller.

| Setting level | Values | | Unit | Increment/Select | Factory reset | Setting |
|---|---|---|---|---|---|---|
| | min. | max. | | | | |
| **Installer level → System configuration →** | | | | | | |
| **System** | | | | | | |
| **Status** | Current value* | | | | | |
| **Water pressure** | Current value | | bar | | | |
| ***Hot water*** | *Current value* | | ℃ | | | |
| **Controller modules** | List | | | Software version | | |
| **Heat generator** | | | | | | |
| **Status** | Current value | | | Off,<br>Heating,<br>DHW | | |
| **VF1** | Current value | | | | | |
| **HEATING 1** | | | | | | |
| **Auto day temp until** | Current value | | hr:min | | | |
| **Day temperature** | 5 | 30 | ℃ | 0.5 | 20 | |
| **Set-back temperature** | 5 | 30 | ℃ | 0.5 | 15 | |
| **Flow temp. target.** | Current value | | ℃ | | | |
| **Flow temp. current** | Current value | | ℃ | | | |

* If there is no fault, the status is **OK**. If there is a fault, **Fault** appears here and you can read the fault message in the Fault messages section.

1) Appears only if the value **Analogue** is set for the control type.

If the **VR 66** is connected, the functions shown in italics are only available for Zone 1 and these are only shown in the display for the main controller.

| Setting level | Values | | Unit | Increment/Select | Factory reset | Setting |
|---|---|---|---|---|---|---|
| | min. | max. | | | | |
| **Special function** | Current function | | | Cylinder boost, Party function, Away | None | |
| ***Hot water circuit*** | | | | | | |
| ***Cylinder*** | *Inactive* | *Active* | | *Active, Inactive* | *Active* | |
| ***Target cylinder temperature*** | *35* | *70* | °C | *1* | *60* | |
| ***Current cylinder temperature*** | *Current value* | | °C | | | |
| **System** | | | | | | |
| **Control type** | Current value | | | 2-point, analogue | 2-point | |
| **Distance Adjustment**[1)] | -5 | +5 | | 1 | 0 | |
| | | | | | | |
| **Installer level → Change code →** | | | | | | |
| **New code** | 000 | 999 | | 1 | 000 | |

* If there is no fault, the status is **OK**. If there is a fault, **Fault** appears here and you can read the fault message in the Fault messages section.

1) Appears only if the value **Analogue** is set for the control type.

If the **VR 66** is connected, the functions shown in italics are only available for Zone 1 and these are only shown in the display for the main controller.

# 9 Operating and display functions

The path details given at the start of each function description indicate how you reach this function in the menu structure.

The square brackets contain the level of detail to which the function belongs.

You can use the left-hand selection button **Menu** and the list entry **Installer level** to set the operating and display functions.

The table "Overview of operating levels" shows you which functions are available for Zone 2 via the auxiliary controller.

## 9.1 Service information

### 9.1.1 Entering contact details

**Menu →Installer level → Service information → Enter contact data**

– You can enter your contact details (company name and phone number) in the controller.
– As soon as the date of the next service appointment is reached, the operator can view these contact details in the display of the controller.

### 9.1.2 Entering the service date

**Menu → Installer level → Service information → Service date**

– In the controller, you can save a date (day, month, year) for the next regular service.

When the date for the next service date is reached, the message **Service heater 1** is displayed in the basic display of the controller.

If a service date is saved in the heater, the message **Service heater 1** appears on the heater when this date is reached.

The message is switched off if:

– the date is in the future.
– the initial date 01.01.2011 is set.

**Note**

To find out which service date to enter, refer to the instructions for your heater unit.

## 9.2 System configuration, system

### 9.2.1 Reading the system status

**Menu → Installer level → System configuration** [**System** ---] **→ Status**

– This function allows you to read the status of the heating system. If there is no fault, the message "**OK**" appears here. If there is a fault, the status "**Fault**" is displayed. If you press the right selector button the list of error messages (→ Page 24) is displayed.

### 9.2.2 Reading the water pressure of the heating system

**Menu → Installer level → System configuration** [**System ----**] → **Water pressure**

– This function allows you to read the water pressure of the heating system.

### 9.2.3 Reading the hot water generation status

**Menu → Installer level → System configuration** [**System ----**] → **Domestic hot water**

– You can use this function to read the hot water generation status (**Charged**, **Not charged**).

### 9.2.4 Reading the software version

**Menu → Installer level → System configuration** [**System ----**] → **Control modules**

– You can use this function to read the software version of the display and the heater.

### 9.2.5 Setting the control type

**Menu → Installer level → System configuration** [**System ----**] → **Control type**

– Select this function to set the type of room temperature control:

– Two-point corresponds to an On/Off control system
– Analogue corresponds to a modulating control system

### 9.2.6 Setting the distance adjustment

**Menu → Installer level → System configuration** [**System ----**] → **Distance adjustment**

– This function allows you to optimally adjust the switching behaviour of the controller to the room size or the radiator layout:

– Positive values: slower controller switching behaviour
– Negative values: faster controller switching behaviour

The **Distance adjustment** function is only available if you have set **Analogue** under the **Control strategy** function

## 9.3 System configuration, heater

### 9.3.1 Reading the status of the heater

**Menu → Installer level → System configuration** [**Heater 1 ----**] → **Status**

– This function allows you to read the current status of the heater (boiler). **Off**, **Heating** (heating mode), **hot water generation**.

### 9.3.2 Reading the value of temperature sensor VF1

**Menu → Installer level → System configuration** [**Heater 1 ----**] → **VF1**

– This function allows you to read the current value of temperature sensor VF1.

## 9.4 System configuration, heating circuit

### 9.4.1 Reading the end of the current time period

**Menu → Installer level → System configuration** [**HEATING 1** ----] → **Auto day temp until**

– With this function, you can stipulate whether or not a set time period is active for the **Automatic** mode and how much of the period is still remaining. To do this, the controller must be in "**Automatic mode**". The information is specified in hr:min.

### 9.4.2 Setting the day temperature

**Menu → Installer level → System configuration** [**HEATING 1** ----] → **Day temperature**

– This function allows you to set the desired day temperature for the heating circuit.

### 9.4.3 Setting the set-back temperature

**Menu → Installer level → System configuration** [**HEATING 1** ----] → **Set-back temperature**

– This function allows you to set the desired set-back temperature for the heating circuit.

The set-back temperature is the temperature to which the heating is to be reduced at times of low heat demand (e.g. overnight).

### 9.4.4 Reading the target flow temperature

**Menu → Installer level → System configuration** [**HEATING 1** ----] → **Flow temp. target**

– You use this function to read the target flow temperature for the heating circuit.

### 9.4.5 Reading the current flow temperature

**Menu → Installer level → System configuration** [**HEATING 1** ----] → **Flow temp. current**

– You use this function to read the current flow temperature for the heating circuit.

### 9.4.6 Reading the status of advanced functions

**Menu → Installer level → System configuration** [**HEATING 1** ----] → **Advanced functions**

– With this function, you can define whether a special operating mode (advanced function), such as **Party function** etc. is currently active for a heating circuit.

## 9.5 System configuration, hot water circuit

### 9.5.1 Activating the cylinder

**Menu → Installer level → System configuration** [**Domestic hot water** ----] → **Cylinder**

– Select this function to specify whether a cylinder is connected:

Active: Cylinder connected

Inactive: No cylinder connected

### 9.5.2 Setting the target temperature for domestic hot water cylinder (desired hot water temperature)

**Menu → Installer level → System configuration** [**Domestic hot water** ----] → **Cylinder temp. target**

– This function allows you to define the set target temperature for a connected domestic hot water cylinder (**desired hot water temperature**). Set the set target temperature on the controller in such a way that the heat demand of the operator is covered.

The temperature for the domestic hot water cylinder must be set to the maximum value in the boiler.

### 9.5.3 Reading the current temperature of the domestic hot water cylinder

**Menu → Installer level → System configuration** [**Domestic hot water** ----] → **Cyl. temp. current**

– You can use this function to read the measured cylinder temperature.

## 9.6 Changing the code for Installer level

**Menu → Installer level → Change code**

– This function allows you to change the access code for the "**Installer level**" operating level.

If the code is no longer available, you must reset the controller to the factory setting in order to obtain access to Installer level again.

# 10 Rectifying faults

## 10.1 Error messages

If a fault occurs in the heating system, an error message will appear in the controller display instead of the basic display. You can access the basic display again by pressing function key "**Back**".

You can also read all current error messages under the following menu point:

**Menu → Information → System status → Status** [Fault]

– If there is a fault, the status "**Fault**" is displayed. In this case, the right-hand selector button has the function **Display**. Press the right-hand selector button to display a list of fault messages.

**Note**

Not all error messages in the list appear automatically on the display.

| Display | Meaning | Connected units | Cause |
|---|---|---|---|
| Fault, Heater 1 | Fault in Heater 1 | Heat generator 1 | See heater instructions |
| Heater 1 connection is missing | Connection fault, Heater 1 | Heat generator 1 | Cable defective, plug connection not correct |

## 10.2 Faults

| Fault | Cause | Remedy |
|---|---|---|
| Display is dark | Unit fault | – The power is switched off/on at the heater<br>– Check the power supply for the heater |
| No changes in the display via the rotary knob | Unit fault | – The power is switched off/on at the heater |

| Fault | Cause | Remedy |
|---|---|---|
| No changes in the display via the selector buttons | Unit fault | – The power is switched off/on at the heater |

# 11 Decommissioning

## 11.1 Replacing the controller

1. If you want to replace the controller, disconnect all of the connected modules from the power supply. Observe the relevant instructions.
2. If you want to replace the controller, first shut down the heating installation.
3. To do this, follow the instructions for shutting down in the boiler instructions.
4. Disconnect the power supply to the boiler.
5. Disconnect the boiler from the power mains by pulling out the mains plug or de-energising the boiler using a partition with a contact opening of at least 3 mm.
6. Secure the power supply to the boiler against being switched on again.
7. Check that there is no voltage in the boiler.

### 11.1.1 Removing from the wall

1. Insert the screwdriver into the slot on the wall-mounting base .
2. Carefully lever the controller off the wall mounting base .
3. Unfasten the eBUS line from the pin header on the controller and from the terminal block on the boiler.
4. Unscrew the wall-mounting base from the wall.

## 11.2 Recycling and disposal

The controller and the associated transport packaging consist largely of recyclable materials.

**Unit**

If your Vaillant unit is identified with this symbol, it does not belong with your household waste at the end of its useful life.

► In this case, make sure that the Vaillant unit and any accessories are properly disposed of at the end of their useful life.

As this Vaillant unit is covered by the law regarding the marketing, return and environmentally friendly disposal of electrical and electronic equipment (ElektroG in Germany), the unit can be disposed of free of charge at a municipal collection point.

**Packaging**

The approved qualified servicing company that installed the unit will dispose of the transport packaging.

# 12 Customer service

To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement.

Please contact Vaillant Service Solutions for further details:
0330 100 3461

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**Vaillant Ltd**
Nottingham Road ▮ Belper ▮ Derbyshire ▮ DE56 1JT
Telephone 0330 100 3461 ▮ Vaillant Service Solutions 0330 100 3461
Spares Technical Enquiries 017 73 59 66 15
info@vaillant.co.uk ▮ technicalspares@groupservice.co.uk
www.vaillant.co.uk

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