



Installation and Operation Instructions Supplementary set for heat quantity balancing

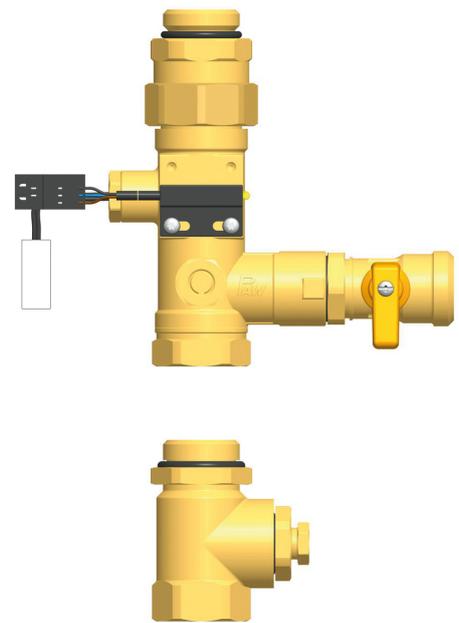




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1 General Information



Carefully read these instructions before installation and commissioning.

Save these instructions in the vicinity of the installation for future reference.

1.1 About these instructions

These instructions describe the installation, commissioning and function of the supplementary set for heat quantity balancing.

The chapters called [specialist] are intended for specialists only.

For other components which are used with supplementary set for heat quantity balancing, please follow the instructions of the respective manufacturer.

1.2 About this product

The supplementary set for heat quantity balancing is used to extend the 3-line solar station SolarBloC® for systems with two storage tanks (2S) or two roof solutions (2D) in order to carry out heat quantity balancing. It contains components for temperature and flow rate measurement and is prepared for pump types with SuperSeal and Molex connections. Use the corresponding cables from the existing stations.

The product consists of the following main components:

- Controller assembly
- FlowRotor with temperature sensor
- Immersion sleeve with temperature sensor

1.3 Designated use

The supplementary set for heat quantity balancing may only be used according to its intended purpose, taking into consideration the technical limit values indicated in these instructions. Due to its design, it may only be installed and operated as described in these instructions!

Improper usage excludes any liability claims.

This product complies with the relevant directives and is therefore labelled with the CE mark. The Declaration of Conformity is available upon request, please contact the manufacturer.

Only use PAW accessories with the supplementary set for heat quantity balancing.

2 Safety instructions

2 Safety instructions

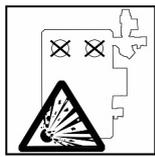
The installation and commissioning as well as the connection of electrical components require technical knowledge commensurate with a recognised vocational qualification as a fitter for plumbing, heating and air conditioning technology, or a profession requiring a comparable level of knowledge [specialist].

The following must be observed during installation and commissioning:

- relevant local and national regulations
- accident prevention regulations of the professional association
- instructions and safety instructions mentioned in these instructions

| WARNING | |
|---|--|
|  | <p>Risk of burning and scalding!</p> <p>The valves and fittings and the solar fluid can have temperatures of more than 100 °C. The solar fluid may escape as vapour and result in scalding.</p> <ul style="list-style-type: none"> ▶ Perform maintenance work only when the collector temperatures are below 50 °C. ▶ Wait until the solar fluid has cooled down to at least 50 °C. |

| WARNING | |
|---|---|
|  | <p>Risk to life and limb due to electric shock!</p> <ul style="list-style-type: none"> ▶ Prior to commencing electrical work on the controller, pull the mains plug! ▶ Only after completing all installation work, plug the mains plug of the controller into a socket. An unintentional start of the motors is thus avoided. |

| CAUTION | |
|---|--|
|  | <p>Personal injury and material damage due to overpressure!</p> <p>Closing both ball valves in the primary circuit will separate the safety group from the heat exchanger. A rise in temperature in the storage tank may result in high pressures, which may lead to personal injury and material damage!</p> <ul style="list-style-type: none"> ▶ Only close the ball valves for service and maintenance. |

NOTICE**Material damage due to mineral oils!**

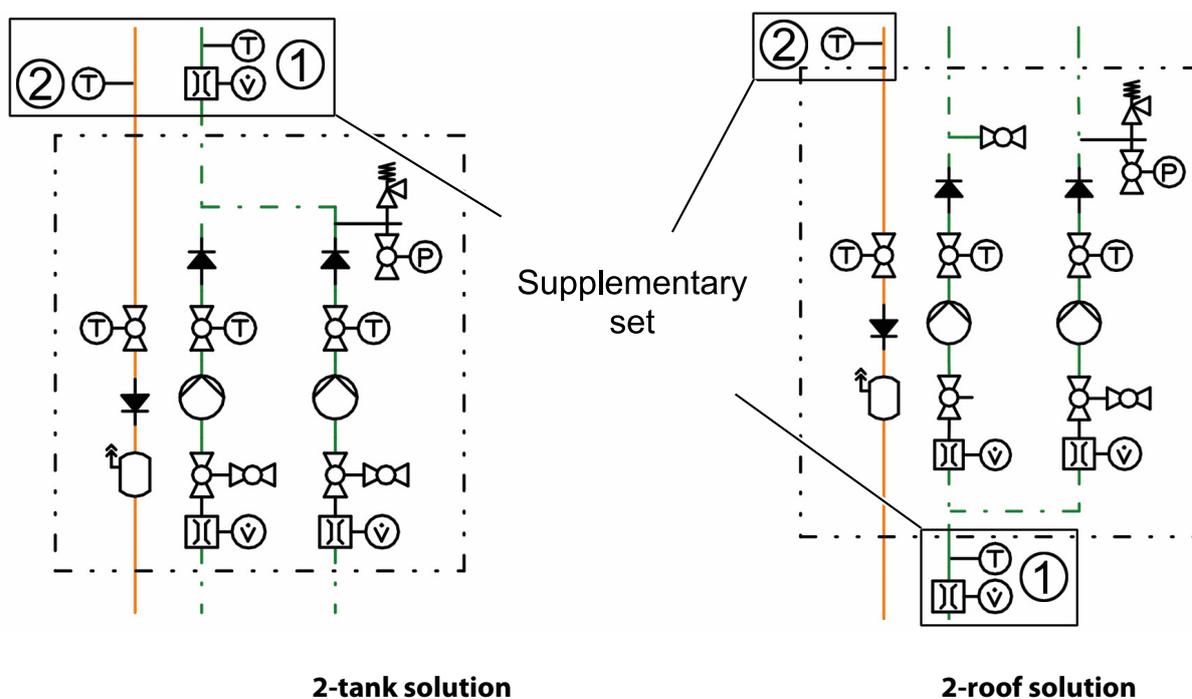
Mineral oil products cause lasting damage to seals made of EPDM, whereby the sealant properties are lost. We do not assume liability nor provide warranty for damage to property resulting from sealants damaged in this way.

- ▶ It is imperative to prevent the EPDM sealing elements from making contact with substances containing mineral oils.
- ▶ Use a silicone- or polyalkylene-based lubricant free of mineral oil such as Unisilikon L250L and Syntheso Glep 1 from Klüber or a silicone spray.

3 Mounting and installation [specialist]

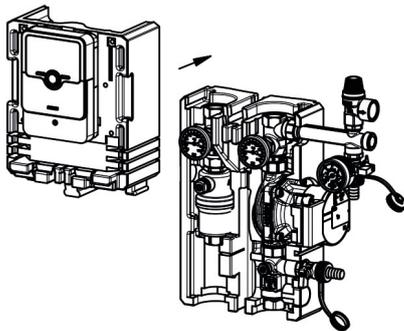
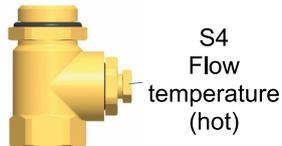
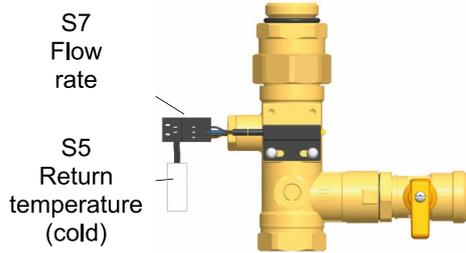
| WARNING | |
|---------|---|
| | <p>Risk to life and limb due to electric shock!</p> <ul style="list-style-type: none"> ▶ Prior to commencing electrical work on the controller, pull the mains plug! ▶ Only after completing all installation work, plug the mains plug of the controller into a socket. An unintentional start of the motors is thus avoided. |

The installation of the supplementary set for heat quantity balancing is described below. Please also refer to the separate operating instructions for the enclosed controller. Depending on the type of solar station, install the components according to the following diagrams:

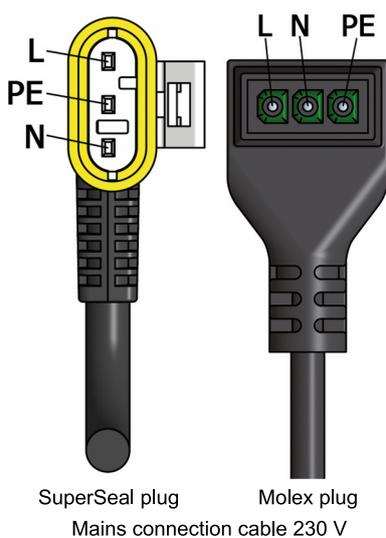


- | | |
|--|--|
| <p>① FlowRotor (S7) + temperature sensor (S5)</p> <p>② immersion sleeve with temperature sensor FKP6 (S4) included</p> | <p>in the common return (cold)</p> <p>in the common flow (hot)</p> |
|--|--|

For the installation, see next page.



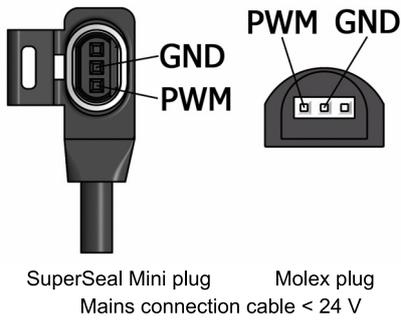
1. Install the FlowRotor (S7) together with the temperature sensor (S5) (①) in the common return.
2. Install the immersion sleeve with the included temperature sensor FKP6 (S4, ②) in the common flow.
3. Slide the controller extension with the pre-assembled controller onto the 2-line station.



4. Connect the mains connection cable (provided by the customer) to the controller according to the type.

| | |
|----|--------------|
| L | brown |
| PE | yellow-green |
| N | blue |

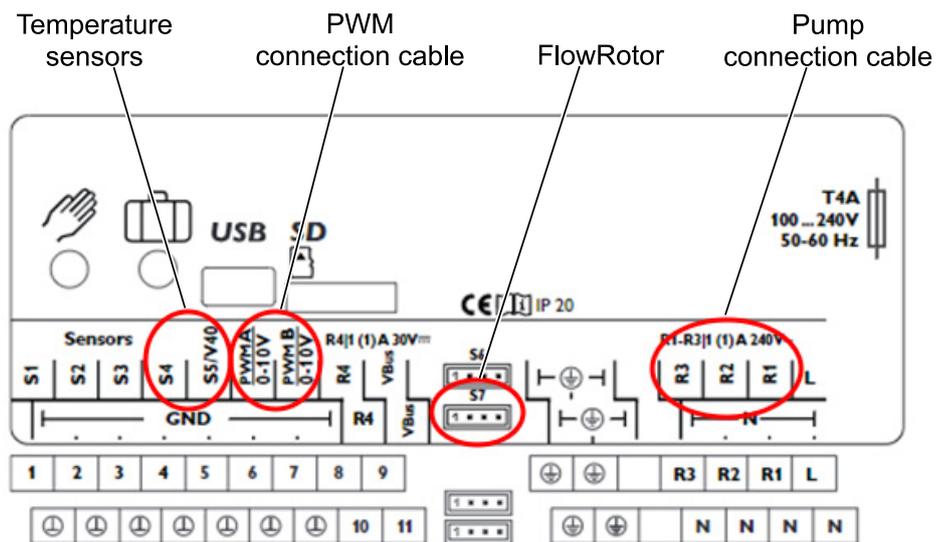
3 Mounting and installation [specialist]



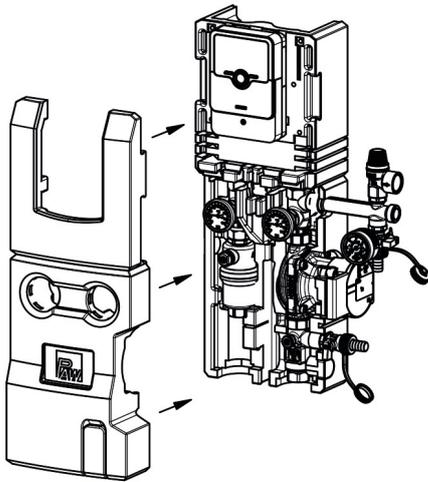
- In addition, connect the PWM connection cable (provided by customer) to the controller according to the type.

| | |
|-----|-------|
| PWM | brown |
| GND | blue |

- Connect the flow rate sensor from the FlowRotor to S7 using the enclosed cable (Molex C-Grid SL).
- Connect the return temperature sensor from the FlowRotor to S5 using the enclosed cable (Molex MiniFit Jr.).
- Connect the flow temperature sensor (FKP6, enclosed) from the immersion sensor to S4.



9. Mount the insulating front shell onto the station.



WARNING



Risk to life and limb due to electric shock!

- ▶ Check whether the sensors and pumps have been connected to the controller and the controller housing is closed.
- Only under these circumstances, the mains plug of the controller can be plugged into a socket.

4 Commissioning [specialist]

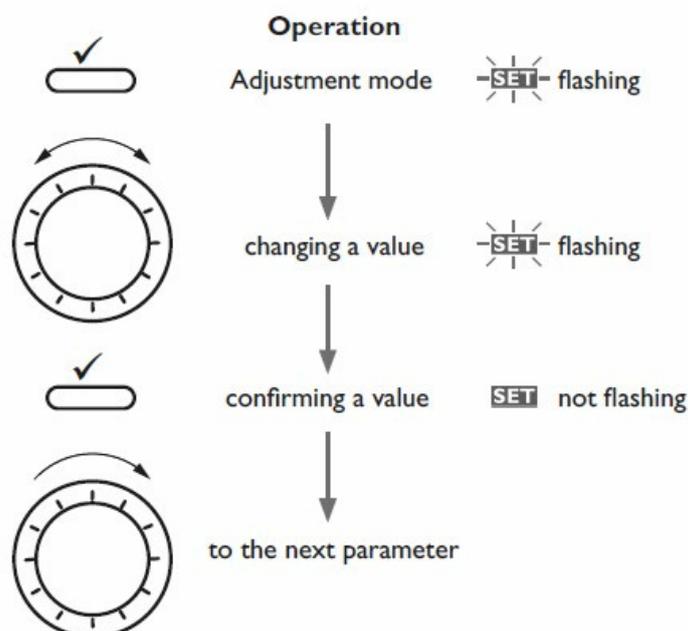
Observe the safety instructions and the separate instructions for commissioning the solar station.

The controller is preassigned for 4 solar basic systems. The factory setting is system 1. A total of 27 pre-configured schemata are available.

Based on the assembly and installation according to these instructions, the temperature sensors are connected to S4 (flow) and S5 (return), the pumps to R and PWM and the flow rate to S7. This corresponds to system 1 (solar thermal system with a storage tank).

If another system is selected, it may be necessary to connect further sensors and switching elements. Please observe the separate instructions of the controller!

The controller first runs through an initialisation phase, subsequently the commissioning starts in which the most important settings are made according to the following schema:



Source of image: Resol

The flow and return sensors (S4 and S5) are not included in the factory setting. They can be selected and added in the expert menu as well as in the *HQM* menu. For this and also for further settings or modifications related to the system, the options or the functions, please observe the separate instructions of the controller.

Heat quantity measurement:

The controller offers the possibility to carry out a heat quantity measurement of the flow and return sensors (S4 and S5) and of a flow rate sensor (S7). For this, navigate to the *HQM* menu and make the following settings:

| Adjustment channel | Description | Adjustment range / selection | Factory setting |
|--------------------|--|--|------------------|
| Flow sen. | Flow sensor allocation | system dependent | system dependent |
| Return sen. | Return sensor allocation | system dependent | system dependent |
| Flow rate sen. | Flow rate sensor option | Yes, No | No |
| Flow rate sen. | Flow rate sensor allocation | S5, S6, S7 | - |
| Flow r... | Flow rate (only if Flow rate sen. = No) | 1.0 ... 500.0 l/min | 3.0 l/min |
| Relay | Relay selection | system dependent | - |
| Fluid type | Heat transfer fluid | Tyfocor LS, Propylene glycol, Ethylene glycol, Water | Water |
| Ratio | Glycol ratio in the heat transfer fluid (only if Fluid type = Propylene glycol or Ethylene glycol) | 20 ... 70 % | 50 % |
| Alternative unit | Alternative unit option | Yes, No | No |
| Unit | Alternative display unit | Coal, Gas, Oil, CO ₂ | CO ₂ |
| Factor | Conversion factor | 0.0000001 ... 100.0000000 | 0.5000000 |
| Funct. | Activation / Deactivation | Activated, Deactivated, Switch | Activated |
| Sensor | Sensor input allocation | - | - |

Source of table: Resol

Make sure to select the FlowRotor according to the hydraulics (DN 20), see controller instructions.

5 Maintenance [specialist]

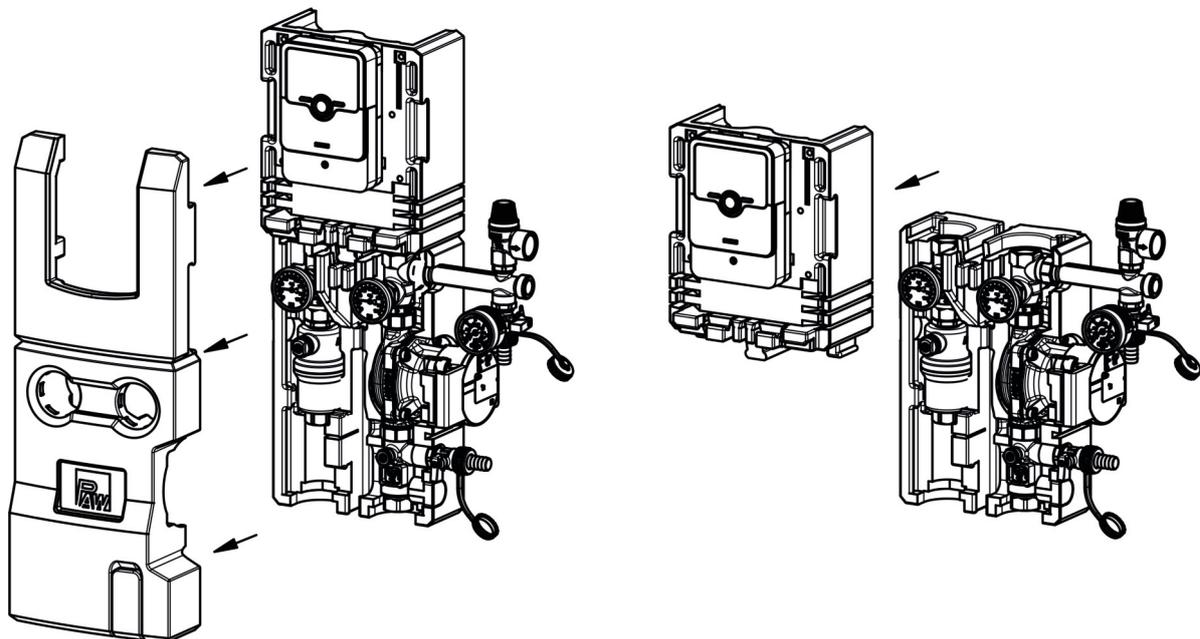
5.1 Maintenance work

Switch off the controller and make sure that a restart is not possible.

For maintenance work on the station, please refer to the separate station instructions.

5.2 Deinstallation

1. Switch off the controller and disconnect it from the power supply.
2. Remove the controller panel.
3. Disconnect the cables from the corresponding sensors and pumps.
4. Pull the controller holder including controller from the station.
5. Remove the controller from the controller holder (push the controller up towards the controller holder and remove it).

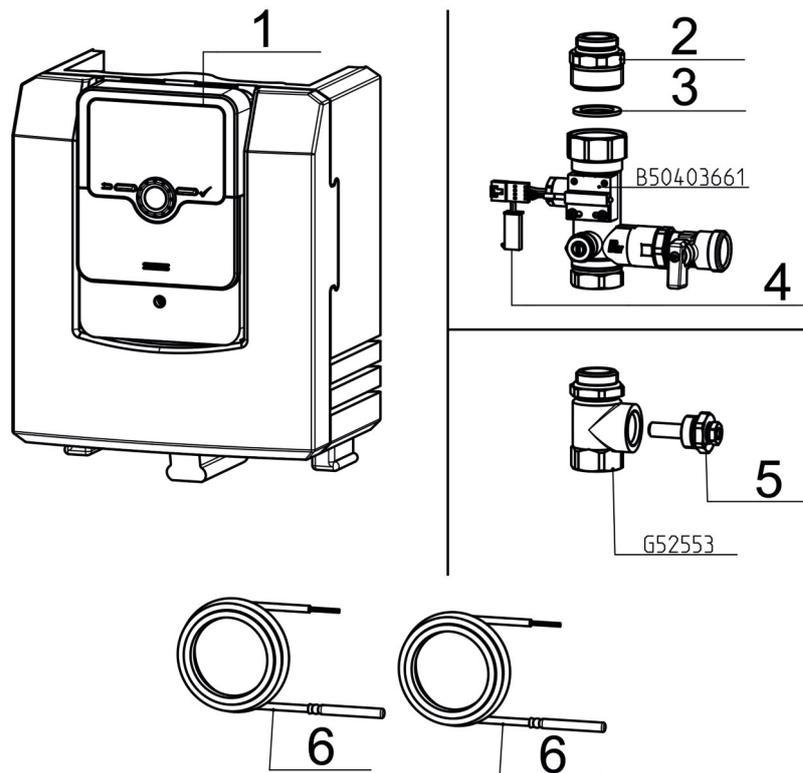


6 Scope of delivery [specialist]

NOTICE

Serial number

Complaints and requests/orders of spare parts will only be processed with information on the serial number!



| Position | Spare part | Item no. |
|----------|--|----------|
| 1 | Controller SC3.5-Molex, with wiring harness | N00408 |
| 2 | Reducing nipple, 1" ext. thread flat-sealing x ¾" ext. thread self-sealing | 548340 |
| 3 | Sealing kit 30.0 x 21.0 x 2.0, ½", for thread connection 1", 10 pieces | N00024 |
| 4 | Temperature sensor Pt1000, screw-in sensor 9 mm, G¼" | N00230 |
| 5 | Immersion sleeve, for sensor d = 6.0 mm, ½" ext. thread x 30 mm deep | 566001 |
| 6 | Temperature sensor Pt1000, -50 °C up to 180 °C, d = 6 mm | Q00146 |

6 Scope of delivery [specialist]

| Position | Spare part | Item no. |
|-----------------|---|-----------------|
| no pos. | Sensor extension Molex MiniFit Jr. female | N00350 |
| no pos. | Sensor connection cable, Molex C-Grid/SL, female | N00389 |
| no pos. | Pump connection cable, SuperSeal right-angle plug | E121108 |
| no pos. | PWM connection cable, SuperSeal Mini | Q00134 |
| no pos. | Pump connection cable, Molex right-angle plug | N00152 |
| no pos. | PWM connection cable, Molex | N00342 |

7 Technical data

| | | |
|-----------------------|----------------------------------|---|
| Dimensions | H × W × D Controller assembly | 238 x 205 x 140 mm |
| Operating data | Inputs | 4 temperature sensors Pt1000, Pt500 or KTY 1 Grundfos Direct Sensor (analogue) 1 FlowRotor 1 impulse input V40 (switchable to temperature sensor input Pt1000, Pt500 or KTY) |
| | Outputs | 3 semiconductor relays 1 potential-free low-voltage relay 2 PWM outputs (switchable to 0 - 10 V) |
| | Switching capacity | 1 (1) A, 240 V (semiconductor relay) 1 (1) A, 30 V (potential-free relay) |
| | Total switching capacity | 3A, 240 V |
| | Supply | 100 - 240 V (50 - 60 Hz) |
| | Connection type | Y |
| | Power consumption | < 1 W (standby) |
| | Mode of action | Type 1.B.C.Y |
| | Data interface | VBus, MicroSD card slot |
| | VBUS current output | 60 mA |
| | Protection category | IP20 |
| | Protection class | 1 |
| | Ambient temperature | 0-40 °C |
| Degree of pollution | 2 | |
| Equipment | FlowRotor | 0.5 - 15 l/min, with temperature sensor Pt1000 |
| | Immersion sleeve | with enclosed temperature sensor Pt1000 |
| | Sensors | 2 temperature sensors Pt1000 1 flow rate sensor |
| | Controller manufacture | Molex |

8 Disposal

| NOTICE | |
|---|---|
|  | <p>Electrical and electronic devices must not be disposed of in the household waste.</p> <p>For your return, there are free collection points for electrical appliances and, if necessary, additional points of acceptance for the reuse of the devices in your area. The addresses can be obtained from your city or communal administration.</p> <p>If the old electrical or electronic device contains personal data, you are responsible for deleting it before returning the device.</p> <p>Batteries and rechargeable batteries must be removed prior to the disposal of the product. Depending on the product equipment (partly with optional accessories), single components can also contain batteries and rechargeable batteries.</p> <p>Please observe the disposal symbols on the components.</p> |

Disposal of transport and packaging materials

The packaging materials are made of recyclable materials and can be disposed of with recyclable materials.



9 Notes



Item no. 99131914-mub-en

Translation of the original instructions

We reserve the right to make technical changes without notice!

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