

## 1. General information

The original operating instructions were drafted in German.

The operating instructions in other languages have been translated from German.

### 1.1 Validity of the operating instructions

These operating instructions are valid for the return temperature control Unibox RTL.

### 1.2 Extent of supply

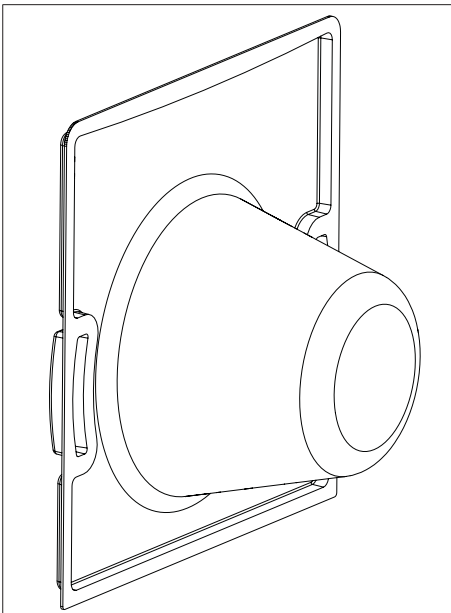
Please check your delivery for any damage caused during transit and for completeness.

Items included in the delivery:

- Unibox RTL with protection cover
- Cover with integrated handwheel
- Brackets
- Operating instructions



On delivery, the inside of the Unibox RTL is protected by a protection cover (see Illust. 1 on page 27).



Illust. 1: Design of the Unibox RTL

## 1.3 Contact

### Contact address

OVENTROP GmbH & Co. KG  
 Paul-Oventrop-Straße 1  
 59939 Olsberg  
 GERMANY

### Technical services

Phone: +49 (0) 29 62 82-234

## 1.4 Declaration of conformity

Oventrop GmbH & Co. KG hereby declares that this product complies with the basic requirements and other relevant provisions of the EC Directives concerned.

## 1.5 Used symbols

	Highlights important information and further explanations.
	Action required
	List
1.	Fixed order. Steps 1 to X.
2.	
	Result of action

## 2. Safety-related information

### 2.1 Normative directives

Observe the legal requirements applicable at the installation location.

The current standards, rules and guidelines apply.

## 2.2 Correct use

Operating safety is only guaranteed if the product is used correctly.

The Unibox RTL is used in hot water central heating systems with closed circuits for temperature balancing of floor and wall surfaces. It limits the fluid temperature of a radiator heating circuit in individual rooms.

Any other use of the product will be considered incorrect use.

Claims of any kind against the manufacturer and/or its authorised representatives due to damage caused by incorrect use will not be accepted.

Observance of the operating instructions is part of compliance with correct use.

## 2.3 Modifications to the product

Modifications to the product are not permitted. In case of modifications to the product, the warranty will become void. The manufacturer will not accept liability for damage and breakdowns caused by modifications to the product.

## 2.4 Warnings

Each warning contains the following elements:

Warning symbol SIGNAL WORD	
	<p><b>Type and source of danger!</b></p> <p>Possible consequences if the danger occurs or the warning is ignored.</p> <ul style="list-style-type: none"> <li>▶ Ways to avoid the danger.</li> </ul>

The signal words identify the severity of the danger arising from a situation.

NOTICE	
	<p>Indicates a situation that may lead to damage to property if not avoided.</p>

## 2.5 Safety notes

We have developed this product in accordance with current safety requirements. Please observe the following notes concerning safe use.

### 2.5.1 Danger caused by inadequately qualified personnel

Any work on this product must only be carried out by qualified tradespeople.

#### Qualified tradespeople

As a result of their professional training and experience as well as their knowledge of the relevant legal regulations, qualified tradespeople are able to carry out any work on the described product professionally. They have to be able to identify possible dangers.

### 2.5.2 Risk of injury in case of improper work

Angular components, protrusions and edges both inside and outside the product may cause injuries.

- ▶ Before starting work, make sure that there is enough space.
- ▶ Handle open and sharp-edged components with care.
- ▶ Make sure that the work place is tidy and clean to avoid accidents.

### 2.5.3 Danger caused by an uncontrolled escape of hot fluids

- ▶ Only carry out work when the product is depressurised.
- ▶ Allow the product to cool down before working on it.
- ▶ Check that the product is not leaking after work is complete.
- ▶ If necessary, cover the vent holes with a cloth.
- ▶ Replace any defective components immediately.
- ▶ Wear safety goggles.

### 2.5.4 Risk of burns due to hot components and surfaces

- ▶ Allow the product to cool down before working on it.
- ▶ Wear suitable protective clothing to avoid

unprotected contact with hot system components and fittings.

### 2.5.5 Availability of the operating instructions

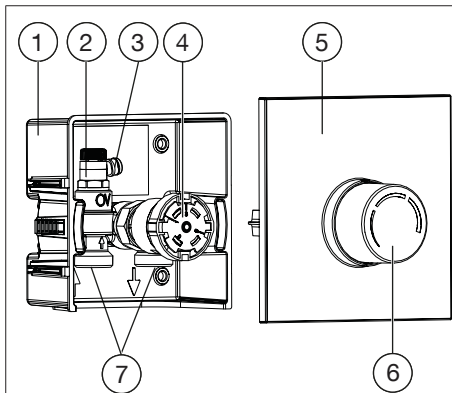
Any person working on the product has to read and apply these operating instructions and all other valid documents (e.g. accessory manuals).

The operating instructions must be available at the installation location of the product.

- ▶ Hand these operating instructions and all other relevant documents (e.g. accessory manuals) over to the user.

## 3. Technical description

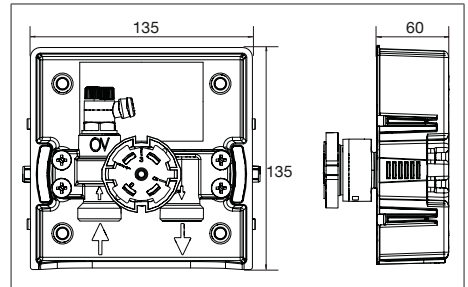
### 3.1 Design



Illust. 2: Design of the Unibox RTL

(1)	Wall box unit
(2)	Thermostatic valve RTL
(3)	Venting and flushing valve
(4)	Thermostat RTL (sensor unit)
(5)	Cover with integrated handwheel (operating unit)
(6)	Handwheel
(7)	Valve connection G ¾ male thread (cone "Euro" according to DIN EN 16313)

### 3.2 Dimensions



Illust. 3: Dimensions in mm

### 3.3 Functional description

The Unibox RTL is used for return temperature limitation in a surface temperature regulation system. The installation position of the Unibox RTL has to be chosen so that heating fluid passes first through the heating circuit and then through the valve of the Unibox RTL. On its way from the entry into the heating surface to the Unibox RTL, the heating fluid cools down. The fluid temperature is controlled by adapting the flow rate. The return temperature is set at the handwheel of the thermostat. You can modify the surface temperature by turning the handwheel.

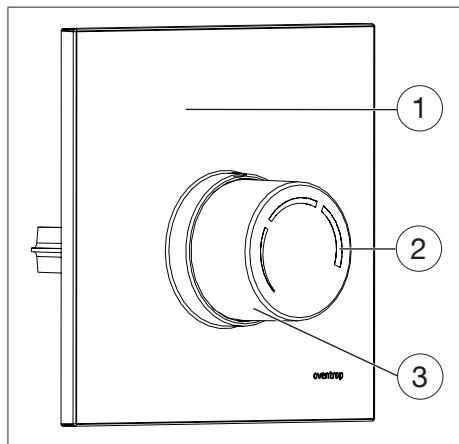


Normally, the Unibox RTL is operated in a room with an additional radiator. The surface temperature regulation circuit covers the basic heat demand whereas the radiator takes over the control of the room temperature.

### 3.4 Operating elements

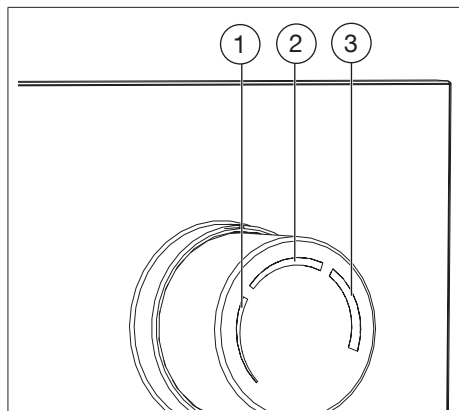
#### 3.4.1 Handwheel and thermostat RTL

You can set the desired fluid temperature of the surface temperature regulation by turning the handwheel. The thermostat RTL detects the temperature of the fluid being transported and the thermostatic valve RTL opens and closes accordingly.



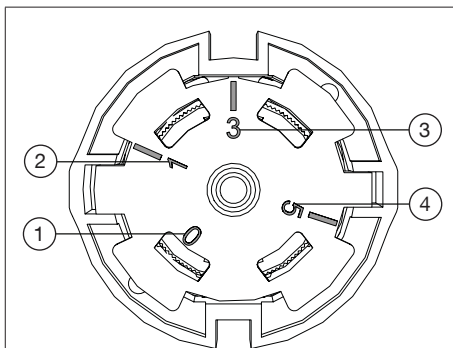
Illust. 4: Handwheel

(1)	Cover
(2)	Temperature scale
(3)	Handwheel



Illust. 5: Temperature range of the scale on the handwheel

(1)	0-15 °C
(2)	15-35 °C
(3)	35-50 °C



Illust. 6: Setting options of the sensor unit

(1)	Shut-off position
(2)	Frost protection position
(3)	Installation position
(4)	Incremental heating position

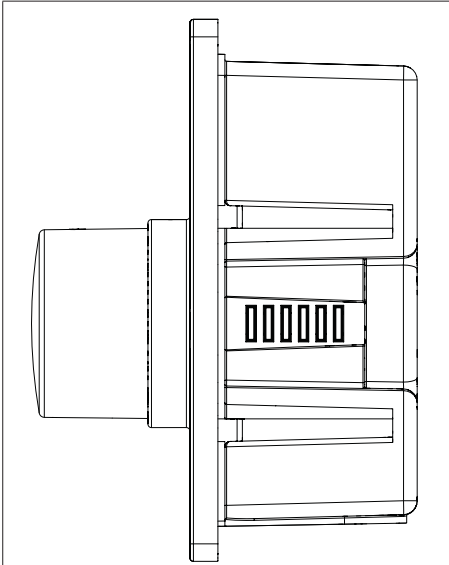
**NOTICE**

**Damage to the screed as a result of incorrect temperatures**

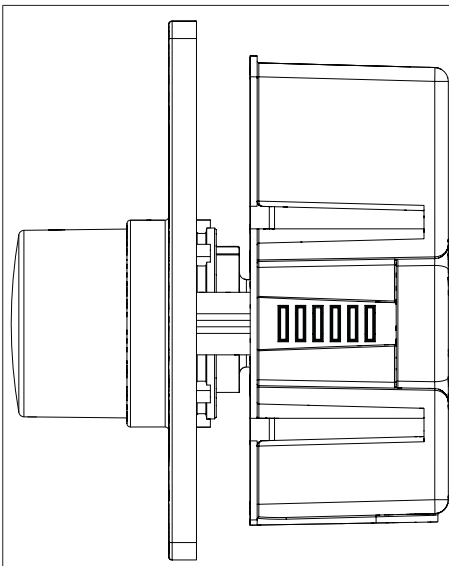
- ▶ Observe the instructions of the screed manufacturer.
- ▶ Do not exceed the screed temperature specified as per DIN 1264-4 near the heating pipes.

**3.4.2 Cover with integrated handwheel**

The cover with integrated handwheel can be infinitely pulled out up to 20 mm.



Illust. 7: Cover with integrated handwheel in retracted position



Illust. 8: Cover with integrated handwheel in extended position

### 3.5 Technical data

<b>Max. operating temperature <math>t_s</math></b>	100°C
<b>Max. operating pressure <math>p_s</math></b>	10 bar
<b>Max. differential pressure</b>	1 bar
<b>Installation depth</b>	60 mm
<b>Thermostat and actuator connection thread</b>	M30x1.5
<b>Fluid</b>	Water, mixtures of water and glycol (according to VDI 2035; max. glycol proportion 50%)

## 4. Accessories and spare parts

Spare parts and accessories are available from specialist stores.

The following items are available as accessories:

Designation	Item no.
<b>Fixing channel</b>	1022652
	1022653
<b>Pipe conduit unit</b>	1022650
<b>Valve insert RTLH (special valve insert for reversed supply and return pipe)</b>	1026970
<b>Gland nut (set of 5 pieces)</b>	1026986
<b>Duo connection piece</b>	1022655
<b>Protective tube (see illust. 9 on page 32)</b>	1501184

## 5. Transport and storage

Transport the product in its original packaging.

Store the product under the following conditions:

<b>Temperature range</b>	-20°C to +60°C
<b>Relative air humidity</b>	Max. 95%
<b>Particles</b>	Store dry and free from dust
<b>Mechanical influences</b>	Protected from mechanical agitation
<b>Radiation</b>	Protected from UV rays and direct sunlight
<b>Chemical influences</b>	Do not store together with solvents, chemicals, acids, fuels or similar substances

## 6. Installation

### 6.1 General installation advice

Note the following prior to installation:

- The lower edge of the Unibox RTL must be at least 20 cm above the finished floor.
- The front face of the Unibox RTL must be level with the finished wall.



Should the wall not have been finished, take the plaster and tile thickness into account.

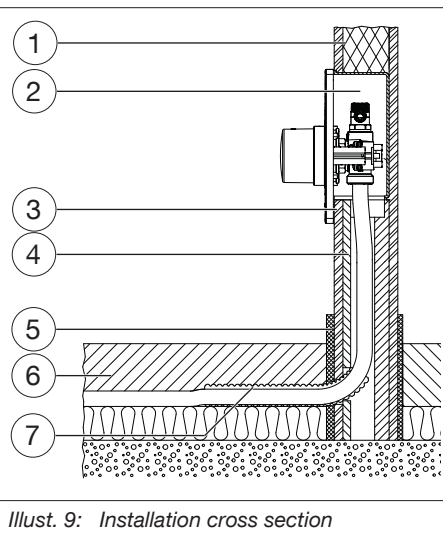
- The opening of the wall box unit must face downwards.
- The thermostat must not be influenced by other heat sources.
- Use the enclosed brackets to align and fix the Unibox RTL.

### NOTICE

#### Risk of damage due to lubricants

Seals may be destroyed by greasing agents or oil.

- ▶ Do not use any greasing agents or oil for the installation.
- ▶ Flush any dirt particles or grease or oil residues out of the pipework.
- ▶ Consider the latest technical status (e.g. VDI 2035), when choosing the operating fluid.



Illust. 9: Installation cross section

(1)	Block or stud wall
(2)	Unibox RTL
(3)	Plaster
(4)	Pipe conduit unit (separate accessory)
(5)	Edge insulating strip (separate accessory)
(6)	Screed
(7)	Protective tube (separate accessory)

## 6.2 Installation of the Unibox RTL

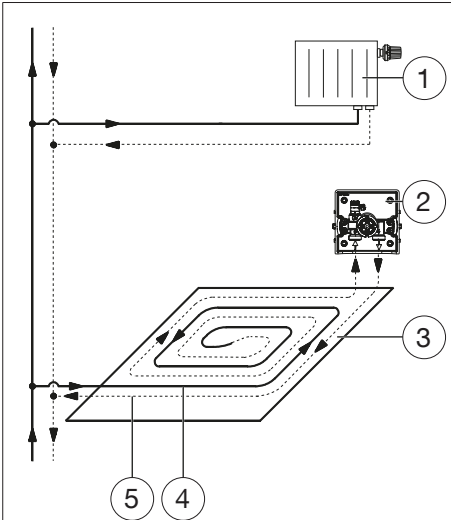


The Unibox RTL must always be located at the end of the surface temperature regulation circuit (see section 3.3 on page 29).



Use a pipe conduit unit to facilitate installation.

- Use the enclosed brackets (see section 1.2 on page 27) to align and fix the Unibox RTL.



Illust. 10: Connection

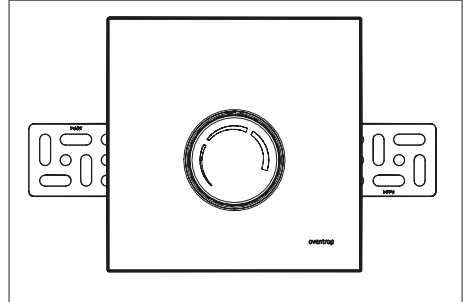
(1)	Radiator
(2)	Unibox RTL
(3)	Surface temperature regulation circuit
(4)	Supply
(5)	Return

- Provide a branch from the supply pipe of the two pipe heating system.
- Lay the surface temperature regulation circuit.



Lay the heating circuit in a spiral pattern to achieve an even heat distribution.

- Remove the protection cover of the Unibox RTL (you must refit the protection cover after commissioning) and place the Unibox RTL into the wall at the desired location.



Illust. 11: Unibox RTL with brackets

- Connect the pipework of the surface temperature regulation circuit to the Unibox RTL.



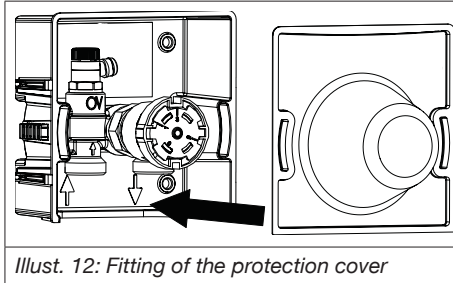
Observe the marked flow direction.

- Provide a connecting pipe between the Unibox RTL and the return pipe of the two pipe heating system.

## 7. Commissioning

### 7.1 Filling, bleeding and leak testing

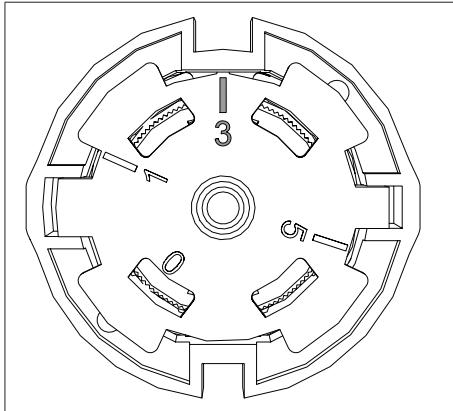
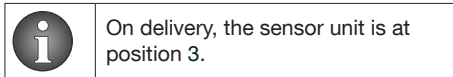
- Fill the heating system.
- Bleed the heating system (for instance at the valve of the Unibox RTL).
- Carry out a leakage test in accordance with DIN EN 1264.
- Refit the protection cover of the Unibox RTL (see Illust. 1 on page 27).



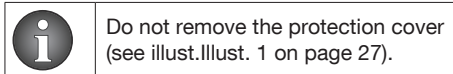
Illust. 12: Fitting of the protection cover

## 7.2 Preliminary work for incremental heating test

Carry out an incremental heating test to check the correction function of the surface temperature regulation system.



Illust. 13: Position of the sensor unit on delivery



## NOTICE

### Damage to the screed as a result of incorrect temperatures

- ▶ Carry out the incremental heating test of concrete and calcium sulphate screed in accordance with DIN EN 1264-4.
- ▶ Observe the instructions of the screed manufacturer.
- ▶ Adapt the flow temperature to the surface temperature regulation system.
- ▶ Do not exceed the screed temperature specified as per DIN 1264-4 near the heating pipes.

Apply heating screed complying with standards after plastering.

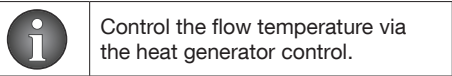
Start the incremental heating test at the earliest:

- 21 days after laying of concrete screed
- 7 days after laying of calcium sulphate screed

## 7.3 Incremental heating test

Proceed as follows during the incremental heating test:

1. Remove the protection cover.
2. Set the sensor unit to position "5".
3. Refit the protection cover.



4. Start with a flow temperature between 20°C and 25°C for at least 3 days.
5. Then heat at the maximum design flow temperature for at least 4 days.

## 7.4 Fitting of the handwheel and cover

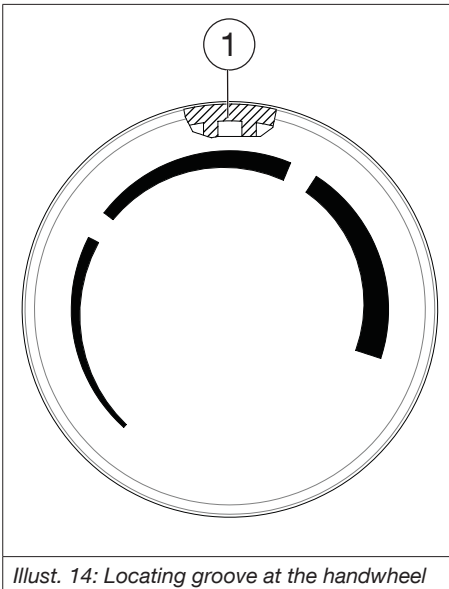
1. After having completed all building work, remove the protection cover of the Unibox RTL.
2. Set the sensor unit to position "3" when



fitting the cover. This ensures that the handwheel and the thermostat are in the correct position. The sensor unit is factory calibrated (see section 12.4 on page 39).



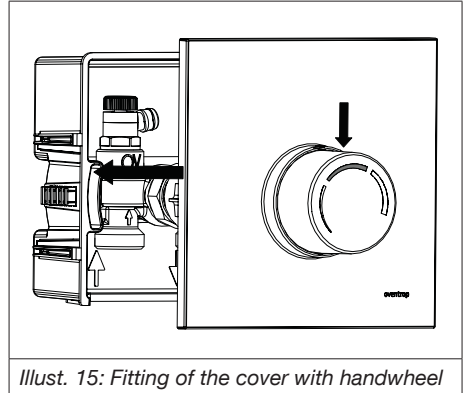
Please make sure that the broad locating groove inside the handwheel is at the top or at the position of the temperature scale shown in illustr. 14.



Illustr. 14: Locating groove at the handwheel

(1) Locating groove

3. Fit the cover with the integrated handwheel to the Unibox RTL.

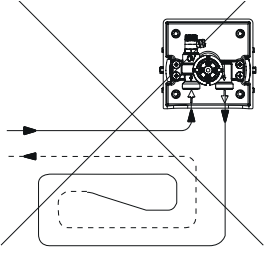


Illustr. 15: Fitting of the cover with handwheel

## 8. Operation

Set the fluid temperature of the surface temperature regulation circuit at the handwheel (see section 3.4.1 on page 29). Surface temperature regulation is affected by the local conditions (such as tile thickness).

## 9. Troubleshooting

MALFUNCTION	CAUSE	REMEDY
<p>The surface temperature regulation circuit does not get warm.</p>	<p>The Unibox RTL is installed in the supply.</p>  <p><i>Illust. 16: Unibox RTL installed in the supply</i></p>	<p>Convert the Unibox RTL from a return temperature limitation to an individual room temperature control (Unibox T) (see section 12.1 on page 37).</p>
	<p>Problems with the heating system/heat generator.</p>	<p>Increase the pump output (if possible).</p>
	<p>The Duo connection piece for two heating circuit is being used (see Illust. 23 on page 40).</p>	<p>Increase the fluid temperature.</p> <p>Check the resistances of the heating circuits. All heating circuits must have the same resistance.</p>
	<p>The calibration of the thermostat (sensor unit) has been changed.</p>	<p>Check the calibration (see section 12.4 on page 39).</p>
<p>The surface temperature regulation is warmer than set.</p>	<p>If you can hardly actuate the stem or not at all, there are impurities at the valve.</p>	<p>Clean the valve as follows:</p> <ol style="list-style-type: none"> <li>1. Remove the cover and the sensor unit.</li> <li>2. Actuate the stem.</li> </ol>
		<p>Replace the valve insert and clean the valve body with the help of the special tool Demo-Bloc. See section 12.3 on page 38.</p>
<p>Hammering noises are perceivable at the Unibox RTL.</p>	<p>Supply and return were reversed. Wrong flow against the Unibox RTL (see section 12.2 on page 38).</p>	<p>Replace the valve insert of the "Unibox RTL" with the special valve insert for reversed supply and return pipe, item no. 1026970. See section 12.3 on page 38.</p>
<p>The Unibox RTL is installed too deep.</p>		<p>The cover with integrated handwheel can be infinitely pulled out up to 20 mm (see section 3.4.2 on page 30).</p>

## 10. Maintenance

Regularly check the tightness and function of the product and its connection points as part of system maintenance.

## 11. Removal and disposal

### 11.1 Removal

Set the handwheel to the mid-position when removing the cover plate of the Unibox RTL (see section 7.4 on page 34).

### 11.2 Disposal

#### NOTICE

##### Risk of environmental pollution

Incorrect disposal (for instance with standard waste) may lead to environmental damage.

- ▶ Dispose of packaging material in an environmentally friendly manner.
- ▶ Dispose of the components appropriately.

If no return or disposal agreement has been made, dispose of the product yourself.

- ▶ If possible, recycle the components.
- ▶ Dispose of components which cannot be recycled according to local regulations. Disposal with standard waste is not permitted.

## 12. Appendix

### 12.1 Conversion of the Unibox RTL (to individual room temperature control Unibox T)

#### NOTICE

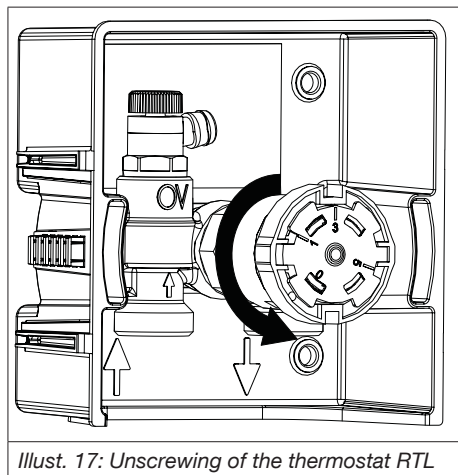
##### Damage to the screed as a result of incorrect temperatures

- ▶ Carry out the incremental heating test of concrete and calcium sulphate screed in accordance with DIN EN 1264-4.
- ▶ Observe the instructions of the screed manufacturer.
- ▶ Adapt the flow temperature to the surface temperature regulation system.
- ▶ Do not exceed the screed temperature specified as per DIN 1264-4 near the heating pipes.

If the Unibox RTL is installed in the supply pipe, correct functioning is no longer guaranteed. You have to convert the Unibox RTL from a return temperature limitation to an individual room temperature control Unibox T. To do so, replace the thermostat, the valve insert and the cover.

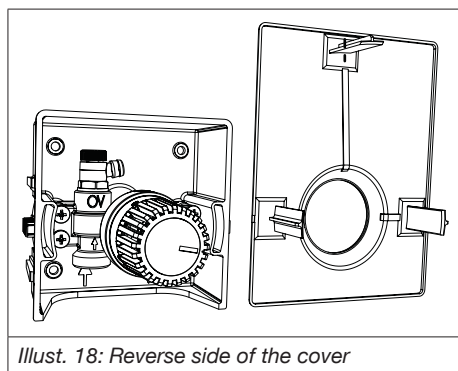
Required accessories	Item no.
Thermostat Uni LH	e.g. 1011465 (white) or 1011469 (chrome plated)
Valve insert	1187047
Cover	1022693 (white, RAL 9016) or 1022694 (chrome plated)

1. Remove the cover with the handwheel.
2. Unscrew the thermostat RTL.



Illust. 17: Unscrewing of the thermostat RTL

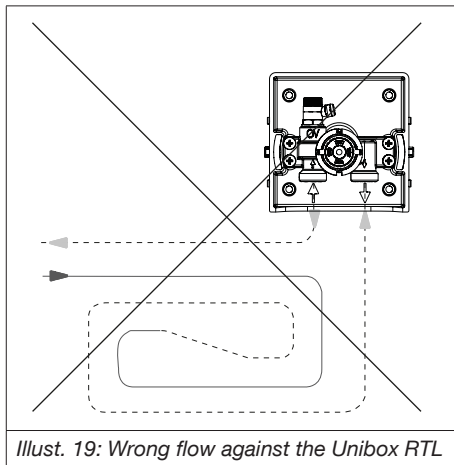
3. Replace the valve insert of the thermostatic valve "RTL" with the valve insert item no. 1187047.
4. Screw the thermostat Uni LH (item no. 1011465, white or item no. 1011469, chrome plated) onto the valve.
5. Replace the cover by item no. 1022693 (white, RAL 9016) or 1022694 (chrome plated). The covers 1022693 and 1022694 are larger and feature an additional fixing lug on the reverse side. Saw off the upper fixing lug so that it does not touch the wall.



Illust. 18: Reverse side of the cover

## 12.2 Wrong flow against the Unibox RTL

Hammering noises will be perceivable in case of a wrong flow against the Unibox RTL.

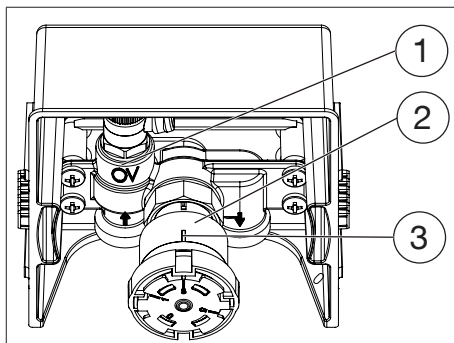


Illust. 19: Wrong flow against the Unibox RTL

## 12.3 Replacement of the thermostatic valve

To replace the valve insert of the thermostatic valve, you have to remove the sensor unit (see Illust. 17 on page 38).

When refitting, make sure that the indicator line of the sensor unit points upwards (see Illust. 20 on page 38).



Illust. 20: Fitting of the sensor unit

(1)	Thermostatic valve RTL
(2)	Thermostat RTL (sensor unit)

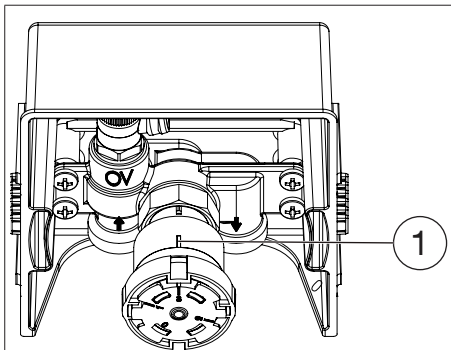
(3) Indicator line

### 12.4 Calibration of the thermostat RTL (sensor unit)

The thermostat RTL (sensor unit) is factory calibrated. A perfect function of the Unibox RTL is only guaranteed if it is correctly calibrated.

Should you have changed the calibration, proceed as follows to recalibrate the thermostat (see Illust. 21 on page 39):

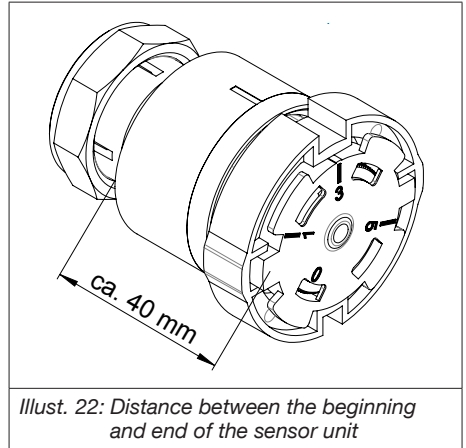
- Turn the sensor unit to position “3” (installation position; see Illust. 13 on page 34). The figure “3” must be in line with the indicator line.



*Illust. 21: Position of the indicator line*

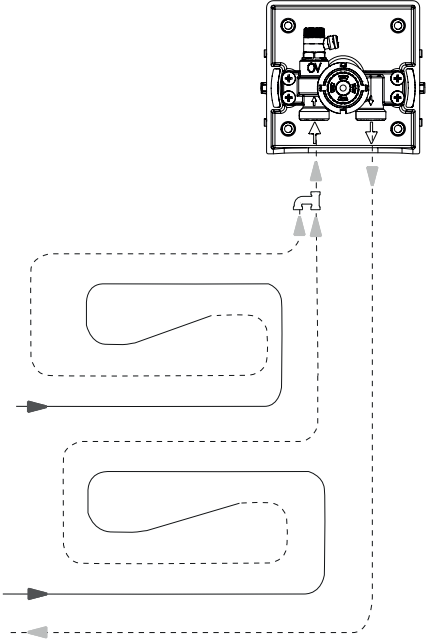
(1) Indicator line

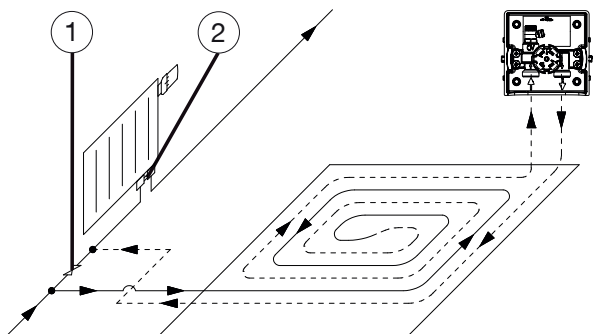
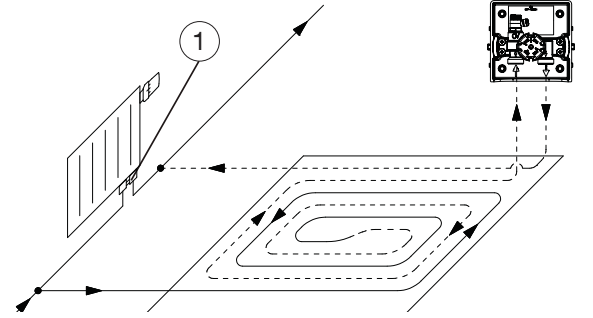
- The distance between the beginning and end of the sensor unit must be approx. 40 mm (see Illust. 22 on page 39).

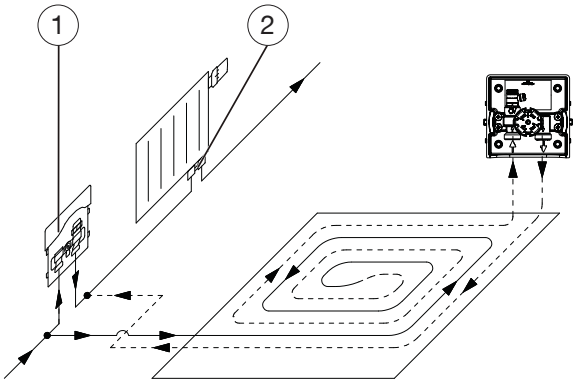


*Illust. 22: Distance between the beginning and end of the sensor unit*

## 12.5 FAQs

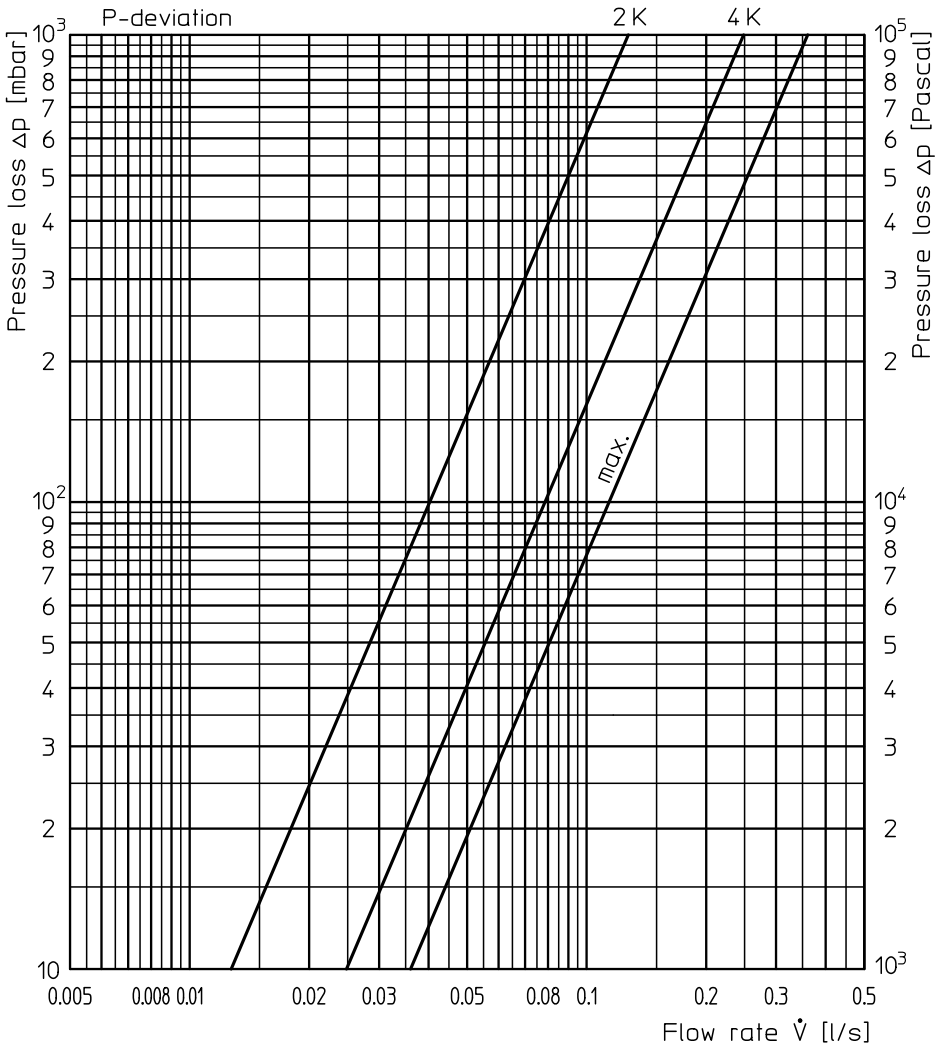
QUESTION	RESPONSE
<p>Is it possible to connect two heating circuits to one Unibox RTL?</p>	<p>Yes, use a Duo connection piece to connect two heating circuits of the same length to one Unibox RTL. Each surface temperature regulation circuit may have a maximum pipe length of 80 m, provided you use 16/17 mm pipes.</p>  <p><i>Illust. 23: Connection scheme of two heating circuits with Duo connection piece</i></p>
<p>How many m<sup>2</sup> of temperature regulation surface can be connected to the Unibox RTL?</p>	<p>You can connect a surface covering approximately 20 m<sup>2</sup> per Unibox RTL. The pipe length must not exceed 100 m when using a 17 mm pipe.</p>
<p>Can the Unibox RTL be operated with an actuator?</p>	<p>No, actuators are suitable for Uniboxes with individual room temperature control only.</p>
<p>Can the Unibox RTL be operated with a remote control?</p>	<p>No, remote controls are suitable for Uniboxes with individual room temperature control only.</p>

QUESTION	RESPONSE						
<p>Can I also use the Unibox RTL in a one pipe heating system?</p>	<p>The Unibox RTL is suitable for one pipe heating systems.</p> <p><b>Option 1:</b></p>  <p><i>Illust. 24: Connection with bypass valve and radiator fitting with bypass</i></p> <table border="1" data-bbox="431 710 1036 790"> <tr> <td>(1)</td> <td>Bypass valve</td> </tr> <tr> <td>(2)</td> <td>Radiator fitting with bypass</td> </tr> </table> <p>The volume flow and pressure loss may increase.</p> <ul style="list-style-type: none"> <li>- Observe the pressure loss of the radiator fittings.</li> <li>- Adjust the bypass valve so that a sufficient quantity of water passes through the surface temperature regulation circuit.</li> <li>- No noise must be perceivable at the radiator.</li> </ul> <p><b>Option 2:</b></p>  <p><i>Illust. 25: Connection with radiator fitting with bypass</i></p> <table border="1" data-bbox="431 1372 1036 1412"> <tr> <td>(1)</td> <td>Radiator fitting with bypass</td> </tr> </table>	(1)	Bypass valve	(2)	Radiator fitting with bypass	(1)	Radiator fitting with bypass
(1)	Bypass valve						
(2)	Radiator fitting with bypass						
(1)	Radiator fitting with bypass						

QUESTION	RESPONSE				
	<ul style="list-style-type: none"> <li>- The volume flow and pressure loss may increase.</li> <li>- Observe the pressure loss of the radiator fittings.</li> <li>- Adjust the bypass valve so that a sufficient quantity of water passes through the surface temperature regulation circuit.</li> <li>- No noise must be perceivable at the radiator.</li> </ul>				
	<p><b>Option 3:</b></p>  <p><i>Illust. 26: Connection with Unibox RLA</i></p>				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;"><b>(1)</b></td> <td>Unibox RLA</td> </tr> <tr> <td style="text-align: center;"><b>(2)</b></td> <td>Bypass valve</td> </tr> </table>	<b>(1)</b>	Unibox RLA	<b>(2)</b>	Bypass valve
<b>(1)</b>	Unibox RLA				
<b>(2)</b>	Bypass valve				
	<ul style="list-style-type: none"> <li>- The volume flow and pressure loss may increase.</li> <li>- Observe the pressure loss of the radiator fittings</li> <li>- Adjust the bypass valve of the Unibox RLA so that a sufficient quantity of water passes through the surface temperature regulation circuit.</li> <li>- No noise must be perceivable at the radiator.</li> </ul>				



### 12.6 Flow chart



## **13. Glossary**

### **Bypass valve**

A bypass valve is an isolating or throttling valve that is used to bypass another component. The bypass valve is installed in a pipe that bypasses the other component. Installation of this valve pursues different objectives:

- Setting of a required flow rate

### **One pipe heating system**

In a one pipe heating system, hot water passes through one radiator after the other.

### **Two pipe heating system**

In a two pipe heating system, hot water passes through the radiators via separate supply and return pipes.

### **Remote control**

Thermostats with remote control are particularly suitable if the control device is difficult to access.

### **Heating circuit**

A heating circuit refers to the hot water cycle in a heating system. (Here, it refers to a surface temperature regulation)

### **Radiator**

The heat is emitted via radiators.