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HW:

Fresh Water Module

Operating Instructions

ETA Heiztechnik
Gewerbepark 1
A-4716 Hofkirchen an der Trattnach
Tel: +43 (0) 7734 / 22 88 -0
Fax: +43 (0) 7734 / 22 88 -22
info@eta.co.at
www.eta.co.at

Contents

1 General

1.1 General information

Copyright

Subject to technical changes

We reserve the right to make technical modifications without notice. Printing and typesetting errors or changes of any kind made in the interim are not cause for claims. Individual configurations depicted or described here are only available optionally. In the event of contradictions between individual documents regarding delivery scope, the information in our current price list applies.

Software Description

The software version described in this documentation corresponds to the version valid at the time of publication. The software version installed on your product may differ from that described in this documentation.

A software update to a higher version can be carried out at any time. The required files can be found with the appropriate authorisation on www.eta.co.at.

Explanation of symbols

Instructions and information

Layout of safety instructions

SIGNAL WORD!

Type and source of danger

Possible effects

- Measures for avoiding the danger

Types of safety instruction

CAUTION!

On non-compliance with this safety instruction, there is a risk of material damage.

WARNING!

On non-compliance with this safety instruction, there is a risk of physical injury.

DANGER!

On non-compliance with this safety instruction, there is a risk of major physical injury.

Explanation of pictograms


Switch the boiler on/off with the mains switch.


Perform a visual check of the components.


Clean the components with a soft cloth, for example.


Remove deposits with a vacuum cleaner or an ash vacuum.


Remove deposits with the poker.


Remove deposits with the cleaning brush.


Replace the wear parts (e.g., seals) with new items.


Lubricate the components. The lubricant to use is listed in the respective step.


Mount the components (e.g., screws or nuts) by hand only, without tools.


Tighten the components (e.g., screws or nuts) with a tool.


Install the components with some force (e.g., the retaining tube or the Lambda probe).


Handle the components carefully, since they break very easily.


Measure or check dimensions or clearances on the components.


Mark the components so that the correct position can be determined, for example, when mounting.


Wear a protective mask to avoid damage to the airways.


Seal the components. The sealant to be used is listed in the respective step.


Insulate the components. The insulation material to be used is indicated in the respective step.

Use adhesive to affix, for example, seals.

Use spray adhesive to affix, for example, seals.


Only blow out the components with your mouth.


Affix a seal. The required cross-section and sealing material are stated in each step.


Tighten screws and nuts alternately and evenly.


Clean the components by rinsing them with water.

Lubricate the components or contact surfaces with copper paste.

Lubricate the components or contact surfaces with a dry lubricant, e.g. PTFE.

Lubricate the components or contact surfaces with multipurpose grease.


Lubricate the components or contact surfaces with multipurpose grease.


Disconnect the component's electrical plug connection.


Connect the electrical plug connection to the component.


Perform a tactile check on the components.


Do not use compressed air to clean the components.


Do not use cleaning brushes to clean the components.


Do not use an ash vacuum or vacuum cleaner.


Do not lubricate the components.


No water or moisture in this area.


No leaks in the components, e.g. screw connection or maintenance cover.


Do not bend the components.

1.2 Warranty, guarantee and liability

Installation in a dry, frost-proof room

A dry, frost-proof room is required for the installation.

Heed the drinking water ordinance

In terms of drinking water, the chemical, physical and bacterial limits stated in the applicable national drinking water ordinance must not be exceeded. See chapter on 8 "Information on cold water".

Calcification

Potential calcification of the fresh water module is excluded by the warranty. In the case of water with particularly high scale-forming properties, water softening or regular descaling may be necessary. You can find more information in the chapter on 8 "Information on cold water".

Safety valve for the drinking water line

Before each closed drinking water heater (=TWE / tank) a membrane safety valve is to be installed in accordance with DIN 1988 and 4753, Part 1 and TRD 721. This valves opens automatically when a set operating pressure is exceeded (6, 8, 10 bar), and after a pressure reduction it closes again automatically.
Except flow heaters with a nominal volume of less than 3 litres.

The ETA fresh water module falls under this exception rule. That is why no additional safety valve is required.

With the optional circulation set, however, a safety valve is required on the drinking water side (10 bar) and that is why it is already installed at the factory. This must not be blocked nor removed.

pH value between 8 and 9

The pH value of water used to fill the heating system must be between 8 and 9.

Expanding the control system

Only components provided by us may be used for expanding the control system, unless these are generally available standard devices, such as thermostats.

Proper installation

The installing contractor is liable for proper installation according to the corresponding installation instructions and the relevant rules and safety regulations. If you as customer have installed the heating system partly or entirely without relevant training and in particular without up-to-date practical experience, without having the installation checked by a trained and responsible expert, we exclude defects in our delivery and consequential damages resulting from this cause from our warranty, guarantee and liability.

Repairs

Repairs are only permitted using spare parts provided by us. The only exceptions are common standardised parts such as electrical fuses or fastening materials, as long as they possess the required features and do not restrict the functionality of the system.

Repair of defects

For repairs of defects carried out by the customer or by a third party, ETA shall only bear the costs or remain obligated by warranty if this work was approved in writing in advance by the customer service of ETA Heiztechnik GmbH.

2 Declaration of conformity

CE Declaration of Conformity

Manufacturer:	ETA Heiztechnik GmbH Gewerbepark 1, 4716 Hofkirchen an der Trattnach, Austria
Product:	Fresh water module with energy-saving pumps
Types:	ETA FWM-E

EU Directives:	
2014/30/EU	Legislation on electromagnetic compatibility
2014/35/EU	Legislation for electrical equipment: low voltage directive
2011/65/EU	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2 guideline)

Applied standards:	
EN 60335-1:2020	Household and similar electrical appliances - Safety - Part 1: General requirements
IEC 61000-6 1/2:2005	Electromagnetic compatibility (EMC): Generic standards - Immunity for residential, commercial and light-industrial environments (1) and industrial environments (2)
IEC 61000-6 3/4:2011 + A1:2011	Electromagnetic compatibility (EMC): Generic standards - Emission standard for residential, commercial and light-industrial environments (3) and industrial environments (4)

We hereby declare that the product in its standard design as stated here corresponds to the above provisions. The sole responsibility for issuing this declaration of conformity lies with the manufacturer. The technical documentation for this product is managed by ETA Heiztechnik GmbH. Signed for and on behalf of:

Hofkirchen, 12/01/2021

Ing. Johann Eibelhuber
Quality assurance

DI Ferdinand Tischler
Management

3 Description

3.1 Technical data "Fresh water module 33"

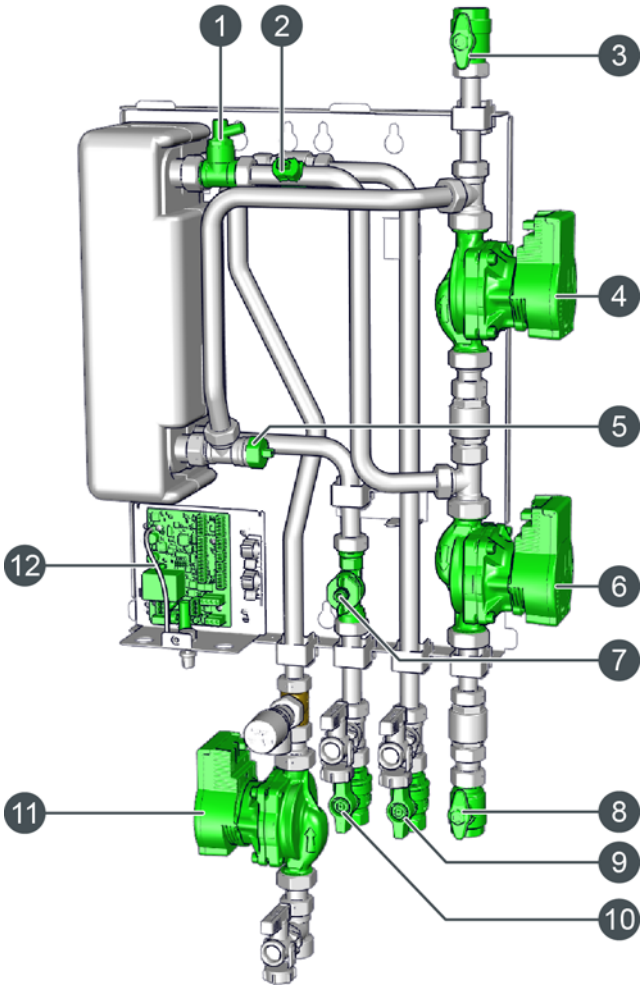


Fig. 3-1: Components

1 Bleed screw
2 Return temperature sensor for hot water circuit
3 3/4" flow connector from buffer
4 Admixing pump as calcification protection
5 Flow temperature sensor for hot water circuit
6 Buffer pump for hot water circuit
7 Flow sensor with temperature sensor for hot water
8 3/4" return connection to buffer
9 3/4" cold water connection
10 3/4" hot water connection
11 Optional circulation pump with safety valve (10 bar) and drain cock to empty the hot water circulation line
12 Circuit board [EM-FC]

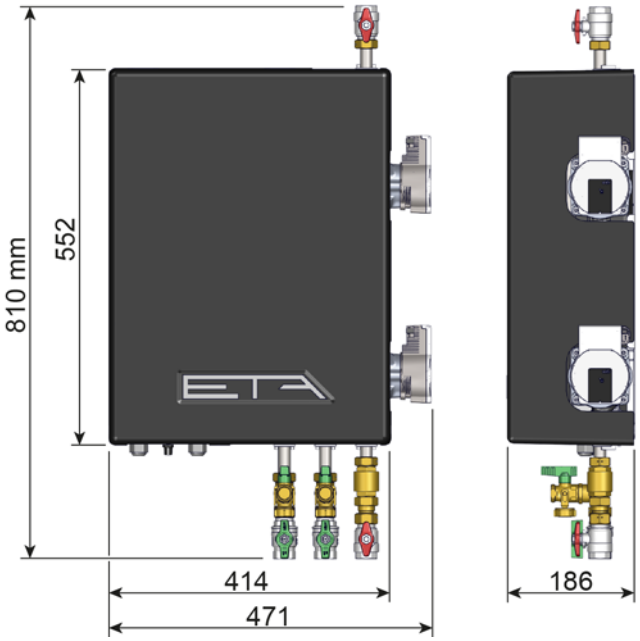


Fig. 3-2: Dimensions

Technical data

Tap output	
	33 litres/minute with 45 °C hot water at a buffer temperature of 60 °C
Pressure loss (cold water side)	
	15 litres/minute = 150 mbar (1,5 mws) 33 litres/minute = 580 mbar (5,8 mws)
Connections (cold water side)	
	DN20 (3/4") internal thread; according to DIN DVGW or ÖNORM B5014-4
Connections (hot water side)	
	DN20 (3/4") internal thread
Purging connections	
	DN15 (1/2")
Pumps	
	Two speed-regulated highly efficient pumps for hot water preparation and calcification protection (admixing pump)
Standards	
	Corresponds to DIN DVGW or ÖNORM B5014-4

3.2 Layout (FWM 33)

Layout (FWM 33)

Standard layout
45 °C hot water temperature

33 litres/min with 45 °C hot water temperature at 60 °C buffer temperature (75 kW)			
Primary	60/25 °C	1.87 m³/h	Δp 0.53 mWS free
Secondary	12/45 °C	1.98 m³/h	Δp 580 mbar

Layout for 60 °C hot water temperature

23 litres/min with 60 °C hot water temperature at 76 °C buffer temperature (77 kW)			
Primary	76/40 °C	1.84 m³/h	Δp 0.46 mWS free
Secondary	12/60 °C	1.38 m³/h	Δp 300 mbar

3.3 Technical data "Fresh water module 44 "

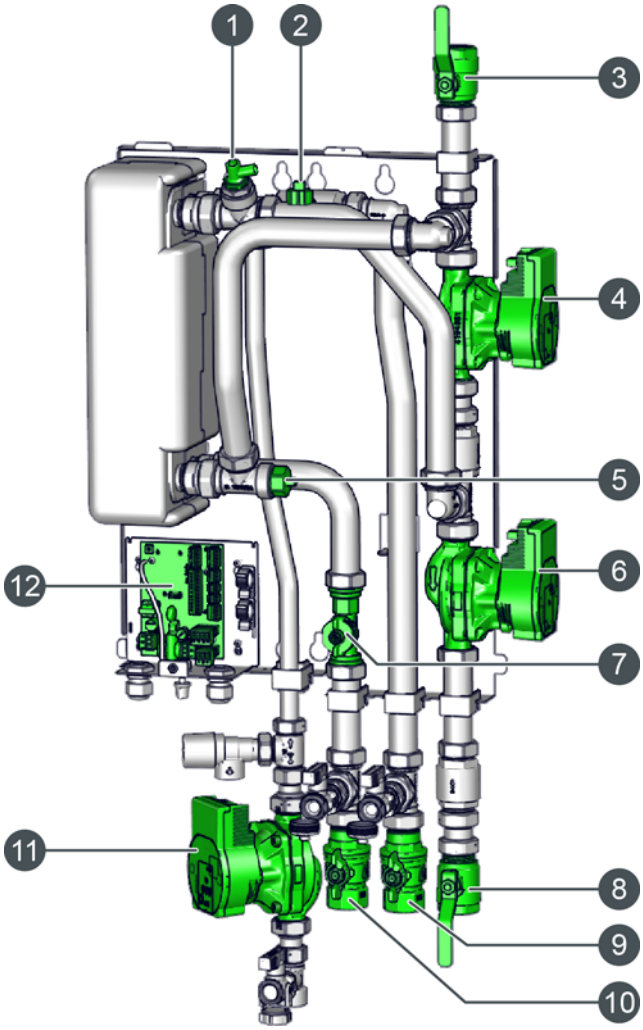


Fig. 3-3: Components

1 Bleed screw
2 Return temperature sensor for hot water circuit
3 1" flow connector from buffer
4 Admixing pump as calcification protection
5 Flow temperature sensor for hot water circuit
6 Buffer pump for hot water circuit
7 Flow sensor with temperature sensor for hot water
8 1" return connection to buffer
9 1" cold water connection
10 1" hot water connection
11 Optional circulation pump with safety valve (10 bar) and drain cock to empty the hot water circulation line
12 Circuit board [EM-FC]

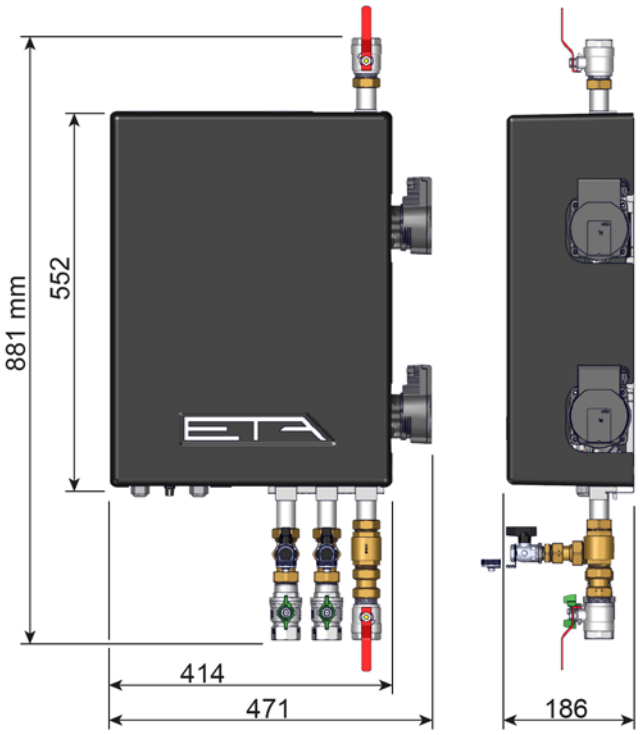


Fig. 3-4: Dimensions

Technical data

Tap output	
	44 litres/minute with 45°C hot water at a buffer temperature of 60°C
Pressure loss (cold water side)	
	20 litres/minute = 160 mbar (1,6 mws) 44 litres/minute = 560 mbar (5,6 mws)
Connections (cold water side)	
	DN25 (1") internal thread; according to DIN DVGW or ÖNORM B5014-4
Connections (hot water side)	
	DN25 (1") internal thread
Purging connections	
	DN15 (1/2")
Pumps	
	Two speed-regulated highly efficient pumps for hot water preparation and calcification protection (admixing pump)
Standards	
	Corresponds to DIN DVGW or ÖNORM B5014-4

3.4 Layout (FWM 44)

Layout (FWM 44)

Standard layout
45 °C hot water temperature

44 litres/min with 45 °C hot water temperature at 60 °C buffer temperature (101 kW)			
Primary	60/25 °C	2.49 m³/h	Δp 0.54 mWS free
Secondary	12/45 °C	2.64 m³/h	Δp 560 mbar

Layout for 60 °C hot water temperature

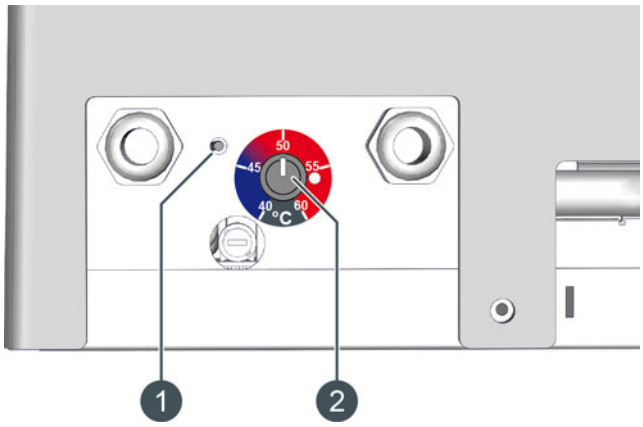
32 litres/min with 60 °C hot water temperature at 76 °C buffer temperature (107 kW)			
Primary	76/40 °C	2.56 m³/h	Δp 0.35 mWS free
Secondary	12/60 °C	1.92 m³/h	Δp 380 mbar

3.5 Function

Potentiometer and operating display

The temperature of the hot water can be set with the potentiometer on the under side, from 40°C to 60°C. The LED that is attached next to it shows the current operating condition as well as any faults regardless of the light colour and the flashing frequency.

The potentiometer is only active if the fresh water module is operated without the ETAtouch controller.



1 LED for operating display

2 Potentiometer to set the hot water temperature

Operating displays of the LEDs

- *Flashing GREEN (1x per second):*
  The fresh water module is in preparation.
- *GREEN lights:*
  The fresh water module is in operation and delivers hot water.
- *Flashing YELLOW (1x per second):*
  The fresh water module is ready, but in emergency mode without admixing pump.
- *YELLOW lights:*
  The fresh water module is in emergency mode and delivers hot water.

Fault displays of the LEDs

- *Flashing RED (1x every 4 seconds):*
  The temperature sensor for the hot water is defective.
- *Flashing RED (2x every 4 seconds):*
  The temperature sensor for the hot water flow is defective.
- *Flashing RED (3x every 4 seconds):*
  The temperature sensor for the hot water return is defective.
- *Flashing RED (4x every 4 seconds):*
  The potentiometer for manual setting of the hot water temperature is defective.
- *Flashing RED (5x every 4 seconds):*
  Automatic venting by the admixing pump does not work. There may be air in the primary circuit of the fresh water module. Or the admixing pump, cabling or the outlet on the circuit board is defective.

  If emergency mode is activated, it still attempts to produce hot water.
  To remedy, vent the fresh water module or activate the function [Automatic venting].
- *Flashing RED (6x every 4 seconds):*
  The hot water is not heated. The buffer may be cold or the lines are blocked. Also check the functionality of the buffer pump. If it is defective, you can try to produce hot water by replacing the admixing pump and activating emergency mode.

The fresh water module works autonomously.

The basic functions of the fresh water module are already configured at the factory, also without CAN-Bus connection to boiler. In this way, the fresh water module can be put into operation immediately as soon as the buffer delivers heat. Power is supplied via a 230 V earthed socket.
The temperature of the hot water can be set with the potentiometer on the under side, from 40 °C to 60 °C. The LED that is attached next to it shows the current operating condition as well as any faults.

Even if the fresh water module works autonomously, a CAN-Bus connection to the ETAtouch controller is recommended. This enables multiple settings for the hot water and any faults are reported back.

How the fresh water module works

If hot water is drawn off, the flow sensor starts up the buffer pump of the fresh water module. The hot heating water is directed through the primary side of the plate heat exchanger, heating it up.

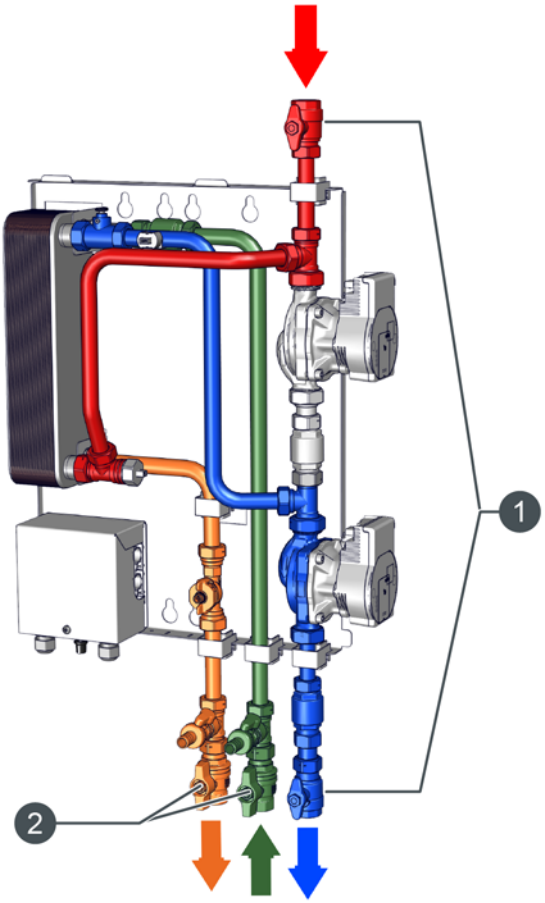


Fig. 3-5: Function of the fresh water module

1 Connections for the boiler water circuit (primary side)

2 Connections for cold water (secondary side)

The cold water that simultaneously flows through the plate heat exchanger on the secondary side absorbs this heat and exits the fresh water module as hot water.

The design of the fresh water module protects it against calcification

In principle, all parts that bear hot water are at risk of calcification, particularly in the context of hard, calcareous water and temperatures above 60 °C. However, the decisive advantage of the fresh water module compared with a hot water tank is its very fast flow, which leaves almost no time for the limescale to build up in the plate heat exchanger. In the same way, the limescale has little opportunity to build up, as it is purged from the plate heat exchanger due to the high flow speeds.

In order to protect the plate heat exchanger against calcification, a second pump called an admixing pump is also installed. While the hot water is being drawn off, the admixing pump reverse pumps a proportion of the heating water that has cooled down in the plate heat exchanger, and mixes this with the hot heating water from the buffer. As a result of this, the critical calcification temperature of 60°C is not reached, and the build-up of limescale is prevented.

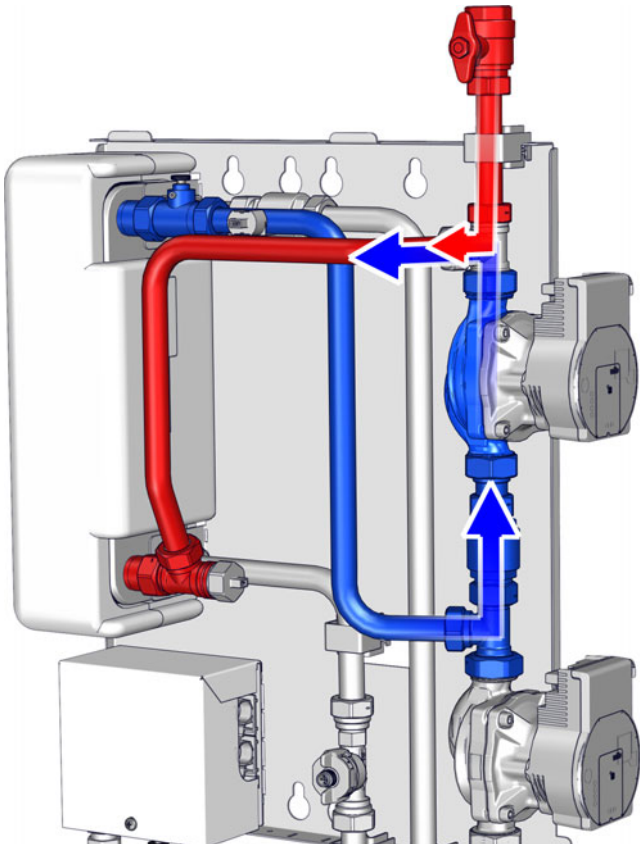


Fig. 3-6: Admixing of heating water

If a hot water temperature above 55 °C is set, it is no longer assured that the heating water can be mixed to a temperature below 60 °C. This can result in individual ducts of the plate heat exchanger no longer having any protection against calcification.

The hot side of the plate heat exchanger is situated at the bottom. As hot water rises and cool water sinks, the water is mixed in the plate heat exchanger at the end of each hot water draw-off. This ensures that the plate heat exchanger will cool down to below the critical temperature of 60°C during the standby phases.

Hydraulic connection of the fresh water module

The schematic representation also contains the optionally available circulation set. A bleed valve with sufficient dimensions must be installed at the highest point of the flow line from the buffer to the fresh water module.

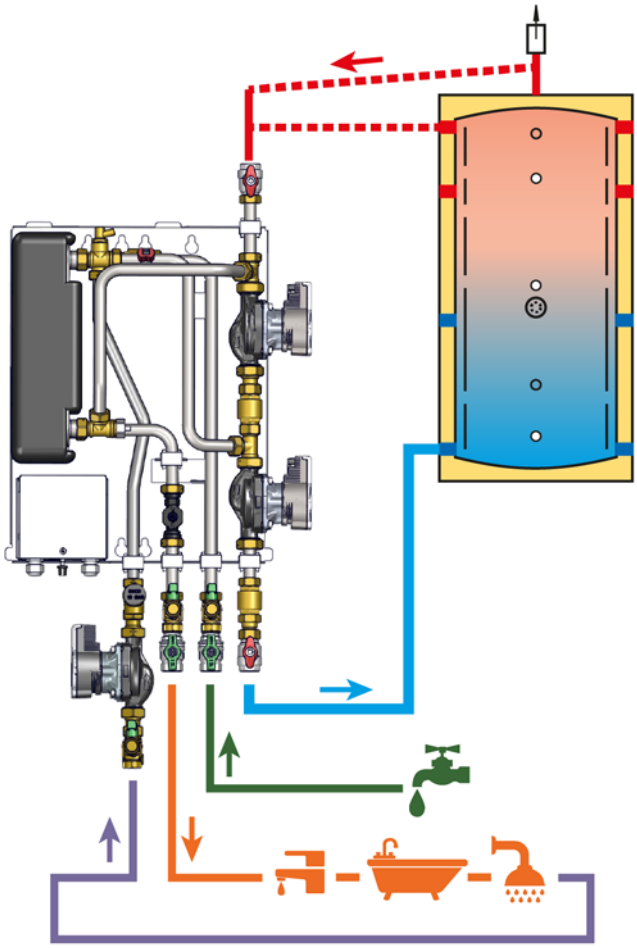


Fig. 3-7: Hydraulic connection

3.6 Information for installation

Hydraulically uncouple the fresh water module, only install a solenoid valve in exceptional cases

Ideally, separate piping must run between the fresh water module and the buffer and this should **not** be integrated in the flow between the heat producer and the buffer.

However, if this is not possible, then a solenoid valve (230 V, Kv value > 7) must be installed in the heating water return line of the fresh water module. This opens only if hot water is required and prevents the plate heat exchanger from being heated up unintentionally by the boiler pump (the pump from the heat producer to the buffer).
The solenoid valve is connected to terminal [S102 LZ]. The output of the buffer pump from the fresh water module must then be duplicated, i.e. additionally assigned to terminal [S102 LZ]. This assignment is only possible for systems with an ETAtouch control panel.

Take the line resistance of the hot water installation into account

The pump installed in the optional circulation set is dimensioned so that in conventional installations a sufficient flow rate is achieved (see pump curve).

The flow sensor of the fresh water module is dimensioned for a flow rate of 2 - 40 l/min. But if less than 1 l/min hot water is used, it could be that the flow sensor is not responding and thus the circulation is not starting. For this reason, the line resistance of the hot water installation must be checked during installation. If required, the operating mode of the circulation pump can be adjusted (see speed of the circulation pump)

Practical example:
At 0.24 m³/h feed capacity (4 l/min), an installation with a new aluminium interconnector (16 x 2.2 mm, 20 m length, 6 fittings) has a line resistance of approx. 1.60 mWs. With this delivery rate, the delivery head at the "Constant speed" level II setting is around 4.5 m. When deducting the line resistance of 1.6 mWS, the delivery head is approximately 3.9 m. According to the pump characteristic curve, the circulation pump requires an output of around 23 W (see characteristic curve of the circulation pump).

If the circulation does not work, check the following points:

- Were the pipelines purged?
- Is circulation even possible? (Blocked lines, crushing, pressed in protective cap ...)
- Check the pipe dimensions, lengths and number of fittings, and calculate the line resistance.

4 Installation

Technical Illustrations

The technical illustrations show the assembly of the "fresh water module 33". These graphics apply equally to other available fresh water modules from ETA.

Assembly and installation only by qualified specialist personnel

The assembly and installation may be performed by specialist personnel with the corresponding qualifications only.

4.1 Preparation

Select installation site of the fresh water module

The fresh water module can be attached to a wall or directly on the buffer storage tank. If installing on a wall, the fresh water module should be mounted in the vicinity of the buffer (maximum 5 m simple line length) to limit pressure losses.

The length of the CAN-Bus line supplied for connection to the boiler is 10 m. The 3 temperature sensors for the buffer can be connected to the circuit board of the fresh water module.

Removing the plastic cover

Prior to starting installation, remove the plastic cover by loosening the screw on the bottom side.

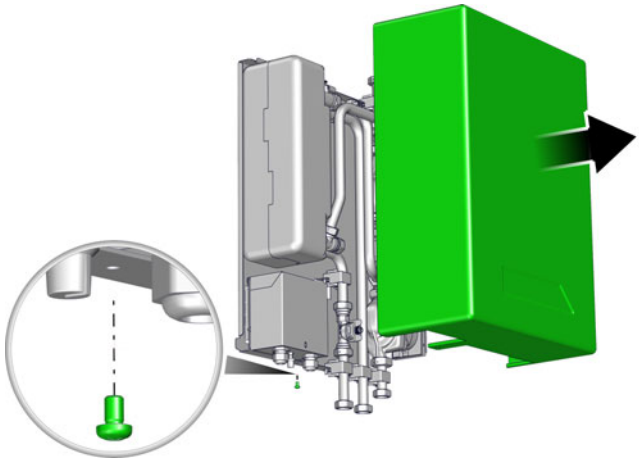


Fig. 4-1: Plastic cover

Hydraulic connection on the buffer

A lateral connection of the fresh water module to the buffer is preferred. Since this ensures optimal ventilation of the buffer on its buffer cap.

Fig. 4-2: preferred connection variant

If a lateral connection is not possible, the fresh water module can be connected to the buffer cap. But then the flow line must have an incline to the fresh water module. The T-piece for the bleed valve must be the same size as the connection on the buffer, so that no air pocket may form.

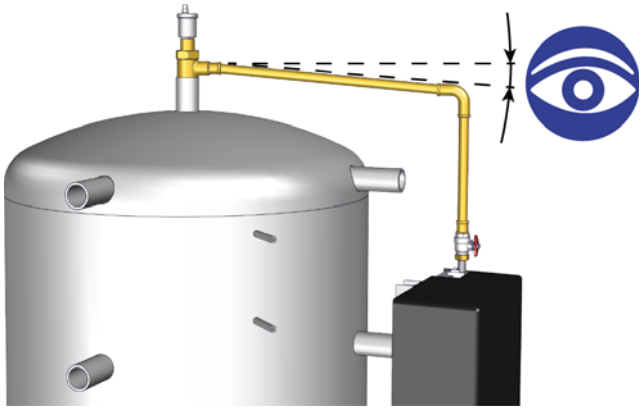


Fig. 4-3: Alternative connection variant

4.2 Select installation site

Mounting the fresh water module on the wall

Mark the position of both mounting screws at the top and bottom on the wall. Attach the fastening screws to the wall, hang the fresh water module and fix the fastening screws in place.

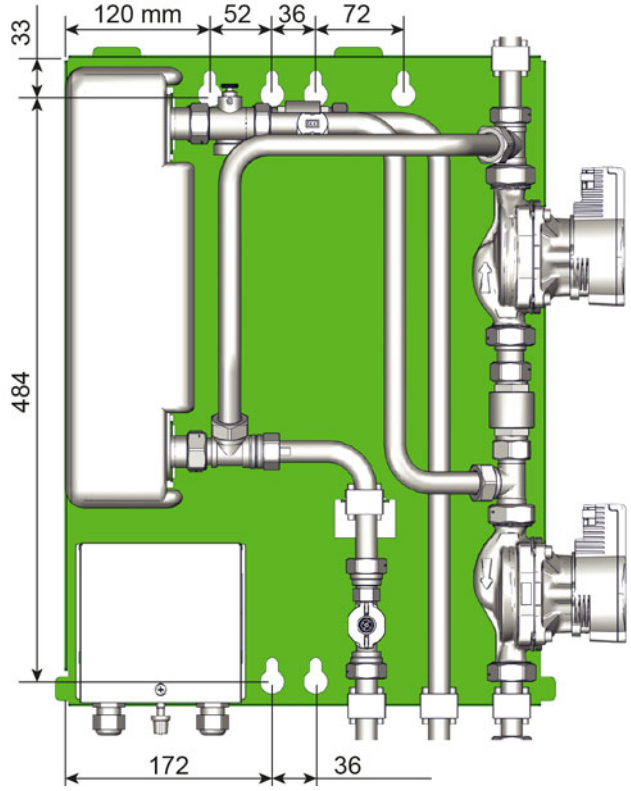


Fig. 4-4: Mounting holes for wall installation

The fresh water module weighs approximately 20 kg.

Mounting the fresh water module on the buffer

For mounting the fresh water module on the buffer, a bracket with clamping jaws for 6/4" nipples is optionally available.

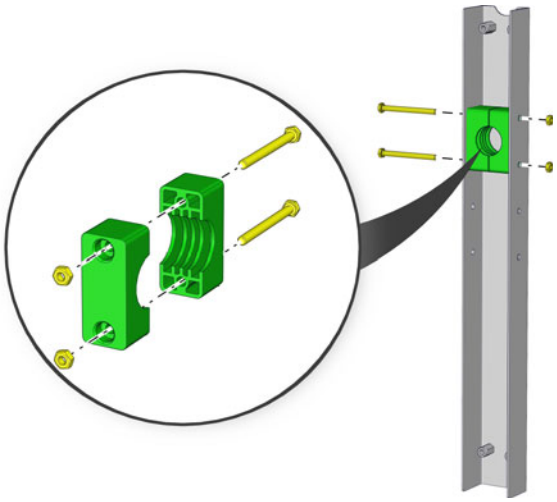


Fig. 4-5: Optional bracket with clamping jaws

Seal the 6/4" nipple and mount it on a free connection on the buffer. Install the clamping jaws on the bracket at the required height. Push the bracket with the clamping jaws onto the nipple and fasten using the two screws.

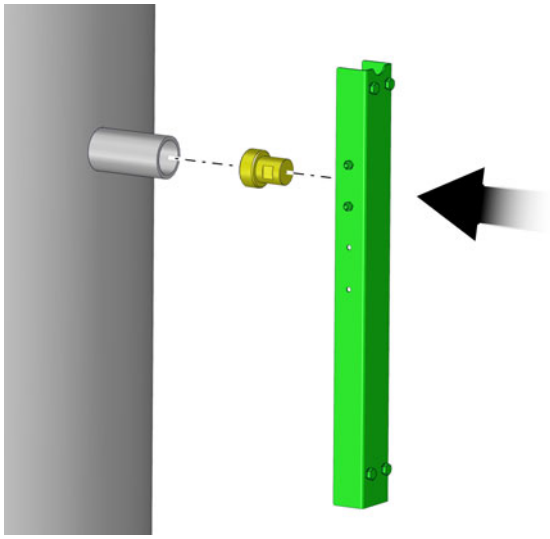


Fig. 4-6: Bracket with clamping jaws

Hang the fresh water module on the bracket screws and fasten them.

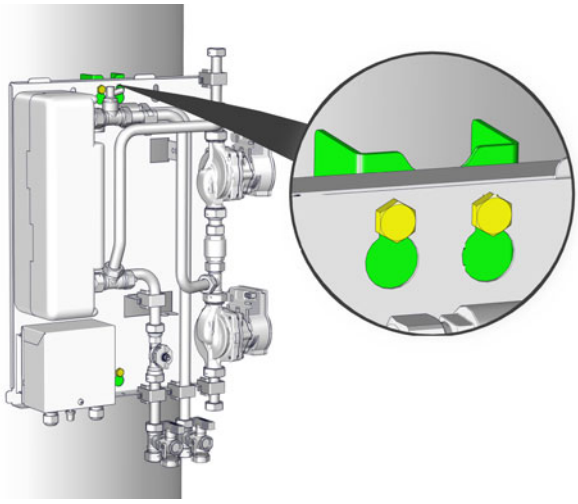


Fig. 4-7: Fastening the fresh water module in place

4.3 Connecting piping

Leave the joint at the fresh water module "44"

For the fresh water module "44", the joint is already included in the delivery scope of the fresh water module. Keep this in fresh water module so that it is available if later a circulation set is retrofitted.

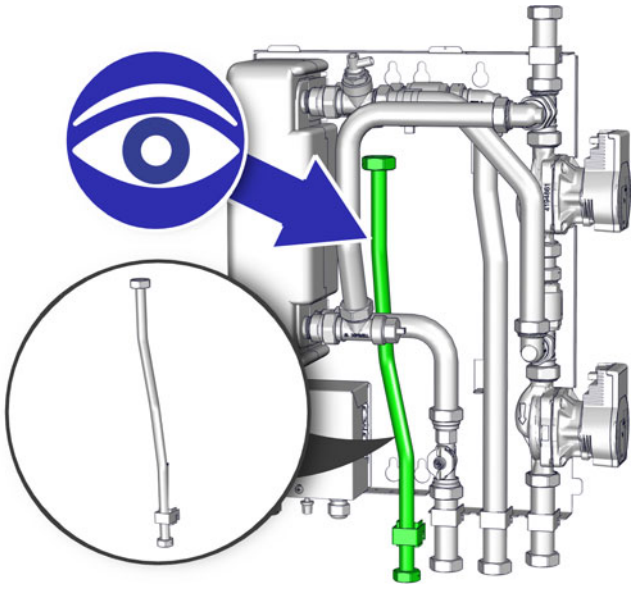


Fig. 4-8: Joint

Mounting the screw joints

Attach the ball valve to the upper side of the flow connection with the flat seal supplied.

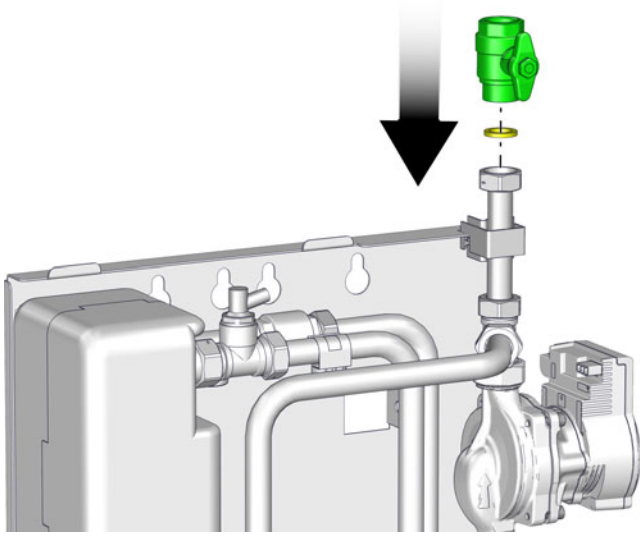


Fig. 4-9: Ball valve on flow connection

Attach the check valve and the ball valve on the return connection to the buffer. Include flat seals with all screw joints.

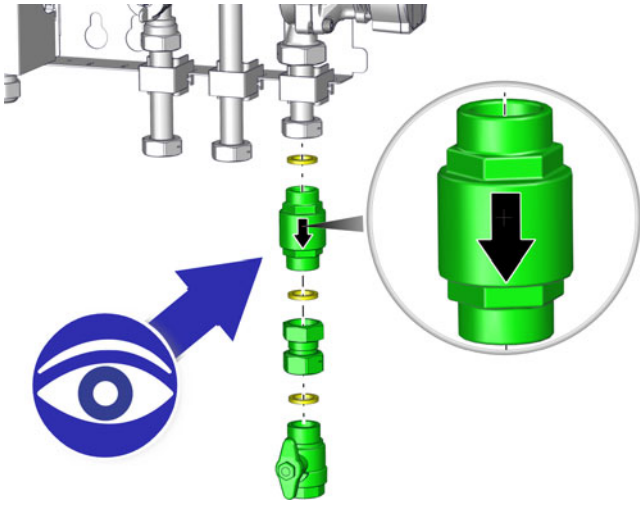


Fig. 4-10: Check valve on return connection

Note the flow direction of the check valve. This must flow from the fresh water module to the buffer.

For cold water, mount both ball valves with purging connections using the supplied flat seals.

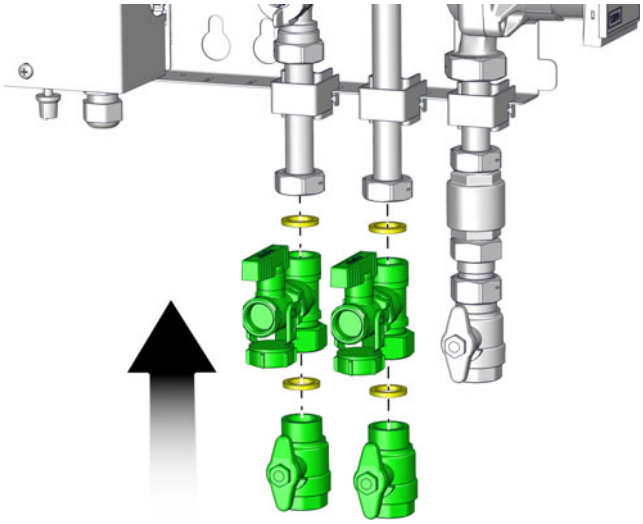


Fig. 4-11: Cold water connections

Produce piping for the fresh water module

The preferred lateral connection of the fresh water module to the buffer is shown in the following. Install the flow line from the buffer to the fresh water module.

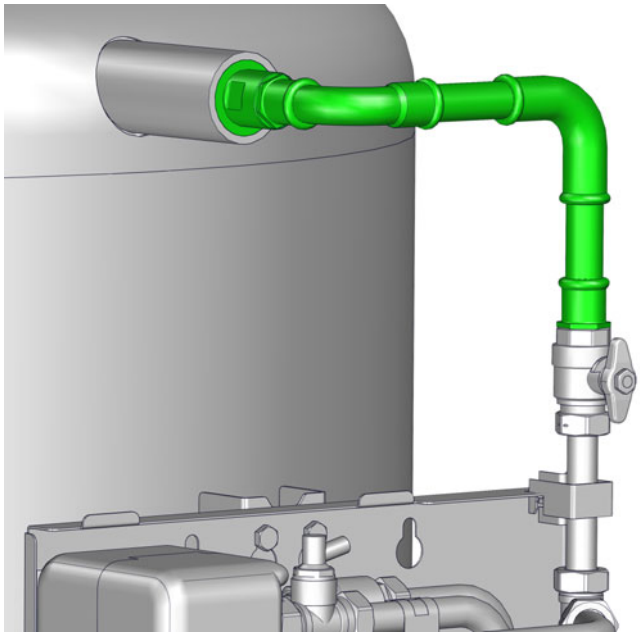


Fig. 4-12: Flow line to the fresh water module

If a lateral connection is not possible, the fresh water module can also be connected to the buffer cap. But then the flow line must have an incline to the fresh water module. See the following graphic.

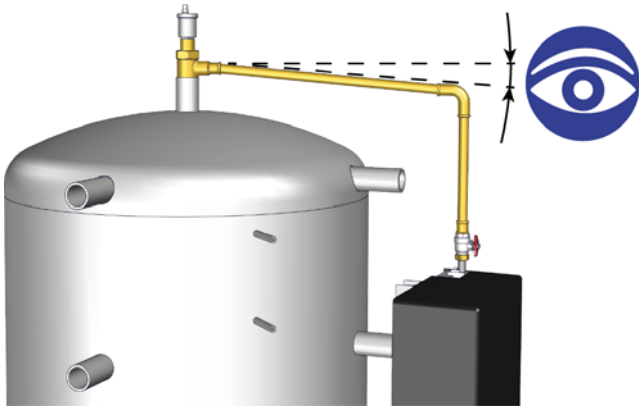


Fig. 4-13: Alternative connection

Install the return line from the fresh water module to the buffer.

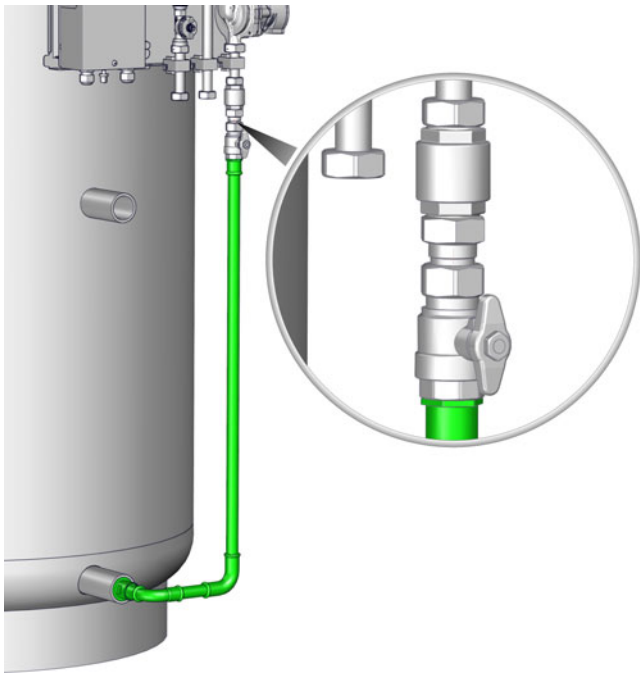


Fig. 4-14: Return line to the buffer

Install bleed valve

A bleed valve with sufficient dimensions must be installed at the highest point.

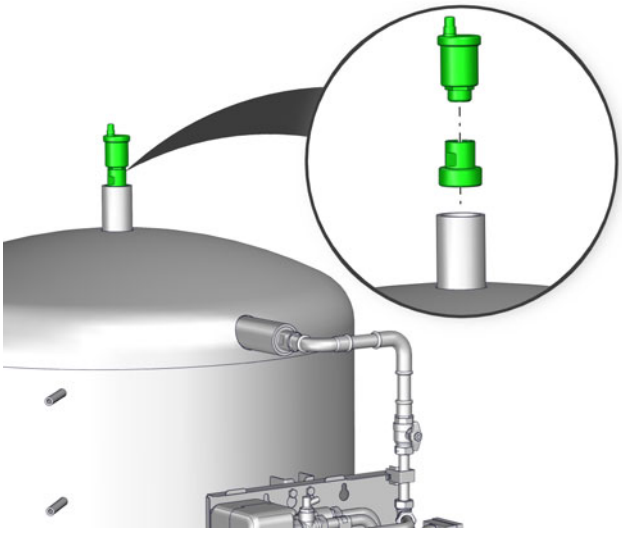


Fig. 4-15: Bleed valve

If the fresh water module was connected to the buffer cap, the T-piece for the bleed valve must be the same size as the connection on the buffer, so that no air pockets may form.

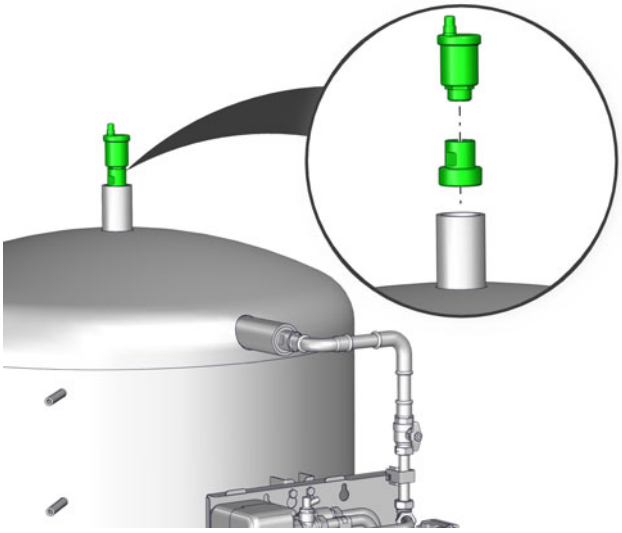


Fig. 4-16: Bleed valve

Installing the dirt filter upstream of the fresh water module

At least one dirt filter must be installed upstream of the fresh water module in the cold water system.

Connecting the cold water pipe

Connect the cold water pipe to the fresh water module.

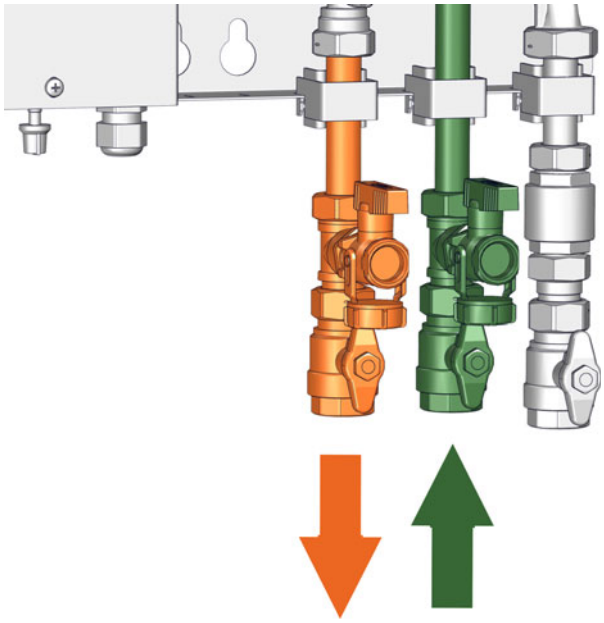


Fig. 4-17: Cold water connections

If the water installation is designed with rigid pipes and narrow diameters (such as 15 mm CU or 1/2" galvanised, for example), then pressure shocks are to be expected. In order to protect all components against pressure shocks, we recommend fitting a small diaphragm pressure expansion vessel (for example, 8 litre version suitable for drinking water) in order to absorb the pressure shocks in the hot water pipe. Observe the respective national hygiene standards.

Establish a CAN-Bus connection to the boiler

Establish a CAN-Bus connection between the boiler and the fresh water module with the CAN-Bus line supplied.

The fresh water module can also be put into operation without a CAN-Bus connection. The temperature of the hot water can be set with the potentiometer on the under side, from 40 °C to 60 °C. Nevertheless, a CAN-Bus connection to the ETATouch controller is recommended, as this enables multiple settings for the hot water and any faults are reported back.

4.4 Circulation set

Technical illustrations

The technical illustrations for the installation of the circulation set show one pump type. These illustrations also apply correspondingly for other pump types.

Optional circulation set for the hot water

A circulation set for the hot water can optionally be installed on the fresh water module.

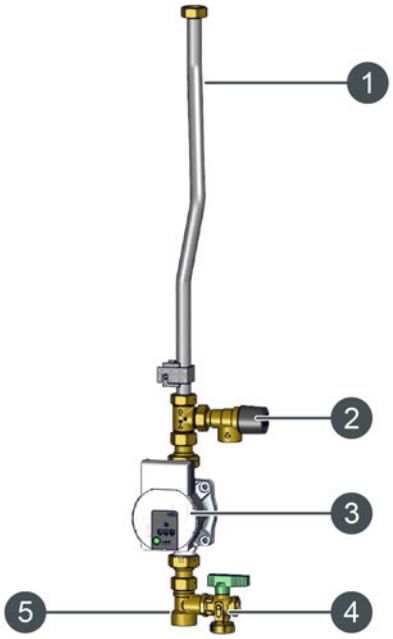


Fig. 4-18: Optional circulation set

1 18 mm joint (DN15)
2 Safety valve (10 bar)
3 Circulation pump
4 Drain cock to bleed the hot water circulation line
5 Joint with 1" outer thread

For the fresh water module "44", the joint is already included in the delivery scope of the fresh water module. Keep this in fresh water module so that it is available if later a circulation set is retrofitted.

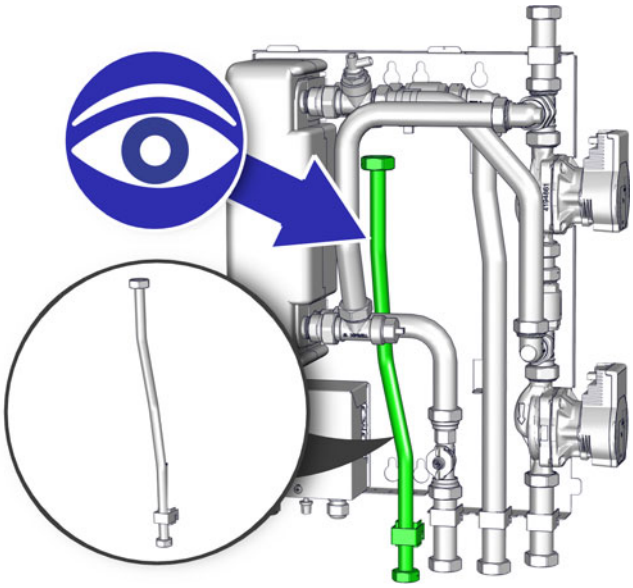


Fig. 4-19: Joint

Mounting the circulation set

Insert the circulation set on the fresh water module and mount the joint at the connection using the supplied flat seal.

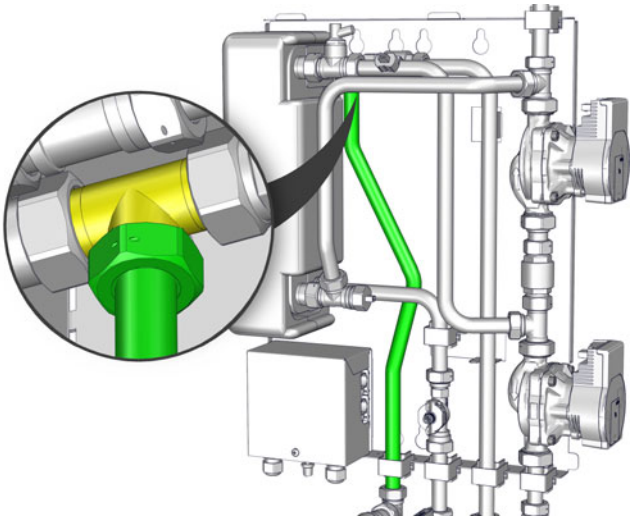


Fig. 4-20: Joint

To attach the joint, slide the bracket into the recess on the housing.

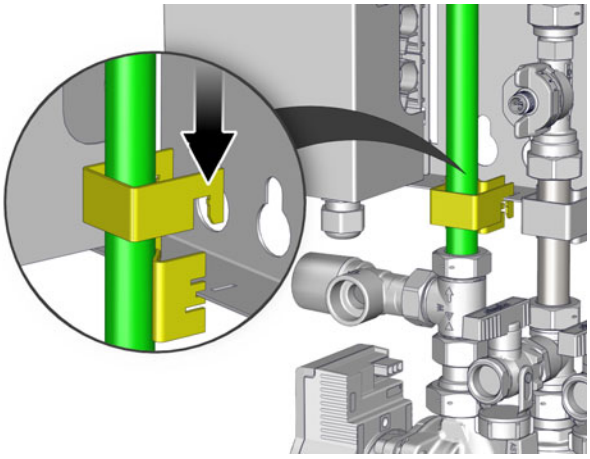


Fig. 4-21: Attaching the joint

Running piping to the safety valve

A safety valve with 10 bar opening pressure has already been installed on the circulation set at the factory.

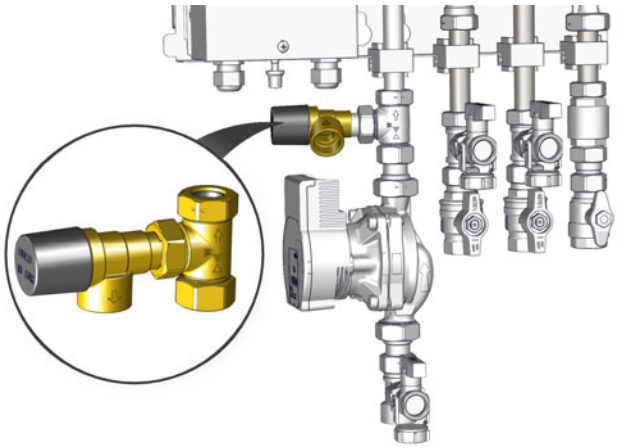


Fig. 4-22: Safety valve

Use a pipe to lead the boiler-side safety valve outlet to the waste water system (e.g. sewer). A fully visible, open flow path (e.g. siphon funnel) allows a visual check during the procedure to determine whether the safety valve is dripping.

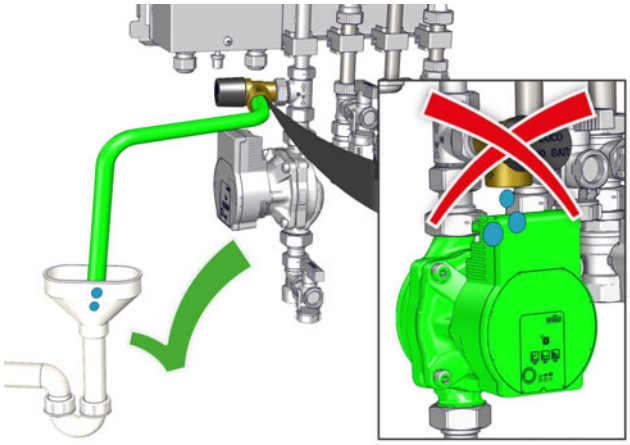


Fig. 4-23: Drainage of the safety valve to the waste water system

Water escaping from the safety valve must not drip onto the pump, as moisture can damage it.

Dripping safety valve due to pressure surges and thermal expansion

When running a hot water circulation, the water is heated in a closed system and expands. The check valve in the cold water inlet prevents water expansion in the cold water pipe. The safety valve prevents excessive pressure in the system and thus protects the fresh water module or installation. This is why it is possible that the safety valve opens a little and begins to drip. Similar to a pressure-free under-counter storage tank or a hot water tank.

If the water installation is designed with rigid pipes and narrow diameters (such as 15 mm CU or 1/2" galvanised, for example), then pressure surges are to be expected.

In order to protect all components against pressure shocks, we recommend fitting a small diaphragm pressure expansion vessel (for example, 8 litre version suitable for drinking water) in order to absorb the pressure shocks in the hot water pipe. This expansion tank also avoids a leaking safety valve.

The pressure expansion vessel for the hot water pipe must comply with the country-specific hygiene standards.

Connecting the hot water pipe

Connect the hot water pipe for the circulation.

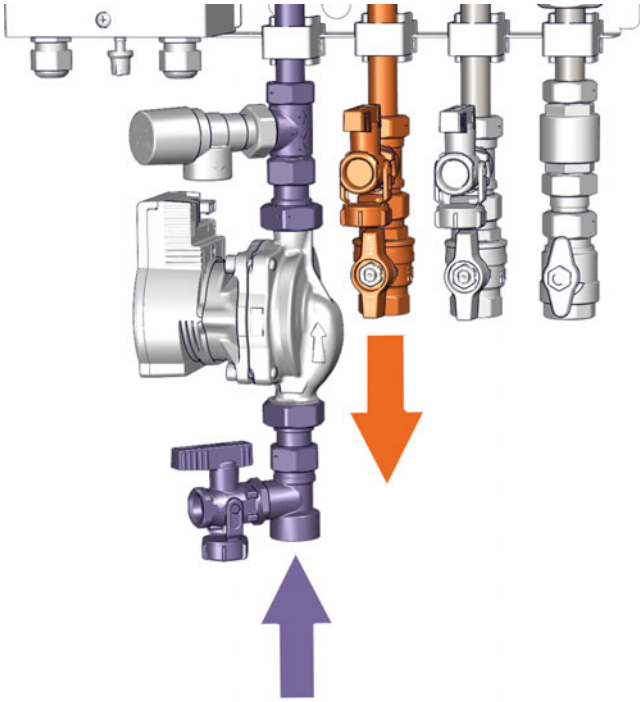


Fig. 4-24: Connecting the hot water pipe

Do not use thermally regulated pumps for hot water circulation

If the ETA circulation set is not used but instead an external circulation set is installed, you may not use thermally regulated pumps. Because this will switch off when the return gets too warm, then the "self-learning" function (often called "Auto Loop") will not work properly for the fresh water module.

5 Configuration

Content of this configuration

Only the steps required for the configuration of this product are described below. The configuration of the complete heating system is described in the "Configuration" manual supplied with the boiler.

Required software version

Different minimum software versions are required for the configuration. Therefore, first check the current software version of your heating system. The individual possibilities are listed below.

Fresh water module "33"

- up to software version X.35.X
  → Adjustments required, see chapter 11 "Operation with software version up to X.35.X".
- from X.36.0 to X.55.X
  → Update to X.56.3 (or above) required
- from X.56.3
  → no update necessary

Fresh water module "44"

- from X.36.0 to X.55.X
  → Update to X.56.3 (or above) required
- from X.56.3
  → no update necessary

Starting the configuration assistant

Switch to the system settings and increase the authorization to [Service]. Then open the system configuration menu with the [System- configuration] button. Start the configuration assistant with the [Start the assistant] button.

Adjusting options in function block [FWM 2pumps]

The circulation pump is already configured at the factory (=option [Circulation pump]) as well as the hot water temperature settings via the potentiometer only (=option [Target value can be set with rotary knob]).

If, however, no circulation pump is installed or the hot water temperature is to be set with the ETAtouch control system, these options must be deactivated.

From column [Selected function blocks], select the [FWM 2pumps] function block and open it with the button.

► EM-FC
► FWM 2pumps

Deactivate the respective option:

FWM 2pumps
Options:
☐ Circulation pump
☐ Target value can be set with rotary knob

Save the adjustments.

Adding fresh water module as consumer

The fresh water module is connected to the buffer as an additional consumer (together with the heating circuits, for example). A separate connection is not required.

If there is not yet any connection between the buffer and the heating circuit, a new connection must be set up. To do this, press the [New connection] button and select the [Heating water] connection type.

Connect the fresh water module (as a consumer) to the buffer (as a producer). See below for an example with a heating circuit and the fresh water module:

Connections
Heating water
Producers
GM-C 0: BufferFlex: Consumer level 1 (top)
Consumers
EM-FC: FWM: .
GM-C 0: HC: .

Tab. 5-1: Example with heating circuit and fresh water module

If there is already a connection between the buffer and the heating circuits, the fresh water module must only be added to this connection as an additional consumer.

Assigning a terminal for the optional solenoid valve

This step is only necessary if the fresh water module is installed in the flow between the heat producer and the buffer, meaning that a solenoid valve is required. The solenoid valve is connected to terminal [S102 LZ] and must be assigned manually.

Terminal assignment

1. First, in the [Selected function blocks] field, select the function block of the fresh water module [FWM (FWM 2pumps)].
2. Double tap on the buffer pump [Buffer pump]. A window opens.

3. In the window, select the terminal [S102 LZ] on the [EM-FC] circuit board and add this terminal using the [Connect] button.
4. Close the window.

Installing a configuration

Finish installing the configuration by pressing the [Apply] button. The configuration will then be adopted and the software restarted.

6 Electrical connections

6.1 Requirements

Electrical connection must only be made by qualified specialist personnel

The electrical installation must only be performed by specialist personnel with the corresponding qualifications.

Power supply of the module

Power is supplied to the module via the power plug that has already been mounted; this is performed independent of the boiler. However, the power supply can also be securely wired to the electronic distributor.

DANGER!

Electric shock

There are live parts on the circuit boards. If touched, they can cause injury and property damage.

- ▶ Before beginning any work, isolate the system completely from all power sources, ensure that it cannot be switched back on, and verify that it is safely isolated from the power supply.

WARNING!

Damage to circuit boards

Circuit boards can be damaged by electrostatic discharge. Therefore, observe the ESD protection measures when handling the circuit boards.

- ▶ Dissipate electrostatic energy before and while touching circuit boards. Discharge yourself, for example, by touching earthed metallic objects (boiler body, heating pipes). Conductive straps or special ESD work shoes are recommended.
- ▶ Do not bring the circuit board into contact with conductive objects whose electrostatic charge has not yet dissipated.
- ▶ Only touch the circuit board at the outer edges and not at the terminals and solder joints.

CAUTION!

Flexible stranded conductors

If flexible stranded conductors are not used for the wiring, the contacts in the plug connections will be subjected to excessive mechanical strain. In this case, the warranty for the electronics would be invalidated.

- ▶ Only use flexible stranded conductors for the wiring.

Maximum outputs

230 V output	maximale Output
A single output	250 W
Sum of all outputs	700 W

6.2 CAN bus installation

Notes for CAN Bus cables

The CAN Bus cables must have the following specification:

- As topology in the CAN Bus, only one "line topology" is allowed. A "star topology" is not permitted.
- The maximum total length of all used CAN-Bus cables is 400 m. When laying the cables, make sure the distance between the circuit boards is as short as possible. If the total length is disregarded, proper operation cannot be guaranteed.

  The optional CAN router circuit board [EC-R] can be used to extend the CAN network. For more information, please refer to the instructions for the circuit board [EC-R].
- If the factory-supplied CAN Bus cables are too short, CAT-6 or higher quality cables must be used instead. The CAN Bus lines must not be lengthened (split).
- If CAN Bus lines are more than 50 m long or are laid outside the building, CAT-6 or higher quality cables must be used.

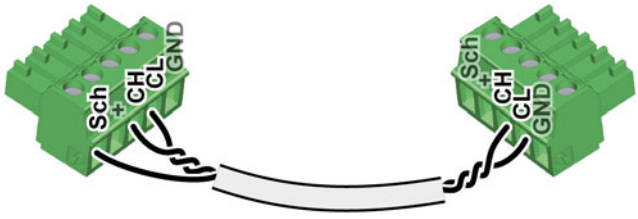


Fig. 6-1: CAN Bus cable (2-wire and one-sided shield)

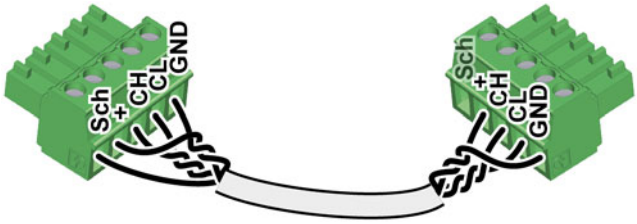


Fig. 6-2: CAN Bus cable (4-wire and one-sided shield)

Terminal designation

Sch	Shield
+	Power supply
CH	Data line CH
CL	Data line CL
GND	Earth

Establishing a CAN-Bus connection

To establish the CAN-Bus connection to the boiler, there a two terminals and the associated cable in the delivery scope.

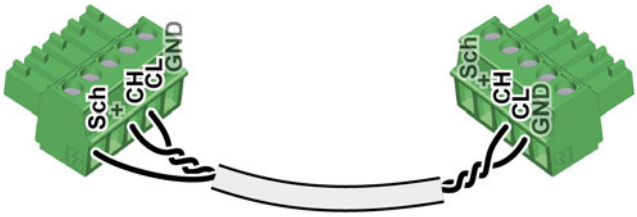
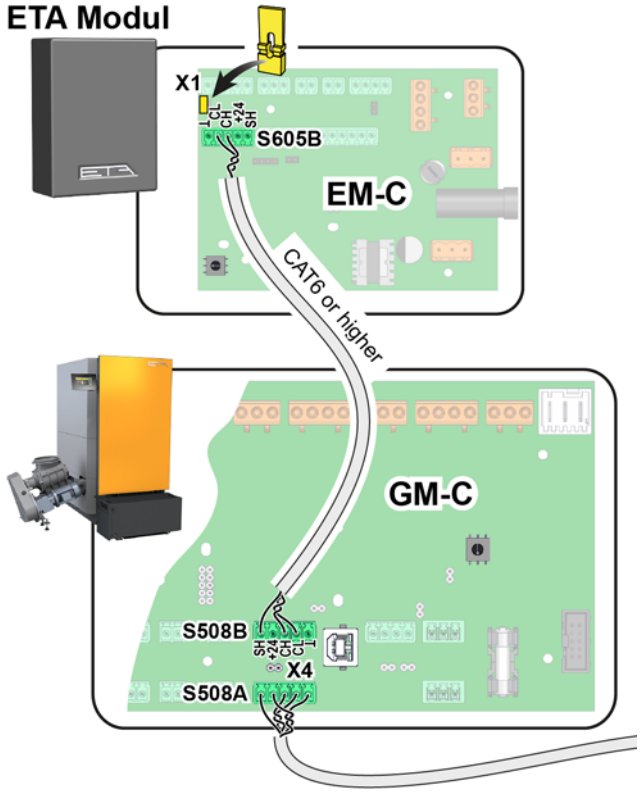


Fig. 6-3: CAN-Bus cable

Only clamp the "Sch" shield on one side. Do **not** connect the "+" and "Gnd" wires.

Example: connection to circuit board [GM-C]



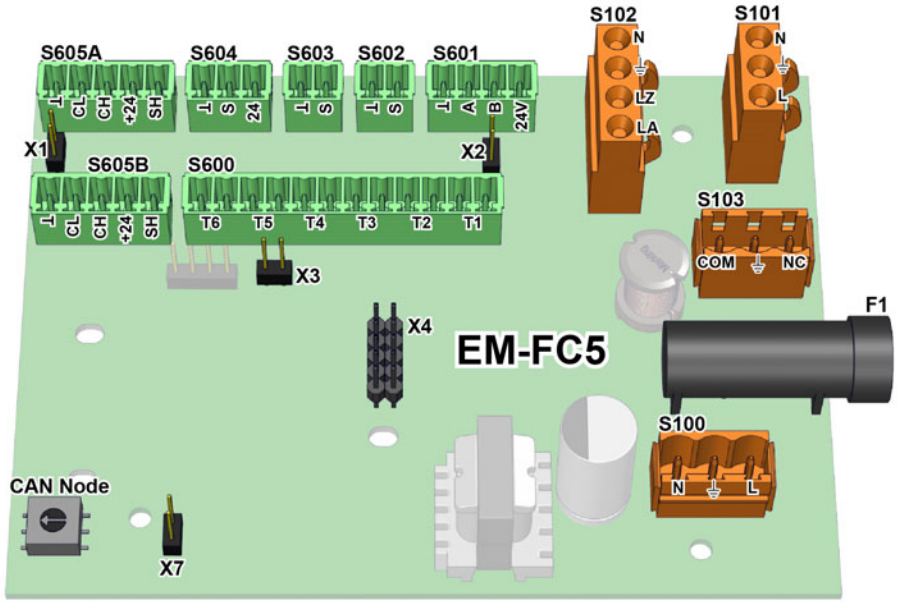
A terminal resistor (yellow jumper) must be set at the end of the CAN-Bus. If both CAN-Bus terminals are allocated, the terminal resistor must be removed on this circuit board.
In the example above, the terminal resistor must be removed from the [GM-C] circuit board at [X4] and placed on the [EM-FC] circuit board at [X1].

Check the node numbers if the circuit boards are the same design

If several identical circuit boards (for example: two [EM-FC]) are connected to each other via CAN-Bus, these circuit boards must have consecutive node numbers. So that these can identified and configured in the CAN-Bus.

Therefore, compare the node numbers of the individual circuit boards of the same design and set them as needed using the node switch.

6.3 Circuit board [EM-FC5]



Only use flexible cables, e.g. for: pumps, mixers and temperature sensors. Please observe the wiring instructions, see 6.1 "Requirements" and CAN-Bus lines see 6.2 "CAN bus installation".

These terminals can be used

Terminal	Function	Minimum cross-section	Standard assignment
S101	230 V output	3 x 1 mm²	Buffer pump and admixing pump
S102 LA	230 V output	3 x 1 mm²	Circulation pump (optional)
S102 LZ	230 V output	3 x 1 mm²	Motor ball valve for cascade systems (if there are several fresh water modules) From factory, this output is intended for motor ball valves of cascade systems in order to activate the subsequent fresh water module (also referred to as "Slave" module). This output can also be used for a solenoid valve in order to turn off the heater side of the fresh water module in case this is not connected hydraulically decoupled. See chapter 3.6 "Information for installation".
S600 T3	Temperature input	2 x 0.5 mm²	can be used for buffer
S600 T4	Temperature input	2 x 0.5 mm²	can be used for buffer
S601	RS-485 bus	see the room sensor instructions	Digital room sensor
S605A	CAN-Bus	see 6.2 "CAN bus installation"	From boiler
S605B	CAN-Bus	see 6.2 "CAN bus installation"	

These terminals are already pre-wired at the factory

Terminal	Function	Standard assignment
CAN node	CAN-Bus node switch	Position "7"
F1	Fuse T 3,15 A (Mains power input)	

These terminals are already pre-wired at the factory

Terminal	Function	Standard assignment
S100	Supply 230 V	**Mains power input**
S103	230 V input	On the factory side, the contacts "NC" and "COM" are connected (bridged), because otherwise all 230 V outputs are locked.
S600 T1	Temperature input	Primary flow
S600 T2	Temperature input	Primary return
S600 T5	Temperature input	Potentiometer for the hot water temperature
S600 T6	Temperature input	Hot water
S602	PWM output	Speed control for buffer pump
S603	PWM output	Speed control for admixing pump
S604	Analogue, digital, counter input	Flow sensor with temperature sensor
X1	CAN-Bus terminal resistor	
X2	RS-485 bus terminal resistor	
X3	Terminal resistor	To simply delete the configuration the jumper must be set once when restarting.
X7	Terminal resistor for software X.35.X	The jumper must only be set for operation with the software version up to X.35.X.

Counter inputs or frequency inputs record digital frequencies and are therefore intended for special sensors (e.g. digital flow rate sensors).

7 Commissioning

Monitoring the screw joints

Due to vibration and thermal expansion, all screw joints must be inspected and tightened prior to commissioning.

Bleeding before commissioning

The fresh water module must be ventilated before commissioning. For ventilation, there is a ventilation screw on the top of the fresh water module.

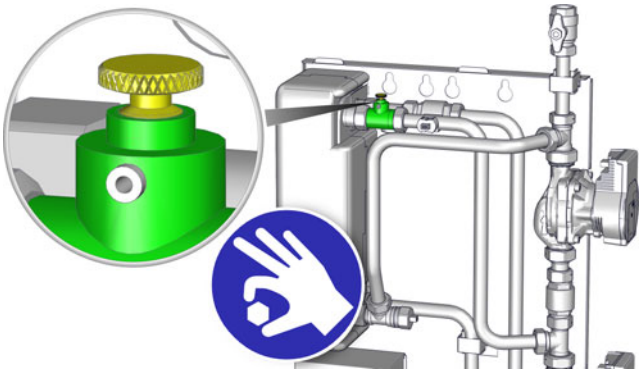


Fig. 7-1: Bleed screw

The option [Automatic venting] is activated during factory setup. In this way, the controller recognises the introduction of air into the heat exchanger and tries to remove it with the help of both pumps. This can also take place multiple times one after the other.

If, however, the water is still not sufficiently warm, there is still air in the plate heat exchanger and manual venting is needed. To do this, carry out the following steps.

Venting the fresh water module

1. Open the hot water tap in the drinking water network so that the fresh water module pumps are actuated.
2. After about 15 seconds, close the hot water tap.
3. Open the bleed screw in the fresh water module and allow the air to escape.
4. Then turn the hot water tap back on and repeat these steps until no more air escapes from the fresh water module.

Mounting the plastic cover

Reattach the plastic cover after commissioning. Pull off the protective film and affix the ETA logo in the corresponding recess.

7.1 Pump types of the circulation pump

Different pump types

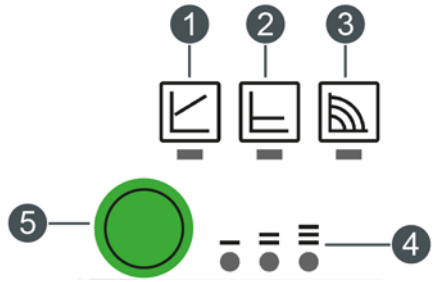
Different pumps from different manufacturers can be installed in this product. Therefore, all possible types are listed below.

7.1.1 WILO PARA-Z BZ

Adjusting the speed of the circulation pump

Fig. 7-2: WILO PARA-Z BZ

By default, the circulation pump is set to the "Constant speed" operating mode in operating level "III". The corresponding operating mode and operating level must be set during commissioning. If required, the operating mode "Differential pressure variable (Δp-v)" can also be set.



1 Operation: Differential pressure variable (Δp-v)
2 Operation: differential pressure constant (Δp-c)
3 Operation: constant speed (n-constant)
4 Operating level
5 Operating button for setting the operating mode and operating level

Using the current flow rate (readable in the text menu of the ETAtouch control system) and the pump characteristic curve (see pump characteristic curves), the speed of the circulation pump can be adapted to the customer's requirements.

We recommend adjusting the pump so that a flow rate of approximately 8 l/min is achieved, to ensure a constant hot water temperature. If this is not possible, the flow can be restricted with a regulating valve or an insert throttle (ETA item no. 63347).

A minimum flow rate of 2 l/min (for FWM 33) or 4 l/min (for FWM 44) must be guaranteed in order for the flow sensor to be triggered.

Thermal valves for the circulation line are actually not required, because the circulation pump shuts down in time by means of the return sensor. If there are several strands available for the circulation line and thermal valves are installed in these, at least one strand must always remain open (the longest strand, if possible) so that circulation can occur.

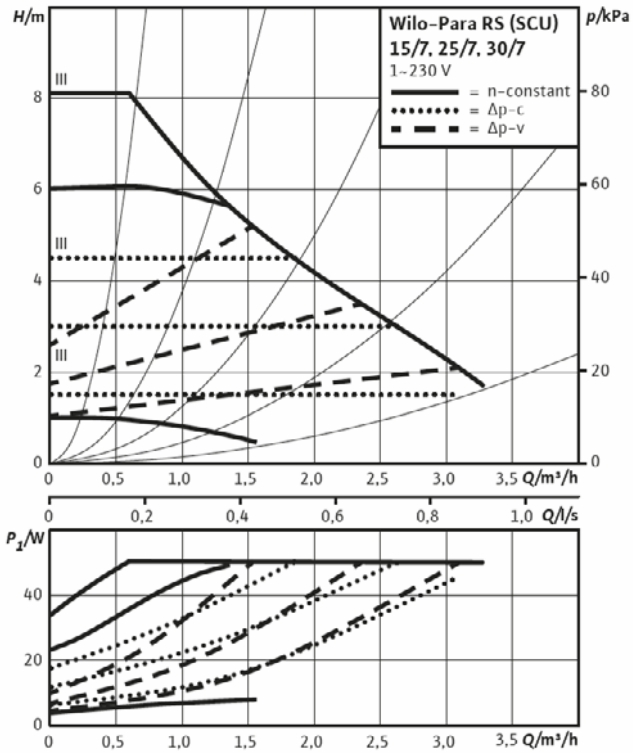


Fig. 7-3: Characteristic curve

7.1.2 WILO YONOS PARA

Adjusting the speed of the circulation pump

Fig. 7-4: WILO YONOS PARA

By default, the circulation pump is set to "Constant Speed" in the "III" position. If required, the operating mode "differential pressure variable (Δp-v)" (left scale on the rotary knob) can also be set.

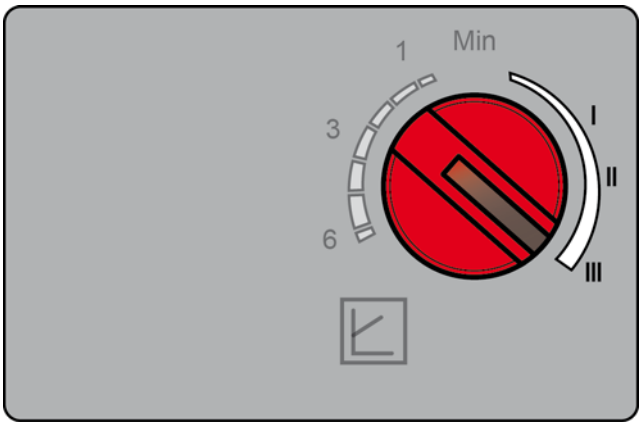


Fig. 7-5: Default pump settings

Using the current flow rate (readable in the text menu of the ETAtouch control system) and the pump characteristic curve (see pump characteristic curves), the speed of the circulation pump can be adapted to the customer's requirements.

A minimum flow rate of 2 l/min (for FWM 33) or 4 l/min (for FWM 44) must be guaranteed in order for the flow sensor to be triggered.

Thermal valves for the circulation line are actually not required, because the circulation pump shuts down in time by means of the return sensor. If there are several strands available for the circulation line and thermal valves are installed in these, at least one strand must always remain open (the longest strand, if possible) so that circulation can occur.

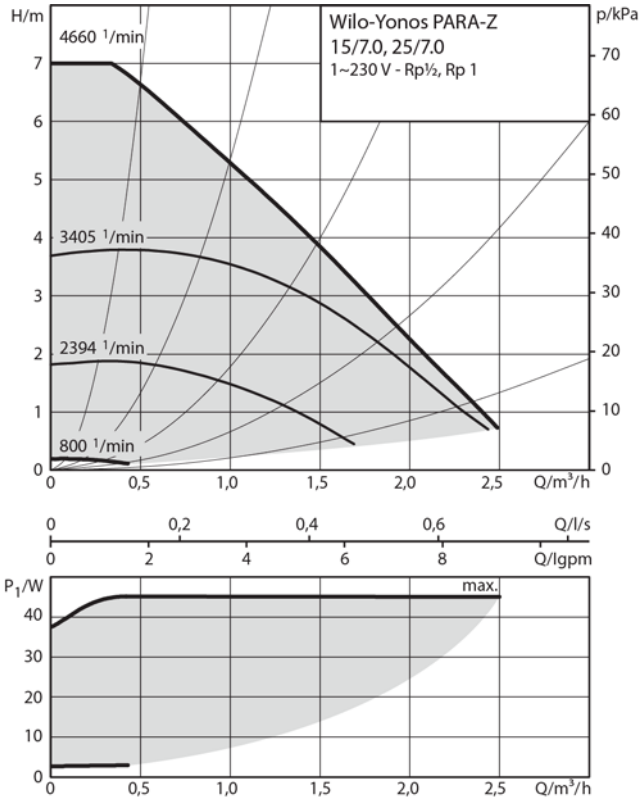


Fig. 7-6: "Constant speed" characteristic curve

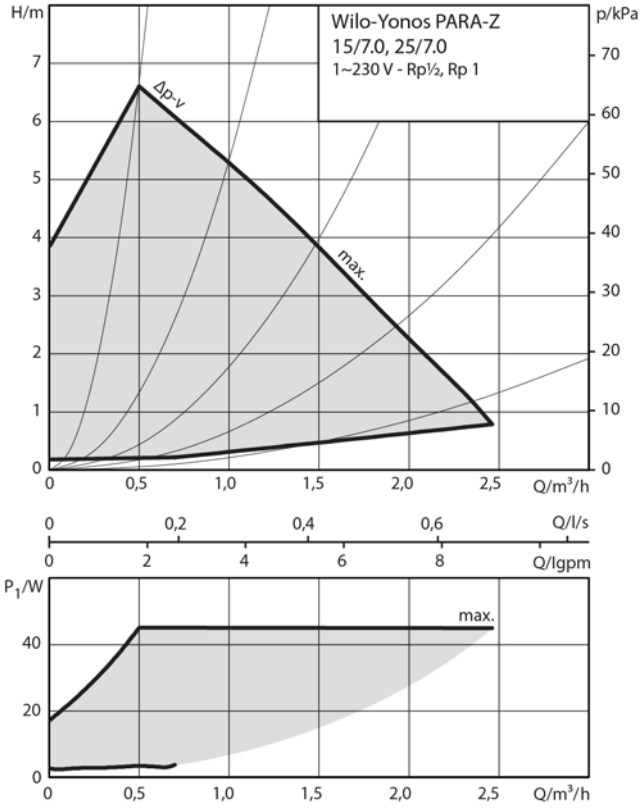


Fig. 7-7: "Differential pressure variable (Δp-v)" characteristic curve

7.2 Setting pump running time

Adjusting the runtime of the circulation pump

After installation, and after all lines have been connected and vented, the runtime of the circulation pump must be adjusted. Thus unnecessarily long run times of the circulation pump can be prevented and the risk of calcification of the heat exchanger in the fresh water module is minimized.

You can determine the required running time of the circulation pump in the following way. Start the circulation pump in the control system by means of manual operation in the inputs and outputs menu. After starting, measure the time until the fresh water module warms up the return line for the circulation. This is the time (e.g. 3 minutes) required to heat the hot water pipe. Then enter this time in parameter [Circulation runtime].
During this time measurement, no hot water may be tapped (e.g. by a sink, shower, etc.), because otherwise an incorrect time will be measured.

Circulation
↳ Circulation runtime

8 Information on cold water

8.1 General

Different variants of fresh water modules and heat exchangers

In general, there are two major points to consider for drinking water heating via plate heat exchangers:

- *Calcification:*
  This depends on the water hardness specified in degrees of German hardness (°dH).
- *Corrosion of the plate heat exchanger:*
  This depends on the water quality, especially the conductance.

This is why ETA offers two versions of fresh water modules or replacement heat exchangers. The inexpensive standard solution with stainless steel plates connected by copper solder, as well as the somewhat more expensive special solution with stainless steel plates connected by stainless steel brazing solder ("INOX" heat exchanger).

If you have the fresh water module with the "standard heat exchanger" but are not sure whether this can keep up with the demands of your drinking water, then you can operate the fresh water module normally, of course. If the heat exchanger actually develops leaks due to copper corrosion, you can exchange it at any time for the special solution with stainless steel brazing solder. This heat exchanger is also offered individually by ETA.

Ask your heating technician

We recommend that you take advantage of the heating technician's experience. He or she will know whether you must pre-treat your drinking water and which procedure is best suited to the drinking water in your region.

8.2 Calcification

Increasing water hardness increases the risk of calcification

Irrespective of the type of drinking water heater, we recommend installing a water softener from a water hardness of 14°dH and above. With our fresh water module, damage caused by calcification is not of great concern since an inexpensive replacement heat exchanger from ETA can be replaced by the heating engineer in a few easy steps. For machines like coffee makers, washing machines, dishwashers ... the damage from calcification is often associated with high costs, or the devices may even become irreparable.

Due to the fact that 1 litre of water contains about 18 mg of calcium for each °dH, the risk of calcification increases with increasing water hardness. One litre of water with 10° dH therefore contains around 180 mg calcium, at 20° dH about 360 mg.

The calcification risk also increases when the hot water temperature is set above 55 °C or when circulation pumps are operated for 24 hours (in other words practically all the time). In these cases, the provided protective measures against excessive calcification, such as reducing the primary temperature (see functionality of the fresh water module), circulation breaks or its deactivation and optimised connection arrangement of the ETA fresh water module, are unable to cope.

The heat exchangers offered by ETA do not exhibit any differences in terms of calcification. They only differ in terms of corrosion resistance.

8.3 Corrosion

The electrical conductance is crucial for possible copper corrosion

What is important for potential copper corrosion of the solder connections of the individual plates is the electrical conductance. How well water conducts current is determined with the conductance meter. This can only measure how well all conductive minerals in the water conduct together. The conductance of individual materials cannot be determined. So this overall hardness determines the conductance.

Basically, water with a lower conductance has a lower overall hardness. Water with higher conductance is correspondingly harder. However, it is not possible to calculate the hardness from the conductance with a precise formula, or vice versa.

A rule of thumb is: per °dH the conductance of tap water increases by at least 35 µS/cm.

Due to the content of sodium, chloride and sulphate in different tap waters differing widely, the conductance can be pushed up sharply. For example: tap water with an overall hardness of: 17° dH and a conductance of over 700 µS/cm exists. So the rule of thumb can only be applied to a limited extent for tap water. However, it is helpful in making a rough estimation without precise water tests.

In general, copper soldered heat exchangers with a conductance of less than 500 µS/cm are very corrosion-resistant. At 500-1000 µS/cm, corrosion

cannot be ruled out depending on other water properties. At a conductance of over 1000 µS/cm corrosion is likely.

Therefore, the rule of thumb results in the following thresholds for copper-soldered heat exchangers in regard to water hardness:

Conductance	Water hardness	Resistance
< 500 µS/cm	at approx. <14.3° dH	corrosion-resistant
500-1000 µS/cm	at approx. 14.3 - 28.6° dH	Corrosion is no excluded
> 1000 µS/cm	approx. >28.6° dH	Corrosion is likely

If the water hardness is minimised by a softening system, the electrical conductivity of the drinking water still remains unchanged.

8.4 Thresholds

Thresholds for the water quality on the drinking water side

Substance	Standard heat exchanger (soldered with copper solder)	"INOX" heat exchanger (soldered with stainless steel brazing solder)
Appearance	clear	clear
Odour	odourless	odourless
Impurities	free from deposits and/or particles	free from deposits and/or particles
pH value	between 7.5 and 8.5	between 6 and 10
electrical conductivity	< 500 µS/cm	no restriction
Chloride (Cl-)	< 100 mg/l	< 100 mg/l
Sulphate (SO_4^{2-})	< 100 mg/l	no restriction
Nitrate (NO_3)	< 100 mg/l	no restriction
Nitrite (NO_2)	not permitted	not permitted
Ammonia (NH_3, NH_4^+)	< 2.0 mg/l	no restriction
Free chlorine (Cl)	< 1.0 mg/l	< 1.0 mg/l
Iron (Fe)	< 0.2 mg/l	no restriction
Aluminium (Al)	< 0.2 mg/l	no restriction
Manganese (Mn)	< 0.1 mg/l	no restriction
Free carbon dioxide (CO_2)	< 5 mg/l	no restriction
Hydrogen sulphide (H_2S)	< 0.05 mg/l	no restriction
Hydrogen carbonate (HCO_3)	< 300 mg/l	no restriction

Tab. 8-1: Thresholds for drinking water

9 Descaling

Descaling the fresh water module

If the heat exchanger of the fresh water module is calcified, it can be descaled via the two purging connections with the use of acetic or formic acid.

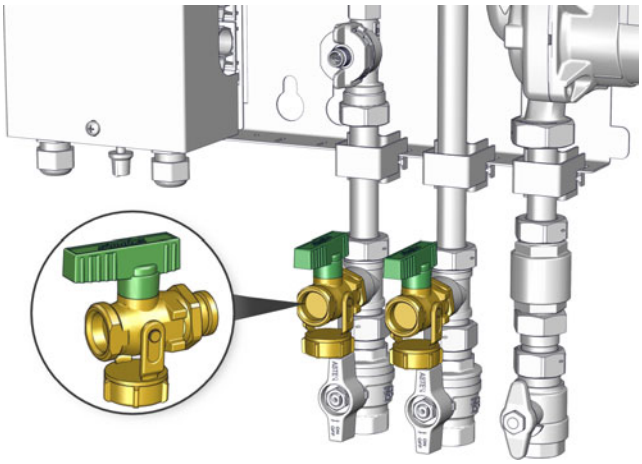


Fig. 9-1: Purging connections

Before decalcifying with an organic acid, remove the flow sensor.

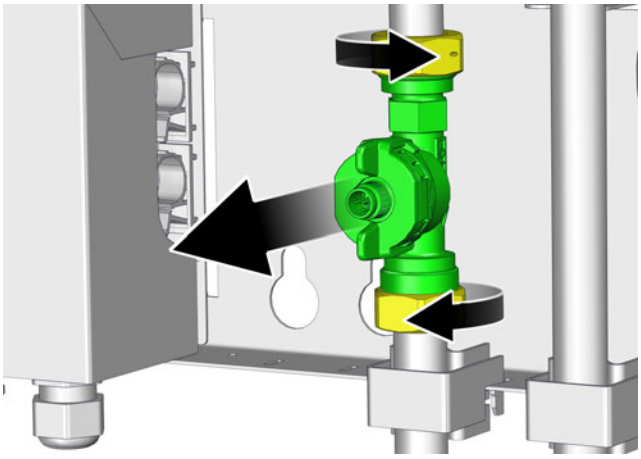


Fig. 9-2: Flow sensor

Replace the flow sensor with an adapter piece (provided by the customer) with seals.

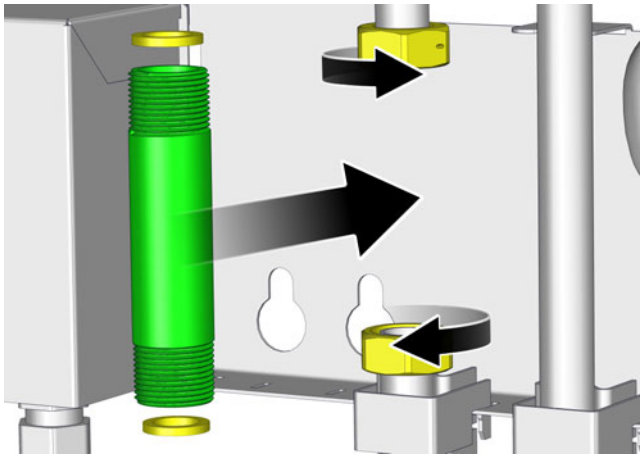


Fig. 9-3: Adapter piece (provided by the customer)

Once a plate heat exchanger has been calcified, it will never again provide the same level of performance as one that is 'as new'. In the event of heavy calcification, we recommend replacing the plate heat exchanger. The fair spare part price offered by ETA means that replacement is often even cheaper than purging or descaling, both of which are labour-intensive.

Using acetic acid or formic acid

5 to 12 per cent acetic acid or 10 to 20 per cent formic acid is suitable for descaling purposes. Both acids are available from drugstores. Pay attention to the concentration.

⚠ CAUTION!

▶ Always pour the acid into the water; never pour the water into the acid (this leads to spraying that can cause burns). Use protective gloves and safety goggles.

In standard cases, use the medium specified dilution. Dilution using less water poses a risk to the seals.

Mixing ratios:

- Dilute vinegar essence (25%) with 1 to 4 parts water
- Dilute acetic acid concentrate (60%) with 4 to 12 parts water
- Dilute formic acid (85%) with 4 to 8 parts water

Professional mixtures including phosphoric acid are available for treating particularly stubborn calcification.

Purge the fresh water module for 1 hour

Prepare 10 litres of dilution and use a purging pump to purge the solution via an intermediate container for approximately 1 hour.

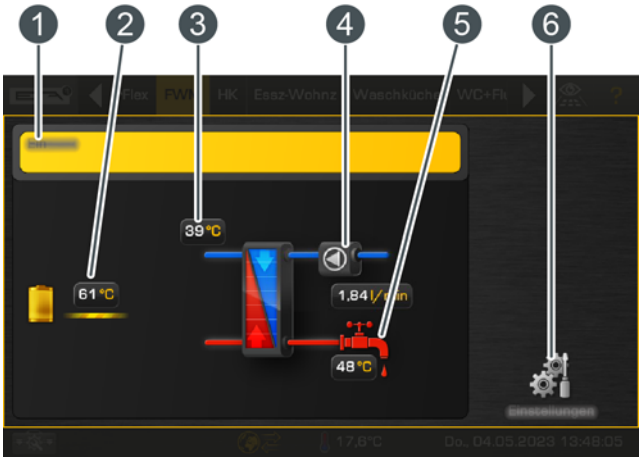
After purging

Having purged the heat exchanger, seal the connections again and reattach the cover.

10 ETAtouch controller

10.1 [Fresh water module] function block

Fresh water module overview



1 Operating condition and information.
The description of the operating conditions can be found in the integrated help with the ? button.

2 Producer for the fresh water module.
The fresh water module is currently being charged from the buffer.

3 Primary side return temperature

4 Circulation pump (only displayed if it has been installed and is in operation)

5 Hot water temperature (the tap is displayed only when hot water is currently being tapped)

6 [Settings] button.
In this menu, the time slot can be set, for example.

Function of the fresh water module

The desired hot water temperature is set with the potentiometer on the fresh water module. If in the configuration the [Target value can be set with rotary knob] option has been disabled, different time windows and hot water temperatures can be set. See chapter on 10.1.1 "Setting the hot water charging times".

Inside these time windows, the upper part of the buffer is maintained at no lower than the configured hot water temperature. Outside the set time windows, the hot water is maintained at the lowest set temperature of the time windows, provided that the accumulator tank is sufficiently hot.

If an additional circulation pump for hot water is installed, the different operating modes for this pump are set in the same way. See the following description for this.

Operating modes for the circulation pump

There are two ways to operate the circulation pump. Either through automatic detection of the operating times ("self-learning" function, often referred to as "auto loop") or manual specification of the operating times (set time slot).

- *"Self-learning" function:*
  This is already set at the factory (= parameter [Self-learning] to [Yes]). The hot water tappings of the past 2 weeks are stored for automatic determination of the daily operating times. On the basis of this, the operating times of the current day are calculated and the circulation pump is started in a timely manner.

  In this operating mode, the circulation pump starts as soon as hot water is tapped (detected by the flow sensor in the fresh water module). The pump will then run for a while and subsequently pause. These runtimes and pauses are configurable (=parameter [Circulation runtime] and [Circulation pause]).

  After commissioning, no more data is available for the "self-learning" circulation. That is why an operating period of about 4 weeks is required in the beginning, so that the control system can save sufficient data.
- *Setting a time slot:*
  To do this, the "self-learning" function must be switched off (= parameter [Self-learning] to [No]). The operating times of the circulation pump are now set manually, for example from 10:00 to 14:00 . Within these time slots, the circulation

pump alternately starts and pauses, based on the set runtimes and pauses, regardless of whether hot water is currently being tapped or not.

Example:
Time slot = 10:00 to 14:00
[Circulation runtime] = 5 minutes
[Circulation pause] = 10 minutes
=> The pump runs from 10:00 to 10:05 , then pauses until 10:15 , restarts at 10:15, pauses from 10:20 to 10:30 , and so on ... until the end of the time slot at 14:00 .

In this operating mode, the circulation pump can also start outside of the time slot when hot water is being tapped. This is useful if, for example, the time slot ends at 20:00 and you shower at 21:30 . When you then turn on the hot water briefly, the circulation pump starts, and you will have hot water for showering shortly afterwards.
This runtime (outside the time slot) is set in the text menu (parameter [Circulation according to flow rate]). Enter the same value as parameter [Circulation runtime].

Circulation
► Circulation according to flow rate

10.1.1 Setting the hot water charging times

Open the overview screen of the set charging times and temperatures

The standby times for the hot water and the set temperatures can be adjusted in the settings (button). To adjust, open the settings and then open the standby times with the [Standby times] button. An overview screen opens.

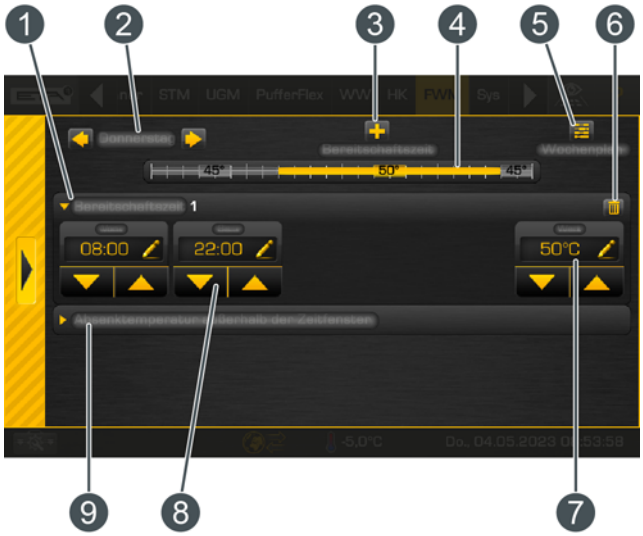


Fig. 10-1: Overview

1 Set time slot (standby times)
2 Select day of the week
3 Add another time slot
4 Graphical representation of the time slot setting
5 Display overview of all time slots for the entire week
6 Delete time slot
7 Adjustable hot water temperature within the time slot
8 Period of the time slot
9 Set-back temperature of the hot water outside the time slot

Setting time slots and copying them to other days of the week is described in Chapter 10.2 "Setting a time window".

If a circulation pump is also installed (and the [Self-learning] function is switched off), these operating times are set in the same way ([Circulation times] button).

10.1.2 Text menu - Adjustable parameters

Adjustable parameters

Hot water
- ► Automatic venting
- ► Emergency mode only with buffer pump

Circulation
- ► Self-learning
- ► Circulation runtime
- ► Circulation pause
- ► Circulation according to flow rate

Detailed descriptions of the parameters are provided below.

Explanation of [Automatic venting]

This function attempts to remove introduced air from the fresh water module automatically.
If the function is activated and the controller detects air intake, both pumps are operated at full speed for a short period of time to remove the air from the fresh water module. This can also take place multiple times sequentially.

This function is activated by default. During venting, the hot water can briefly be hotter than the target temperature set.

Explanation of the [Emergency mode only with buffer pump] function

Emergency operation of the fresh water module can be activated with this function if the admixing pump is defective.
If it is activated, water heating is only provided by the buffer pump. Without the admixing pump, calcification protection of the heat exchangers is not guaranteed Protracted emergency mode can therefore calcify the heat exchanger.

Explanation of the function [Self-learning]

With this function, the operating times of the circulation pump of the last 2 weeks are saved. The operating times of the current day are calculated based on this and the circulation pump will be put into operation accordingly. This function is also called the "Auto Loop" function.

This function is set to [Yes] by default. If [No] is set, the operating times for the circulation pump can be set manually.

Explanation [Circulation runtime]

Optional: only for circulation pump

This parameter specifies the duration for operating the circulation pump after it has been started by the control system. Once this time has expired, the circulation pump is switched off for the set duration [Circulation pause].

Example:
[Circulation runtime] = 3 minutes
[Circulation pause] = 10 minutes
If the circulation pump has been started, it is in operation for 3 minutes and then disabled for 10 minutes. This means that it can only be requested again by the control system after 13 minutes.

You can determine the required running time of the circulation pump in the following way. Start the circulation pump in the control system by means of manual operation in the inputs and outputs menu. After starting, measure the time until the fresh water module warms up the return line for the circulation. This time (e.g. 3 minutes) is required to heat the hot water pipe. Then enter this time in parameter [Circulation runtime]. During this time measurement, no hot water may be tapped (e.g. by sink, shower ...), because otherwise an incorrect time is measured.

Explanation [Circulation pause]

Optional: only for circulation pump

This parameter sets the pause after a circulation pump operation. The control system can only restart the circulation pump after this pause/break has expired.

Example:
[Circulation runtime] = 3 minutes
[Circulation pause] = 10 minutes
If the circulation pump has been started, it is in operation for 3 minutes and then disabled for 10 minutes. This means that it can only be requested again by the control system after 13 minutes.

Explanation [Circulation according to flow rate]

Optional: only for circulation pump

If a time is set for this parameter, then the circulation pump also starts outside the time window set. This is useful if, for example, the time window ends at 8:00 pm and you shower at 9:30 pm. When you then turn on the hot water briefly, the circulation pump starts, and you will have hot water for showering shortly afterwards.
Enter the same value for this parameter as for parameter [Circulation runtime].

10.2 Setting a time window

Setting the charging and operation times

In some function blocks, the time slot for charging the tank (for example the buffer and hot water tank), or the operating times (for example for the heating circuit) are set. This time slot must be created in the settings of the respective function block.

The following describes how to set the charging times and temperatures for the hot water tank. This example applies accordingly to other function blocks.

Open the overview of the time slot settings

1. Open the settings for the function block with the [Settings] button.

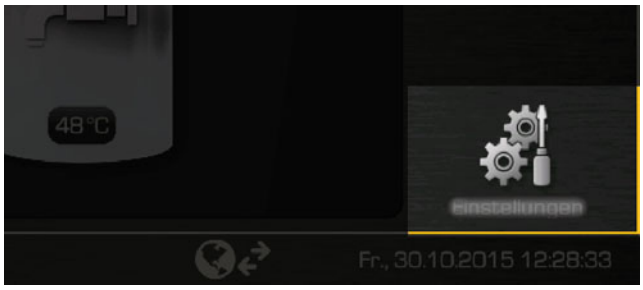


Fig. 10-2: Open the settings

2. Call up the charging times with the [Charging times] button.

Fig. 10-3: Access charging times

3. An overview opens.

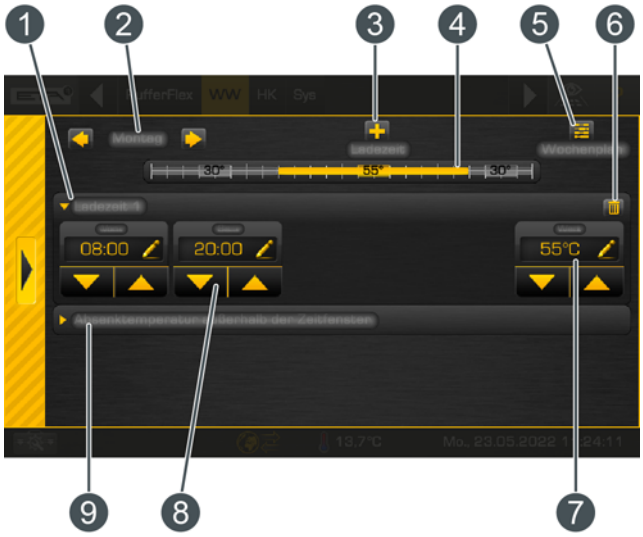


Fig. 10-4: Overview

1 Selected time slot (charging times or operating times)
2 Select day of the week
3 Add another time slot
4 Graphical representation of the time slot setting
5 Overview of all time slots for the entire week
6 Delete time slot
7 Adjustable target temperature.
This is dependent on the function block, and, in this example, corresponds to a hot water temperature of 55°C.
8 Period of the time slot.
In this example, the hot water is charged between 08:00 a.m. and 8:00 p.m. to 55°C.
9 Set-back temperature.
Outside the time slot, the hot water is charged to this set temperature.

Setting the time slot is described below.

Setting the charging times

1. In the overview, select the charge time. In each field, use the arrow keys (,) to set the time and temperature.

Fig. 10-5: Setting time slot and temperature

In this example, the hot water is charged between 08:00 a.m. and 8:00 p.m. to 55°C.

2. If an additional time slot is necessary, add it using the button. Adjust as described above.

A maximum of 3 time slots can be set. To delete an unnecessary time slot, press the button in the selected time slot.

3. For the period outside of the set charging times, a reduced temperature can be set. To adjust the settings, select the [Setback temperature outside the time slots] field and use the arrow keys to select the desired temperature.

Fig. 10-6: Reduced operation temperature settings

In this example, the desired hot water temperature outside the charging times is 30°C.

When loading times and temperatures of a day of the week have been set, they can be copied to other days of the week.

Copying time slots

In the following example, the time slots from Wednesday are copied to Saturday and Sunday.

time slots from Wednesday copied to Saturday and Sunday

1. In the overview, press the [Weekly plan] button to switch to view all days of the week.

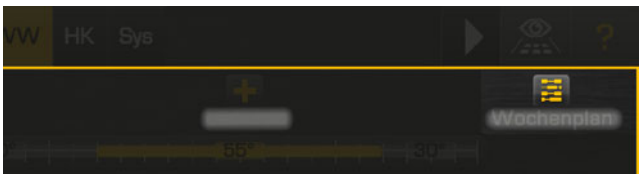


Fig. 10-7: Copying time slots to days of the week

2. This opens an overview of time slots for all days of the week. First, choose the day of the week to copy (this is framed) and then press the [Copy selected day] button.

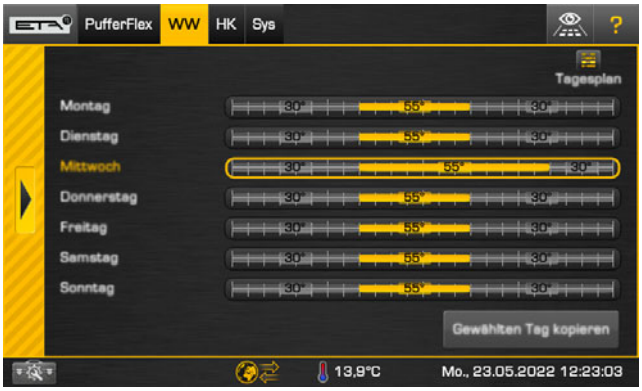


Fig. 10-8: Overview

3. Now, mark the days of the week for which the time slot is to be copied. In this example Saturday and Sunday.

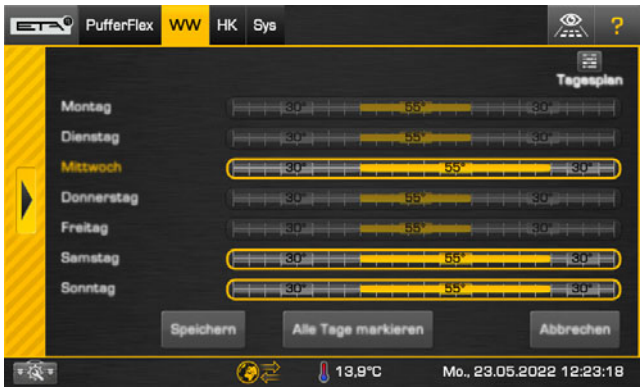


Fig. 10-9: Select days of the week

Pressing the [Select all days] button marks all days.

4. Press the [Save] button to save. The overview will be updated accordingly. Close the window using the arrow on the left side.

11 Operation with software version up to X.35.X

The following steps are only required for use with software versions up to X.35.X

The ETA module is delivered from the factory with software 3.56.3 and can therefore not be operated immediately with an ETAtouch control system up to software version X.35.X. Therefore, the following steps are only necessary if:

- the ETA module is connected via CAN-Bus in a heating system with the ETAtouch control system
- and in addition the heating system is used with software up to version X.35.X

If the ETA module is operated without a CAN-Bus connection (if possible), i.e. standalone, then these steps can be skipped.

Install software X.35.17 (or above)

In order to install the X.35.17 (or later) software, the factory-installed X.56.3 software must first be deleted from the circuit board.

Before carrying out the following steps, first disconnect the power supply to the ETA module (e.g.: fresh water module, stratified charging module or others). If there is already a CAN-Bus connection between the ETA module and the heating system, this must also be disconnected.

1. Download software version X.35.17 (or above) and save it on a USB drive. Then update the software of the heating system to this version.

   The required files for the software update can be found in the login area on the website www.eta.co.at and also on www.meinETA.at.

2. Remove the covers on the ETA module to access the circuit board. Set a jumper at terminal [X3] so that the factory-installed software is deleted after switching on.

   Only necessary for the [EM-FC] circuit board: Set another jumper at terminal [X7] so that the [EM-FC] is recognised in the CAN-Bus.

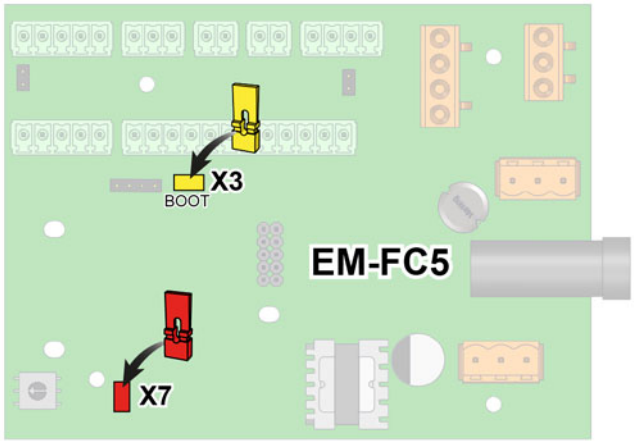


Fig. 11-1: Setting the jumper

3. Restore the power supply and also the CAN-Bus connection from the ETA module to the heating system. After switching on the power supply, a software update is performed on the circuit board.

   Approximately 10 seconds after switching on, remove the jumper from terminal [X3].

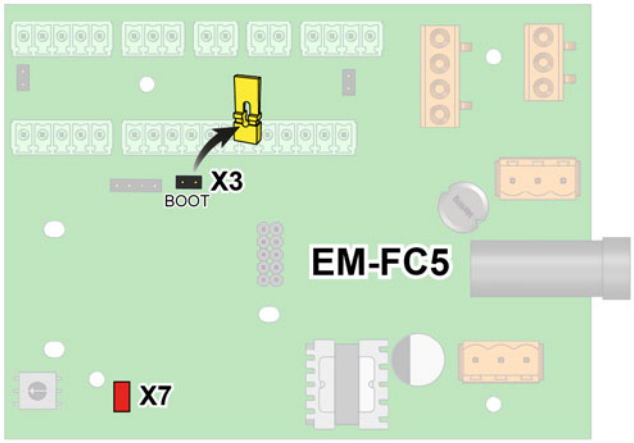


Fig. 11-2: Removing the jumper from [X3]

As soon as the software update is complete, start the configuration wizard. See the steps below for this.

11.1 Configuration

Starting the configuration assistant

Begin by raising the access level to [Service].

Then open the [Toolbox] menu by pressing the button; then press [Configure system].

Adding function block [FWM 2pumps]

The following description shows the configuration with the circuit board [EM-FC].

From column [Possible function blocks], select the [FWM 2pumps] function block and add it.

► EM-FC
► FWM 2pumps

Select the following options:

FWM 2pumps		
Options:		
☐	Circulation pump	Only select if a circulation pump has been installed
☐	Target value can be set with rotary knob	
☐	Output for cascading	

Save the changes.

Adding fresh water module as consumer

The fresh water module is connected to the buffer as an additional consumer (together with the heating circuits, for example). A separate connection is not required.

If there is not yet any connection between the buffer and the heating circuit, a new connection must be set up. To do this, press the [New connection] button and select the [Heating water] connection type.

Connect the fresh water module (as a consumer) to the buffer (as a producer). See below for an example with a heating circuit and the fresh water module:

Connections
Heating water
Producers
GM-C 0: Buffer: HC/HWT
Consumers
EM-FC: FWM: .
GM-C 0: HC: .

Tab. 11-1: Example with heating circuit and fresh water module

If there is already a connection between the buffer and the heating circuits, the fresh water module must only be added to this connection as an additional consumer.

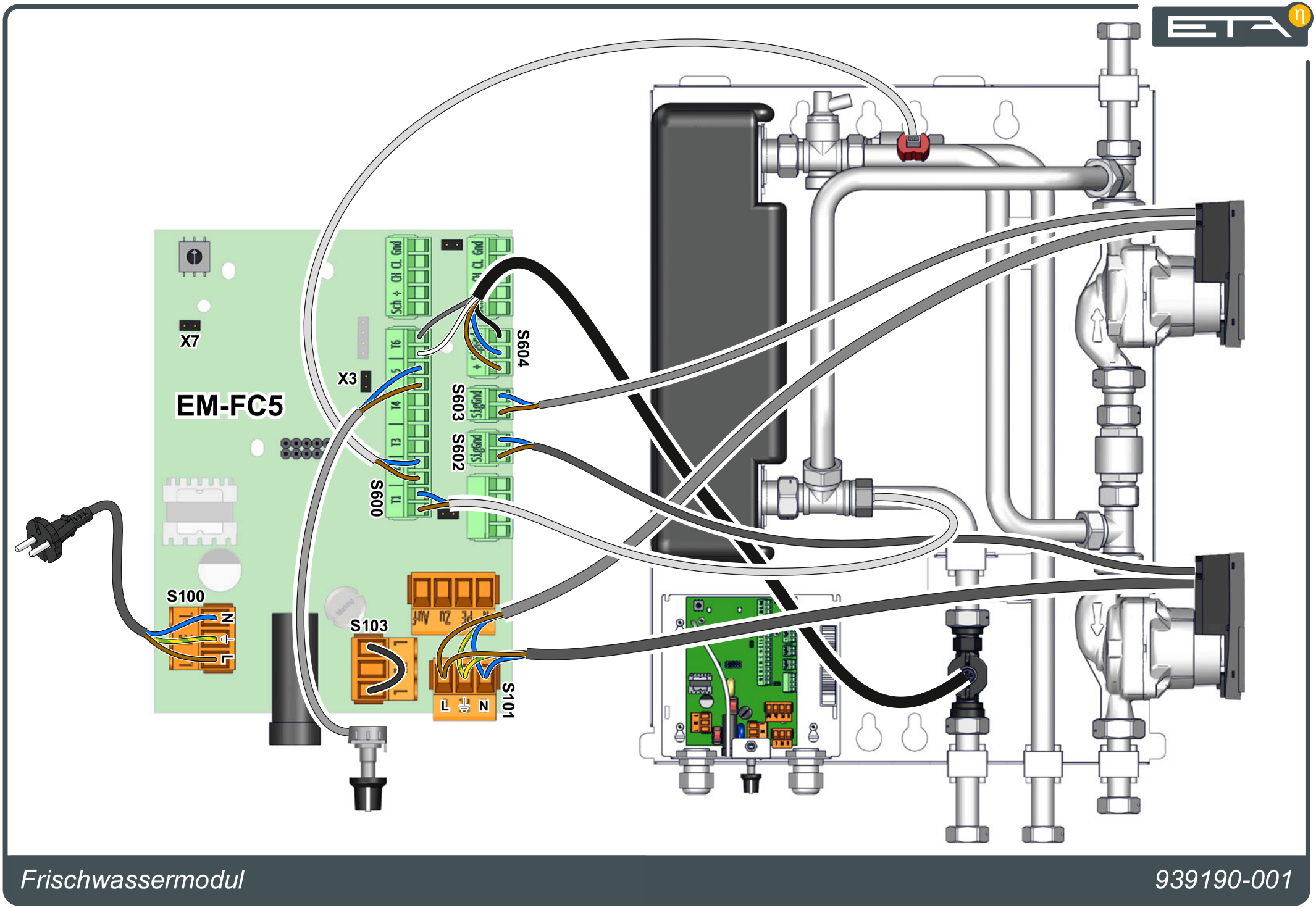
Installing a configuration

Finish by pressing [Apply] to install the configuration. The configuration will then be adopted and the software restarted.

Continue installation

Continue the installation from chapter 6 "Electrical connections".

12 Simplified electrical connection (overview)



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