

For the operator / for the heating engineer

Operating and
Installation Manual
VRC 430f



Weather compensator controller with radio transmission

VRC 430f

For the operator

Operating instructions VRC 430f

Weather compensator controller with radio transmission

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Equipment properties

Application

The VRC 430f is a weather compensator controller for heating and water heating.

"Weather compensator" means: the VRC 430f increases its heating output at lower outside temperatures and reduces its heating output at higher outside temperatures. The outside temperature is measured by a separate sensor, mounted outdoors, and the signal is transmitted to the VRC 430f.

The room temperature depends only on your preset values. The influence of the outside temperature is compensated for.

You can use the VRC 430f to specify different room target temperatures according to the time and day. In automatic mode, the VRC 430f controls your heating based on these settings (see Fig. 0.1).

You can also define daily periods during which water is heated using the VRC 430f.

The VRC 430f can also be used to control the following accessory components:

- Circulation pump for the hot water generation in conjunction with a multi-functional module VR 27
- Conventional hot water cylinder
- Vaillant layer cylinder actoSTOR
- Second heating circuit using the Vaillant Mixer Module VR 61
- Solar system using the Vaillant Solar Module VR 68

The VRC 430f can be part of a new heating and water heating installation or can be retrofitted in an existing installation. The appliance must have an eBUS interface.

eBUS is a communication standard for data exchange between the components of heating technology.

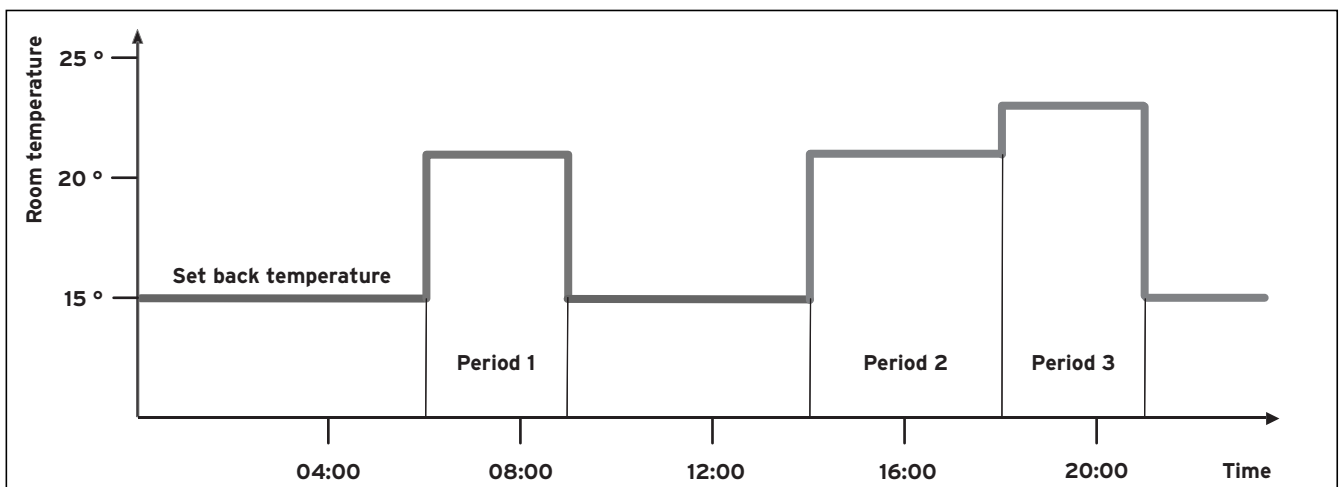


Fig. 0.1 Automatic heater operation: Setting the room target temperature for different times of the day (example)

Product specifications

- eBUS interface
- Wireless communication with a Vaillant appliance
- Illuminated graphical display (display field)
- Operation via both dials according to the "turn and click" principle
- Direct installation of the wireless receiver in the operating front of the heating unit or separate wall-mounting option montage
- The controller can be mounted separately on the wall
- Equipped for operation with the Vaillant diagnosis software vrDIALOG 810/2 and the Vaillant Internet Communication System vrnetDIALOG, i.e. remote diagnosis and remote adjustment

1 Notes on the documentation

The following notes are intended to help you throughout the entire documentation. Further documents apply in combination with this operating manual.

We accept no liability for any damage caused by failure to observe these instructions.

Other applicable documents

When operating the VRC 430f always observe all operating instructions for components and accessories.

These operating instructions are included with the various system components and the additional components.

- Installation instructions for the Vaillant controller VRC 430f (Part 2 of this document; for the heating engineer)
- The operating and installation instructions for your heating system
- All instructions for the accessories

Glossary

An explanation of technical terms and important functions is provided in alphabetical order in the appendix at the end of this document.

1.1 Storage of the documents

Please store this operating manual and all related documents in such a way that they are available whenever required.

1.2 Symbols used

Please observe the safety instructions in this manual for the operation of the device.



Danger!
Immediate risk of serious injury or death!



Danger!
Danger of death by electric shock!



Caution!
Danger of burning and scalding!



Caution!
Potentially dangerous situation for the product and environment!



Note!
Useful information and notices.

⇒ Symbol indicating a required action

1.3 Applicability of the manual

These operating instructions apply exclusively for equipment with the following part numbers:

0020028521, 0020028522, 0020028523,
0020028524, 0020028525, 0020028526

The part number of your unit can be obtained from your heating engineer.

1.4 CE label

The CE label indicates compliance of the VRC 430f controller with the fundamental requirements of the relevant directives.

2 Safety

The VRC 430f may only be installed by an approved heating engineer. This person is also responsible for the proper installation and initial start-up.



Caution!

Risk of being scalded by hot water! When the target temperature is above 60 °C, there is a risk of scalding at the hot water taps. Young children and elderly persons are particularly at risk, even at lower temperatures.

Risk to persons should be excluded through the selection of an appropriate target temperature (see Section 4.7.4).

Caution!

Risk of being scalded by hot water! If your heating engineer has activated the anti-legionella option for the hot water cylinder, the temperature of the hot water at the draw-off points may exceed 60 °C at specific times. Find out from your heating engineer whether the legionella protection has been activated and if so, on what day and at what time.

3 Notes on operation

3 Notes on operation

3.1 Intended use

The VRC 430f controller has been built using state-of-the-art technology in accordance with the recognised safety regulations.

Even so, inappropriate or non-intended use may adversely affect the appliance and other material assets.

The VRC 430f controller is designed as a weather compensator and timer-controlled heating system with or without hot water generation/circulation pump in conjunction with a Vaillant heating unit with eBUS interface. Operation with the following accessories is permissible:

- Circulation pump for the hot water generation in conjunction with a multi-functional module VR 27
- Conventional hot water cylinder
- Vaillant layer cylinder actoSTOR
- Second heating circuit using the Vaillant Mixer Module VR 61
- Solar system using the Vaillant Solar Module VR 68

Any other or additional use is considered to be use other than intended. The manufacturer or supplier is not liable for any resulting damage. The owner alone bears any risk.

Intended use also includes observation of the operating and installation instructions and all other applicable documents.

3.2 Environmental conditions,

The controller and radio receiver unit may only be installed in dry rooms.

Observe the following if the "Thermostat" function is active:

- the VRC 430f must not be covered by furniture, curtains or other objects
- the radiator valves in the room where the VRC 430f is fitted must be fully opened

"Thermostat" means that the VRC 430f records the current room temperature and uses this for control purposes.

Your heating engineer will advise you whether the "Thermostat" is activated.

3.3 Care



Note!

Do not use scouring or cleaning agents which might damage the exterior or screen.

- ⇒ Clean the VRC 430f enclosure with a damp cloth.
- ⇒ Clean the outdoor sensor at least once a year (plastic disk above the solar cell) to ensure that the energy supply is maintained.

3.4 Vaillant warranty

We only grant a Vaillant manufacturers warranty if a suitably qualified engineer has installed the system in accordance with Vaillant instructions. The system owner will be granted a warranty in accordance with the Vaillant terms and conditions. All requests for work during the guarantee period must be made to Vaillant Service Solutions (0870 6060 777).

3.5 Recycling and disposal

Both, your VRC 430f and its packaging are primarily made of recyclable raw materials.

Appliance

Neither the VRC 430f nor any of its accessories may be disposed of in the household waste. Make sure the old appliance and any existing accessories are disposed of properly.

Packaging

Please leave the disposal of the transport packaging to the qualified servicing company which installed the appliance.

Batteries

Batteries must not be disposed of in the household waste. Ensure that the batteries are disposed of properly.

4 Operation



Note!

Ask the heating engineer to explain how to use the unit after it has been installed. This will prevent involuntary changes to the settings.

4.1 Overview operating and display front

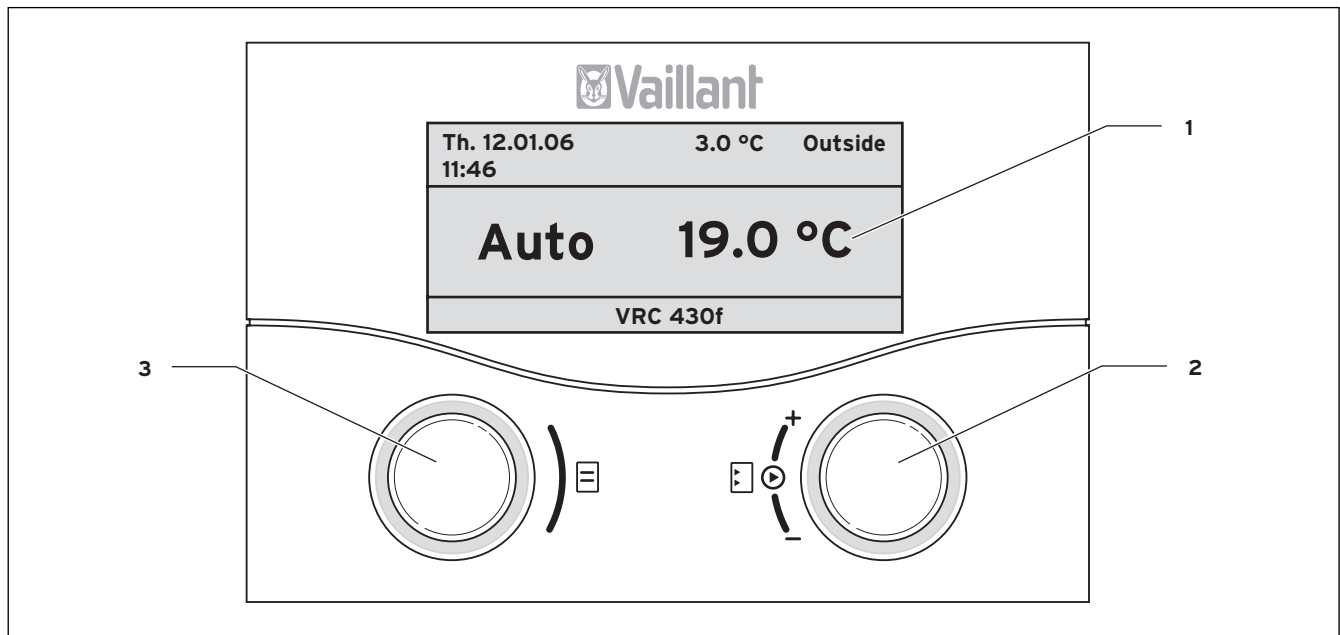


Fig. 4.1 Overview of the operating and display front (example: default display)

Key

- 1 Display (screen)
- 2 Operating element, right-hand dial
- 3 Operating element, left-hand dial

Fig. 4.1 shows the default display. The following information can be obtained from the default display:

- the operating mode (automatic, manual or off) of the heating circuit 1
- the current room temperature

The default display is described in detail in Section 4.3.3.

The functions of both dials are described in Section 4.3.



Note!

The screen is usually switched off to save energy. This increases the service life of the batteries.

The display and lighting are activated as soon as you turn or click one of the dials. If the appliance is not used for more than one minute the screen returns to the basic display returns and switches off after approx. 10 minutes.

Note!

When the dial is turned the values to be displayed must first be called up by the radio receiver unit. Until these values are obtained only dashes instead of values will be displayed (--). This generally takes up to two seconds. Depending on the surrounding conditions it may take up to 15 minutes for the radio receiver to call up and display the latest data (e.g. outside temperature, time with integrated CDCF 77 radio signal receiver). If dashes (--) are displayed continuously, consult your heating engineer.

4 Operation

4.2 Overview of the display (field)

The parameters and settings (operating values) of the VRC 430f are shown on different screens.

The screens are sub-divided into:

- Default display (Fig. 4.1)
- Basic display (Fig. 4.2)
- Display/input screens for specific parameters at operator level (see Sections 4.6 and 4.7)
- Display/input screens for operating and system-specific parameters at expert technician level

All the screens are divided into three areas.

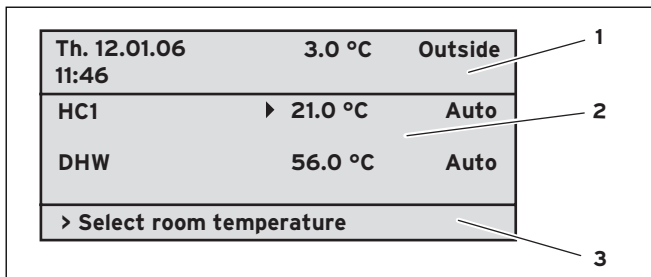


Fig. 4.2 Display overview (example, basic display)

Key

- 1 Section for basic data, screen title and status and error messages
- 2 Area for displaying and entering parameters
- 3 Area for displaying comments

The basic data are:

- Current day
- Date
- Time of the day
- Outside temperature

The title of the screen appears instead of the basic data in the display/input screens for the specific parameters (see Fig. 4.12).

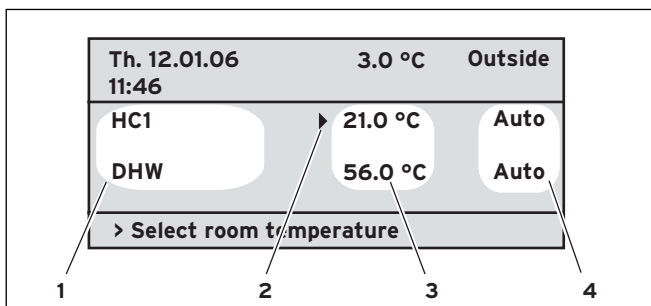


Fig. 4.3 Area for displaying and entering parameters (example: basic screen)

Key

- 1 Parameter name (display only)
- 2 Cursor ► indicates the jump to a modifiable value
- 3 Input field for parameter values; here: target set temperature
- 4 Input field for parameter values; here: Operating mode

4.3 Operating concept

The operator input in the default display is described in Section 4.3.3.

The operating concept described below applies to the basic display (Fig. 4.2) and to the various different display/input screens of the user level.

The two dials (Fig. 4.1 Items **2** and **3**) function according to the Vaillant "turn and click" principle.

When turned (clockwise or anticlockwise), the dials audibly engage at the next position. Each index step also moves the cursor one position forwards or backwards in the display.

By clicking (pressing) you can highlight or accept changes to a parameter.

	Action	Result
Left-hand dial	Turn	Scroll to next screen
Right-hand dial	Turn	Scroll to an input field within a screen (marked by cursor ►)
	Changing a parameter	
	Clicking (pushing)	Highlight for changing
	Turn	Change the parameter value
	Clicking (pushing)	Acceptance of selected parameter value

Table 4.1 Operating concept

4.3.1 Show various screens

By turning the left-hand dial you can page through the individual screens of the display like a book.

Example:

You are now located in the basic display. A description of how to navigate to the basic display is provided in Section 4.3.3.

⇒ Turn the left-hand dial clockwise by one notch.

The screen 1 appears in the display together with the basic data setting options.

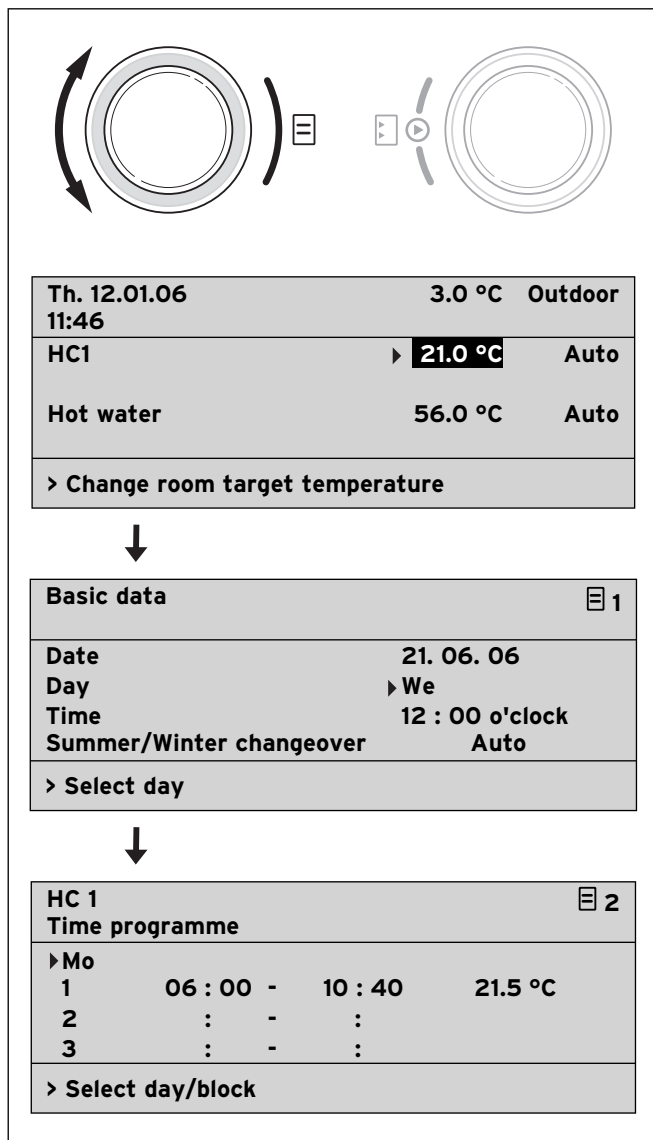


Fig. 4.4 Examples of various screens

4.3.2 Changing parameters

⇒ Turn the right-hand dial to scroll through the parameters within the screen.

The position is indicated by the cursor (see Fig. ▶ 4.5).

If a parameter (e.g. a date with day, month, year) consists of several elements, scroll from one element to the next by turning the right-hand dial.

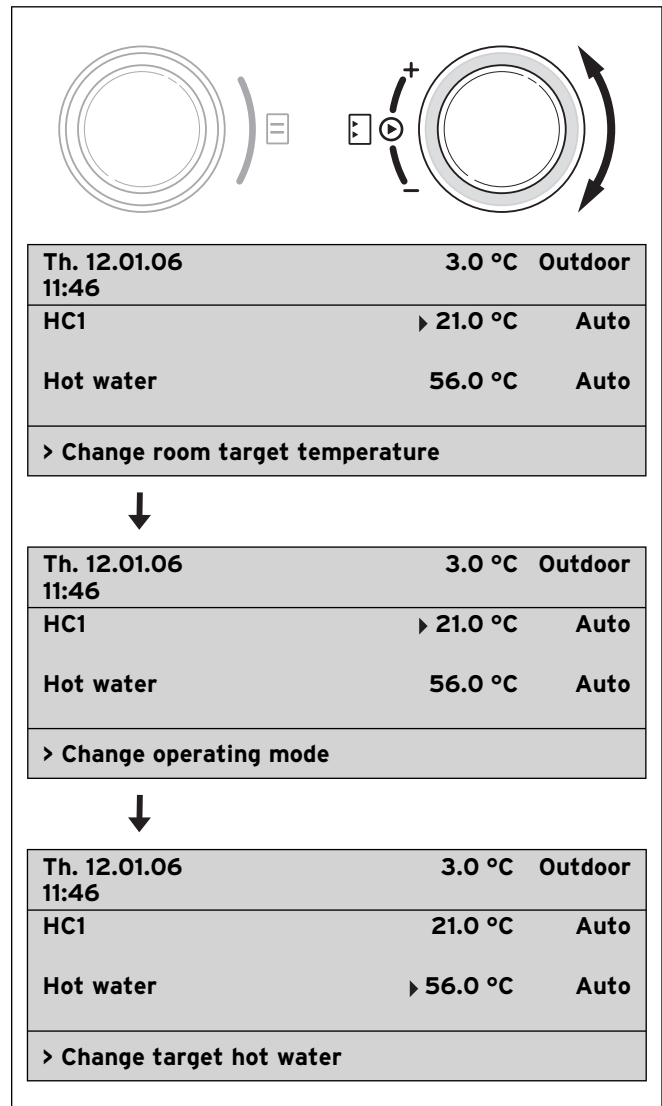


Fig. 4.5 Jump to various modifiable parameters

4 Operation

⇒ Click the right-hand dial.

The parameter value marked by the cursor is highlighted.

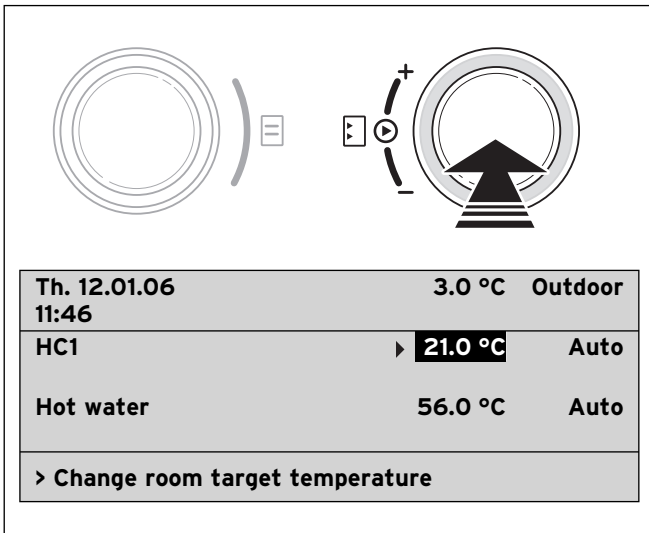


Fig. 4.6 Selecting a modifiable parameter

⇒ Turn the right-hand dial to show the possible values.

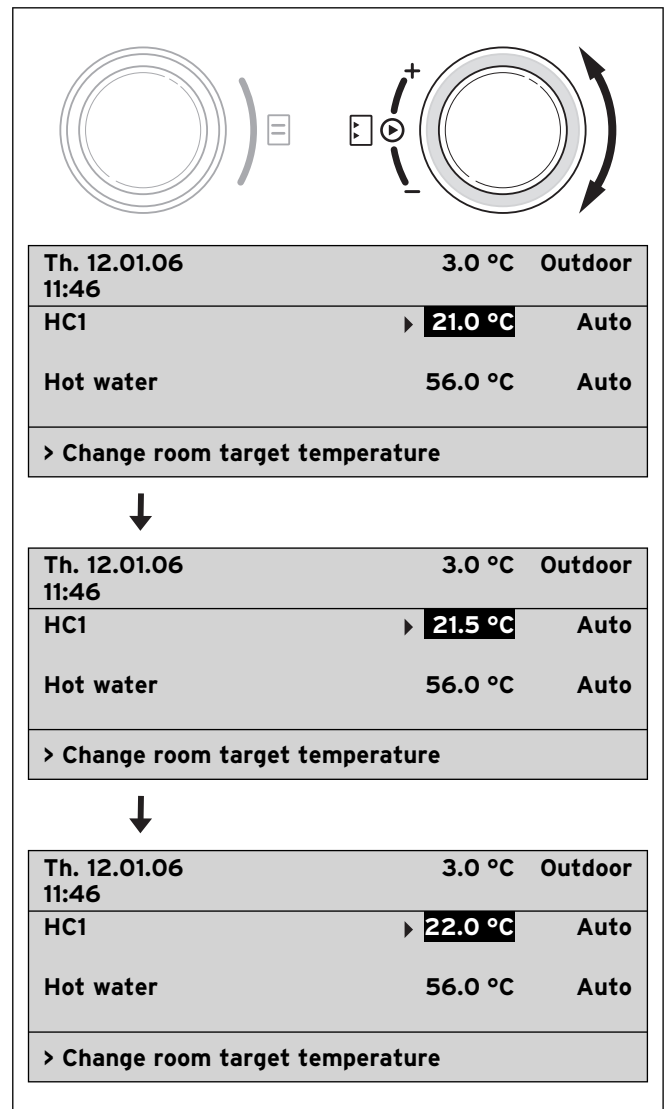


Fig. 4.7 Changing a parameter value

⇒ Click the right-hand dial.

The value displayed is confirmed and adopted for control purposes. The value is saved and is no longer highlighted.

Changing parameters in the basic display

	Parameter	Meaning
Heating circuit 1 (HC1)	Room target temperature	The heating is controlled with reference to the modified room target temperature for a specific period that depends on the operating mode selected, also see Section 4.4.
	Operating mode Auto(matic)	The appliance is controlled according to the target room temperature, the time programme and other parameters such as e.g. the set-back temp. Some of these parameters are programmed by your heating engineer.
	Operating mode Manual	The appliance is constantly on and is controlled to achieve the target room temperature.
	Operating mode OFF	The appliance is switched off. The room temperature is not displayed and cannot be changed. Frost protection is guaranteed.
Hot water	Hot water target temperature	The water heating is controlled with reference to the modified target hot water value for a specific period that depends on the operating mode selected, also see Section 4.4.
	Operating mode Auto(matic)	The hot water is on according to the time programme.
	Operating mode Manual	The hot water is constantly on depending on the target temperature.
	Operating mode OFF	The hot water is switched off. The target hot water temperature is not displayed and cannot be changed. Frost protection is guaranteed.

Table 4.2 Modifiable parameters in the basic display

Example: Change the room temperature of heating circuit 1 (HC1)

Initial condition: You are located in the basic display (see Fig. 4.2). A description of how to navigate to the basic display is provided in Section 4.3.3.

- ⇒ Turn the right-hand dial until the cursor appears in front of the set value (room temperature) for heating circuit 1 (HC1).
- ⇒ Click the right-hand dial.

The input field for the target value is inversely displayed.

⇒ Turn the right-hand dial.

The value for the room temperature changes by 0.5 °C for each turn (click) of the dial.

⇒ Click the right-hand dial once the required value for the room target temperature has been reached.

The new value is applied. The display changes from highlighted to normal.

The new value for the control is applied for a specific period, depending on the operating mode selected (see Section 4.4).

4.3.3 Operation in the simplified basic display

Note!
 The simplified basic display always appears if the unit is not connected to a mixer model, VR 61 (for a second heating circuit).

In the default display (Fig. 4.8) the operating mode for heating and the current room temperature are displayed in the central area.

The default display also provides you with the option of changing the two most important parameters of your heating system quickly and comfortably:

- By turning the left-hand dial you can change the operating mode (automatic, manual, off).
- By turning the right-hand dial you can change between the actual room temperature and the set room temperature.

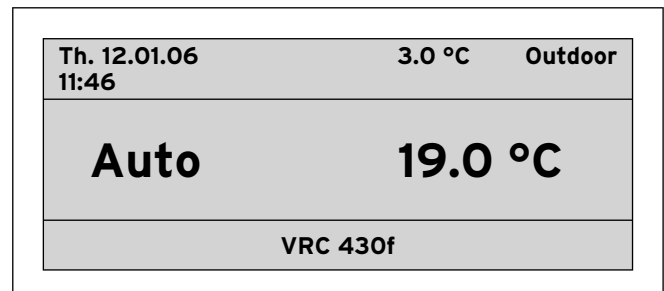


Fig. 4.8 Simplified basic display

You can navigate from the default display to the next screen by clicking one or both dials (see Fig. 4.2).

If the controller is not operated for more than one minute, the display changes to the default display.

4 Operation

Changing the operating mode in the default display

Operating mode	Meaning
Auto(matic)	The heating circuit is controlled according to the target room temperature, timer programmes, and other parameters such as set back-temp and heating curve. Some of these parameters are programmed by your heating engineer.
Manual	The heating circuit is controlled according to the target room temperature.
OFF	The heating circuit is switched off. The room temperature is not displayed and cannot be changed. Frost protection is guaranteed.

Table 4.3 Operating modes for the heating unit

Proceed as follows:

⇒ Turn the left-hand dial.

The operating mode is highlighted. After a delay of one second, you can select the operating mode by turning the left-hand dial. After two seconds the display changes from highlighted back to normal. The selected operating mode is applied.

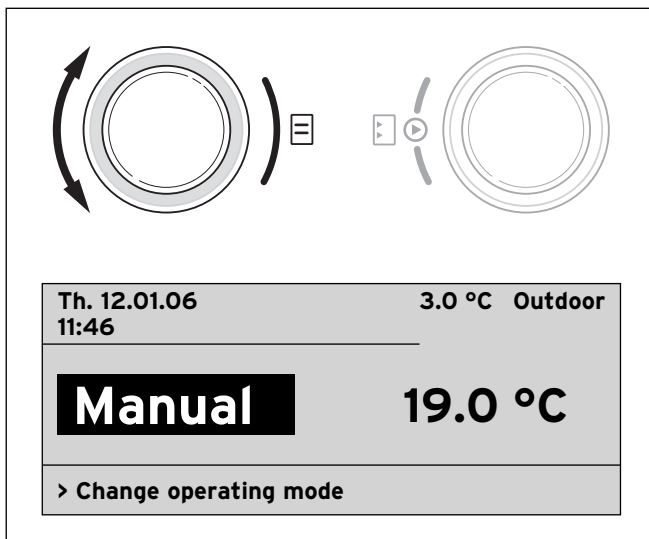


Fig. 4.9 Changing the operating mode in the simplified display

Changing the room temperature in the simplified display

The heating unit is controlled according to the room target temperature. The control system ensures that the set room temperature is reached rapidly and is retained at this level.

The prerequisite for this is that the selected heating curve corresponds to the conditions and the thermostat function is activated.

⇒ Turn the right-hand dial.

Instead of the room temperature, the current set room temperature is highlighted. After a delay of one second you can select the new room target temperature:

⇒ Turn the right-hand dial further until the desired room temperature appears.

The selected room target temperature is applied after a delay of two seconds. The display changes from being highlighted back to normal and shows the current room temperature.

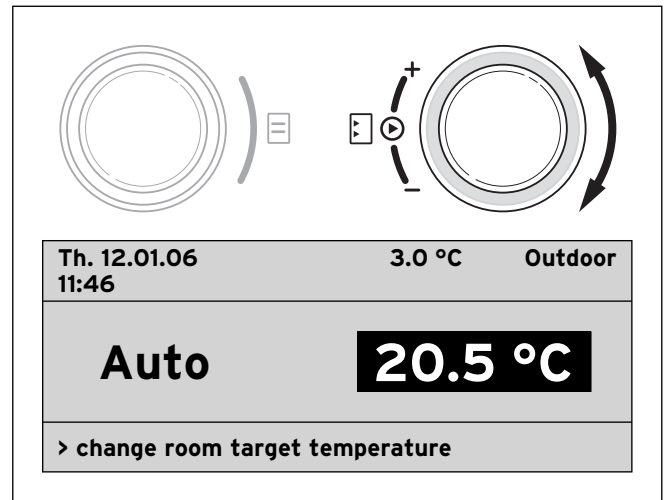


Fig. 4.10 Changing the room temperature in the basic display

This new value applies to the control for a specific period, depending on the operating mode selected; also see Section 4.4.

4.4 Period of validity of changed control system target values

If you have changed a set target value – either the target room temperature or the hot water target value – in the basic display, the new value is applied to the control system.

When in "Manual" mode, the control uses the temporary temperatures until either the operation mode or the temperature is changed.

When in "Automatic" mode, the control uses the temporary temperature until the next time window starts (if you have changed the set target value outside a time window) or until the end of the current time window (if you have changed the set target value within the time window); see Fig. 4.11.

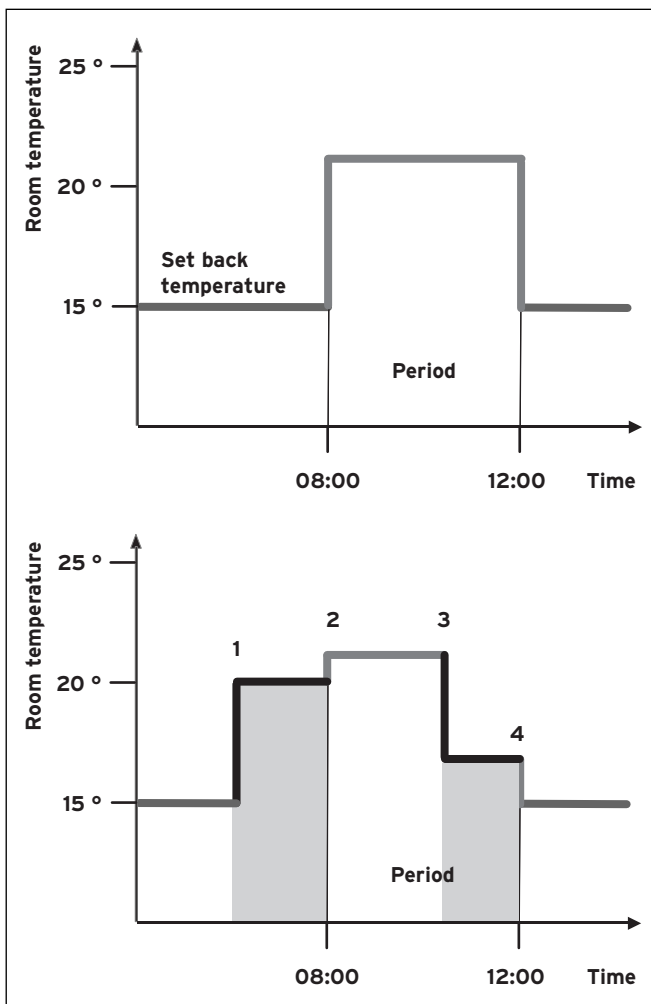


Fig. 4.11 Period of validity for changes to the target values
(hier: Target room temperature)

The top diagram in Fig. 4.11 shows a programmed time window (see Section 4.7.1) and corresponding room target temperature (21 °C).

In the lower diagram, at (1) the value of the room temperature is changed (20 °C). The control system uses this value until the start of the time window.

From here (2) the control system uses the room temperature of the time window (21 °C).

At (3) the value of the room temperature is changed (17 °C).

The control system uses this value up to the end of the time window (4).

After the time window, the control system uses the night set back temp (15 °C).



Note!

This also applies to the hot water target value.

4.5 Operating level for operator, operating level for expert technician

The VRC 430f controller has two operating levels. Each level contains several screens in which the various parameters can be displayed, adjusted or changed.

- Operator level
Used to display and set/change basic parameters. The setting/changing of parameters can be carried out by the user without any special previous knowledge and during normal operation.
- Operating level for the heating engineer
Used exclusively by the heating engineer to display and set/change specific parameters.

4.6 Screens in the Operator level

The screens at the Operator level are arranged according to the sequence shown in Table 4.4 below. This table shows you which parameters you can adjust and change. Examples of this are given in Section 4.7 and the following sections.

You can reach "Basic data", the first screen in the Operator level, from the default screen:

⇒ Click one or both dials.

You get to the basic display.

⇒ Turn the left-hand dial by one or two points clockwise.

Basic data ☰ 1	
Date	21. 06. 06
Day of week	► We
Time	12 : 00 o'clock
Summer/Winter changeover	Auto
> Select day of week	

Fig. 4.12 "Basic data" screen (Esample: Selecting the day)

By turning the left-hand dial further you will scroll from one screen to the next.

If accessory components are installed and are controlled via the VRC 430f, additional screens apart from those listed in Table 4.4 can be displayed, e.g. ☰ 3 or ☰ 6.

4 Operation

Screen	Title screen	adjustable operating values (only display = A)	Remarks	Unit	Min. value	Max. value	Step distance/ Selection possibilities	Preset value
1	Basic data	Date Day Time	Select Day, Month and Year separately; Select Hour and Minutes separately					
		Summer/Winter changeover					Auto, Off	Off
2	HC1 Time programme	Day/ block	Select a day or a block of days (e. g. Mo-Fr)					
		1 Start/End time 2 3	There are three time periods available per day or block of days	Hours/ Minutes			10 min	
		Temperature each time period	For each time period, an individual room temperature can be determined	°C	5	30	0,5	20
4	Hot water time programme	Weekday/Block	Select a weekday or a block of days (e. g. Mo-Fr)					
		1 Start/End time 2 3	Three time periods are available per day or block of days	Hours/ Minutes			10 min	
5	Circulation pump time programmes	Weekday/Block	Select a weekday or a block of days (e. g. Mo-Fr)					
		1 Start/End time 2 3	Three time periods are available per day or block of days	Hours/ Minutes			10 min	
7	Holiday programming for the total system	Holiday period	Start Day, Month, Year End Day, Month, Year					
		Holiday set target value heating	Room temperature for the holiday time period	°C	Frost protection, or 5	30	0,5	Frost protection
8	HC1 parameters	set-back temp	A set-back temp can be specified for the periods between the time windows. If your skilled tradesman has activated the frost protection function, the set-back temperature will automatically be 5 °C. This is not displayed as a set-back temperature.	°C	5	30	0,5	15
		Heating curve	The heating flow temperature is controlled with reference to the outside temperature. This relationship is represented by heating curves. A range of heating curves are available (see Section 4.7.3).		0,2	4	0,05-0,1	1,2

Table 4.4 Screens in the Operator level

Screen	Title screen	adjustable operating values (only display = A)	Remarks	Unit	Min. value	Max. value	Step distance	Preset value
10	Hot water parameters	Hot water target set temperature	Target temperature for water heating	°C	35	70	1,0	60
14	Changing the name	Heating circuit 1	Any name having up to 8 characters can be entered					Heating circuit 1
		Hot water						Hot water
15	Enable code layer	Code number	Access to the level for the installer only by entering the saved code number					1000

Table 4.4 Screens in the Operator level (continued)

4.7 Edit screens (examples)

4.7.1 Entering timer programmes (example for heating circuit)

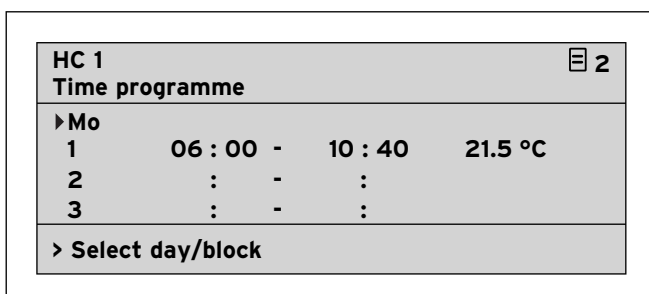
Using the time programmes you can allocate up to three time windows per day, or block of days (e.g. Mo - Fr). In these time windows, the heating system maintains the room temperature that you have selected, the so-called comfort temperature. Outside the time windows, the room temperature is set back.

 **Note!**

If you set the timer windows carefully to suit your lifestyle, you will save energy without losing any heating comfort.

The next section describes how to set the timer windows using heating circuit 1 as an example. You can define time windows in a similar way for hot water and for a circulation pump .

⇒ Turn the left-hand dial until screen 2 (HC1 time programme) is displayed.



HC 1 Time programme			
▶Mo			
1	06 : 00 -	10 : 40	21.5 °C
2	:	-	:
3	:	-	:
> Select day/block			

Fig. 4.13 Screen 2 (example)

⇒ Turn the right-hand dial until the cursor ▶ is positioned in front of the day or block of days input field.
 ⇒ Click the right-hand dial.

The field is highlighted.

⇒ Select the required day or block of days by turning the right-hand dial. The following options are available:
 - Mo, Tu, ... etc.
 - Mo - Fr (Block)
 - Sa - Su (Block)
 - Mo - Su (Block)
 ⇒ Confirm the selection by clicking with the right-hand dial.

1, 2 and 3 indicate the "time windows" which you can programme for the selected weekday or block of days. Within the time window (e.g. from 06:00 to 10:40) the heating is on to achieve the associated comfort temperature.

⇒ Turn the right-hand dial until the cursor ▶ is positioned in front of the input field for the starting time of time window 1.
 ⇒ Click the right-hand dial.

The field is highlighted.

⇒ Set the start time by turning the right-hand dial.

Each step of the dial changes the time by 10 minutes.

⇒ Once the desired starting time is displayed, confirm by clicking the right-hand dial.

4 Operation

The end time for window 1 should be set similarly.

The comfort temperature for time window 1 is set as follows:

- ⇒ Turn the right-hand dial until the cursor ► is positioned in front of the input field for the comfort temperature of time window 1.
- ⇒ Click the right-hand dial.

The field is highlighted.

- ⇒ Select the comfort temperature by turning the right-hand dial (one step corresponds to a change of 0.5 °C).
- ⇒ Once the desired comfort temperature is displayed, confirm by clicking the right-hand dial.



Note!

The controller helps the operator to programme the time windows: The times can only be specified by inputting these in chronological order.

The time period for the next window cannot overlap the previous one.

The time window must be between 0:00 and 24:00.

An existing time window can be deleted as follows: specify the same time for the starting and end times of the window.

Note!

Follow the instructions for heating circuit 1 to set the timer programme for hot water generation or circulation pump. A comfort temperature does not need to be entered for the water heating and circulation pump.

4.7.2 Programming holiday periods

For a longer period of time when you are not at home, you can define a lower room temperature. This will save heating energy. The control ensures that the appliance heats up the living rooms only to this room temperature.

You can specify a room target temperature of 15 °C if you wish to go on holiday from 10 - 24 February. The living rooms are only heated to 15 °C during this period. You can also select the frost protection function instead of a room temperature.

Proceed as follows to programme a holiday period:

- ⇒ Turn the left-hand dial until you reach screen 7 "Holiday programming for whole system".

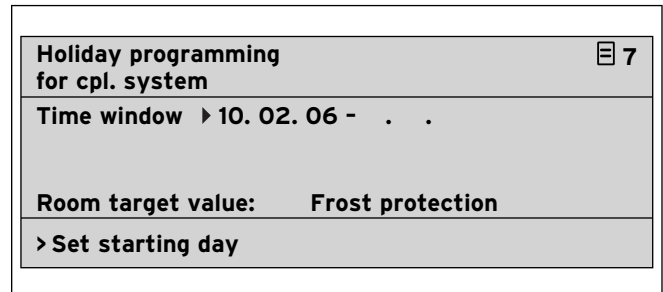


Fig. 4.14 Screen 7 (example)

- ⇒ Turn the right-hand dial until the cursor ► is positioned in front of the start date.

The field shows the text "Set starting day".

- ⇒ Click the right-hand dial.

The field is highlighted.

- ⇒ Turn the right-hand dial until the desired start day is displayed.
- ⇒ Click the right-hand dial.

The date is set. The display changes from highlighted to normal.

- ⇒ Set the month and year of the start date in the same way.

In the display field for comment the text "Set starting month" or "Set starting year" appears.

- ⇒ Set the end date of the holiday period in the same way.

Enter the room temperature as follows:

- ⇒ Turn the right-hand dial until the cursor ► is positioned in front of the room target temperature input field.

The comment "Select room temperature" appears.

- ⇒ Click the right-hand dial.

The field is highlighted.

- ⇒ Turn the right-hand dial to set the room temperature (values from 5 °C to 30 °C in half degree steps and frost protection function are possible).
- ⇒ Click the right-hand dial.

The desired room target temperature or the frost protection function is set. The display changes from highlighted to normal.

4.7.3 Entering parameters for the heating circuit

You can enter the following parameters:

Set-back temp

Outside the specified time windows, the room temperature is reduced to the set-back temp. If your heating engineer has set the frost protection function the set-back temperature will automatically be 5 °C. This is not displayed as a set-back temperature.

Heating curve

The relationship between the outside temperature and the required heating flow temperature is represented by a diagram with different heating curves (see Fig. 4.15). Each heating curve (from 0.2 - 4.0) gives a value for the heating flow temperature (vertical diagram axis) for a specific outside temperature (horizontal diagram axis).

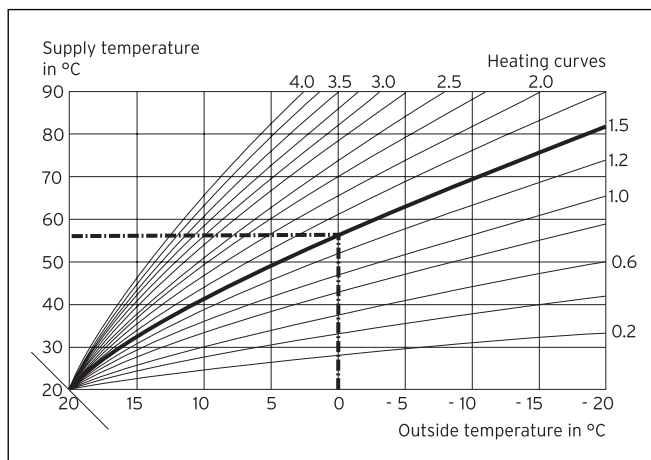


Fig. 4.15 Diagram with heating curves for a target room temperature of 20 °C

Example:

If heating curve 1.5 has been selected with a target room temperature of 20 °C the controller ensures a heating flow temperature of 56 °C at an outside temperature of 0 °C.

A range of steep heating curves show whether the heating flow temperature should be increased at a faster or slower rate, depending on the outside temperature.



Note!

In a well-insulated apartment a comfortable room temperature can be achieved even with a flat heating curve. This saves heating energy. Your heating engineer will provide advice as to which heating curve should be selected.

To change the heating curve: (example heating circuit 1):

⇒ Turn the left-hand dial until you reach Screen 8 "HC1 Parameters".

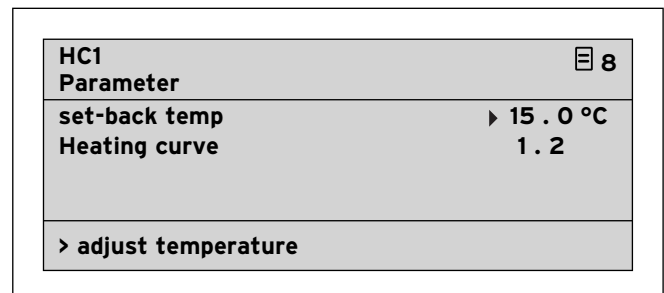


Fig. 4.16 Screen 8 (example)

⇒ Turn the right-hand dial until the cursor ► is positioned in front of the set-back temperature value.

The display shows "Select temperature" in the comment field.

⇒ Click the right-hand dial.

The field is highlighted.

⇒ Turn the right-hand dial until the desired value is displayed (values from 5 °C to 30 °C in half degree steps are possible).

⇒ Click the right-hand dial.

The required set-back temperature is set. The display changes from highlighted to normal.

⇒ Turn the right-hand dial until the cursor ► is positioned in front of the value for the heating curve.

The display field shows the text "Set heating curve".

⇒ Click the right-hand dial.

The field is highlighted.

⇒ Turn the right-hand dial until the desired value is displayed (values from 0.2 to 4.0 are possible, see Fig. 4.15).


⇒ Click the right-hand dial.

4 Operation

The required heating curve is set. The display changes from highlighted to normal.

4.7.4 Entering parameters for hot water generation

If the water for your household is heated by your appliance you can enter the target temperature via the controller.

⇒ Turn the left-hand dial until you reach screen  10 "Hot water parameters".

The cursor ► is positioned in front of the value for the target temperature.

⇒ Click the right-hand dial.

The field is highlighted.

⇒ Turn the right-hand dial until the desired hot water temperature is displayed (values from 35 °C to 70 °C in one degree steps are possible).

⇒ Click the right-hand dial.

The required target temperature is set. The display changes from highlighted to normal.




Caution!

Risk of being scalded by hot water!

When the target temperature is above 60 °C, there is a risk of scalding at the hot water taps. Young children and elderly persons are particularly at risk, even at lower temperatures.

Select the target temperature so that persons will be in danger.

4.7.5 Renaming the heating components

On screen  14 you can see which names of components you can change.

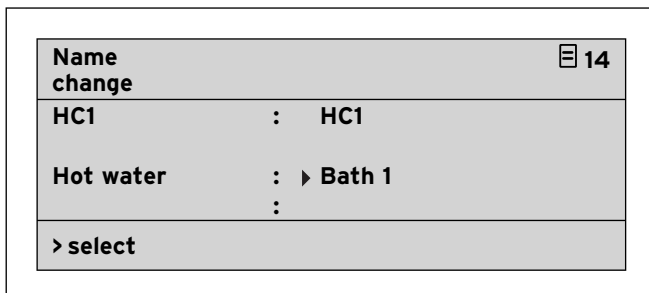



Fig. 4.17 Screen  14 (example)

On the right-hand side of the colon you can enter a new name (numbers 0-9, spaces, capital/small letters). Proceed as follows :

⇒ Turn the left-hand dial until you reach screen  14 "Change names".

⇒ Turn the right-hand dial until the cursor ► is positioned in front of the character you wish to change.

⇒ Click the right-hand dial.

The character is highlighted.

⇒ Turn the right-hand dial to select the correct letter or number.

⇒ Click the right-hand dial.

The required character is adopted. The character is displayed normally once again.

⇒ Turn the right-hand dial by one click position in the clockwise direction.

The next character is marked by the cursor.

⇒ Click the right-hand dial.

The character is highlighted.

⇒ Turn the right-hand dial to select the correct letter or number.

⇒ Continue in this way for the remaining characters of the new name.



Note!

Entire names or extra characters can be deleted by entering blank spaces.

5 Status and error messages

Status and error messages are displayed in the second row of the field for basic data.

Status messages

Holiday

The heating is controlled with reference to this room target temperature for a defined holiday period.

Service and telephone number of heating engineer

Informs you when servicing of the heating system is due.

In addition, the telephone number of your heating engineer appears if he has programmed it in.

Dashes (--) instead of values are displayed by the controller

When the dial is turned the values to be displayed must first be called up from the radio receiver unit. Until these values are obtained only dashes instead of values will be displayed (--). This generally takes up to two seconds.

Depending on the surrounding conditions it may take up to 15 minutes for the wireless receiver to call up and display the latest data (e.g. outside temperature, time with integrated CDCF 77 radio signal receiver).

If dashes (--) are displayed continuously, consult your heating engineer.

Error messages

Error boiler

Informs you about an error in the appliance.

⇒ Contact your heating engineer.

Com. Error boiler

The connection between the radio receiver unit and appliance is faulty.

⇒ Contact your heating engineer.

No radio communication

Radio communication between the VRC 430f and radio receiver unit is faulty.

⇒ Contact your heating engineer.

Clean wireless outdoor sensor

a) The battery on the outside radio sensor is insufficiently charged.

⇒ Clean the solar cell on the radio outdoor sensor using a damp cloth or get in touch with your heating engineer. Never use harsh detergents to clean the unit as the plastic parts may be damaged.

Note!

The error message will take some time to disappear after the solar cell has been cleaned as the battery will take some time to recharge.

b) There is no radio signal connection to the outdoor sensor.

⇒ Contact your heating engineer.



Note!

If the outdoor sensor or controller stops working, the emergency-control setting is activated. An outside temperature of 0 °C is used as the basis. The basic operation of the heating system is ensured.

Change battery

The batteries at the controller are almost flat.

⇒ Change all batteries at the controller.

Proceed as follows:

⇒ Pull the controller (1) off the wall socket (2). This can be done by pushing a screwdriver into the two retaining straps (see Fig. 5.1 arrows).

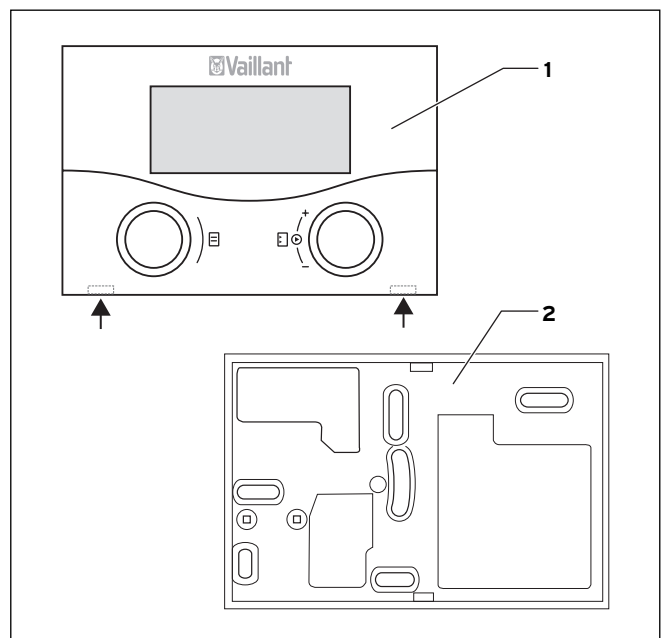


Fig. 5.1 Removing the VRC 430f controller

Key

- 1 Controller VRC 430f
- 2 Wall plinth

5 Status and error messages

⇒ Mount four new batteries of the same type into the battery compartment on the reverse side of the controller PCB.

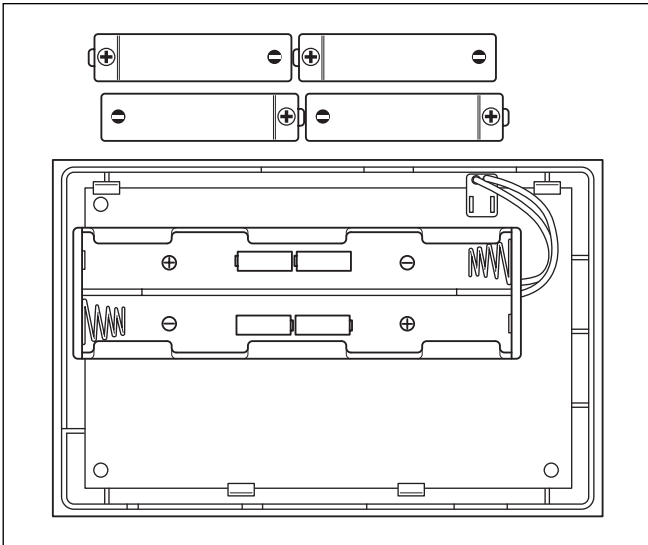


Fig. 5.2 Inserting the batteries

Note!

Make sure the polarity is correct (see Fig. 5.2). Always change all batteries at the same time. Only use the following battery type: Alkaline AA/LR6 Battery 1.5 V. Do not use rechargeable batteries. Depending on use, the batteries last between approx. 1 and 1.5 years.

⇒ Carefully press the controller onto the wall **plinth** until it snaps into place.

The display remains dark

The display remains dark even when you turn or click one of the dials.

⇒ Change all batteries at the controller.

Note!

The screen is usually switched off to save energy. This increases the service life of the batteries.

The display and lighting are activated as soon as you turn or click one of the dials. If the appliance is not used for more than one minute the basic display returns and switches off after approx. 10 minutes.

Status and fault messages of the radio receiver unit

green LED on:	everything OK
red LED on:	Error (no communication with appliance, controller or outdoor sensor)
red LED flashes briefly:	Radio transmission
green LED flashes:	the "learning" process was started via a button (only relevant for replacement parts)

For the heating engineer

Installation instructions

VRC 430f

Weather compensator controller with radio transmission

VRC 430f

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1 Notes on the documentation

2 Description of the appliance

1 Notes on the documentation

The following notes are intended to help you throughout the entire documentation. Further documents apply in combination with this installation manual.

We accept no liability for any damage caused by failure to observe these instructions.

Other applicable documents

When installing the

VRC 430f please observe all installation instructions for components of the system. These installation instructions are enclosed with the various system components as well as additional components.

- The operating instructions for the Vaillant controller VRC 430f (Section 1 of this document)
- The operating and installation instructions for your heating system
- All instructions for the accessories

1.1 Storage of the documents

Please pass on this installation manual and all other valid documents and auxiliary equipment to the owner of the installation. He will then determine the method of storage. The documents must be made available upon request.

1.2 Symbols used

Please observe the safety instructions in this manual for the installation of the appliance.



Danger!
Immediate risk of serious injury or death!



Danger!
Danger of death by electric shock!



Caution!
Danger of burning and scalding!



Caution!
Potentially dangerous situation for the product and environment!



Note!
Useful information and notices.

⇒ Symbol for a necessary task

1.3 Applicability of the manual

These installation instructions apply exclusively for appliances with the following part numbers:

0020028521, 0020028522, 0020028523,
0020028524, 0020028525, 0020028526

The part number of your appliance can be taken from the identification plate.

2 Description of the appliance

The VRC 430f is designed as a weather compensator controller for heating and hot water generation in conjunction with a Vaillant appliance (eBUS-capable). The VRC 430f can also be used to control the following accessory components:

- Circulation pump for the hot water generation in conjunction with a multi-functional module VR 27
- Conventional hot water storage
- Vaillant layer cylinder actoSTOR
- Second heating circuit using the Vaillant Mixer Module VR 61
- Solar system using the Vaillant Solar Module VR 68

Power is supplied via 4 batteries (alkaline AA/LR6 1.5V) with the VRC 430f and via a solar cell with the wireless outdoor sensor VR 20/21.

With the VRC 430f and radiooutdoor sensor VR 20/21 data is transferred via radio communication to the radio receiver unit.

Power is supplied via an eBUS interface which also facilitates the exchange of data between the radio receiver unit and the appliance.

The VRC 430f is equipped with the Vaillant Diagnosis Software vrDIALOG 810/2 and with the Vaillant Internet Communication System vrnetDIALOG, i.e. can be used to perform diagnosis and adjustments remotely.

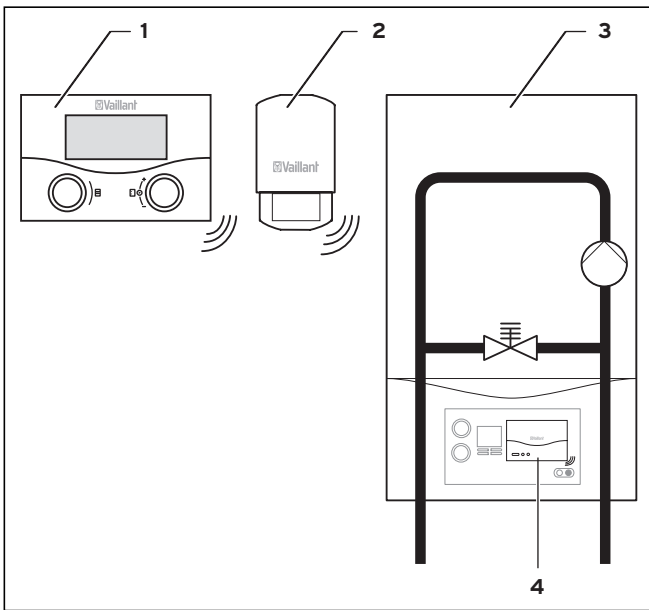


Fig. 2.1 System drawing

Key

- 1 VRC 430f
- 2 Radio outdoor sensor VR 20 or VR 21 (DCF)
- 3 Boiler
- 4 Radio receiver unit

2.1 Identification plate

The identification plate can be found on the back of the controller electronics (PCB).

2.2 CE label

The CE label documents that the Vaillant controller VRC 430f complies with the basic requirements of the following guidelines:

- Electromagnetic compatibility directive (Guideline 89/336/EEC)
- Low voltage directive (Guideline 2006/95/EEC)
- Directive on Radio Equipment and Telecommunications Terminal Equipment (R&TTE Directive 1995/5/EEC)
- Directive on Electromagnetic compatibility and Radio spectrum Matters (ERM) (Directive ETSI EN 300220-2)

2.3 Intended use

The controllers VRC 430f have been built using state-of-the-art technology and in accordance with recognised safety regulations.

Even so, inappropriate or non-intended use may adversely affect the appliance and other material assets. The controller VRC 430f is designed as a weather compensator and timer-controlled heating unit with or without hot water generation/circulation pump in conjunction with a Vaillant heating unit with eBUS interface.

Before you install the appliance, check the intended location for possible functional impairment of the radio signal path by electrical devices or building components. If interference in the signal path is likely an alternative installation location must be found.

Operation with the following accessories is permissible:

- Circulation pump for the hot water generation in conjunction with a multi-functional module VR 27
- Conventional hot water cylinder
- Vaillant layer cylinder actoSTOR
- Second heating circuit using the Vaillant Mixer Module VR 61
- Solar system using the Vaillant Solar Module VR 68

Any other use or extended use is considered to be use other than intended. The manufacturer or supplier is not liable for any resulting damage. The owner alone bears any risk.

Intended use also includes observance of the operating and installation instructions and all other valid documents.

3 Safety instructions and regulations

3 Safety instructions and regulations

The VRC 430f must be installed by a suitably qualified heating engineer, who is responsible for adhering to the existing standards and regulations. We accept no liability for any damage caused by failure to observe these instructions.

3.1 Safety instructions



Danger!

Live connections!

When working in the control cabinet of the appliance there is a danger to life by electric shock.

Switch the power supply off before working in the control cabinet and secure against re-connection.

Open the control cabinet only when the appliance is potential-free.

3.2 Regulations

During the electrical installation, observe the regulations of your local power supplier.

All wiring must be in accordance with Building Regulations Part P and BS 7671 (IEE Wiring Regulations), and must be carried out by a suitably qualified person.

Use commercially available cables for the wiring.
Minimum cross-section of sensor and bus cables
0.75 mm²

The following maximum cable lengths must not be exceeded:

- Sensor lines 50 m
- eBUS lines 300 m

Sensor and eBUS lines must be routed separately where they run parallel to 230 V cables for longer than 10 m. Do not use free terminals of the appliances as support terminals for other wiring.

The controller and radio receiver unit may only be installed in dry rooms.

4 Assembly

The VRC 430f must be installed on a wall in the living area.

The VRC 430f is supplied with the following radio outdoor sensors:

- VR 20
- VR 21 (with integrated DCF 77 RF time signal receiver)

Energy is supplied to both wireless outdoor sensors via a solar cell.

Appliance	Article no. Controller	VR 20	VR 21
VRC 430f	0020028521 0020028522		1
	0020028523 0020028524 0020028525	1	
VRC 430f	0020028526	1	

Table 4.1 VRC 430f with radio outdoor sensor

4.1 Scope of delivery

Check the scope of delivery against Table 4.2.

Pos.	number	Component
1	1	Controller VRC 430f
2	1	Radio outdoor sensor VR 20 or wireless outdoor sensor VR 21 (DCF)
3	2	Fixing equipment
4	1	6-pin edge connector (only required for the installation of a hydraulic switch; e.g. in combination with mixer module VR 61)
5	1	Radio receiver unit
6	1	Wall socket for radio receiver unit
7	1	Battery set (4x AA)
8	1	Operating and Installation Manual

Table 4.2 VRC 430f scope of supply

4.2 Accessories

The following accessories can be installed in addition to the VRC 430f weather compensator:

2 from 7 multi-functional module

The VRC 430f can control a circulation pump via the multifunctional model 2 of 7.

Mixer module VR 61

The VR 61 mixer module expands the VRC 430f so it has the functionality of a dual circuit controller.

Solar module VR 68

The VR 68 solar module can be used by the VRC 430f to control a solar installation.



Note!

If the VRC 430f is connected to additional components, please observe all instructions in relation to those components.

4.3 Installing the unit

- ⇒ Only install the controller and the radio receiver unit in dry rooms.
- ⇒ The controller should be fitted so as to ensure problem-free measurement of the room temperature; e.g. on a room wall of the main living room at a height of approx. 1.5 m.
- ⇒ Before you install the controller and wireless outdoor sensor, check the intended locations for possible functional impairment of the radio signal path by electrical devices or building components. If interference in the signal path is likely, an alternative installation location must be found.
- ⇒ If the switch-on room temp. is activated, advise the user that, in the room where the controller is mounted, all the radiator valves must be fully open.

See Section 4.5 for the mounting location of the wireless outdoor sensor.

4.4 Installing the wireless transmitter in the heating unit



Danger!

Live connections!

When working on the unit's control cabinet there is a danger to life by electric shock. Switch the power supply off before working on the control cabinet and secure against re-connection. Open the control cabinet only when the appliance is disconnected from the power source.

Proceed as follows:

- ⇒ Switch off the appliance.
- ⇒ Turn off the power supply to the appliance and secure the power supply to prevent it from being unintentionally switched back on.
- ⇒ Remove the front panel on the appliance and remove the cover plate on the control cabinet.
- ⇒ Push the radio receiver unit into the plug connection provided in the control cabinet using your plug connector.
- ⇒ Re-connect the power supply to the appliance.
- ⇒ Switch the appliance on.

4 Assembly

- ⇒ Check whether the green LED lights up at the radio receiver unit after a short period of time.
- ⇒ Close the front panel of the appliance.

4.4.1 Wall mounting the wireless receiver

Note!

The wireless receiver only needs to be wall-mounted if, after start-up, the receiver position has to be changed in order to establish the best wireless connection with the controller and the outdoor sensor.

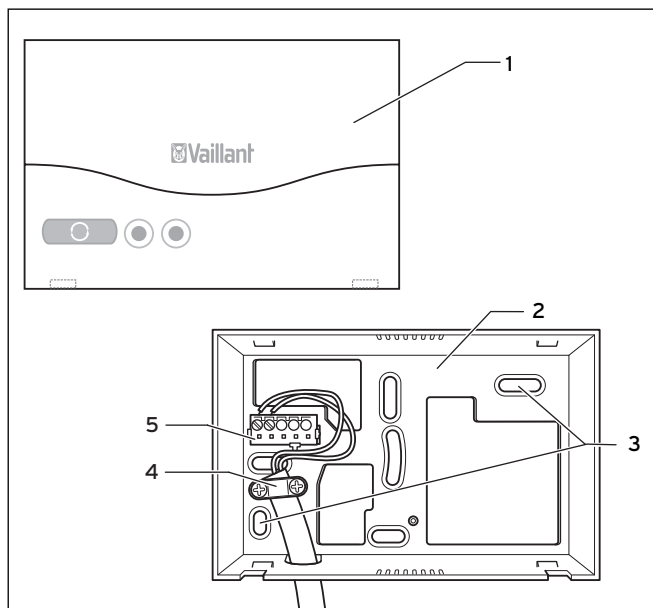


Fig. 4.1 Mounting the receiver

Key

- 1 Radio receiver unit
- 2 Wall plinth
- 3 Mounting openings
- 4 Stress relief
- 5 Terminal rail

- ⇒ Take the wall socket for the radio receiver unit.
- ⇒ Mark the position on the wall.
- ⇒ Drill two holes 6 mm diameter to match it the fixing apertures (3).
- ⇒ Insert the rawl plugs supplied.
- ⇒ Use the screws supplied to fix the wall socket.
- ⇒ The electrical installation is carried out as described in Section 5.1.
- ⇒ Press the radio receiver unit carefully onto the wall socket until it snaps into place. The plug connector on the rear of the wireless receiver unit must fit in the plug connector provided on the wall socket.

4.5 Installing the radio outdoor sensor

The location of the radio outdoor sensor should satisfy the following requirements:

- not particularly protected from the wind
- not particularly draughty
- no direct sunlight
- no influence from heat sources
- N or NW facing facade
- good accessibility for cleaning the solar cell
- in close proximity to radio receiver unit

- ⇒ When starting up the sensor in the chosen location check that the signal path is not adversely affected by electrical devices or building components. If the path is likely to be obstructed, you will have to re-install the unit in a more suitable location.

Note!

The outdoor sensor is powered by a solar cell. It is therefore not necessary to change the battery.

Note!

The radio outdoor sensor must not be exposed to direct sunlight.

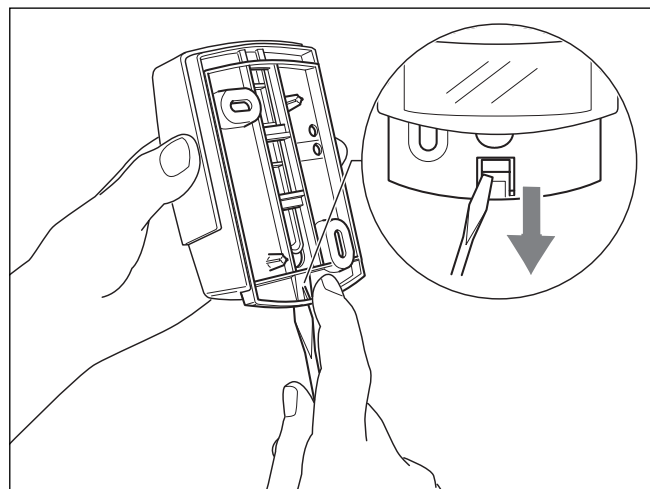


Fig. 4.2 Removing the wall mount

Proceed as follows :

- ⇒ Mark the position on the wall.
- ⇒ Remove the wall bracket for the wireless outdoor sensor (see Fig. 4.2).

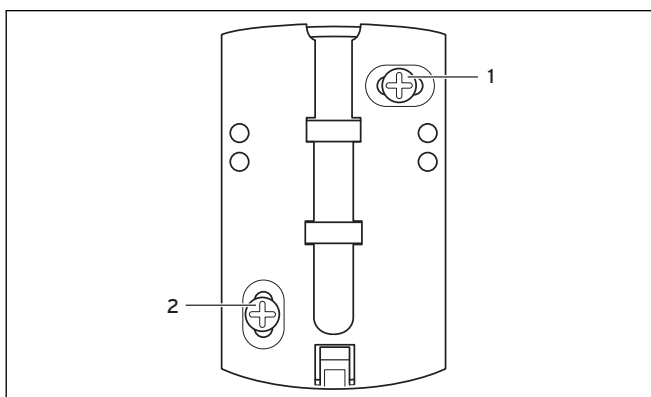


Fig. 4.3 Installing the wall mount

- ⇒ Drill two holes with diameter 6 mm to match the fixing holes.
- ⇒ Insert the plugs supplied.
- ⇒ Mount the wall bracket using the two screws (1, 2) (see Fig. 4.3).

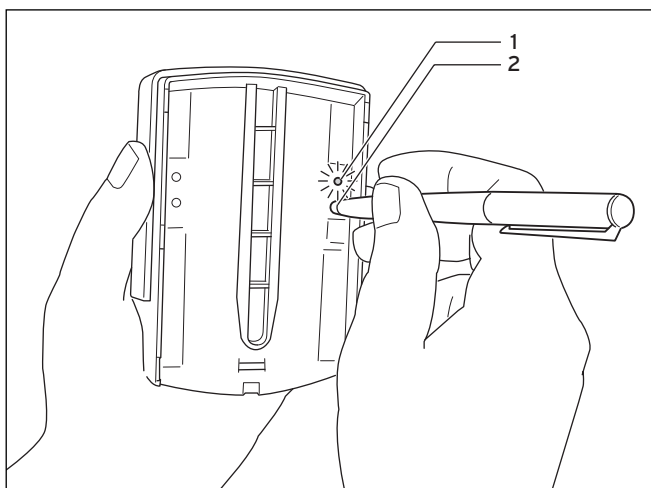


Fig. 4.4 Starting up the outside wireless sensor

Key

- 1 LED
- 2 Buttons

- ⇒ Activate the radio outdoor sensor by pressing the red <> button on the reverse side on the right (2), e.g. using a pen. The green LED (1) flashes for approx. 30 seconds.



Note!

The radio outdoor sensor must always be operated in conjunction with the heating unit, otherwise no information (e.g. outside temperature) will be transmitted to the radio receiver.

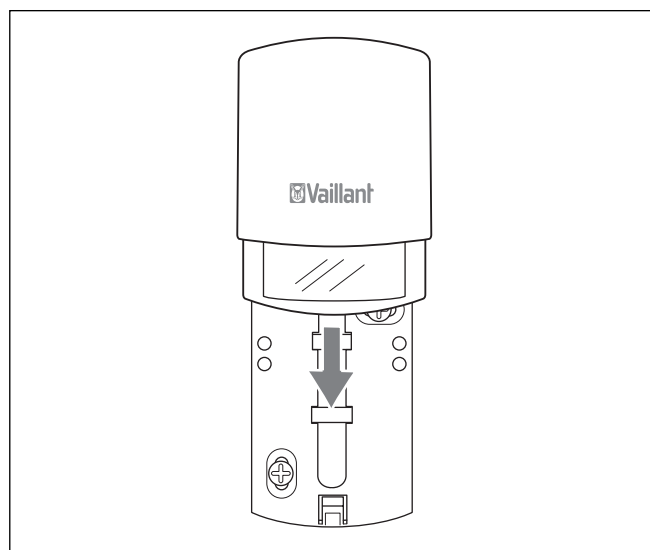


Fig. 4.5 Securing the radio outdoor sensor

- ⇒ Press the radio outdoor sensor onto the wall bracket until it snaps into place.

4.6 Wall-mounting the controller

During initial start-up in the chosen location, ensure the signal path is not adversely blocked by electrical devices or building components. If the signal path is impaired an alternative installation location must be found.

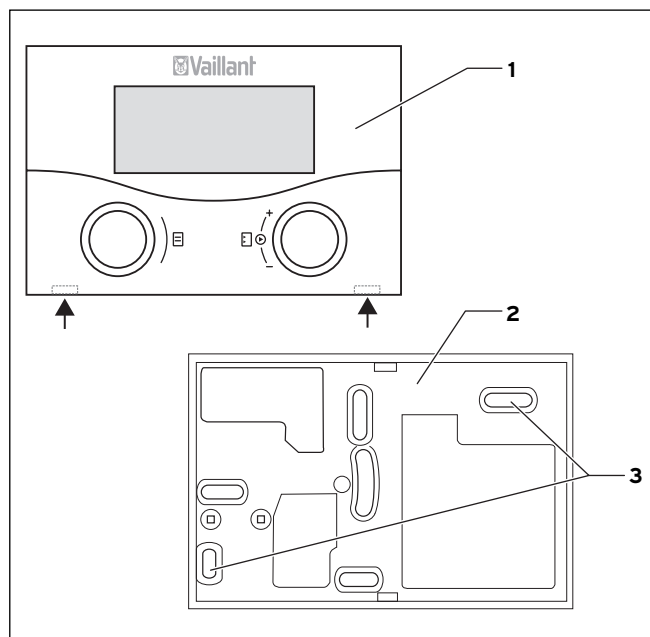


Fig. 4.6 Installing of the VRC 430f

Key

- 1 Controller VRC 430f
- 2 Wall plinth
- 3 Mounting openings

4 Assembly

5 Installation

Proceed as follows:

- ⇒ Pull the controller (1) off the wall socket (2). This can be done by pushing a screwdriver into the two retaining straps (see Fig. 4.6 arrows).
- ⇒ Mark the position on the wall.
- ⇒ Drill two holes 6 mm diameter to suit the fixing apertures (3).
- ⇒ Insert the plugs supplied.
- ⇒ Use the screws supplied to fix the wall socket.
- ⇒ Mount four new batteries of the same type for the controller on the reverse side of the controller PCB.

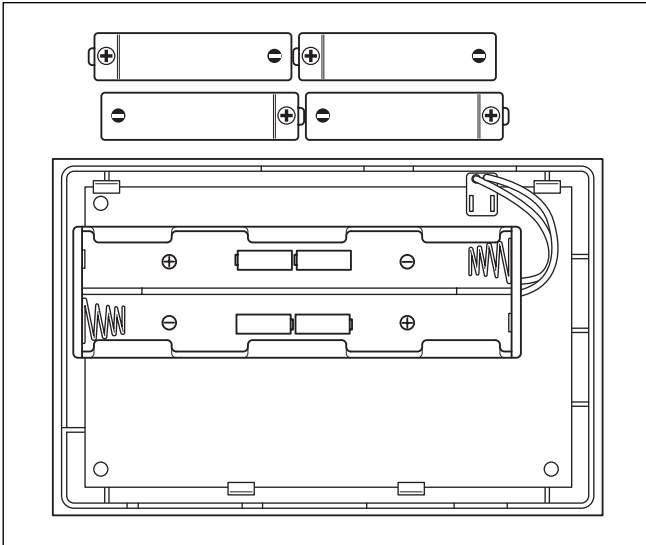


Fig. 4.7 Inserting the batteries

Note!

Make sure the polarity is correct (see Fig. 4.7).
Always change all batteries at the same time.
Only use the following battery type:
Alkaline AA/LR6 Battery 1.5 V.
Do not use rechargeable batteries.
Depending on use, the batteries last between approx. 1 and 1.5 years.

- ⇒ Carefully press the controller onto the wall plinth until it snaps into place.
- ⇒ Check the quality of the radio signal path as described in Section 6.1.

5 Installation



Danger!

Live connections!

When working in the control cabinet of the appliance there is a danger to life by electric shock.

Switch the power supply off before working in the control cabinet and secure against re-connection.

Open the control cabinet only when the appliance is potential-free.

If the radio receiver unit is integrated into the appliance, the electrical connection is established through contact between the plug connector of the controller and the corresponding plug connection in the appliance.

5.1 Electrical installation of the radio receiver when mounting it on a wall



Note!

The radio receiver only needs to be wall-mounted if, after start-up, the receiver position has to be changed in order to establish the best connection with the controller and the outdoor sensor.

The power supply to the appliance must be disconnected and prevented from being unintentionally switched back on.

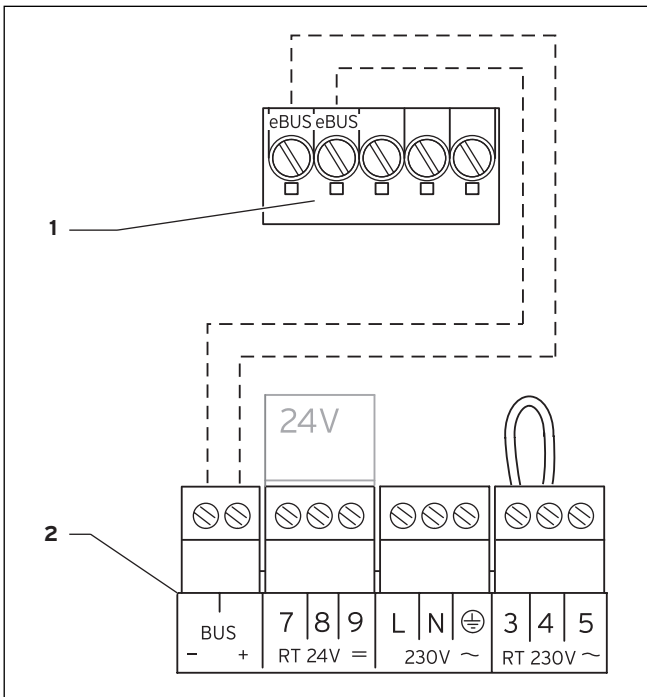


Fig. 5.1 Radio receiver electrical connections

Key

- 1 Terminal rail for the wireless unit wall plinth
- 2 Heating unit terminal rail



Note!

The bridge between terminal 3 and 4 (see Fig. 5.1) must not be removed. When connecting the eBUS cable there is no need to observe the correct polarity. Communication is not adversely affected by swapping the two connections.

Proceed as follows :

- ⇒ Connect the eBUS cable to the terminal strip (1) of the wall socket for the radio receiver unit.
- ⇒ Install the strain relief (4, Fig. 4.1).
- ⇒ Connect the eBUS cable to the terminal strip of the appliance (2).

6 Initial commissioning

Prerequisites:

- The controller, the radio outdoor sensor and the radio receiver unit are installed correctly.
- The appliance is switched on and ready for operation.



Note!

Please ensure that both rotary knobs (hot water outlet-/cylinder temperature and heating flow temperature) on the heating unit are set to maximum (all the way to the right). This ensures an optimum level of control by the VRC 430f.

Note!

The button on the radio receiver unit is only required for "teaching" components on the radio network following the replacement of parts.

The VRC 430f operator control concept is explained in Section 4.3 of the operating instructions. 4.3 Explanation.

6.1 Installation assistant

The installation assistant provides you with support during initial start up. The installation assistant automatically detects all components that are connected to the heating system.

Up to six screens are available in the display (A1 to A6) depending on the configuration of the heating system. The most important parameters of the heating system can be entered via the installation assistant.

The installation assistant starts at the first screen A1: Language selection.

- ⇒ Select the language in accordance with the operator control concept (operating instructions Section 4.3).
- ⇒ Turn the left-hand dial clockwise by one position (click) to display additional screen A1.

Installation assistant	A1
RF links	10
Outdoor temperature sensor	10
Controller	10
Learn mode	▶ OFF
> Select mode	

Fig. 6.1 Installation assistant screen A1

You can read off or check the quality of the radio signal path between the controller or outdoor sensor and radio receiver unit here.

6 Initial commissioning

The quality of the wireless data communication for outdoor sensors and controllers is represented by a number of between 0 and 10.

- 0: no reception
- 1: poor quality
- 10: excellent quality

Note!
 You will have to change the location of the controller, wireless sensor or wireless receiver if the value is less than 3. A description of the installation of the radio receiver unit on the wall is provided in Section 4.4.1.

Note!
 The range of radio transmission within buildings is largely dependent on the local conditions (e.g. the nature of the building). This means that a range of 25 m within the building cannot always be guaranteed. A range of more than 100 m can be achieved outside enclosed spaces (free field).

The quality displayed is updated automatically as soon as changes are made. With wireless outdoor sensors this procedure may take up to 15 minutes.

Note!
 The "Learn" screen is only used for "training" replacement components to work with in the wireless network.

⇒ Turn the left-hand dial clockwise by one indexing position in order to display page A2.

Installation assistant, system configuration	A 2
Mixer mode HC1	BK
Cylinder	▶ active
> Select	

Fig. 6.2 Installation assistant, screen A2

Screen A2 shows the configuration of the heating installation. In the mixer mode HC1 you can select between direct circuit (DC) and inactive. For the cylinder (storage), you can choose between active and inactive.

⇒ Keep turning the left-hand dial clockwise by one indexing position until you reach screen A5. You can check operation of the appliance on screen A5:

⇒ Select the parameter value 50 °C for the parameter "activate heating appliance".

⇒ Check the reaction of the appliance.

If you want to make any other changes:
 ⇒ Turn the left-hand dial anticlockwise to go back to one of the previous screens.

Exit the installation assistant as follows:
 ⇒ Turn the left-hand dial clockwise until you reach screen A6 .
 ⇒ Confirm the end of the installation with "Yes".

Note!
 If you confirmed the end of the installation with "yes" you can only access the installation assistant via the code-protected Expert Technician Level.

6.2 Expert Technician Level

Specific operating data can be displayed and adjusted/changed at the expert technician level. This means that an optimum match can be found between the controller and the heating system. This is useful, especially if the heating installation has additional components apart from heating circuit 1 (HC 1) (e.g. heating circuit 2, hot water storage, solar system).


Note!
 The description of the controller function for accessories can be found in the instructions for these components.

The expert technician level includes screens C1 to C26 and screens A1 to A6 as previously described. The screens C1 to C26 appear in the VRC 430f in the same sequence, as shown in Table 6.1 below. This table shows you which parameters you can adjust and change.

Depending upon the configuration selected in the installation assistant (screen A2), the parameters not required are hidden.

Setting/changes are made in accordance with the operator control concept as described in Section 4.3 of the operating instructions.

In order to get to the expert technician level, you need to enter an access code. From the default display access the heating engineer level in the following way:

- ⇒ Click one or both dials to navigate to the basic display from the default display.
- ⇒ Turn the left-hand dial clockwise until screen  15 appears.
- ⇒ Enter the code.

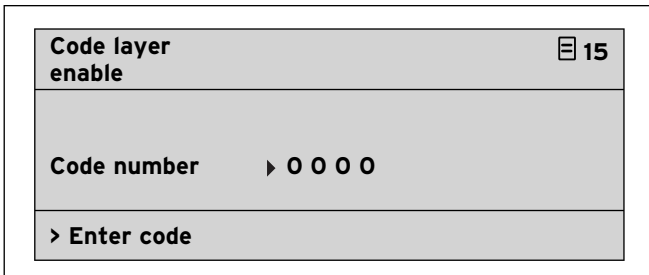


Fig. 6.3 Screen 15

The default code is 1 0 0 0.
You can change the code on screen C24.

After entering the correct code you automatically reach screen C1.

6.3 Restoring the parameters to the default settings

The default settings for the VRC 430f can be restored as follows:

⇒ Press both dials simultaneously for 10 seconds.
This takes you to the default settings screen.

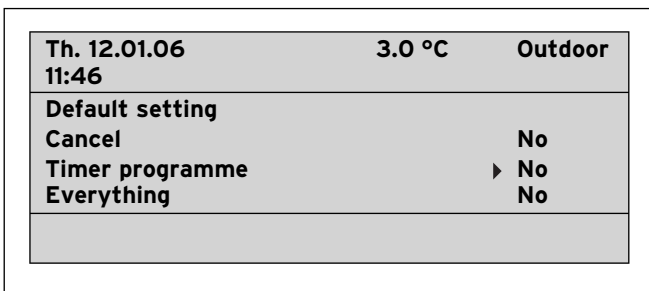


Fig. 6.4 Default settings screen

Menu point	Input	Result
Cancel	Yes	The set parameters remain effective
Time programme	Yes	All programmed time windows are deleted
Everything	Yes	All parameters are restored back to the default settings

Table 6.1 Menu selection, Default settings screen

Once the input is confirmed the display reverts to the basic display or default display.

6 Initial commissioning

Screen	Title screen	adjustable operating values (only display = A)	Remarks	Unit	Min. value	Max. value	Increment	Default value
C1	HC1 Information	Target flow temperature (A)	Flow temperature target value	°C			1	
		Pump status (A)					On, Off	
		Remote control	Remote control connected? Room actual display	°C			Yes, no and 0.5	
C3	Hot water information	Sensor VF1 (A)	Actual value at flow sensor 1 or internal sensor for the heating appliance	°C			1	
		Boiler status (A)					Off, CH mode, WW operation	
C4	Hot water information	Hot water target value (A)	Hot water target temperature of cylinder	°C			1	
		Cylinder sensor 1 (A)	Hot water actual temperature of cylinder	°C			1	
		Circulation pump status (A)					On, Off	
C8	HC1 parameters	Heating circuit type (A)	Status display				Heating circuit, inactive	
		Switch-on room temp.	selectable with wall-mounted controller or remote control				none, switch on, thermostat	none
		Summer operation mode Offset	If outdoor temperature > room target temperature + summer offset, the appliance switches off	R	0	30	1	1
C9	HC1 parameters	set-back temp	A set-back temp can be specified for the periods between the time windows. If your heating engineer has set the frost protection function the set-back temperature will automatically be 5 °C. This is not displayed as a set-back temperature.	°C	5	30	1	15
		Heating curve	In accordance with diagram in Section 4.7.3 of operating instructions		0,2	4	0,05-0,1	1,2
		Minimum temperature	Minimum flow temperature	°C	15	90	1	15
C16	Hot water parameters	Anti-legionella day	Day or block of days; The cylinder is heated up to 70 °C for an hour				OFF, MO, TU, WE, TH, FR, SA, SU, MO-SU	OFF
		Start time of Legionella protection			0:00	24:00	0:10	4:00

Table 6.2 Screen, Expert technician level

Screen	Title screen	adjustable operating values (only display = A)	Remarks	Unit	Min. value	Max. value	Increment	Default value
C21	Total system parameters	Mode Auto_OFF	Defines how the heating is controlled outside the programmed time window				Frost protection, ECO, energy sav	ECO
		Frost protection delay time	Delay in start of frost protection function or ECO function.	Hr	0	12	1	4
		Max. pump blocking time	If the flow target temperature is achieved for a longer period of time, the heating is switched off for the prescribed pump blocking time (depends on the external temperature)	Min	Off, 5	60	1	15
C22	Total system parameters	Max. advanced heating time	Before the start of the first time window	Min	0	300	10	0
		Max. heating switch off time	Before the end of a time window	Min	0	120	10	0
		AT through-heating	When the outside temperature is reached, continuous heating is active	°C	OFF, -25	+10	1	Off
C23	Floor drying	Floor drying - day	See Section 6.4 Function floor drying	Day	0	29	1	0
		Floor drying /flow target (A)	See Section 6.4 Function floor drying	°C				in accordance with temperature profile
C24	Service	Telephone number	Enter the phone number to be called in the event of a service requirement					
		Changing the code number			0000	9999	each 1	1000
		Maintenance date	Day/Month/Year adjustable					
C25	Tools	Outside temperature adjustment	Adjustment of outdoor sensor	R	-5	5	1,0	0
		Room temperature correction	Adjustment of room temperature sensor	R	-3	3	0,5	0
		Display contrast			0	15	1	6
C26	Software versions	Software version per module (A)	Display of version number					

Table 6.2 Screens, Expert technician level (continued)

6 Initial commissioning

6.4 Function floor drying

The floor-drying function is used to "heat dry" a freshly-laid heating layer according to building regulations.

If this function is activated, all selected operating modes are stopped.

The flow temperature of the controlled heating circuit is controlled according to a pre-set program regardless of the outside temperature.

Starting temperature: 25 °C

Days after starting the function	Target feed temperature for this day [°C]
1	25
2	30
3	35
4	40
5	45
6-12	45
13	40
14	35
15	30
16	25
17-23	10 (frost protection function, pump in operation)
24	30
25	35
26	40
27	45
28	35
29	25

Table 6.3 Temperature profile, floor drying

In screen C23 of the expert technician level, the VRC 430f controller shows the floor-drying operating mode with the current day and the associated target flow temperature.

The current day can be set manually.

When the function is started, the current time of the start is saved. The day is changed at this time precisely.

6.5 Handing over the appliance to the owner

The operator of the VRC 430f must receive instructions on how to handle and operate of the controller.

- ⇒ Pass on the instruction manuals and documents for the appliance to the operator for safe keeping.
- ⇒ Inform the operator what the part number is.
- ⇒ Make the operator aware of the need to keep the instruction manuals within reach of the controller.
- ⇒ Go through the operating instructions with the operator and answer any questions if necessary.

6.6 Faults



Note!

If the outdoor sensor or controller stops working, the emergency-control setting is activated. If the wireless outdoor sensor fails an outside temperature of 0 °C is assumed. Even if the controller fails, the system will continue to be controlled via the radio receiver unit. (Exception: the switch-on room temp. is no longer working.)

6.7 Special features

Battery power-save mode



Note!

The screen is usually switched off to save energy. This increases the service life of the batteries. The display and the lighting are activated as soon as you turn or click one of the dials. If the appliance is not used for more than one minute the screen returns to the basic display returns and switches off after approx. 10 minutes.

Status and fault messages to the radio receiver unit

- green LED on: everything OK
- red LED on: Error (no communication with appliance, controller or wireless outdoor sensor)
- red LED flashes briefly: Radio transmission
- green LED flashes: the "learn" process was started via a button (only relevant for parts replacement)

6.8 Maintenance

- ⇒ Point out to the operator that the radio outdoor sensor (solar cell) should be cleaned at least once a year to ensure that the power supply is maintained.

7 Factory customer service, manufacturer's guarantee

7.1 Vaillant Service

To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement. Please contact Vaillant Service Solutions (0870 6060 777) for further details.

7.2 Vaillant warranty

We only grant a Vaillant manufacturers warranty if a suitably qualified engineer has installed the system in accordance with Vaillant instructions. The system owner will be granted a warranty in accordance with the Vaillant terms and conditions. All requests for work during the guarantee period must be made to Vaillant Service Solutions (0870 6060 777).

8 Recycling and disposal

Both the VRC 430f and its packaging are extensively primarily made of recyclable raw materials.

Appliance

Neither the VRC 430f nor any of its accessories may be disposed of in the household waste. Make sure the old device and any existing accessories are disposed of properly.

Packaging

The disposal of the transport packaging is undertaken by the installer who installed the unit.

Batteries

Batteries must not be disposed of in the household waste. Ensure that the batteries are disposed of properly.

9 Technical data

Parameter	VRC 430f
Operating voltage U _{max}	4x1.5 V (AA)
Service life of battery (alkaline)	approx. 1.5 years
Level of protection	IP 20
Protection class	III
Maximum permissible ambient temperature	50 °C
Transmission frequency	868 MHz
Transmitting power	< 10 mW
Range:	
in free field	> 100 m
in building	approx. 25 m
Height mm	97
Width mm	146
Depth mm	45

Table 9.1 Technical specifications VRC 430f

Parameter	Radio receiver unit
Operating voltage U _{max}	max. 24 V
Current consumption	< 60 mA
Level of protection	IP 20
Protection class	III
Maximum permissible ambient temperature	50 °C
Transmission frequency	868 MHz
Transmitting power	< 10 mW
Range:	
in free field	> 100 m
in building	approx. 25 m
Height mm	97
Width mm	146
Depth mm	45

Table 9.2 Technical specifications, radio receiver



Note!

The range of radio transmission within buildings is largely dependent on the local conditions (e.g. the nature of the building). This means that a range of 25 m within the building cannot always be guaranteed. A range of more than 100 m can be achieved outside enclosed spaces (free field).

Parameter	Radio outdoor sensor VR 20/21
Power supply	via solar cell with energy accumulator
Darkness reserve (with energy accumulator full)	approx. 20 days
Level of protection	IP 44
Protection class	III
Permissible operating temperature	-35 ... + 60 °C
Transmission frequency	868 MHz
Transmitting power	< 10 mW
Range:	
in free field	> 100m
in building	approx. 25 m
Height mm	110
Width mm	76
Depth mm	41

Table 9.3 Technical specifications, radio outdoor sensor VR 20/21

Glossary

set-back temp

The set-back temperature is the reduced interior temperature maintained by your heating system outside of the programmed time window.

Auto_Off (operating level for heating engineer)

The control behaviour in the Automatic operating mode for the times in which no time windows are programmed can be defined in screen C21 "Total system parameters" under the menu item "Mode Auto_Off". The options are frost protection, ECO and energy sav.

- Frost protection

In the times when no time windows are programmed the appliance is switched off. **The frost protection function (see menu) is active.**

- ECO

In the times when no time windows are programmed the appliance is switched off. The outside temperature is monitored. If the outside temperature falls below 3 °C, the set-back temp is applied as the room target temperature (minimum 5 °C). This target room target value is used for control. A set frost protection delay time (see menu) also affects the start of this control. If the outside temperature rises to above 4 °C, the outside temperature monitoring remains active and the appliance is switched off.

- Set-back

In the times when no time window is programmed, the room target temperature is set to the set-back temp (minimum 5 °C). This target room value is used for control.

Operator level

Used to display and set/change the basic parameters. The setting/ parameters can be changed by the user without any special previous knowledge and during normal operation. The heating system can continuously adapt to the requirements of the operator by making the corresponding basic parameter settings.

Expert technician level

Used to display and set/change specific parameters. This level is reserved exclusively for use by the heating engineer and is therefore protected by an access code.

Operating mode

The operating modes "Auto" (automatic), "Manual" and "OFF" exist. You can use the operating modes to specify how you wish your room heating or water heating to be controlled (see operating instructions, Section 4.3.2, Table 4.2).

DCF

The DCF radio receiver receives a clock signal and passes on the time to the controller. Your controller switches automatically between summer/winter time. You only need to change the time manually if the receiver fails to receive a signal.

Frost protection function

The frost protection function protects your heating system and apartment from frost damage. It is also active in the "OFF" operating mode.

The frost protection function monitors the outside temperature. If the outside temperature falls below 3 °C, the heating pump is switched on for approx. 10 min. and then off for between 10 and 60 min. (irrespective of the value of the outside temperature). If the heating flow temperature is less than 13 °C, the burner for the appliance is switched on and the room temperature is controlled with reference to a target value of 5 °C. If the outside temperature rises to above 4 °C, the outside temperature monitoring remains active; the heating pump and burner are switched off. If the outside temperature falls to below -20 °C, the burner for the appliance is switched on directly and the room temperature is controlled with reference to a target value of 5 °C.

Frost protection delay time

The heating control trigger via the frost protection function (outside temperature < 3 °C) can be delayed by a specific time period (1 - 12 hours) by specifying a frost protection delay time (heating engineer level). The set frost protection delay time also works in the "ECO" function in the "Auto_Off" mode (see location). The frost protection delay time starts when the outside temperature falls below 3 °C.

Heating circuit (HC1)

HC1 indicates heating circuit 1. This refers to the heating of your heating system. You can use a special designation instead of HC1 (see operating instructions Section 4.7.5).

Heating curve

A heating curve shows the relationship between the outside temperature and the flow temperature. The selection of a heating curve allows the influencing of the flow temperature of your heating system and therefore also the room temperature.

The option of being able to choose from a range of heating curves facilitates optimum adaptation of the control to the apartment and the heating system in conjunction with the switch-on room temp. (see menu).

Fig. G.1 shows the possible heating curves for a room target temperature of 20 °C.

If, for example, heating curve 1.5 is selected, a flow temperature of 56 °C is maintained with an outside temperature of 0 °C.

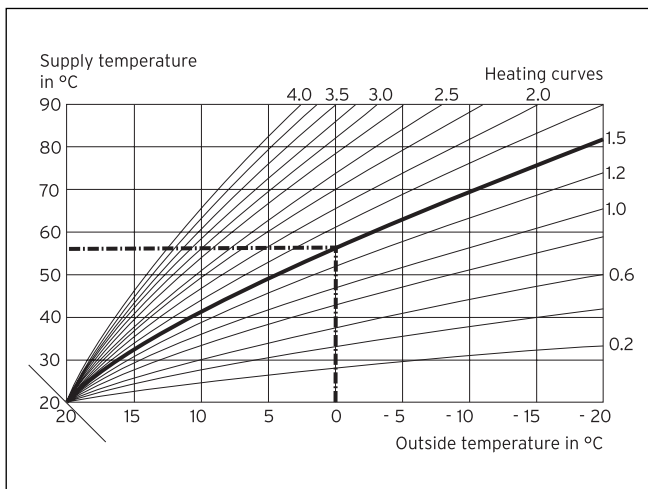


Fig. G.1 Diagram with heating curves for a target room temperature of 20 °C

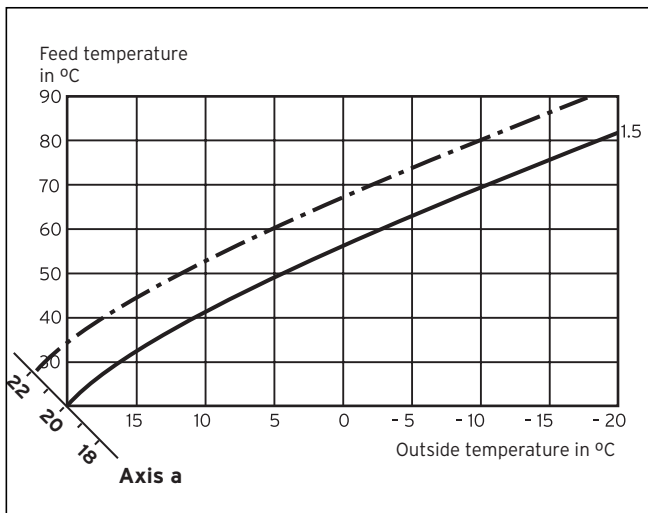


Fig. G.2 Parallel heating curve offsetting

If heating curve 1.5 is selected and 22 °C rather than 20 °C is specified as the room target temperature, the heating curve is displaced as shown in Fig. G.2. The heating curve is displaced according to the value of the

room target temperature along axis a which is angled at 45°, i.e. the controller ensures a flow temperature of 67 °C with an outside temperature of 0 °C.

Heating flow temperature

Your appliance heats water which is pumped through your heating system. The temperature of this hot water as it leaves the appliance is referred to as the flow temperature.

Interior temperature

The interior temperature, also referred to as room temperature, is the actual current temperature in your apartment.

Maximum temperature, solar cylinder

In order to ensure the highest possible returns from the solar cylinder heating, while at the same time ensuring that scalding/limescale protection is active, you can set a maximum value for the solar temperature cylinder. To do this, use the "Cylinder temp. top" SP1 sensor for cylinder 1, if this is installed in the corresponding cylinder. Otherwise "Cylinder temp. bottom" SP2 is used. SP3 is used for the second cylinder, swimming pool). If the set temperature is exceeded, the solar circuit pump is switched off. Solar power is only permitted once the temperature on the active sensor drops 1.5 K below the maximum temperature.

The maximum temperature for each cylinder can set separately.

- Cylinder_Maximumtemperature_1:
20 ... 85 °C; Basic value 70 °C
- Cylinder_Maximumtemperature_2:
20 ... 85 °C; Basic value 60 °C

The programmed maximum temperature must not exceed the cylinder's maximum permissible water temperature!

Parameter

Parameters are the properties of your heating system. You can influence these properties by altering the value of a parameter, e.g. by reducing the value of the parameter "set-back temp" from 15 °C to 12 °C.

Switch-on room temp. (operating level for expert technicians)

You can specify whether or not the temperature sensor fitted in the VRC 430f should be used in screen C8 "HC1 Parameter" under the "Switch-on room temp." menu item.

The following inputs are possible in the menu point "Switch-on room temp.":

- **None**
The temperature sensor is not used for control.
- **Switch on**
The in-built temperature sensor measures the current room temperature in the reference room. This value is compared with the target room temperature and the

heating flow temperature is adjusted in the event of deviation.

- **Thermostat**

The in-built temperature sensor measures the current room temperature in the reference room. If the measured value is below the target room temperature the heating flow temperature is increased and if the value is above the target room temperature the appliance is switched off.

The use of the switch-on room temp., in combination with careful selection of the heating curve, leads to optimum control of the heating system.

Room target temperature


The room target temperature is the temperature that should prevail in your apartment and is specified at the controller. Your appliance supplies heat until the interior temperature matches the room target temperature.

When entering time programmes the room target temperature is also referred to as the comfort temperature.

Set values

Set values are desired values that you specify in the controller, e.g. the room target temperature or target temperature for water heating.

Summer/Winter changeover

In the screen  1 "Basic Data" in the menu point "Mode selection" you can determine whether the changeover from summer to winter should take place automatically (Selection: Auto).

The factory setting (as-supplied condition) is for automatic changeover not to take place (Selection: Off).

If the VRC 430f is equipped with the wireless outdoor sensor VR 21 that receives the radio time signal DCF77, the summer/winter changeover takes place automatically; it is not possible to shutdown the automatic changeover (selection: Off) in this case.

Flow temperature

See Heating flow temperature.


Water heating

The water in the hot water cylinder is heated to the selected target temperature by the appliance. If the temperature in the hot water cylinder falls by a specific amount the water is heated again until it reaches the target temperature. Time windows for water heating can be programmed.

Time window

Three time windows can be programmed per day for the heating, water heating and circulation pump (see operating instructions Section 4.7.1).

A target value is allocated to each time window programmed for the heating.

In the case of water heating the hot water target temperature applies for all time windows (Screen  10 "Hot water parameters").

In the case of the circulation pump the time windows determine the operating times.

In automatic mode the system is controlled in accordance with the specified values in the time windows.

Circulation pump

Depending on the length of the pipe, there may be a brief delay before hot water flows when the hot water cock is opened. A circulation pump circulates hot water via your hot water pipe. This means that hot water is available instantly when the water cock is opened. Time windows can be programmed for the circulation pump.

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