

For the qualified engineer

Installation instructions
Control Center VR 65



Control Center for storage connection (eBUS)

VR 65

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1 Notes on the documentation

The following information is intended to help you throughout the entire documentation. Further documents apply in combination with this installation instructions.

We accept no liability for any damage caused by non-observance of these instructions.

Other applicable documents

When operating the equipment, please observe the operating instructions for the different system components.

Attachment and storage of the documents

The wiring diagram can be found on the inside of the housing cover.

Please pass on this installation manual to the owner of the system so that he can keep it available whenever it is required.

Symbols used

Please observe the safety instructions in this installation manual!



Danger!
Immediate risk of serious injury or death.



Danger due to high voltage!
Immediate danger to life and limb!



Caution!
Potentially dangerous situation for the product and environment.



Note!
Useful information and instructions.

- Symbol for a necessary task

2 Description of the appliance

The Control Center VR 65 offers a solution to allow Vaillant low voltage 'eBUS' controls to be used with the traditional 230 V zone valves and DHW storage cylinder in the English market.

Information about the heat required by the cylinder is forwarded by the Control Center VR 65 to the Vaillant ecoTEC heating appliance. The boiler then decides whether a hot water request has to be fulfilled and sends a signal to position the 230 V zone valves via the VR 65.

In this way, the boiler can store different target temperatures for heating and warm water operation.

Standard 230 V components can be integrated into the Vaillant eBUS system via the Control Center VR 65.

2 Description of the appliance

3 Safety instructions and regulations

The following components can be connected

- 230 V 3-port mid-position valve
 - 230 V cylinder thermostat
- or alternatively
- 2 x 230 V 2-port zone valves
 - 230 V cylinder thermostat

When Vaillant uniSTOR cylinder is installed, the NTC sensor VR 10 supplied with the VR 65 can be used instead of the 230 V cylinder thermostat.

This will then allow the cylinder temperature to be set at the Vaillant ecoTEC boiler or at the Vaillant VRT 360 or VRC 400 control.

The cylinder temperature can also be set remotely via vrnetDIALOG.

2.1 Data badge

The data badge is on the inside of the VR 65 Control Centre housing cover.

2.2 CE label/conformity

The CE label documents that the Control Center VR 65, in connection with Vaillant condensation boilers, fulfils the basic requirements of the following guidelines:

- Electromagnetic compatibility directive (Guideline 89/336/EEC of the council)
- Low voltage directive (73/23/EEC)

2.3 Intended use

The Control Center VR 65 is a state-of-the-art appliance which has been designed in accordance with recognised safety regulations. Nevertheless, dangers to the life and limb of the user or third parties can still occur or the appliance or other material assets may be impaired in the event of improper use or use for which the appliances are not intended.

The Control Center VR 65 is an eBUS system component.

It is responsible for the communication between the DHW cylinder, the boiler and external 230 V 2- or 3-port valves.

Any other use or extended use is considered to be improper use. The manufacturer/supplier is not liable for any resulting damage. The user alone bears any risk. Intended use includes the observance of the installation manual.

Note!

The VR 65 is designed to control one 3-port valve or two 2-port valves. Systems requiring more zone valves or a combination of 3-port and 2-port valves are not possible.

Note!

The VR 65 requires a 230 V supply. The ecoTEC boiler also requires a 230 V supply. The eBUS wiring between the two will not provide 230 V from one device to the other!

3 Safety instructions and regulations

The Control Center must be installed by a suitably qualified heating engineer, who is responsible for observing all relevant standards and regulations.

We accept no liability for damage caused by non-observation of these instructions.

3.1 Safety instructions



Danger!

Risk of death from electric shock through contact with live connections!

Isolate the mains power supply before working on the unit, and ensure that the power cannot be accidentally restarted.

Using the mains switch on the VR 65 or on the heating appliance is not sufficient to isolate all terminals of the system.

3.2 Regulations

All wiring must be in accordance with Building Regulations Part P, current IEE regulations, and must be carried out by a competent person.

Standard wires must be used for wiring.

Minimum cross-section of wires:

- | | |
|--|----------------------|
| - Power supply 230 V (connection cable to pumps or Control Center) | 1.5 mm ² |
| - Extra-low voltage supply (sensor or bus wires) | 0.75 mm ² |

Do not exceed following maximum wire lengths:

- | | |
|---------------------|-------|
| - Sensor connection | 50 m |
| - Bus wire | 300 m |

Where sensor and 'eBUS' cables run in parallel with 230 V cables over a length of 10 m, they must be separated by at least 25 mm.

230 V connection leads must be 1.5 mm² and secured using the cable clamps supplied.

Do not use free terminals on the devices as support terminals for other wiring.

The unit must be installed in a dry room.

4 Installation

The Control Center can be wall-mounted near to the DHW cylinder. The hot water and heating programs as well as all required parameters are set at the VRT 360 or VRC 400. All heating circuit connections are made at the Control Center using a ProE plug.

4.1 Installation overview

Please check the following before installing the VR 65 Control Center:

- Read the installation instructions
- Check the scope of delivery
- Assemble the VR 65
- Carry out electrical installation

4.2 Scope of delivery

Using Table 4.1, check that all the components have been delivered with the VR 65.

Pos.	Number	Components
1	1	Control Center VR 65
2	1	Standard sensor VR 10
3	1	Cable clamps (7 pcs.)
4	1	Bag of screws

Table 4.1 Scope of delivery of the Control Centers VR 65

4.3 Accessories

- timeSWITCH 140

Digital 2-channel timer with daily/weekly program for heating and hot water.

The timeSWITCH 140 can be plugged into the Vaillant ecoTEC boiler.

There are three individually programmable time windows per day for heating and hot water. The timer can be set to run a weekly or a daily program.

By activating the calendar function, an automatic summer/winter changeover is activated.

- VRT 360

Digital room temperature thermostat with daily/weekly program for time and temperature control of heating and hot water.

Designed for wall mounting.

There are three individually programmable time windows per day for heating, hot water and a hot water circulation pump. Different target room temperatures can be set for each time window.

The thermostat can be set to run a weekly or a daily program.

By activating the calendar function, an automatic summer/winter changeover is activated.

- VRC 400

Digital weather-dependent control with daily/weekly program for time and temperature control of heating and hot water.

Designed to plug into the Vaillant ecoTEC boiler or for wall mounting.

Set the heating curve to adjust the flow temperature to suit the heat requirement of the building. Optimises the flow temperature to the prevailing weather conditions.

There are three individually programmable time windows per day for heating, hot water and a hot water circulation pump. Different target room temperatures can be set for each time window.

The control can be set to run a weekly program or a daily program.

By activating the calendar function, an automatic summer/winter changeover is activated.



Caution!

Do not use a VRT 360 or VRC 400 in combination with an additional room temperature thermostat e.g. VRT 30 due to the impact this may have on the operation of the VRT 360 or VRC 400.

4 Installation

5 Electrical installation

4.4 Assembling Control Center VR 65

The Control Centre connection terminals are provided with System ProE plugs. All onsite connections must be made using these plugs.

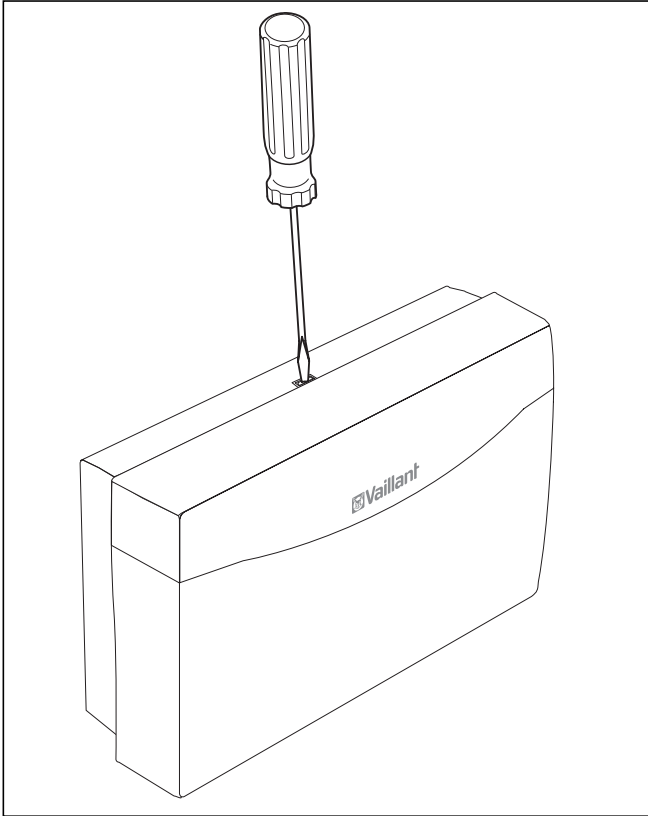


Fig. 4.1 Opening the Control Centers

- Press the catch on the upper edge of the box downwards using a screw driver.
- Pull the housing cover forwards.

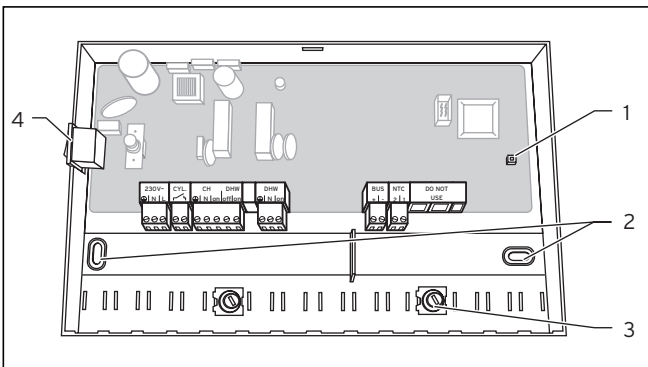


Fig. 4.2 Assembling the Control Centers

Key

- 1 Operating LED
- 2 Fixing holes
- 3 Cable clamps
- 4 On/Off switch

- Mark out the 2 fixing holes (2) and drill the holes.
- Select the wall plugs to suit the state of the wall and screw the housing tight.
- Wire up the Control Center as shown in the wiring diagrams (fig. 5.2 or 5.3).
- Fix all cables using the cable clamps (3).
- Finally, press the covering back onto the housing so that it clicks into place audibly.

5 Electrical installation

The electrical connection must be done by a suitably qualified heating engineer who is responsible for complying with the existing standards and guidelines.



Danger!

Risk of death from electric shock through contact with live connections!

Isolate the mains power supply before working on the unit, and ensure that the power cannot be accidentally restarted.

Using the mains switch on the VR 65 or on the heating appliance is not sufficient to isolate all terminals of the system.



Caution!

In order to avoid damage to the heating appliance or the VR 65 Control Centre, any existing 230 V wiring box installation must be removed completely.

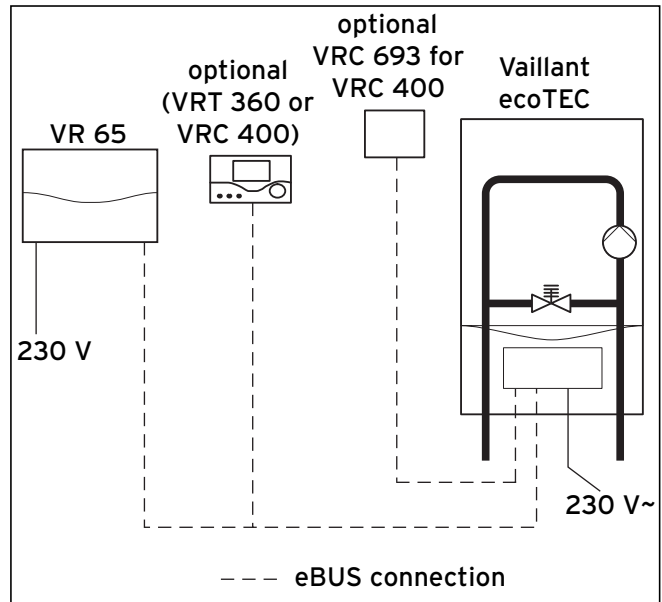


Fig. 5.1 Connection of eBUS and mains cable in the system

5.1 Installing the VR 65 with one 3-port valve

- Wire up the Control Center as shown in fig. 5.2.
- Connect the eBUS terminals of the VR 65 to the eBUS terminals of the heating appliance using a two-core cable. The polarity of the eBUS cable can be mixed. The eBUS can be branched at any part of the system.

The Control Center VR 65 requires its own 230 V mains supply via a switched fused spur.
The boiler also requires a 230 V supply.

Note!
The VR 65 has a mains switch (see fig. 4.2) to isolate the internal electronics as well as all connected zone valves for the purposes of tests and maintenance. When the housing cover has been removed, a green LED indicates if the VR 65 is still connected to the mains voltage.

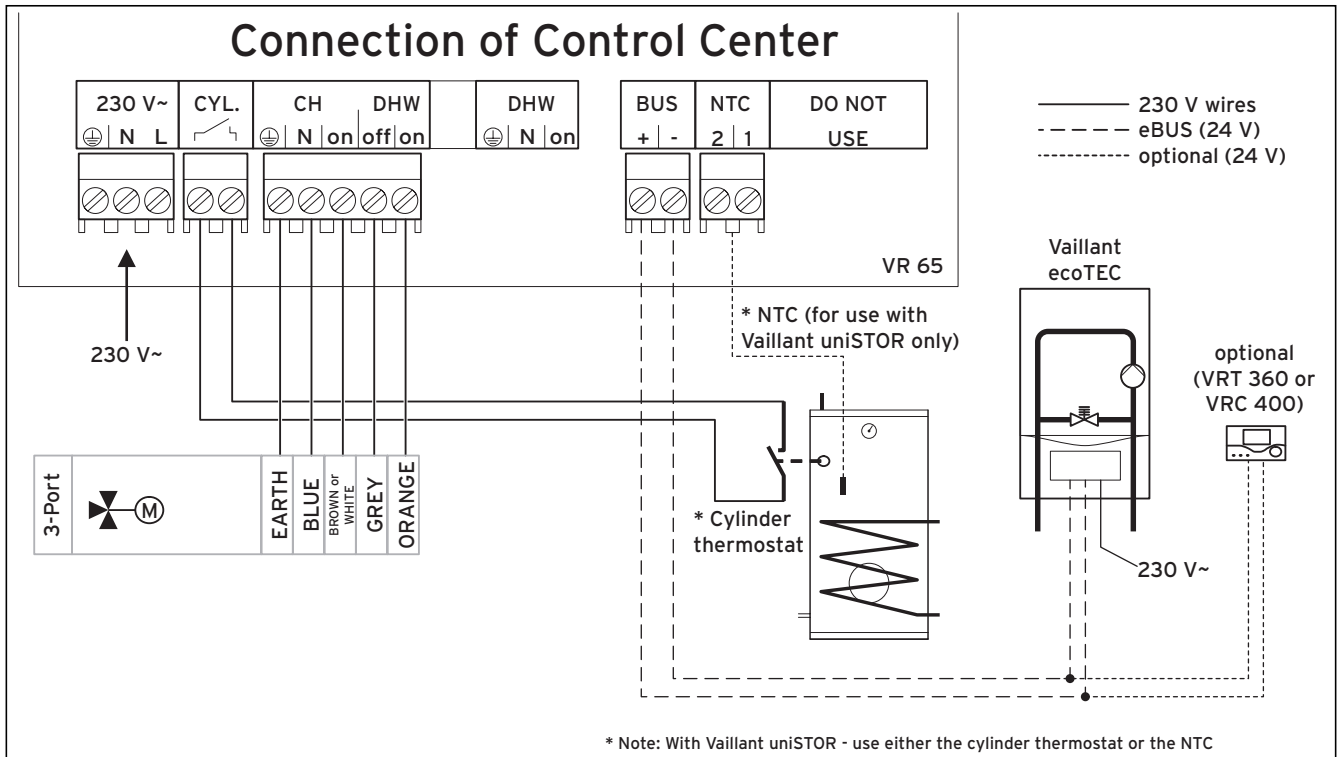


Fig. 5.2 Connection with 3-port valve

5 Electrical installation

5.2 Installing the VR 65 with two 2-port valves

- Wire up the Control Center as shown in fig. 5.3.
- Connect the eBUS terminals of the VR 65 to the eBUS terminals of the heating appliance using a two-core cable. The polarity of the eBUS cable can be mixed. The eBUS can be branched at any part of the system.

The Control Center VR 65 requires its own 230 V mains supply via a switched fused spur.
The boiler also requires a 230 V supply.

Note!
The VR 65 has a mains switch (see fig. 4.2) to isolate the internal electronics as well as all connected zone valves for the purposes of tests and maintenance. When the housing cover has been removed, a green LED indicates if the VR 65 is still connected to the mains voltage.

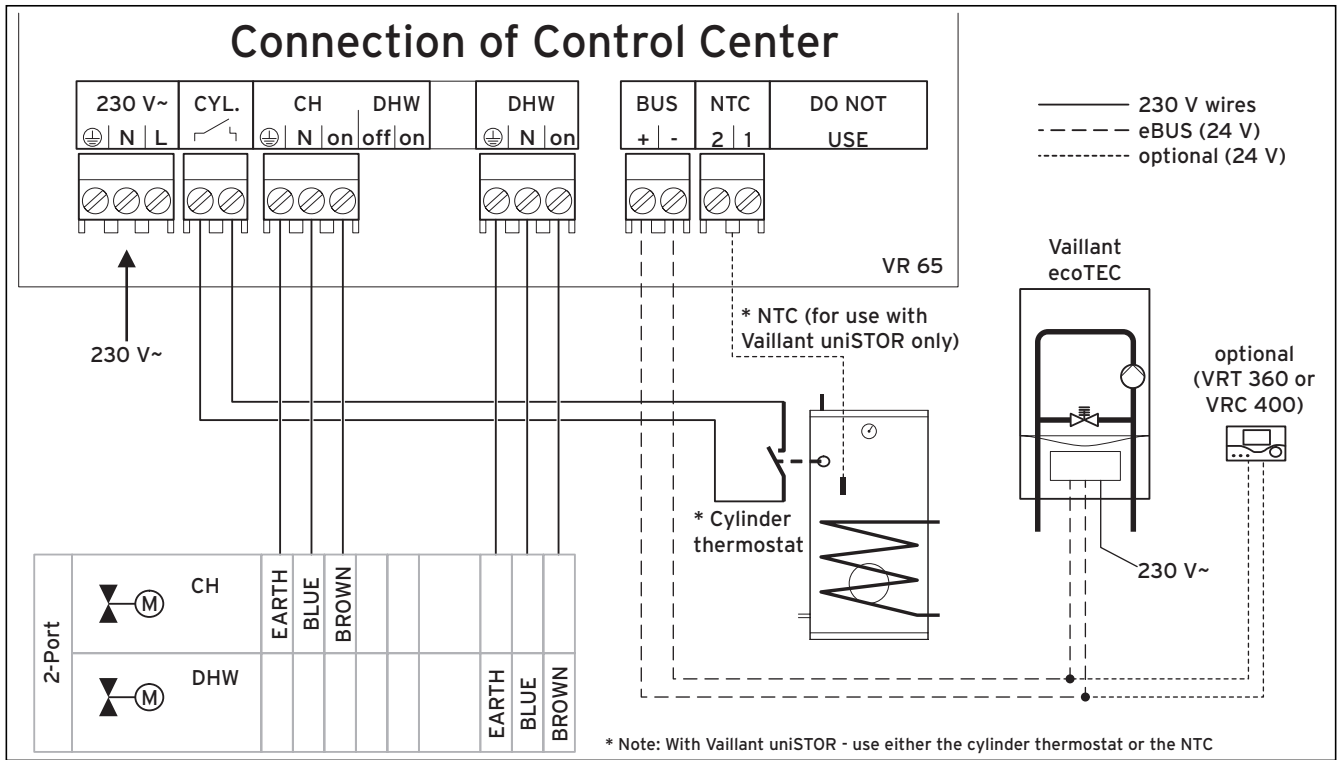


Fig. 5.3 Connection with two 2-port valves

5.3 Installing the VR 65 with a NTC

Note!
 To comply with the approvals, the boiler must be Vaillant ecoTEC if the cylinder NTC solution is used.

Before installing the NTC, first remove the cylinder control with two capillary tubes for the cylinder thermostat and thermal cut out.

The cylinder control is fitted in one of two ways (A or B).

- Disconnect the wires (1) from the terminal block of the cylinder control (a).
- **Version A, fig. 5.4:**
 Unclip the cylinder control (a) and remove it from the terminal box (see 2, fig. 5.4).
(Version B, fig. 5.5:
 To remove the cylinder control (a) release the clips with two screw drivers as shown in fig. 5.5)
- Remove the capillary tubes (3) of the thermostat and the thermal cutout from the dry pocket of the uniSTOR.
- Ensure that the capillary tube of the immersion sensor is not removed.
- Now the NTC can be pushed into the free dry pocket of the cylinder as shown in fig. 5.6.
- The NTC is wired into the VR 65 as shown in fig. 5.2 or fig. 5.3.

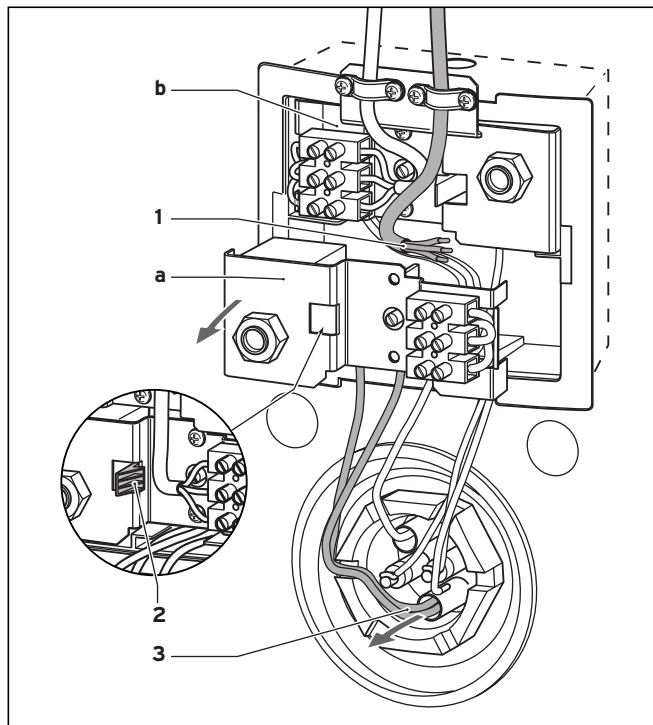


Fig. 5.4 Removing the cylinder control (Version A)

Legende:
 a Cylinder control
 b Immersion Heater Control

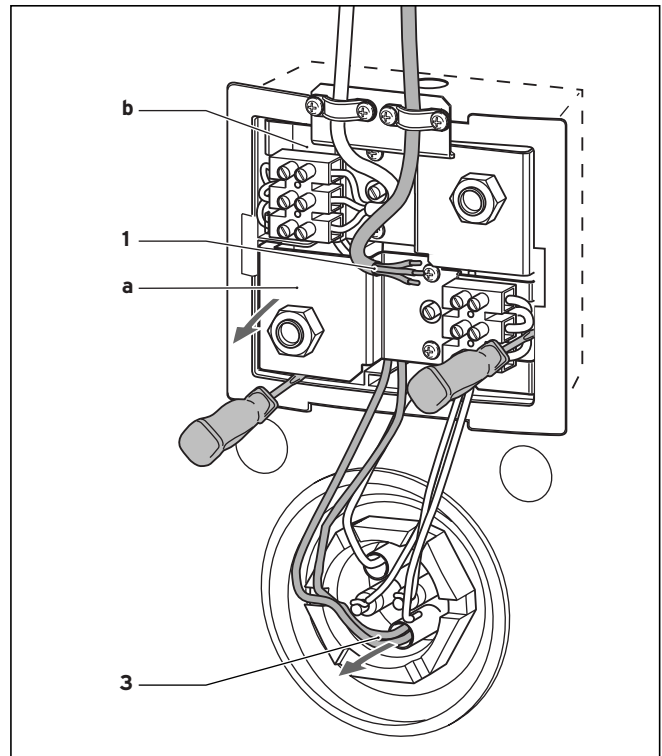


Fig. 5.5 Removing the cylinder control (Version B)

Legende:
 a Cylinder control
 b Immersion Heater Control

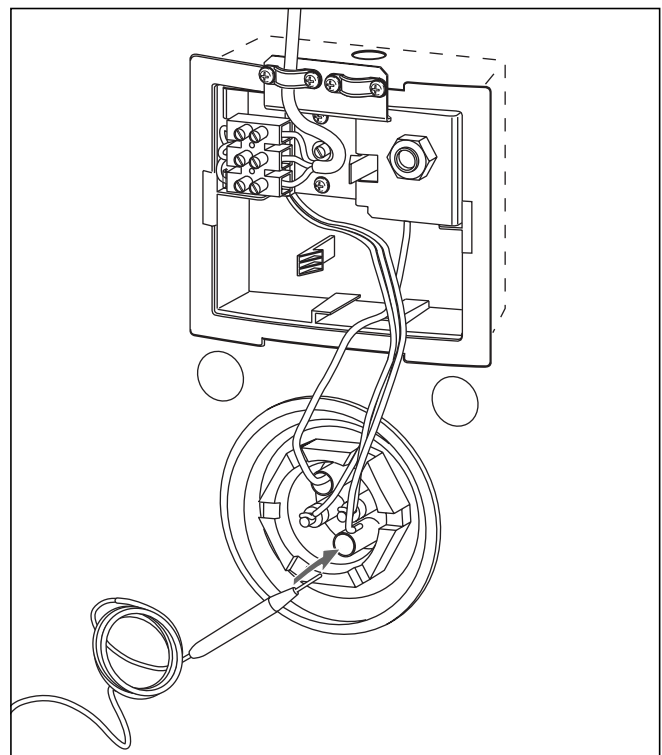



Fig. 5.6 Installing the NTC


6 Start-up

7 Troubleshooting

6 Start-up

The initial start-up of the VR 65 is carried out together with the initial start-up of the heating appliance.

 **Note!**
In the factory settings, the heating appliance operation is set to warm water priority.

 **Note!**
To comply with the approvals, the boiler must be Vaillant ecoTEC if the cylinder NTC solution is used.

If a parallel operation for central heating and charging of the DHW cylinder is required, change this setting on the boiler in the following way.

- Press the "i" and "+" keys simultaneously. The display shows "d.00".
- Use the "+" or "-" keys to scroll to the diagnostic number d.97 to enter the second diagnostic level.
- Press the "i" key. The display shows the relevant diagnostic information.
- Use the "+" or "-" keys to change the value (display flashes) to 17 (password).
- Save the new value by pressing and holding down the "i" key for approx. 5 seconds until the display no longer flashes.
- Use the ,+ and ,- keys to scroll to the diagnostic point d.70
- Press the "i" key. Change the setting using the ,+ and ,- keys.
- Save the new value by holding down the "i" key for approx. 5 seconds until the display no longer flashes.

You can end the diagnostic mode as follows:

- Press the "i" and "+" keys simultaneously.

The following settings are possible:

Display	Meaning	Factory setting
0	Warm water priority - The 3-port valve is in the heating or hot water position depending on the operating mode. - With 2-port valves, either the DHW valve or the CH valve is open, both valves are closed on standby.	x
1	Enable mid position - The 3-port valve is in the mid position for simultaneous heating and hot water request, or in the heating or hot water position, depending on the operating mode. - With 2-port valves, both valves are open during simultaneous heating and hot water request. Otherwise, only one valve is always open and both valves are closed on standby.	
2	Only heating mode (only for test operation!) - Only the CH valve is activated.	

Table 6.1 Heating appliance settings

7 Troubleshooting

The Control Center VR 65 has a green Operating LED, which can be monitored when the housing cover is removed (see fig. 4.2).

Problem	Cause	Remedy
LED permanently off	No 230 V supply available or fuse in appliance defective	- Check whether the mains voltage cable is connected correctly. - Check the mains fuse for the 230 V supply and reconnect the mains supply. - Replace the mains fuse in the VR 65 (4 A slow).
LED permanently on	No error	- Normal operation
LED flashes quickly	Short circuit of the connected temperature sensor (NTC) in the DHW cylinder	- Check the cable of the temperature sensor (NTC) for damage. - Replace the temperature sensor (NTC) in the DHW cylinder.
LED flashes slowly	Communication error in eBUS protocol to the boiler	- Inform the Vaillant customer service.

Table 7.1 Troubleshooting

8 Factory 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.

9 Technical data

Feature	Unit	VR 65
Operating voltage	V	230
Power consumption	VA	2
Contact load of output relays (max.) $\cos \varphi > 0.6$	A	2
Contact voltage for DHW cylinder thermostat	V	230
Operating voltage of temperature sensor (NTC)	V	5
Minimum cross-section of the temperature sensor cables, eBUS cables	mm ²	0.75
Minimum cross-section of the power supply cable (rigid cable, NYM)	mm ²	1.5
Maximum ambient temperature	°C	70
Housing dimensions		
Height	mm	174
Width	mm	272
Depth	mm	52
Level of protection		IP 20
Protection class		II

Table 9.1 Technical data

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