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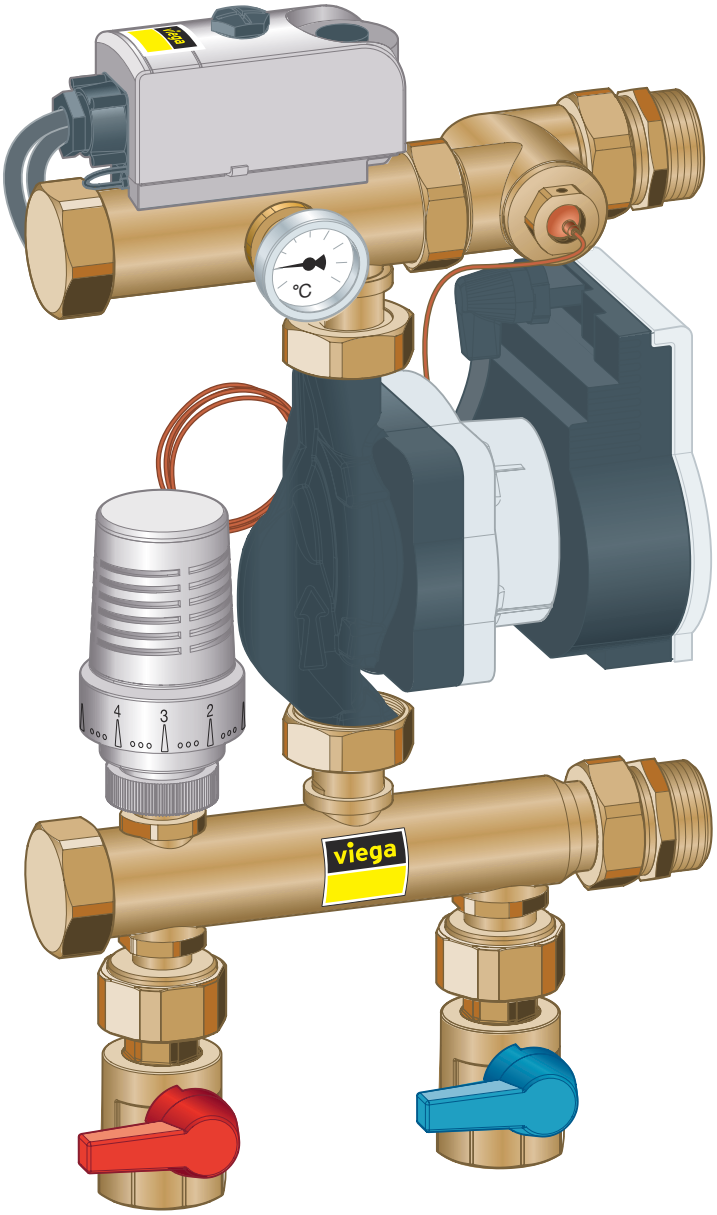
Instructions for Use

Manifold control station - Preset value



for Fonterra surface temperature control, adjustment of supply temperature (constant)

Model	**Year built (from)**
1254.2	01/2012

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1 About these instructions for use

1.1 Target groups

The information in this instruction manual is directed at the following groups of people:

- Heating and plumbing experts and trained personnel
- Qualified electricians
- Operators

Individuals without the abovementioned training or qualification are not permitted to mount, install and, if required, maintain this product. This restriction does not extend to possible operating instructions.

The installation of Viega products must take place in accordance with the general rules of engineering and the Viega instructions for use.

1.2 Labelling of notes

Warning and advisory texts are set aside from the remainder of the text and are labelled with the relevant pictographs.

DANGER!
This symbol warns of possible life-threatening injury.

WARNING!
This symbol warns of possible serious injury.

CAUTION!
This symbol warns of possible injury.

NOTICE!
This symbol warns of possible damage to property.

This symbol gives additional information and hints.

1.3 About this translated version

This instruction for use contains important information about the choice of product or system, assembly and commissioning as well as intended use and, if required, maintenance measures. The information about the products, their properties and application technology are based on the current standards in Europe (e.g. EN) and/or in Germany (e.g. DIN/DVGW).

Some passages in the text may refer to technical codes in Europe/ Germany. These should serve as recommendations in the absence of corresponding national regulations. The relevant national laws, standards, regulations, directives and other technical provisions take priority over the German/European directives specified in this manual: The information herein is not binding for other countries and regions; as said above, they should be understood as a recommendation.

2 Product information

2.1 Standards and regulations

The following standards and regulations apply to Germany / Europe and are provided as a support feature.

Regulations from section: Application areas

Scope / Notice	Regulations applicable in Germany
Heating water	VDI 2035

Regulations from section: Filling the system

Scope / Notice	Regulations applicable in Germany
Water quality of hot water heating systems	VDI 2035

Regulations from section: Limiting the underfloor supply temperature

Scope / Notice	Regulations applicable in Germany
Maximum supply temperature of the heating water	DIN EN 1264-4
Maximum supply temperature of the heating water	DIN 18560

Regulations from section: Disposal

Scope / Notice	Regulations applicable in Germany
Disposal of electronic components	WEEE-Richtlinie 2012/19/EU

2.2 Intended use

2.2.1 Areas of application

The manifold control station is used to keep the supply temperature constant in low-temperature surface heating systems. The supply temperature can be set steplessly on the thermostat head between 20 and 70 °C. Limitation of the setting range according to minimum and maximum temperature is possible.

The manifold control station is used in heating installations whose heat output is, on the one hand, for consumers with a high supply temperature (e.g. radiators, air heaters) and, on the other, for low-temperature heating surfaces (e.g. underfloor heating or wall heating). Both heating circuits are supplied through a shared supply line.

NOTICE!
This guide and the associated documents related to the recirculation pump, controller and other components are an integral part of the product and must be read and retained.

Pump (Wilo-Para)

The high-efficiency circulation pump of the Wilo-Para series is used exclusively for circulating media in hot-water heating systems and similar systems with constantly changing flow rates.

NOTICE!
Be sure to introduce only ready-to-use mixtures into the system. Do not use the pump to mix the media in the system.

Permitted media

- Heating water in accordance with current regulations, see *'Regulations from section: Application areas' on page 5*
- Water-glycol mixture with a maximum share of 50% glycol

* glycol has a higher viscosity than water. If glycol is added, the delivery data of the pump must be corrected according to the mixing ratio.

Any use beyond this is considered misuse and will invalidate any liability claims.

2.3 Product description

2.3.1 Overview

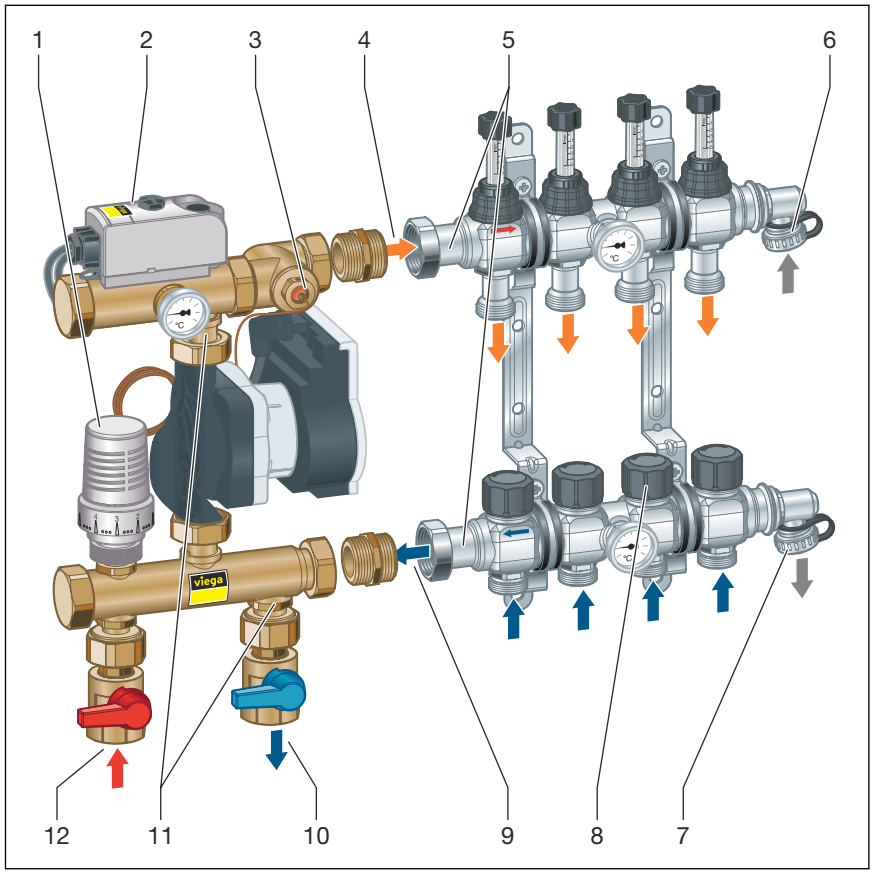


Fig. 1: Component overview

1 - Thermostat head
2 - Safety contact thermostat (factory setting 60 °C)
3 - Eccentric screw connection with supply sensor
4 - Heating circuit supply
5 - Manifold
6 - Filling valve (flushing direction)
7 - Drainage valve (drainage direction)
8 - Protective cap
9 - Heating circuit return
10 - Boiler return
11 - backflow preventer
12 - Boiler supply

Displays on the pump control element

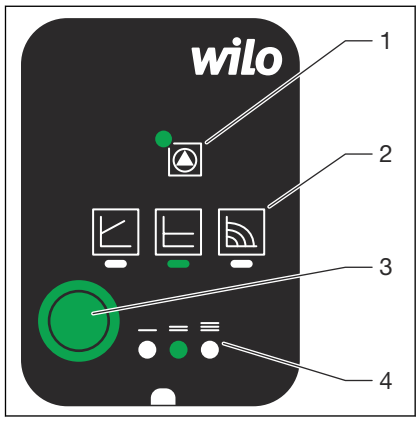


Fig. 2: Control elements of the pump

1 Operating / fault notification LED
2 Control type
3 Operating button
4 Characteristic line

- Operating / fault notification LED
  - LED is green during normal operation.
  - LED illuminates/blinks when there is a fault.
- Display of selected control type
  - Δp-v
  - Δp-c
  - Constant speed
- Display of the selected characteristic line (I, II, III) within the control type

2.3.2 Technical data

The preset value manifold control station can be combined with DN25 Fonterra-manifolds.

Components

- Highly efficient pump Wilo Para 15-130/6-43/SC
- Safety thermostat (Model 1219.6)
- Thermostat head (Model 1254.1)
- Thermometer
- Ball valve set
- Twin nipple set

Materials

Flat seals	AFM 34 or EPDM
Fittings	Brass Ms58
Pipe sections	Brass Ms63

Sealing element	EPDM
Plastics	Impact resistant and temperature resistant

Technical data

Maximum permitted operating temperature	80 °C
Maximum permitted operating pressure	0.6 MPa (6 bar)
Temperature control range	20–70 °C
Nominal heating capacity	approx. 14 kW [1]
Pump capacity	3–45 W [2]
Operating voltage	230 V, 50/60 Hz

[1] Pressure difference primary side to control station **at least 200 hPa** (200 mbar)

[2] See the pump manufacturer's plate.

2.3.3 Operating mode

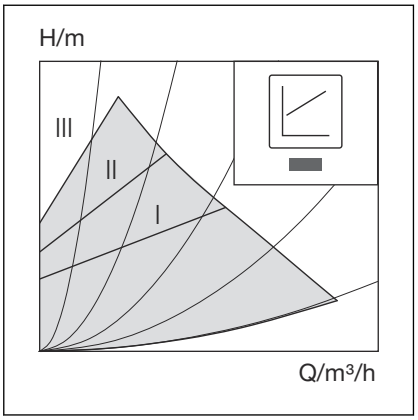
The injection valve of the control station is designed as a proportional controller and is controlled via a thermostat head with capillary tube and a temperature sensor at the heating circuit supply. Any deviation from the target value immediately causes a change to the valve lift, resulting in a change of the amount of hot water injected from the boiler circuit. Mixing with the return water from the heating circuit, the injected water keeps the supply temperature constant within a narrow range. The temperature can be read directly from the thermometer. At the boiler return connection, there is a backflow preventer that prevents hot water being sucked from the boiler return circuit.

Pump control types

The pump has the following control types:

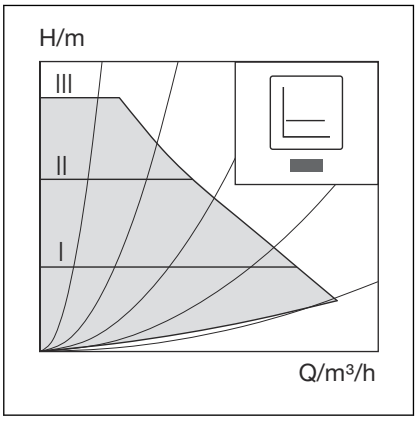
For use in surface heating elements Viega recommends the control type **constant differential pressure Δp-c**.

See also *'Setting the control type' on page 15*.



Differenzdruck variabel Δp-v (I, II, III)

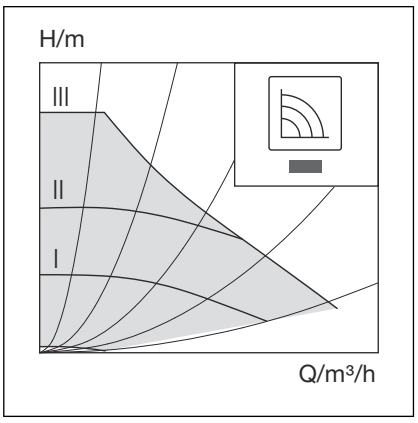
Recommended for two-pipe heating installations with radiators to reduce flow noises at the thermostat valves.



Constant differential pressure Δp-c (I, II, III)

Recommendation for **underfloor heating** or large-dimensioned pipelines or all applications without changeable pipeline characteristic lines (e.g. storage loading pumps), as well as single-pipe heating installations with radiators.

The control keeps the set delivery head constant, irrespective of the delivered volumetric flow.



Constant speed (I, II, III) (factory setting)

Recommended for systems with invariable system resistance that require a constant volumetric flow.

2.4 Information for use

2.4.1 Installation variation

The manifold control station comes factory preset for left-side mounting to the manifold. To mount the station to the right side of the manifold, turn the eccentric thread at the supply and switch the thermometer over.

3 Handling

3.1 Assembly information

3.1.1 Installation dimensions

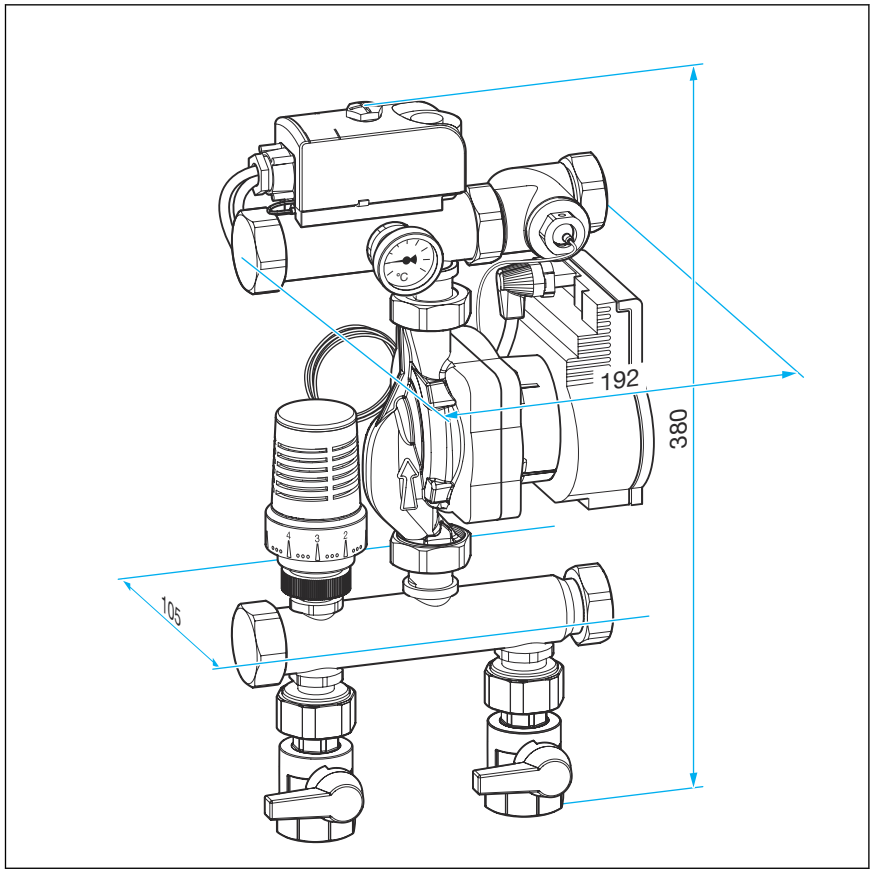


Fig. 3: Installation dimensions

Installation and connection dimensions

Height	approx. 380 mm
Width	approx.192 mm
Centre distance	approx. 210 mm
Connections	G1 flat sealing

3.1.2 Preconditions for installation

The station is designed for direct mounting to the right or left side of manifolds with G1 connection. To achieve the nominal heating capacity, the pressure difference between the boiler circuit and the control station must be **minimum 200 hPa** (200 mbar).

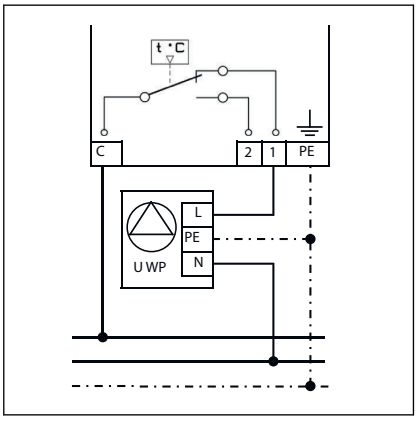
3.2 Commissioning

3.2.1 Making the electrical connection

DANGER!
Danger due to electrical current
An electric shock can lead to burns and serious injury and even death.

- Only allow electrical work to be carried out by qualified electricians.
- Always de-energise the connection cable before work is commenced.

The circulation pump and the contact thermostat are factory wired.



➥ Connect the manifold control station to the 230 V power network as shown.

As the pump only runs when there is a need for heat, Viega recommends connecting the pump to a pump relay (e.g. a basic unit with pump module that also controls the actuators). Alternatively the pump can also be operated with a time switch.

3.2.2 Filling the control station

Requirements:

- The control station and the manifold are properly connected.
- The heating water meets the requirements of the applicable guidelines, see also *'Regulations from section: Filling the system' on page 5* .

➥ De-energise the control station.

➥ Close the ball valves to lock the control station on the boiler side.

➥ Close all heating circuits at the manifold.

It is sufficient to close the valves at the return flow beam of the manifold with the protective caps.

- Connect the filling water hose to the filling / drainage valve on the supply bar of the manifold.
- Open the filling / drainage valve on the supply and return bars with the square ring spinner integrated into the cap.
- Fill the control station with water.
- Collect any escaping water in a suitable container or let it drain.
- Then once again close both filling / drainage valves and screw on the caps again.
  - ▷ The control station is completely filled with water.

3.2.3 Flushing the heating circuits

NOTICE!
Only flush the heating circuits in the flow direction to prevent damage to the system.

The backflow preventer above the pump prevents a short-circuit line being created that would prevent correct flushing and/or filling of the heating circuits. During the flushing and after the flushing equipment is closed the system pressure may not exceed 0.25 MPa (2.5 bar) as otherwise the safety valve opens and heating water discharges.

Requirements:

- The control station is filled with water.
- The control station is currentless.

- Connect one filling and drainage line to each of the filling and drainage valves integrated into the manifold.
- Open the first heating circuit and flush it in the flushing direction until all air and contamination are fully removed from the heating circuit.
- After flushing, close the heating circuit once more.
- Repeat flushing for every heating circuit.
- After you have flushed the entire system, open and adjust all heating circuits.
- Re-connect the pump power supply.

3.3 Control

3.3.1 Setting the underfloor supply temperature

When maximum output is required (nominal output), set the boiler supply temperature at least 15 °C higher than the desired supply temperature in the underfloor heating.

The handwheel of the thermostat head has a scale going from 1 to 7 and enables stepless adjustment of the supply temperature between 20 and 70 °C. Refer to the table for the respective setpoint temperature:

Scale value	1	2	3	4	5	6	7
Setpoint temperature in °C	20	28	37	45	53	62	70

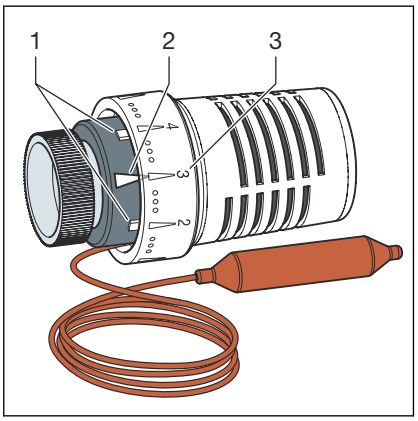
3.3.2 Limiting the underfloor supply temperature

Usually, surface heating does not use supply temperatures of more than 50 °C. The temperature in the boiler or heating circuit is often significantly higher (e.g. 70/50 °C or 60/40 °C). To prevent damage to the floor structure due to overtemperature of the heating medium, Viega recommends limiting the target value of the supply temperature at the thermostat head in accordance with the respective installation situation.

How to limit the supply temperature:

Requirements:

- The desired setpoint value is set at the thermostat head (e.g. level 3 = 37 °C).
- The set temperature roughly corresponds to the display on the thermometer.



1 Locks for temperature limitation
2 Marking arrow
3 Scale values

▶ Place the locking devices before and after the marker arrow.

▷ The temperature value is fixed and protected from accidental readjustment.

Maximum supply temperature of the heating water

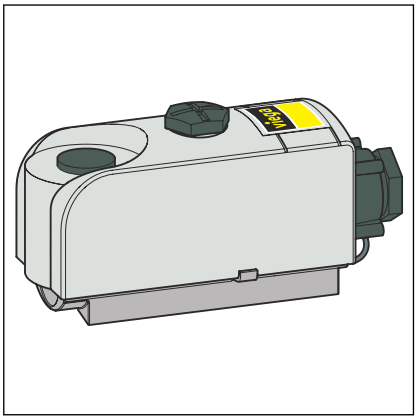
Wall heating	Temperature *
Gypsum or lime plaster	50 °C
Loam rendering	50 °C
Lime-cement plaster	70 °C
Side 12 (plaster boards)	50 °C

*Maximum supply temperature in accordance with current regulations, see *'Regulations from section: Limiting the underfloor supply temperature' on page 5*

Underfloor heating	Temperature *
Calcium sulphate screed and cement screed	55 °C
Reno	50 °C

*Maximum supply temperature in accordance with current regulations, see ‘Regulations from section: Limiting the underfloor supply temperature’ on page 5

Safety temperature limiter



When an operating fault occurs, the safety temperature limiter switches the recirculating pump off to prevent the underfloor heating becoming excessively hot. To avoid unintentional triggering, set the temperature at the safety temperature limiter at least 10 K above the desired supply temperature (factory setting 60 °C).

NOTICE!
Ensure the maximum permitted underfloor heating temperature close to the heating cable is not exceeded.

If all heating circuits are fitted with actuators and no pump relay is used, the safety temperature limiter should be mounted on the manifold supply cable.

3.3.3 Programming the pump settings

Venting the pump

Requirements:

- The control station is full and the heating circuits are vented.

▶ To ventilate the pump, press the operating button for 3 seconds (see also ***‘ Displays on the pump control element’ on page 8***).

  ▷ The ventilation function starts and lasts for 10 minutes.

  The LEDs in the top and bottom row blink alternately at intervals of 1 second.

  After venting, the LED display shows the previously set values of the pump.

▶ To break off the procedure early, press the operating button for 3 seconds.

Setting the control type

▶ Briefly press the operating button (approx. 1 second).

  ▷ The LEDs display the set control type and characteristic line.

- To change the setting, press the operating button several times until the LEDs display the desired combination of control mode and characteristic line.

  INFO! The LED selection of the control types and the corresponding characteristic lines is carried out clockwise.

Lock / unlock keys

- To activate the key lock, press the operating button for 8 seconds.
- As soon as the LEDs of the selected setting flash, release the control button.
  - The LEDs flash permanently at intervals of 1 second.

    The key lock is activated.
- Deactivating the key lock works in the same way as activating it.

Manual restart

The pump automatically attempts a restart if a blockage is detected. If the pump does not restart automatically, perform a manual restart.

- To activate the manual restart, press and release the control button for 5 seconds.
  - The restart function starts and takes 10 minutes.

    The LEDs flash one after the other in a clockwise direction.
- To break off the procedure early, press the operating button for 5 seconds.

Activating factory setting

- To activate the factory setting, disconnect the pump from the power supply while holding down the control button (4 seconds).
  - All LEDs flash for 1 second.

    The LEDs of the last setting flash for 1 second.
- Re-connect the pump power supply.
  - The pump runs in factory setting (delivery state).

Decommission

In case of damage to the connection cable or other electrical components, stop the pump immediately.

- Disconnect the pump from the power supply.

In the event of a malfunction, contact the Viega Service Centre.

3.4 Faults

3.4.1 Troubleshooting

Fault	Cause	Solution
Floor heating circuits do not get warm.	Safety temperature limiter is set too low and switches off the pump of the control station.	Set the safety temperature limiter at least 10 K higher than the supply temperature of the underfloor heating. **Observe the permissible maximum temperature of the underfloor heating.** **Note: The switching differential of the safety temperature limiter is approx. 5 K.**  The control station is ready for operation again more quickly if the safety temperature limiter is briefly removed until it has cooled down to the switch-on temperature again.
	Safety temperature limiter switches off the pump of the control station. The pump remains switched on even though the heating circuits of the underfloor heating are closed. The water in the control station heats up due to the waste heat of the pump. As soon as the maximum temperature is reached, the safety temperature limiter switches the pump off.	Remove the safety temperature limiter from the control station, let it cool down and check its function. Using basic unit with pump module. The pump logic ensures that the pump only runs when at least one heating circuit in the underfloor heating is open.
	The pump is connected to a room thermostat or electrical manifold. If all actuators close, the pump switches off. The underfloor heating supply line cools down during long shutdowns. The controller causes the injection mixing valve to open. Hot water is injected from the primary heating circuit. This heats the control station up. As soon as the maximum temperature is reached, the safety temperature limiter switches the pump off.	Remove the safety temperature limiter from the control station and mount it on the flow pipe of the heating circuit manifold.
	The difference between the supply temperature of the boiler and the desired supply temperature of the underfloor heating is too low for the existing heat load.	Set the supply temperature higher at the boiler. At the maximum output requirement of the underfloor heating, the supply temperature of the heat generator must be at least 15 °C higher than the desired supply temperature of the underfloor heating.
	The differential pressure between the boiler / radiator circuit and the low-temperature circuit is insufficient.	Hydraulically adjust the system in such a way that a pressure difference of 200 hPa (200 mbar) is applied upstream of the control station.

Fault	Cause	Solution
The supply temperature cannot be set to the desired value or fluctuates heavily.	The connections for supply and return flow of the control station have been reversed.	Check all connections of the control station for proper connection, switch connections if applicable.
	The delivery head / pump level of the pump is set too low.	Increase speed or delivery head / pump level of the pump.
	The heat load is too large for the control station, i.e. heat consumption exceeds the nominal capacity of the control station. This condition may occur temporarily for example when heating up a "cold" floor.	Define the maximum heat requirement and compare to the nominal capacity. Possibly, some of the heating circuits need to be assigned to a second control station by means of an appropriate manifold. If the cause lies in heating up the underfloor heating for the first time, normal operation may still occur after the heating up phase (after 2 or 3 days). This applies particularly when the system operates close to the upper limit of the nominal capacity.
	The thermostat head is defective.	Mount a new thermostat head.
	Wrong characteristic line set.	Set the characteristic line Δp-c.

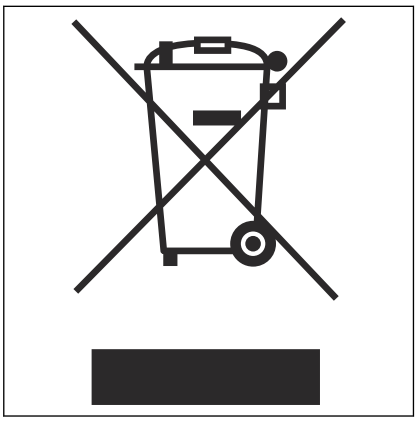
Pump malfunctions

- The fault indication LED indicates a fault.
- Depending on the type of fault, the pump switches off and attempts cyclical restarts.

LED	Faults	Causes	Action required
Emits red light	Blocking	The rotor locks.	Activate manual restart. If the fault has not been rectified, contact the Viega Service Centre.
	Contacting / Winding	The winding is defective.	
Flashes red	Undervoltage / overvoltage	Power supply on the mains side too low or too high.	Check mains voltage and operating conditions.
	Module overtemperature	The module interior is too warm.	
	Short circuit	Motor current too high.	
Flashes red/green	Generator operation	The pump hydraulics are flowing but the pump has no mains voltage.	Check mains voltage, water quantity / pressure and ambient conditions.
	Dry run	Air is in the pump.	
	Overload	Sluggish motor: The pump is operated outside the specification (e.g. high module temperature). The speed is lower than in normal operation.	

3.5 Disposal

Separate the product and packaging materials (e. g. paper, metal, plastic or non-ferrous metals) and dispose of in accordance with valid national legal requirements.



Electronic components and batteries must not be put in the domestic waste but must be disposed of appropriately in conformity with the applicable directives, see *'Regulations from section: Disposal' on page 5*.

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