Safety instructions

General

- The safety devices to be provided on site must not be replaced under any circumstances!
- Temperature settings that are too high can lead to scalding or damage to the system. Provide scald protection on site!
- The temperature sensor cables must be laid separately from cables carrying mains voltage and must not, for example, be laid in the same cable duct!

Wall mounting

- Only install the controller in dry rooms and under the ambient conditions described in “Technical Data.”
- The controller must not be accessible from behind!

Operating mode

- **3.2. Manual** The “Manual” operating mode is only to be used by specialists for short-term functional tests, e.g., during commissioning!
- How manual mode works: The relays and thus the connected consumers are switched on or off by pressing a button without taking the current temperatures and the set parameters into account. At the same time, the current measured values of the temperature sensors are shown on the display for the purpose of function control.
- **3.3. Off** When the “Off” operating mode is activated, all control functions are switched off. The measured temperatures continue to be displayed for overview purposes.

Protective functions

- **5.1. Anti-legionella** This anti-legionella function does not provide reliable protection against legionella, as the controller relies on a sufficient energy supply and the temperatures cannot be monitored throughout the entire storage area and the connected pipe system.
- **5.1. Anti-legionella** During operation of the anti-legionella function, the storage tank may be heated above the set value “Tmax,” which can lead to scalding and damage to the system.

Special functions

- **6.Special functions** The settings in this menu should only be made by a specialist.
- **6.2. Speed control** This function should only be activated by a specialist. Depending on the pump and pump stage used, the minimum speed must not be set too low, as this could damage the pump or the system. The specifications of the relevant manufacturer must be observed! If in doubt, it is better to set the minimum speed and pump stage too high than too low.

Electrical connection

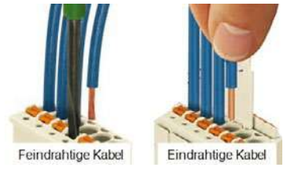
- Before working on the device, switch off the power supply and secure it against being switched back on! Check that there is no voltage! The electrical connection may only be carried out by a qualified technician in accordance with the applicable regulations. The device must not be put into operation if there is visible damage to the housing, such as cracks.
- The device must not be accessible from the rear.
- An all-pole disconnecting device, e.g., an emergency heating switch, must be provided on site in the power supply of the controller.
- Low-voltage cables, such as temperature sensor cables, must be laid separately from mains voltage cables. Only insert temperature sensor cables into the left side of the device and mains voltage cables into the right side.
- The cables to be connected to the device may be stripped to a maximum of 55 mm and the cable sheath should reach exactly behind the strain relief into the housing.

1. Select the required program (see hydraulic variants).

2. Strip the cables to a maximum of 55 mm and insulate the wire ends to 9-10 mm.

3. Open the controller housing (see “Wall mounting”), insert the cable, and install the strain reliefs.

4. Install the PE protective conductor terminal.



5. Wire the enclosed connection terminals as specified in the “Terminal diagram” and in the “Hydraulic variants.”

When using fine-stranded cables, press the orange pushers with a screwdriver.
For single-wire cables or cables equipped with ferrules, simply insert the cable.

6. Plug the connection terminals into the appropriate pin strips.

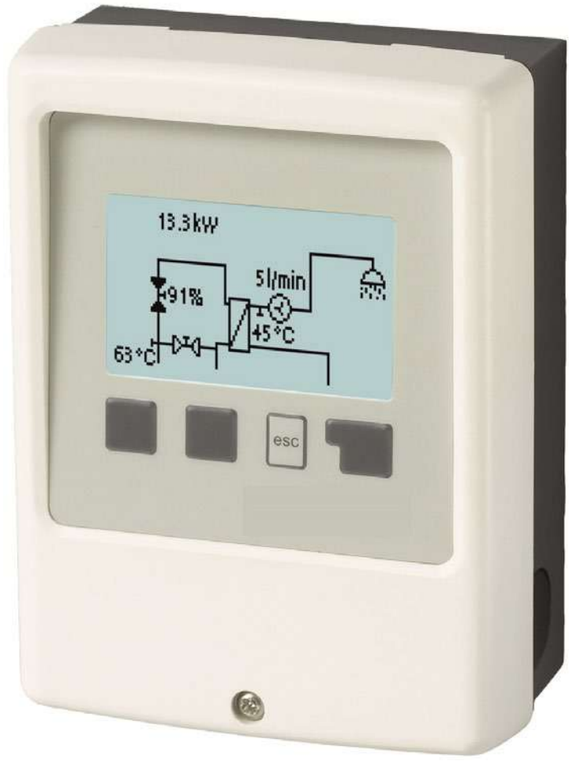
Technical specifications

Model	SFWC	Fresh water Controller	
Electrical data			
Power supply		230VAC +/-10%	
Power consumption / Standby		0,5 W - 2,3 W/ 0,5W	
Internal fuse	1	2A slow-blow 250V	
Protection class		IP40	
Protection class / Overvoltage category		II / II	
Inputs/Outputs			
Sensor inputs	2	Pt1000	-40 °C … 300 °C
Sensor inputs DF sensors	1	Temperature and flow sensor	0°C - 100°C
	VVX 15 VVX 20 VVX 25	in l/min	1 - 12, 1 - 20, 2 - 40,
Mechanical relay	R1	460VA for AC1 / 460W for AC3	
0..10V / PWM output	V1	Designed for 10 kΩ load / frequency 1 kHz, level 10 V	
Max. cable length			
Sensors	S1	<30m	
Other Pt1000 sensors	S2	<10m	
DF sensors		<3m	
0-10V/PWM		<3m	
Mechanical relay		<10m	
Permissible ambient conditions			
During controller operation		0 °C - 40 °C, Max. 85 % relative humidity at 25 °C	
During transport/storage		0 °C - 60 °C, no condensation permitted	
Other data and dimensions			
Housing design		2-piece, ABS plastic	
Installation options		Wall mounting, optional panel mounting	
Overall dimensions		115mm x 86mm x 45mm	
Cutout installation dimensions		108mm x 82mm x 25.2mm	
Display		fully graphic,128 x 64 dots	
Real-time clock		RTC with 24-hour power reserve	
Operation		4 input keys	

Fresh water Controller SFWC
step a valve
14.05.2019
www.strasshofer.de

Instruction manual

Fresh water Controller SFWC *step a valve*



Items delivered:

- Fresh water controller SFWC
- 2 screws 3.5 x 35 mm and 2 dowels S6 for wall mounting
- Spare fuse 2AT
- Instruction manual

Optionally available, depending on order and model:

- Pt1000 temperature sensor

General information

These instructions contain basic information and important information on safety, installation, and operation. Before commissioning and operation, the detailed instructions must be read in full by the installer/specialist and the operator of the system and then kept for future reference. This is an automatic electric temperature controller for domestic use and similar applications. Please also observe the accident prevention regulations applicable in the respective countries, the relevant standards and regulations, and the installation and operating instructions for the additional system components. Installation, electrical connection, commissioning, and maintenance may only be carried out by a suitably trained specialist. For the operator: Have the specialist provide you with detailed instructions on the function and operation of the controller.

EU Declaration of Conformity

By affixing the CE mark to the device, the manufacturer declares that the SFWC complies with the relevant provisions:

- EU Low Voltage Directive 2014/35/EU and the
- EU Electromagnetic Compatibility Directive 2014/30/EU

Conformity has been verified and the relevant documentation and EU declaration of conformity are available from the manufacturer.

Modifications to the device

- Modifications, additions, and conversions to the device require the written approval of the manufacturer.
- The installation of additional components that have not been tested together with the device is not permitted.
- If it becomes apparent, for example due to damage to the housing, that safe operation of the device is no longer possible, the device must be taken out of service immediately.
- Device parts and accessories that are not in perfect condition must be replaced immediately.
- Only use original spare parts and accessories from the manufacturer.
- Factory markings on the device must not be altered, removed, or made illegible.
- Only make the settings described in this manual on the device.

Modifications to the device may compromise the safety and functionality of the device and the entire system.

Warranty and liability

The device has been manufactured and tested in accordance with high quality and safety standards. The device is covered by the statutory warranty period of 2 years from the date of purchase. The warranty and liability do not cover personal injury or property damage resulting from one or more of the following causes, for example:

- Failure to observe these installation and operating instructions
- Improper installation, commissioning, maintenance, and operation
- Improperly performed repairs
- Violation of the section “Modifications to the device”
- Improper use of the device
- Exceeding or falling below the limit values specified in the technical data
- Force majeure

Disposal and pollutants

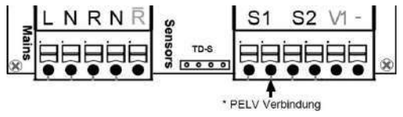
The device complies with the European RoHS Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

The device must not be disposed of with household waste. Only dispose of the device at appropriate collection points or return it to the seller or manufacturer.

Terminal diagram for electrical connection

Mains voltages
230VAC

Low voltages
max. 24 VAC / DC



Relay assignment depends on the selected additional functions. The TD sensor is plugged directly into the socket on the circuit board in the sensor terminal area.

*Bridge from sensor ground to PE protective conductor required (PELV connection).

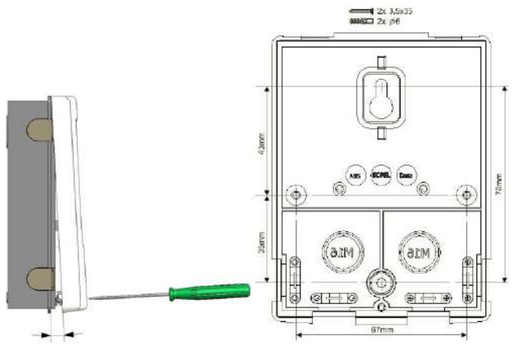
Terminal:	Connection for:
L	Mains outer conductor L
N	Mains neutral conductor N
R	Temperature maintenance (N/O contact)
N	Mains neutral conductor N
R|	Relay (N/C contact)

The PE protective conductor is connected to the enclosed 3-pole connection terminal.

Terminal:	Connection for:
S1	Heating supply sensor
S1	GND
S2	-
S2	GND
V1	Step a Valve
-	GND

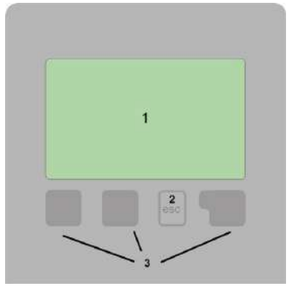
The polarity of the PT1000 sensors is arbitrary.

Wall mounting



1. Completely loosen the cover screw.
2. Carefully lift the upper part of the housing off the lower part.
3. Set the upper part of the housing aside. Do not touch the electronics.
4. Hold the lower part of the housing in the selected position and mark at least 2 opposite mounting holes. Make sure that the wall surface is as flat as possible so that the housing does not warp when screwed on.
5. Using a drill and a 6 mm drill bit, drill at least 2 holes in the marked positions in the wall and insert the dowels. Alternatively, the controller can also be secured using 4 mounting holes.
6. Insert the upper screw and tighten it slightly.
7. Hook in the lower part of the housing and add any missing screws.
8. Align the housing and tighten all screws.

Display and input



The display (1) with extensive text and graphics mode allows for easy operation of the controller.

Inputs are made using 3 buttons (2 + 3), which are assigned different functions depending on the situation. The “esc” button (2) is used to cancel an input or exit a menu. This may be followed by a security prompt to save changes.

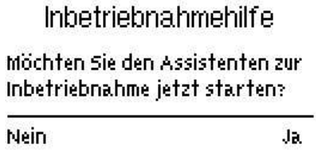
The function of the other 3 buttons (3) is explained in the display line above the buttons, with the right button usually performing a confirmation and selection function.

Examples of button functions:

+/-	Increase/decrease values
▼/▲	Scroll down/up through menu
Yes/No	Agree/disagree
Info	Further information
Back	Previous display
Ok	Confirm selection
Confirm	Confirm setting

Commissioning wizard

When the device is switched on for the first time and after setting the language and clock, you will be asked whether you want to configure the controller using the commissioning aid or not. However, the commissioning aid can also be terminated at any time or restarted later in the Special Functions menu. The commissioning aid guides you through the necessary basic settings in the correct order, briefly explaining the respective parameters on the display.



1. Set language and time

2. Set language and time
a) select or
b) skip.

a) The commissioning guide takes you through the necessary basic settings in the correct order. Each parameter is explained in the controller display.
Pressing the “esc” key takes you back to the previous value.

b) For free commissioning, the settings should be made in the following order:

- Menu 9. Language
- Menu 3. Operating times
- Menu 4. Heating circuit settings, all values
- Menu 5. Protective functions, if adjustments are necessary
- Menu 6. Special functions, if adjustments are necessary

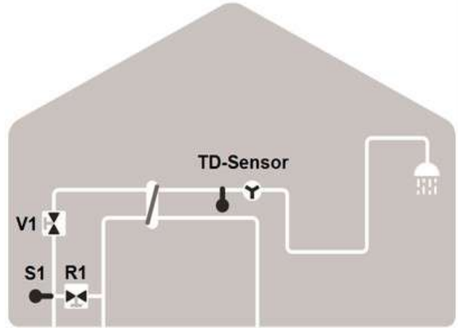
3. In the “3.2. Manual” operating mode menu, test the switching outputs with the connected load and check the sensor values for plausibility. Then switch to automatic mode.

The commissioning guide can be accessed at any time in menu 6.5.

Please note the explanations of the individual parameters on the following pages and check whether further settings are necessary for your application.

Hydraulic variants

The following illustrations are only intended as a schematic representation of the respective control variants and do not claim to be exhaustive. The controller does not replace any safety devices. Depending on the application, additional system and safety components such as shut-off valves, non-return valves, and floor drains, etc. may be required and must therefore be provided.



S1	Heat.sup.sensor	TD-S	Temperature and flow sensor
V1	Step a Valve	R1	Temperature maintenance

Messages

Message	Hints for the specialist
Sensor x defective	Either the sensor, sensor input on the controller, or the connecting cable is/was defective.
Restart	The controller was restarted, for example, due to a power failure. Check the date and time!
Time & Date	Appears automatically after a prolonged power outage because the time and date need to be checked and adjusted if necessary.
Valve defective	Displayed when flow is measured but Tsoll (tap temperature) is not reached and the tap temperature does not rise by 3K within 3 seconds. This message may also appear if the heat exchanger is calcified.

Replace fuse

Repairs and maintenance may only be carried out by a qualified technician. Before working on the device, switch off the power supply and secure it against being switched back on! Check that there is no voltage!

Only use the spare fuse supplied or an identical fuse with the following specifications: 2AT / 250 V.
SOREL item no.: 2125

If the controller does not function and there is no display despite the mains voltage being switched on, the internal device fuse may be defective. In this case, open the device as described in C, remove the old fuse, and check it.

Replace the defective fuse, find the external source of the fault (e.g., pump) and replace it. Only then should you put the controller back into operation and check the function of the switching outputs in manual mode as described in 3.2.