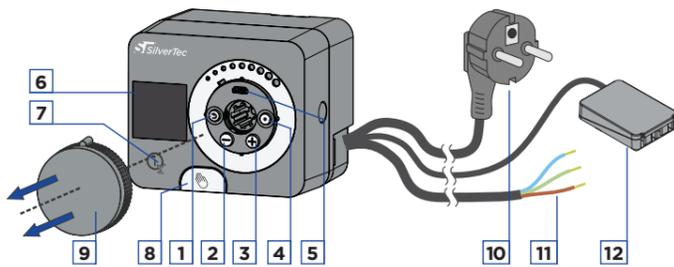




FWR+ controllers are modern microprocessor-controlled devices with an integrated actuator for the mixing valve and circulation pump control. They are produced in digital and SMT technology. They are designed to control constant temperature in various heating and cooling applications. They are most commonly used for the control of the return temperature to the boiler or the supply temperature to the system.

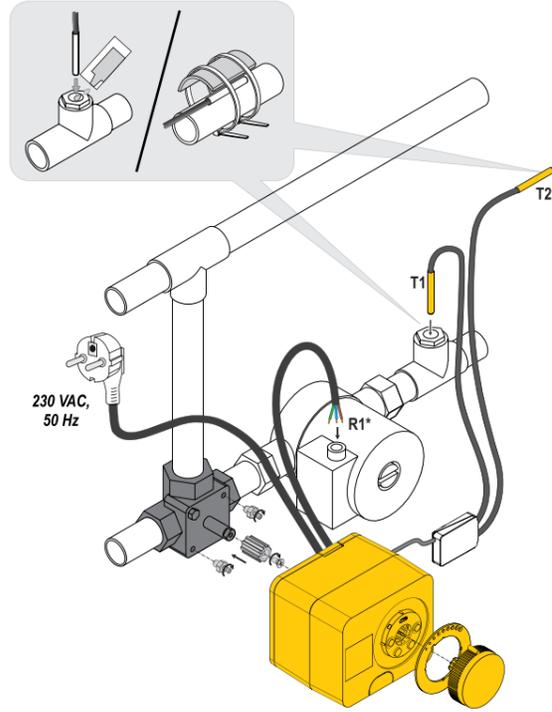
Appearance of the controller



1. Button . Return back.
2. Button . Move to the left, decreasing.
3. Button . Move to the right, increasing.
4. Button . Menu entry, confirmation of selection.
5. USB port for software updates and connection to a personal computer.
6. Graphic display.
7. Button . Help.
8. Manual operation clutch.
9. Manual movement button.
10. Pre-wired power cord with plug.
11. Pre-wired cable for circulation pump.
12. Pre-wired connection box for sensors and communication.

Controller installation

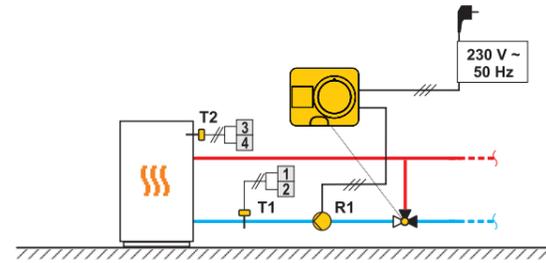
In a dry and warm interior, the controller can be mounted directly on the mixing valve with the help of the accessories provided. Avoid close proximity to any strong electromagnetic fields.



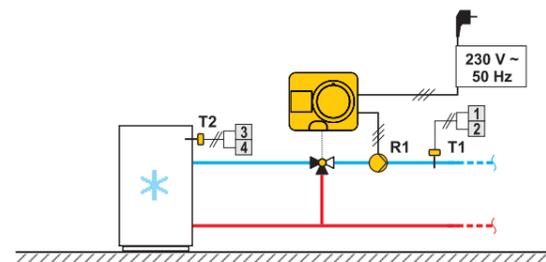
| Scheme | Mixing valve position | Ring position |
|--------|-----------------------|---------------|
|        |                       |               |
|        |                       |               |
|        |                       |               |
|        |                       |               |
|        |                       |               |
|        |                       |               |
|        |                       |               |
|        |                       |               |
|        |                       |               |

Hydraulic schemes

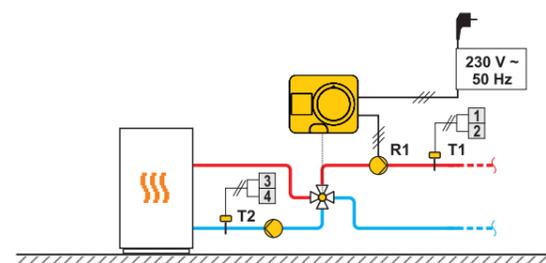
Scheme 1 - Return - Heating (return increase, 3-way mixing valve)



Scheme 2 - Flow - Cooling (Fixed value control, 3-way mixing valve)



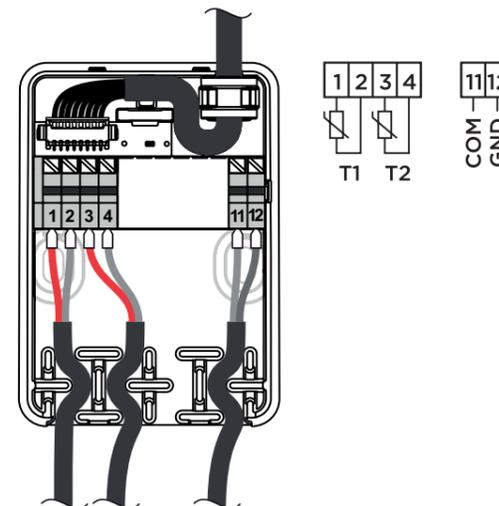
Scheme 3 - Flow control with return temperature limit (4-way mixing valve)



Controller power connection

Connection of temperature sensors

Temperature sensors are connected to a pre-wired connecting rail. The controller allows the connection of two Pt1000 temperature sensors (connection terminals 1 to 4). The sensor function depends on the hydraulic diagram.



Initial controller setup

The controller is equipped with an innovative "Easy start" function, which allows the initial setting of the controller in just a few steps. Upon the first connection of the controller to the power supply network, the first step of the controller setup is displayed after the program version and logo. The manual movement button must be removed for the setup. The Easy start function is activated by pressing the buttons and and holding them both down together for 5 seconds.



STEP 1: Language setup



Use the buttons and to select the requested language. Confirm the selected language by pressing . If you've mistakenly selected the wrong language, you can return to the language selection with the button.

*Later, you can change the language in the „Display“ menu.*

STEP 2: Selecting heating or cooling operation



Use the buttons and to select the requested operating mode - heating or cooling. Confirm the selected operating mode by pressing . If you've mistakenly selected the wrong operating mode, you can return to the operating selection with the button .

*Later, you can change the operating mode in the „Operating mode“ menu.*

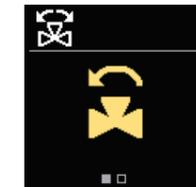
STEP 3: Hydraulic scheme setup.



You can select the hydraulic scheme for the controller operation. Use the buttons and to navigate between schemes. Confirm the selected scheme with the button. If you have mistakenly selected the wrong scheme, you can return to the diagram selection with the button .

*Later, you can change the hydraulic scheme with the S1.1 service parameter.*

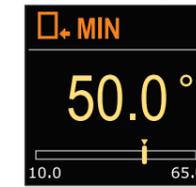
STEP 4: Selecting the opening direction of the mixing valve



You can select the opening direction of the mixing valve. Use the buttons and to navigate between directions. Confirm the selected direction with the button. If you have mistakenly selected the wrong direction, you can return to the direction selection with the button .

*Later, you can change the opening direction of the mixing valve with the service parameter S1.3.*

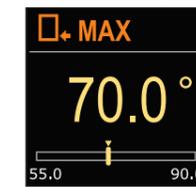
STEP 5: Setting the lower limit for the requested heating temperature



With the buttons and you can set up the lower limit of the requested temp. in heating mode. Confirm the setup by pressing . If you have accidentally set the wrong lower limit, you can return to the lower limit setting by pressing .

*Later, you can change the lower limit setting of the requested heating temp. with the service parameter S2.1.*

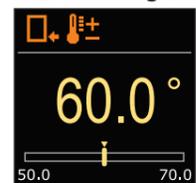
STEP 6: Setting the upper limit for the requested heating temperature



With the buttons and you can set up the upper limit of the requested temp. in heating mode. Confirm the setup by pressing . If you have accidentally set the wrong upper limit, you can return to the upper limit setting by pressing .

*Later, you can change the upper limit setting of the requested heating temp. with the service parameter S2.2.*

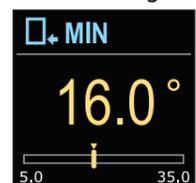
### STEP 7: Setting the requested heating temperature



With the buttons  $\ominus$  and  $\oplus$  you can set up the requested temperature in heating mode. Confirm the setup by pressing  $\odot$ . If you have accidentally set the wrong requested temperature, you can return to the requested temperature setting by pressing  $\odot$ .

*Later, you can change the requested heating temperature in the „Requested temperatures“ menu.*

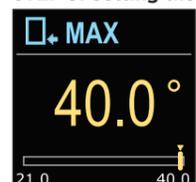
### STEP 8: Setting the lower limit for the requested cooling temperature



With the buttons  $\ominus$  and  $\oplus$  you can set up the lower limit of the requested temp. in cooling mode. Confirm the setup by pressing  $\odot$ . If you have accidentally set the wrong lower limit, you can return to the lower limit setting by pressing  $\odot$ .

*Later, you can change the lower limit setting of the requested cooling temp. with the service parameter S2.3.*

### STEP 9: Setting the upper limit for the requested cooling temperature



With the buttons  $\ominus$  and  $\oplus$  you can set up the upper limit of the requested temperature in cooling mode. Confirm the setup by pressing  $\odot$ . If you have accidentally set the wrong upper limit, you can return to the upper limit setting by pressing  $\odot$ .

*Later, you can change the upper limit setting of the requested cooling temp. with the service parameter S2.4.*

### STEP 10: Setting the requested cooling temperature



With the buttons  $\ominus$  and  $\oplus$  you can set up the requested temperature in heating mode. Confirm the setup by pressing  $\odot$ . If you have accidentally set the wrong requested temperature, you can return to the requested temperature setting by pressing  $\odot$ .

*Later, you can change the requested cooling temperature can be later changed in the „Requested temperatures“ menu.*

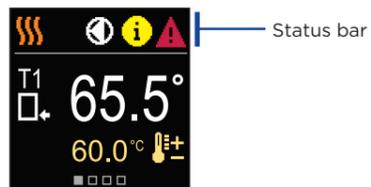
*For schemes with stand-pipe control, the supply temperature symbol is displayed.*

## Basic screens

All important data on the operation of the controller can be seen in the eight basic screens. Use the buttons  $\ominus$  and  $\oplus$  to navigate between the basic screens.

### Status bar

Operation mode, notifications and alerts appear in the top third of the screen.

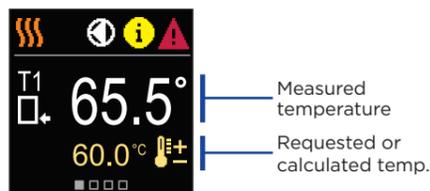


Status bar

| Symbol | Description                  |
|--------|------------------------------|
|        | Room heating.                |
|        | Room cooling.                |
|        | Manual operation mode.       |
|        | Switch off.                  |
|        | Circulation pump is working. |
|        | Turn the valve to the left.  |

| Symbol | Description                                                                                                                                                                                                                                                                                                                                                                           |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | Turn the valve to the right.                                                                                                                                                                                                                                                                                                                                                          |
|        | Manual intervention - the clutch is activated.                                                                                                                                                                                                                                                                                                                                        |
| AUX    | AUX function at COM input                                                                                                                                                                                                                                                                                                                                                             |
|        | <b>Message</b><br>In the event that the maximum temp. is exceeded or the safety function is activated, the controller notifies you with a yellow symbol on the display. When the maximum temp. is no longer exceeded or when a protection function has switched off, a gray symbol will turn on to note the recent event. The list of alerts can be viewed in the "Information" menu. |
|        | <b>Error</b><br>In the event of a sensor or communication connection failure, the controller informs you of the error with a red symbol on the display. If the error is corrected or is no longer present, a gray symbol indicates a recent event. The list of errors can be viewed in the "Information" menu.                                                                        |

## Temperatures



Measured temperature

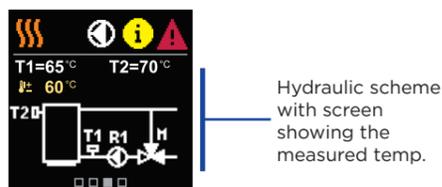
Requested or calculated temp.

## Symbols for the display of temp. and other data

| Symbol      | Description                          |
|-------------|--------------------------------------|
|             | Calculated or requested temperature. |
|             | Return-pipe temperature.             |
|             | Inlet temperature.                   |
|             | Source temperature.                  |
| T1, T2, ... | Temperature sensors T1, T2.          |

## Hydraulic scheme

The screen shows the selected hydraulic scheme with the display of measured temperatures.



Hydraulic scheme with screen showing the measured temp.

## Time and date

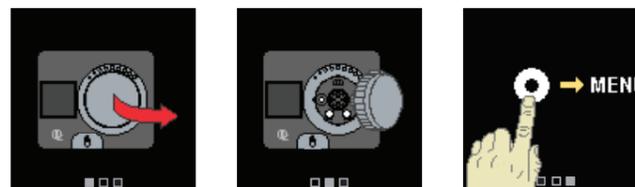
The screen shows the day of the week, the current time and date.



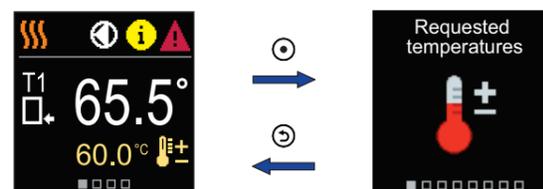
Time and date

## Help

By pressing the  $\odot$  button we can start the display animation, which leads us to the additional settings menu.



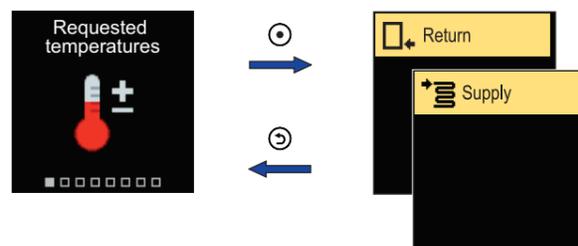
## Entering and navigating through the menu



Press the  $\odot$  button to enter the menu. Navigate through the menu with the  $\ominus$  and  $\oplus$  buttons and use the  $\odot$  button to confirm your selection. Press the  $\odot$  button to return to the previous screen.

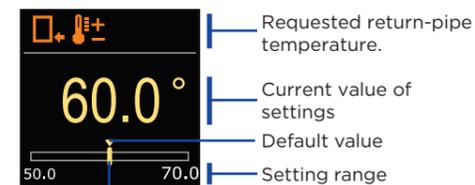
## Requested temperatures

In the menu, you can change the setting of the requested temperatures according to the selected hydraulic scheme.



Navigate through the menu with the  $\ominus$  and  $\oplus$  buttons and use the  $\odot$  button to confirm your selection. A new screen with temp. will open.

## Requested return-pipe temperature



Requested return-pipe temperature.

Current value of settings

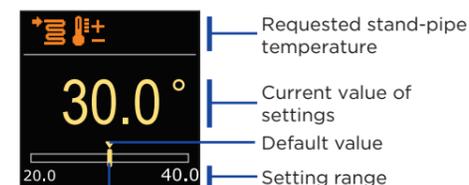
Default value

Setting range

Current value of the requested temperature

Use the  $\ominus$  and  $\oplus$  buttons to select the requested temperature and confirm it with the  $\odot$  button. Exit the setting with the  $\odot$  button.

## Requested stand-pipe temperature



Requested stand-pipe temperature

Current value of settings

Default value

Setting range

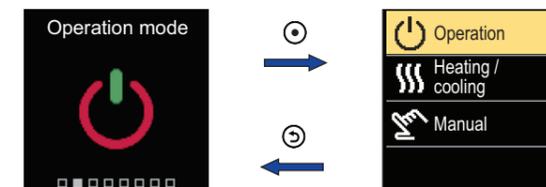
Current value of the requested temperature

Use the buttons  $\ominus$  and  $\oplus$  to select the requested temperature and confirm it with the  $\odot$  button. Exit the setting by pressing  $\odot$ .

*We can only set a temperature value that is available for the selected scheme.*

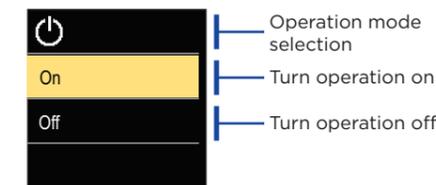
## Operation mode

In the menu, you can select the requested operation mode and other operation options.



Navigate through the menu with the  $\ominus$  and  $\oplus$  buttons and use the  $\odot$  button to confirm your selection.

## Turn operation on/off



Operation mode selection

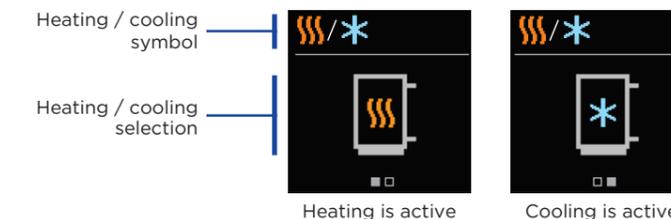
Turn operation on

Turn operation off

Use the buttons  $\ominus$  and  $\oplus$  to select the requested operation. Exit the setting by pressing  $\odot$  or  $\odot$ .

## Selecting heating or cooling operation

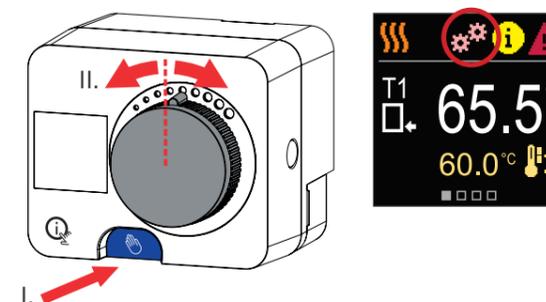
In the menu, select the requested heating or cooling operation mode.



You can select heating or cooling with the  $\ominus$  and  $\oplus$  buttons and confirm it with the  $\odot$  button. Exit the setting by pressing  $\odot$ .

## Clutch and manual valve displacement

Pressing the clutch I. activates the manual valve displacement. You can now move the mixing valve by turning the button II. To return to automatic operation, press the clutch I. again. When the clutch is activated, the clutch symbol appears on the display.



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