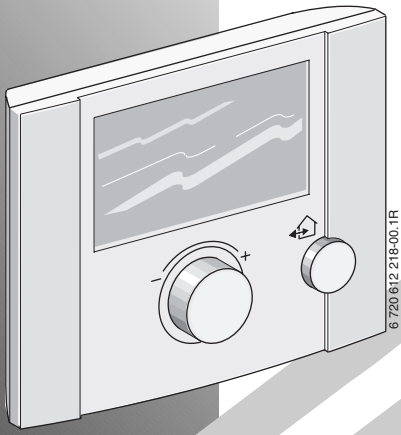
RT 10

ROOM TEMPERATURE CONTROLLER

FOR WORCESTER HEATING APPLIANCES
WITH BUS-ENABLED HEATRONIC 3 AND TD 200



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INSTALLATION, USER INSTRUCTIONS & CUSTOMER CARE GUIDE

WORCESTER
Bosch Group

Dear customer,

Congratulations on having decided in favour of a top-quality product from our company.

The ***RT 10*** offers everything you can expect from a modern heating control: It is both reliable and energy saving.

Like all Bosch Group products, the ***RT 10*** has been produced and tested according to the most stringent quality standards so that you can enjoy the ***WORCESTER*** warmth for a long time to come.

Contents

Safety precautions

- These instructions must be observed to ensure correct operation.
- The accessories should be installed by an authorised heating installer only.
- Only use these accessories in conjunction with the heating appliances listed. Observe connection diagram!
- Never connect this accessory item to the 230 V mains electricity supply.
- Before assembling these accessories:
  Interrupt voltage supply (230 V AC) to the heating appliance and all additional devices using the bus.
- Do not install this accessory in damp areas.

Symbols

Safety instructions in this document are identified by a warning-triangle symbol and are printed on a grey background.

Signal words indicate the seriousness of the hazard in terms of the consequences of not following the safety instructions.

- **Caution** indicates that minor damage to property could result.
- **Warning** indicates that minor personal injury or serious damage to property could result.
- **Danger** indicates that serious personal injury could result. In particularly serious cases, lives could be at risk

Notes are identified by the symbol shown on the left. They are bordered by horizontal lines above and below the text.

Notes contain important information in cases where there is no risk of personal injury or damage to property.

1 Technical data for the accessory item

Only use the RT 10 in heating systems with bus-enabled Heatronic 3 in the heating appliance and TD 200.

The RT 10 allows the control of the room temperature of an unmixed heating circuit.

1.1 Standard package

Room temperature controller RT 10

1.2 Technical data

Dimensions	Figure 1, page 7
Nominal voltage bus supply	10...24 V DC 15 V DC
Mains supply	≤ 3.5 mA
Controller output	Bus
Control range	approx. 5...30 °C in 0.5 K increments
permissible ambient temperature	0... +50 °C
Class of protection	III
Type of protection	IP20
	CE

1.3 Accessories

Text display TD 200

1.4 Description of function

- The integrated temperature sensor indicates the **current room temperature** to the TD 200. The current room temperature is shown on the display.
- If Automatic mode is active on the TD 200, it is possible via the RT 10 to set the **required room temperature** restricted to a certain time (see Chapter 3.1 on page 11)
- If Automatic mode is active on the TD 200, the next switching time and associated operating mode can be advanced to the current time (**Advance Heating**) (see Chapter 3.2 on page 11).

Optimum Start

This function on the TD 200 can be switched on and off and is only activated when in Automatic mode. The RT 10 must display **auto**.

Optimum Start delays the heating start after an economy phase.
To ensure that the required room temperature is reached approx. 1 hour after the programmed switching time **High** ☼, the TD 200 calculates the optimum time point for the heating start.

Example:

- desired room temperature: 21 °C
- current room temperature: 16 °C
- Factor for room heating: 1 K in 10 minutes

To reach the desired room temperature, the heating requires 50 minutes on account of the 5 K difference. Therefore, the heating starts only 10 minutes after **High** ☼ the programmed switching time.

2 Installation

Danger:
risk of electric shock!

- Before installing these accessories: Interrupt voltage supply (230 V AC) to the heating appliance and all additional devices using the bus.

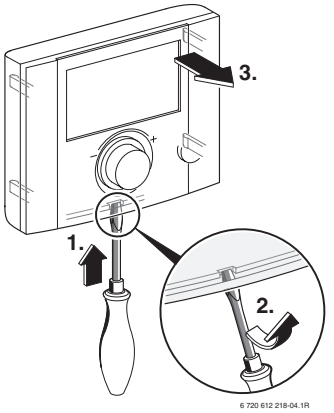

Fig. 2 Remove front casing

2.1 Assembly

The control quality of the RT 10 depends on the installation location.

The installation location must be suitable for controlling the entire heating system.

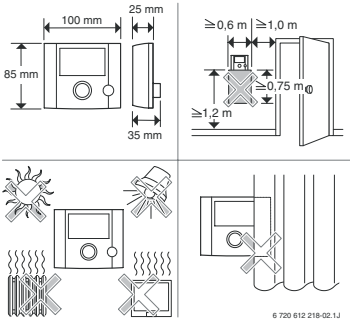

Fig. 1 Select installation location

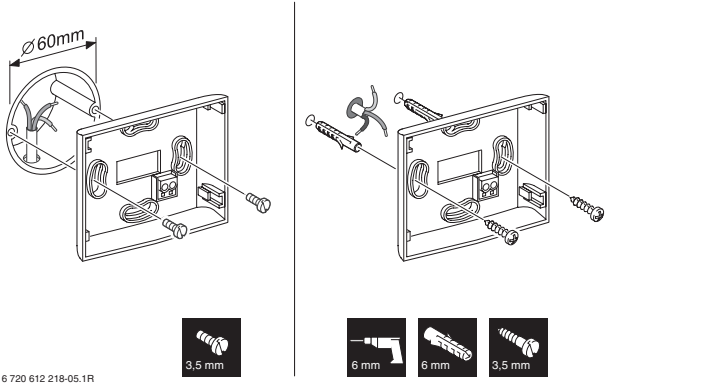

Fig. 3 Fasten base plate to the wall

- Make all electrical connections (see Fig. 4).
- Replace front cover.

2.2 Electrical connections

- Bus connection from the RT 10 to additional devices using the bus (e. g. TD 200):
  Use electrical cables corresponding to type H05 VV-... (NYM-I...) minimum.

Permissible cable lengths from the bus-enabled Heatronic 3 circuit board to RT 10:

Cable length	Cross section
≤ 80 m	0.40 mm^2
≤ 100 m	0.50 mm^2
≤ 150 m	0.75 mm^2
≤ 200 m	1.00 mm^2
≤ 300 m	1.50 mm^2

- To avoid inductive influences, separate all leads carrying low voltage from lines of 230 V or 400 V (minimum spacing 100 mm).
- Shield the cables in the case of external inductive influences.
  This ensures that the leads are shielded against external influences (e.g. heavy current cables, overhead contact wires, transformer stations, radio and television appliances, amateur radio stations, microwave appliances etc).

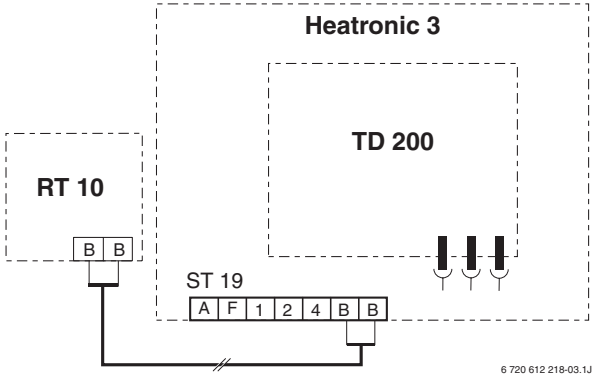

Fig. 4 Connect RT 10 to the bus-enabled Heatronic 3.

3 Operation

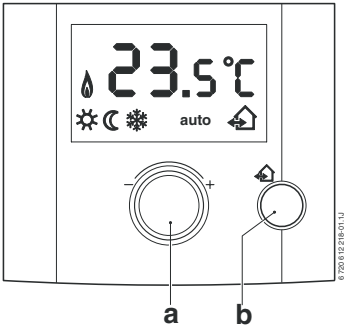

Fig. 5

Operating elements	
a	Selection knob ⁻◯⁺ : Change the required room temperature until the next switching time of the heating program
b	Button : Advances the next switching time and the associated operating mode ☼ = **High** ☾ = **Low** ❄ = **Frost** to the current time

Operating elements	
Symbols	
23.5°C	Current room temperature
☼	High
☾	Low
❄	Frost
auto	Automatic mode
	Next switching time and associated operating mode ☼ = **High** ☾ = **Low** ❄ = **Frost** advanced to the current time
	Burner on symbol

Set the flow temperature controller on the heating appliance to the maximum inlet temperature required.

3.1 Change required room temperature, time limited (a)

If the RT 10 displays **auto**:

- Use the selection button to change the **required room temperature** for the current operating mode ☼ / ☾ / ❄ between 5.0°C ... 30°C.
  The required room temperature is briefly displayed flashing in the display instead of the current room temperature. The change to the required room temperature remains active until the next switching time of the heating program. After this the room temperature for the corresponding operating mode programmed on the TD 200 applies again.
  If the RT 10 calls for heat, the boiler operates until the set room temperature is reached.

If instead of the required room temperature **--** is displayed, the room temperature cannot be changed.

3.2 Advance the next switching time and the associated operating mode to the current time (b) ⌂ (Advance Heating)

This function is for use in case of unexpected heating demands.

If the RT 10 displays Automatic mode **auto**:

- Press the ⌂ button to advance the next switching time and the associated operating mode
  ☼ = **High**
  ☾ = **Low**
  ❄ = **Frost**
  to the current time.
  ⌂ is shown on the display and the corresponding symbol also appears to indicate the change of operating mode ☼ / ☾ / ❄.

If two lines **--** are displayed instead of ⌂, the function is not available.

3.3 Frost protection

3.3.1 Room frost protection

If the temperature in the room drops below 5°C, the heating is switched on. To maintain a minimum 5°C room temperature, the heating is switched on and off as appropiate.

3.3.2 Frost operating mode ❄

The TD 200 enables the room temperature for the **Frost** ❄ operating mode to be set from 5°C to 30°C. With the default setting the room temperature for the room in which the RT 10 is mounted is 7 °C.

3.4 Further operation and features

Additional operating options and functions are described in the TD 200 and the boiler literature. Please refer to the corresponding operating instructions.

4 General information

... Notes on saving energy:

- The temperature in the room where the RT 10 is installed acts as a guide parameter for the entire heating network. As a result, the power of the radiators must be set as low as possible, using thermostatic radiator valves.
- Control the temperature in the adjoining rooms via thermostatic radiator valves.
- Heat from other sources in the room (e.g. sunshine etc.) can lead to the heating in the adjoining rooms remaining too low.
- A significant amount of energy can be saved by lowering the room temperature. A reduction in temperature by 1 K (°C) can result in up to 5 % energy saving.
- Good thermal insulation of the building: The set low temperature level is not reached. Energy is therefore saved, as the heating remains switched off.
- Do not keep windows open on vent setting to ventilate. This would continuously cool down the room without significantly improving the air in the room.
- Ventilate fully for a short time (completely open windows).
- Turn the thermostatic valve during ventilation or switch to low setting.

5 Troubleshooting

In the event of a fault in the heating appliance, the display will show e.g. **A7 E**.
In the event of a fault in the RT 10, the display will show e.g. **1A4 E**.
Here the figure **1** stands for a fault in the RT 10 and the letter **E** for Error (= fault):

- ▶ Contact a heating expert.

Display	Cause	Remedy by an expert
1A4 E	Temperature sensor in the RT 10 defective.	Replace RT 10.
1A8 E	TD 200 using the bus no longer responds.	Check bus connection and, if necessary, rectify interruption.
	Heating appliance using the bus no longer responds.	Check bus connection and, if necessary, rectify interruption.
e.g.: **A7 E** **...**	Error display for the heating appliance.	Rectify the fault in accordance with the heating appliance documentation.

Complaint	Cause	Remedy
Required temperature not reached	Thermostatic valve(s) in the room set to low	Open the thermostatic valve(s).
	Flow temperature controller on the heating appliance set too low	Set flow temperature controller higher.
	Air lock in the heating system	Vent radiator and heating system.
Required room temperature is greatly exceeded	Installation location of the RT 10 not suitable, e.g. outer wall, proximity to window, draught, ...	Choose a better installation location (see Chapter 2.1) and have the RT 10 moved by a professional.
Excessive room temperature fluctuations	Temporary effect of heat from other sources on the room, e.g. from sunshine, room lighting, TV, fireplace etc.	Choose a better installation location (see Chapter 2.1) and have the RT 10 moved by a professional.
Temperature rise instead of fall	Time of day set incorrectly on the TD 200	Check setting.
Room temperature too high in low mode	Building has high degree of heat storage	Select low mode earlier.
Incorrect or no control	Bus connection defective for the devices using the bus	Have the bus connection checked and, if necessary, rectified by a professional according to the connection diagram.

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