

Installation instructions

for contractors

VISSMANN

High limit safety cut-out Millivolt high limit safety cut-out Temperature limiter Temperature controller

Part number, see page 2

Safety instructions



Please follow these safety instructions closely to prevent accidents and material losses.

Safety instructions explained



Please note

This symbol warns against the risk of material losses and environmental pollution.

Note

Details identified by the word "Note" contain additional information.

Installation, commissioning, inspection, maintenance and repairs must only be carried out by an authorised, competent person (heating engineer/installation contractor).

Before working on the appliance/heating system, isolate it from the power supply (e.g. by removing a separate mains fuse or by means of a mains isolator) and safeguard against unauthorised reconnection.

When using gas as fuel, also close the main gas shut-off valve and safeguard against unintentional reopening.

Check for gas tightness after installation.

Wear suitable personal protective equipment when carrying out any work.

Repairing components that fulfil a safety function can compromise the safe operation of the system.

For replacements, use only original spare parts supplied or approved by Viessmann.

Install the components with new gas-kets.

Application

- In connection with underfloor heating circuits, at least one **temperature limiter (TW)** must be installed to limit the maximum temperature.
- The **millivolt high limit safety cut-out** can be used with the following gas boilers with atmospheric burners (not fan-assisted):
 - Atola,
rated heating output 10 to 55 kW
 - Stainless steel boiler,
rated heating output 10 to 46 kW,
from part no: EH-

Part numbers and setting

Appliance	Part no.	Setting range/ Setting value	Temperature setting
High limit safety cut-out (STB)	7197 797	65 °C	—
High limit safety cut-out (STB)	7151 991	Delivered condition 110 °C, adjustable to 95/100/110/120 °C	inside the casing using a screwdriver
Temperature controller (TR)	7151 728* ¹ 7151 729 7151 992* ¹ 7151 993* ¹ 7404 730	30 to 80 °C	inside the casing using a screwdriver
	7151 988* ¹ 7151 989	30 to 60 (110) °C	on the outside of the casing, with rotary selector
Temperature limiter (TW)	7162 267* ¹	96 °C	—

*¹ With sensor well

Part numbers and setting (cont.)

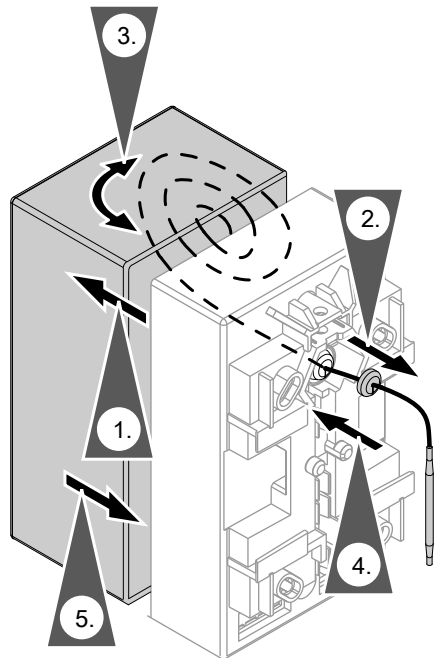
Appliance	Part no.	Setting range/ Setting value	Temperature setting
Combi boiler TR/TR TR/STB	7147 948* ¹ 7151 990* ¹	30 to 110 °C High limit safety cut- out: 95/100/110/120 °C	inside the casing using a screwdriv- er
Millivolt high limit safety cut-out	7403 965 7814 321	95/100/110/120 °C	inside the casing using a screwdriv- er

Adjusting the length of capillaries to the length of the sensor well



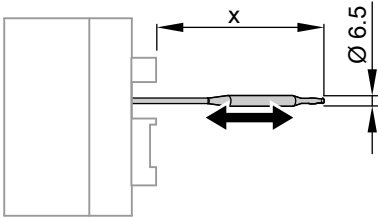
Please note

Damaged sensor leads (capillary tubes) result in incorrect sensor functions. Never route the connecting lead and the capillaries near the burner. Never kink the capillary tubes.



Adjusting the length of capillaries to the... (cont.)

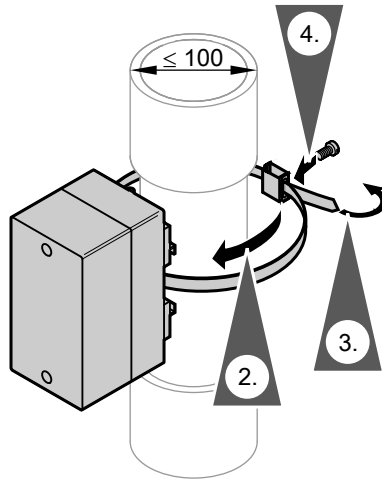
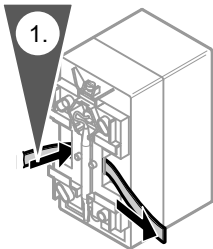
Note on step 2:



Sensor well length in mm	Length x of the capillary tube in mm
100	96
150	146
200	196

Installation with tie

- Part no. 7151 729 (TR)
- Part no. 7151 993 (TR)
- Part no. 7404 730 (TR)
- Part no. 7197 797 (STB)



Note

Do not thermally insulate the appliance.

Installation with tie (cont.)

- Mount approx. 1 to 1.5 m downstream of the mixer on a bright metallic pipe.
- In the case of plastic pipes, mount on a 1 to 1.5 m long metallic intermediate pipe.
- Check for firm seating and good contact over the sensor surface area.

Installation in a sensor well

Individual equipment

- Part no. 7151 991 (STB)
- Part no. 7151 728 (TR)
- Part no. 7151 992 (TR)
- Part no. 7151 993 (TR)
- Part no. 7162 267 (TW)

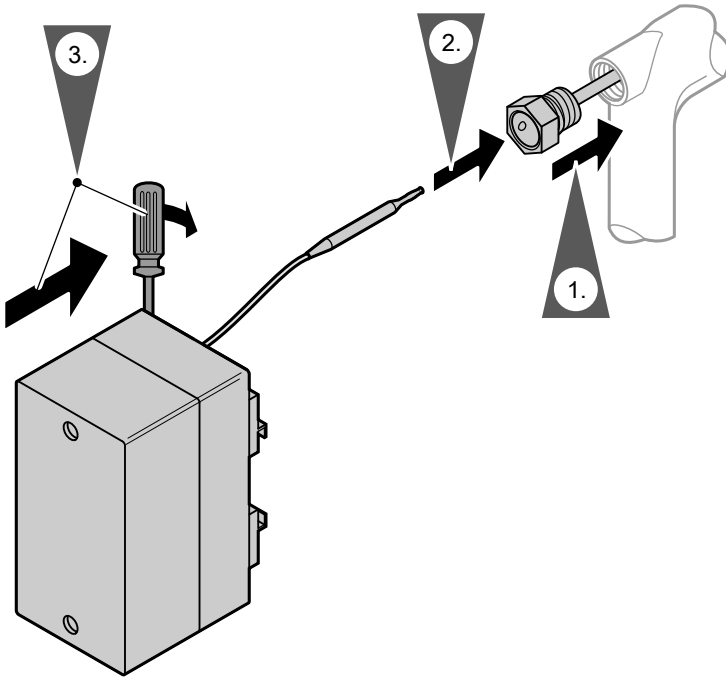


Please note

Damaged sensor leads (capillary tubes) result in incorrect sensor functions.

Installation in a sensor well (cont.)

Never route the connecting lead and the capillaries near the burner. Never kink the capillary tubes.



1. Seal in the sensor well.
2. Insert the temperature sensor into the sensor well as far as it will go.
3. Set the casing onto the sensor well and secure.

Installation in a sensor well (cont.)

Combi boiler

- Part no. 7147 948 (TR/TR)
- Part no. 7151 990 (TR/STB)

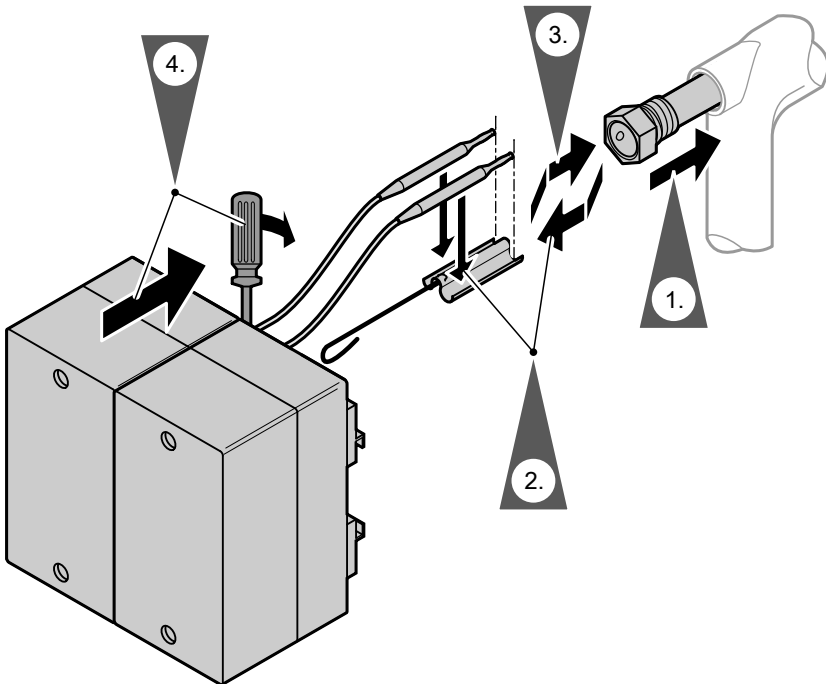
In the delivered condition, assembly 7151 990 is set to 120 °C (STB) and 110 °C (TR). Should a changeover be required, implement the change prior to mounting the device; see page 18.



Please note

Damaged sensor leads (capillary tubes) result in incorrect sensor functions.

Never route the connecting lead and the capillaries near the burner. Never kink the capillary tubes.



1. Seal in the sensor well.



Installation in a sensor well (cont.)

2. Pull the sensor retainer from the sensor well. Push both temperature sensors into the sensor retainer so that at the front, they are flush with the retainer.
3. Insert the sensor retainer with the temperature sensors into the sensor well as far as they will go.
4. Set the casing onto the sensor well and secure.

Note

Never wrap insulating tape around sensors.

Installation with sensor well and adaptor

- Part no. 7151 988 (TR)

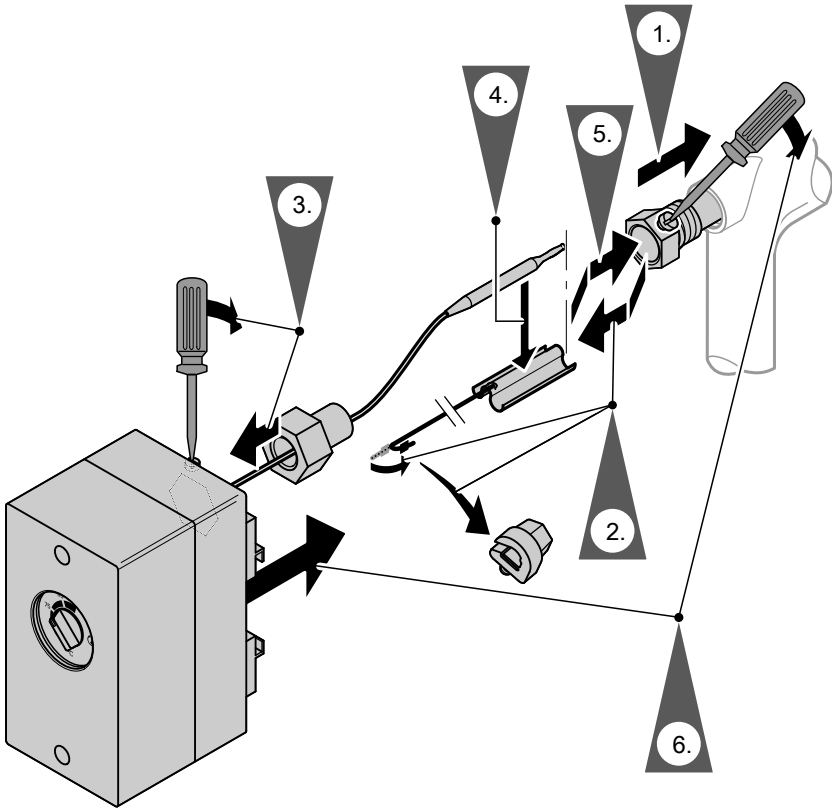


Please note

Damaged sensor leads (capillary tubes) result in incorrect sensor functions.

Never route the connecting lead and the capillaries near the burner. Never kink the capillary tubes.

Installation with sensor well and adaptor (cont.)



1. Seal in the sensor well.
2. Pull the sensor retainer from the sensor well and remove the plastic section. Bend the wire.
3. Push adaptor over the temperature sensor and secure on the casing.
4. Push the temperature sensor into the sensor retainer so that at the front, it is flush with the retainer.

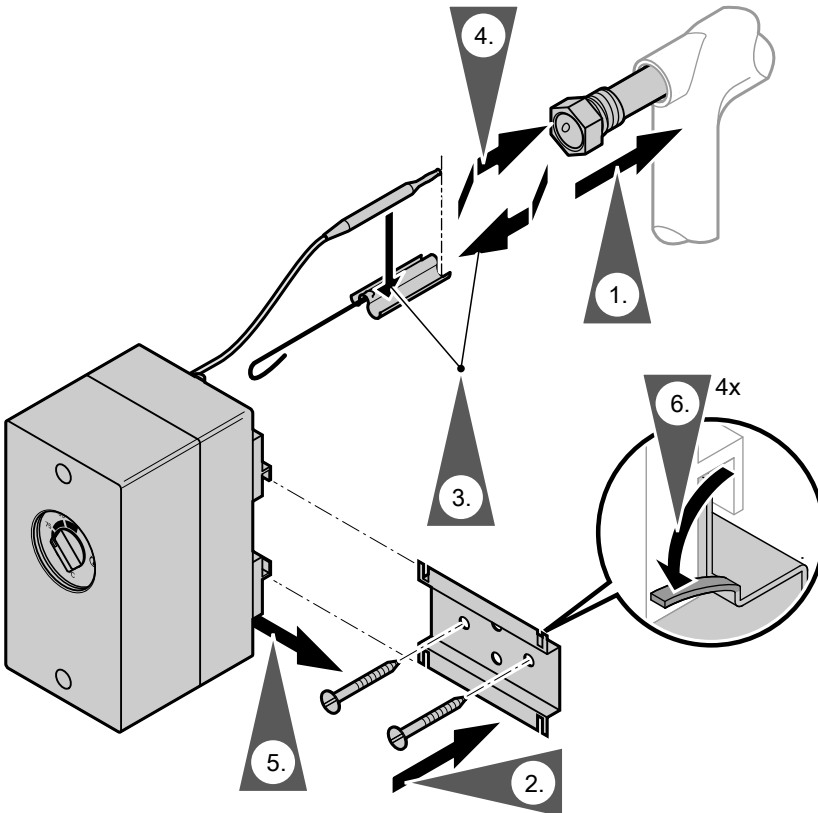
5. **Note**
Never wrap insulating tape around sensors.

Insert the sensor retainer with the temperature sensor into the sensor well as far as it will go.

6. Set the casing with adaptor onto the sensor well and secure.

Mounting with retaining bracket

- Part no. 7151 989 (TR)
- Part no. 7403 965 (millivolt high limit safety cut-out)
- Part no. 7814 321 (millivolt high limit safety cut-out)



Please note

Damaged sensor leads (capillary tubes) result in incorrect sensor functions. Never route the connecting lead and the capillaries near the burner. Never kink the capillary tubes.

1. Seal in the sensor well.
2. Secure the retaining bracket at the selected position.

Note

Observe the length of the capillary tube.

Mounting with retaining bracket (cont.)

3. Pull the sensor retainer from the sensor well. Push the temperature sensor into the sensor retainer so that at the front, it is flush with the retainer.
Note
Never wrap insulating tape around sensors.
4. Insert the sensor retainer with the temperature sensor into the sensor well as far as it will go.
5. Slide casing onto retaining bracket.
6. Secure the casing by bending up the tabs.

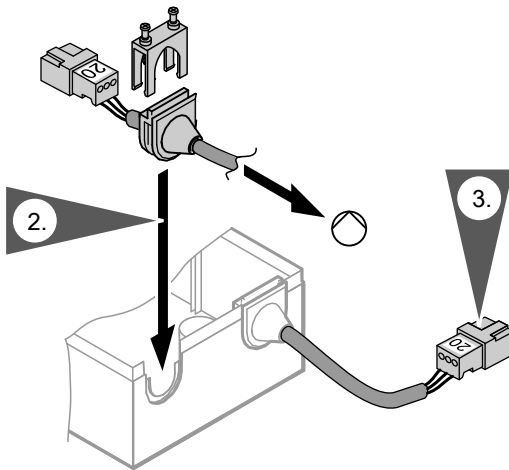
Electrical connection for the following part no.

- Part no. 7151 728 (TR)
- part no. 7151 729 (TR)

Note

With the Vitodens 1xx as of generation "F", Vitodens 2xx as of generation "E" and Vitodens 3xx as of generation "E", connection at the appliance control unit is not possible.

- Part no.: 7197 797 (STB)



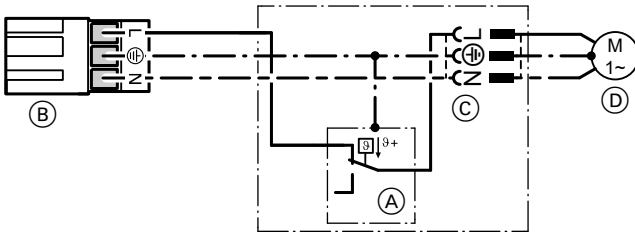
1. Open the casing.
2. Insert heating circuit pump plug 20 into the lower part of the casing and apply a strain relief to the cable.

Electrical connection for the following part no. (cont.)

3. Insert plug **20** of the TR into slot **20** of the control unit or EM-P1 extension.
4. Earth the appliance with the earth conductor at the "PE" terminal. This cable must have at least the same cross-section as the power cable. Never loop earth cables, i.e. never route them from one appliance to another.

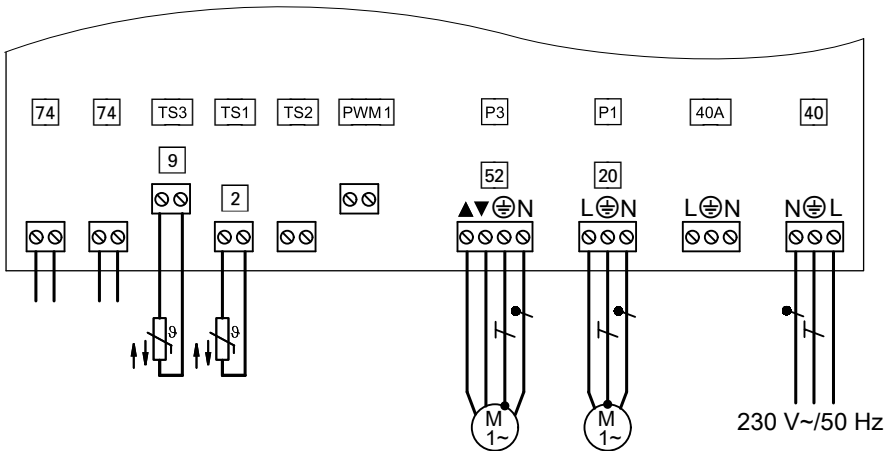


Control unit installation and service instructions



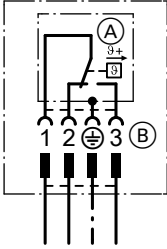
- (A) TR
 (B) TR plug **20** (to the control unit)
 (C) Heating circuit pump plug **20**
 (D) Heating circuit pump

Connection to EM-P1 extension



Electrical connection for the following part no.

- Part no. 7147 948 (TR/TR)
- Part no. 7151 988 and 989 (TR)
- Part no. 7151 990 (TR/STB)



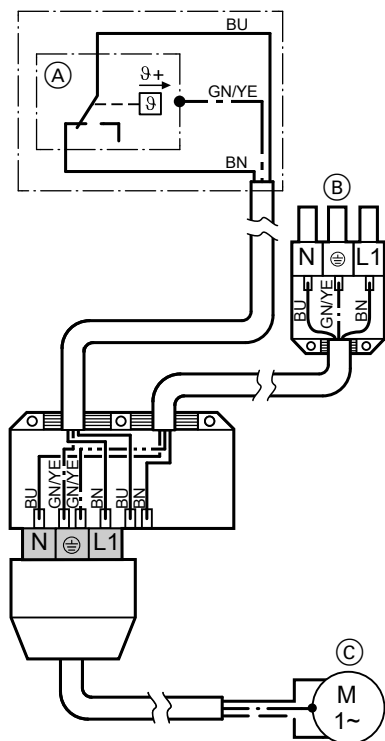
- (A) TR, TW or STB
- (B) Plug 175

- Part no. 7151 992 (TR)
- Part no. 7162 267 (TW)
- Part no. 7404 730 (TR)

1. Open the casing.
2. Connect in line with the diagram.
3. Earth the appliance with the earth conductor at the "PE" terminal. This cable must have at least the same cross-section as the power cable. Never loop earth cables, i.e. never route them from one appliance to another.
4. Close the casing.


Electrical connection for the following part no.

■ Part no. 7151 993 (TR)



- (A) TR
- (B) TR plug 20 (to the control unit)
- (C) Heating circuit pump

1. Disconnect the plug-in connector 20 between the control unit and the heating circuit pump.
2. Connect TR to the control unit and the heating circuit pump.

 Control unit installation and service instructions

3. Earth the appliance with the earth conductor at the "PE" terminal. This cable must have at least the same cross-section as the power cable. Never loop earth cables, i.e. never route them from one appliance to another.

Colour coding to DIN IEC 60 757

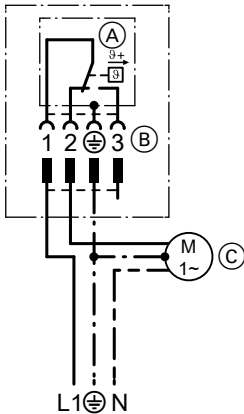
BU Blue
BN Brown
GN/YE Green/yellow

Maximum temperature limit for underfloor heating systems

- Part no. 7147 948 (TR/TR)
- Part no. 7151 988 and 989 (TR)
- Part no. 7151 990 (TR/STB)
- Part no. 7151 992 (TR)
- Part no. 7162 267 (TW)
- Part no. 7404 730 (TR)

The consumer will be switched off if the set temperature is exceeded.

Maximum temperature limit for underfloor... (cont.)



1. Open the casing.
2. Connect in line with the diagram.
3. Earth the appliance with the earth conductor at the "PE" terminal. This cable must have at least the same cross-section as the power cable. Never loop earth cables, i.e. never route them from one appliance to another.
4. Close the casing.

- (A) TW or STB
(B) Plug 175
(C) Pump or other electrical consumer

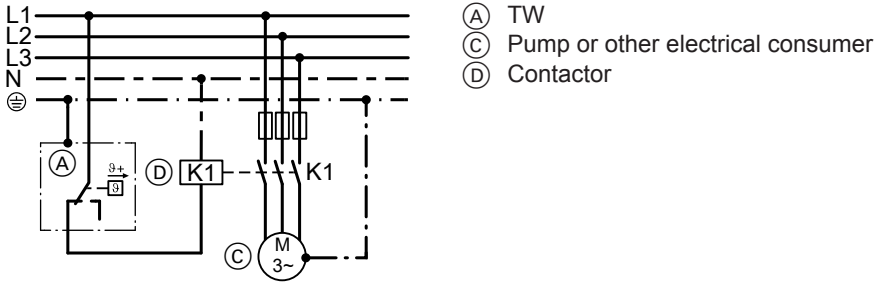
Electrical connection of three-phase pumps

- Part no. 7147 948 (TR/TR)
- Part no. 7151 988 and 989 (TR)
- Part no. 7151 990 (TR/STB)
- Part no. 7151 992 (TR)
- Part no. 7162 267 (TW)
- Part no. 7404 730 (TR)

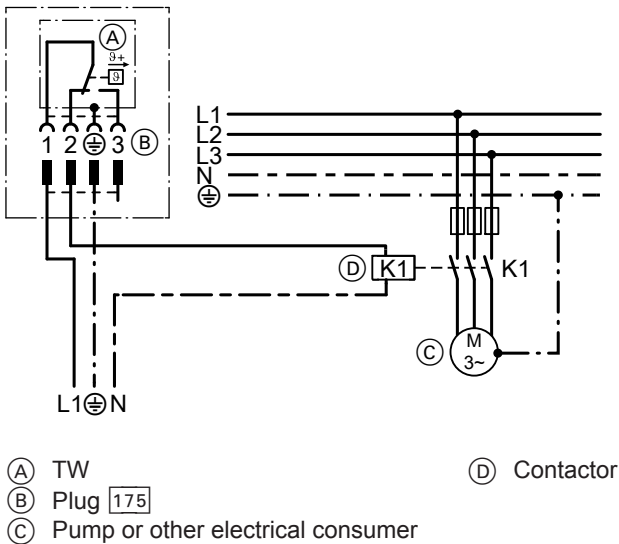
1. Open the casing.
2. Connect in line with the diagram.
3. Earth the appliance with the earth conductor at the "PE" terminal. This cable must have at least the same cross-section as the power cable. Never loop earth cables, i.e. never route them from one appliance to another.
4. Close the casing.

Electrical connection of three-phase pumps (cont.)

Connection without plug

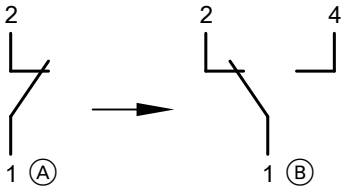


Connection via plug 175



Electrical connection, millivolt high limit safety cut-out

- Part no. 7814 321 (millivolt high limit safety cut-out)
- Part no. 7403 965 (millivolt high limit safety cut-out)



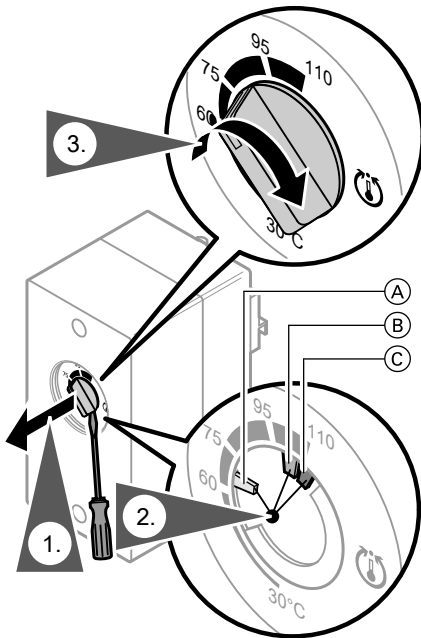
1. Implement the electrical connection as found.
2. If previous contact (A) only had 2 connections, make the connection at terminals 1 and 2 of changeover contact (B).

Setting the response temperature at the TR (temperature controller)

- !** **Please note**
Excessive temperatures can damage the DHW cylinder.

If the system is operated with a DHW cylinder, the maximum permissible DHW temperature must not be exceeded. If necessary, install suitable safety equipment for this purpose.

Setting the response temperature at the TR (temperature controller) (cont.)



1. Undo the casing top (if necessary), pull off rotary selector "ⓐ" or use a tool to lever it off.
2. Using a pair of pointed pliers, break off the cams from the stop dial which are identified in the illustration.

3. Fit rotary selector "ⓐ" so that the marking lies in the centre of the selected range.

Note

The rotary selector is either on the outside of the casing (see diagram) or inside the casing.

Setting the high limit safety cut-out response temperature

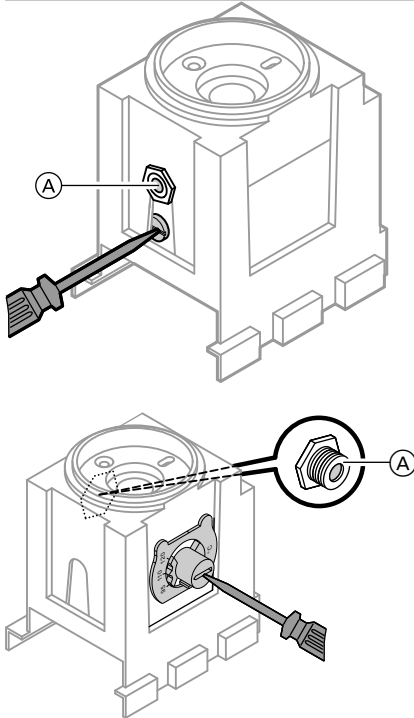
1. Open the casing.
2. Set the required value on the setting scale (see diagrams below).

Note

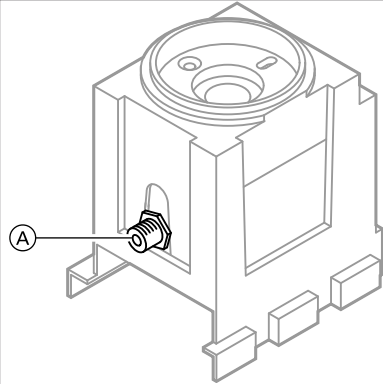
In some devices, the temperature can be reset.

Setting the high limit safety cut-out response... (cont.)

Temperature can be reset



Temperature permanently set to 65 °C
Part no. 7197 797



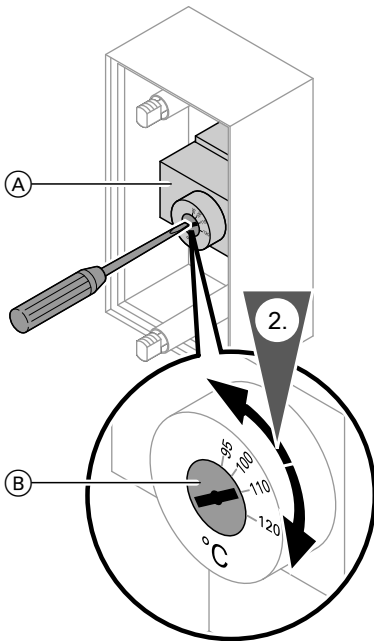
(A) Reset button

Resetting the high limit safety cut-out

For a reset, the boiler water temperature must have dropped by at least 20 K.

Press reset button (A) (see previous diagrams).

Setting the millivolt high limit safety cut-out response temperature



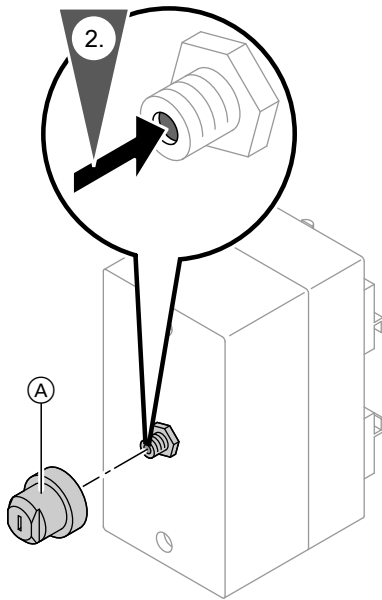
1. Undo the casing cover.
2. Select the required response temperature with rotary selector (B).
 - Delivered condition 110 °C
 - Temperature can be reset.
3. Refit the casing cover.

- (A) Millivolt high limit safety cut-out (fitted inside the casing cover)
- (B) Response temperature rotary selector

Resetting the millivolt high limit safety cut-out

For a reset, the boiler water temperature must have dropped by at least 20 K.

Resetting the millivolt high limit safety... (cont.)



1. Undo cover cap (A).
2. Push down the internal reset button with a suitable tool.
3. Secure cover cap (A).

Specification

TR and TW (temperature controller and temperature limiter)

Setting range	See page 2
Terminals	Screw terminals for 1.5 mm ²
Rated voltage	24 to 230 V~
Rated current	6 (1.5) A
Switching differential	6.5 K \pm 2.5 K
Switching tolerance	\pm 5 K
IP rating	IP 41 to EN 60 529; ensure through design/installation
Ambient temperature	max. 50 °C
Sensor temperature	max. 120 °C
Sensor diameter	6.5 mm

Specification (cont.)

STB (high limit safety cut-out)

Setting range	See page 2
Terminals	Screw terminals for 1.5 mm ²
Rated voltage	24 to 230 V~
Rated current	6 (2.5) A (N/C) 2 (0.4) A (N/O)
Switching tolerance	+0/-6.5 K
IP rating	IP 41 to EN 60 529; ensure through design/installation
Ambient temperature	max. 50 °C
Sensor temperature	max. 120 °C
Sensor diameter	6.5 mm

Millivolt high limit safety cut-out

Setting range	See page 2
Connection	Blade terminal 6.3 x 0.8
Rated voltage	24
Rated current	0.1 A
Switching tolerance	+0/-6.5 K
IP rating	IP 41 to EN 60 529; ensure through design/installation
Ambient temperature	max. 50 °C
Sensor temperature	max. 120 °C
Capillary tube length	2000 mm
Sensor diameter	3.2 mm

Declaration of Conformity

Temperature controller Temperature limiter

We, Viessmann Werke GmbH & Co. KG, D-35107 Allendorf, declare as sole responsible body that the named product complies with the European directives and supplementary national requirements in terms of its design and operational characteristics.

High limit safety cut-out Millivolt high limit safety cut-out

Using the serial number, the Declaration of Conformity can be found on the following website:

www.viessmann.co.uk/eu-conformity





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5862927 Subject to technical modifications.