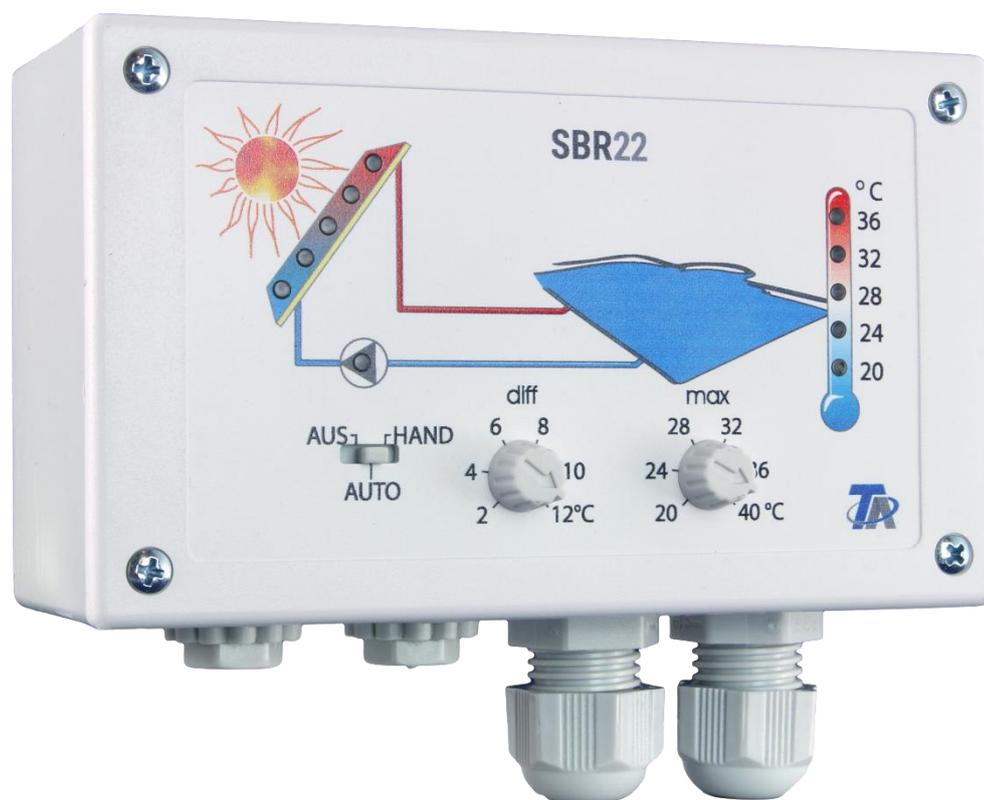


# SBR 22

Version 1.0 EN

Manual version 1

## Swimming pool controller



Operation  
Installation instructions

en



# Table of contents

<b>Safety requirements</b> .....	<b>4</b>
Maintenance .....	4
<b>Function</b> .....	<b>4</b>
<b>Hydraulics and connection diagrams</b> .....	<b>5</b>
System without changeover valve .....	5
System with changeover valve .....	6
<b>Sensor installation</b> .....	<b>7</b>
<b>Installation and connection of the device</b> .....	<b>7</b>
Electrical connection.....	8
<b>Operation</b> .....	<b>8</b>
<b>Tips on troubleshooting</b> .....	<b>9</b>
<b>Technical data</b> .....	<b>9</b>
<b>Information on the Eco-design Directive 2009/125/EC</b> .....	<b>10</b>

## Safety requirements



**All installation and wiring work on the controller must only be carried out in a zero-volts state.**

**The opening, connection and commissioning of the device may only be carried out by competent personnel. In so doing, all local security requirements must be adhered to.**

The device corresponds to the latest state of the art and fulfils all necessary safety conditions. It may only be used or deployed in accordance with the technical data and the safety conditions and rules listed below. When using the device, the legal and safety regulations apposite to the particular use are also to be observed.

- ▶ The device must only be installed in a dry interior room.
- ▶ It must be possible to isolate the controller from the mains using an all-pole isolating device (plug/socket or double pole isolator).
- ▶ Before starting installation or wiring work, the controller must be completely isolated from the mains voltage and protected against being switched back on. Never interchange the safety extra-low voltage connections (sensor connections) with the 230V connections. Destructive and life-threatening voltages at the device and the connected sensors may occur.
- ▶ For safety reasons, the system should only be left in manual mode when testing. In this operating mode, no maximum temperatures or sensor functions are monitored.
- ▶ Safe operation is no longer possible if the controller or connected equipment exhibits visual damage, no longer functions or has been stored for a lengthy period of time under unsuitable conditions. If this is the case, place the controller and equipment out of service and secure against unintentional use.

## Maintenance

If used properly, the system does not require maintenance.

As the components relevant to accuracy are not subjected to loads if used properly, long-term deviation is very low. The unit thus cannot be adjusted.

The construction characteristics of the unit must not be changed for repairs. Spare parts must correspond to the original parts and be used as intended.

## Function

Controller SBR 22 is a differential control for the solar charging of swimming pools. A second (potential-free) output allows controlling a changeover valve and the swimming pool pump. In the switched-off state, the changeover valve enables the circulation through the external timing of the swimming pool. In the switched-on state, circulation runs through the solar collector and the swimming pool is heated. Timing is here bypassed with the simultaneously activated potential-free contact.

# Hydraulics and connection diagrams

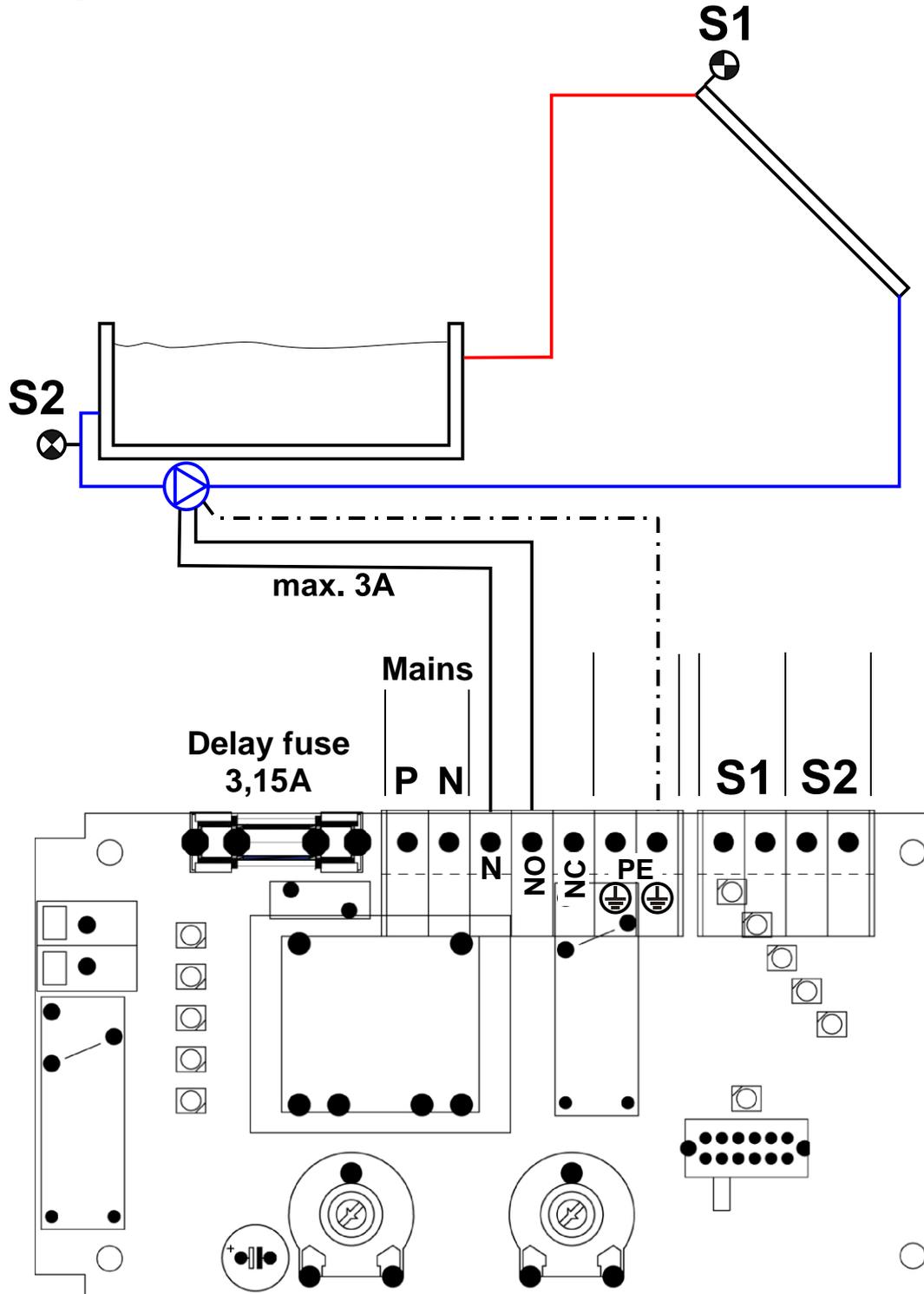
## System without changeover valve

The pump is running if sensor **S1** is higher than sensor **S2** by the difference **diff** and if **S2** has not exceeded the threshold **max**.

**Pump =  $S1 > (S2 + diff)$  &  $S2 < max$**

**Excess collector temperature:** If the collector temperature rises above 130°C, the pump is switched off and only released again, if the temperature drops below 110°C.

During the excess temperature shutoff, the two top LEDs of the collector display flash.



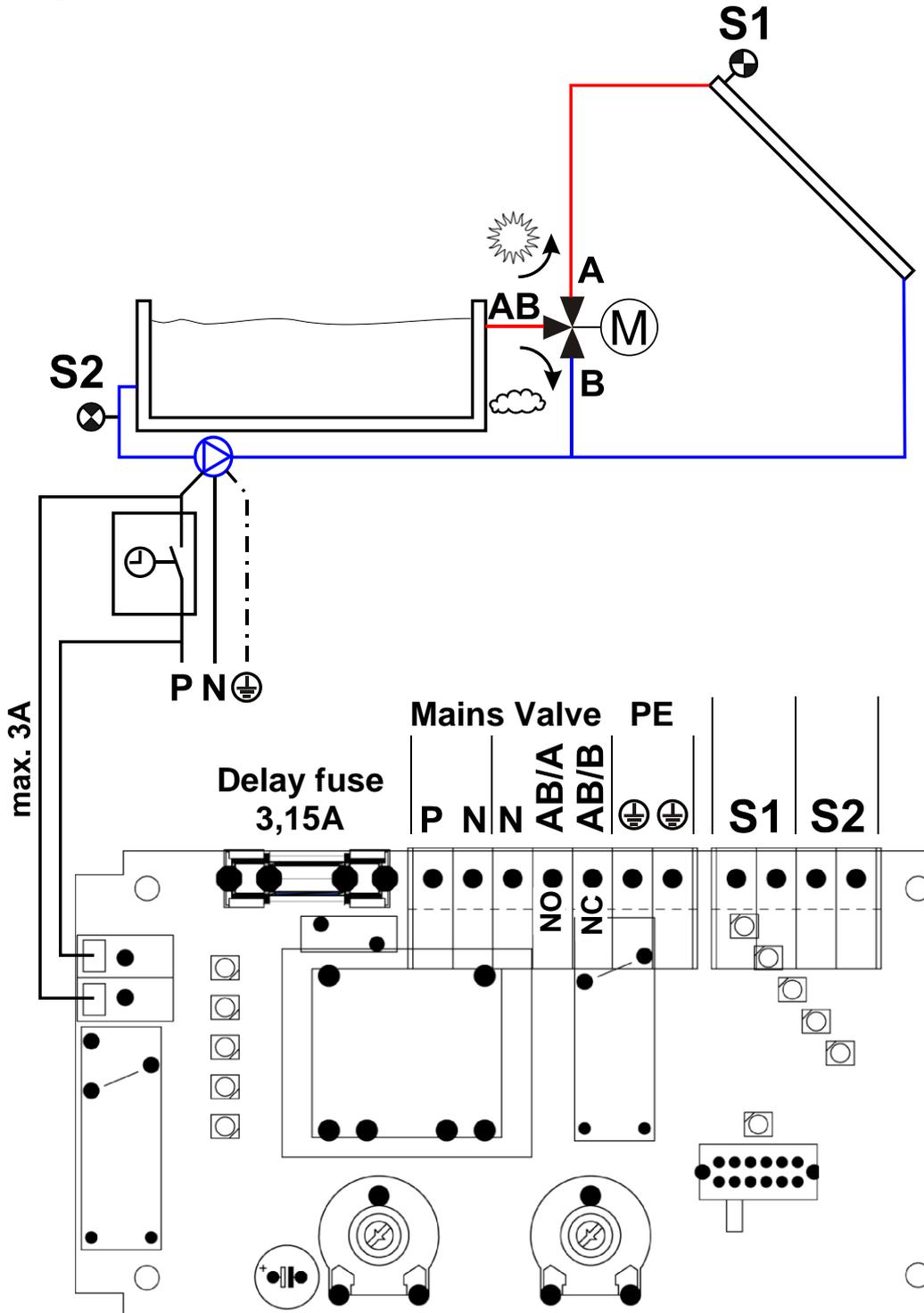
# System with changeover valve

The swimming pool timer control and the changeover valve are switched on if sensor **S1** is higher than sensor **S2** by the difference *diff* and if **S2** has not exceeded the threshold *max*. This forces a switch on of the swimming pool pump and circulation runs through the collector.

**Bridging time switch clock + changeover valve =  $S1 > (S2 + diff) \ \& \ S2 < max$**

**Excess collector temperature:** If the collector temperature rises above 130°C, the pump is switched off and only released again, if the temperature drops below 110°C.

During the excess temperature shutoff, the two top LEDs of the collector display flash.



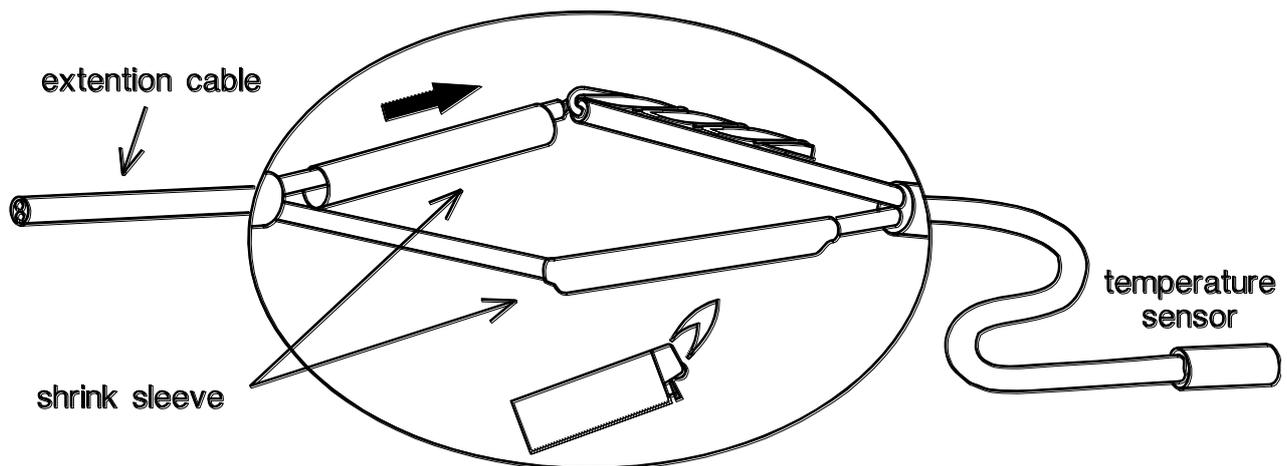
## Sensor installation

- **Collector sensor (grey cable with connection box):** Insert either in the tube directly soldered or riveted to the absorber and sticking out of the collector's frame or set a t-shaped connector on the outflow of the flow collector tube and screw in the sensor with the immersion sleeve. Water must not get into the immersion sleeve (danger of frost).

- **Pool sensor (swimming pool):** Assembly directly as clip-on sensor on the discharge from the pool on the suction line (see clip-on sensor). Assembly with immersion sleeve is not recommended because of the danger of condensate forming inside the sleeve.

- **Clip-on sensor:** Optimally secured on the line using pipe clamps or hose band clips. Make sure the material used is adequate (corrosion, temperature resistance, etc.). Then, the sensor has to be well insulated so that the tube temperature is measured exactly and the ambient temperature does not influence the measurement.

All of the sensor lines with a cross-section of 0.5mm<sup>2</sup> can be extended up to 50m. With this length of line and a Pt1000 temperature sensor, the measurement error is approx. +1K. Longer lines or a lower measurement error require an appropriately larger cross-section. The sensor and the probe can be connected by putting the heat-shrinkable sleeve truncated to 4 cm over a wire and twisting the bare ends. If one of the wire ends is tinned then the connection must be made through soldering. Then the heat-shrinkable sleeve is put over the connection and carefully heated (such as with a lighter) until it has wrapped the connection tightly.



In order to prevent measurement fluctuations, the sensor cables must not be subject to negative external influences to ensure fault-free signal transmission. When using non-screened cables, sensor cables and 230V network cables must be laid in separate cable channels and at a minimum distance of 5 cm. If screened cables are used, the screen must be connected to the sensor earth.

## Installation and connection of the device

**WARNING! ALWAYS PULL THE MAINS PLUG BEFORE OPENING THE CASING!**

Loosen the four screws on the corners of the housing and firmly screw the tub onto the wall through the two holes on the bottom of the enclosed installation equipment.

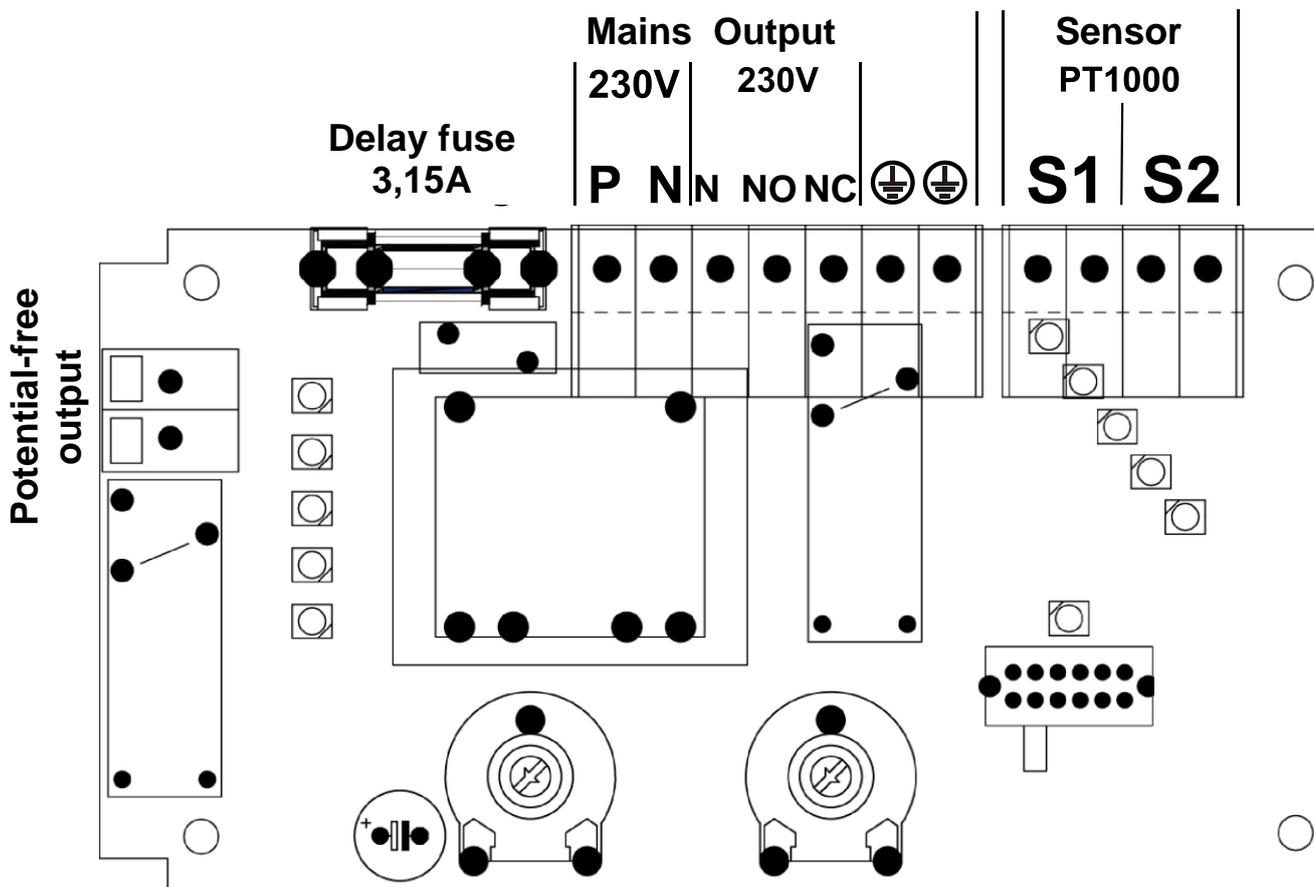
## Electrical connection

This should only be carried out by a qualified electrician in accordance with the relevant local guidelines. The sensor lines must not be laid together with the supply voltage. In a commonly used cable channel, appropriate shielding has to be provided.

**Warning:** Only work inside the controller with the power cable disconnected. The connections must be established according to the labelling on the terminals.

**Note:** The system has to be grounded properly and furnished with surge arresters to protect it from damage due to lightning. Sensor failures due to storms and static electricity are usually the result of faulty construction.

### Terminal assignment:



## Operation

On the front of the control you will find:

1. A **differential controller** for setting the difference collector – swimming pool and a **maximum controller** for setting the swimming pool temperature
2. A sliding switch with the functions **OFF**, **automatic** (= regular setting) and **MANUAL** (= continuous operation).
3. **LED displays for collector and swimming pool temperature (flashing LEDs -> See chapter “Tips on troubleshooting”).**

## Tips on troubleshooting

When the control system does not function properly on automatic mode, the function switch and the sensors should be checked.

**A short-circuit or an interruption** of a sensor are displayed directly on the control system. If a short-circuit occurs, the lowest LED of the collector or tank icon blinks. In case of an interruption, the top LED of the icon blinks.

**Collector excess temperature:** if the collector temperature climbs above 130°C, the pump is switched off and only released again, if the temperature falls below 110°C.

During the excess temperature shutoff, the two top LED's of the collector display flash.

In addition, the sensors can be measured by means of an ohmmeter.

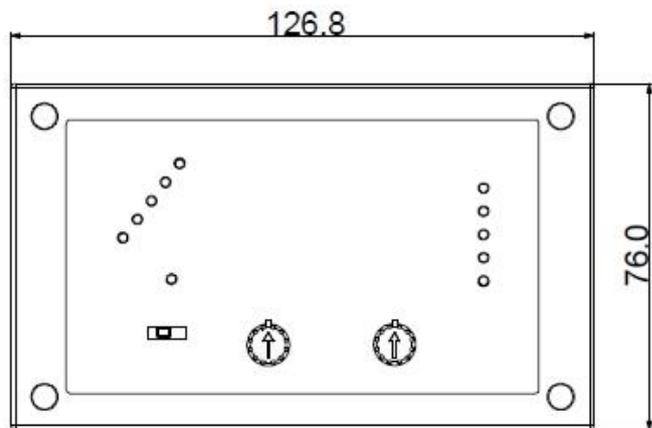
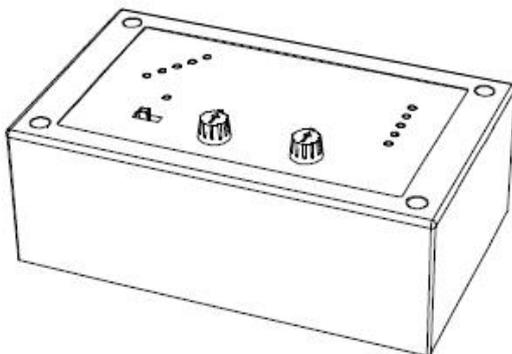
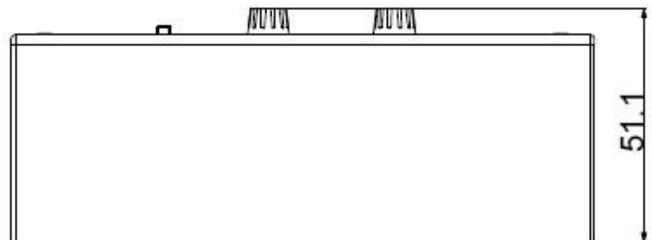
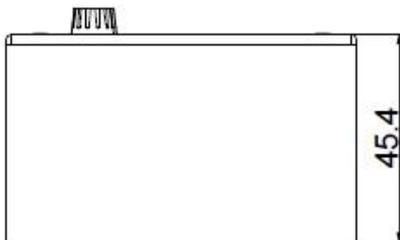
Temp. [°C]	0	10	20	25	30	40	50	60	70	80	90	100
R (Pt1000) [Ω]	1000	1039	1078	1097	1117	1155	1194	1232	1271	1309	1347	1385

If the system is not in operation although supply voltage is connected, the 3.15A delay fuse that protects the control system and the output should be checked and exchanged if necessary.

## Technical data

Temperature difference:	adjustable from 2-12°C (hysteresis = 3K)
Maximal-/minimal threshold:	adjustable from 20 - 40°C (hysteresis = 3K)
Accuracy:	typ. +-2%
Output 230V:	230V~/ max. 3A
Output potential-free:	max. 3A
Power draw:	max. 2 W
Supply cable:	3x 1mm <sup>2</sup> H05VV-F conforming to EN 60730-1

### Dimensions in mm:



# Information on the Eco-design Directive 2009/125/EC

Product	Class <sup>1,2</sup>	Energy efficiency <sup>3</sup>	Standby max. [W]	Typ. power consumption [W] <sup>4</sup>	Max. power consumption [W] <sup>4</sup>
SBR22	1	1	1.3	1.06 / 1.26	1.3 / 1.6

<sup>1</sup>Definitions according to Official Journal of the European Union C 207 dated 03/07/2014

<sup>2</sup> The classification applied is based on optimum utilisation and correct application of the products. The actual applicable class may differ from the classification applied.

<sup>3</sup> Contribution of the temperature controller to seasonal central heating efficiency in percent, rounded to one decimal place

<sup>4</sup> No output active = standby / all outputs and the display active

Technische Änderungen vorbehalten

© 2017

# EU Declaration of conformity

Document- Nr. / Date: TA17022 / 02/02/2017  
Company / Manufacturer: Technische Alternative RT GmbH  
Address: A- 3872 Amaliendorf, Langestraße 124

***This declaration of conformity is issued under the sole responsibility of the manufacturer.***

Product name: SBR22  
Product brand: Technische Alternative RT GmbH  
Product description: Swimming pool controller

***The object of the declaration described above is in conformity with Directives:***

2014/35/EU	Low voltage standard
2014/30/EU	Electromagnetic compatibility
2011/65/EU	RoHS Restriction of the use of certain hazardous substances
2009/125/EC	Eco-design directive

***Employed standards:***

EN 60730-1: 2011	Automatic electrical controls for household and similar use – Part 1: General requirements
EN 61000-6-3: 2007 +A1: 2011 + AC2012	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial envi- ronments
EN 61000-6-2: 2005 + AC2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
EN 50581: 2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

***Position of CE - label:*** On packaging, manual and type label



Issuer: Technische Alternative RT GmbH  
A- 3872 Amaliendorf, Langestraße 124

***This declaration is submitted by***

A handwritten signature in black ink that reads 'Schneider Andreas'. The signature is written in a cursive style.

Dipl.-Ing. Andreas Schneider, General manager,  
02/02/2017

This declaration certifies the agreement with the named standards, contains however no warranty of characteristics.

The security advices of included product documents are to be considered.

## **Guarantee conditions**

**Note:** The following guarantee conditions do not in any way limit the legal right to a guarantee, rather expand your rights as a consumer.

1. The company Technische Alternative RT GmbH provides a two-year guarantee from the date of purchase by the end consumer for all the devices and parts which it sells. Defects must be reported immediately upon detection and within the guarantee period. Technical support knows the correct solution for nearly all problems. In this respect, contacting us immediately will help to avoid unnecessary expense or effort in troubleshooting.
2. The guarantee includes the free of charge repair (but not the cost of on site fault-finding, removal, refitting and shipping) of operational and material defects which impair operation. In the event that a repair is not, for reasons of cost, worthwhile according to the assessment of Technische Alternative, the goods will be replaced.
3. Not included is damage resulting from the effects of overvoltage or abnormal ambient conditions. Likewise, no guarantee liability can be accepted if the device defect is due to: transport damage for which we are not responsible, incorrect installation and assembly, incorrect use, non-observance of operating and installation instructions or incorrect maintenance.
4. The guarantee claim will expire if repairs or actions are carried out by persons who are not authorised to do so or have not been so authorised by us or if our devices are operated with spare, supplementary or accessory parts which are not considered to be original parts.
5. The defective parts must be sent to our factory with an enclosed copy of the proof of purchase and a precise description of the defect. Processing is accelerated if an RMA number is applied for via our home page [www.ta.co.at](http://www.ta.co.at). A prior clarification of the defect with our technical support is necessary.
6. Services provided under guarantee result neither in an extension of the guarantee period nor in a resetting of the guarantee period. The guarantee period for fitted parts ends with the guarantee period of the whole device.
7. Extended or other claims, especially those for compensation for damage other than to the device itself are, insofar as a liability is not legally required, excluded.

### **Legal notice**

These assembly and operating instructions are protected by copyright.

Use outside the copyright requires the consent of the company Technische Alternative RT GmbH. This applies in particular to reproductions, translations and electronic media.

## **Technische Alternative RT GmbH**

A-3872 Amaliendorf Langestraße 124

Tel ++43 (0)2862 53635

Fax ++43 (0)2862 53635 7

E-Mail: [mail@ta.co.at](mailto:mail@ta.co.at)

--- [www.ta.co.at](http://www.ta.co.at) ---

© 2017

