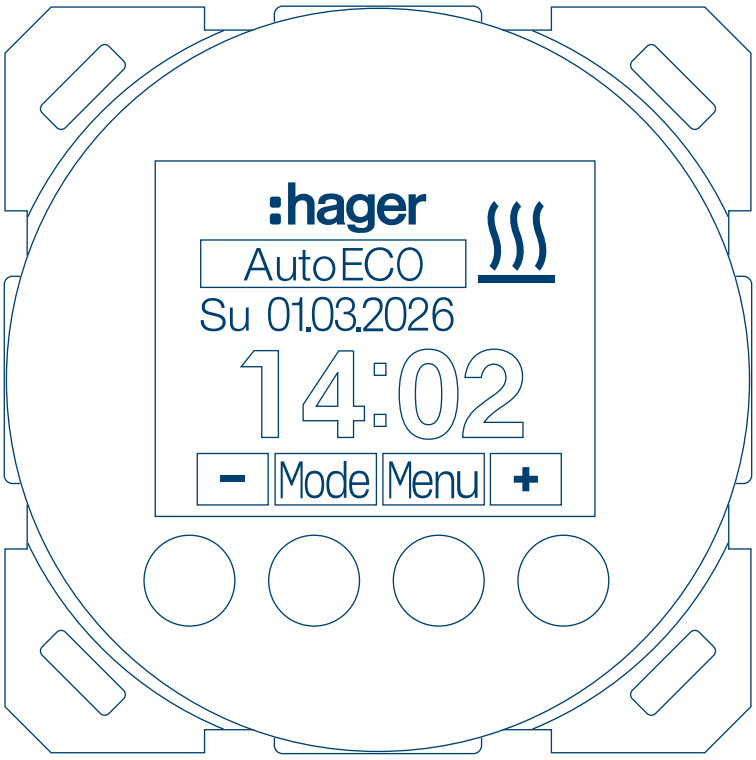
Operating and assembly instructions

Switches and systems

Thermostat



Room thermostat with display, time-controlled, with NO contact

WLN5046xx

CE

:hager

DE
FR
EN
IT
NL
SV
ES
PL
PT

1 Safety instructions

Electrical devices may only be installed and assembled by a qualified electrician in accordance with the relevant installation standards, guidelines, regulations, directives, and safety and accident prevention regulations of the country of installation.

Failure to comply with these installation instructions may result in damage to the device, fire or other dangers.

2 Design and layout of the device

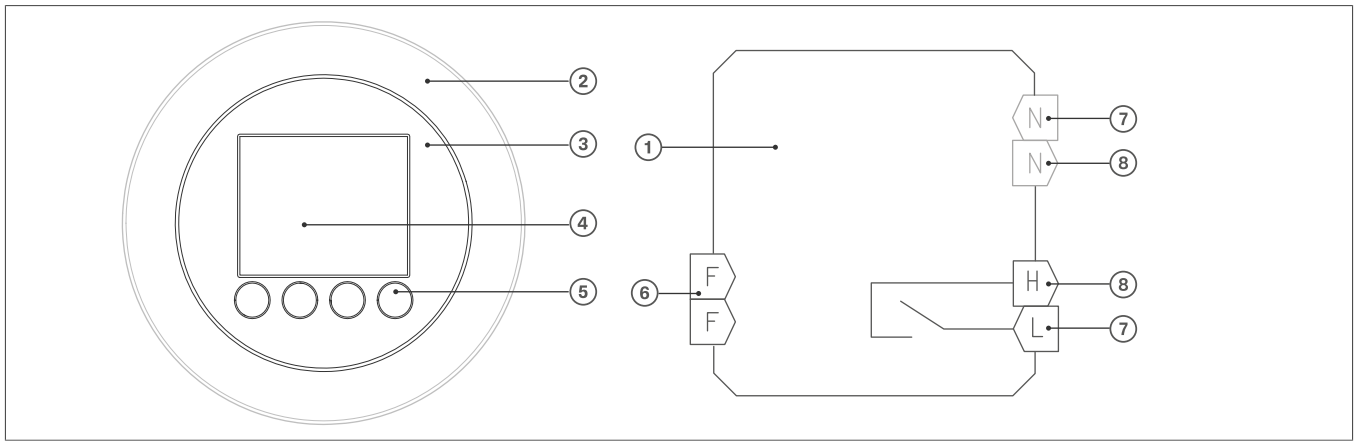


Fig. 1: Design and layout of the device

1. Thermostat insert
2. Frame (not in scope of delivery)
3. Centre piece
4. Display
5. Touch sensitive surfaces
6. Connection of external temperature sensor
7. Connection power supply
8. Connection for heating load

2.1 Dimensions

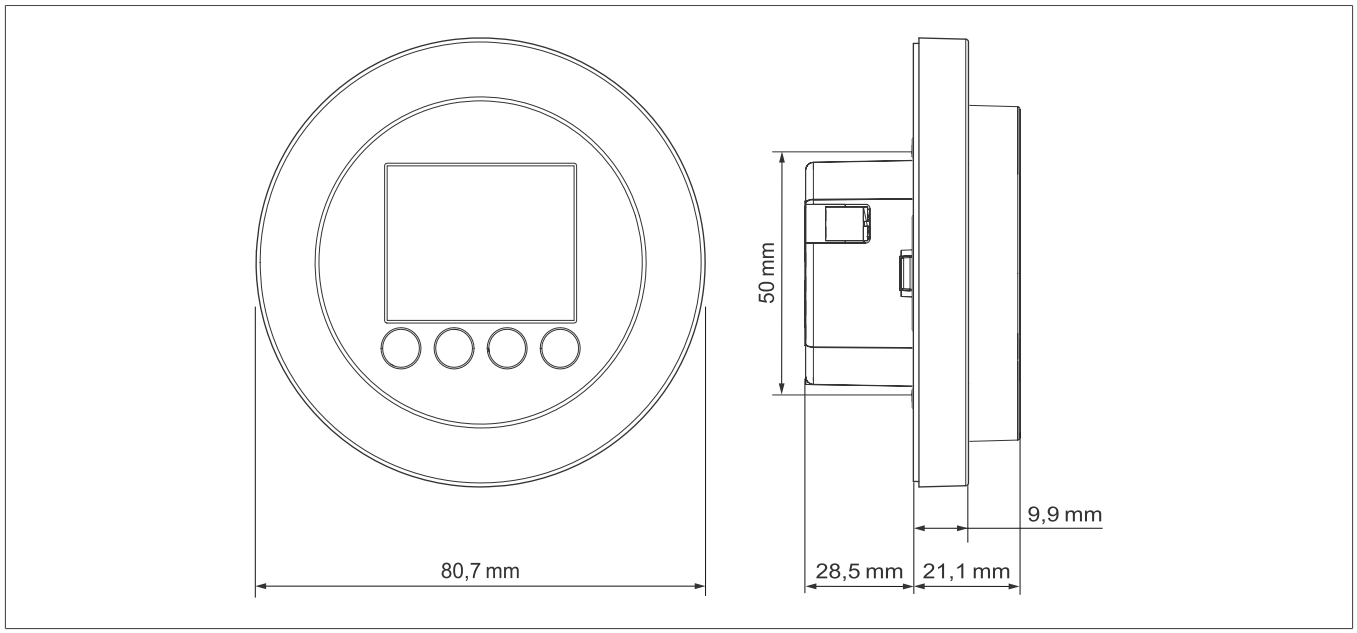


Fig. 2: Dimensions

3 Function

This flush-mounted thermostat is used either for single-room time-controlled heating or floor temperature control for electric and hot water heating systems (closed valve actuators without current). The device can be used as a room temperature controller, with an optional remote sensor, as a room temperature controller with floor monitoring or as a floor temperature controller.

3.1 Intended use

- For time-controlled room temperature control in indoor locations
- With the optional external temperature sensor (NTC), it can also be used for floor temperature control/monitoring
- Suitable for the Serie 1930/R.classic switch ranges
- Only suitable for indoor applications
- Installation in wall box according to DIN 49073 (deep box recommended)

4 Operation

The device has four touch sensitive surfaces, which are identified by the embossed symbols ○. Their function can change depending on the mode of operation and is shown in the display above the symbols ○. The device features a protection function that prevents unintentional actuation of the touch surfaces. The function is activated 20 seconds after pressing a touch surface and is deactivated again by pressing any touch surface for approximately 2 seconds.

4.1 Regular operation

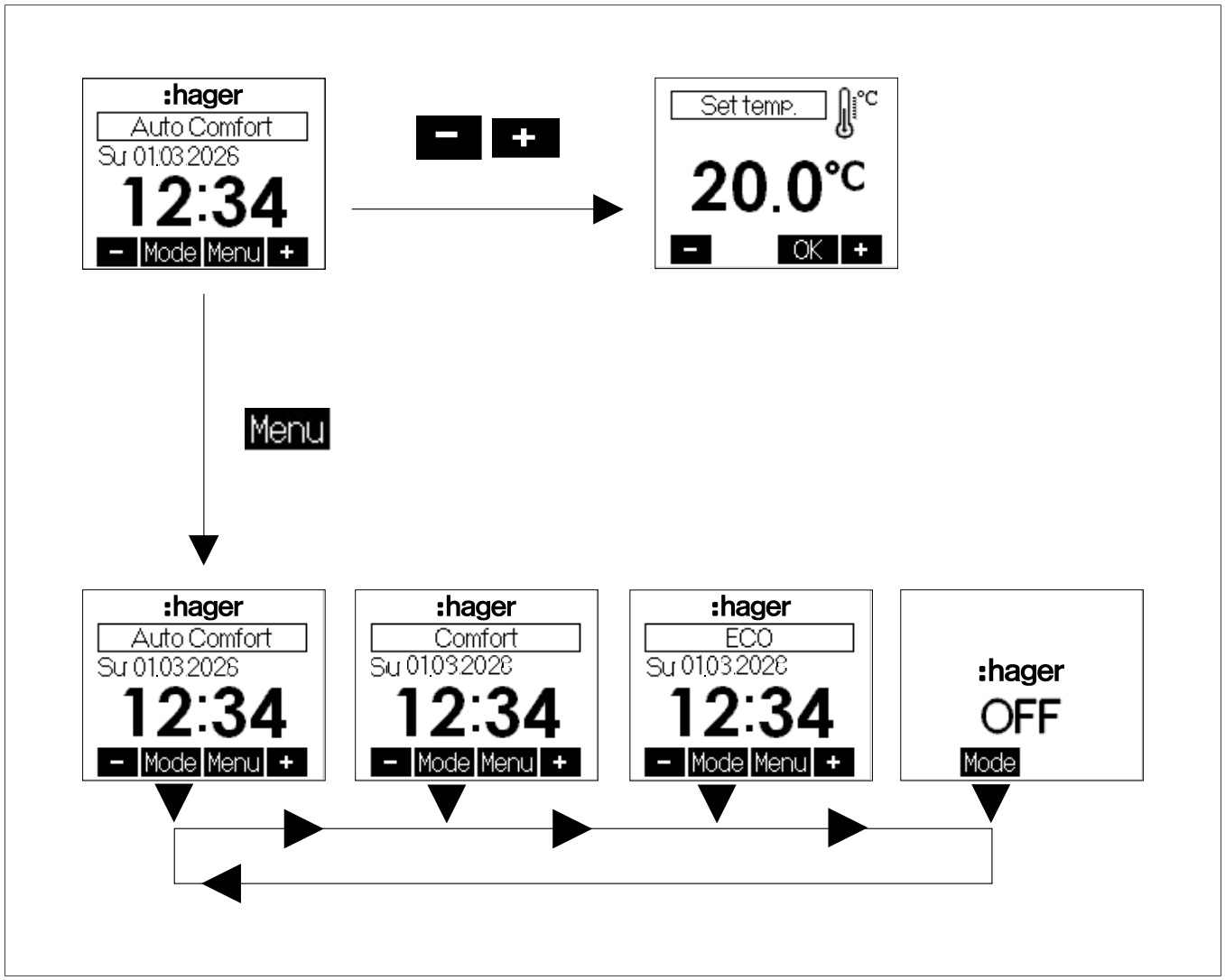


Fig. 3: Regular operation

− +	Setting a temporary set temperature (+/- 0.5 K)
Menu	Main menu
Mode	Select the operating mode
OK	Apply the values/return to standard operation

Temporarily changing the set temperature

After approx. 5 seconds without any action, the system automatically returns to normal operation. The changed temperature value is applied. The set temperature value applies until the operating mode is changed (manually or automatically based on the time switch), the holiday or party function is started/ended or the expert menu is accessed.

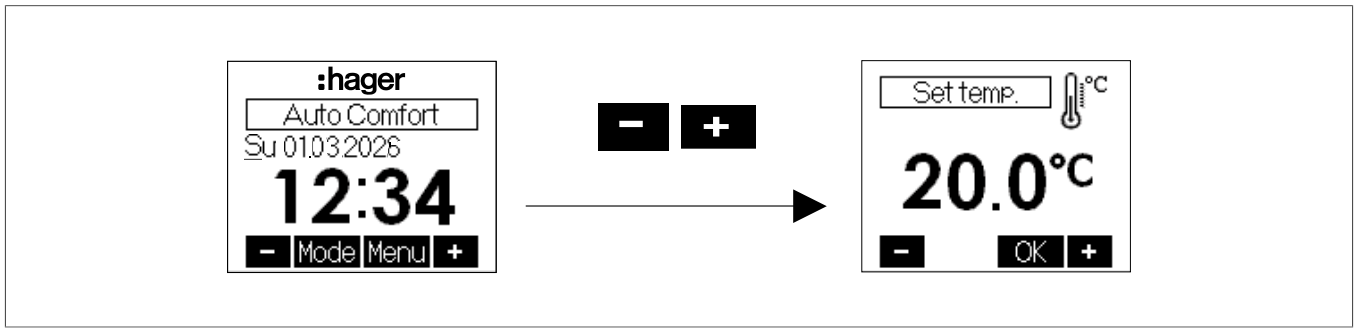


Fig. 4: Temporarily changing the set temperature

Selecting the operating mode

Actuating the Mode touch surface changes the operating mode:

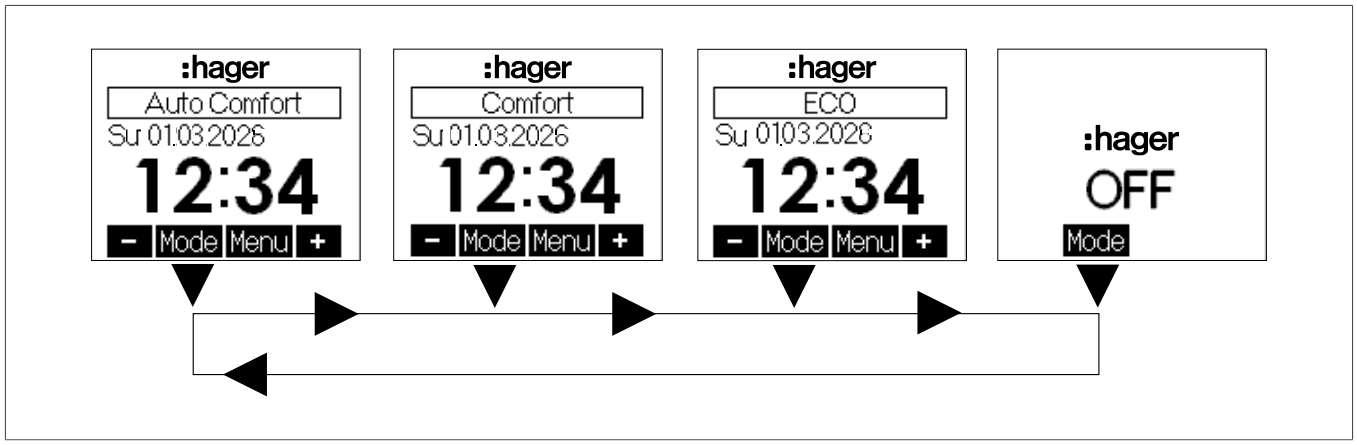


Fig. 5: Selecting the operating mode

- **Automatic**: automated control according to the set daily program (Entering daily programs)
- **Comfort**: permanent control at Comfort temperature (Configuring the setpoint temperature for each operating mode)
- **ECO:** permanent control at ECO temperature (Configuring the setpoint temperature for each operating mode)
- **OFF:** Frost protection

In **OFF** operating mode, when the temperature falls below approx. 5°C, the frost-protection function is triggered and the heating is activated. The heating symbol is displayed and the lamp lights up red. Once the temperature exceeds approx. 6°C, the controller is switched off again. This frost-protection function prevents frost damage caused by the room cooling down.

4.2 Main menu

4.2.1 Navigation in the main menu

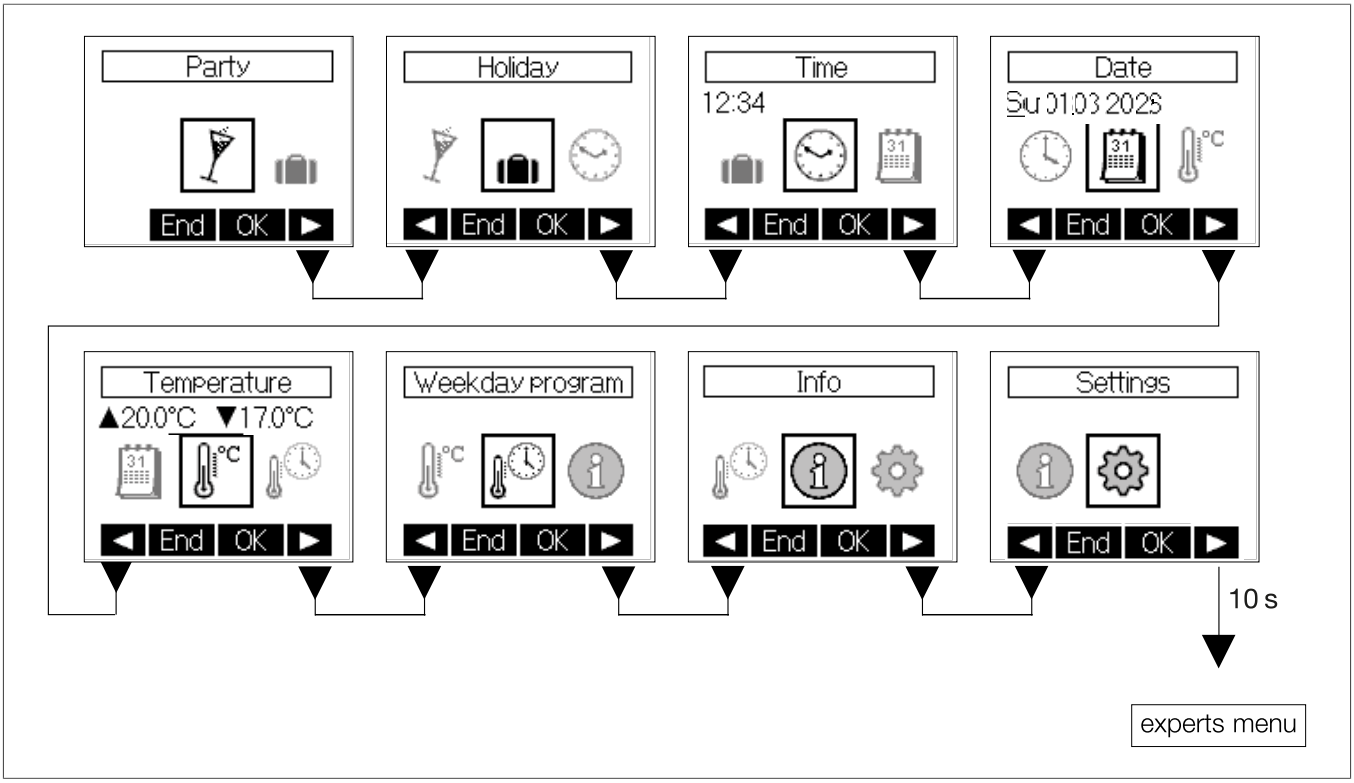


Fig. 6: Structure of the main menu

The touch surface Menu opens the main menu, where you can navigate through the sub-menus with ◄ ►.

- Party
- Holiday
- Time
- Date
- Temperature
- Daily program
- Information
- Open the Expert menu

The displayed submenu is selected using the OK button.
The main menu is closed using the End button.

4.2.2 Configuration

Setting party function

Activate this function, for example, to postpone the transition to the reduced night time temperature setpoint when the room remains occupied longer than usual, thereby maintaining the comfort temperature for an extended period (Comfort Extension).

Fig. 7: Comfort extension (Party function)

− +	Party duration +/- 15 minutes
Ende	Cancel entry/return to the main menu
OK	Starting the party function

☑ **Party** is selected via the main menu.

1. Confirm the selection with the OK touch surface. Party function starts.
2. Use − + to set the duration for the party function in 15-minute increments.
3. Confirm the selection with the OK touch surface.

   The controller maintains the Comfort temperature for the duration of the party function. When the set time is reached, the controller automatically changes back to the previous operating mode.

Or:

4. Actuate the Ende touch surface to end party function early.

Activate absence mode (holiday)

In Absence mode **(Holiday)**, the room's setpoint temperature can be lowered for the defined absence period to reduce energy consumption while preventing the room from cooling down excessively.

Fig. 8: Absence mode (holiday)

− +	Start of holiday month, day +/- 1
Ende	Cancel entry/return to the main menu
OK	Change to start of holiday day

☑ **Holiday** is selected in the main menu.

1. Confirm the selection with the OK touch surface. The display changes to **Holiday from** and **Month**.
2. Use − + to specify the month in which holiday mode should start; the value changes in one-month increments.
3. Confirm your selection by pressing OK.

   The display changes to **Day** for the start of the holiday, which can be set using − +.
4. In the **Holiday** display, set the **Month** and **Day** for the end of Holiday mode using the same procedure.
5. Finally, use − + to set the desired room temperature during the absence; the factory setting for this temperature is 17°C. Apply the value by pressing OK.

To discard or prematurely cancel the set absence, press Ende in the **Holiday** menu.

Setting the date and time

The **Time** and **Date** settings must be made manually.

Fig. 9: Time/date setting

− +	Hour, minute +/- 1
Ende	Cancel entry/return to the main menu
OK	Change to minute value

☑ **Time** is selected in the main menu.

1. Confirm the selection with the OK touch surface. The **Hour** display is visible.
2. Select the current hour by pressing − +; the value changes in one-hour increments.
3. Confirm your selection by pressing OK.

   The display changes to **Minute**.
4. Set the current **Minute** in the same way and apply it with OK. The display returns to the main menu. The seconds are set to **0**. The **date (year, month, day)** must be set in the same way.

Configuring the setpoint temperature for each operating mode

Setpoint temperatures must be configured both for high **Comfort** and energy-saving heating in **ECO** mode.

Note

When operating as a floor thermostat, the desired floor temperature is set, and when operating as a room temperature controller, the desired room temperature is set. A Comfort temperature of 20°C and an ECO temperature of 17°C are preset as per factory settings

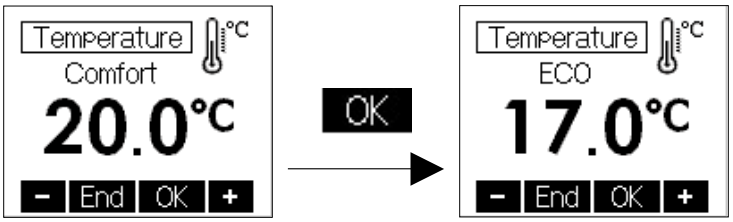


Fig. 10: Comfort/ECO temperature

− +	Comfort/ECO temperature +/- 0.5 K.
Ende	Cancel entry/return to the main menu
OK	Apply the value/change to ECO temperature value, return to the main menu

☑ **Temperature** is selected in the main menu.

1. Confirm the selection with the OK touch surface. The **Comfort** indicator is visible.
2. Use **+/-** to select the desired temperature in Comfort mode; the value changes in 0.5-K increments.
3. Confirm your selection by pressing OK.

   The display changes to **ECO**.
4. In the same way, set the temperature for **ECO** mode and use OK to apply the value. The view changes back to the main menu.

Note

The maximum ECO temperature that can be set is 1 K lower than the Comfort temperature.

Entering daily programs

In the daily program, we define at which times the controller sets the temperature to the **Comfort** temperature and at which times it sets the temperature to the **ECO** temperature for each day of the week.

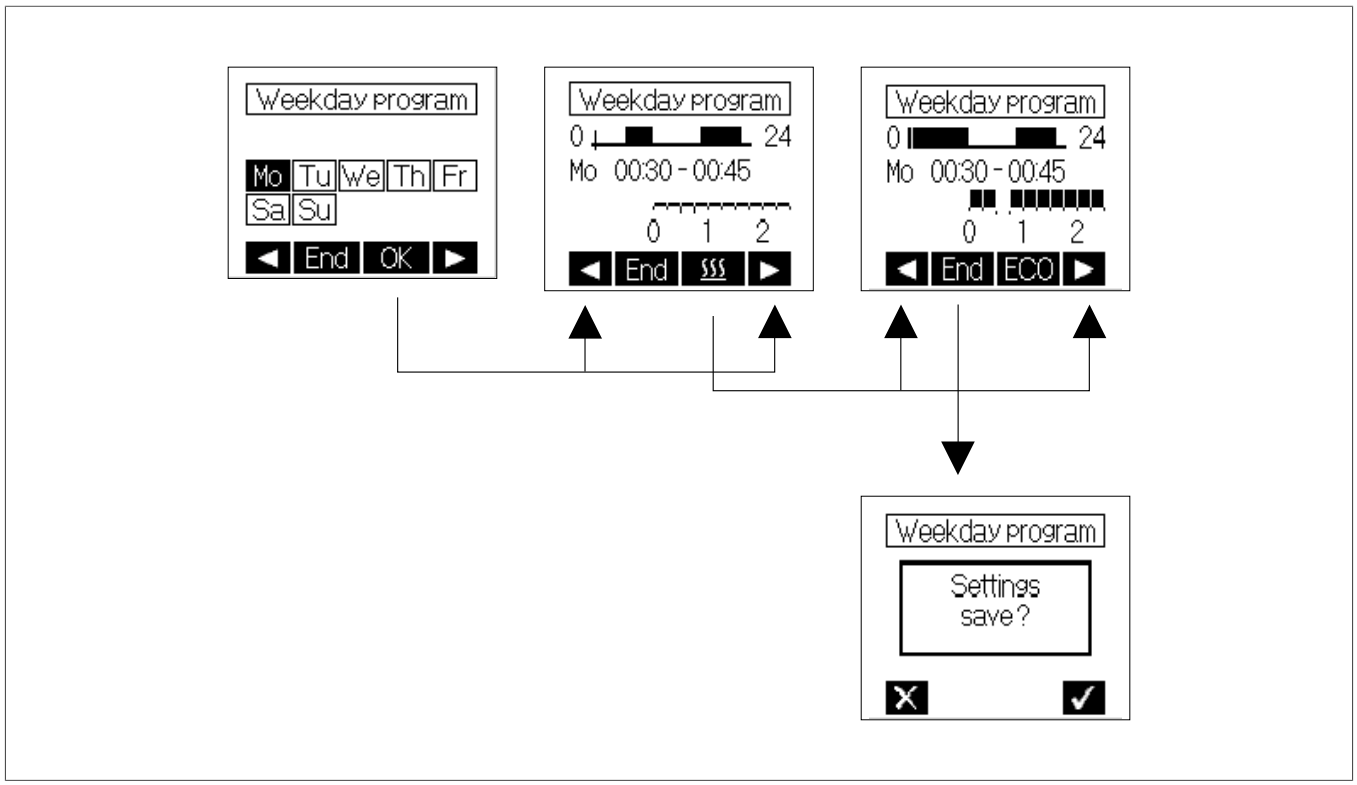


Fig. 11: Settings for daily program

◄ ►	Position +/- 15 minutes
End	Return to the day of the week selection, change to confirm the entries
ECO	Change to Comfort or ECO periods
OK	Apply the values/return to standard operation
✓	Save the value, change to the menu to copy the value for other days of the week
✗	Cancel the value, return to the weekday selection

☑ **Daily program** is selected in the main menu.

1. Confirm the selection with the OK touch surface. The display shows the individual days of the week.
2. Use ◄ ► to select the day of the week, e.g. **Mo** for Monday.
3. Confirm your selection by pressing OK.

   The display changes to enter the Comfort and ECO periods.
4. For the selected day of the week, select the start time using ◄ ►; the value changes in 15-minute increments.
5. Use the ECO touch sufaces to change between both periods.

   The period shown in the display is currently being set.

6. Actuate the Ende touch surface to end the party function early. Press ✓ to save the settings. The display changes to copy the daily program to other days.
   Or press ✗ to cancel the process without saving.

Note

By default, the Comfort periods are preset 06.00...09.00 and 16.00...22.00 from Monday to Friday and from 06.00...22.00 on Saturday and Sunday.

Applying the daily program to other days of the week

The settings for a daily program can be conveniently applied to other days of the week.

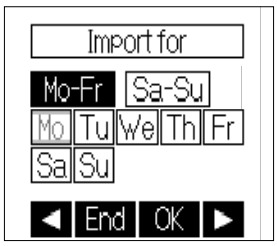


Fig. 12: Applying a daily program to other days of the week

− +	Select the previous/next option
Ende	No value is applied /returns to the weekday selection screen.
OK	Apply the value for the selected day(s) of the week

☑ The display shows **Apply for**.

1. Use ◀ ▶ to select all working days from Monday to Friday, the weekend days Saturday and Sunday, or each day of the week individually.
2. Confirm the entered value for the selected additional weekdays using OK.

Information

Fig. 13: General information

☑ **Information** is selected in the main menu.

1. Confirm the selection with the **OK** touch surface.
   The display shows general information about the room thermostat.
2. Press **OK** to return to the main menu.

4.3 Settings

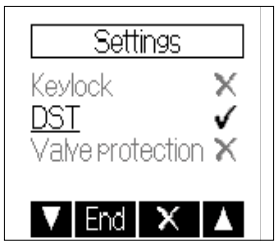


Fig. 14: Sets the functions

▼▲ Move selection up/down

Ende Cancel entry, return to the main menu

✓✕ Activate/deactivate the selected function

☑ **Settings** is selected in the main menu.

1. Confirm the selection with the OK touch surface.
   The display lists the individual device functions.
2. Use ▼▲ to select the function to be set.
3. Activate/deactivate the function using ✓/✕.
4. Press Ende to cancel the entry and return to the main menu.

The functions described below are available.

Keylock

The keylock becomes active approximately two minutes after the last touch of a touch surface. The key symbol is visible on the display. To re-activate the touch suface, press any touch surface for approximately 10 seconds.

Factory setting: **Off**

Automatic summer/winter time switching

The unified summer time in the European Union applies from the last Sunday of March at 2.00 CET until the last Sunday of October at 3.00 CET (Directive 2000/84/EC of the European Parliament and of the Council). At these times, the room thermostat automatically changes the time. For time changes on other dates or for regions without daylight savings time, automatic summer/winter time switching must be deactivated.

Factory setting: **On**

Valve protection function

The valve and pump protection prevents the valve seat and/or the pumps from seizing due to corrosion during extended periods of inactivity. Activating valve protection is recommended for hot-water heating systems. If valve and pump protection is activated, the controller actuates the valve and/or a circulation pump once for 5 minutes at 11.00 on Mondays. Valve and pump protection will only become active if the heating has not been activated within the last week. This avoids unnecessary additional heating during the heating season. The control remains unaffected.

Factory setting: **Off**

Learning function

The learning function is used to independently reach the Comfort temperature at the set time. The early change-over time from **ECO** to **Comfort** temperature is set automatically and varies depending on the heating output and outside temperature.

Factory setting: **Off**

Display lighting

The duration of the display lighting can be adjusted in the following stages:

1. During operation and approx. 10 seconds after the last action on a touch surface
2. In addition, during Comfort periods and while Party function is active
3. Permanent lighting

Factory setting: **During operation and approx. 10 seconds after the last action on a touch surface**

Display content

When configured as a floor thermostat, only the time display is active. If the controller is not configured as a floor thermostat, the following display content can be selected:

- Time
- Temperatures
- Time & temperatures alternating

Factory setting: **Time & temperatures alternating**

5 Expert menu

The expert menu is accessed in the main menu under **Settings**(Settings) by touching the right-hand touch surface for approx. 10 seconds.

For experts only

This menu describes controller settings that may only be carried out by a qualified heating engineer or electrician. Settings in expert mode are not reset by the reset function, but must be intentionally configured.

Parameter	Values
Controller type	– Room temperature controller (room) – Room temperature controller with floor monitoring (room + floor) – Floor thermostat (floor)
Languages	– German – English – French – Dutch – Czech – Russian
Measurement correction (temperature offset)	Individually adjustable for each sensor, if configured, between - 5 K...+ 5 K in 0.1-K increments Display: current, uncorrected value Factory setting: 0.0
Reset	All settings outside of the Expert menu, except time and date, are reset to the as-delivered state.
Maximum temperature	Only available for floor temperature monitoring/control to prevent damage to the floor due to excessive temperatures. Floor sensor temperature setting: 15...42°C Factory setting: 42 °C
Load value	For the two types of room temperature control only: To compensate for the self-heating of the controller, enter the power consumption of the connected load (heating load in kW): 0.1 ... 2.3 kW For intermediate values, set the lower value. When activating heating valves, their low power must be disregarded. The factory setting of **0.1** kW remains unchanged.
Control procedure	For the two types of room temperature control only: – PI PWM procedure: proportional/integral, recommended for hot water and underfloor heating – 2-point control Hysteresis, recommended for direct electric and storage heaters Factory setting: 2-point
External sensor	For floor temperature monitoring/control only: Connectable temperature sensor (NTC) with resistance value at 25°C of 2 kΩ, 12 kΩ, 15 kΩ or 33 kΩ. The temperature sensor used must be selected here. Factory setting: 2 kΩ

Emergency mode

If the internal or external sensor is defective, or if the external sensor is not connected when setting controller types **Room temperature controller with floor monitoring** or **Floor thermostat**, the device switches to emergency mode. This is indicated on the display by an error message and a red flashing light. During emergency mode, a fixed switch-on time of 30% is maintained (3 minutes on and 7 minutes off) to prevent cooling or frost damage.

6 Information for qualified electricians

6.1 Installation and electrical connection

Selecting the location for installation

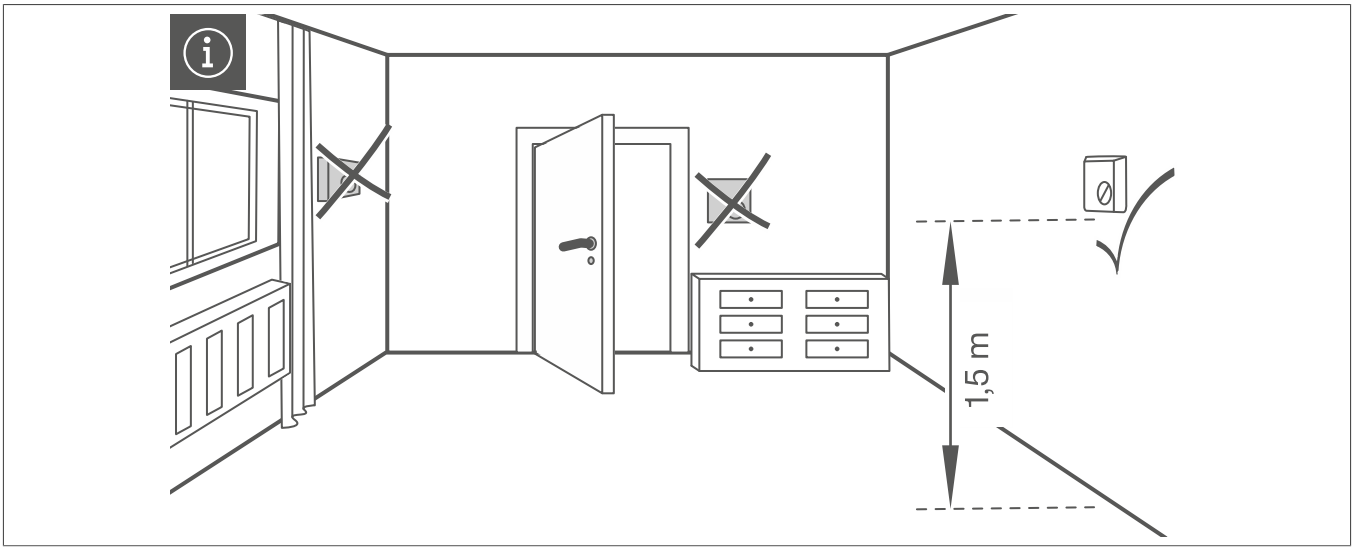


Fig. 15: Optimum location for installation

- The heated room air should reach the controller without hindrance. Do not mount the controller within shelving units or behind curtains and similar coverings.
- Extraneous heat affects the control accuracy. Avoid direct sunlight and do not install near televisions, radios and heating appliances, lamps, chimneys and heating pipes.
- Avoid mounting in combination with dimmers. If necessary, maintain the greatest possible distance between the two devices. In the case of an arrangement one above the other, the controller must be arranged below the dimmer.
- Avoid drafts near windows and doors at the installation location.
- When mounting the device in hollow walls, ensure that the controller is not exposed to any outside heating or cooling from air draughts or rising cables, also on the rear side.
- An inside wall opposite the heating source is the preferred installation location.
- Optimal installation height approx. 1.5 m above the floor.

Note

Avoid mounting in combination with dimmers. If necessary, maintain the greatest possible distance between the two devices. In the case of an arrangement one above the other, the controller must be arranged below the dimmer.

In multiple-gang combinations, mount the controller as far as possible and below a dimmer.

Note

Do not exceed an approved relative humidity of max. 95%. Avoid condensation.

Connection and installation of the device

Danger

Electric shock when live parts are touched!

An electric shock can lead to death!

- Disconnect all connection cables before working on the device and cover any live parts in the area!

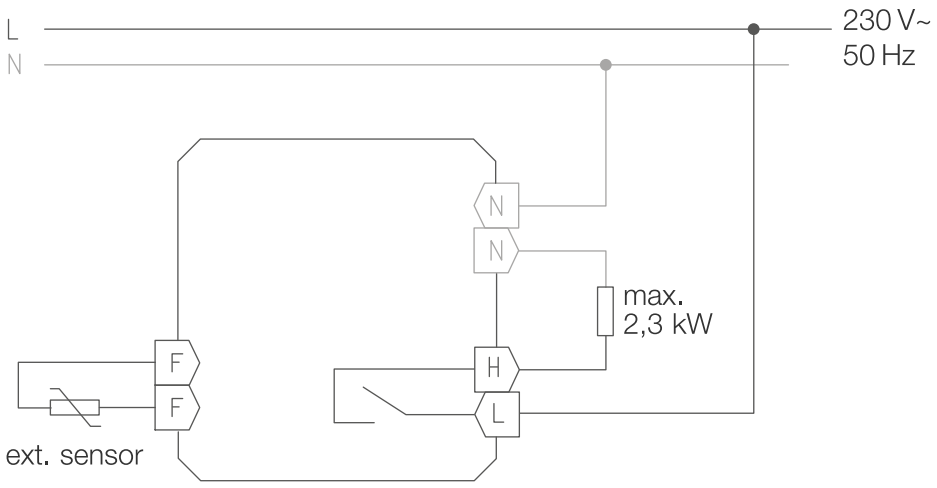


Fig. 16: Connection diagram

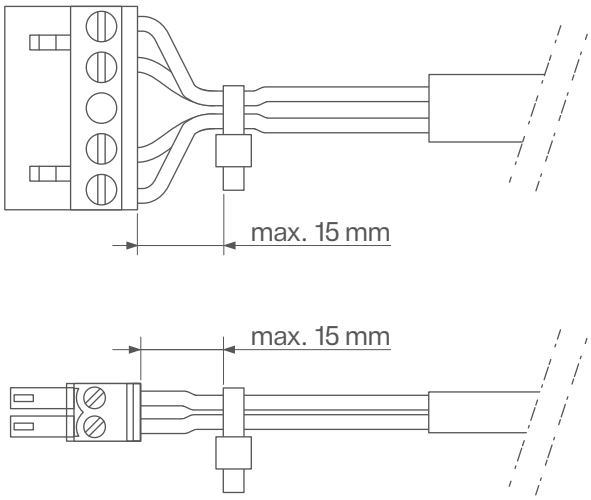


Fig. 17: Terminal block for power supply (top), temperature sensor/SELV (bottom)

☑ The flush-mounted or hollow-wall box is installed in the wall and plastered in.

1. Connect the room thermostat according to the connection diagram (Fig. 16). To do this, prewire the connection cables with the two screw terminal blocks (Fig. 17).

Note

The individual wires for the power supply and the external sensor must each be secured with a cable tie a maximum of 15 mm in front of the terminal blocks.

2. For wall-box installation, connect the terminal blocks to the insert.
3. Position the centre piece (3) correctly over the cover frame (2) and attach it to the insert (1).

Serie 1930/R.classic

For use with Serie 1930/R.classic cover frames, the corners of the support ring must be separated.

Integration into the Serie 1930 is only possible using 1-gang frames with Ø a 58 mm cut-out (WTD3191xx). Installation in multiple-gang combinations is not possible.

Dismantle the controller

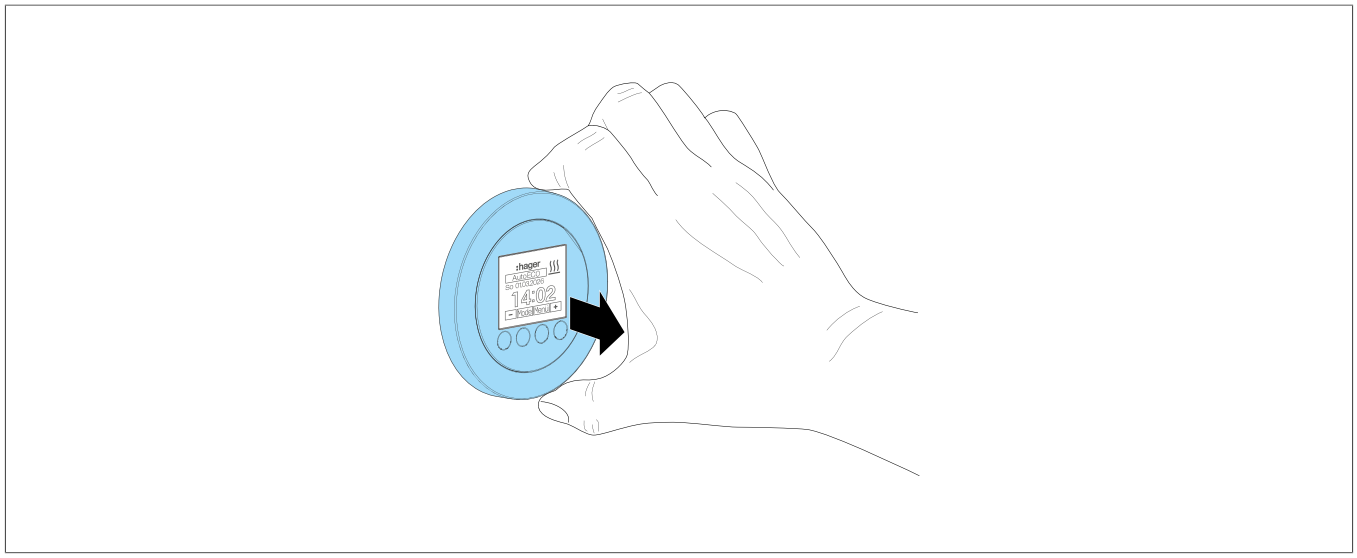


Fig. 18: Dismantling

1. Grip the centre piece (3) with your fingers positioned at the top and bottom and pull forwards to remove.
2. Unfix the insert (1) from the wall box and pull it out.
3. Remove the screw terminals from the insert.

Commissioning the device

Upon commissioning of the controller, the **language** and **controller type** parameters are automatically queried.

1. Select the relevant parameters accordingly.
2. If necessary, use Menu to access the main menu and configure settings.

   The controller is ready for operation.

7 Appendix

7.1 Technical data

Operating voltage	230 V~, 50 Hz
Sensor	NTC - internal NTC - externally connectable
Switch contact	Relay, NO contact, type 1 C
Switching capacity	10 (2) A, 230 V~~
Adjustment range	
Room temperature control	+5 ... +30°C
Floor temperature control	+10 ... +42°C
Switching difference	< 1 K
Night-mode temperature ranges	
Room temperature	+5 ... +29°C
Floor temperature	+10 ... +41°C
Display	Illuminated, graphical display
Screw terminals	
– mains voltage side	0.75 ... 2.5 mm^2
– low-voltage side	0.08 ... 1.5 mm^2
Degree of protection	IP 30, after assembling
Protection class	II, after assembling
Power reserve	Approximately 5 days
Mode action	1 C
Permissible air humidity	0 ... 95 % (without condensation)
Storage temperature	– 20 … + 70 °C
Ambient temperature	0 to 35 °C
Temperature ofball indentation test	75 °C
Degree of contamination	2
Rated surge voltage	4 kV
Software class(es) and structures	Class A
Voltage for EMC emission test	230 V, 50 Hz
ErP Energy efficiency class [1]	
– I for a 2-point control procedure – IV for PI-PWM	

[1] Contributes 1% to 2% to the seasonal energy efficiency ratio [SEER] for heating

7.2 Accessories

External temperature sensor	WDN9031

7.3 Disposal note

Correct Disposal of this product (Waste Electrical & Electronic Equipment).

(Applicable in the European Union and other European countries with separate collection systems).

This marking shown on the product or its documentation indicates that it should not be disposed of with other household waste at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this device from other types of waste. Recycle the device responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this device for environmentally safe disposal.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial waste for disposal.

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