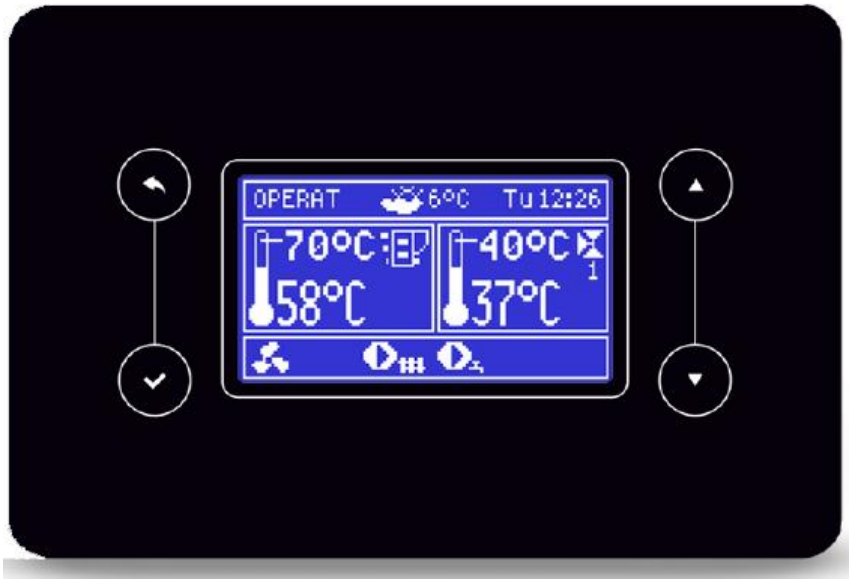
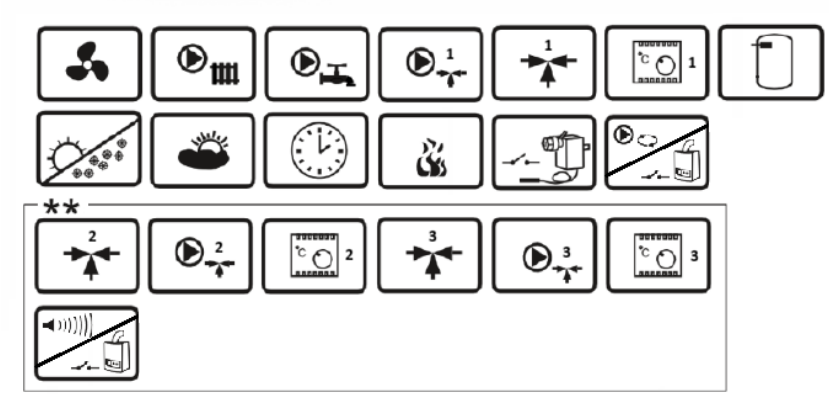
evoMAX 800D3 (NTC)

Controller for gasification boilers
for log-fired boilers





** Module B

USER AND INSTALLATION MANUAL FOR THE CONTROLLER

PROGRAM VERSION: Panel v. 10.20.07.E2
Module A v. 10.40.06.R1

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1 Safety



Safety requirements are specified in the individual sections of this manual. In addition to these, the following instructions must be followed:

- The controller may only be used in accordance with this manual.
- Before beginning installation, repair of the controller, or performing any connection work, it is essential to disconnect the power supply and ensure that no terminals or electrical wires are live.
- There is also a risk of electric shock from a connected backup boiler (if controlled by the evoMAX 800D3 controller). In addition to disconnecting the controller from the power supply, it is necessary to disconnect the backup boiler from the power supply as well.
- Additional safety measures must be implemented during the installation of the boiler, heating circuits, and domestic hot water (DHW) tank to protect against potential consequences of controller malfunctions or software errors.
- Select the values of the adjustable parameters appropriately for the specific boiler type and fuel, keeping in mind all operating conditions of the system. Incorrect selection of values may cause a failure condition in the boiler (such as overheating, etc.) or the heating system.
- The controller is not a spark-proof device. This means that in the event of a malfunction, it may be a source of sparks or high temperatures, which in an environment containing dust and flammable gases can cause a fire or explosion. Therefore, the controller must be protected from dust and flammable gases using appropriate enclosures.
- The controller must be installed in accordance with applicable standards and regulations.
- Changes to the controller's settings may only be made by a person familiar with this manual.
- The controller may only be used in heating systems that have been designed and constructed in accordance with applicable regulations.
- The electrical circuit in which the controller operates must be a three-wire circuit and protected by a fuse rated for the loads used.
- The controller must not be used with a damaged housing or electrical wiring. The condition of the wiring must be checked, and if damaged, the controller must be taken out of service.
- Electrical wiring, especially the power supply, must not touch or be near hot objects. It must also not be subjected to mechanical stress.
- The controller must not be subjected to vibrations or exposed to direct sunlight.
- It is prohibited to remove the cover or extract the controller module; there is a risk of electric shock.
- It is prohibited to insert any foreign objects into the controller's enclosure.

- The controller must be protected from water and dust.
- The controller may only be used indoors.
- The mains power must be turned off before connecting any peripheral devices.
- Under no circumstances should any modifications be made to the controller’s construction.
- Children must be prevented from accessing the controller and its accessories.
- The manufacturer assumes no liability for damages resulting from failure to follow these instructions.

2 General Information

The evoMAX 800D3 boiler controller is an electronic device designed to control solid-fuel boilers and heating systems.
The main module A of the controller has the following inputs and outputs:

- **Digital inputs**
  - Emergency thermostat STB
  - Fuel detection switch
  - Room thermostat
- **Analog inputs**
  - Boiler temperature sensor
  - Flue gas temperature sensor
  - Storage tank temperature sensor – upper
  - MIX 1 temperature sensor
  - DHW temperature sensor
  - Outdoor temperature sensor
- **Digital outputs**
  - Boiler pump
  - MIX 1 pump
  - DHW tank pump
  - Standby boiler / DHW circulation pump
  - MIX 1 actuator – open
  - MIX 1 Actuator – Close
- **Analog outputs**
  - Exhaust fan

The device is controlled in a simple, intuitive manner using 4 buttons next to the display. It is an equithermal controller, meaning the temperature of the mixed heating circuits can be automatically regulated based on the outdoor temperature.

The controller has a modular design. It consists of:

- main module A
- a control panel
- module B (optional) – for controlling two additional heating circuits, including room thermostats and control of alarms/backup boiler

The device is compatible with standard universal room thermostats, which ensure a constant comfortable temperature in heated rooms.
In addition, it is also capable of controlling a backup heat source (e.g., a gas boiler).
The controller can be used in residential homes or smaller industrial facilities.

3 Information regarding the documentation

Since this controller manual is only a supplement to the boiler manual, it is necessary (in addition to the instructions in this manual) to also follow the boiler operating manual!
For ease of use, the manual is divided into 2 parts:

- for the end user
- for service organizations performing boiler installation and commissioning.

All sections contain important information that affects the safe operation of the boiler. Therefore, both the user of the controller and the technician performing the installation must familiarize themselves with all sections of this manual.



The manufacturer assumes no liability for damages resulting from failure to follow these instructions.

3.1 Important notice: Change to product names

In accordance with the requirements of European directives and updated regulations, the trade name of the following product will change with effect from 1 September 2026:

- Original name: **ecoMAX**
- New name: **evoMAX**

This change relates exclusively to trade names and designations in the documentation. Their purpose, design, technical specifications, software, wiring and operation remain entirely unchanged.

During the transition period, the original name may continue to appear in existing technical documentation, sales and marketing materials, on labels, product nameplates, in user manuals and other documents relating to equipment manufactured prior to the date mentioned above. The new name is already in use for new products, materials and technical documentation.

4 Retention of Documentation

Please keep this installation and operating manual for the controller, as well as all other relevant documentation, in a safe place so that it can be consulted at any time if necessary. In the event of relocation or sale of the equipment, all accompanying documentation must be handed over to the new user/owner.

5 Symbols Used

The following graphic symbols are used in this manual:



- a symbol indicating useful information and tips



- a symbol indicating important information that may affect property damage or pose a risk to the health and lives of people and pets.

CAUTION!
Symbols are used to highlight essential information to make it easier to familiarize yourself with the manual. However, this does not relieve the user of the obligation to read and follow instructions not marked with graphic symbols!

6 Directive 2012/19/EU of the European Parliament and of the Council on Waste Electrical and Electronic Equipment

- Recycle the packaging and the product at the end of its useful life through an appropriate recycling company.
- Do not dispose of the product in a trash bin intended for municipal waste.
- Do not incinerate the product.



End-User Operating Instructions

7 User Menu Structure

Boiler Settings

- Desired boiler output
- Maximum water temperature
- Boiler pump
  - Boiler pump activation temperature – water
  - Boiler pump activation temperature – flue gas
- Automatic constant heat
- MAINTENANCE RUN interval
- Minimum OPERATION time - 100%
- Fuel combustion exhaust gas temperature
- Size of the constant-temperature layer

Information

Heating system settings

- SUMMER/WINTER mode [1)]
  - SUMMER/WINTER mode
  - Activating SUMMER mode
  - Deactivating SUMMER mode
- DHW settings [1)]
  - DHW Setpoint Temperature
  - DHW Pump Mode
  - DHW Hysteresis
  - DHW Time Program
- DHW Circulation Settings [1)]
  - Circulation Pause Time
  - Circulation runtime
  - Circulation activation temperature
  - Circulation schedule
- MIX settings 1-3 [1)]
  - Desired MIX temperature
  - Room thermostat
    - Use of room thermostat
    - Temperature reduction from the thermostat
  - Equithermal control of MIX
    - Equithermal control of MIX
    - MIX equithermal curve
    - Shifting the MIX equithermal curve
  - MIX time program

General settings

- Clock
- Display brightness
- Display contrast
- Sound
- Language

Alarms

Service settings

[1] This setting is not displayed if the corresponding sensor or expansion module is not connected, or if the parameter is hidden.

8 Controller operation

8.1 Description of controls

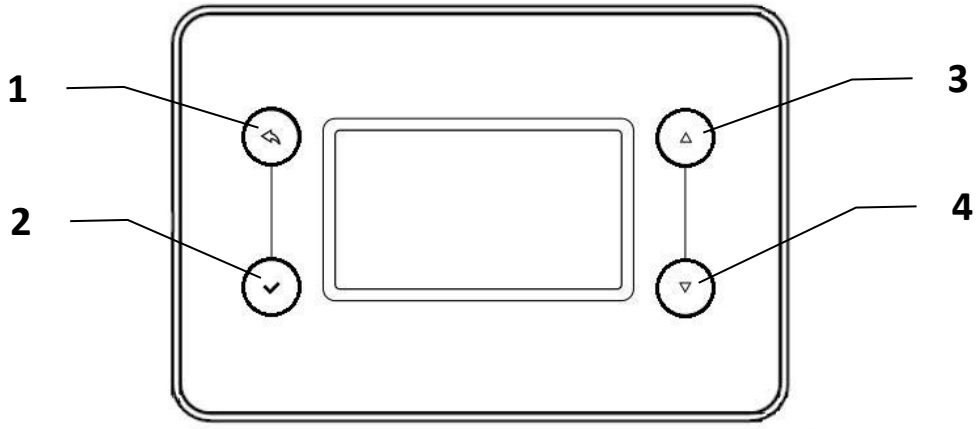


Figure1Controller operation

Position	Button	Function description
1	ESC	- Turn boiler on/off - Return from the currently selected menu level - Cancel the parameter being set
2	ENTER	- enter menu - Edit the selected parameter - Confirm the parameter being set
3	up arrow	- Move up one line in the menu - Increase the value of the parameter being set
4	down arrow	- move down one line in the menu - decrease the value of the parameter being set

8.2 Display description

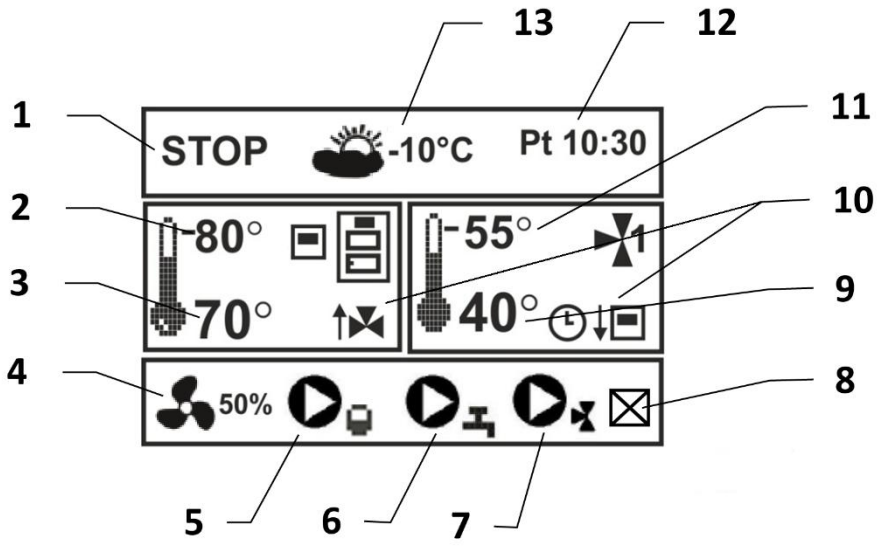


Figure2 Main screen of the controller

Legend:

1. Controller operating modes: START-UP, OPERATION, FIRE UP, OVERHEAT, STOP
2. Desired boiler water temperature
3. Current boiler water temperature
4. Exhaust fan operation symbol and its power
5. Boiler pump operation symbol
6. DHW pump operation symbol
7. MIX pump operation symbol
8. Fuel detection mechanism status symbol, where:

☐	there is no fuel in the boiler, the "*Minimum OPERATION time*" parameter **has been** reached
■	There is fuel in the boiler, the "*Minimum OPERATION time*" parameter **has been** reached
☒	There is no fuel in the boiler, the "*Minimum OPERATION time*" parameter **has not** been reached
☒	there is fuel in the boiler, the "*Minimum OPERATION time*" parameter **has not** been reached

9. Current temperature value of MIX 1
10. Information field for functions affecting the desired boiler/MIX temperature. Meaning of individual symbols:

	Symbol indicating connection to the room thermostat
	Reduction of the desired boiler/MIX temperature due to the room thermostat opening
	Reduction of the desired boiler/MIX temperature due to an active time program
	Increase in the boiler setpoint due to charging of the domestic hot water (DHW) tank
	Increase in the boiler setpoint temperature due to heating of the mixed heating circuit
	Symbol for active equithermal control (for mixed circuits only)
	Increase in the boiler setpoint temperature due to charging of the storage tank

11. MIX 1 setpoint value
12. Current time and day of the week
13. Current outdoor temperature

The window on the right side of the main screen – seeFigure3 – can display various information. Use the “up arrow” and “down arrow” buttons to change the displayed information regarding the mixed heating circuit (1), DHW (2), storage tank (3), or boiler output indicator (4).
The storage tank temperature (3) is displayed only if the corresponding storage tank temperature sensor is connected.
The boiler output indicator (4) displays two values:

- (A) the setpoint output, set by the user
- (B) current output.

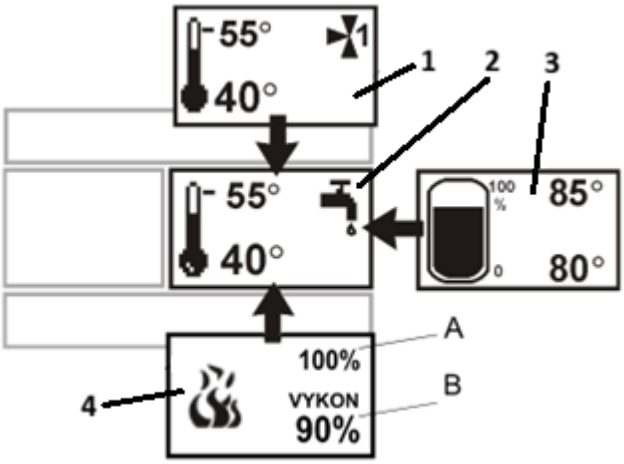


Figure3 Option to change the display on the right side of the main screen

8.3 Turning the controller on/off

After connecting to the power supply (~230V/50 Hz), the controller is in STANDBY mode. The display shows the current time, outdoor temperature, controller type, and the text ***“Boiler off***.” Pressing the ESC button displays the text ***“Turn on boiler?***” and selecting **“Yes”** turns on the controller.

From this point on, the hydraulic part of the system (pumps, mixers) operates according to the set requirements, and the boiler is in STOP mode.

To shut down the boiler and, consequently, the hydraulic part of the system, press the ESC button. The message ***“Shut down boiler?***” will appear; selecting **“Yes”** will switch the controller to STANDBY mode.



Do not turn off the controller while the boiler is in operation. There is a risk of the boiler overheating. Turning off the controller also stops the control of the hydraulic part of the heating system.

9 Controller operating modes

9.1 STOP mode

After power-on, the controller is in STOP mode. While the boiler is running, you can switch to STOP mode at any time from the main display by pressing the ESC button and selecting STOP mode. STOP mode shuts down the boiler (exhaust fan). The hydraulic part of the system (pumps, mixers) continues to operate according to the set parameters.



We do not recommend manually switching to STOP mode while the boiler is in operation. This can lead to soot buildup and a reduction in the boiler's service life.

9.2 IGNITION Mode

This mode is used to ensure proper ignition in the boiler. After pressing the ESC button in the main menu, select OPERATION mode. After selection, the controller switches to IGNITION mode. The ignition process runs automatically. For this mode, you can set the fan power using the *START-UP Fan Power* service parameter or set the start-up termination temperature. Once the value of the *START-UP Termination T.* parameter is exceeded, the controller automatically switches to OPERATION mode.



IGNITION mode is activated automatically when OPERATION or STOKING mode is selected, unless the temperature specified by the "IGNITION End T." parameter has been reached.

9.3 OPERATION mode

OPERATION mode can be selected in the main MENU by pressing the ESC button, or it is activated automatically once the value of the *T. END OF IGNITION* parameter is reached. In OPERATION mode, the boiler operates according to the set values of the individual parameters. In OPERATION mode, the controller modulates the speed of the exhaust fan to maintain the desired boiler output.

9.4 OVERHEAT Mode

If the value of the *Maximum* Boiler *Water Temperature* parameter is exceeded, the controller switches to OVERHEAT mode and notifies the user with a short audible signal and a message on the display (***Maximum Boiler Temperature Exceeded***). In OVERHEAT mode, the exhaust fan is turned off, while the hydraulic part of the system continues to operate according to the set parameters. Once the boiler temperature drops by the value of the *Overheating Hysteresis* parameter (service setting, default is 5°C), the controller automatically switches to OPERATION mode, but the message about boiler overheating remains on the display. This is done so that the user is informed about the boiler overheating even after switching back to OPERATION mode.



Frequent boiler overheating leads to numerous shutdowns, thereby reducing the boiler's service life.



The times the boiler spends in OVERHEAT mode are added together. The total time is stored in the controller's memory. The number of hours spent in OVERHEAT mode affects the boiler's warranty.

9.5 FEEDING Mode

When adding fuel to the boiler, you must use the FUEL ADDITION mode. To do this, press the ESC button on the controller's main screen and select the *FUEL ADDITION* option.
The exhaust fan will start running at 100% power to ensure sufficient flue gas extraction into the chimney and prevent smoke from escaping into the boiler room. After lifting the handle, wait a few seconds for the fan to reach 100% power. Then slowly open the top door about 5 cm and wait a few seconds again until the fan extracts any wood gas from the stoking chamber. After ensuring that there is no thick smoke in the stoking chamber and that it cannot ignite suddenly, open the door fully and add fuel.
The controller automatically switches the boiler back to OPERATION mode (or STARTUP mode, if the flue gas temperature has dropped below the value *set for the STARTUP termination* parameter) after the time specified by the *STOKING Duration* service parameter has elapsed (the default setting is 2 minutes).
It is also possible to press the ESC button again and select OPERATION. The exhaust fan returns to normal operation and maintains the desired boiler output.



During fuel loading, it is essential to follow the instructions in the boiler's operating and installation manual.

10 Boiler Settings

10.1 Desired boiler output

The controller can modulate the boiler output within a range of 30 to 100% of the rated output. This is set in:

menu → Boiler settings → Desired boiler output



Setting the boiler output too low may result in the boiler water temperature not approaching the value set in the "Maximum water temperature" parameter.
The controller primarily maintains the desired boiler output, which can be automatically adjusted if the water temperature in the boiler approaches the value of the "Maximum water temperature" parameter.

10.2 Maximum boiler water temperature

This parameter is set in:

Menu → Boiler Settings→ Maximum Water Temperature

The set maximum boiler water temperature can be automatically adjusted according to the controller's requirements: if it is too low, it will automatically increase to heat the DHW tank and ensure the desired MIX temperature for all heating circuits.

10.3 Boiler pump

Parameters related to the boiler pump are set in:

Menu → Boiler Settings→ Boiler Pump

This submenu contains two parameters related to the activation of the boiler pump:

- *Boiler pump activation temperature – water:* allows you to set the water temperature value for turning the boiler pump on/off. Setting this parameter to "0" will cause the controller to ignore this value for turning the boiler pump on/off.
- *Boiler pump activation temperature – flue gas*: allows you to set the flue gas temperature value for turning the boiler pump on/off. Setting this parameter to "0" will cause the controller to ignore this value for turning the boiler pump on/off.

Both conditions must be met for the boiler pump to turn on.
For example *Boiler pump activation temperature – water* = 65°C
Boiler pump activation temperature – flue gas = 100°C
To turn on the boiler pump, the water temperature must reach 65°C and the flue gas temperature must reach 100°C. If one of these values is not reached, the boiler pump will not turn on.

The boiler pump will shut off when one of these parameters drops below the set value.



Setting the value to "0" disables the flue gas/water activation condition.



Depending on the service settings, the boiler pump may be blocked if the water temperature in the storage tank is higher than in the boiler.

10.4 Automatic constant-temperature oven

Activate in:

Menu Boiler Settings→ Automatic Embers

Enabling this function activates the ability to maintain a bed of hot fuel at the bottom of the stoking chamber using a fuel detection mechanism, thereby significantly reducing the number of times the boiler needs to be restarted.

This function is activated only after the time specified by the parameter has elapsed:

Menu→ Boiler settings→ Minimum OPERATION time

The default setting for the *Minimum OPERATION time* parameter is 30 min.

10.5 MAINTENANCE RUN Interval

The boiler is equipped with a "MAINTENANCE RUN" function, which ensures that the base layer remains hot during downtime and that it is not necessary to relight the fire when stoking. In STOP mode, this function switches on the exhaust fan at regular intervals. The intensity of the MAINTENANCE RUN can be set in the menu:

Menu→ Boiler Settings→ MAINTENANCE RUN Interval

We do not recommend using this function during longer shutdowns (over 8 hours), as it leads to an excessive reduction in the size of the bed layer. For firing up, a sufficient bed layer—even if it has gone out—is more valuable than a small layer, even if it is glowing.

10.6 Minimum OPERATION time

Activated in:

Menu → Boiler settings→Minimum OPERATION time

This parameter disables the fuel detection mechanism in case fuel becomes jammed in the feed chamber and the mechanism detects this as a fuel shortage. Based on your experience operating the boiler, set this value according to the type of fuel. This value is set only for 100% of the boiler's rated output. For lower or higher outputs, the controller recalculates this time automatically. The minimum operating time is entered in the format HH:MM. At the selected output, e.g., 80%, the calculated value of the minimum burning time is displayed as follows:

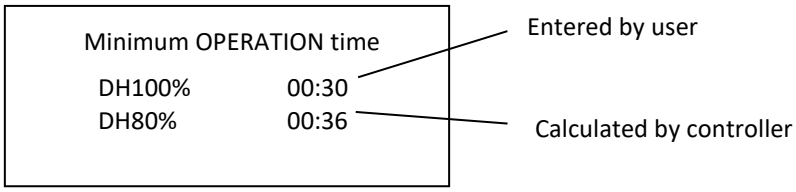


Figure4Display of minimum operating time

where: DH100% = burning time at 100% output

Setting a value that is too high may cause the fuel detection mechanism to malfunction, resulting in the fuel in the feed chamber burning out completely. Setting a value that is too low may cause the system to switch to STOP mode even though there is still sufficient fuel in the chamber. We recommend setting the value to 30 min.

11 Methods for detecting fuel shortage

11.1 Fuel combustion exhaust gas temperature

Set in:

Menu → Boiler settings→Fuel combustion exhaust gas temperature

If the flue gas temperature drops below the value set by the *Fuel Combustion Flue Gas Temperature* parameter and the time specified by the *Minimum OPERATION Time* parameter elapses, the controller switches the boiler to STOP mode and the display shows information regarding the shutdown due to low flue gas temperature.
Boiler shutdown due to flue gas temperature occurs in the event of a failure of the fuel shortage detection mechanism or if the pilot flame function is deactivated.

We recommend setting this parameter within the range of 80–90°C in case of a failure of the fuel detection mechanism. Setting the parameter to "0" deactivates this function.

In the event of improper ignition in the boiler or a slow increase in flue gas temperature, the boiler may switch to STOP mode even if there is sufficient fuel in the boiler.

11.2 Size of the refractory layer

It is set in:

Menu→ Boiler Settings→ Size of the hot zone

If the size of the smoldering layer is set to 100%, the controller will switch the boiler to smoldering standby immediately after detecting a fuel shortage. If the size of the smoldering layer is set to a lower value (90–10%), the boiler continues in OPERATION mode for a certain period of time so that the remaining fuel burns out and the smoldering layer reaches the desired size.

When the fuel level in the stoking chamber drops below the detection threshold, the controller switches to STOP mode, and an empty square symbol (seeFigure2 , position 8) appears on the main control panel screen along with information that the fan has been shut off by the fuel detection mechanism. Returning to OPERATION mode requires user intervention and the addition of fuel.

12 Heating System Settings

12.1 SUMMER/WINTER Mode

The SUMMER function allows you to turn off the heating circuits during the summer and maintain only DHW tank heating.
Set in:

Menu → Heating System Settings → SUMMER/WINTER Mode → SUMMER/WINTER Mode

The user can select a mode:

- ***Winter*** – permanently enable WINTER mode, i.e., simultaneous heating of the building and DHW.
- ***Summer*** – permanently enable SUMMER mode, i.e., DHW heating only.
- ***Auto*** – if an outdoor temperature sensor is connected to the controller, the SUMMER function can be automatically activated depending on the outdoor temperature. The parameters *SUMMER Mode Activation* and *SUMMER Mode Deactivation* determine when the system switches from SUMMER to WINTER mode and vice versa.



SUMMER mode must not be activated if the DHW pump is disconnected or damaged.



In SUMMER mode, all heat-consuming appliances may be turned off; therefore, before activating it, ensure that the boiler does not overheat.

12.2 DHW Settings

12.2.1 DHW Setpoint

Set in:

Menu → Heating System Settings → DHW Settings → DHW Setpoint

This menu allows you to set the desired temperature in the domestic hot water tank.

12.2.2 DHW Pump Mode

The DHW heating method is set in the menu:

Menu → Heating System Settings → DHW Settings → DHW Pump Mode

Here, the user can select the following functions:

- ***Off*** – permanently disables DHW heating
- ***DHW Priority*** – prioritizes DHW heating over heating circuits. In this mode, the mixed heating circuits are shut down until the DHW tank is charged to the desired temperature.
- ***No DHW Priority*** – simultaneous operation of DHW pumps and mixed heating circuits

12.2.3 DHW Hysteresis

Set in:

Menu → Heating System Settings → DHW Settings → DHW Hysteresis

This parameter determines the temperature difference (between the actual DHW temperature and the desired DHW temperature) that triggers the DHW pump to heat the storage tank.

12.2.4 DHW Time Program

Set in:

Menu → Heating System Settings → DHW Settings → DHW Time Program

To activate the DHW temperature reduction schedule, select *On.* Then choose whether you want to set the schedule for weekdays, Saturday, or Sunday. Specify the time intervals (max. 3) during which the desired DHW tank temperature should be reduced, as well as the *Temperature Reduction* value (e.g., -15°C).

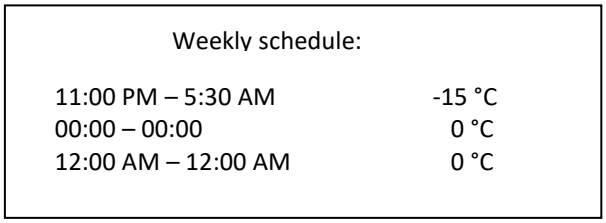


Figure5Display of the DHW time program

12.3 DHW circulation pump settings

Set in:

Menu → Heating System Settings → DHW Circulation Settings

DHW circulation pump settings are not available unless this function is enabled in the service settings – see chapter22.6 .

The DHW circulation pump starts operating as soon as the temperature in the DHW tank reaches the value set in *the Circulation Activation Temperature* parameter and remains active for the duration set in the *Circulation Run Time* parameter. The DHW circulation pump then shuts off according to the *Circulation Pause Time* parameter.

For the DHW circulation pump, you can set a weekly schedule to specify the time intervals during which it should be turned off. The setup is the same as for reducing the DHW or MIX temperature.

12.4 MIX 1-3 Settings

Set in:

Menu → Heating System Settings → MIX Settings 1-3



The MIX setting is not available if the mixing valve sensor is not connected or if MIX operation is disabled in the service settings.

12.4.1 Setting the MIX without an outdoor temperature sensor (constant temperature)

Set the desired water temperature in the heating circuit manually using *the MIX Setpoint* parameter*,* e.g., 50°C*.* Ideally, this value should be set to maintain the desired room temperature.

After connecting and activating the room thermostat in the menu:

Menu → Heating System Settings → MIX Settings 1-3 → Room Thermostat → Using the Room Thermostat → Yes

It is possible to set a reduction in the heating water temperature after the desired room temperature is reached (i.e., after the room thermostat contacts open) by a value specified by the parameter:

Menu → Heating system settings → MIX settings 1-3 → Room thermostat → Temperature reduction from the thermostat

This value (e.g., 7°C) should be selected based on experience. A standard room thermostat is used for this purpose. If the thermostat is functioning correctly, the preset MIX temperature will decrease, which, with the optimal setting *of the Thermostat Temperature Reduction* parameter, will stabilize the room temperature.

12.4.2 MIX Settings with an Outdoor Temperature Sensor

The MIX Setpoint parameter can be automatically adjusted based on the current outdoor temperature. When the heating curve is correctly set for the building type, the controller automatically adjusts the MIX temperature so that the room temperature remains approximately the same, regardless of the outdoor temperature. For the given mixed heating circuit , the following settings are required:

Menu → Heating System Settings → MIX Settings 1-3 → Equithermal MIX Control → Equithermal MIX Control → On

and select the appropriate equithermal curve according to section12.4.3 in the menu:

Menu → Heating System Settings → MIX Settings 1-3 → Equithermal control of MIX → MIX equithermal curve

In this configuration, a standard room thermostat can be connected to eliminate inaccuracies in the heating curve if the heating curve value is too high. Under these circumstances, the MIX temperature should be reduced by, for example, 2°C. When the room thermostat contacts open, the desired MIX temperature will be reduced, which will help stabilize the room temperature.

12.4.3 Equithermal control

After the heating curve value has been correctly selected, the temperature of the mixed heating circuit is automatically adjusted based on the outdoor temperature. This allows the room temperature to be maintained at a constant level regardless of the outdoor temperature. Therefore, the correct setting of the heating curve value is essential.

When searching for the correct heating curve, disable the thermostat function (regardless of whether it is connected or not) in the menu:
Menu → Heating System Settings → MIX Settings 1-3 → Room Thermostat → Using the Room Thermostat → No

Equithermal curve settings

Floor heating: 0.2 – 0.6
Radiator heating: 1.0 – 1.6

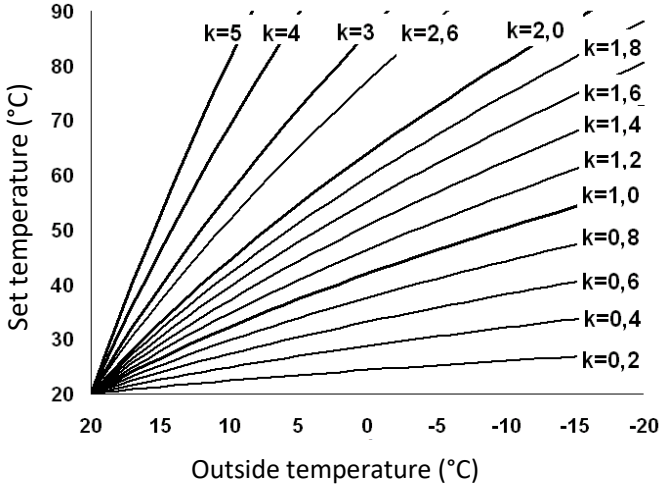


Figure6 Equithermal curves

Guidelines for selecting the correct heating curve:

- If the room temperature rises as the outdoor temperature drops, the selected heating curve value is too high.
- If the room temperature decreases as the outdoor temperature drops, the heating curve value is set too low.
- If the room temperature is optimal during freezing weather but too low when it warms up, it is recommended to increase the *Equithermal Curve Shift* parameter value and select a lower heating curve.
- If the room temperature is too low during freezing weather and too high when the weather warms up, it is recommended to decrease the *Equithermal Curve Shift* parameter value and select a higher heating curve.

Poorly insulated buildings require a higher setting on the equithermal heating curve. For well-insulated buildings, the heating curve should be set to a lower value.
The target MIX temperature calculated based on the heating curve may be lowered or raised by the controller if it falls outside the temperature limit range for the given heating circuit.

12.4.4 MIX Timer

Set in:

Menu → Heating System Settings → MIX Settings 1-3 → MIX Time Program

The controller allows you to set a reduction in the desired MIX temperature according to a weekly time program. The setup is the same as for the DHW temperature reduction time program.
The MIX temperature reduction time program is activated by selecting *On.*

13 Information

Available in:

Menu → Information

The Information menu allows you to check the individual temperatures of the boiler and the heating system and simultaneously displays which devices are currently active. You can navigate through the individual pages of the Information menu using the “up arrow” and “down arrow” buttons.



After connecting the optional module B, additional information windows will appear.

14 General Settings

Accessible in:

Menu → General Settings

Clock
Allows you to set the current time. This setting is important for the proper functioning of weekly time programs and the display of alarm history.

Display Brightness
Allows you to set the display brightness.

Display Contrast
Allows you to adjust the display contrast.

Sound
Allows you to turn the audible alarm on or off in case of an alarm, boiler overheating, or when the controller switches to STOP mode.

Language
Allows you to change the menu language. Several menu language options are available.

15 Alarms

15.1 Exhaust Gas Temperature Sensor Failure

The alarm is activated if the flue gas sensor is damaged or if the sensor’s measurement range is exceeded. To reset the alarm, turn the controller off and then back on, or press the ESC button. It is essential to inspect the sensor and replace it if necessary. If the flue gas temperature sensor is damaged, an emergency boiler operation mode is available—please contact the boiler manufacturer.



Checking the flue gas temperature sensor is described in the chapter 21.4 .

15.2 Boiler maximum temperature exceeded

If the boiler temperature exceeds the value of the service parameter *Alarm – Max. Boiler Temperature*, the fan shuts off and the alarm ***"Maximum boiler temperature*** exceeded" appears on the display. The DHW and MIX pumps are activated, and the mixing valves open fully.
If, during this condition, the instantaneous temperature in the DHW tank is higher than the *Maximum DHW Temperature* parameter, the DHW pump remains off.
If *the MIX Mode* is set *to Underfloor Heating,* the MIX pump and actuator operate in their normal mode, regardless of this warning.

Once the boiler temperature drops, the warning is automatically canceled.

15.3 Damage to the boiler temperature sensor

The alarm is triggered if the boiler sensor is damaged or if the sensor's measurement range is exceeded. The fan, mixing valves, and pumps operate in the same way as during the ***"Boiler maximum temperature*** exceeded" alarm—see the section at15.2 . To reset the alarm, turn the controller off and then back on, or press the ESC button.



Checking the boiler temperature sensor is described in the chapter21.4.

15.4 Loss of Communication

The control panel is connected to the power module via a communication cable. If this cable is damaged, ***the "Communication*** loss" alarm will appear on the display. The controller remains operational and functions normally based on the set parameters. Check the communication cable and replace it if necessary.

15.5 STB emergency thermostat contact open

The "***STB emergency thermostat contact open***" alarm is activated if the water temperature in the boiler reaches approximately 98°C and the power contact on the independent STB emergency thermostat, which protects the boiler from overheating, opens.
The power supply to the exhaust fan is mechanically disconnected.

After the boiler has cooled down to below 80°C, unscrew the cover of the STB emergency thermostat and press the reset button with a suitable object. The boiler will resume operation.

16 Additional Functions

In addition to the functions mentioned above, the controller performs a number of other tasks.

16.1 Maintenance mode

The boiler is equipped with a "MAINTENANCE RUN" function, which ensures that, in STOP mode, the base layer of embers remains hot due to a signal from the fuel detection mechanism, eliminating the need to relight the fire when adding fuel. This function activates the fan at preset power levels for a preset duration at regular intervals. The MAINTENANCE RUN parameters can be set in the menu:

Service settings→ Boiler settings→ Fan settings→ Fan power MAINTENANCE MODE
Service settings→ Boiler settings→ Fan settings→ MAINTENANCE RUN fan time
Service settings→ Boiler settings→ MAINTENANCE RUN duration

We do not recommend using this function during longer shutdowns (over 8 hours), as it leads to an excessive reduction in the size of the bed. For firing, a sufficient bed—even if it has gone out—is more valuable than a small bed, even if it is glowing.

16.2 Power Outage

In the event of a power failure, the controller returns to the mode it was in before the power failure.

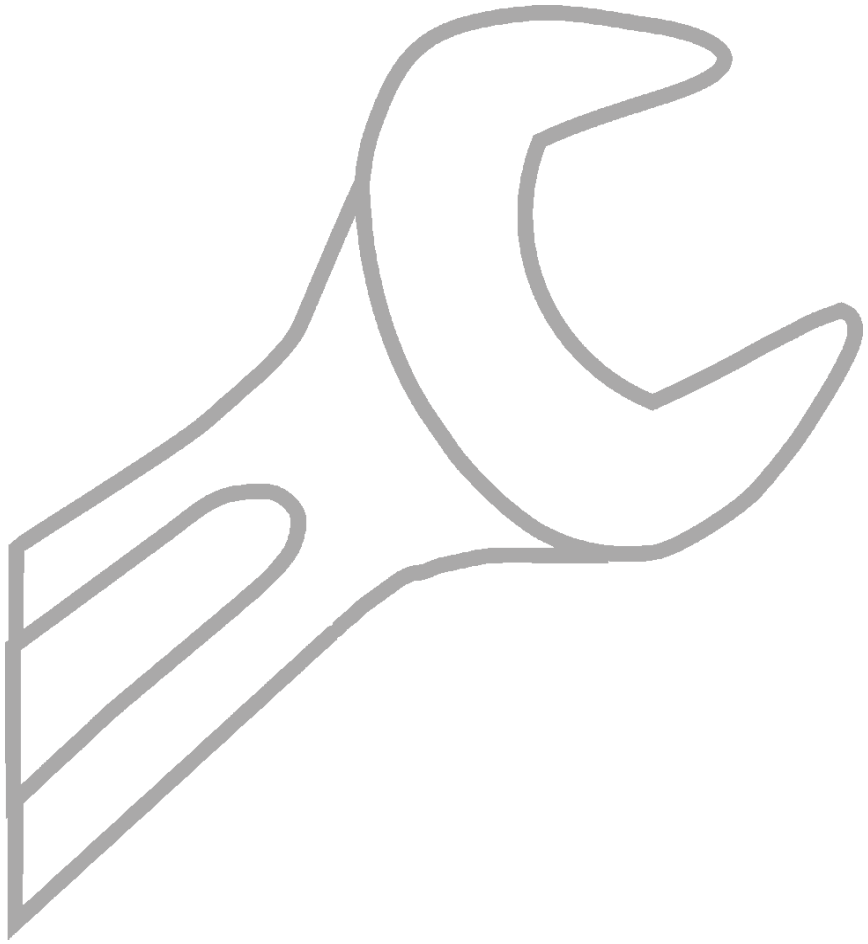
16.3 Freeze protection

If the boiler temperature drops below 5°C, the pumps activate to circulate the heating water. This slows down the freezing process of the water at low temperatures. However, this function cannot completely protect the heating system from freezing.

16.4 Protection of Pumps and Mixers Against Seizing

The controller protects pumps (boiler, DHW, and heating circuits) and MIX units from seizing up due to limescale buildup. This is achieved by periodically cycling them on and off (every 167 hours for a few seconds). For this reason, the controller must remain powered even outside the heating season. This function is active when the controller is turned off using the STANDBY or STOP mode.

Instructions for service organizations performing boiler installation and commissioning



17 Technical data

Electrical voltage	~230V / 50Hz
Current drawn by the	0.02 A
Maximum rated current	6 (6) A
Controller protection rating	IP20 (front of the module), IP00 (terminal side of the module)
Ambient temperature	0...50 °C
Storage temperature	-15...65 °C
Relative humidity	0–90%, non-condensing
Measuring range of CT2S temperature sensors (PT1000)	0...300 °C
Measuring range of CT10 temperature sensors (NTC10K)	0...100 °C
Measuring range of CT10-P temperature sensors (NTC10K)	-35...40 °C
Measurement accuracy of temperature sensors	±2 °C
Terminals	2.5 mm^2 screw terminals on the mains voltage side 1.5 mm^2 screw terminals on the sensor side
Display resolution	128 x 64
Total weight	0.5 kg
Standards	EN 60730-2-9 EN 60730-1
Software class	A
Protection class	Suitable for installation in Class I equipment
Pollution degree	Grade 2 according to EN 60730-1
Rated pulse voltage	2500 V according to EN 60730-1

18 Storage and transport conditions

The controller must not be exposed to direct weather conditions, i.e., rain and sunlight. The storage and transport temperature must not exceed the range of -15°C to +65°C. During transport, the device must not be subjected to vibrations greater than those typical of normal transport.

19 Electrical Installation

The controller is designed for a 230 VAC / 50 Hz power supply. The electrical installation must be:

- three-wire, with a protective earth (PE) conductor,
- in compliance with applicable regulations,
- equipped with a residual current device (RCD) with a tripping current IΔn ≤ 30 mA, which protects against electric shock and limits damage to the controller, including fire protection.



After turning off the controller using the controls, dangerous voltage may still be present at the terminals. Before beginning installation work, disconnect the power cord and ensure that there is no voltage at the terminals.

Connection wires must not come into contact with surfaces at temperatures higher than their rated operating temperature. Connect the power supply wires to the terminals marked with the arrow .

Terminals 1–15 are intended only for connecting devices with a voltage of 230 V ~.

Terminals 16–31 are intended for use with low-voltage devices (below 12 V).

Connecting 230 V~ mains voltage to terminals 16–31 may damage the controller and poses a risk of electric shock.

For safety reasons, the controller must be connected to the 230 V AC power supply, with the phase (L) and neutral (N) wires connected in the correct order. Ensure that the L and N wires are not mixed up within the building's electrical system, e.g., in an electrical outlet or in the outlet's junction box!

The following must be connected to the controller's PE busbar (seeFigure8), marked with the symbol :

- the ground wires of all devices connected to the controller
- the ground wire of the power cable
- the ground wire connected to the boiler's metal casing

The ends of the connected wires, especially the power supply wires, must be protected against fraying using insulated ferrules – seeFigure7 :

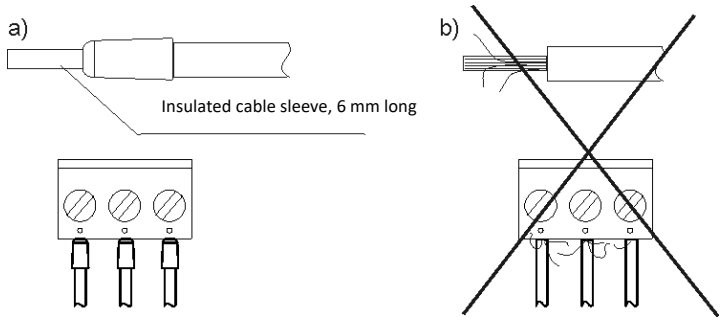


Figure7 Connecting wires to terminals

where: a) correct connection

b) incorrect connection

The connection of any peripheral devices may only be performed by a qualified person in accordance with local regulations. Examples of such devices include pumps, valve actuators, or relays. It is essential to follow safety guidelines regarding protection against electric shock.

20 Electrical Wiring Diagrams

20.1 Electrical wiring diagram for modules A and B of the controller

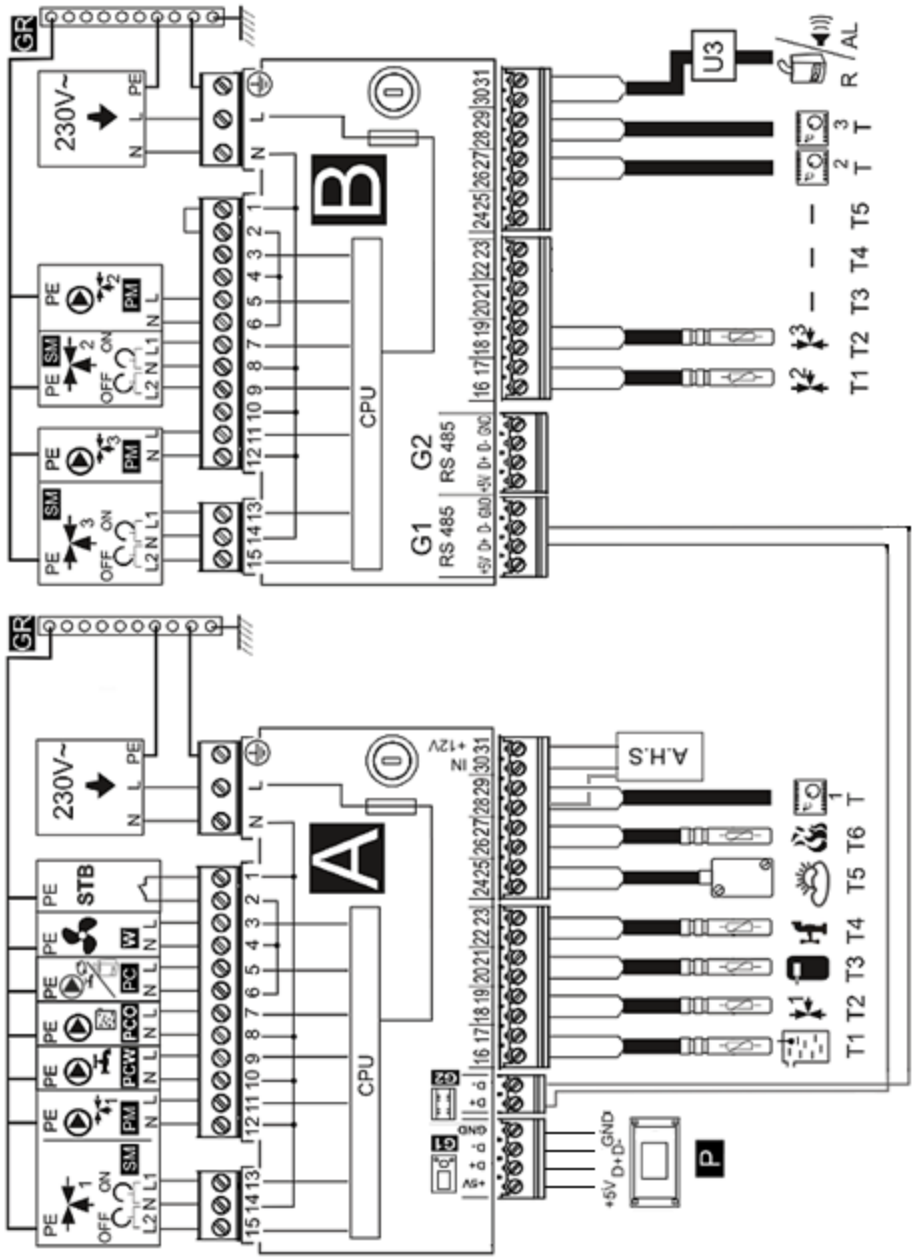


Figure8 Electrical wiring diagram for modules A and B

Module B is not included in the boiler's standard equipment.

MODULE A: *T1 – boiler temperature sensor (CT10), T2 – MIX 1 temperature sensor (CT10), T3 – storage tank temperature sensor – upper (CT10), T4 – DHW temperature sensor (CT10), T5 – outdoor temperature sensor (CT10P), T6 – flue gas temperature sensor (CT2S), T – room thermostat, A.H.S – fuel detection switch, P – boiler control panel, 230V~ – power cable, STB – emergency thermostat, W – exhaust fan, PC – circulation pump or backup boiler, PCO – boiler pump, PCW – DHW pump, PM – MIX 1 pump, SM – MIX 1 actuator, GR – grounding bridge*

MODULE B: *T1 – MIX 2 temperature sensor (CT10), T2 – MIX 3 temperature sensor (CT10), T – room thermostats 2 and 3, R – backup boiler, AL – alarm signaling, U3 – relay for connecting the backup boiler or alarm, 230V~ – power cable, PM – MIX 2 and 3 pump, SM – MIX 2 and 3 actuator, GR – grounding bridge*

20.2 Electrical wiring diagram for connectors in the control panel

The boiler pump, DHW pump, MIX 1 pump, and MIX 1 drive are connected to the controller via connectors on the top panel of the control cabinet.

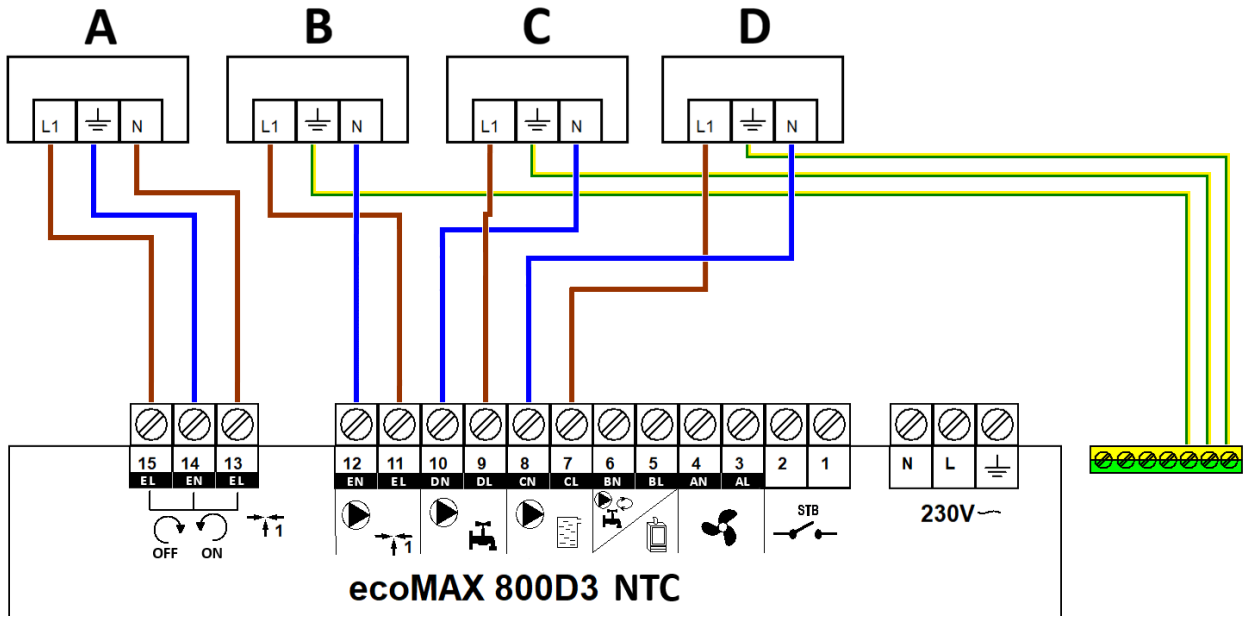


Figure9 Electrical wiring diagram for connectors in the control panel

where: A – MIX 1 actuator connector
B – MIX 1 pump connector
C – DHW pump connector
D – boiler pump connector

20.3 Electrical wiring diagram for temperature sensors in the control panel

Temperature sensors and the room thermostat are connected to the controller via terminal blocks on the left side of the control panel.

The cable bundle exiting the left side of the control panel must be secured with cable ties.

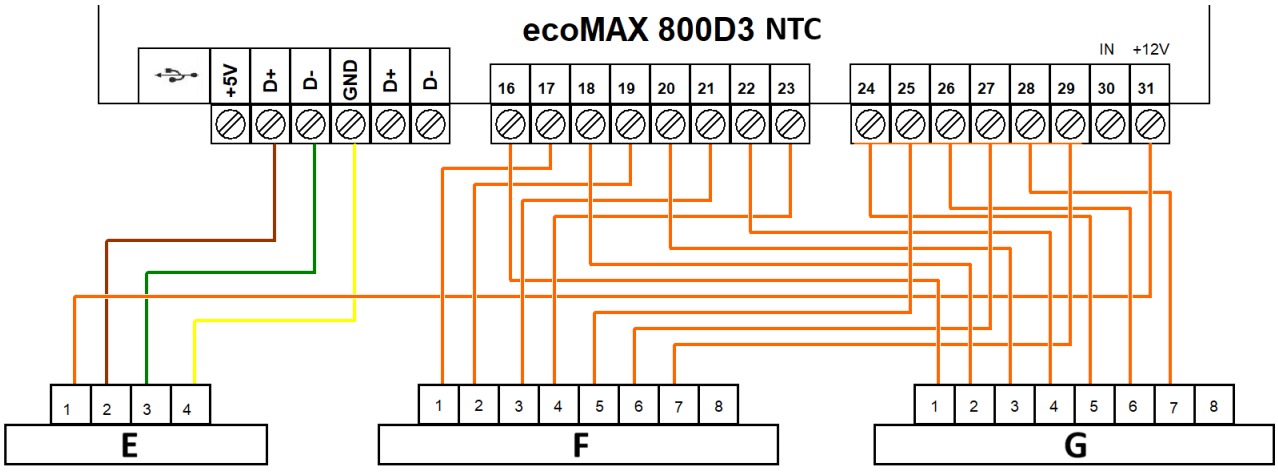


Figure10 Wiring diagram for temperature sensors in the control panel

where: E – upper short terminal block (not used)
F – upper long terminal block
G – lower long terminal block

Terminals on module A	Terminals on the left side of the control cabinet	Device
16 – 17	1G – 1F	Boiler temperature sensor (T1)
18 – 19	2G – 2F	MIX 1 temperature sensor (T2)
20 – 21	3G – 3F	Storage tank temperature sensor – upper (T3)
22 – 23	4G – 4F	DHW temperature sensor (T4)
24 – 25	5G – 5F	Outdoor temperature sensor (T5)
26 – 27	6G – 6F	Flue gas temperature sensor (T6)
28 – 29	7G – 7F	Room thermostat (T)
31 – (D+) – (D-) – GND	1E – 2E – 3E – 4E	---

20.4 Electrical wiring diagram for the fuel detection switch

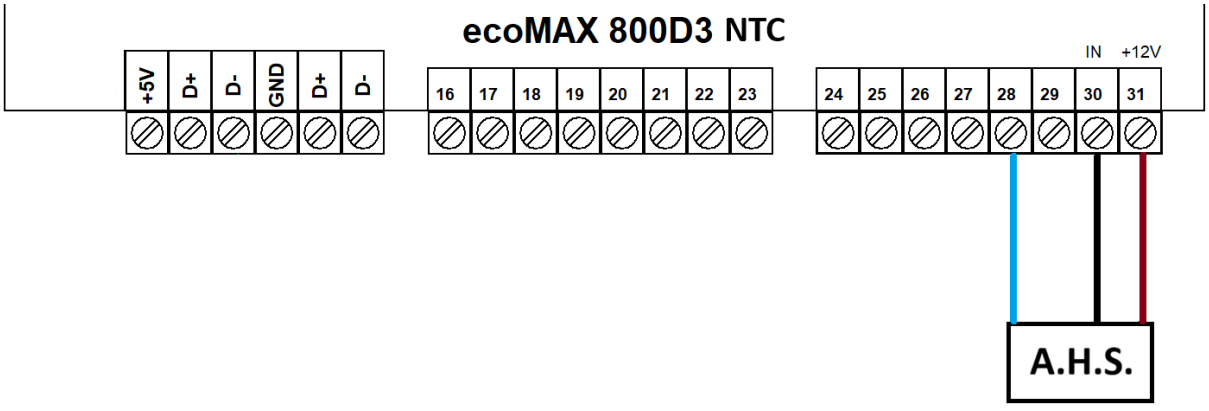


Figure11Electrical wiring diagram for the fuel detection switch

where: A.H.S. – fuel detection switch
28 – blue wire
30 – black wire
31 – brown wire

21 Connecting the temperature sensors

The controller is compatible with the following types of temperature sensors:

- CT10 (NTC10K) all water temperature sensors (boiler, DHW, MIX, storage tank)
- CT10P (NTC10K) outdoor temperature sensor
- CT2S (PT1000) exhaust gas temperature sensor

21.1 Connection of water temperature sensors

Water temperature sensors must be of the CT10 (NTC10K) type.
Connect the appropriate external sensor to the corresponding terminals on the control panel (seeFigure10) and place the measuring element at the desired location in the heating system. The sensor cable must not come into contact with hot surfaces of the boiler or heating system and must be secured against being pulled out.
Sensor cables can be extended using wires with a cross-section of at least 0.5 mm^2. The total length of the wires for individual sensors must not exceed 15 m. The boiler temperature sensor is located in the boiler's temperature well on the boiler casing. The DHW temperature sensor is placed in the temperature well in the DHW tank. The most suitable location for the MIX temperature sensor is in a temperature well placed in the flow of water in the piping; alternatively, it can also be placed on the surface of the pipe and thoroughly insulated (seeFigure12).

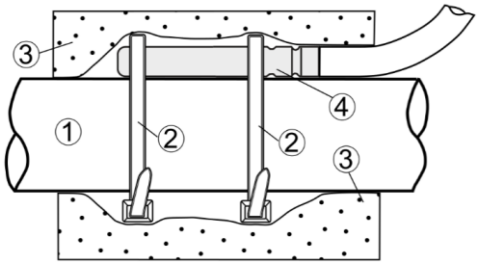


Figure12 Installation of the temperature sensor on the pipe

where: 1 – pipe

2 – cable tie

3 – thermal insulation

4 – temperature sensor

The sensors must be secured to prevent them from coming loose from the measured surfaces.

Good thermal contact must be ensured between the sensors and the measured surfaces. Use thermal paste for this purpose. The sensor wiring must be separated from the power cables. Otherwise, errors in temperature measurement may occur . The minimum distance between these cables is 10 cm. The sensor wiring must not come

into contact with hot parts of the boiler and heating system. The temperature sensor cables are temperature-resistant up to 100°C.

21.2 Connecting the flue gas temperature sensor

The flue gas temperature sensor must be of the CT2S (PT1000) type. It is installed in the body of the exhaust fan. Any gaps between the sensor and the flue must be sealed.
The sensor may be installed by a qualified technician in compliance with regulations applicable to chimney systems.
It is connected to terminals 6G-6F (seeFigure10) on the left side of the controller panel.
The flue gas sensor cable must not come into contact with hot parts of the boiler whose temperature exceeds 220 °C.

21.3 Outdoor Temperature Sensor Connection

The outdoor temperature sensor must be of the CT10P (NTC10K) type. It is not included in the boiler's standard equipment. The sensor is mounted on the coolest part of the house, usually on the north wall of the house under the roof. The sensor should not be exposed to direct sunlight or rain. The sensor must be mounted at least 2 m above the ground, away from windows, chimneys, and other heat sources that could affect temperature measurements (at least 1.5 m).
Connect the sensor using a cable with a minimum cross-section of 0.5 mm^2 and a maximum length of 25 m. The polarity of the wires is not important. Connect the free end of the cable to terminals 5G-5F (seeFigure10) on the left side of the controller's control panel.
Attach the sensor to the wall using mounting screws. To access the mounting screw holes, unscrew the sensor cover.

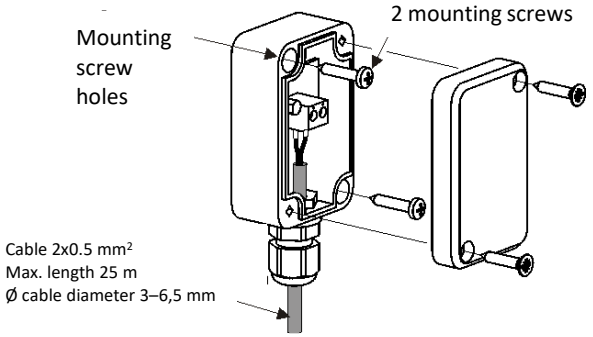


Figure13 Connecting the CT10P outdoor temperature sensor

21.4 Checking Temperature Sensors

Temperature sensors can be checked by measuring their resistance at a given temperature. If a significant difference is found between the measured resistance value and the values listed in the following table, the sensor must be replaced.

CT2S (PT1000) - flue gas temperature sensor			
Temperature [°C]	Min. [Ω]	Nom. [Ω]	Max. [Ω]
0	999.7	**1000.0**	1000.3
25	1096.9	**1097.3**	1097.7
50	1,193.4	**1,194.0**	1,194.6
100	1,384.2	**1,385.0**	1,385.8
125	1,478.5	**1,479.4**	1,480.3
150	1572.0	**1,573.1**	1574.2

CT10 (NTC10K) - water temperature sensor CT10P (NTC10K) - outdoor temperature sensor	
Temperature [°C]	Nom. [Ω]
0	**33620**
10	**20174**
20	**12,535**
30	**8,037**
40	**5301**
50	**3588**
60	**2486**
70	**1,759**
80	**1270**
90	**933**
100	**697**
110	**529**
120	**407**

22 Connecting Additional Devices to the Controller

22.1 Connecting and Configuring the Room Thermostat for Mixing Circuits

Connect the room thermostat to terminals 7G-7F (seeFigure10) on the left side of the controller cabinet. After installation, you must enable the room thermostat for controlling mixed heating circuits in the menu:

Menu → Heating System Settings → MIX Settings 1-3 → Room Thermostat → Use Room Thermostat → Yes

When the contacts open, the room thermostat begins to lower the temperature of the mixing circuit according to the parameter "*MIX Temperature Reduction from Room Thermostat*." Under normal circumstances, the MIX pump is not turned off when the contact opens (unless otherwise set in the service menu). Set the value of the "*MIX Temperature Reduction from Room Thermostat*" parameter so that the room temperature begins to gradually decrease after the thermostat contacts open.

The controller works with a mechanical or electronic thermostat that opens its contacts when the set temperature is reached.



Automatic shutdown of the MIX pump can only be activated after ensuring that the boiler will not overheat.

22.2 Connecting a backup boiler

The controller can control the operation of a backup (e.g., gas) boiler. When the temperature in the boiler (or storage tank) drops, the backup boiler is activated.
The standby boiler is connected to terminals 5-6 of the A power module (you must open the control panel cover) of the controller (seeFigure14) using a 12V relay.

To configure the backup boiler control on terminals 5-6, you must go to the menu:

Service Settings→Standby Boiler/DHW Circulation

select the "Standby Boiler" option.

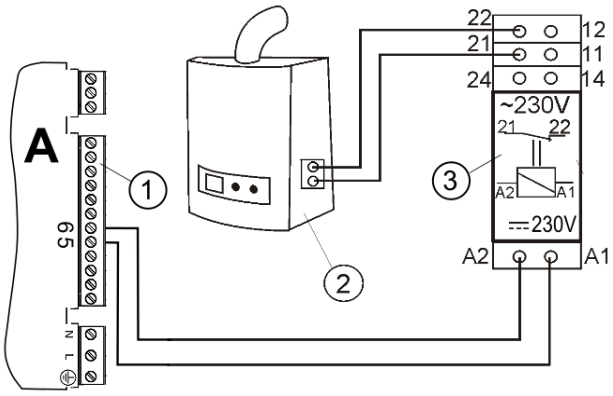


Figure14 Electrical connection of the backup boiler

where: 1 - Module A of the controller
2 - backup boiler
3 - 12V DC relay (RM 84-2012-35-1012 and GZT80 RELPOL socket)

The relay is not included in the boiler's standard equipment; it can be ordered from the boiler manufacturer.

If contacts 5-6 are already occupied, you must connect the backup boiler to module B (contacts 30-31).

Disconnect the power supply before removing the cover of the controller panel. Risk of electric shock! Installation must be performed by a qualified person in accordance with local regulations.

In the menu:

Service Settings→Boiler Settings→Standby Boiler Temperature

you can set the temperature at which the backup boiler should be deactivated (e.g., 35°C). The backup boiler is on if there is no voltage at terminals 5-6. The backup boiler turns off when these terminals are supplied with 230V (the temperature in the boiler or storage tank is above the set value for deactivating the backup boiler).

Switching the controller to STOP or STAND-BY mode activates the backup boiler.

If the *Backup Boiler Temperature* parameter *is set to 0°C,* backup boiler control will not be active.

After the backup boiler is turned on, the boiler pump is turned off when the boiler temperature drops below the boiler pump activation temperature. The DHW or MIX pumps operate after the backup boiler is turned on, regardless of the boiler temperature or storage tank temperature.

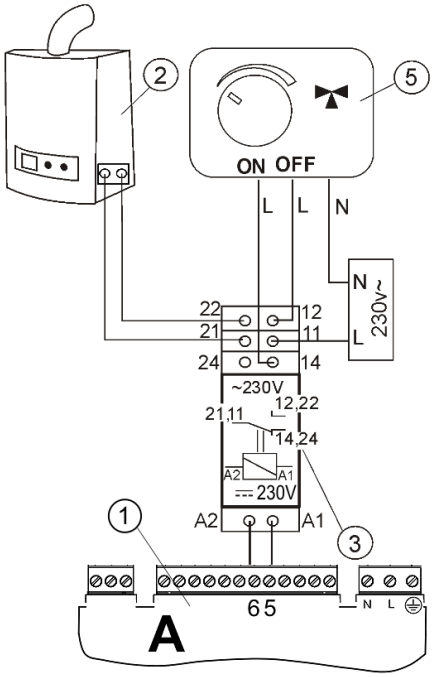


Figure15Electrical connection of the backup boiler and the switching valve

where: 1 – Module A of the controller
2 – backup boiler
3 – relay
4 – switching valve actuator

Note: Terminals 21, 22, and 24 must be electrically isolated from terminals 12, 11, and 14.

It is possible to connect a three-way switching valve that separates the heating circuit and DHW from the boiler/storage tank to prevent them from being heated – seeFigure16 .

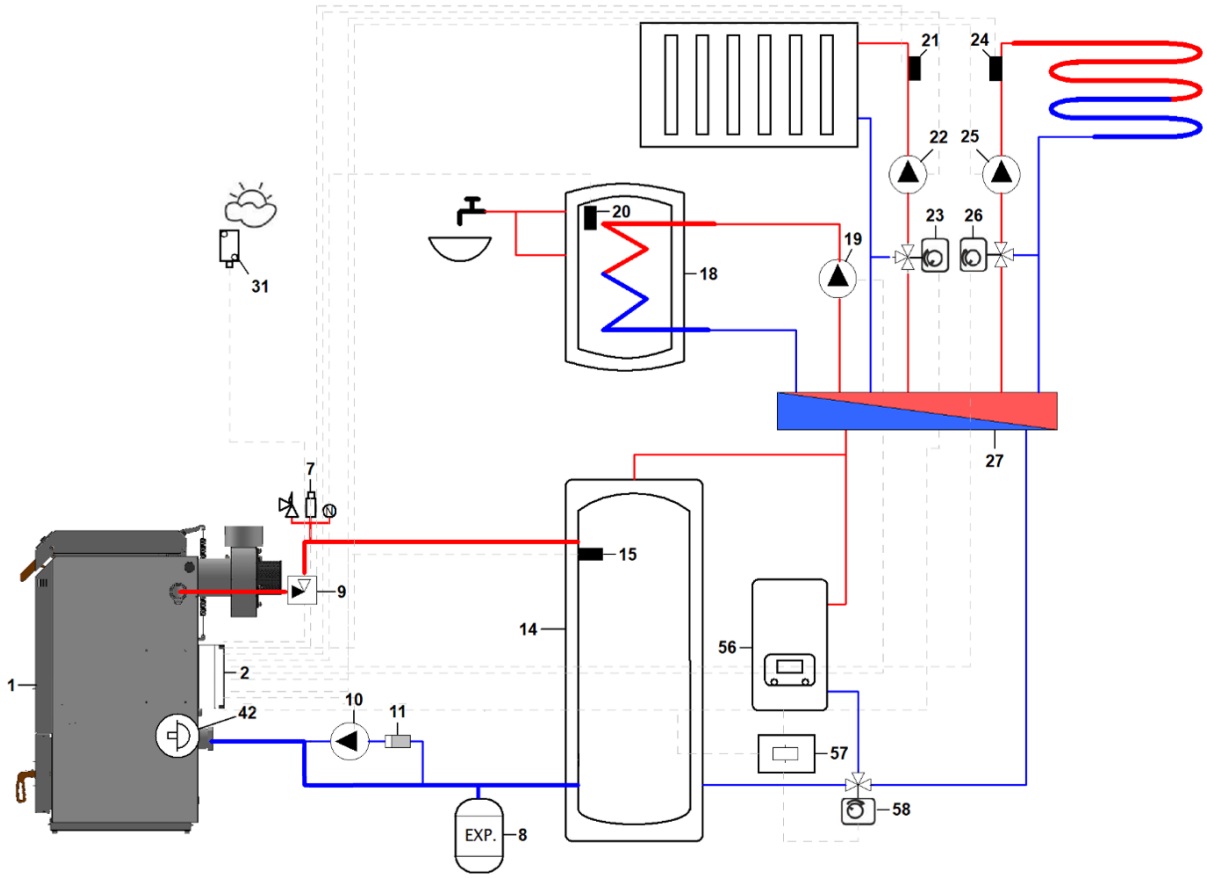


Figure16 Hydraulic connection with a backup boiler (56), relay (57), and switching valve (58)

There is a risk of electric shock from the connected backup boiler. When disconnecting the controller from the power supply, it is essential to also disconnect the backup boiler (if controlled by the evoMAX 800D3 unit) and ensure that there is no hazardous voltage at the terminals. Protect yourself from electric shock.

22.3 Alarm signaling connection

Alarm signaling is available after connecting expansion module B.
After connecting an external device, such as a buzzer or a GSM module for sending SMS text messages, the controller can signal alarm conditions.

Connect the external device for signaling alarm conditions via a relay to terminals 30-31 of module B of the controller (seeFigure17). The alarm signaling must be connected using module U3 (6V).

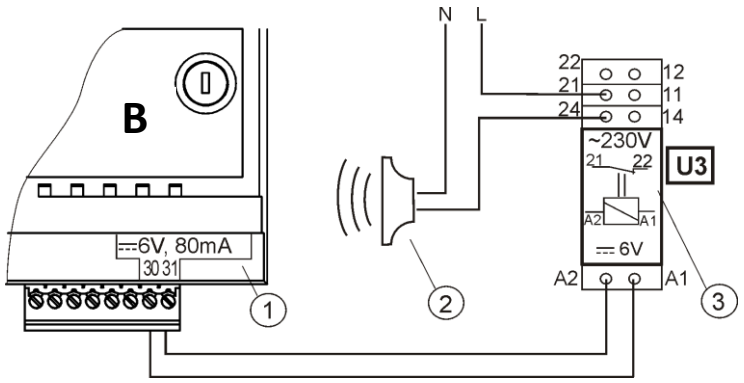


Figure17 Connecting an external device for alarm signaling

where: 1 - module B of the controller
2 - External alarm signaling device
3 - U3 module (consisting of RM 84-2012-35-1006 relay and GZT80 RELPOL socket)

For the controller to control external alarm signaling, the standby boiler shutdown temperature must be set to "0" - see menu:

Service settings→ Boiler settings→ Standby boiler temperature

To ensure proper operation, set the value of the *Active Alarm Signaling Code* parameter in:

Service Settings→ Alarms→ Active Alarm Signal Code

Selecting the value 31 applies voltage to terminals 30-31 when any alarm is activated. If you set this parameter to “0”, the controller will not apply voltage during any alarm.

The contact on terminals 30-31 can be configured to apply voltage when one or more alarms occur. The values to which the alarm parameter can be set are listed in the table below:

1	**a**	Boiler temperature sensor failure
2	**b**	Boiler maximum temperature exceeded

4	**c**	Damage to the flue gas temperature sensor
8	**d**	Excessive flue gas temperature
16	**e**	Fuel shortage

Example:
Setting the parameter to "8" will result in voltage at the terminal only when alarm "d" is active.
Setting the parameter to "1" will result in voltage at the terminal only when alarm "a" is active.
If the contact is to signal multiple alarms, e.g., alarms "b, d", the values corresponding to the individual alarms must be added together, i.e., set the sum to 10 (2 + 8). If alarms "a, b, c" are to be signaled, set the value to "7", as the sum of 1 + 2 + 4.

22.4 Connection of mixing valves (MIX)



During installation of the mixer actuator, ensure that the boiler does not overheat, which can occur when the heating water flow rate in the boiler is reduced. It is recommended that the valve be set to its maximum open position before starting OPERATION mode to ensure heat extraction from the boiler.

The controller is compatible only with actuators equipped with limit switches. The use of other actuators is prohibited. Actuators with an opening time ranging from 30 to 255 seconds may be used.

Description of MIX connection and setup:

- Connect the MIX temperature sensor to the left side of the controller's control panel (seeFigure10).
- Connect the controller's power supply.
- In the menu: ***Service Settings→Heating System Settings→MIX Settings 1-3→MIX Mode***: Select the heating method from the menu, i.e., *Radiators* or *Floor Heating*.
- In the menu: ***Service settings→Heating system settings→MIX 1-3 settings→MIX opening time:*** enter the correct value (the time is indicated on the actuator's nameplate, e.g., 140 s)
- Disconnect the controller's power supply and determine the direction in which the actuator opens/closes. To do this, switch the button to manual control and find the position where the temperature in the mixed heating circuit is at its maximum (in the controller, this corresponds to a 100% open position) and also the position where the temperature is at its minimum (in the controller, this corresponds to a 0% open position).
- Connect the MIX pump to the controller via the connector on the top panel of the control cabinet (seeFigure9) according to the pump manufacturer's technical documentation.
- Connect the MIX actuator to the controller via the connector on the top panel of the control cabinet (seeFigure9) in accordance with the actuator manufacturer's technical documentation. Be sure to correctly identify the wires for opening and closing the valve.
- Connect the controller's power supply.
- Check that the MIX actuator is opening and closing in the correct direction. Go to the menu: ***Service Settings→ Manual Control***, and open the mixer using the *MIX 1-3* option—*open = ON*. As the valve opens, the temperature on the MIX sensor should rise. If this is not the case, turn off the controller's power supply and swap the power supply wires. Note: Another possible cause is incorrect mechanical connection of the valve! Check that it is connected in accordance with the manufacturer's documentation.
- Calibrate the *MIX Valve Opening* indicator (%). Disconnect the controller's power supply and switch the button to manual control. Turn the valve head to the fully closed position, then switch the valve back to the AUTO position. Reconnect the controller's power supply—the *MIX Valve Opening* indicator is now calibrated.

For MIX 2 and 3, calibration is automatic after connecting the mains power. For these mixers, wait for the valve opening % calibration to complete. During calibration, the actuator is closed for the duration of the MIX opening time. Calibration is indicated in the "Information – MIX Information" menu by the text "KAL".

22.5 Connecting the STB Emergency Thermostat

The mechanical STB emergency thermostat is connected to terminals 1-2 of the regulator's A module. The temperature sensor (capillary tube) must be located in the boiler heat exchanger sump (together with the boiler temperature sensor). The STB emergency thermostat disconnects the power supply contacts of the exhaust fan when the temperature in the boiler reaches approximately 98°C.
To restore operation, allow the boiler to cool below 80°C, then unscrew the cover on the top panel of the controller (marked with the letters STB) and press the reset button with a suitable object. Finally, screw the cover back on.

22.6 Connecting the Circulation Pump

It is possible to connect and control the DHW circulation pump to terminals 5-6 of the controller's Module A (seeFigure8).

To configure DHW circulation pump control on terminals 5-6, you must go to the menu:

Service Settings→Standby Boiler/DHW Circulation

select the "Circulation Pump" option.

The circulation pump function is then activated in the menu:

Service Settings→Heating System Settings→DHW Circulation Settings→On

The parameters for controlling the circulation pump are then set in the menu:

Menu→Heating System Settings→DHW Circulation Settings

See the chapter12.3 .

For the circulation pump to function, the "DHW Priority" or "No DHW Priority" option must be set in DHW pump mode (see chapter12.2.2).

23 Service settings

23.1 Service menu structure

Boiler settings

- Fan settings
  - Fan power IGNITION
  - Fan Speed: MAINTENANCE RUN
  - Fan time MAINTENANCE OPERATION
  - Min. fan speed
  - Max. fan speed
- START-UP Termination Temperature
- Water temperature
  - Minimum boiler temperature
  - Maximum boiler temperature
  - Alarm – Max. boiler temperature
- Standby boiler temperature
- Alarms [1)]
- MAINTENANCE RUN time
- STOKING time
- IGNITION TIME
- Boiler Temperature Correction
- AKU temperature correction [1)]

Heating System Settings

- DHW settings [1)]
  - Boiler temperature increase from DHW & MIX
  - Maximum DHW temperature
  - DHW pump run-down [1)]
- DHW circulation settings [1)]
- MIX 1 settings [1)]
  - MIX mode
  - Minimum MIX temperature
  - Maximum MIX temperature
  - MIX Opening Time
  - Thermostat-controlled pump shutdown
  - Operation in SUMMER mode
  - MIX sensitivity

Storage tank settings [1]

- Charging the AKU tank
- Heat dissipation
- Heat dissipation temperature
- Hydraulic system hysteresis
- AKU pump on/off temperature
- Boiler pump on hysteresis
- Boiler pump shutdown hysteresis

Standby boiler / DHW circulation

Pump / Pump + MIX

Manual control

Restore factory settings

Manufacturer settings

[1)] This setting is not displayed if the corresponding sensor or expansion module is not connected, or if the

23.2 Description of service parameters

Description	Instructions
23.2.1 Boiler settings	
Fan settings	
• Fan power IGNITION	Exhaust fan speed during boiler ignition. If the speed is too high or too low, the boiler may fail to ignite.
• MAINTENANCE OPERATION fan power • MAINTENANCE OPERATION Fan Time	The exhaust fan is turned on for the duration specified by the *fan time* parameter *for MAINTENANCE OPERATION,* at the power specified by *the fan power* parameter for *MAINTENANCE OPERATION*, to maintain a stable combustion zone.
• Min. fan speed	An important parameter affecting the proper control of the combustion process. It should be set so that the exhaust fan, operating at this power, reduces the temperature of the flue gases and the boiler. Failure to maintain this condition will result in the boiler temperature exceeding the set value. The minimum fan power should be determined based on observation of the boiler's behavior.
• Max. fan speed	This parameter affects the boiler's output and the speed at which the desired boiler or flue gas temperature is reached. It should be determined based on the desired boiler output and by monitoring the fan's behavior. A value that is too low may prevent the boiler from reaching its rated output. A value that is too high may cause poor combustion and the boiler to go out.
START-UP termination temperature	This parameter defines the flue gas temperature at which the controller switches from the START-UP mode to the OPERATION mode.
Water temperature	
• Minimum boiler temperature	This is the minimum value of the *Desired Boiler Temperature* parameter, which the user can set in the main menu. If the boiler operates at too low a water temperature, it is at risk of rapid damage due to corrosion, soot buildup, etc. The recommended temperature is 65°C.
• Maximum boiler temperature	This is the maximum value of the *Desired Boiler Temperature* parameter, which can be set by: • the user in the main menu • the controller automatically, e.g., when refilling the DHW tank, etc.
• Alarm – Max. Boiler Temperature	The temperature at which the "*Boiler maximum temperature exceeded*" alarm is activated. It is recommended to set the alarm temperature below the activation value of the STB emergency thermostat to prevent the boiler from shutting down due to overheating of the STB sensor.
Standby Boiler Temperature	This parameter defines the temperature of the gasification boiler (or storage tank) at which the backup boiler will shut down. If a DHW circulation pump is connected to Module A and Module B is missing, this function is unavailable.
Alarms	This function is available only after connecting Module B – see the chapter "22.3 ."
MAINTENANCE RUN Duration	Determines the maximum duration of MAINTENANCE OPERATION.
BOOST DURATION	Allows you to set the STOKING time during which the exhaust fan operates at 100% capacity, regardless of the setting for the *Max. fan speed* parameter. From this mode, you can switch the controller to STOP or OPERATION mode.
START-UP TIME	If the temperature required to end the START-UP is not reached within the time set by this parameter, the controller automatically switches to OPERATION mode.

Boiler Temperature Correction	This parameter allows you to correct the displayed boiler temperature against a more accurate thermometer.
Storage Tank Temperature Correction	This parameter allows you to correct the displayed temperature in the storage tank (upper) against a more accurate thermometer.

23.2.2 Heating system settings

DHW settings	
• Boiler Temperature Increase from DHW & MIX	This parameter determines by how many °C *the boiler setpoint temperature* will be increased in order to heat the DHW tank and ensure the necessary output for the mixed circuit. However, this will only occur when necessary. If the set boiler temperature is sufficiently high, the controller will not change it due to the need to heat the DHW tank or the mixed circuit.
• Maximum DHW Temperature	This parameter sets the maximum temperature to which the DHW tank is heated during the dissipation of excess heat from the boiler or storage tank in an emergency situation involving overheating. This is a very important parameter, as setting the temperature too high can result in the user being scalded. Setting the parameter too low will prevent excess heat from being dissipated into the DHW tank during boiler overheating. When designing the DHW tank installation, it is necessary to take into account that the controller may be damaged. As a result of such a failure, the water in the DHW tank may heat up to a high temperature, which can cause the user to be scalded. Therefore, it is necessary to install an additional thermostatic valve.
• DHW pump run-down	In systems without a storage tank, there is a risk of the boiler overheating after the DHW tank has been filled and the DHW pump has been turned off. This risk arises when *the "DHW Setpoint"* parameter is set to a higher value than *the "Boiler Setpoint."* This issue primarily concerns DHW pump operation in SUMMER mode, when the boiler and MIX pumps are turned off. To allow the boiler to cool down, DHW pump operation is extended by the *DHW Pump Run-Down* value. If "Storage" mode is active, this parameter is not available.
DHW Circulation Settings	This function is available if *the "Circulation Pump"* mode is defined for output 5-6 in the *"Service Settings – Standby Boiler/DHW* Circulation" menu.
MIX 1-3 Settings	This function is available if the "*Pump+MIX*" mode is defined for outputs 11-12 in the "*Service Settings – Pump/Pump+MIX*" menu.
• MIX Mode	The following options can be set: • **Off** – the MIX actuator and MIX pump are not operating. • **Radiators** – used when the mixed heating circuit is connected to radiators. The maximum temperature of the mixed circuit is not limited. During heat dissipation from the boiler (when the boiler is overheating), the MIX is fully open. Warning: Do not enable this option if the installation uses pipes that are not resistant to high temperatures. In such cases, it is recommended to select the *Underfloor Heating* option in the MIX settings. • **Underfloor Heating** – used when the mixed heating circuit is connected to an underfloor heating system. The maximum temperature of the mixed circuit is limited by *the Maximum MIX Temperature* parameter. Caution: When selecting this mode, the *Maximum MIX Temperature* parameter must be set to prevent thermal damage to the floor heating system and avoid the risk of burns.
• Minimum MIX temperature	A parameter that prevents the user from setting the MIX temperature too low. If the desired MIX temperature is lower (e.g., due to a reduction from or the time program) than the *Minimum MIX Temperature* value, the

	controller will accept *the Minimum MIX Temperature* as the desired temperature.
• Maximum MIX Temperature	This parameter prevents the user from setting the MIX temperature too high. The controller accepts the temperature set by the *Maximum MIX Temperature* parameter as the setpoint if the calculated setpoint based on the outdoor sensor and the equithermal curve exceeds the value specified by the *Maximum MIX Temperature* parameter. For underfloor heating, the value must be set to no more than 45–50°C (or another value, if specified by the manufacturer of the underfloor heating installation materials or the heating system designer).
• MIX Opening Time	Enter the time for full valve opening. It is indicated on the valve actuator's nameplate, e.g., 140 s.
• Thermostat-controlled pump shutdown	The following options can be set: • **No** – when the room thermostat opens, the MIX pump does not shut off. • **Yes** – when the room thermostat opens, the MIX pump shuts off and the MIX closes.
• Operation in SUMMER mode	Allows the mixing circuit to be turned on when SUMMER mode is active.
• MIX Sensitivity	This parameter determines the temperature insensitivity value (the so-called dead zone) for mixer control. The controller operates the mixing valve so that the actual temperature measured by the MIX sensor equals the setpoint. However, to prevent excessive actuator movement, which could unnecessarily shorten its service life, control is only active when the measured MIX temperature is higher or lower than the setpoint by the *MIX Sensitivity* value.
23.2.3 Storage Settings	
Charging the battery tank	The following options can be set: • **Off** – the storage tank control function is turned off. • **On** – the storage tank control function is enabled.
Heat dissipation	The following options can be set: • **Off** – the heat dissipation function from the storage tank in case of overheating is disabled. • **On** – the heat dissipation function from the storage tank in case of overheating is enabled.
Heat dissipation temperature	The temperature of the upper sensor of the storage tank at which its cooling begins, when heat is dissipated into the heating circuits and the DHW circuit.
Hydraulic system hysteresis	Temperature hysteresis of the hydraulic system for the storage tank.
Storage tank pump on/off temperature	The temperature in the storage tank at which the mixed heating circuits and DHW will be switched on/off if storage is selected as the heat source.
Boiler pump activation hysteresis	These parameters determine the temperature differences between the storage tank and the boiler at which the boiler pump will be turned off/on. Setting the *Boiler Pump Off Hysteresis* parameter *to 0* will disable the function that protects the storage tank from cooling down.
Boiler pump shutdown hysteresis	
23.2.4 Backup boiler / DHW circulation	
Standby Boiler / DHW Circulation	The following options can be set: • **Circulation pump** – activation of the mode for controlling the DHW circulation pump at output 5-6. • **Standby boiler** – activation of the mode for controlling the standby boiler on outputs 5-6. • **Off** – Outputs 5-6 are not active.

23.2.5 Pump / Pump + MIX	
Pump / Pump + MIX	The following options can be set: • **Pump** – set outputs 11–12 to the mode for controlling the pump heating circuit. • **Pump + MIX** – set outputs 11-12 to the mode for controlling the mixed heating circuit.
23.2.6 Manual control	
Manual control	Menu in which individual controller outputs can be manually activated. Requires switching the controller to STANDBY mode. Never switch off the controller while the boiler is in operation.
23.2.7 Restore factory settings	
Restore factory settings	Restores the factory settings for both the user and service menus.
23.2.8 Factory settings	
Manufacturer settings	Access to the factory menu (clearing alarms, resetting counters, etc.). The appropriate password must be entered.

24 Replacement of spare parts and components

When ordering spare parts and components, you must provide the necessary information found on the controller's nameplate, ideally the controller's serial number. If the serial number is missing, please specify the model, controller version, and year of manufacture.

The controller's serial number is located on the controller cabinet and power module A.
The control panel number is not the controller's serial number.

25 Replacing the mains fuse

The mains fuse is located inside the controller enclosure on power module A. It protects the controller from damage. The fuse may only be replaced by a qualified person after disconnecting the mains power supply. Use only slow-blow (time-delay) porcelain fuses, 5x20 mm, with a rated breaking current of 6.3 A.

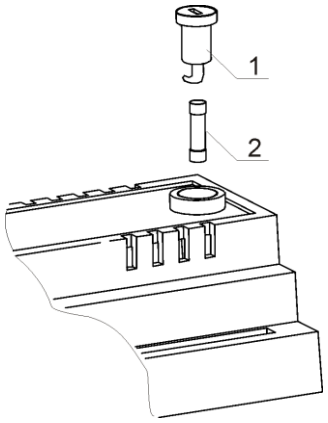


Figure18Replacing the mains fuse

where: 1 - fuse holder
2 - fuse

To remove the fuse, use a flathead screwdriver to gently press on the fuse holder, turn it counterclockwise, and carefully remove the fuse.

26 Description of possible malfunctions

Description	Instructions
The display shows nothing even though the controller is plugged into the power outlet.	Check: • whether the fuse is blown; if so, replace it. • whether the control panel connection cable is properly connected and not damaged.
The boiler setpoint temperature on the display is different from the programmed value.	Check: • whether the DHW tank is currently being heated and the set DHW temperature is higher than the boiler setpoint. If so, the difference will disappear once the DHW tank is filled or the DHW setpoint is lowered. • If a room thermostat is connected, set the *"Thermostat Temperature Reduction"* parameter to "0" (if available). • If time programs are active, turn off the boiler's time programs (if available).
The boiler pump is not running.	Check: • whether the boiler has reached the value set by the *Boiler Pump Start Temperature* parameter (both water and flue gas) and whether the pump is not blocked by the storage tank parameter settings. • whether the pump is properly connected, undamaged, and not blocked.
The fan is not working.	Check: • whether the STB emergency thermostat has been activated. If so, it must be manually reset by unscrewing its cover after the boiler has cooled down and pressing the reset button. • Check that the connector is properly connected and that it is correctly inserted into the connector on the fan. • Check and, if necessary, replace the fan.
The temperature is not being measured correctly.	Check: • whether there is good thermal contact between the temperature sensor and the surface being measured. • whether the sensor wire is not placed too close to the power cable. • Check whether the sensor is properly connected to the terminals in the controller panel. • Check whether the sensor is damaged; if so, replace it.
The DHW pump is running even though the DHW tank is already heated.	• Reduce the value of the *DHW Pump Run-Down* parameter, or set it to "0".
The boiler overheats even when the fan is off.	• This may be caused by insufficient heat draw or a small storage tank.
In the MIX information, the percentage indicator does not match the current valve position.	• Wait for the MIX to calibrate itself or calibrate it manually.

27 Notes

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