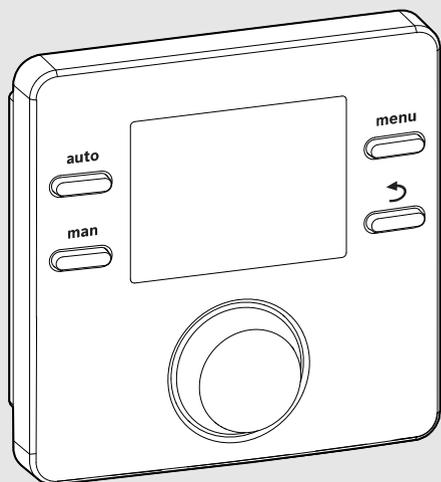


EMS 2



6 720 809 984-00.10



User interface

CR 50



BOSCH

Operating instructions

6720856748 (2016/03)



1 Key to symbols and safety instructions

1.1 Explanation of symbols

Warning symbols

Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

 **DANGER:**
DANGER indicates a situation that will result in severe injury or death.

 **WARNING:**
WARNING indicates a situation that could result in severe injury or death.

 **CAUTION:**
CAUTION indicates a situation that could result in minor to medium injury.

NOTICE:
NOTICE indicates a situation that could result in damage to property or equipment.

Important information

 The info symbol indicates important information where there is no risk to people or property.

1.2 General safety instructions

Instructions for the target group

These operating instructions are intended for the heating system user.

All instructions must be observed. Failure to comply with instructions may result in material damage and personal injury, including possible loss of life.

- ▶ Read and retain the operating instructions (heat source, heating controller, etc.) prior to operation.

- ▶ Observe the safety instructions and warnings.

Determined use

- ▶ Only use the product to control solar heating systems in single-family homes or apartment buildings.

Any other use is considered inappropriate. We take no responsibility for damage caused through incorrect use.

Damage caused by frost

The solar system can freeze if it is switched off:

- ▶ Observe the notices regarding frost protection.
- ▶ Due to the additional functions, e.g. DHW heating or pump anti-seizure protection, the system should always be left on.
- ▶ Have faults rectified immediately.

Risk of scalding at the DHW draw-off points

- ▶ If DHW temperatures above 60 °C are set or if thermal disinfection is activated, a mixer must be installed. If in doubt, ask your installer.

2 Product Description

The CR 50 user interface is a control unit without an outdoor temperature sensor.

2.1 Product data for energy consumption

The specified product data correspond to the requirements of the EU Regulation No. 811/2013 which supplements ErP Directive 2010/30/EU. The class of the temperature controller is required to calculate the central heating energy efficiency of an integrated system and is for this reason incorporated into the system data sheet.

Function of the CR 50	Class ¹⁾	[%] ^{1),2)}	
CR 50			
Room temperature-dependent, modulating	V	3.0	●

Table 1 Product data with regard to energy efficiency of the user interface

- Delivered condition
- 1) Classification of the user interface according to EU Regulation 811/2013 for the labelling of system packages
- 2) Contribution to seasonal energy efficiency for central heating in %

2.2 Applicability of the technical documentation

Information in the technical documentation about heat sources, heating controllers or the BUS apply also to the present user interface.

3 Overview of control elements and symbols

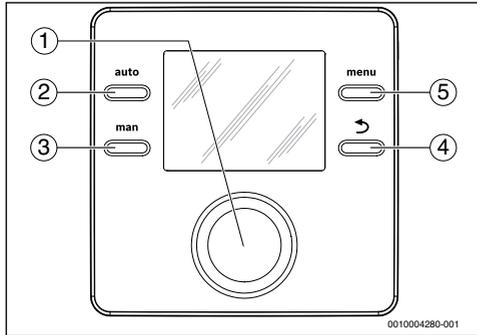


Fig. 1 Control elements

- [1] Selector: select (turn) and confirm (press)
- [2] **auto** key: Automatic mode following time program
- [3] **man** key: Manual operation
- [4] Back key: Returns to previous menu or discards a value (press briefly); returns to the standard display (hold down)
- [5] **menu** key: Main menu (press briefly)

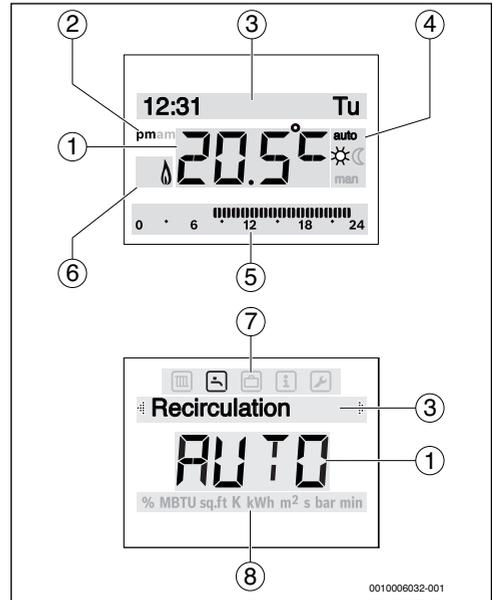


Fig. 2 Symbols in the display (examples)

Item	Symbol	Designation: Explanation
1	20.5°C	Value display: <ul style="list-style-type: none"> • Display of the current room temperature and input field for the desired room temperature • Display of information values and input field for setting values
2	pm/am	Time: Afternoon/morning with 12-hour format (factory setting 24-hour format)
3	-	Text line: <ul style="list-style-type: none"> • Display of time of day (e. g. 14:03) and current day of the week (e. g. Mo) • Display of menu items, settings, info texts, etc. Additional texts are identified by direction arrows and displayed by turning the selector.
4	auto	Operating mode: Automatic mode active (according to time program)
	man	Operating mode: Manual operation active
	☀	Operating mode: Heating mode active
	☾	Operating mode: Setback mode active

4 | Operating the appliance

Item	Symbol	Designation: Explanation
5		Segment display - Solid segments: Time set for heating mode today (1 segment = 30 min)
		No segments: time set for setback mode today (1 segment = 30 min)
6		Operating state: Heat source in operation
7		Heating menu: Menu with settings for the heating system
		DHW menu: Menu with settings for water heating
		Holiday menu: Menu with settings for holiday program
		Info menu: Menu to display current information about the heating system, e. g. heating, hot water
		Settings menu: Menu with general settings, e. g. language, time/date, formats
8	-	Unit line: Physical units for the displayed values, e. g. in the "Information" menu % MBTU sa.ft K kWh m ² s bar min

Table 2 Symbols in the display

4 Operating the appliance

An overview of the structure of the main menu and the position of the individual menu items can be found at the end of this document.

Each of the following descriptions takes the standard display as its starting point (→ Fig. 2, page 3 at left).

4.1 Changing the room temperature

Query the desired room temperature

If the automatic mode is active (displayed: **auto**):

- ▶ Press the auto key.
The desired room temperature then appears on the display for a few seconds. How long the current setting applies

(time to next switching time) appears next for a few seconds.



If manual operation is active (displayed: **man**):

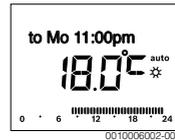
- ▶ Press the man key.
The desired room temperature then appears on the display for a few seconds. An indication that the current setting is permanent (unlimited time) then appears on the display for a few seconds.



Changing the room temperature temporarily

If you feel too cold or too hot on this day:

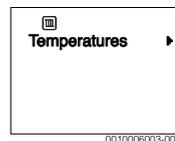
- ▶ Set and confirm the desired room temperature (or wait a few seconds).
The setting value stops flashing. The change applies until the next switching time in your active time program is reached. The temperature stored in the automatic mode then becomes active again.



Changing the desired room temperature for the Heating or Setback operating mode

If you feel continuously too cold or hot:

- ▶ Open the main menu.
- ▶ Select and confirm the **Heating** menu.



- ▶ Confirm the **Temperatures** menu
- ▶ Select and confirm the **Heating** or **Setback** menu item.
The current setting flashes.

- ▶ Adjust and confirm the desired room temperature for the selected operating mode.
The setting value stops flashing.



Enable manual operation and set the desired room temperature

If you require a room temperature for a period of time which deviates from the temperatures set for heating or setback:

- ▶ Press the man key.
The user interface will now constantly maintain the set temperature entered for manual operation.
- ▶ Wait a few seconds until the default display appears again or confirm twice.
- ▶ Set and confirm the desired room temperature (or wait a few seconds).
The setting value stops flashing. The user interface operates permanently and for an unlimited period of time with the modified setting (without setback).



4.2 DHW settings

Activate once-only cylinder charging (hot water immediate function)

If you need hot water outside of the times set in the time program:

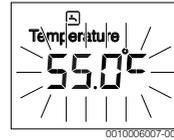
- ▶ Open the main menu.
- ▶ Select and confirm the **DHW** menu.
- ▶ Press the selector.
The current setting flashes.
- ▶ Select and confirm **ON**.
Water heating (tank heating or instantaneous flow heating) becomes active immediately. After heat-up, once-only cylinder charging switches off again.



Changing DHW temperature

If the hot water is too cold or too hot:

- ▶ Open the main menu.
- ▶ Select and confirm the **DHW** menu.
- ▶ Select and confirm the **Temperature** menu item.
The current setting flashes.



- ▶ Set and confirm the required DHW temperature.
If the maximum value of the hot water temperature exceeds 60 °C, the scalding warning flashes.

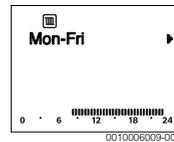


- ▶ Press the back key, set and confirm ≤ 60 °C.
-or-
- ▶ Confirm the setting > 60 °C.

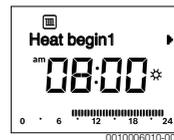
4.3 Setting the time program

Open time program for several days for one individual weekday

- ▶ Open the main menu.
- ▶ Select and confirm the **Heating** menu.
- ▶ Select and confirm the **Time program** menu.
The menu item **Mon-Fri** is displayed.



- ▶ **Mon-Fri** (change switching times for all weekdays together) or **Saturday ...** Select and confirmed **Friday** (change switching times for individual weekdays).
The menu item **Heat begin1** is displayed.



Set heat begin or setback begin earlier or later (move switching time)

- ▶ Open time program for all weekdays or one weekday.
- ▶ Select and confirm the switching time. The hour currently set for the switching time and the associated segment in the segment display start to flash.

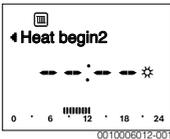


- ▶ Moving switching time to the desired time. The setting in the value display changes in 15-minute increments and in the segment display in 30-minute increments.
- ▶ Confirm setting.

Add a new heating phase (such as Heat begin2 to Strt setback2)

If all six switching times in the time program are not being used, a new heating phase can be added.

- ▶ Open time program for all weekdays or one weekday.
- ▶ Select and confirm **Heat begin2**.



The new switching time is added. The hour and associated segment in the segment display start to flash.

- ▶ Set the switching time for **Heat begin2**, such as 14:00, and confirm. The new heating phase is added with a duration of one half-hour. **Strt setback2** is set to 14:30. If necessary, move **Strt setback2** to, for example, 23:00.



Interrupt heating phase with setback phase (e. g. add setback phase between Heat begin2 and Strt setback2)

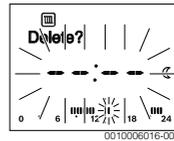
- ▶ Open time program for all weekdays or one individual weekday.
- ▶ Select **Strt setback2** (end of the heating phase to be interrupted).
- ▶ Set **Strt setback2** to the start of the interruption, such as 18:00.

- ▶ Add a new heating phase and set heat begin and setback begin, such as **Heat begin3** (21:00) to **Strt setback3**, (23:00). The user interface automatically sorts the heating phases chronologically.



Delete new heating phase (such as Heat begin2 to Strt setback2)

- ▶ Open time program for all weekdays or one individual weekday.
- ▶ Select and confirm **Strt setback2**. The hour currently set for the switching time and the associated segment in the segment display start to flash.
- ▶ Set **Heat begin2** to the same time as **Strt setback2**. Does **Delete?** appear in the text line?
- ▶ Confirm **Delete?** to delete the heating phase.



4.4 Setting up a holiday program

Open the vacation menu

- ▶ Open the main menu.
- ▶ Select and confirm the **Holiday** menu. The menu item **Holiday prog.** is displayed.



Activate the holiday program and set the vacation time

- ▶ Select and confirm the **Holiday** menu until the **OFF** setting value flashes.

- ▶ Select and confirm **ON**.
The holiday begin date (factory setting for 1st vacation day = current date) and the vacation end date (factory setting for last day = one week after the current date) are displayed. The holiday start date flashes.



- ▶ Select and confirm the day for the holiday start. The day is changed, and the month for the holiday start flashes.
- ▶ Select and confirm the month for the holiday start. The month is changed, and the day for the holiday end flashes.



- ▶ Select and confirm the day for the holiday end. The day is changed, and the month for the holiday end flashes.
- ▶ Select and confirm the month for the holiday end. The vacation program is activated automatically on the holiday start date. The holiday period for the example shown runs from 00:00 on 06/08/ to 24:00 on 21/08/.



Interrupt a holiday program

- ▶ Press the man key.
The user interface will now constantly maintain the set temperature entered for manual operation. Hot water is available only if once-only cylinder charging is active, or the water heating operating mode is **ON**.
- ▶ If desired, set the required room temperature.
The user interface will now constantly maintain the new set room temperature.



- ▶ Press the auto key to resume the holiday program.

Terminating the holiday program early

- ▶ Select and confirm the **Holiday** menu until the **ON** setting value flashes.
- ▶ Select and confirm **OFF**.



The holiday program is ended prematurely. The setting values are deleted.

4.5 More settings

Setting the time and date

- ▶ Open the main menu.
- ▶ Select and confirm the **Settings** menu.
- ▶ Select and confirm the **Time/Date** menu.
The menu item **Time of day** is displayed.



- ▶ Press the selector.
The hours start flashing.
- ▶ Set and confirm the hour.
The minutes start flashing.
- ▶ Set and confirm the minute.

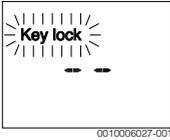


- ▶ Select and confirm the **Date** menu item.
The date flashes (bear in mind the setting in the menu **Settings > Format > Date format**).
- ▶ Set the day, month and year in the same way as the hours and minutes.
- ▶ Press the selector.
The setting value stops flashing.



Switching the key block on/off

- ▶ Press and hold the selector and auto key simultaneously for a few seconds until **Key lock** appears.



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- ▶ If a control element is actuated while key block is active, **Key lock** appears in the text line.
- ▶ **Remove key block:** Press and hold the selector and auto key simultaneously for a few seconds until **Key lock** disappears.

5 Main menu

For an overview of the main menu, see the end of this document.

5.1 Heating menu

Time program settings

Heating > Time program menu

Menu item	Description
Mon-Fri	It is possible to set 6 switching times for each day (3 switching times for heat begin and 3 switching times for setback begin). The minimum duration of a heating phase is 30 minutes.
Saturday	
Sunday	
Monday	
Tuesday	
Wednesday	The default settings are: <ul style="list-style-type: none"> • Mon-Fri Heat begin1: 06:00 to Strt setback1: 23:00 • Saturday and Sunday: Heat begin1: 08:00 to Strt setback1: 23:00 This means that you are heating from 23:00 in the evening until 06:00 on the following day to the setback temperature only (Saturday and Sunday until 08:00).
Thursday	
Friday	

Table 3

Resetting the time program to the factory settings

Heating > Reset Sched. menu

Menu item	Description
Reset Sched.	With the aid of the YES setting, an individual time program can be reset to the factory settings.

Table 4

5.2 DHW menu



When the thermal disinfection function is activated, the DHW cylinder is heated to the temperature. The higher temperature hot water can be used for thermal disinfection of the hot water system.

- ▶ Bear in mind the requirements from the DVGW – Code of Practice W 511, operating conditions for the recirculation pump, including the water quality and instructions of the heat source.

Menu item	Description
Loading once	If once-only cylinder charging is activated (ON), water heating or temperature maintenance is active immediately.
Temperature	The hot water temperature can only be set using the remote control if the water heating is set to automatic mode on the heat source.
Mode	The automatic mode for water heating is active when AUTO appears in the value display. The time program for heating also specifies the switching times for water heating. Continuous water heating or temperature maintenance is active when ON appears in the value display. When OFF is in the value display, the water is not heated or kept hot.
Recirculation	Circulation makes hot water available immediately at the hot draw-off points. <ul style="list-style-type: none"> • If ON is set, hot water is pumped through the DHW circulation line briefly once or several times per hour. • If AUTO is set, hot water is pumped through the circulation line briefly at the times water heating is active. • Set OFF to save energy.
Disinfection	Thermal disinfection safeguards the hygienic quality of the hot water. If AUTO is set, the hot water is heated to 70 °C once every Tuesday starting at 2:00 (at night).

Table 5

5.3 Info menu

The current system values and the active operating status can be displayed via the **Info** menu. Changes are not possible.

Info > Heating menu

Menu item	Description (possible displays)
Operat. stats	The current active status is displayed here: <ul style="list-style-type: none"> • If OFF is displayed, the heating is off, but frost protection remains active. • If Heating or Setback is displayed, the heating system is operating in automatic mode. Based on the time program, the system heats to the temperature set for the particular operating mode. • If Manual is displayed, the heating system operates in the manual operation.
Room temp.	The currently measured room temperature.

Table 6

Info > DHW menu

Menu item	Description (possible displays)
Operat. stats	Display of the current operating status of water heating: ON or OFF
Set temp	Desired DHW temperature.
Actual temp	Current measured DHW temperature.

Table 7

5.4 Settings menu

Settings > "Language" menu

Menu item	Function description
"Language" ¹⁾	The language used for menus and menu items can be changed.

- 1) The display shows the set language.

Table 8

Settings > Time/Date menu

Menu item	Function description
Time of day	Set the current time.
Date	Set the current date.

Menu item	Function description
DLS	Activate or deactivate automatic changeover between summer and winter time. If ON is set, the time of day is automatically changed from 02:00 to 03:00 (on the last Sunday in March and from 03:00 to 02:00 on the last Sunday in October).
Time correct.	Time correction of the internal clock of the user interface in seconds per week (- 20 s/week ... 20 s/week). Only the unit "s" (seconds) appears on the display instead of s/week (seconds per week).

Table 9

Settings > Format menu

Menu item	Function description
Date format	Display of the date in all menus (DD.MM.YYYY or MM/DD/JJJJ), where: D = day, M = month, Y = year. If the year is not needed, only DD.MM. or MM/DD/ appears.
Time format	A 24-hour format (24h) and a 12-hour format (12h, am and pm) are available for displaying the time.
Temp. Format	The units °C and °F are available for displaying the temperatures.
Sensor calib.	If the room temperature displayed by the user interface is not accurate, correct the deviation by up to ± 3 °C.
Contrast	If what appears on the display is hard to see because of the lighting conditions, adjust the contrast of the display (36 % ... 64 %).

Table 10

6 Faults

If a fault persists:

- ▶ Confirm the fault.
- ▶ Faults that are still active are displayed by pressing the Back key.
- ▶ Call an authorised contractor or customer service and give them the fault code and sub-code, as well as the ID no. of the user interface.



Table 11 Your contractor must enter the ID no. here.

7 Old electrical and electronic appliances



Electrical or electronic devices that are no longer serviceable must be collected separately and sent for environmentally compatible recycling (in accordance with the European Waste Electrical and Electronic Equipment Directive).

To dispose of old electrical or electronic devices, you should use the return and collection systems put in place in the country concerned.

8 Overview Main menu

Heating

- Temperatures (automatic mode)
 - Heating (heating or day temperature)
 - Setback (setback or reduced temperature)
- Time program (changeover between heating/setback)
- Reset Sched. (reset switching times)

DHW

- Loading once (immediate DHW function)
- Temperature (DHW temperature)
- Mode (DHW operating modes)
- Recirculation (circulation operating modes)
- Disinfection (thermal disinfection)

Holiday

- Holiday prog. (holiday program)

Info

- Heating
 - Operat. stats (operating status)
 - Room temp. (room temperature)
- DHW
 - Operat. stats (operating status)
 - Set temp (desired DHW temperature)
 - Actual temp (current DHW temperature)

Settings

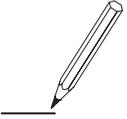
- English¹⁾

1) Set language.

- Time/Date
 - Time of day
 - Date
 - DLS (summer/winter)
 - Time correct. (of the user interface in s/week)
- Format
 - Date format
 - Time format
 - Temp. Format (unit of temperature)
 - Sensor calib. (room temperature correction)
 - Contrast

Service²⁾

2) Settings in the service menu may only be changed by a contractor (hidden by default).



Middle East and Caucasian Area

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