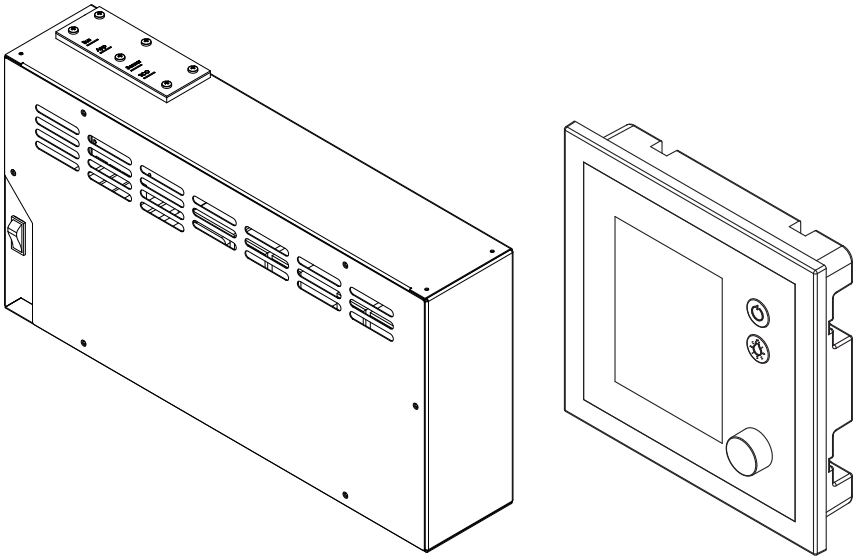
EN

EOS

FINEST SAUNA ENGINEERING

EmoTec D/H USA

Sauna control unit



Installation and Operating Instructions

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Documentation

Manufacturer

EOS Saunatechnik GmbH	
Schneiderstriesch 1	
35759 Driedorf, Germany	
Tel.	+49 2775 82-514
Fax	+49 2775 82-431
Email	service@eos-sauna.com
Web	www.eos-sauna.com

Original installation instructions EN

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Characters, symbols and illustrations

ⓘ Additional information about an operating step

🗋 Cross-reference to a page

🕮 Read instructions

☑ Result of a step

Table title

Title of figure

≤ ≥ Less than or equal to, greater than or equal to

Revision history

Date	Version	Description
7 Aug. 2024	02.20	New sensor housing, edits
15 Feb. 2024	02.10	Connection diagrams updated, new relay box
20 March 2023	02.00	Technical data and connection diagrams updated
1 June 2022	01.00	First version

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1 General safety instructions

1.1 Mounting and electrical installation

The installation instructions are intended for qualified personnel familiar with the laws and regulations applicable to electrical installations at the installation site. Observe the following general safety instructions during mounting, configuration and commissioning of the product.

Risk to life and limb and risk of fire

Risk to life and limb from electric shock or fire in the event of improper or faulty electrical connection. This risk remains also after completion of the installation work.

- ▶ The electrical installation of the relay box and other electrical systems or equipment with a fixed mains connection must only be performed by a trained electrician from an authorized electrical company.
- ▶ The sauna system units must be completely disconnected from the mains supply before commencing installation and repair work.
- ▶ Ensure compliance with the applicable standards and regulations for electrical installation.
- ▶ The housing cover must only be removed by a trained specialist.

Risk of injury and fire

If the integrated battery in the control panel is not replaced correctly, there is a risk of explosion which can lead to injury and fire.

- ▶ The integrated battery may only be replaced by a qualified specialist.

Fire hazard from overheating

Insufficient ventilation can lead to device overheating and fire.

- ▶ Do not install control panels, relay boxes and modules in enclosed cabinets or wood paneling.
- ▶ Observe the sauna heater manufacturer's safety and installation instructions.
- ▶ Observe the cabin manufacturer's safety and installation instructions.
- ▶ Touchable glass surfaces on the outside of the cabins must not reach more than 76°C / 171°F. Otherwise provide proper protection.

Damage to the unit

Corrosive or heavy saline atmospheres damage the contacts in the control panel, in the relay box and on the sensors.

- ▶ The control panel, relay box and sensors should not be installed in a corrosive or heavy saline atmosphere.

Damage due to incorrect mounting location

The control unit is not suitable for outdoor use.

- ▶ The unit should be operated inside buildings only. It should not be exposed to harmful environmental conditions. Harmful environmental conditions include, for example: humidity, moisture, possible formation of condensation or weather that promotes corrosion, as well as other weather conditions.
- ▶ Similarly, excessive cold and extreme exposure to sunlight must be prevented.
- ▶ Protect the unit accordingly if there is an increased risk of mechanical damage.

1.2 Operator instruction

The operator of the sauna cabin must be instructed in the general safety instructions during commissioning. The operator must be given a copy of the operating instructions.
The operator must make the end user aware of safety instructions that are relevant to the end user.
The operator must be familiar with the settings for the heating period and understand how it is controlled.

Risk to life and limb from electric shock and fire

A risk to life and limb from electric shock or fire arises in the event of improper repair work. This risk remains also after work is completed.

- ▶ The housing cover must only be removed by a trained specialist.
- ▶ Repairs and installations must only be performed by a trained specialist.
- ▶ The sauna system units must be completely disconnected from the mains supply before commencing any repair work.
- ▶ Use only original spare parts from the manufacturer.

Fire hazard

Objects placed on the heater can ignite and cause fires.

- ▶ Do not place objects on the heater.
- ▶ Fill the rock store as directed.
- ▶ Inspect the sauna cabin prior to each use.

Health risks

Spending time in a sauna cabin can lead to serious health risks or even death for persons with health impairments.

- ▶ Persons with health impairments who spend time in a sauna must consult a doctor before entering a sauna cabin.

Damage to health

Excessive time spent in a heated sauna cabin can lead to overheating of the body (hyperthermia), which may cause serious health problems and even death. Hyperthermia occurs when the core temperature of the body exceeds the norm by a few degrees. Symptoms of hyperthermia include fever, dizziness, lethargy, sleepiness, and fainting. Side effects of hyperthermia include perception disorders, inability to recognize the need to leave the room, inability to identify imminent danger, harm to the fetus in the case of pregnant women, inability to physically leave the room and unconsciousness.

Alcohol, drugs, and medications increase the risk of hyperthermia.

- ▶ Do not exceed the maximum recommended time in the sauna.
- ▶ Leave the sauna cabin if your body responds abnormally to the heat or if you do not feel well.
- ▶ Avoid alcohol, drugs, and medications when you are using the sauna.
- ▶ Floor heating in the sauna cabin results in additional warming of the legs and can lead to health risks.

Equipment damage due to overuse

Excessive humidity in commercial sauna cabins can lead to property damage.

- ▶ If the sauna cabin is used commercially, the heating period must be set so that it switches off automatically after a specific period of time.
- ▶ If the heating does not switch off automatically after a defined heating period, cabin use must be supervised at all times.
- ▶ Inspect the cabin before each use.

Operation by children or persons with reduced mental capacity

- ▶ Children and persons with reduced physical, mental or sensory abilities must be supervised to ensure that they do not play with the unit.
- ▶ Children under 8 years of age should not operate the sauna cabin.
- ▶ The settings for the heating period may only be changed by children over 8 if they are supervised by an adult.
- ▶ The sauna cabin must only be used by persons with reduced mental capacity or limited physical or sensory abilities under supervision or if they have been previously instructed in its use and understand the risks.
- ▶ Children and persons who have not received proper instruction must not clean or service the system.

1.3 Safety levels

Safety instructions and important operating instructions are classified according to ANSI Z535.6. Please familiarize yourself with the following terms and symbols:

⚠WARNING

Warning

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION

Caution

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Notice

Indicates a hazardous situation which, if not avoided, will result in damage to the unit.

1.4 Standards and regulations

For an overview of the standards that were observed during design and construction of the sauna heaters, please refer to the individual product's technical data sheet that can be downloaded from www.eos-sauna.com. Local regulations also apply to the installation and operation of heating, sauna, and steam room systems.

2 Identification

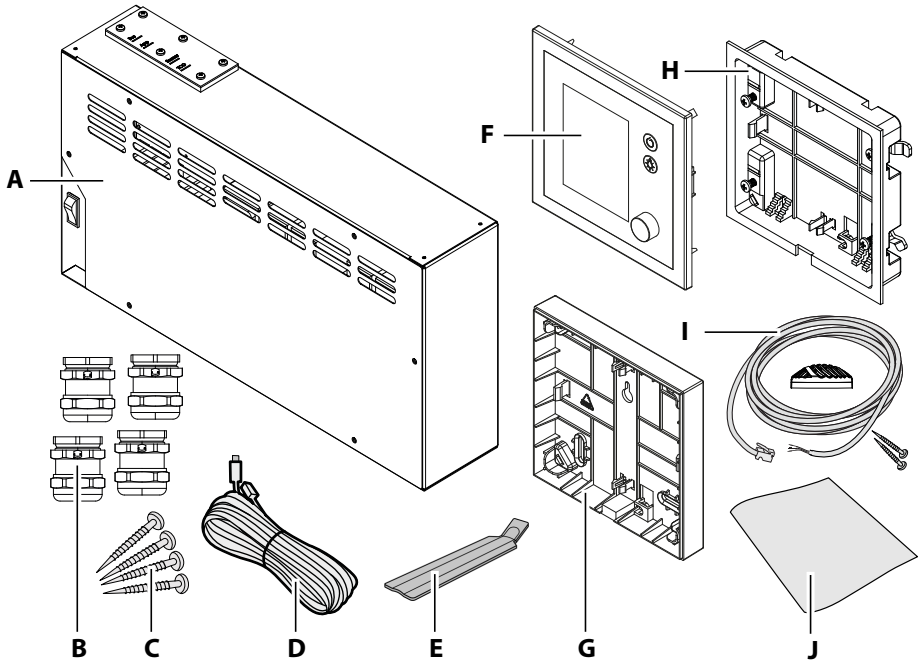
EmoTec D/H USA can be operated in the following models:

- Finnish sauna mode
- Steamy hot air mode

This documentation describes both models.

2.1 Scope of delivery

The following parts are included in the EmoTec D/H USA scope of delivery:



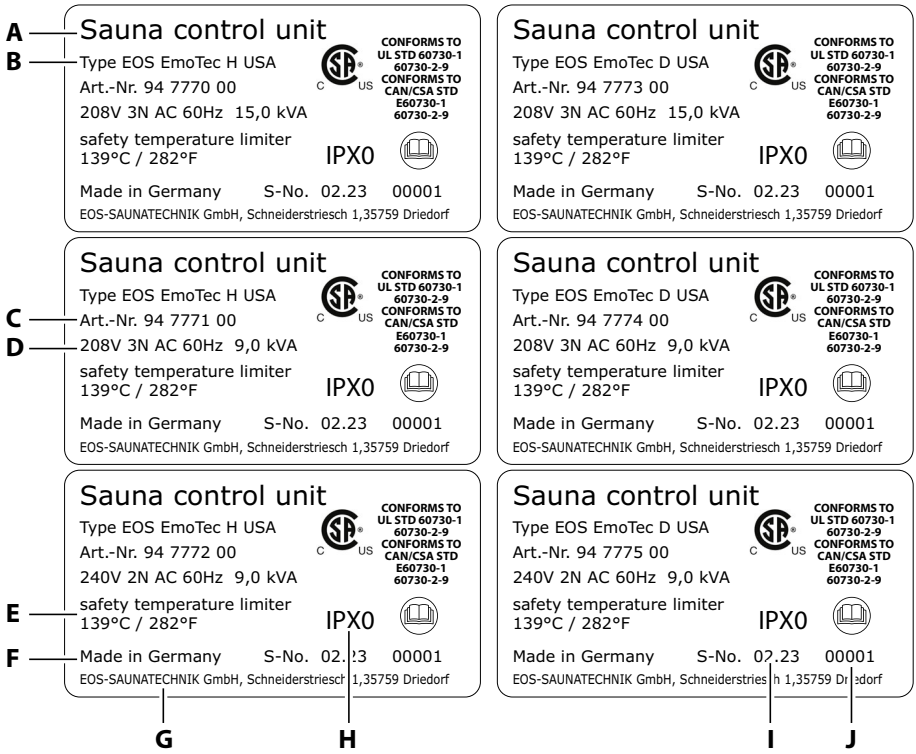
A Relay box with front cover (figure shows 10–15 kW model)
B 4 cable glands (supplied)
C 4 wood screws 4 x 25 mm
D 5 m connecting cable with RJ14/RJ10 modular plug for control panel
E Removal tool for control panel
F Control panel
G Housing for mounting on the wall
H Housing for mounting in the wall
I Temperature sensor including 5 m connecting cable with RJ10 plug, housing, circuit board, 2 screws 4 x 40 mm
J Installation and Operating Instructions

Check the scope of delivery for completeness prior to installation.

2.2 Nameplate

Relay box

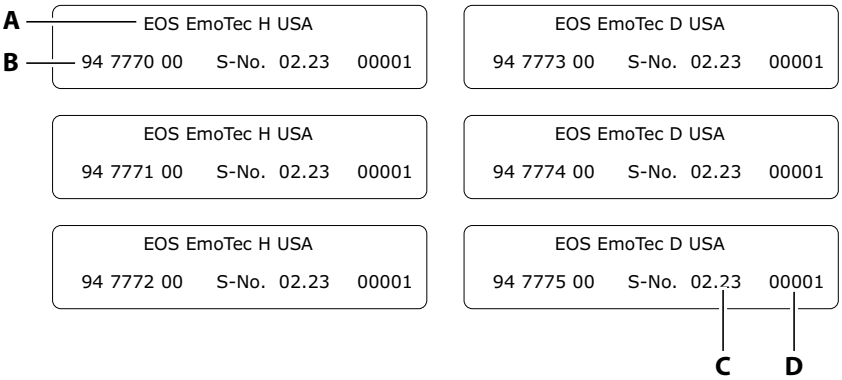
The nameplate is affixed on the right side near the switch.



A Name
B Model
C Item number
D Operating voltage and maximum switching output
E Safety temperature limiter
F Country of origin
G Manufacturer
H Protection class
I Manufacturing date
J Serial number

Control panel

Software version R. 4.00 or higher must be installed in the control panel. The nameplate is located on the inside of the front panel next to the circuit board.



A Name
B Item number
C Manufacturing date
D Serial number

2.3 Technical data

Environmental conditions	-10°C to +35°C / +14°F to +95°F Height < 2000 m a.s.l. / 6,562 ft a.s.l.
Storage/transport temperature	-20°C to +60°C / -4°F to +140°F
Housing	Relay box: Metal Control panel: Plastic
Relay box dimensions (H x W x D)	250 x 485 x 100 mm / 9.8 x 19 x 3.9 inches
Control panel dimensions (H x W x D)	127 x 130 x 25 mm / 5 x 5.1 x 1 inches (mounted) Mounting depth approx. 20 mm / 0.8 inches
Weight	Approx. 5 kg / 11 lbs
Control panel	EmoTec D/H USA
Power supply	9 kW: 208 Y /120 V AC, 60 Hz, 3 ph + N 9 kW: 240 / 120 V AC, 60 Hz, 1 ph + N 15 kW: 208 Y /120 V AC, 60 Hz, 3 ph + N

Switching output	9 kW-208Y: max. 9 kW resistive load with one relay circuit board 9 kW-240: max. 9 kW resistive load with two relay circuit boards 15 kW-208Y: max. 15 kW resistive load with two relay circuit boards
Fuses	See Connecting cables and fuses, 🗋 EN-20
Display	TFT color display 55 x 74 mm / 2.2 x 2.9 inches (3.5" diagonal)
Temperature control	Based on ambient temperature: 30°C–90°C / 86°F–194°F
Control characteristics	Digital two-point control
Connection for lighting	Light bulb/resistive load: 100 W max. LED driver and LED lights with inrush current limiter: 100 W max. LED driver and LED lights without inrush current limiter: 20 W max. The inrush current of the light source must not exceed 20 A.
Sensor system	Digital sensor 90°C / 194°F with safety temperature limiter (STB)
Heating period limitation	1 h
Connection for fan	min. 5 W, max. 150 W
Operation	2 buttons for on/off and lighting, jog dial
Temperature control	30°C–90°C / 86°F–194°F – Finnish (dry sauna mode) 30°C–70°C / 86°F–158°F – Bi-O (humidity mode)
Humidity regulation	Time-proportionally or optionally according to % relative air humidity with connected humidity sensor
Sensor system	Digital sensor with safety temperature limiter (STB)
Safety temperature limiter	in heater: 160°C / 320°F in sauna cabin, on ceiling: 139°C / 282°F
Potential-free contact	Load rating of contact for resistive loads: Maximum power supply: 15 A Maximum voltage: 30 V DC / 250 V AC

Error display	Text on the display
Outputs	3 x RJ10 jacks for sensor connection 2 x RJ14 jacks for control panel and add-on modules (sauna bus)
Pipe cross-sections	See Connecting cables and fuses, EN-20
Memory card reader	microSD memory card reader in control panel
Connection for vaporizer	VAP1 and VAP2 with total of 3 kW WM for water level sensor

2.4 Accessories (optional)

Accessories	Item no.
10 m / 32.8 ft connecting cable for control panel (RJ10/RJ14)	94.6802
10 m / 32.8 ft connecting cable for sauna bus (RJ12/RJ12)	94.5861
Modular distributor RJ12 for connecting cable for control panel and sauna bus	2001.5298
Humidity sensor	94.5726

2.5 Heating period limitation

The heating period for the sauna heater is limited to one hour.

2.6 Intended use

EmoTec D/H USA is designed to operate EOS sauna heaters in sauna cabins. The relay box and control panel are intended only for mounting on the wall. EmoTec D/H USA is suitable for cabins used in private and commercial settings.

The control unit is not suitable for outdoor use. It must be operated only inside buildings and may not be exposed to environmental conditions such as extreme humidity and moisture or the possible formation of condensation or corrosive substances in the ambient air, as well as other weather conditions. Similarly, excessive cold and extreme exposure to sunlight must be prevented. Protect the unit accordingly if there is an increased risk of mechanical damage.
The control unit is not suitable for installation at a height of over 2000 m (6,562 ft).

Foreseeable misuse

The following are considered instances of foreseeable misuse:

- The sauna heater does not have integrated overheating protection.
- The control and sensor cable plugs are plugged in incorrectly.
- The unit is operated without knowledge of or compliance with the safety instructions.
- Operating, service and maintenance requirements are not observed.
- The unit is operated after technical or other modifications are made to the relay box.
- The unit is operated by children under 8 years of age.
- The unit is operated by children 8 years of age or older, or persons with reduced mental capacity who have not been thoroughly instructed in its use.

The manufacturer is not liable for unauthorized modifications made to the equipment and damages resulting from these modifications. The person modifying the equipment alone shall bear the associated risk.

3 Installation

3.1 Routing the lines

All lines should be routed before installing the control unit. The connections can be plugged in after installation, since the control unit's front panel can be removed.

NOTICE

Electronics malfunctions

Routing data and power supply lines together can lead to electronics malfunctions because, e.g., the sensor will not be detected.

- ▶ Do not route sensor and sauna bus lines together with power supply lines.
- ▶ Route cable ducts separately.

Data lines must be routed and connected in such a way that they are not openly accessible. They should be routed between the insulation and the outer wall of the cabin. Cabin insulation must be installed in such a way that the temperature in the area in which cables are routed cannot exceed 65°C / 140°F.
If the data lines are installed outside on the wall, they must be protected by a cable duct.

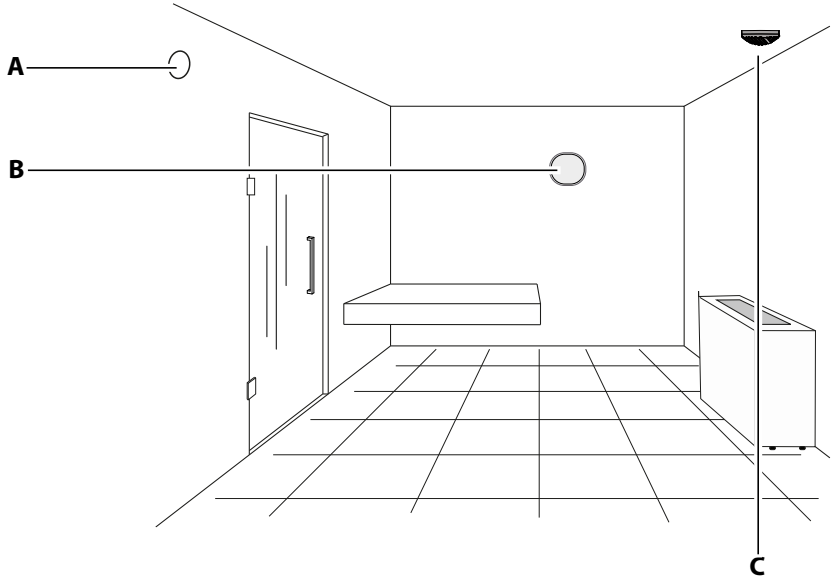
Connecting cables and fuses

Heater output	Connection voltage	Connecting cable control system *	Connecting cable Heater **	Fuse
6.0 kW	1 x 208 V 3 (L1, L2, L3)	AWG 10	AWG 12	30*** (25) A
7.5 kW	1 x 208 V 3 (L1, L2, L3)	AWG 10	AWG 12	30 A
9.0 kW	1 x 208 V 3 (L1, L2, L3)	AWG 8	AWG 12	40*** (35) A
10.5 kW	2 x 208 V 3 (L1, L2, L3)	AWG 10	AWG 12	25 A
12 kW	2 x 208 V 3 (L1, L2, L3)	AWG 10/8***	AWG 12	30*** (25) A 40*** (35) A
15 kW	2 x 208 V 3 (L1, L2, L3)	AWG 8	AWG 12	40 A
6.0 kW	3 x 240 V 1 (L1, L2)	AWG 12	AWG 12	20*** (15) A
7.5 kW	3 x 240 V 1 (L1, L2)	AWG 12	AWG 12	20 A
9.0 kW	3 x 240 V 1 (L1, L2)	AWG 12	AWG 12	20 A

When using 4 to 6-core cables, the type of AWG cable specified in the table increases by one unit.
Example: AWG 12 > AWG 10.
* Only use copper lines (cable type 1) that are approved for temperatures of min. 90°C.
As defined by NEC and regulations.
** Only use copper lines (cable type 2) that are approved for temperatures of min. 90°C.
As defined by NEC and regulations.
*** The maximum dimensions of the permanent fuses can be adjusted depending on the current load on site.

3.2 Installation work inside the cabin

At minimum, the cabin lighting and a temperature sensor with safety temperature limiter must be installed inside the cabin.



A Cabin fan
B Light
C Temperature sensor with safety temperature limiter

Example – cabin

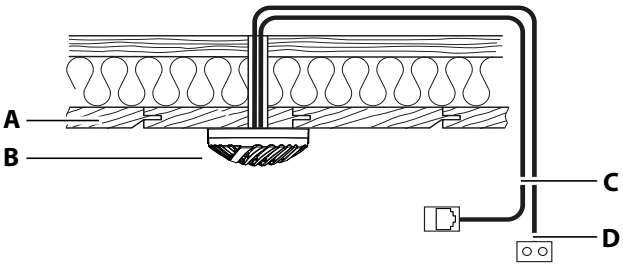
The temperature sensor must be installed where expected temperatures are the highest.

3.2.1 Installing the temperature sensor

The temperature/humidity in the sauna cabin is set via the control unit. The set values are checked by the sensor. The heater sensor controls the temperature in the sauna cabin. The heater sensor has a safety temperature limiter, which ensures that the temperature does not exceed the permitted temperature.

Hardware + tools:

- Temperature sensor and connecting cables
- Drill used to drill a hole in the cabin ceiling
- Screwdriver
- Taut wire, as needed

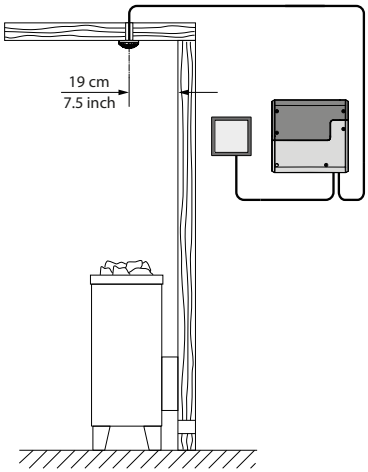


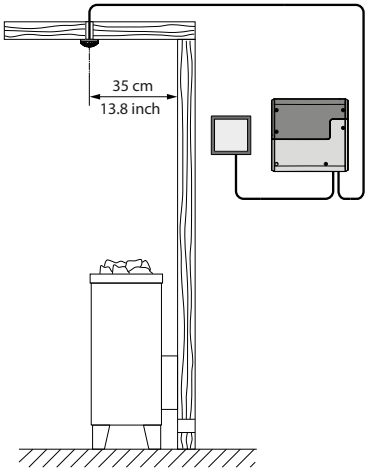
A Cabin ceiling
B Temperature sensor housing
C Line for temperature sensor (2-pin)
D Line to STB (2-pin)

Installation diagram for temperature sensor

▶ Installing the temperature sensor in the cabin

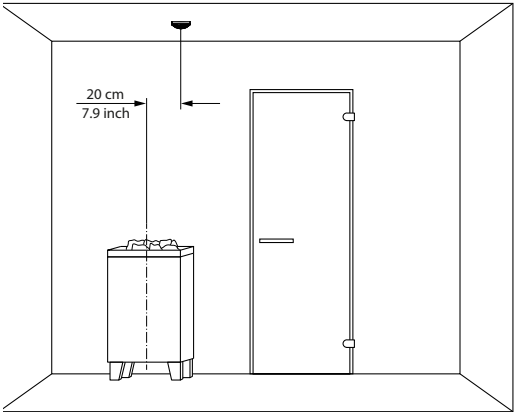
1 Determine a suitable location for the installation.
ⓘ The heater sensor must be installed on the cabin ceiling above the sauna heater. It is installed in observance of the following distances from the cabin wall, depending on the cabin size.





A Cabins < 2 x 2 m / 6.6 x 6.6 ft

B Cabins > 2 x 2 m / 6.6 x 6.6 ft

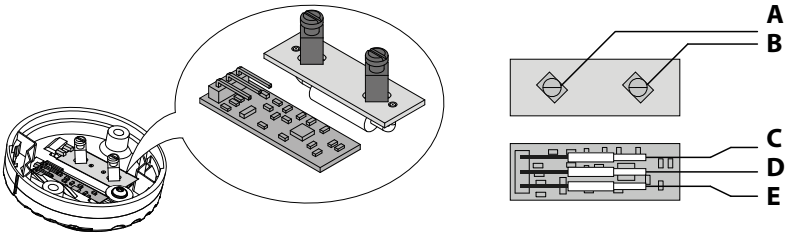


Installation configuration above the heater

2 Drill a hole in the cabin ceiling for the cable.

3 NOTICE Do not pull at the plug when routing the control line(s). Doing so could damage the line. Attach the taut wire only to the cable. Route the sensor cable through the hole.

4 Open the temperature sensor's housing and connect the cable.



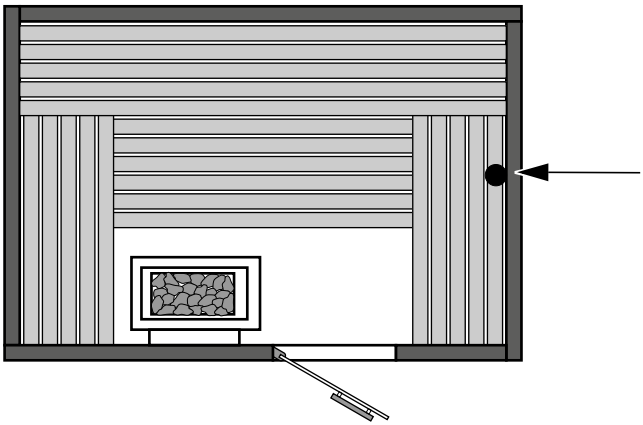
A Terminal 1 for safety temperature limiter
B Terminal 2 for safety temperature limiter
C White (sensor bus)
D Green (sensor bus)
E Brown (sensor bus)

Connector pins for safety temperature limiter and sensor bus

5 Screw the sensor housing to the cabin ceiling and place the housing cover in position.

3.2.2 Humidity sensor

The humidity sensor (optional) is installed in the middle of the side wall facing away from the sauna heater and door, at a height of approx. 150 cm / 4.9 ft.



Installation configuration – humidity sensor

3.2.3 Installing cabin lighting

Lighting can be installed anywhere, however not near rising hot air. Cabin lighting is not included in the scope of delivery. Observe the separate installation instructions for lighting.

Observe the requirements for light sources in the chapter entitled Technical Data: 2.3 Technical data, 🗋 EN-15.

NOTICE

Material damage

Lighting and the control system could become damaged if incorrect light sources are installed. In this case, the warranty becomes void.

- ▶ The inrush current of the light source must not exceed 20 A.
- ▶ Do not install lighting in the emitting range of the heater.
- ▶ The lighting must conform to protection class IPX4 (splash-proof) and be resistant to ambient temperatures.

🕮 Control line connection:
4 Electrical installation, 🗋 EN-42

3.3 Relay box

The relay box must only be mounted outside of the cabin and in dry areas only. Observe the following guidelines.

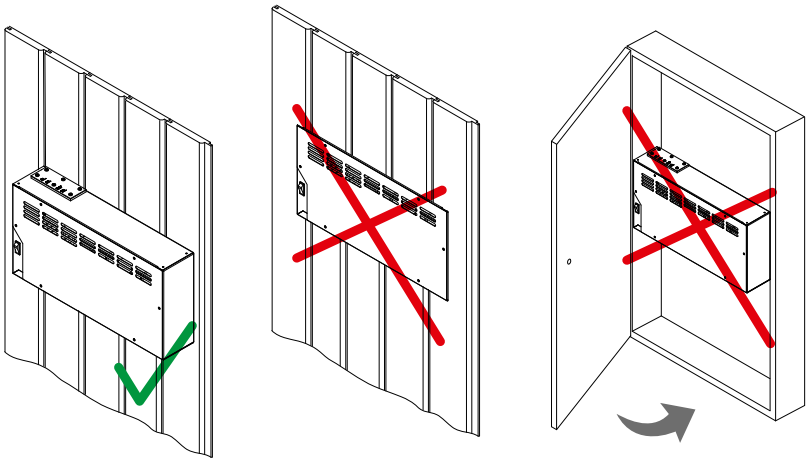
3.3.1 Requirements

⚠WARNING

Risk to life and limb and risk of fire

Risk to life and limb from electric shock and fire in the event of improper or faulty electrical connection. This risk remains also after completion of the installation work.

- ▶ Do not install the relay box in enclosed cabinets or wood paneling.
- ▶ Mount the relay box in a dry environment only.



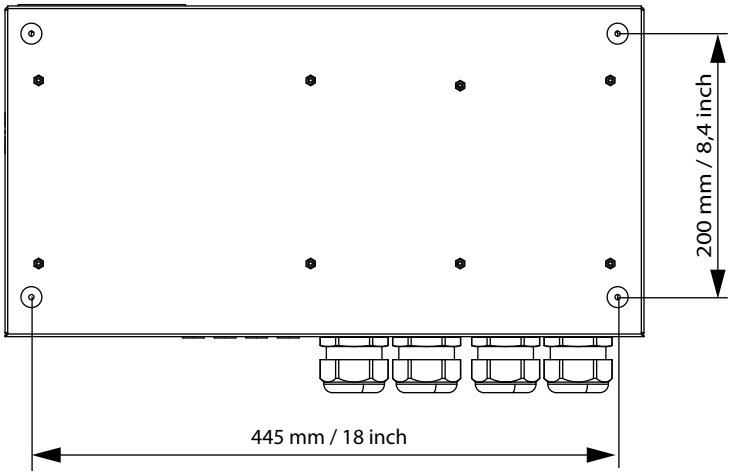
Proper and improper relay box installation

Recommended installation locations are:

- Outer wall of the cabin
- Plant room

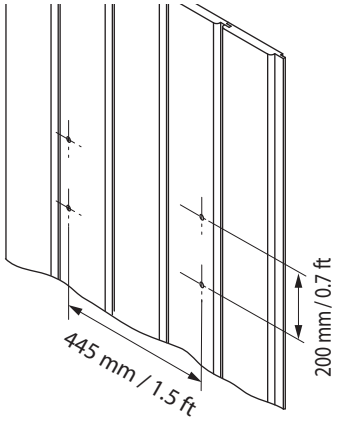
If empty conduits for electrical installations are already present, this dictates the position of the relay box.
All lines should be routed before installing the relay box. Data lines must be routed and connected in such a way that they are not openly accessible.

Measurements for installation



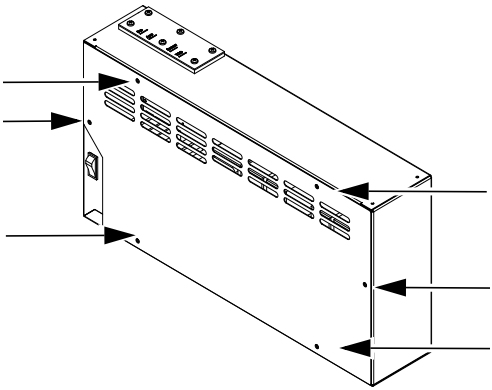
3.3.2 Installing the relay box

1 Drill holes as required.



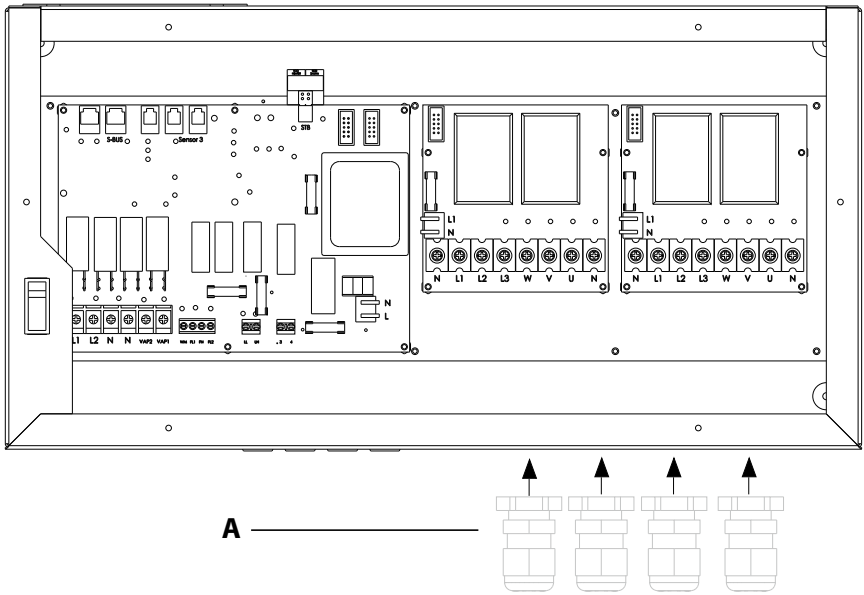
2 Insert anchors into the drill holes if necessary.

3 Loosen the 6 screws on the cover.



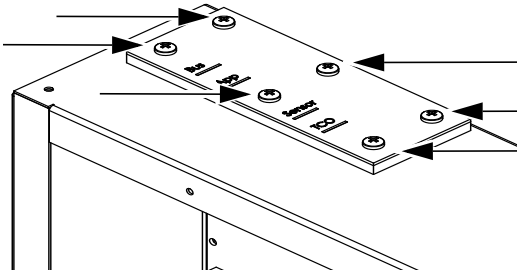
4 Remove the cover.

5 Insert the cable glands into the openings and tighten with the nut.

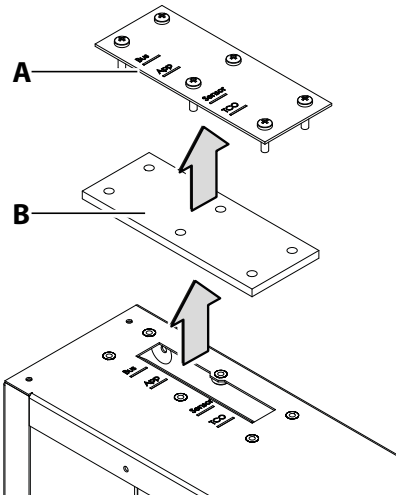


A Cable glands

6 Loosen the 6 screws on the hood.

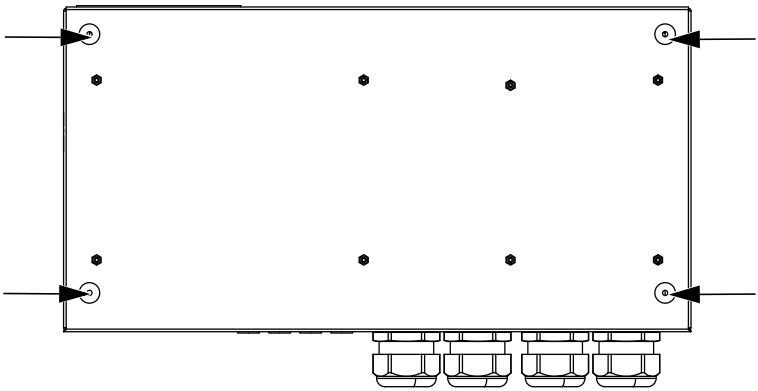


7 Remove the hood and the seal.

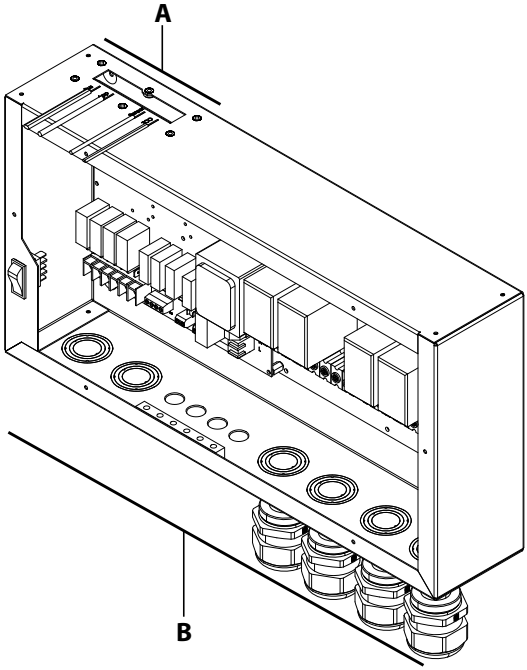


A Hood **B** Seal

8 Hook the relay box through the mounting holes and screw tight.



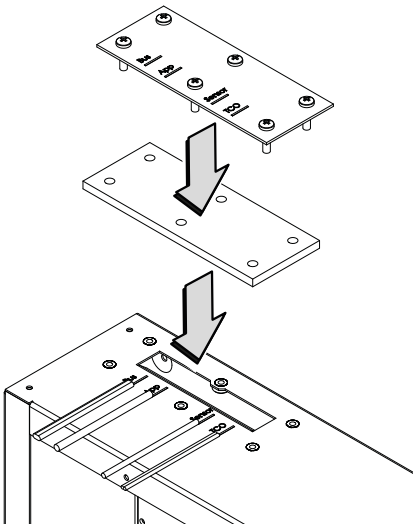
9 Route the connecting cables through the openings.



A Supply lines for sauna bus, sensor bus, STB, app module

B Power supply circuit boards, light, fan, vaporizer, heater

10 Fit the seal and screw on tightly.



11 Screw the cover in place.

ⓘ Once you have completed all installation work, you can connect the consumers and plug in the lines.

ⓘ 4.11 Safety temperature limiter, 🗋 EN-55
4.13 Connecting the mains supply and units, 🗋 EN-57

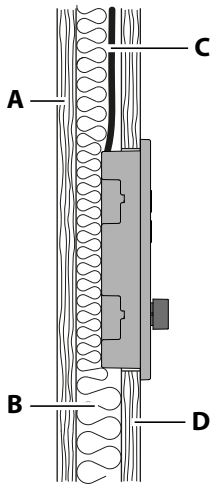
3.4 Control panel

The housing for the EmoTec control panel is available in two versions: for mounting in the wall or for mounting on the wall. Both versions are designed for a mounting location on the outer wall of the cabin.
If empty conduits for electrical installations are already present, this dictates the position of the control panel.

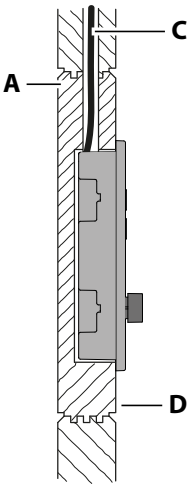
3.4.1 Requirements

The cabin wall must be designed in such a way that the temperature in the area in which cables are routed cannot exceed 65°C / 149°F.

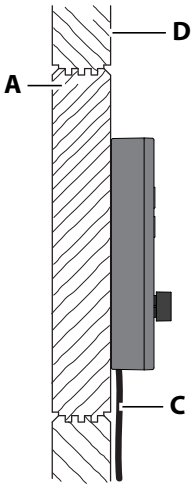
Line routing



Mounting in the wall for cabin walls with insulation



Mounting in the wall for cabin walls made of solid logs



Mounting on the wall for cabin walls made of solid logs

A Inner wall of the cabin
B Insulation
C Control line
D Outer wall of the cabin

Guide for data and control line(s)

The following guidelines apply depending on the cabin wall:

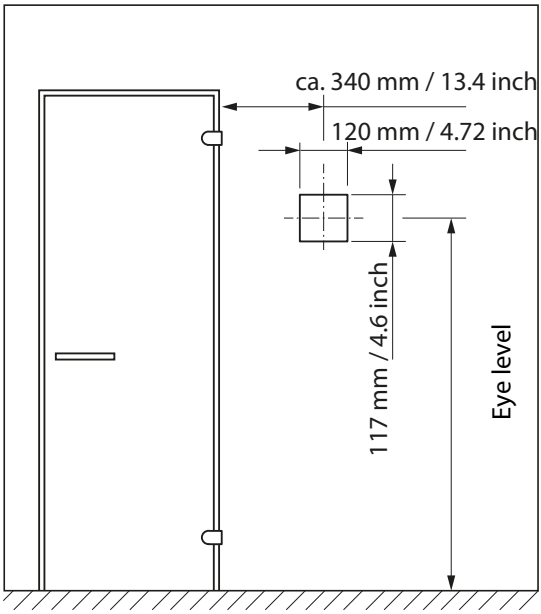
- Mounting in the wall – insulation: The control line must only be routed between the insulation and the outer wall of the cabin.
- Mounting in the wall – solid logs: The control line is routed through a channel drilled in the solid log.
- Mounting on the wall – solid logs: The control line is routed along the outer wall of the cabin.

Extending the control panel's control line

For longer connections, special RJ10/RJ14 connecting cables with a length of 10 m / 32.8 ft are available as an option.
See 2.4 Accessories (optional), 🗋 EN-17

Installation site

The control panel is mounted outside of the cabin. The following distances are recommendations:



Dimensions at the mounting location

NOTICE

Damage due to steam and humidity

Condensation can form when the door is opened, which can fog over the display. This can lead to the formation of condensation in the control unit and system downtime.

- ▶ Mount the control unit outside of the area in which the humid warm air mixture can spread.
- ▶ Mount the control unit on the hinge side of the door.

3.4.2 Mounting the control panel

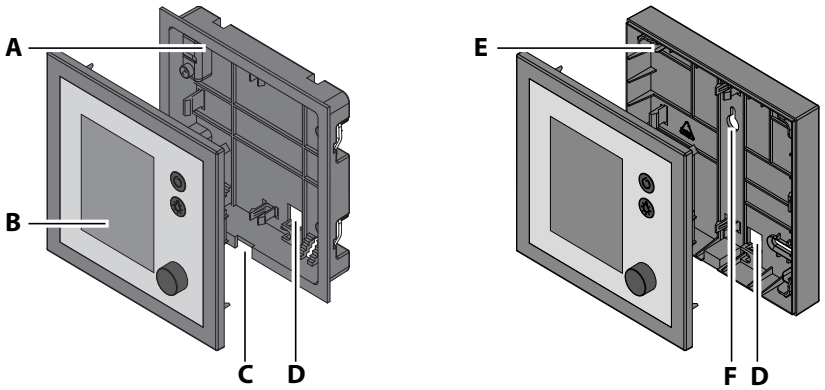
The control line that leads to the relay box is connected to the control panel. The control line is fed through the opening in the housing. Therefore, it must be installed after the cut in the wall has been made.
Tools required:

- Saw for cutting the wall (only when mounting in the wall)
- Phillips screwdriver
- Removal tool to loosen the front panel (included in the scope of delivery)
- Taut wire, as needed
- Wooden screws (included in the scope of delivery):
  4 screws for housing mounted in the wall with a wall thickness of > 30 mm / 1.9 inches,
  3 screws for housing mounted on the wall

Necessary steps:

▶ Removing the front panel from the housing, 🗋 EN-35
▶ Mounting the housing in the wall, 🗋 EN-36
▶ Mounting the housing on the wall, 🗋 EN-39
▶ Connecting the S-Bus, 🗋 EN-40
▶ Fixing the front panel, 🗋 EN-41

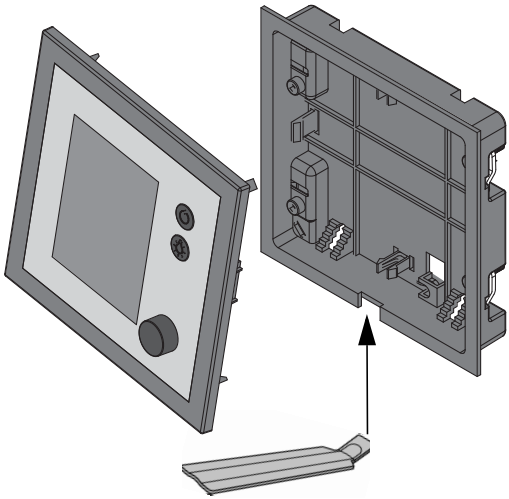
The control panel must only be mounted on the cabin's exterior wall. Two options are available:



A Housing for mounting in the wall
B Front panel with display
C Slot at base for removal tool
D Opening for sauna bus connection
E Housing for mounting on the wall
F Top mounting hole

▶ Removing the front panel from the housing

1 NOTICE Do not drop the control panel.
Insert the removal tool in the slot at the base of the housing.



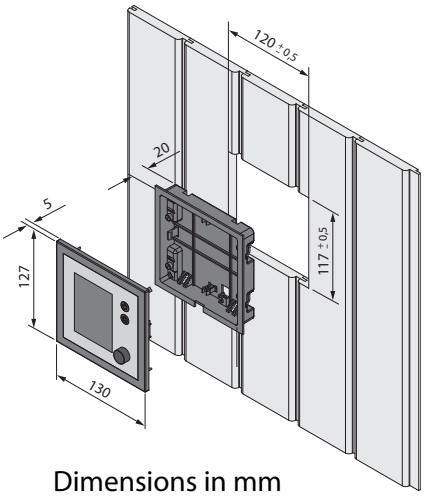
ⓘ If you are mounting the housing on the wall, loosen the front panel in the same way.

2 Carefully loosen the front panel using a consistent amount of force. Remove it by hand.

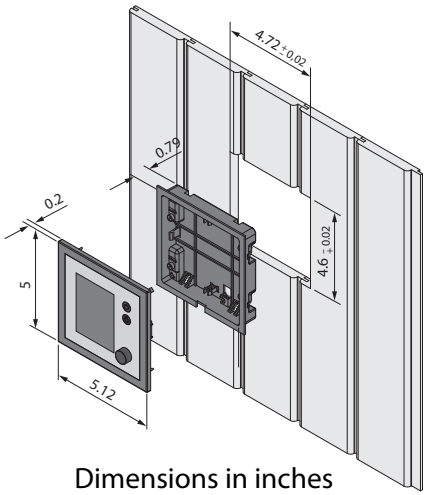
▶ Mounting the housing in the wall

1 Determine a suitable location for the installation.

2 Create a wall cut-out:



Dimensions in mm



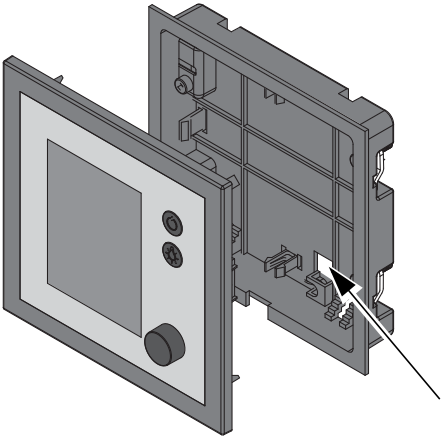
Dimensions in inches

ⓘ The housing can be fixed in a wall with a thickness of 15 to 30 mm / 0.59 to 1.18 inches with the integrated clips. The cut-out may not be larger, or the clips will not be able to hold the unit.

3 NOTICE Do not pull at the plug when routing the control line. Doing so could damage the line. Attach the taut wire only to the cable.
Route the control line from the relay box to the control panel.

ⓘ The smaller RJ10 plug on the connecting cable must be routed to the control panel.

4 After routing, pull the control line through the opening in the housing.



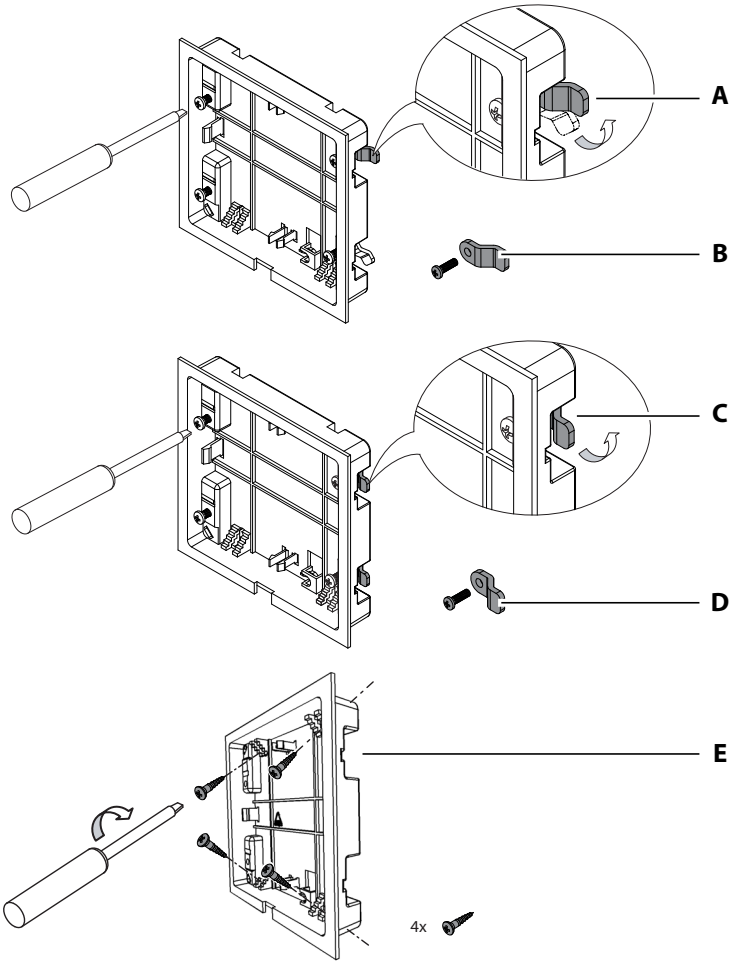
ⓘ Do not pull the control line too taught so that you can easily remove the front panel at a later time.

5 Insert the housing into the prepared wall cut-out.

ⓘ Observe the sticker on the housing (oben/up).

ⓘ When fixing the unit to the wall, ensure that the bottom of the unit is aligned properly. The side with the slot for the removal tool must be facing downwards.

6 Insert the housing in the wall cut-out:



A Installation if wall thickness is 15 to 30 mm / 0.59 to 1.18 inches

B Clip position

C Installation if wall thickness is < 15 mm / 0.59 inches

D Clip position

E Installation if wall thickness is > 30 mm / 1.18 inches

Mounting diagram for housing mounted in the wall

a) Wall thickness 15 to 30 mm / 0.59 to 1.18 inches: Loosen the clips and turn 90° outward. Tighten the screws again.

b) Wall thickness < 15 mm / 0.59 inches: Loosen the clips completely, rotate the clips and remount.

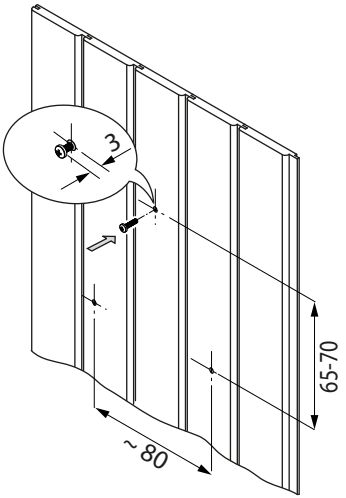
c) Wall thickness > 30 mm / 1.18 inches: Remove the clips completely and tighten the housing with wooden screws.

ⓘ The housing must sit firmly in the wall cut-out.

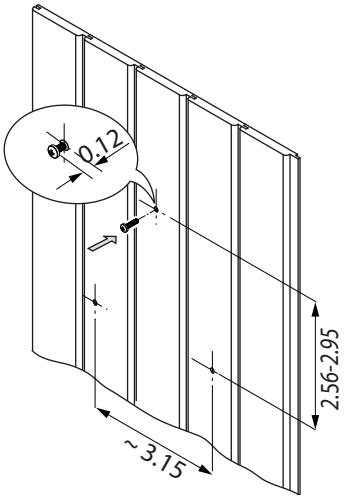
▶ Mounting the housing on the wall

1 Determine a suitable location for the installation.

2 Drill one (1) hole above and two (2) holes below.



Dimensions in mm



Dimensions in inches

Mounting diagram for housing mounted on the wall

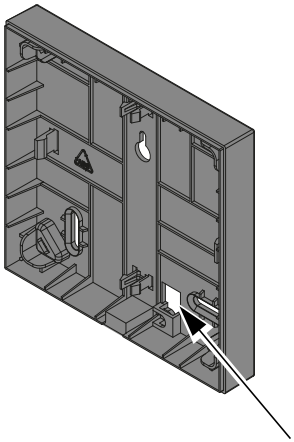
3 Tighten the upper screw.

ⓘ Allow the screw to protrude approx. 3 mm / 0.12 inches so you can hook in the housing.

4 Hook the housing into the upper screw using the upper mounting hole.

5 Route the control line from the relay box to the control panel.

6 After routing, pull the control line through the opening in the housing.

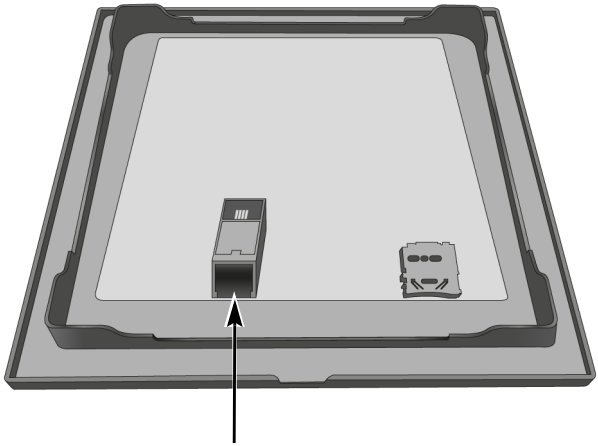


ⓘ Do not pull the control line too taught so that you can easily remove the front panel at a later time.

7 Securely tighten the housing using the two lower mounting holes.
ⓘ The housing must sit firmly on the wall.

▶ Connecting the S-Bus

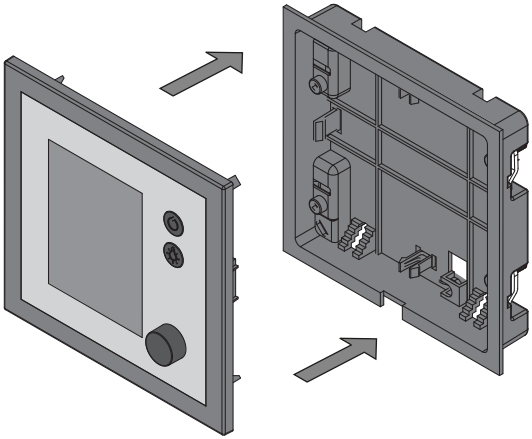
1 Insert the control line with the RJ10 plug into the circuit board.



ⓘ The control line's RJ10 plug is inserted into the circuit board on the control panel. The RJ14 plug is inserted into the relay box.

▶ **Fixing the front panel**

1 Place the front panel directly in front of the bottom piece.
ⓘ Ensure that it is aligned properly.



2 Press the front panel carefully with a consistent amount of pressure into the housing until it audibly snaps into place.
ⓘ The front panel must sit firmly on the housing.
ⓘ For commissioning information, see
5.1 Setup during commissioning or after a reset, 🗋 EN-60

3.5 Mounting the fan

The exhaust fan for the sauna cabin is controlled by the control panel.
The fan should ideally be installed on the wall opposite the sauna heater, however never near hot air that rises from the heater.
The fan is not included in the scope of delivery. Observe the separate installation instructions for the fan.

Fan requirements

- Minimal output 5 W
- Maximum output 150 W
- Voltage 120 V 1N AC
- Suitable for use in sauna cabins

4 Electrical installation

General instructions for electrical installation

Ensure that electrical installation is performed in compliance with the standards and legal norms valid in your country.
If a residual current device (RCD) is installed, ensure that there are no other electrical consumers not belonging to the sauna system which are fused via this RCD.
If the sauna heater has not been used for an extended period of time, the heater may draw moisture from the ambient air, which, in rare cases, could lead to the RCD to be tripped. This is a physical process and not a fault on the part of the manufacturer.
In this case, the heater must be heated by a technician under supervision which will bypass the RCD function. Once the moisture has escaped from the heating elements after approx. 10 minutes, the RCD can be integrated again in the electric circuit.

If the sauna heater will not be used for an extended period of time, we recommend that you switch on the heater every 6 weeks so that the heating elements do not accumulate moisture. If, during commissioning, the RCD is triggered, the electrical installation must be checked again.
The electrician is responsible for properly connecting the heaters; thus, the manufacturer does not assume liability.

⚠WARNING

Risk of electric shock

A faulty electrical connection poses the risk of an electric shock. This risk remains also after completion of the installation work.

- ▶ Disconnect the system units entirely from the mains supply.
- ▶ If retrofitting is required, the housing must only be opened by trained personnel.
- ▶ Electrical installation must only be carried out by a qualified and licensed electrician.
- ▶ The unit must be connected to the power supply according to the circuit diagram and the terminal scheme.

Recommended installation sequence

Before commencing installation, ensure that the relay box and the control panel are mounted. Furthermore, all cabin work must be complete: sauna heater, temperature sensor, lighting, etc.

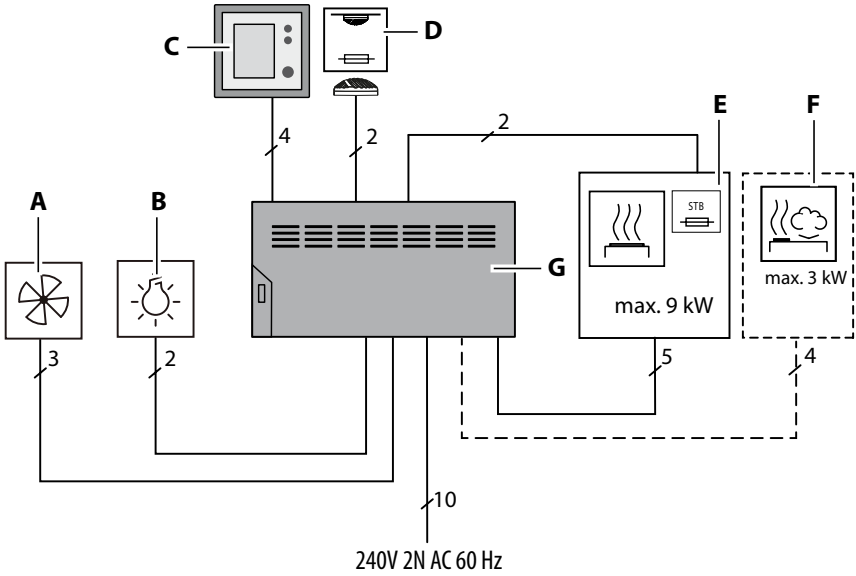
Complete installation in the following sequence:

- Plug the S-Bus and sensor lines into the relay box.
- Connect the consumer lines to the relay box.
- Establish connection to the power supply.
- Switch on the relay box and control panel.
- Start the unit and apply the basic settings.

4.1 Installation examples

Fan, light, temperature sensor, heater and the control panel are connected to the relay box. A vaporizer can also be connected.

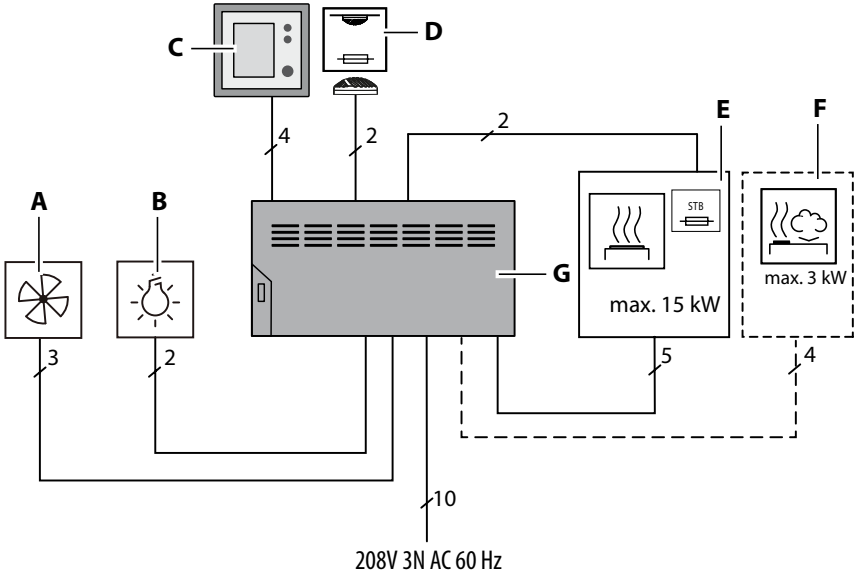
9 kW



A Fan
B Cabin lighting
C Control panel
D Temperature sensor with safety temperature limiter
E Sauna heater with safety temperature limiter
F Vaporizer (optional)
G Relay box

All wiring must be done in accordance with the National Electric Code and local building codes.
All supply wire must be 90°C copper.

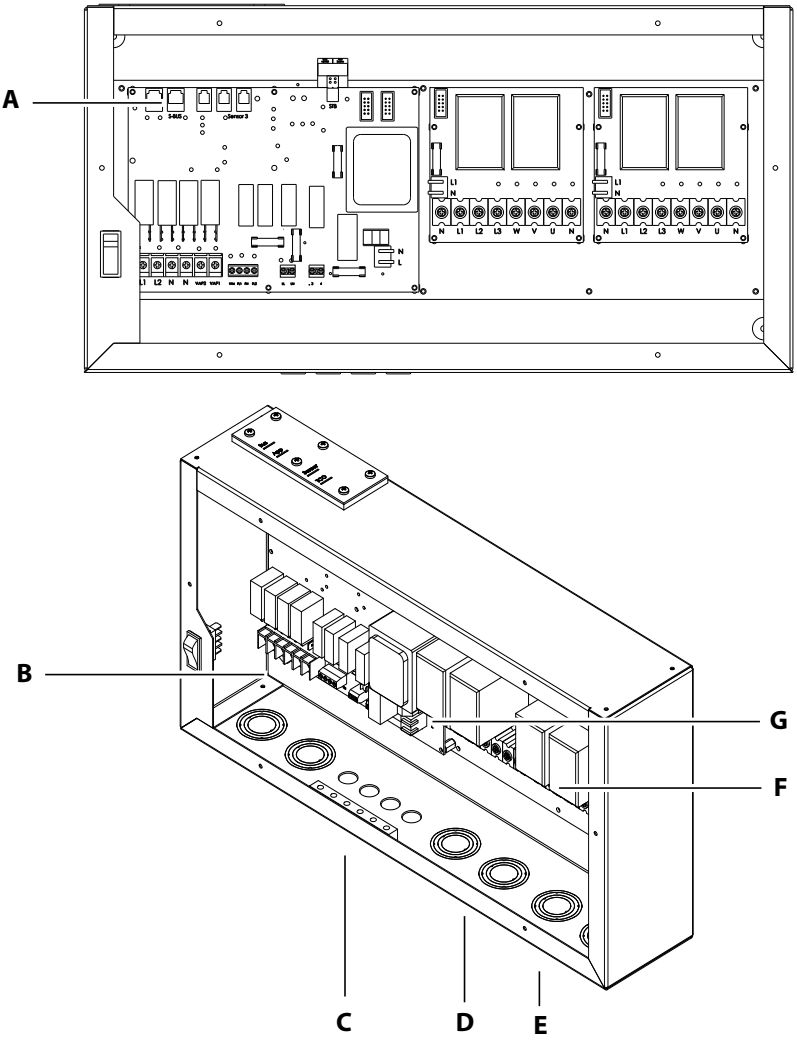
15 kW



A Fan
B Cabin lighting
C Control panel
D Temperature sensor with safety temperature limiter
E Sauna heater with safety temperature limiter
F Vaporizer (optional)
G Relay box

All wiring must be done in accordance with the National Electric Code and local building codes.
All supply wire must be 90°C copper.

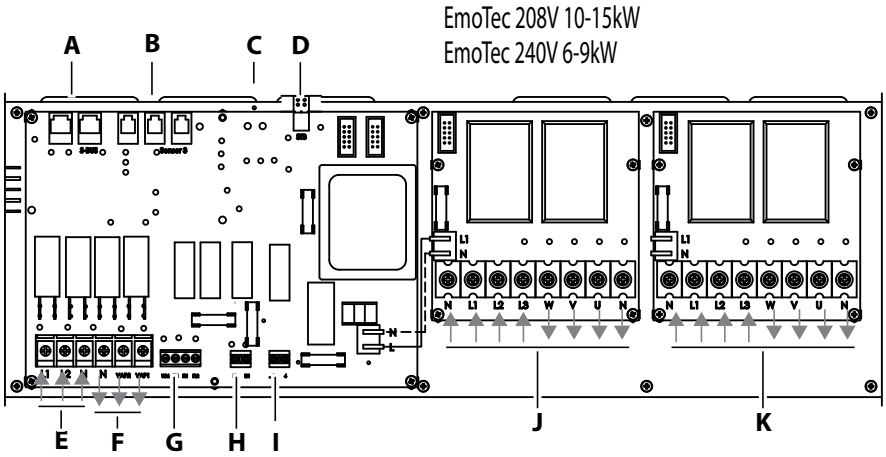
4.2 Internal view of relay box

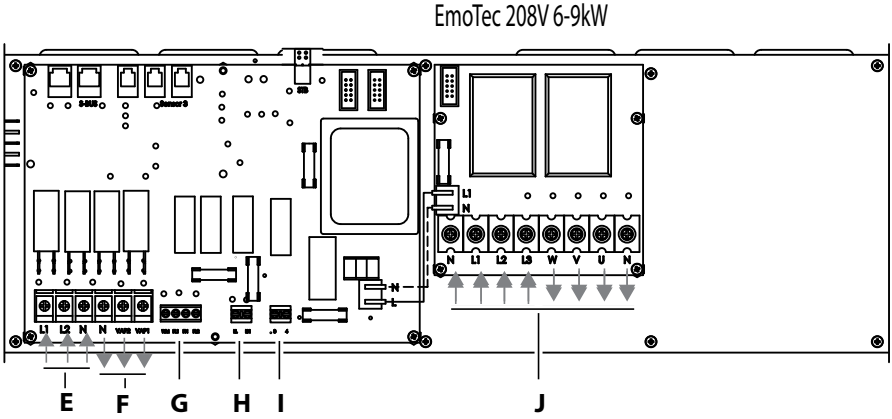


A 2 x sauna bus,
3 x sensor bus
B 3 x mains supply
3 x vaporizers
C Earth bar
D Conduits for heating circuit 1
E Conduits for heating circuit 2
F Heating circuit 2 (up to 15 kW or for 240 V up to 9 kW)
G Heating circuit 1 (up to 9 kW)

Internal view of relay box

4.3 Circuit board assignment



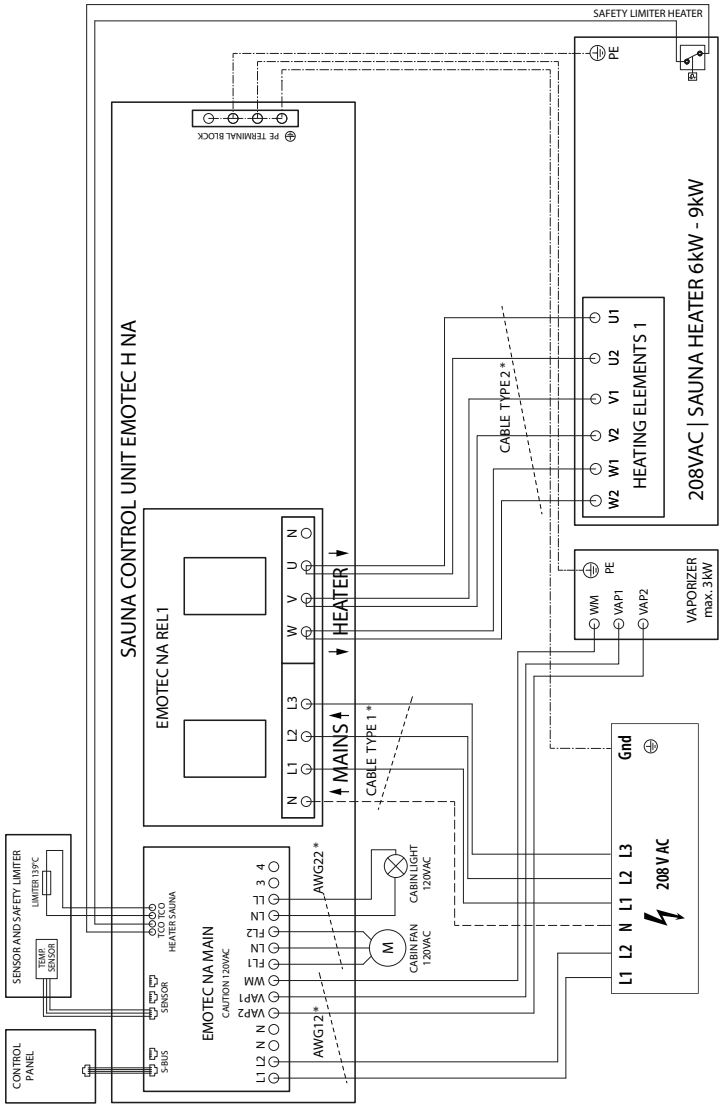


A Sauna bus (to control panel)
B Sensor bus (to temperature sensor)
C STB terminal to sauna heater
D STB connection to temperature sensor
E Mains supply / vaporizer connection
F Vaporizer connection (EmoTec H* only)
G Water shortage (WM*) and fan connection
H Connection for lighting
I Potential-free contact
J Terminal block for heating circuit 1 (9 kW)
K Terminal block for heating circuit 2 (up to 15 kW or for 240 V up to 9 kW)

* Connections **E**, **F** and **G** do not apply to EmoTec D.

See the connection diagrams below for more information on connections.

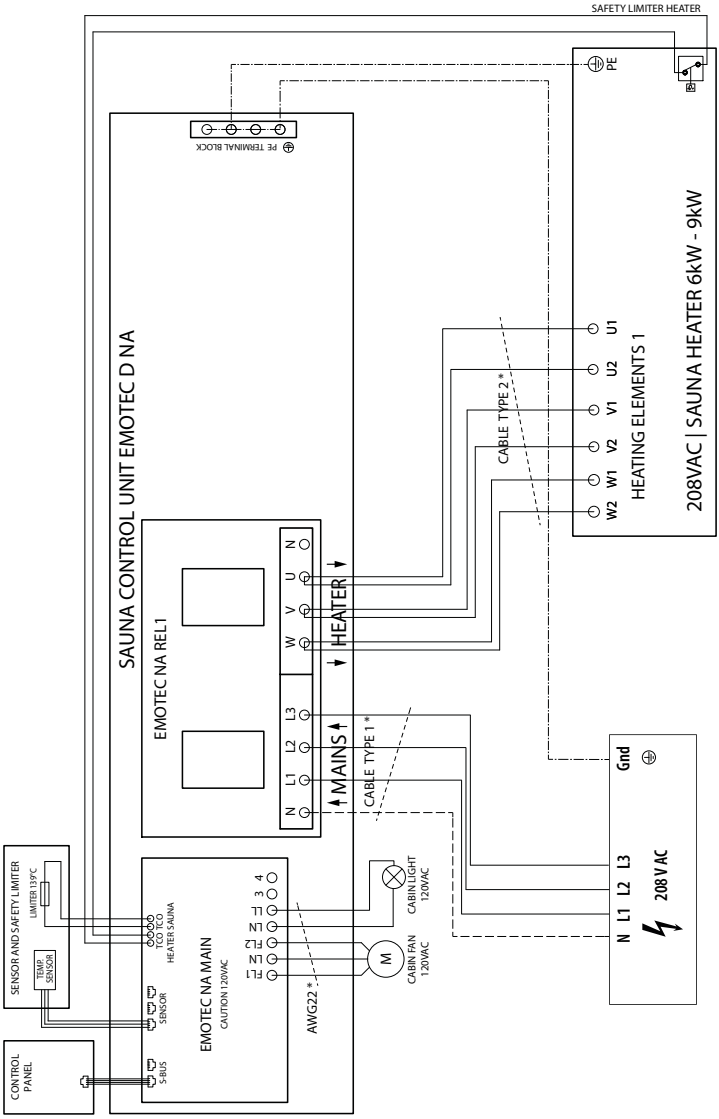
4.4 EmoTec H USA – 6–9 kW, 208 V connection diagram



Fuse, cable type 1, 2: see Connecting cables and fuses, 🗋 EN-20.
* The power rail must be able to accommodate a min. of 50 A.

All wiring must be done in accordance with the National Electric Code and local building codes.
All supply wire must be 90°C copper.

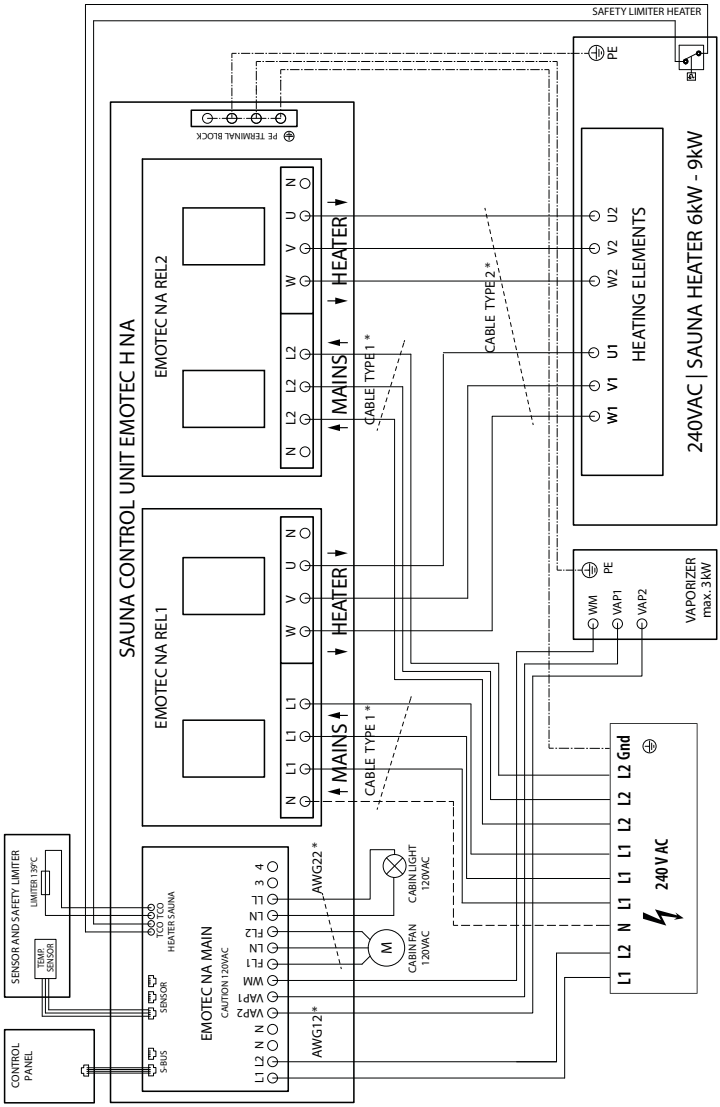
4.5 EmoTec D USA – 6–9 kW, 208 V connection diagram



Fuse, cable type 1, 2: see Connecting cables and fuses, 🗋 EN-20.
* The power rail must be able to accommodate a min. of 50 A.

All wiring must be done in accordance with the National Electric Code and local building codes.
All supply wire must be 90°C copper.

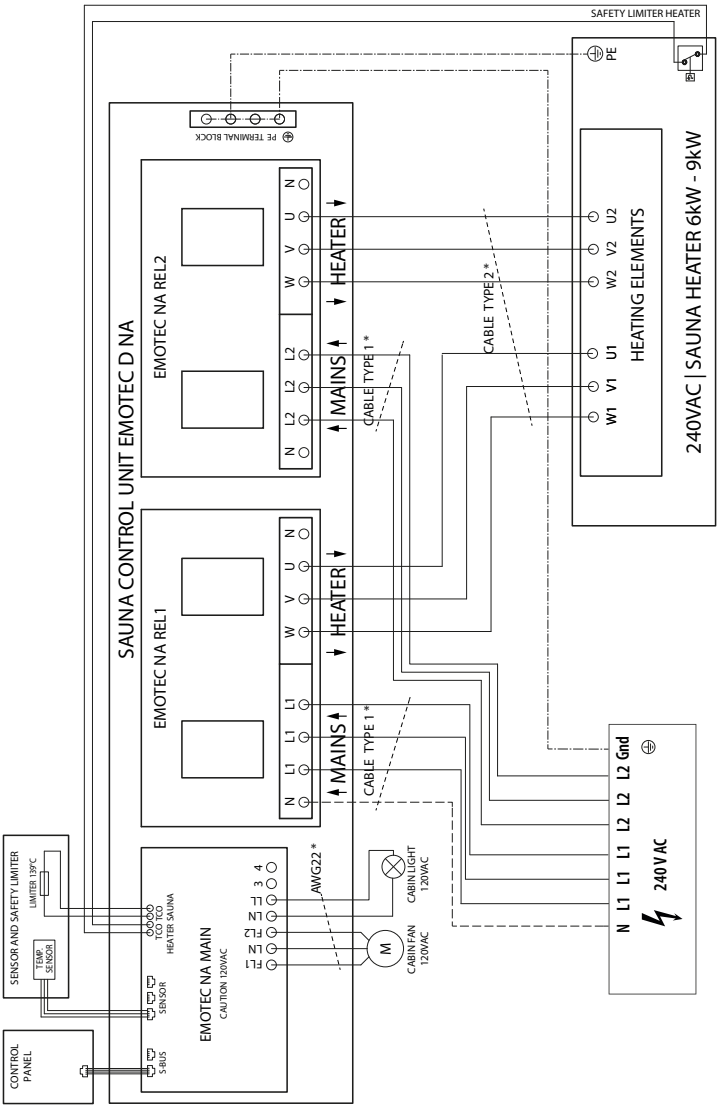
4.6 EmoTec H USA – 6–9 kW, 240 V connection diagram



Fuse, cable type 1, 2: see Connecting cables and fuses, 🗋 EN-20.
* The power rail must be able to accommodate a min. of 50 A.

All wiring must be done in accordance with the National Electric Code and local building codes.
All supply wire must be 90°C copper.

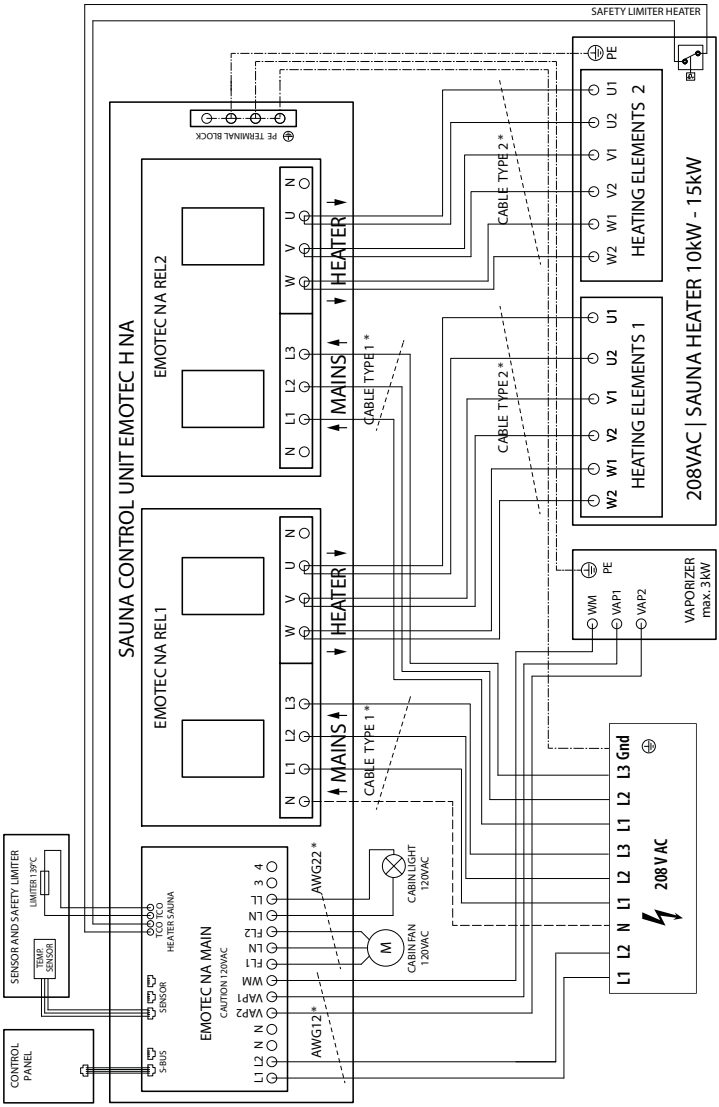
4.7 EmoTec D USA – 6–9 kW, 240 V connection diagram



Fuse, cable type 1, 2: see Connecting cables and fuses, 🗋 EN-20.
* The power rail must be able to accommodate a min. of 50 A.

All wiring must be done in accordance with the National Electric Code and local building codes.
All supply wire must be 90°C copper.

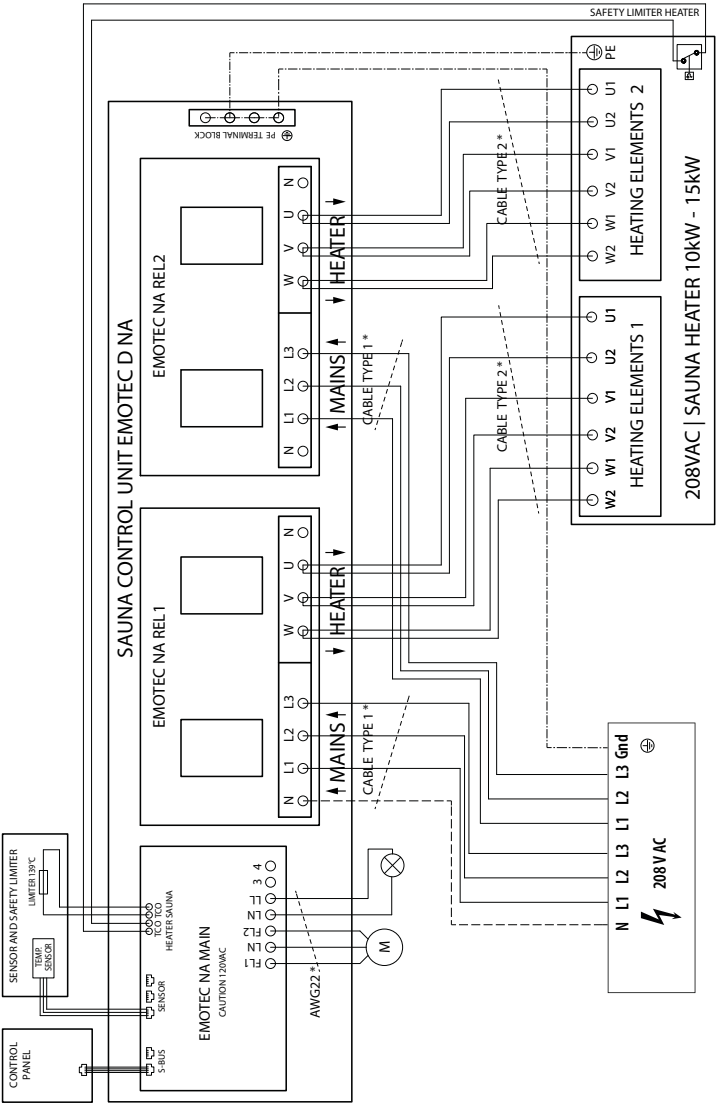
4.8 EmoTec H USA – 10–15 kW, 208 V connection diagram



Fuse, cable type 1, 2: see Connecting cables and fuses, 🗋 EN-20.
* The power rail must be able to accommodate a min. of 50 A.

All wiring must be done in accordance with the National Electric Code and local building codes.
All supply wire must be 90°C copper.

4.9 EmoTec D USA – 10–15 kW, 208 V connection diagram



Fuse, cable type 1, 2: see Connecting cables and fuses, 🗋 EN-20.
* The power rail must be able to accommodate a min. of 50 A.

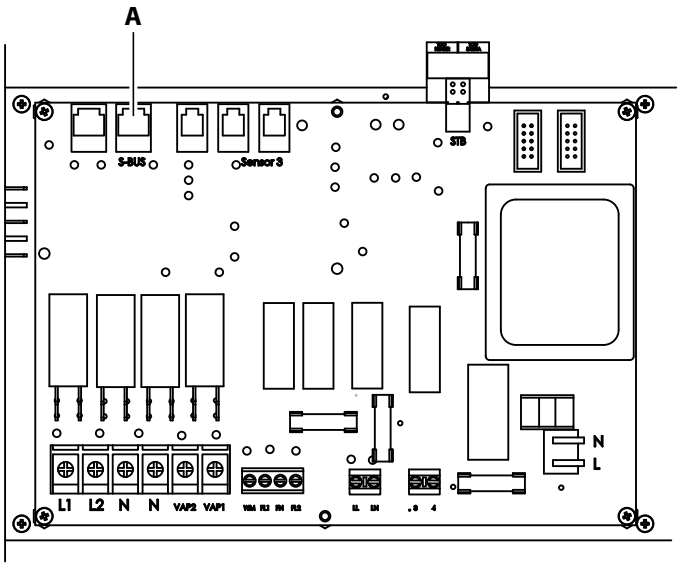
All wiring must be done in accordance with the National Electric Code and local building codes.
All supply wire must be 90°C copper.

4.10 Connecting the control panel

▶ Routing the lines

1 Route the line for the control panel through the openings at the top of the housing in the relay box.

2 Plug the plugs into one of the two S-Bus jacks until they click into place.



A Sauna bus (control panel)

3 Guide the other end of the line (small RJ10 plug) to the control panel and connect it.

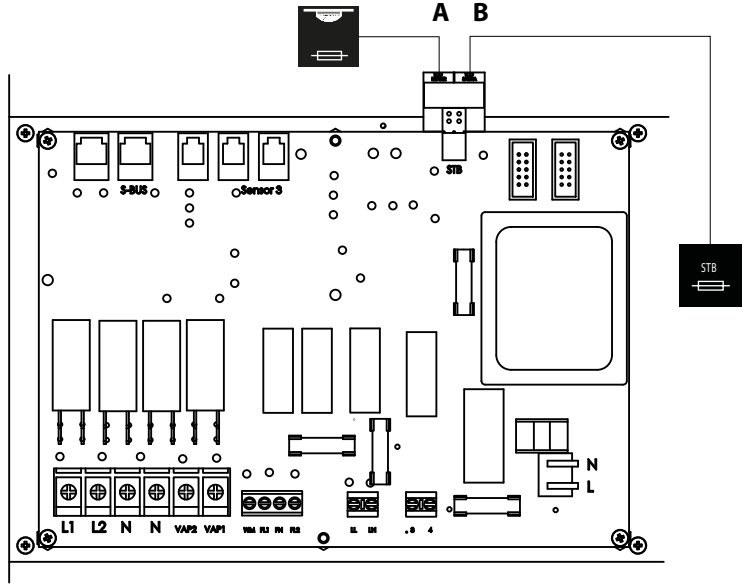
ⓘ Observe the relevant installation instructions.
See 3.4.2 Mounting the control panel, 🗋 EN-34

4.11 Safety temperature limiter

One STB is installed in the heater and another in the sauna cabin. Both STBs must be switched on in sequence.

▶ Connecting the STB

1 Route the line through the openings at the top of the housing.



A STB terminal (to sauna heater) **B** STB connection to circuit board to sensor

2 Connect the STB cables from the heater (**A**).

3 Connect the STB cables from the cabin (**B**):

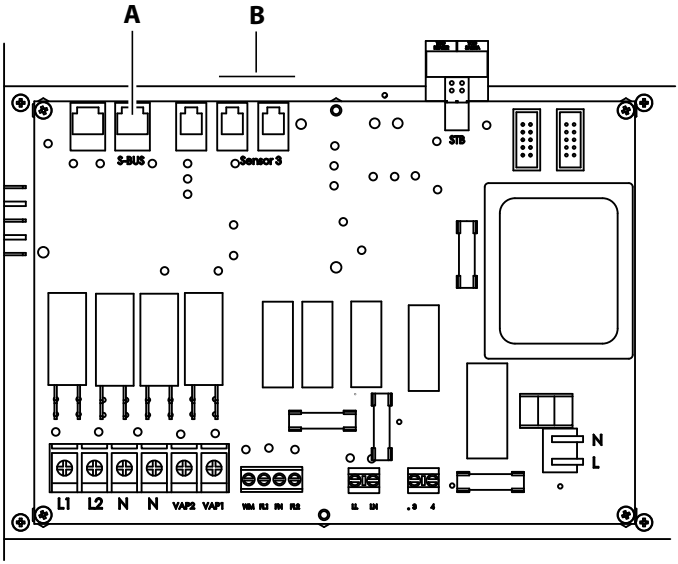
4.12 Connecting the sensors

In addition to the temperature sensor (heater sensor) you can also connect an optional humidity sensor to the control system.

▶ Routing the lines

1 Route the lines through the openings at the top of the housing.

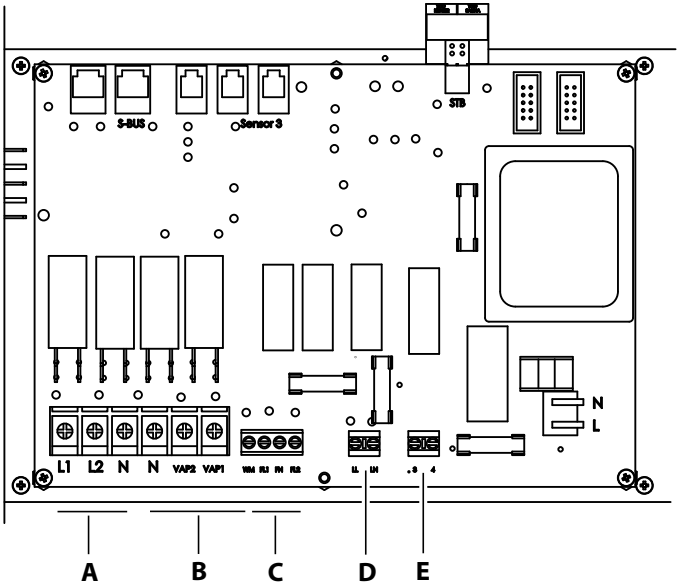
2 Plug plugs into the sensor bus jacks until they click into place.



A Sauna bus (control panel) **B** Sensor bus (temperature sensor)

4.13 Connecting the mains supply and units

The mains supply for the vaporizer and the various units (consumers) are connected on the main circuit board.



A Mains connection (supply line)
B Vaporizer connection (optional) and water shortage signal (optional)
C Connection for fan
D Cabin lighting
E Potential-free contact (optional)

▶ Connecting the lines

1 Route the lines through the openings at the base of the housing.

2 Connect consumers as assigned below:

Terminal	Assignment
L1, L2	Mains connection for the vaporizer (supply line); does not apply to EmoTec D
VAP1, VAP2	Single- or double-stage vaporizer (optional)
WM	Water shortage signal on vaporizer (optional)
FL1, FN, FL2	Single- or double-stage fan
LN, LL	Cabin lighting
3, 4	Potential-free contact, max. 15 A

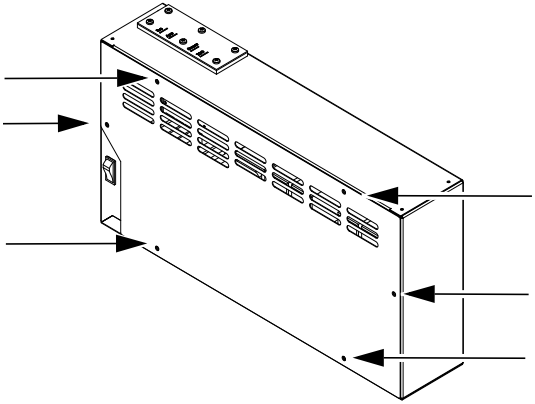
4.14 Closing the relay box housing

When you have connected all the required lines you can close the relay box:

▶ **Remounting the housing cover**

1 Remount the cover.

2 Screw in the 6 screws.



4.15 Setting up the vaporizer (optional)

If you have a heater with a vaporizer, the control unit may be set up only if the vaporizer is ready for operation.

- Control and data lines are connected
- Water supply and drain outlet are connected
- Housing cover is in place

▶ **Preparing the vaporizer**

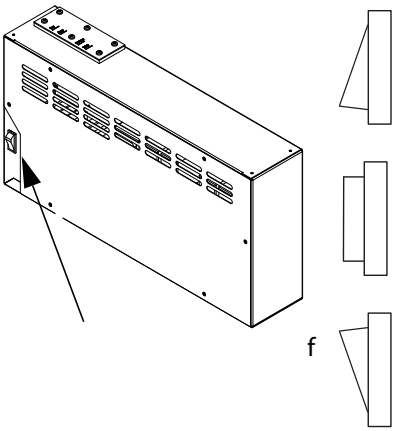
1 Open the water supply at the shut-off valve.

2 Start the vaporizer.
ⓘ Please observe the installation and operating instructions for the connected heater with vaporizer.

5 Commissioning

In order to commission the cabin, the cabin must be switched on at the control panel. If the display is blank, the relay box might be switched off.

A switch is located on the front of the relay box.

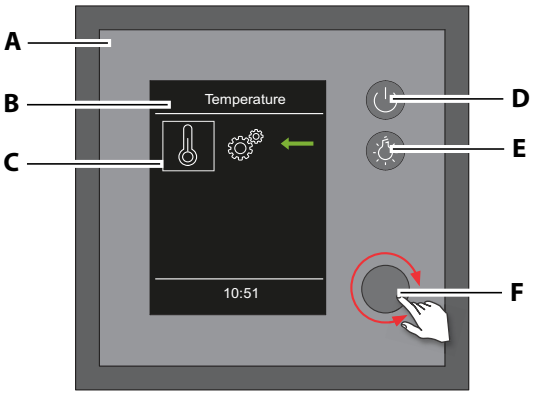


Position I:
Relay box is switched on.
The relay box is ready for operation in standby mode.

Position 0:
Relay box is completely switched off.
Parts of the circuit board are still energized.

Position II:
Cabin lighting is switched on, relay box is switched off.
Position for maintenance and cleaning.

Controls

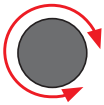


A Front panel
B Selected function
C Function icons
D Switch on/off (sauna heater)
E Switch cabin lighting on/off
F Jog dial

Control panel

The following controls are used to operate the unit:

On/off
Close sub-menu



Jog dial:
Turn = select functions or input value.

Light on/off

Jog dial:
Press = confirm functions and settings.

- Selected icons are displayed inside a white frame. Once the selection is confirmed, the frame turns green and the display now shows the selected function.
- When a value is entered, a line appears under the active place value. Confirmed values are displayed in green.

The standby screen appears after the jog dial has not been touched for 15 seconds.

- Settings that have not been saved are lost.
- Date and time are saved if the built-in battery is in working order. All other settings are saved permanently.
  The integrated battery may be replaced only by a service technician.

5.1 Setup during commissioning or after a reset

The basic settings must be defined to commission the unit. The program guides you through the required steps.
The standby screen automatically appears after not using the control panel for a set amount of time. Settings that have not been saved are lost.

▶ **Defining the basic settings**

1 Select a language and confirm.

2 Set the time and confirm.

3 Set the date and confirm.

4 Operation with or without vaporizer:
The control system detects whether a vaporizer can be connected:

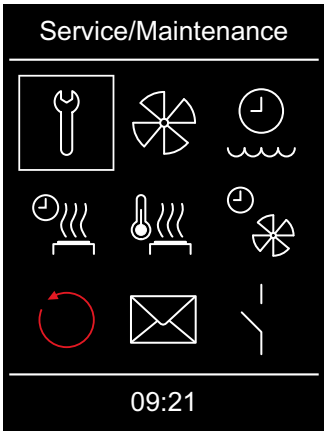
a) Sauna heater without vaporizer (or vaporizer deactivated).

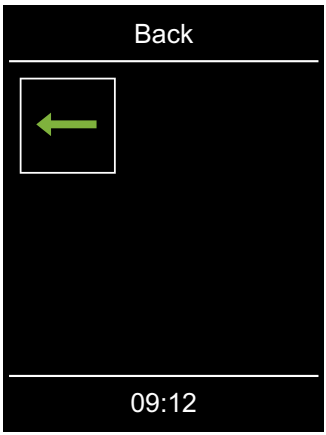
b) Bi-O sauna heater with vaporizer.

☑ This completes setup. The standby screen is displayed once configuration is complete.

5.2 Service settings

Access to the service level is protected by a code.
The settings at this level must only be changed by trained personnel.





Service settings

Icons

The icons displayed depend on the device's configuration.

Service/maintenance
▶ Defining the service interval, 🗋 EN-64

Fan
▶ Setting the cabin fan, 🗋 EN-65

Refill period (if vaporizer is connected)

Post-heating period (if vaporizer is connected)
▶ Setting the post-heating period, 🗋 EN-67

Post-heating temperature (if vaporizer is connected)
▶ Setting the post-heating temperature, 🗋 EN-68

Fan post-cycle period
▶ Setting the fan post-cycle period, 🗋 EN-69

Reset function
▶ Resetting the settings, 🗋 EN-70

Display manufacturer contact data

Contact
▶ Switching contact manually or with sauna heater, 🗋 EN-73

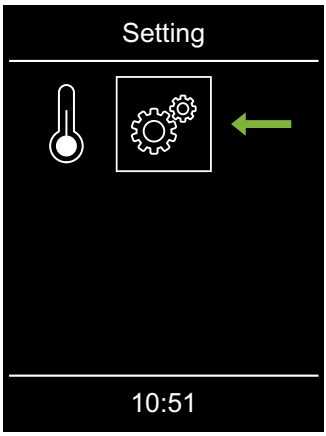
Back

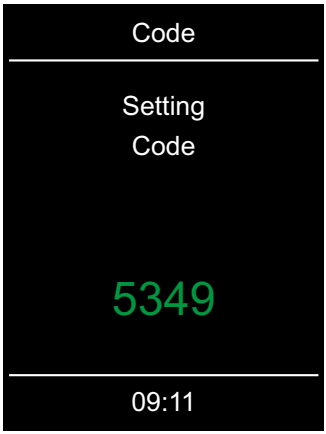
5.2.1 Opening service settings

Service settings must only be changed by trained personnel.

▶ **Opening the service settings menu**

1 : Select and press and hold the jog dial until the code entry is displayed.





2 CAUTION! Only trained personnel may change settings at the service level. Enter code **5349** and confirm.
Increase or decrease the individual numbers and confirm.
ⓘ Confirmed numbers appear green.

3 Select the desired icon and confirm.

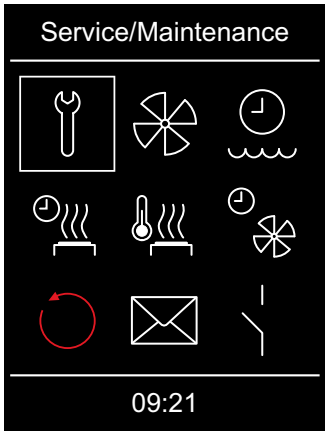
5.2.2 Service/maintenance

You can define the intervals for service/maintenance so that they are in line with operating conditions. The interval is set to 500 hours by the factory.

▶ **Defining the service interval**

1 Open the service settings.
ⓘ See 5.2.1 Opening service settings, 🗋 EN-63

2 : Select and confirm.



3 Increase or decrease the displayed interval.
ⓘ The value can be increased or decreased by increments of 250.

4 Confirm the set value.
ⓘ When it is time for service again, a reminder with the saved contact data is displayed when the unit starts.
ⓘ For information about the amount of time remaining before service is required again, see ▶ Retrieving the next service date, 🗋 EN-96.

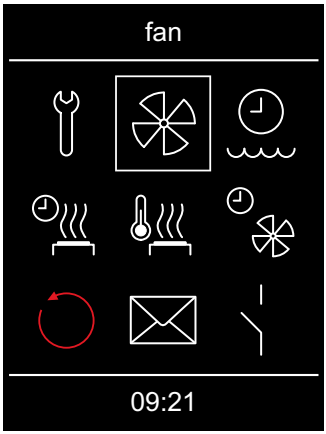
5.2.3 Fan

You can activate the cabin fan. It is most useful when a vaporizer is in use.

▶ **Setting the cabin fan**

1 Open the service settings.
ⓘ See 5.2.1 Opening service settings, 🗋 EN-63

2 : Select and confirm.



3 Set the level and confirm.

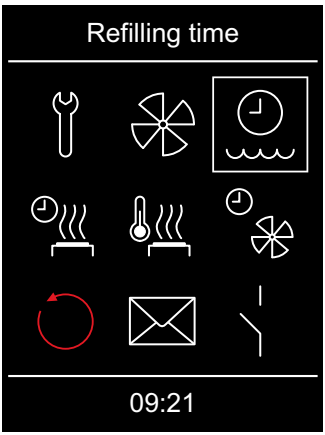
5.2.4 Refill period

Here you can set the time the customer has to refill the vaporizer if there is a water shortage. If water is not added within this time, the vaporizer is switched off (overheat protection). This function is important for Bi-O heaters with manual water filling, in particular.

▶ **Setting the refill period**

1 Open the service settings.
ⓘ See 5.2.1 Opening service settings, 🗋 EN-63

2 : Select and confirm.



3 Set the time and confirm.

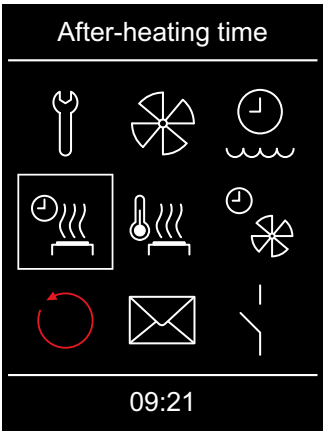
5.2.5 Post-heating period

Here you can define the time in minutes for drying after humidity mode. The interval is set to 30 minutes by the factory. According to this setting, the sauna heater is switched on in Finnish mode after humidity mode to dry the sauna.
If you want to use this function, you should also set a post-heating temperature and a fan post-cycle period. See 5.2.6 Post-heating temperature, 🗋 EN-68 and 5.2.7 Post-cycle period for fan(s), 🗋 EN-68

▶ Setting the post-heating period

1 Open the service settings.
ⓘ See 5.2.1 Opening service settings, 🗋 EN-63

2 : Select and confirm.



3 Set the time and confirm.
☑ Cabin heating continues for the set time and is then switched off.
ⓘ A value between 0 and 60°minutes can be set.
ⓘ Then specify the post-heating temperature.
See ▶ Setting the post-heating temperature, 🗋 EN-68

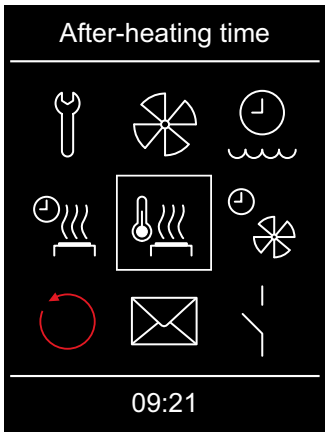
5.2.6 Post-heating temperature

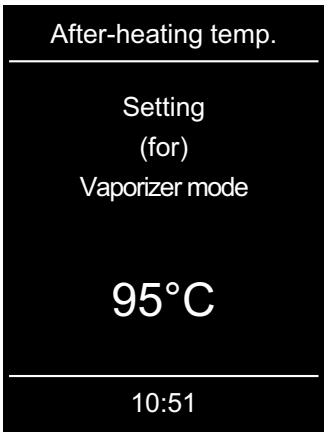
If you have connected a steam generator, you can optimize drying of the cabin with a post-heating temperature.
If you want to use this function, you should also set a post-heating period.
See 5.2.5 Post-heating period, 🗋 EN-67.

▶ Setting the post-heating temperature

1 Open the service settings.
ⓘ See 5.2.1 Opening service settings, 🗋 EN-63

2 : Select and confirm.





3 Set the temperature and confirm.
☑ Cabin heating continues at the set temperature and is then switched off.
ⓘ The value can be set to any number between 30°C and 90°C.
ⓘ Also specify the post-heating period.
See ▶ Setting the post-heating period, 🗋 EN-67

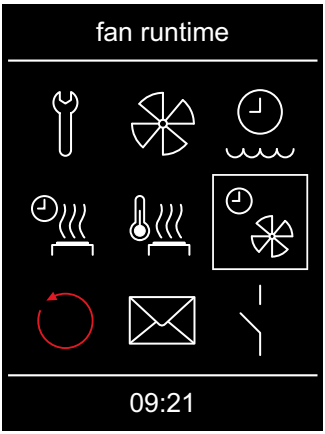
5.2.7 Post-cycle period for fan(s)

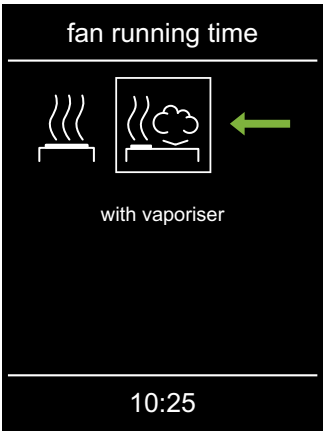
Once sauna operation has ended, the cabin drying can be optimized by running a fan post-cycle.

▶ Setting the fan post-cycle period

1 Open the service settings.
ⓘ See 5.2.1 Opening service settings, 🗋 EN-63

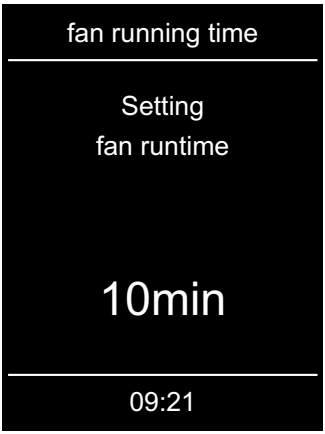
2 : Select and confirm.





3 Select the operating mode and confirm.

4 Set the time and confirm.



ⓘ The Bi-O operating mode has a preset of 30 min.
The Finnish operating mode has a preset of 0 min.
ⓘ The time can be set between 0 and 60°minutes.
The time is saved.

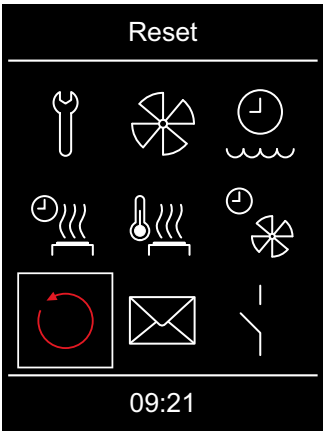
5.2.8 Reset function

You can perform a factory reset to restore the operating data or all of the settings.

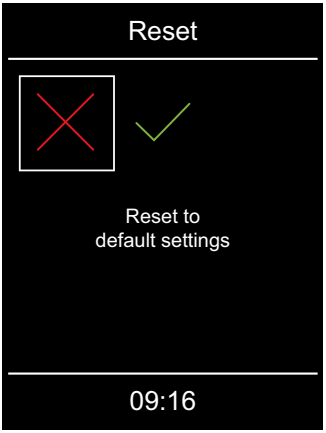
▶ **Resetting the settings**

1 Open the service settings.
ⓘ See 5.2.1 Opening service settings, 🗋 EN-63

2 : Select and confirm.



3 Select the setting and confirm.



ⓘ Any customized settings that have been set will be lost.

☑ If you reset the settings, the control unit restarts and the cabin settings must be reset.

5.2.9 Switch contacts

A potential-free contact (PFC) is available on the main circuit board (terminals 3 and 4). You can switch it on as required or set it to switch on automatically.

The switch contact can switch in different situations if a code is entered.

Codes

An "AND" in the switching conditions should be understood as a logical AND.

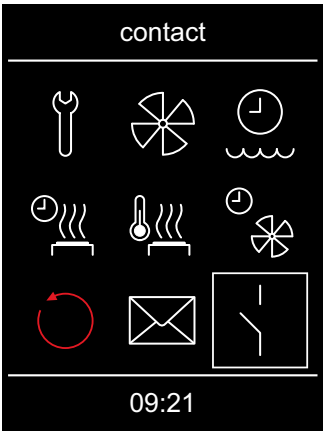
Code	Switching condition
7000	This is the factory default. The PFC can be controlled via the menu. See ▶ Switching contact manually or with sauna heater, 🗋 EN-73.
7001	The PFC is NO if the cabin light is on. The PFC is NC if the cabin light is off.
7002	The PFC is NO if the cabin light is off. The PFC is NC if the cabin light is on.
7003	The PFC is NO only if the sauna is switched on AND there is no fault. Coupling of the PFC with the sauna ON function for code 7000 does not factor in any faults. The PFC is NC when the sauna is switched off, during post-cycle or if a fault occurs. Application: to display proper operation.
7004	The PFC is NO if any type of fault occurs. The fault is saved until the sauna is switched on again without a fault. Application: manifold fault line
7005	The PFC is NO only if the sauna is switched on AND there is no fault AND steam is requested. In the case of a heater with an integrated vaporizer, the heater output is cut back to 66% when steam is requested. To ensure this does not happen, code 7005 is used to deactivate the WB output. In that case, it is no longer functional, like the WM water shortage input. Application: Connection of an external vaporizer to the PFC.
7006	The PFC is NO only if the sauna is switched on AND the cabin is heated. The PFC is NC when the sauna is switched off or during post-cycle. Application: The PFC is NO if the sauna is heated.
7007	The PFC is NO if the sauna is switched on and the heater is on.

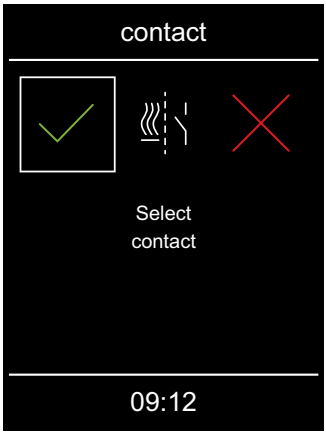
Code	Switching condition
7009	The PFC is NO if the sauna is switched on. The PFC is NC after the sauna switches off or switched to post-cycle. Manual operation via the menu is possible at any time. Application: connection for colored light, sound, starlit sky, etc.
7010	The PFC is NO if the sauna is switched on and the heater heats the cabin after the sauna has been switched on. The PFC is NC when the sauna is switched off or during post-cycle. Application: e.g. connection of an IR foil for faster heat sensing.

▶ Switching contact manually or with sauna heater

1 Open the service settings.
ⓘ See 5.2.1 Opening service settings, 🗋 EN-63

2 : Select and confirm.





3 Select the setting and confirm.

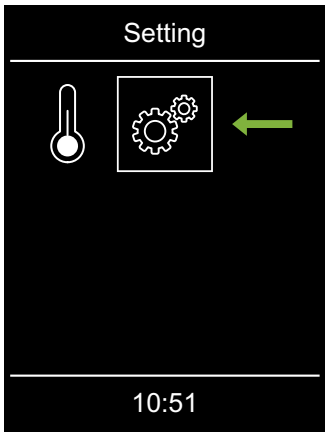
a) The potential-free contact is controlled via the main menu. See 6.2.5 Potential-free contact, 🗋 EN-87.

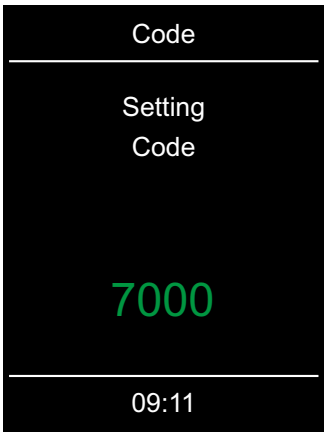
b) The potential-free contact is NO when the sauna heater is commissioned. A unit is therefore switched on simultaneously when connected.

c) The potential-free contact is deactivated.

▶ Enter the code to switch in specific situations

1 : Select and press and hold the jog dial until the code entry is displayed.





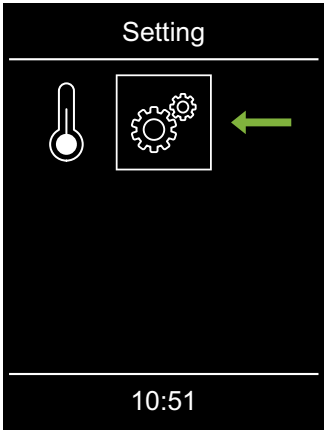
2 CAUTION! Entering a code other than 7000 overrides the entries in the menu (▶ Switching contact manually or with sauna heater, 🗋 EN-73).
Enter the desired code and confirm. The overview of codes can be found here: 5.2.9 Switch contacts, 🗋 EN-71
Increase or decrease the individual numbers and confirm.
ⓘ Confirmed numbers appear green.

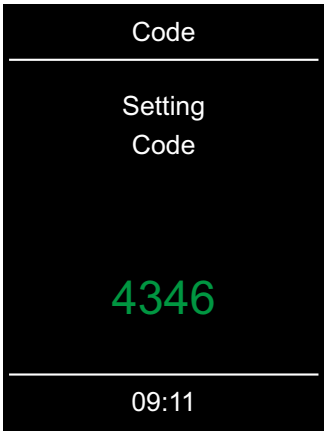
5.2.10 Resetting the temperature display

The temperature can be displayed in Celsius or Fahrenheit. The default setting is Celsius. Fahrenheit values are rounded up to whole numbers.

▶ **Changing temperature units**

1 : Select and press and hold the jog dial until the code entry is displayed.





2 CAUTION! Only trained personnel may change settings at the service level. Enter code 4346 and confirm.
Increase or decrease the individual numbers and confirm.
ⓘ Confirmed numbers appear green.
ⓘ The temperature is now displayed in Fahrenheit.

Repeat the steps to change the setting back to Celsius.

5.3 Updating firmware

To update the software used by the control panel, you need a microSD or microSDHC card with a minimum of 128 MB and a maximum of 32 GB. The SD card must be formatted with the FAT32 file system.
You can obtain the update from EOS as follows:

- Card with firmware.
- ZIP file with the zipped update files as a download from the EOS home page.

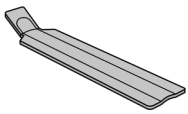
NOTICE

Equipment damage due to a faulty update

The device can become unusable if the update is interrupted.

- ▶ Ensure that the power supply is not interrupted during the update process.
- ▶ The update must be performed by trained personnel only.

Ensure that you have a backup of the old software version on your PC or an external drive. You will need this old version in the event that the update is not successful.
You must remove the front panel before updating the software. Use a removal tool or a flathead screwdriver to remove the front panel.



NOTICE

Damage to the unit due to improper dismantling

The display can become scratched. The circuit board can break.

- ▶ Do not tilt the front panel when dismantling.
- ▶ Apply a consistent amount of pressure to the removal tool or screwdriver when using it.
- ▶ Do not scratch the front panel with the tools.

▶ Preparing the memory card on a PC or laptop, 🗋 EN-77
▶ Preparing the update, 🗋 EN-77
▶ Dismantling the front panel, 🗋 EN-78
▶ Installing the update, 🗋 EN-78
▶ Repeating the update if unsuccessful, 🗋 EN-79

▶ Preparing the memory card on a PC or laptop

1 Insert the unformatted card in the card reader.

2 In Windows Explorer, select the card reader drive.

3 Open the context menu (right mouse click) and choose Format.
ⓘ The micro SD card must be formatted with the FAT32 file system.

▶ Preparing the update

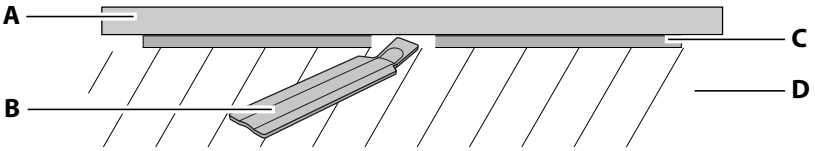
1 Download the most recent firmware from the EOS website.
ⓘ eos-sauna.com/service-support/software

2 Unzip the ZIP file you just downloaded and copy it to the formatted memory card.

▶ Dismantling the front panel

1 Switch the off switch on the relay box to 0.

2 Insert the removal tool in the slot at the base of the control panel between the front panel and the housing.



A Front panel
B Removal tools
C Bottom piece
D Wall

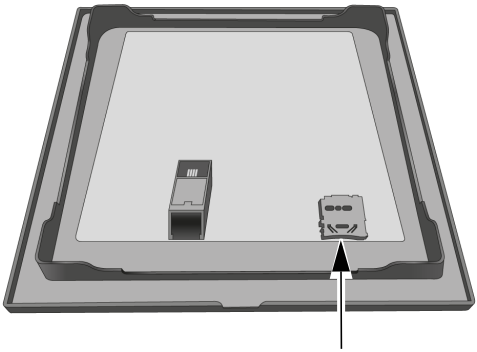
3 NOTICE Do not tilt the front panel to avoid damage to the display. Press the removal tool against the wall until the front panel comes loose from the bottom piece.

4 Remove the front panel with a consistent amount of force from the housing.

5 Rotate the front panel to the side until the circuit board is easy to access.

▶ Installing the update

1 NOTICE Ensure that the power supply is not interrupted during the update process.
Insert the memory card in the card slot on the control panel's circuit board.

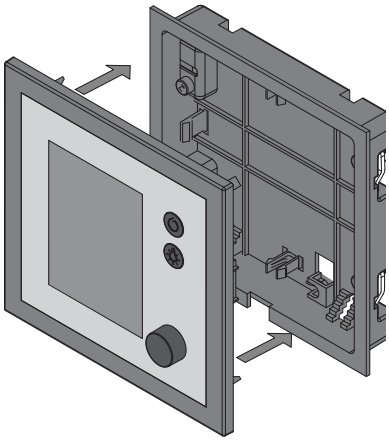


ⓘ Insert it until the card is clearly engaged.

2 Switch the off switch on the relay box to I.
   ⓘ The progress of the update is represented by a colored progress bar. The control unit restarts automatically once the update is complete.
   ⓘ The update was not successful if there is no icon after the relay box switches back on or if the software crashes during operation.
   See ▶ Repeating the update if unsuccessful, 🗋 EN-79

3 Remove the memory card after the update.

4 Place the front panel directly in front of the housing.
   ⓘ Ensure that it is aligned properly. The S-Bus connection must face downward.



   ⓘ Position the connecting cable in the bottom piece so that it is not pinched.

5 Press the front panel carefully with a consistent amount of pressure into the housing until it audibly snaps into place.

▶ Repeating the update if unsuccessful

1 Load the old software version onto the card.

2 Perform the steps as described in ▶ Installing the update, 🗋 EN-78.

3 Repeat the update once the old software version has been restored.

6 Operation

6.1 Switching on and off

▶ Switching light on/off

1 Press .

▶ Switching heater on/off

1 Press and hold for approx. 3 seconds until the heater is switched on.

ⓘ The cabin is switched on with the pre-set parameters after the countdown.

2 Press to switch off.

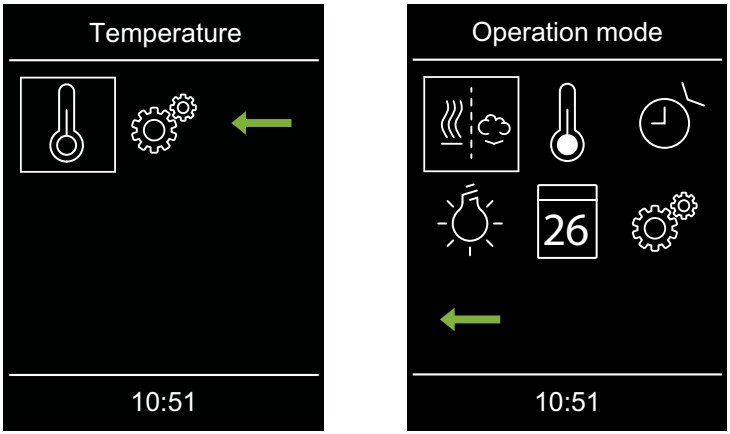
▶ Retrieving temperature values

1 To display the set and current temperature or humidity, press the jog dial for approx. 3 seconds. In the sub-menu, the target values are displayed on the left and the current values on the right for approx. 10 seconds. The values can be retrieved in standby and also in active heating mode.

6.2 Functions

6.2.1 Overview

The following functions are available in the menus:



Menu display for EmoTec D (left) and EmoTec H (right)

Operating mode selection (only if vaporizer is connected)

6.2.2 Operating mode, EN-82

Temperature
6.2.3 Temperature, EN-82

Humidity (Bi-O operating mode, with humidity sensor)
6.2.4 Setting the humidity for Bi-O mode, EN-84

Humidity (Bi-O operating mode, without humidity sensor)

Settings

Potential-free contact (if activated)
6.2.5 Potential-free contact, EN-87

Back

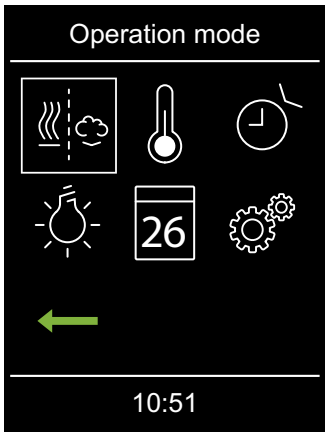
The displayed functions or menu items can vary, depending on the control unit model and its configuration.

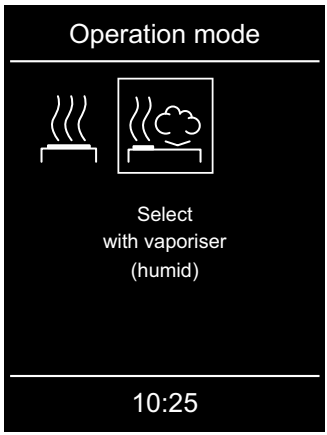
6.2.2 Operating mode

The operating mode can be set if a vaporizer is connected. The operating mode allows you to specify if the vaporizer is used (Bi-O) or not (Finnish). The operating mode is Finnish if no vaporizer is connected.

▶ **Setting the operating mode**

1 : Select and confirm.





2 Select the operating mode and confirm.

a) Bi-O.

b) Finnish.

ⓘ You can set the humidity for the sauna cabin in the Bi-O operating mode. See 6.2.4 Setting the humidity for Bi-O mode, 🗋 EN-84.

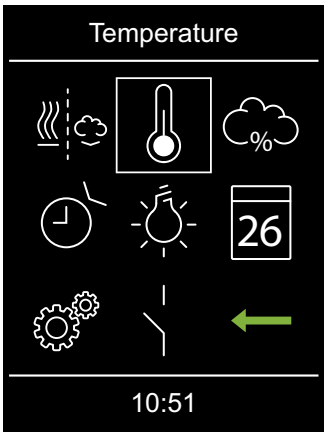
6.2.3 Temperature

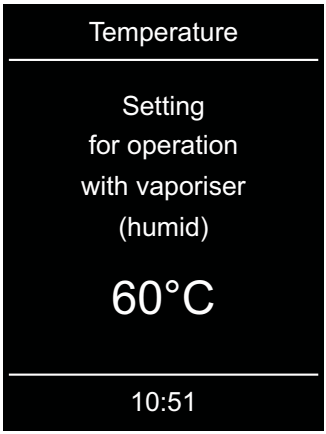
The operating mode determines the maximum adjustable temperature. In Bi-O operating mode, the temperature can be set to a value between 30°C and 70°C / 86°F and 158°F. The temperature is controlled by the heater sensor.

In Finnish operating mode, the temperature can be set to a value between 30°C and 90°C / 86°F and 194°F. The temperature is controlled at the bench sensor. If a bench sensor is not connected, the temperature is controlled by the heater sensor.

▶ Setting the temperature in Bi-O operating mode

1 : Select and confirm.



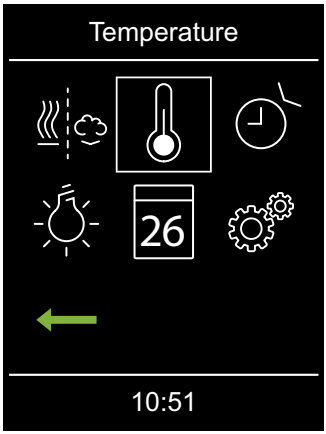


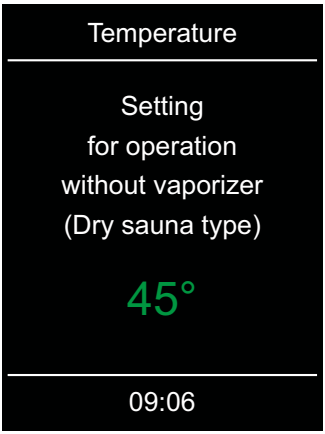
2 Set the temperature and confirm.

ⓘ The value can be set to any number between 30°C and 70°C / 86°F and 158°F.

▶ Setting the temperature in Finnish operating mode

1 : Select and confirm.





2 Set the temperature and confirm.

ⓘ The value can be set to any number between 30°C and 90°C / 86°F and 194°F.

6.2.4 Setting the humidity for Bi-O mode

An (optional) humidity sensor regulates the relative air humidity in %. At the same time, the control unit attempts to keep the set humidity as precisely as possible.
Air humidity can be regulated depending on the installation:

- If a humidity sensor is connected, the relative air humidity in % is set.
- If a humidity sensor is not present, set the duration of the active humidity mode within a cycle (300 seconds).

The following icons are shown here:

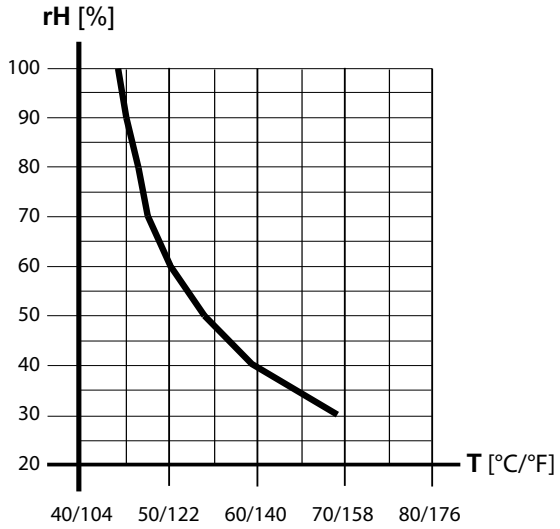
With humidity sensor:
Humidity in percent
▶ Setting the humidity, 🗋 EN-86

Without humidity sensor:
Humidity interval in humidity mode
▶ Setting the vaporizer level (cyclic), 🗋 EN-86

With humidity sensor

Humidity is regulated as shown in the table below:

- All values that lie below or on the characteristic curve can be set and used.
  When setting a parameter, e.g. temperature, the setting for the other parameter is automatically adjusted.
- Values that lie above the characteristic curve cannot be set.



Characteristic curve for temperature/humidity according to EN 60335-2-53

Without humidity sensor

The humidity is regulated in cycles.

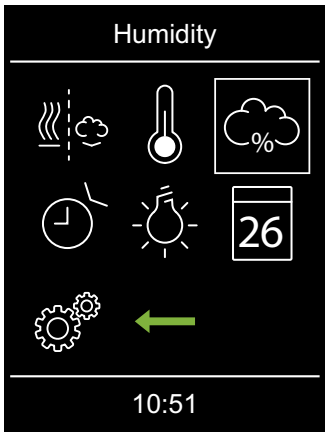
Example	
Humidity setting = 40	The vaporizer is running a total of 40% of the entire operating time.

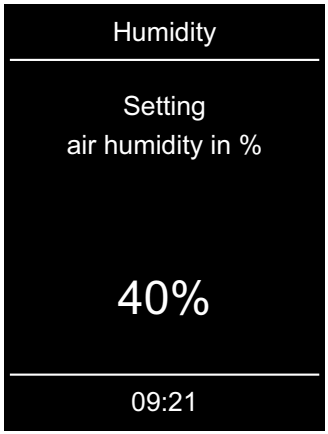
This setting does not take into consideration the actual humidity in the sauna cabin and makes it possible to consistently produce a specific volume of steam, if required.

▶ Setting the humidity, 🗋 EN-86
▶ Setting the vaporizer level (cyclic), 🗋 EN-86

▶ Setting the humidity

1 : Select and confirm.



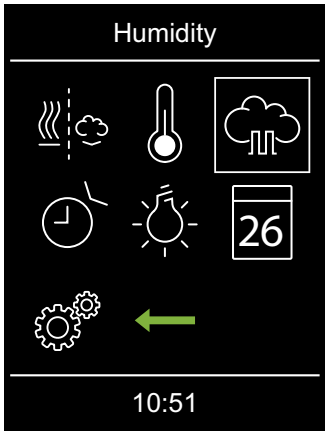


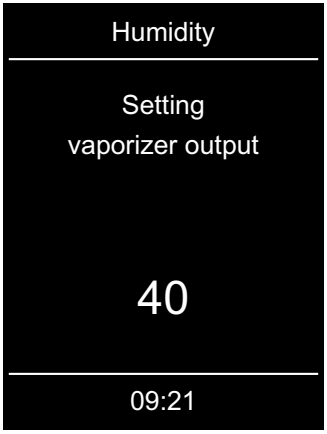
2 Set and confirm the humidity in percent.

ⓘ The humidity can be set to a value between 20 and 100%; however, it is limited as per the standard curve depending on the target temperature.

▶ Setting the vaporizer level (cyclic)

1 : Select and confirm.





2 Set the vaporizer level and confirm.

ⓘ The vaporizer can be cycled for 300 seconds at a value between 1% and 100% within one interval.

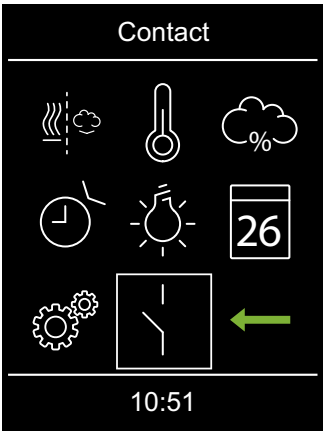
6.2.5 Potential-free contact

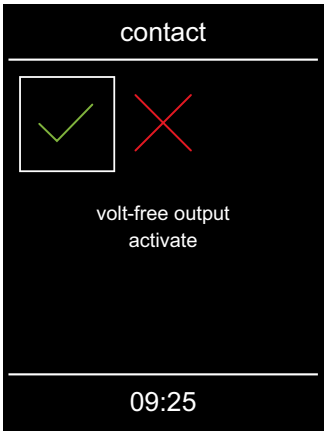
The potential-free contact (PFC) is displayed only if you have set the potential-free contact to manual switching.
See 5.2.9 Switch contacts, 🗋 EN-71.

You can switch the connected consumer on or off manually at any time. If you activated the potential-free contact for use in the main menu, you can switch it on or off here.

▶ **Switching potential-free contact on/off**

1 : Select and confirm.





2 Select the setting and confirm.

a) Switch on potential-free contact (close).

b) Switch off potential-free contact (open).

6.2.6 Description of icons – advanced settings

The "Advanced settings" sub-menu is where you can make additional special settings that you typically need once or only rarely.
To do this, locate the icon in the main menu and press it

Language selection,
▶ Defining the user interface language, 🗋 EN-88

Time,
▶ Setting the time, 🗋 EN-89

Date,
▶ Setting the date, 🗋 EN-90

Screen saver,
▶ Setting the time for screen saver activation, 🗋 EN-91

Standby,
▶ Setting the time for standby mode activation, 🗋 EN-92

Operational lock/child lock,
▶ Entering the PIN for operational lock and activating it, 🗋 EN-93

Auto stop (heating period)

Operating data,
Chapter 6.2.14 Operating data, 🗋 EN-95

Display brightness,
▶ Setting the contrast, 🗋 EN-99

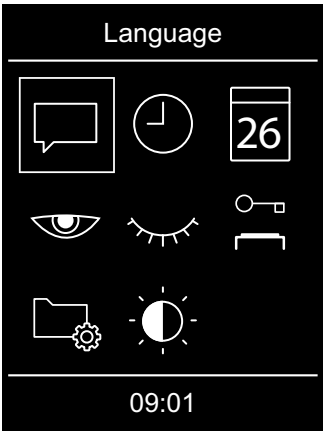
Vacation home mode

6.2.7 Language

The user interface language can be switched in operation mode.

▶ **Defining the user interface language**

1 and : Select and confirm.



2 Select the setting and confirm.

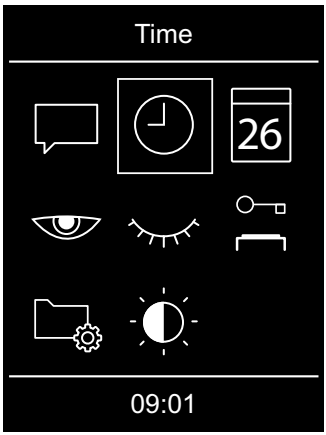
6.2.8 Time

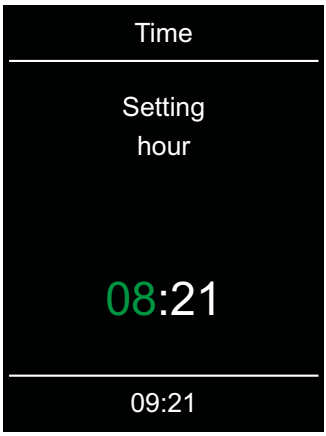
You can adjust the time on the display at any time.

▶ **Setting the time**

1 and : Select and confirm.

2 Set the hours and minutes and confirm.





ⓘ A line appears under the active place value.
ⓘ The confirmed place value appears green.

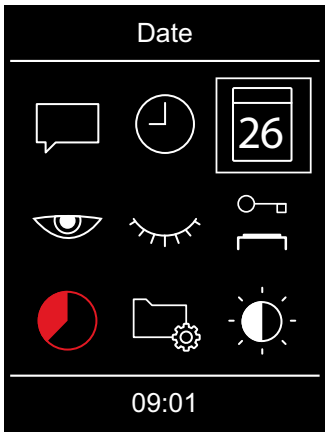
6.2.9 Date

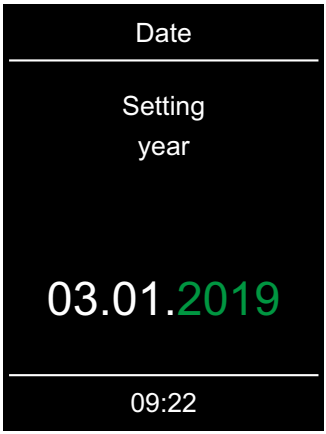
You can set the current date.

▶ **Setting the date**

1 and : Select and confirm.

2 Set the year, month and day and confirm your settings.





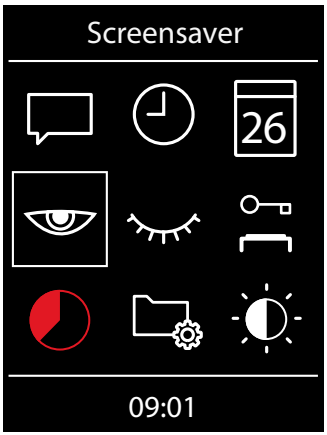
ⓘ Once a setting is confirmed, the next place value is selected.

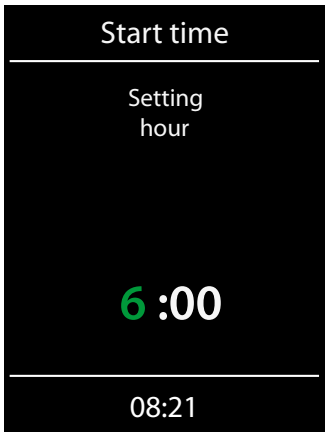
6.2.10 Screen saver

You can set a time after which the screen saver appears on the display. The screen saver is activated only when the system is switched off.

▶ **Setting the time for screen saver activation**

1 and : Select and confirm.





2 Set the hours and minutes and confirm.

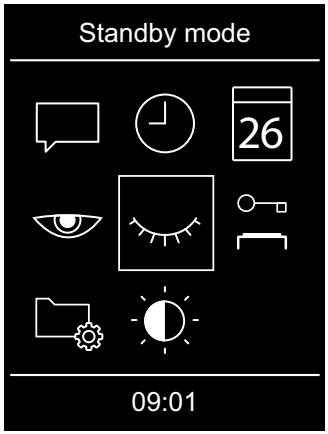
☑ The time is saved. The home screen with date and time is displayed as the screen saver.

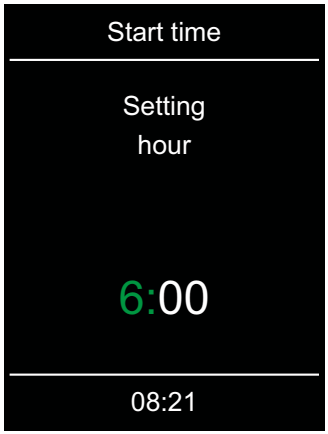
6.2.11 Standby mode

This setting allows you to define the amount of time after which the control unit switches to sleep mode. Standby mode is activated only when the system is switched off.
In sleep mode, the display is completely black. Turn the jog dial to wake the control unit from sleep mode.

▶ **Setting the time for standby mode activation**

1 and : Select and confirm.





2 Set the hours and minutes and confirm.

☑ The time is saved. The home screen with date and time is displayed in standby mode.

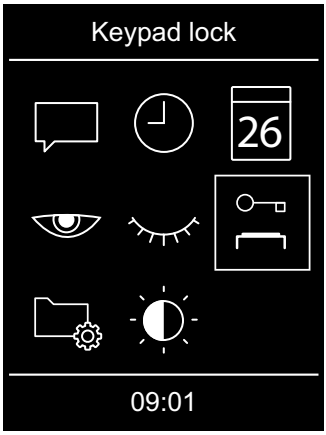
6.2.12 Operational lock/child lock

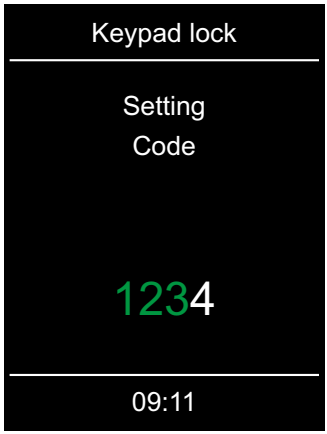
You can lock the system to prevent unauthorized access. To do so, you must enter a PIN to lock the system so it cannot be operated.
You may choose the PIN. It must contain 4 digits. It is no longer possible to operate the system if you lose the PIN.

▶ Entering the PIN for operational lock and activating it, 🗋 EN-93
▶ Deactivating the operational lock, 🗋 EN-93
▶ Resetting the PIN for operational lock, 🗋 EN-94

▶ **Entering the PIN for operational lock and activating it**

1 and : Select and confirm.





2 Enter the PIN and confirm.
Enter the numbers and confirm each number. Confirmed numbers are displayed in green.
ⓘ The display switches to the standby screen and is locked.
In this mode, it is only possible to switch off the heat if it is running and switch on the lighting. You must enter the PIN to use any of the other functions.

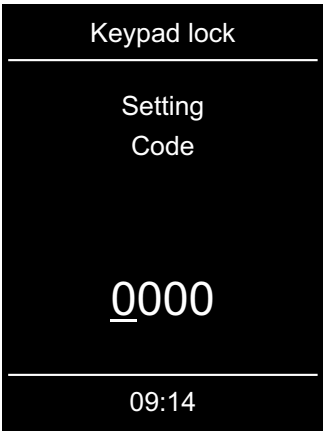
▶ **Deactivating the operational lock**

1 and : Select and confirm.

2 Enter the PIN and confirm.
☑ The display switches to the standby screen. All functions are available again.

▶ **Resetting the PIN for operational lock**

1 Turn the jog dial briefly.



2 Confirm the first zero (0).
ⓘ The cursor appears under the second zero.

3 Press and hold down the jog dial for approximately 40 seconds until all four zeros appear white.
ⓘ During this time, the cursor jumps to the third zero.

4 Confirm all four white zeros.
ⓘ The zeros are displayed in green.

☑ The display switches to the standby screen. The lock is removed and all functions are available again.

6.2.13 Auto stop (heating period)

You can set the desired runtime (heating period limitation) for the sauna heater. If used in a private setting, the heating period is limited to a maximum of 1 hour.

Please note that the drying program is switched on after humidity mode (EmoTec H only) and the sauna heater will run for up to 30 minutes. The runtime of the drying program can be changed in the basic setup. To do this, please contact your retailer or installation technician.

▶ **Activating the auto stop function**

1 and : Select and confirm.

2 Set the hours and minutes and confirm.

ⓘ The runtime is set in +/- 1 minute increments and is possible starting at 00:30.

☑ The display switches to the previous menu and the countdown timer is shown at the top left.

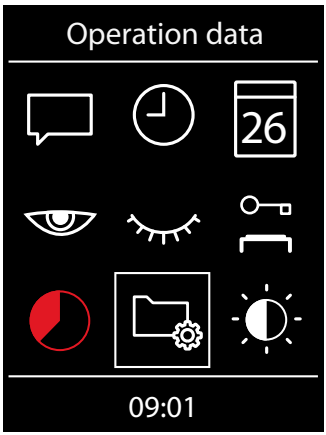
6.2.14 Operating data

You can retrieve data on the control unit's current firmware version for the control panel, the modules and the service interval.

▶ Retrieving the firmware version and unit serial number, 🗋 EN-95
▶ Retrieving the next service date, 🗋 EN-96
▶ Retrieving contact data, 🗋 EN-97

▶ Retrieving the firmware version and unit serial number

1 and : Select and confirm.



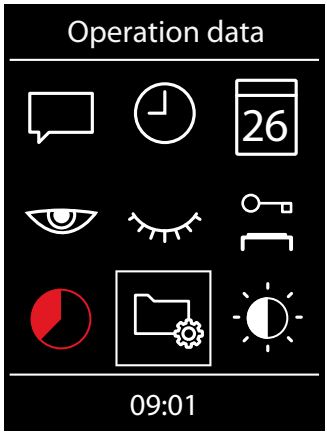
2 : Select and confirm.

3 Use the jog dial to choose the display for the control panel or for the relay box.

Examples for the displayed values

▶ **Retrieving the next service date**

1 and : Select and confirm.

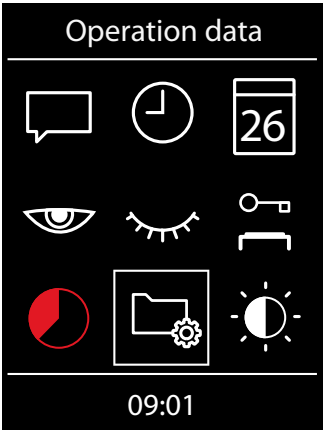


2 : Select and confirm.

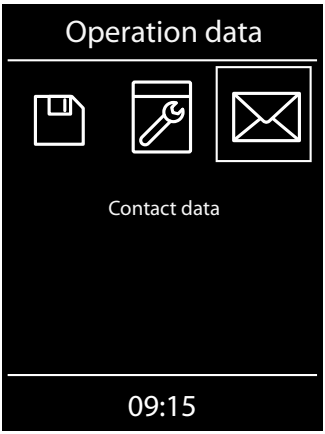
ⓘ The amount of time remaining until the next service date is displayed.
The operation time is set to 500 hours by the factory.

▶ **Retrieving contact data**

1 and : Select and confirm.



2 : Select and confirm.

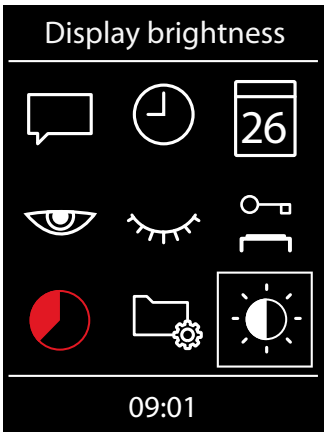


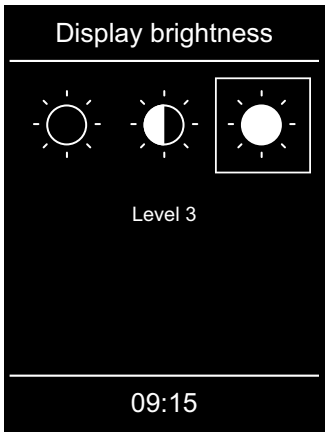
6.2.15 Display brightness

You can adjust the display's brightness to accommodate environmental conditions.

▶ **Setting the contrast**

1 and : Select and confirm.





2 Select the desired brightness and confirm.
ⓘ The brightness is adjusted immediately.

6.2.16 Vacation home mode

You can lock the system to prevent unauthorized access. To do so, you must enter a PIN for vacation home mode to lock the system.
The following settings are available in vacation home mode:

- Switching the sauna heater on/off
- Switching the lighting on/off
- Setting the temperature

You may choose the PIN. It must contain 4 digits. It is no longer possible to operate the system if you lose the PIN.

▶ Entering the PIN for vacation home mode and activating it, 🗋 EN-100
▶ Deactivating vacation home mode, 🗋 EN-101
▶ Resetting the PIN for vacation home mode, 🗋 EN-101

NOTICE

No access to the control unit

The control unit cannot be used if the PIN is not known.

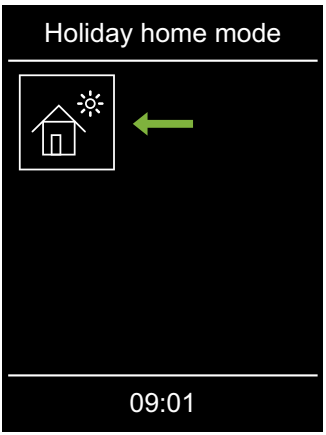
- ▶ Save the PIN in a safe place.
- ▶ Contact your retailer or EOS Service if you lose your PIN.

If the vacation home mode is active, the language selection is displayed first after the system is switched on again by pressing the main switch. The pre-selection is EN.

▶ **Entering the PIN for vacation home mode and activating it**

1 and : Select and confirm.

2 Enter the PIN and confirm.



Enter the numbers and confirm each number. Confirmed numbers are displayed in green.

ⓘ The display switches to the standby screen and is locked.

▶ Deactivating vacation home mode

1 : Select and confirm.

2 Enter the PIN and confirm.

☑ The display switches to the standby screen. All functions are available again.

▶ Resetting the PIN for vacation home mode

1 : Select and press and hold for approx. 1 minute.

2 Confirm all four white zeros.

ⓘ The zeros are displayed in green.

☑ The display switches to the standby screen. The lock is removed and all functions are available again.

6.3 Malfunction

Error	Reason	Solution
Display is blank	No power.	Check the fuses.
	Control unit switched off.	Press switch into the correct position. See 5 Commissioning, EN-59
No heat.	No connection.	Check the cable and connections (broken cable, loose connection, etc.).
Device loses the time setting	Battery in the control unit defective.	The battery may be replaced only by a qualified specialist.
Other errors	Software error.	Restart the control unit. Contact EOS Service. See Service address, EN-108.

7 General terms and conditions of service

(T&C, Dated 08-2018)

I. Scope

Unless otherwise agreed in writing for specific instances, these terms and conditions of service shall apply to service operations, including reviewing and remedying complaints. All our existing or future legal relationships shall be governed solely by the following terms and conditions of service. We do not recognize any of the customer's conflicting terms and conditions unless we have given our express written consent to their applicability.

We hereby expressly object to any of the customer's terms and conditions included in the customer's General Terms and Conditions of Business or order confirmation. Unconditional acceptance of order acknowledgments or deliveries shall not be construed as any form of acknowledgment of such terms and conditions. Ancillary agreements or amendments must be confirmed in writing.

II. Costs

The customer shall bear the following costs in connection with services rendered:

- Mounting/dismantling and electrical (de-)installation
- Transportation, postage and packaging
- Function testing and troubleshooting, including inspection and repair costs

There shall be no third-party billing.

III. Performance and cooperation obligations

The customer shall provide assistance free of charge to the manufacturer in rendering services.

In the case of a warranty claim, the manufacturer shall provide spare parts necessary for servicing free of charge.

IV. Service visit by the manufacturer

Services rendered on site by an employee of the manufacturer must be agreed in advance.
If the main reason for the service visit is not the fault of the manufacturer, any costs incurred shall be charged to the customer after the service visit and must be paid by the customer in full within the agreed payment term.

V. Liability

The manufacturer shall assume liability in accordance with the currently applicable statutory regulations. All our products are packaged in such a way that the individually packed goods (pallets) can be shipped.
We wish to point out that our packaging is not suitable for individual shipments via postal service. The manufacturer shall accept no liability for damages incurred as a result of improper packaging in an individual shipment.

VI. Manufacturer's warranty

The manufacturer's warranty shall apply only if installation, operation and maintenance have been carried out in full accordance with the manufacturer's specifications in the installation and operating instructions.

- The warranty period shall commence from the date on which proof of purchase is provided and shall be limited, in all cases, to 24 months.
- Warranty services shall be performed only if proof of purchase of the equipment can be presented.
- Any and all warranty claims shall become void if modifications are made to the equipment without the manufacturer's express consent.
- Any warranty claim shall likewise become void in the case of defects that arise due to repairs or interventions made by unauthorized persons or due to improper use.
- In the case of warranty claims, the serial and article numbers must be provided, together with the unit designation and a meaningful description of the error.
- This warranty shall cover defective equipment parts, with the exception of normal wear parts. Wear parts shall include, for example, light sources, glass elements, tubular heating elements and sauna heater stones.
- Only original spare parts may be used within the warranty period.

- Service visits made by third parties shall require a written order issued by our service department.
- The equipment in question shall be sent to our service department by the customer at the customer's own expense.
- Electrical assembly and installation work, including service visits and parts replacements, shall be carried out at the customer's expense; costs shall not be borne by the manufacturer.

Complaints in respect of our products shall be reported to the responsible distributor and shall be handled exclusively by said distributor.
The manufacturer's General Terms and Conditions of Business, in the version available at www.eos-sauna.com/agb, shall apply in addition to the foregoing terms and conditions of service.

8 Disposal

Observe local provisions, laws, regulations, standards and directives when disposing of the unit.

Do not dispose of the unit with household waste.

Packaging

The packaging of the unit can be completely separated for disposal and recycled. The following materials are used in the packaging:

- Used paper, cardboard
- Plastic foil
- Foam material

EOS
FINEST SAUNA ENGINEERING

Service address

EOS Saunatechnik GmbH
Schneiderstriesch 1
35759 Driedorf, Germany
Tel. +49 2775 82-514
Fax +49 2775 82-431
Email service@eos-sauna.com
Web www.eos-sauna.com

Store this address with the installation and operating instructions in a safe place.
Please always provide us with nameplate data, such as model, item number and serial number so we can provide fast and efficient support.

Date of sale

Stamp/retailer signature:

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