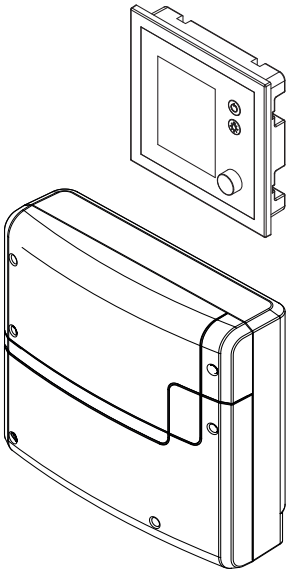
EN

EOS
FINEST SAUNA ENGINEERING

EOS EmoTec D | EmoTec H

sauna control unit



Installation and operation manual

Made in Germany

Firmware V4.07

CE UKCA EAC IPx4

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1. General safety instructions

► Safety levels

Safety instructions and important operating instructions are classified. Please familiarise 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.

1.1 Mounting and electrical installation

These 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 and fire in the event of improper or faulty electrical connection. This risk also applies following 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 authorised electrical company.
- Observe the stipulations in VDE 0100 part 703 or the applicable local legal requirements.
- The system must be completely disconnected from the mains supply before commencing installation and repair work.
- The housing cover must only be removed by a specialist.

► Fire hazard from overheating

Insufficient ventilation can lead to device overheating and fire. Flammable parts inside sauna must not exceed a temperature of 140°C when the unit is operated as intended or in the event of a malfunction.

- Do not install control panels, relay boxes and modules in enclosed cabinets or wood panelling.
- 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. 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 in the sensors.

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

► Damage due to incorrect mounting location

The control unit is not suitable for outdoor use!

- It may 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.

1.2 Operator instruction

The operator of the infrared or sauna cabin must be instructed on 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.

► Risk of electric shock

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

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

► **Fire hazard**

Objects placed on the sauna heaters can ignite and cause fire.

- Do not place objects on the sauna heater.
- If you switch on the sauna heater using a pre-set timer or a remote control, use a cover protection sysem for the heater or install a suitable safety device.
- Inspect the cabin prior to switching it on.
- When using control units with a remote control option (see EN 60335-1), protection from switching on a covered sauna heater is required.

► **Risk of burns and chemical burns**

Touching hot parts may lead to skin burns.

- The operator must be familiar with the unit's hot parts and be able to identify them.
- The operator must be familiar with the settings for the heating time and understand how to adjust it.

► **Health risks**

Spending time in an infrared or 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 an infrared or sauna cabin.

► **Equipment damage due to overuse**

The uninterrupted operation time of the sauna cabin(s) can lead to property damage.

- If the sauna cabin is used commercially, the heating time 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 mental capacity can put themselves at risk.

- Children must be supervised to ensure they do not play with the unit.
- Children under 8 years of age may not operate the sauna cabin.
- The settings for the heating time may only be carried out by children under 8 years of age 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 may not clean or service the system.

1.3 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

2.1 Manufacturer

EOS Saunatechnik GmbH

Schneiderstriesch 1

35759 Driedorf, Germany

Tel.: +49 2775 82-0

Email: info@eos-sauna.com

2.2 Copyright

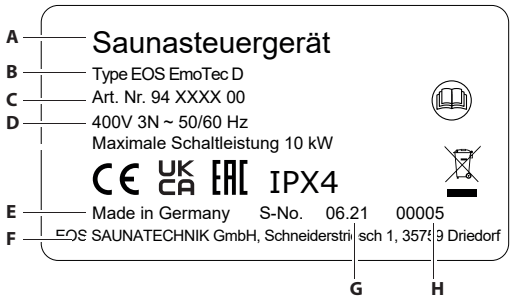
2.3 Identification

The EmoTec D or H control unit consists of a relay box, a control panel, a temperature sensor and the connecting cables, and is used to operate a sauna cabin.

Additional modules/devices can be connected to the relay box for total control of a sauna cabin, for example, lighting, fan and additional sensors.

2.4 Nameplate

The nameplate is attached on the rear side of the heater.



A. General name
B. Model name
C. Item number
D. Electrical connection
E. Country of origin
F. Manufacturer
G. Date of production
H. Serial number

2.5 Bestimmungsgemäße Verwendung

In conjunction with a suitable sauna heater, the EmoTec D and EmoTec H control units are intended to be used only to heat sauna cabins. It is suitable for residentialand commercial sauna cabins. The relay box and control panel are intended only for mounting on the wall.

 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.

2.6 Foreseeable misuse

The following are considered instances of foreseeable misuse:

- 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 the age of 8 years or by children above the age of 8 years and persons with reduced mental capacity without being thoroughly instructed in its use or supervised.

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

Read the General Safety Instructions.

3. Scope of delivery

Check the delivery to ensure that all components were delivered and that the unit is in proper working order. Contact your distributor if components are missing or damaged. The unit must not be operated if components are missing or damaged.

The following parts are included in the scope of delivery:

A. Relay box with 2-piece front cover

B. Control panel with TFT display

C. Bottom housing for the flush-mounting installation

D. Bottom housing for the on-surface installation

E. Temperature sensor kit, comprising

- Sensor housing
- Temperature sensor board
- Safety temperature limiter board
- 2 mounting screws 4 x 40 mm
- Sensor line 5 m with RJ10 plug

F. Line for safety temperature limiter 5 m, white

G. Spare safety temperature limiter

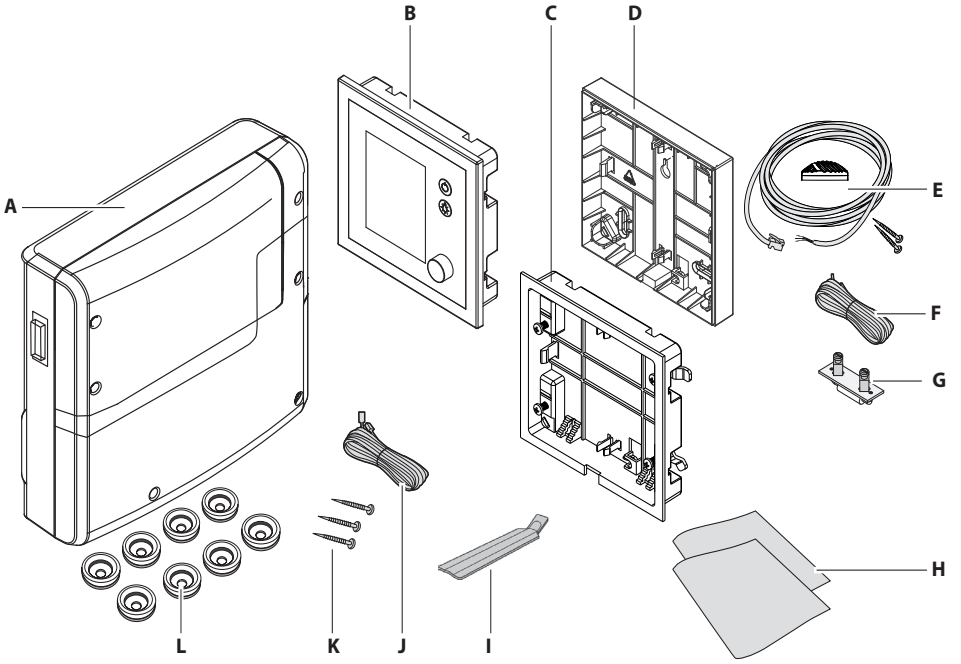
H. Installation and operation manual

I. Removal tool for the control panel

J. Connection cable 5 m for control panel, RJ10/RJ14

K. Plastic bag with 3 mounting screws 4 x 25 mm.

L. 8 rubber bushings (cable glands)



► Accessories (optional)

Description	Item number
Bench sensor, beige, with 5 m cable	94 9181
Humidity sensor, beige, with 5 m cable	94 9182
Coloured light control module SBM-FL75	94 5996
Coloured light control module SBM-FL150	94 6007
Sound module SBM-Sound BT	94 5921
Remote start module	94 5782
SBM-App module	94 5987
Module SBM-GLT-KNX	94 7078
Module SBM-GLT-Mod	94 7077
Module SBM-HOT	946800
Module SBM-ECO	94 6980
safety solution EOSafe D	94 7149
safety solution EOSafe L	94 7153

4. Technical data

Voltage (power supply)	400 V 3 N ~ 50/60 Hz
Switching capacity	max. 10 kW resistive load, may be extended with a power extension box (PEB)
Fuse	3 x 16 A
Ambient temperatures (main block)	-10° C to +35° C
Ambient temperatures (control panel)	-10° C to +70° C
Terminal block area for power supply / heater connection	0.5 – 2.5 mm² rigid or flexible crimped wire, two cores with the same cross section per terminal may be connected
Terminal block area WM, 3, 4, light, fan	0.34 – 2.5 mm² rigid or flexible crimped wire. Please observe the minimal cross section as per fuse protection of the line!
Volt-free output	contact's resistive load carrying capacity: ▪ maximum current: 10 A ▪ maximum voltage: 30 V DC / 250VAC
Storage temperatures	-20° C to +60° C
Housing main block	plastic
Dimensions (H x W x D)	270 x 300 x 100 mm control panel: 127 x 130 x 25 mm, recessed part 20 mm deep
Weight	main block: approximately 1,5 kg
Other outputs	3 x RJ10 jacks for sensor connections 2 x RJ14 jacks for control panel and extension modules maximal load 50 W / 50 VA, no capacitive loads allowed. 1 x potential free contact (2 terminals)
Display	TFT colour display 55 x 74 mm (3,5" size)
Heating time limit	6 h / 12 h / 18 h / unlimited
Temperature control range	30° - 115°C (dry sauna mode) 30° - 70°C (humid sauna mode - only EmoTec H)
Humidity control	proportional to time or optionally as per rel. air humidity (%) with an optional humidity sensor.
Sensor system	Digital sensor with overheating protection fuse (STB) 139°C

Control characteristic	Digital two-point control
Card reader	Micro-SD card slot in control panel
Connection for fan*	Min. 5 W max.150 W (only fans without starting capacitor). Only use fans suitable for phase leading edge control!
Connection for light*	Min. 5 W (20 mA) resistive loads - max. 100 W dimmable energy saving lamps - max. 35 W lamps at conventional transformers - max. 60 VA. Only dimmable lamps must be used!

*Fan and light connections are protected by a joint 2AF fuse.

5. Relay box installation

This chapter describes how to install the relay box and the most important components.

Cables with the appropriate cross section should be used for the heater, vaporizer (steam generator) or an other heating system, as well the light, fan and other components.

All electrical installations and all connecting lines that are installed inside a cabin must be suitable for a use in a sauna / IR cabin (IPx4 class) or in a steam room / hammam (IP 65). All lines must be routed in such a way that they are well-protected, e.g. in a cable duct.

NOTICE

Damage due to incorrect mounting location

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.

NOTICE

Electronics malfunctions

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

- Do not route sensor and sauna bus lines together with power supply lines.
- Route separate cable conduits.

► Site requirements

- Ambient temperature during operation -10°C to 35°C
- Relative air humidity during operation 30% to 75%
- Ambient air may not be corrosive or have high salt content
- Storage temperature -20°C to +60°C
- Stable wall able to carry unit's weight
- Power supply 400 V 3N ~ 50 Hz nearby
- All cable lines and connections must be accessible for servicing.

► Extending the control unit's control line

For extra-long connections special Sauna Bus type cables with the length 10 m, 25 m and 50 m are available. Use the cable type RJ14/RJ10 for display panel connection and the cable type RJ12/RJ12 for a connection to a different module.

Alternatively the included Sauna Bus cable can be extended with an additional cable RJ12/RJ12 or RJ14/RJ10 using a coupler RJ12/RJ12. For certain display panel types (e.g. EmoTouch 3)an additional power adaptor will needed is the line length is over 25 m.

The power adaptor, the extension cables and couplers sind are optionally available.

See optional accessories.

► Installation works inside the cabin

At minimum, the temperature sensor, the cabin lighting and, depending on the cabin type the air supply / air outlet, if required with a fan, must be installed in the cabin. Additional connections are possible depending on the cabin type and selected options, e.g. additional sensors or a steam outlet by an external vaporizer.

5.1 Relay box

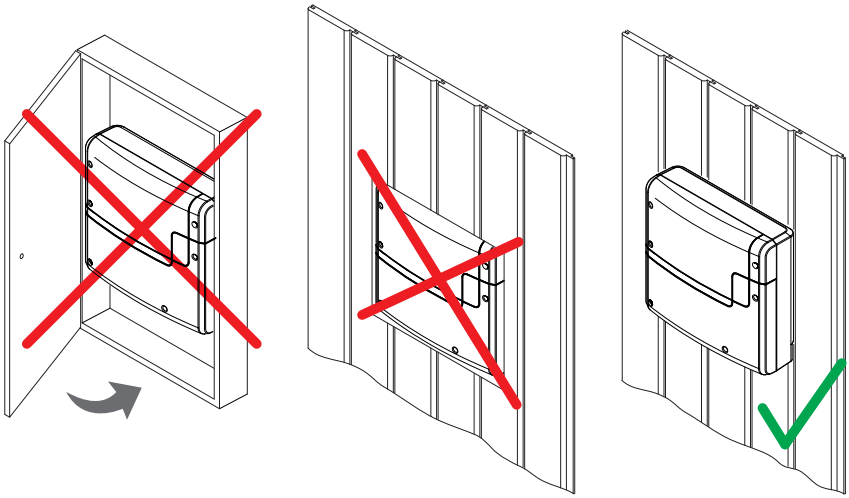
The relay box may be installed only outside the cabin. Recommended installation locations are e.g. outer wall of the cabin, plant room in order to suit the local installation situation. If empty conduits for electrical installations are already present, this dictates the position of the relay box. Observe the following guidelines for the installation.

⚠ 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 also applies following completion of the installation work.

- Do not install relay boxes in enclosed cabinets or wood panelling.

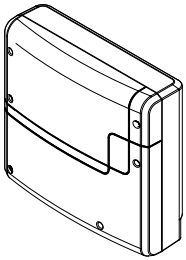


Correct and incorrect assembly of the device

The power supply, S-Bus and sensor lines can be routed to the relay box as follows:

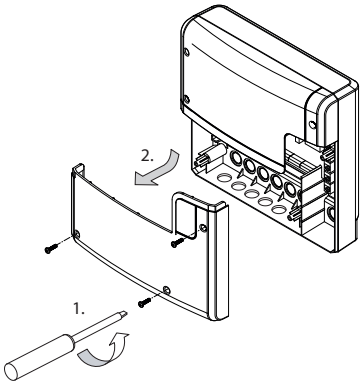
- The lines can be routed along the outer wall of the cabin. They are then passed into the housing from below. If they are not routed through a cable conduit or a duct, they must be secured so they cannot be pulled out.
- The cables can be routed between the insulation and the outer wall of the cabin. They are then passed into the housing from the rear.

► Installing the relay box

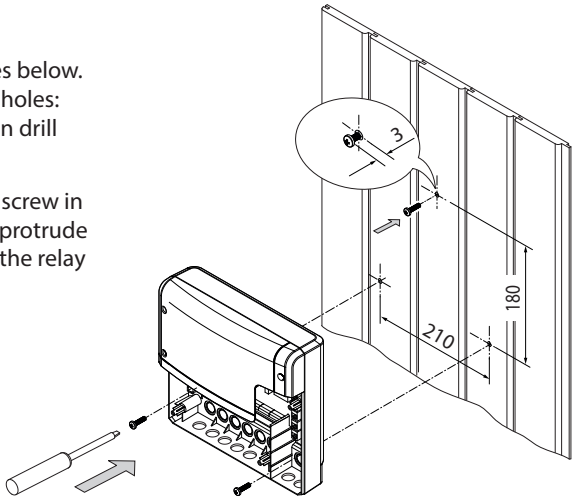


Necessary steps:

1. Preparing the installation
   - Determine a suitable location.
   - Route the lines.
2. Remove the hosing cover
   - Unscrew the 6 screws for both parts of the housing.
   - Remove both halves of the cover.

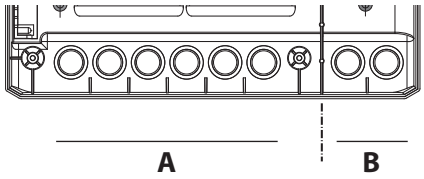


3. Mount the relay box
   - Drill one hole above and two holes below. Horizontal distance between drill holes: 210 mm. Vertical distance between drill holes: 180 mm
   - Insert the anchors as needed and screw in the top screw. Allow the screw to protrude approx. 3 mm so you can hook in the relay box.



Relay box installation

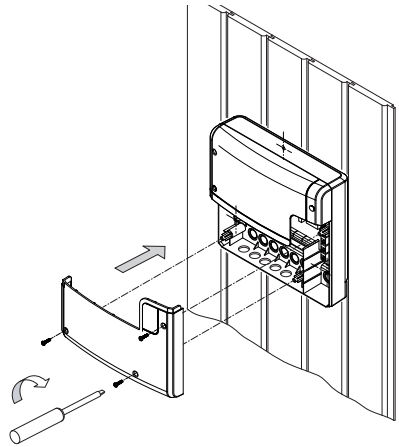
4. Open the relay box conduits for the lines.
5. Insert supplied rubber grommets into the openings of the lower part of the housing.
6. Route the connecting cables through the openings.

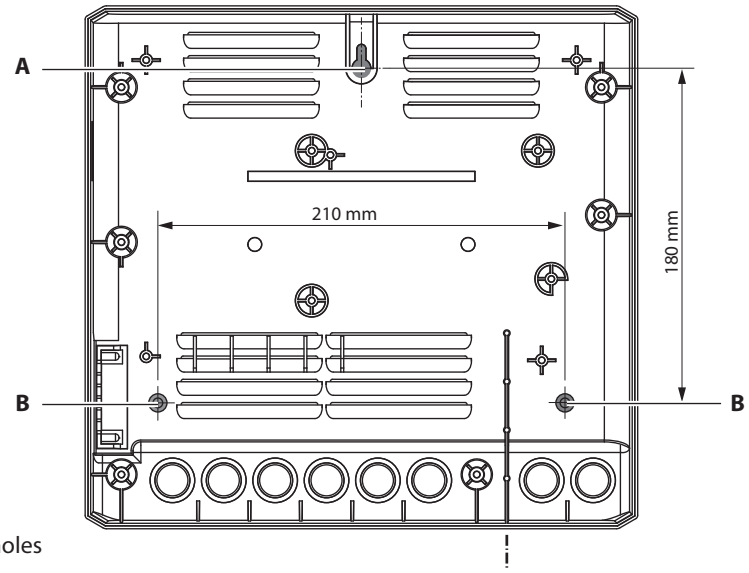


A. Mains cable, cables for heating, light etc.

B. Low-voltage lines, e.g. sensor, S-Bus lines.

7. Hook the relay box into the upper screw using the upper mounting hole.
8. Securely tighten the relay box using the two lower mounting holes.
   - Once you have completed all installation work you can connect the consumers and plug in the lines.
   - Connect the data cables (sauna bus / sensor bus lines - see also Electric Connections).
   - Connect and configure the electric consumers (see also Electric Connections).
9. Finally close the housing with the front covers and secure them with 6 screws.





A. Top mounting hole

B. Bottom mounting holes

5.2 Cabin lighting

Lighting can be installed anywhere, however not near rising hot air or hot steam. The light output in the relay box is set to inductive load by default, but light bulbs, halogen HV bulbs and other resistive loads may also be connected to it. If required, the light output can also be manually set to capacitive loads.

For light configuration see „Manual light configuration“ chapter.

Cabin lighting is not included in the scope of delivery. Observe the separateinstallation instructions for lighting.

► Requirements to cabin lighting

- Lighting must be dimmable
- Minimal power output 5 W
- Resistive loads max. 100 W
- Dimmable energy-saving lamps max. 35 W
- Light sources with conventional transformers max. 60 VAor 75W in conjunction with the EOS transformer 946321.

NOTICE

Material damage by unsuitable lamps or installation place

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

- Do not install the lighting in areas with rising hot air or hot steam.
- The lighting must conform to protection class IPX4 in saunas / IR cabins or IP65 in steam rooms / hammams and be resistant to ambient temperatures.
- Connect only dimmable light sources.

5.3 Fan

The relay box features an output for a fan. A ventilation fan can be connected and operated using this output.

The fan is not included in the scope of delivery. Observe the separate installation instructions for the fan.

For connection please refer to the chapter „Electric Connections“.

► **Requirement to a fan**

- Minimal power 5 W
- Maximum power 150W
- Voltage 230 V 1N AC
- Suitable for installation in humid conditions (IP65)
- Only fans without starting capacitor

5.4 Potential free contact (PFC)

The relay box features a potential free contact. You can include this NC (normally closed) contact in any electric circuit to switch an external load or transmit a signal.

► **Maximum load**

- Resistive load / alternating current 250 V AC / 10 A
- Inductive load / alternating current 500 VA
- Direct current
- Up to 30 V DC max. 10 A (300 W)
- Up to 110 V DC max. 0,3 A (33 W)
- Up to 220 V DC max. 0,12 A (26,4 W)

NOTICE

Material damage due to short circuiting

The supply line can short circuit if you use the mains connections L1, L2 or L3 to supply the electric circuit connected to the potential-free contact.

- Use the mains and other connections in the relay box only as shown in the connection diagram.
- Do not connect additional devices to the mains connections of the relay box.
- Connect the device connected to the potential-free contact and ensure that it is protected from short circuiting.
- Observe the maximum load of the potential-free contact.

6. Control panel installation

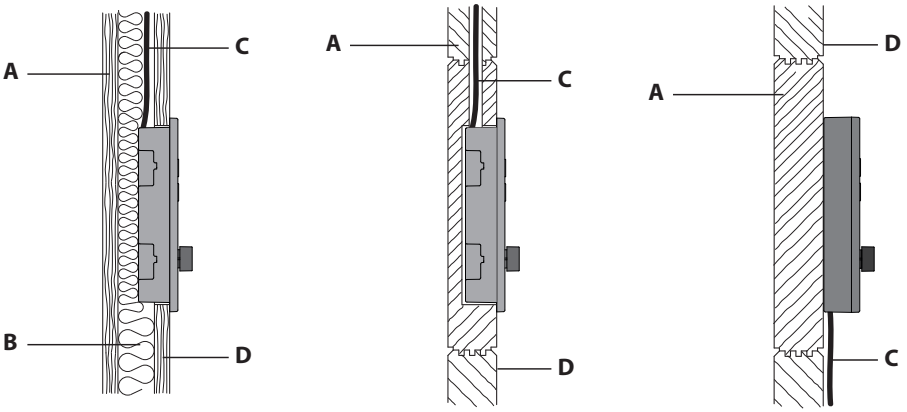
The housing for control panel is available in two versions: for mounting in the wall or for mounting on the wall. Both versions are designed for a mounting location on the outer wall of the cabin. If empty conduits for electrical installations are already present, this dictates the position of the control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

► Guidelines

The cabin wall must be designed in such a way that the temperature in the area in which cables are routed cannot exceed 75°C.

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 – wooden planks: The control line is routed between the inner wall and outer wall of the cabin.
- Mounting on the wall – wooden planks: The control line is routed along the outer wall of the cabin.



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

► Extending the control panel's control line

For longer connections, special RJ10/RJ14 connecting cables with lengths of 10 m, 25 m, 50 m and 100 m are available as an option.

Alternately, the supplied (as standard) 5-m line can also be extended with an RJ12/RJ12 coupling and an RJ12/RJ12 extension cord.

The extensions and couplings are available as options.

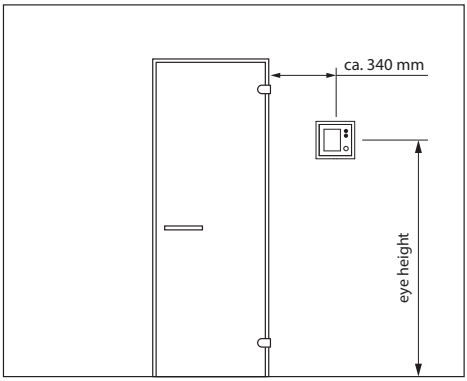
See Accessories (optional, see chapter Scope of Delivery).

► Mounting location for control panel

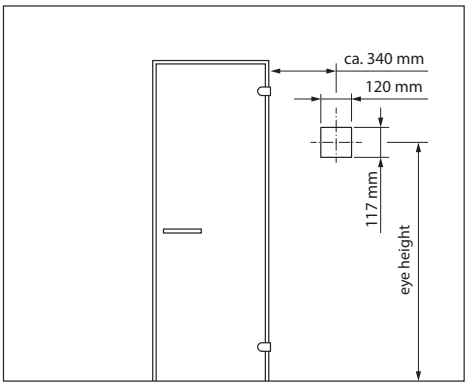
The control panel is to be mounted outside of the cabin. Preferably, it should be mounted on the hinge-side of the door (not the opening side). This prevents hot air from reaching the control panel when the cabin is in use, which, in the event of unfavourable ambient temperatures in the anteroom, could cause condensation to form on/in the control panel.

The following distances are recommendations:

- Mounting location



- Gaps



► Mounting the housing

The control line from the relay box is connected to the control panel. The control line is fed hrough the opening in the housing. Therefore, it must be installed once the cut in the wall has been made.

Tools required:

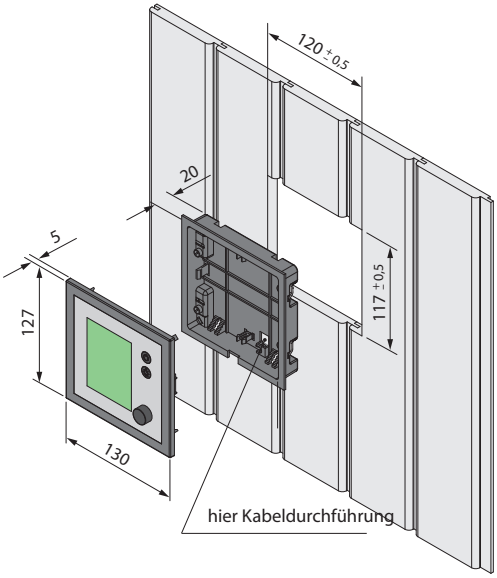
- Saw for cutting the wall (only when mounting in the wall)
- Phillips screwdriver
- Removal tool to loosen the front panel (included in the scope of delivery)
- Taught wire, as needed
- Wooden screws (included in the scope of delivery):
- 4 screws for housing mounted in the wall with a wall thickness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

Necessary steps:

- Remove the display panel from the housing
- Mount the housing in the wall, or
- Mount the housing on the wall

► Flush-mounted installation

NOTICE! Please pay attention to the correct orientation of the bottom housing. The connection cable duct must be at the bottom side.



Wall aperture:

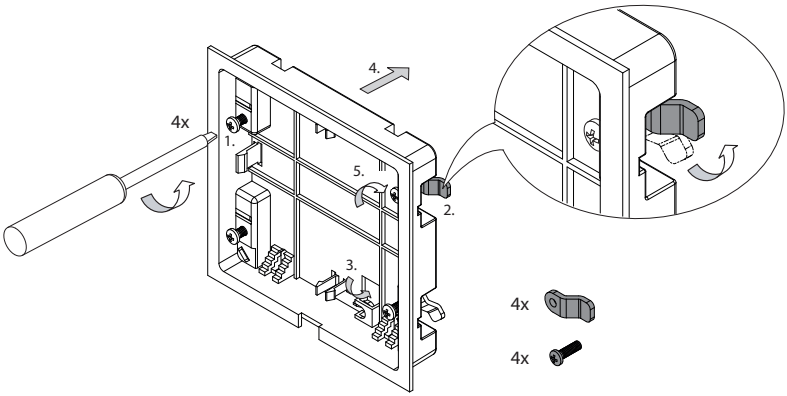
- Width 120 mm
- Height 117 mm
- Depthmin. 20 mm

► Mounting the housing base

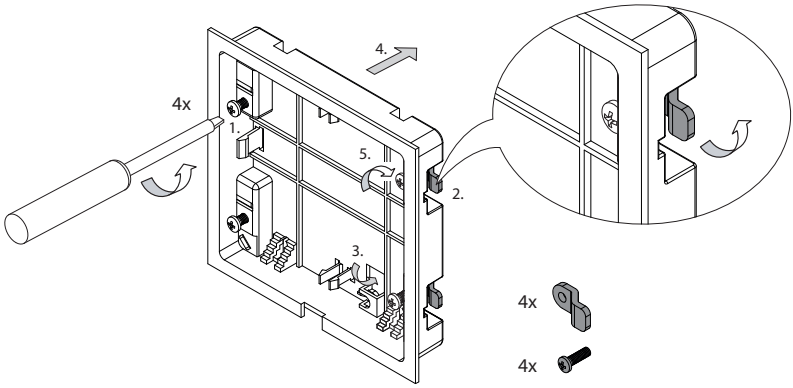
First install the housing base (wall panelling up to 30 mm).

1. Loosen 4 screws with mounting brackets on the base
2. Adjust the brackets to the designated wall panelling thickness (<15 mm or 15-30 mm)
3. Pull the connection cable through the opening in the housing base.
4. Insert the housing base into the wall opening.
5. Flip the brackets 90° to outside and tighten the screws - the housing base will be pulled to the wall panelling from inside and fastened in the wall opening.

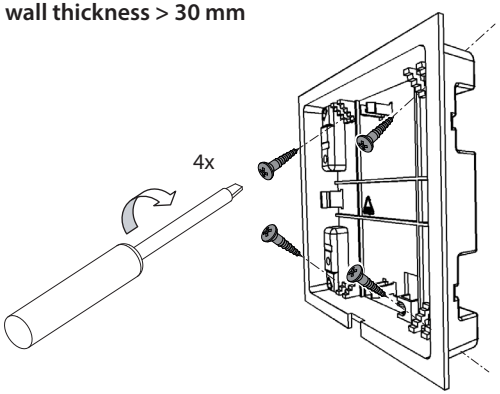
for wall thickness 15-30 mm



For wall thickness < 15 mm (factory default)



For wall thickness > 30 mm



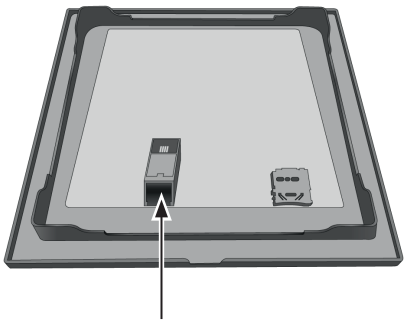
Use 4 screws appropriate to the wall material.

4x 

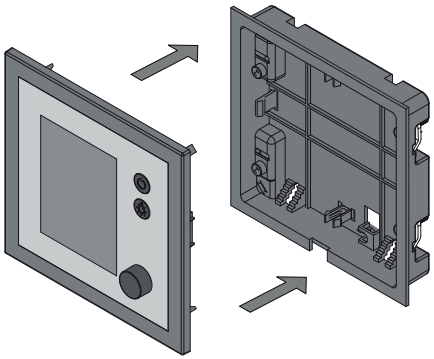
► Mounting the display panel

The control line (S-Bus) that leads to the relay box is connected to the con-trol panel

- Plug the control line with the RJ10 plug into the circuit board.
- Place the front panel directly in front of the bottom piece. Ensure that it is aligned properly.
- 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.
- Remove the protective foil from the display.



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.



Mount the display panel by flush-mounting installation in the same way.

7. Sensor installation

⚠ CAUTION

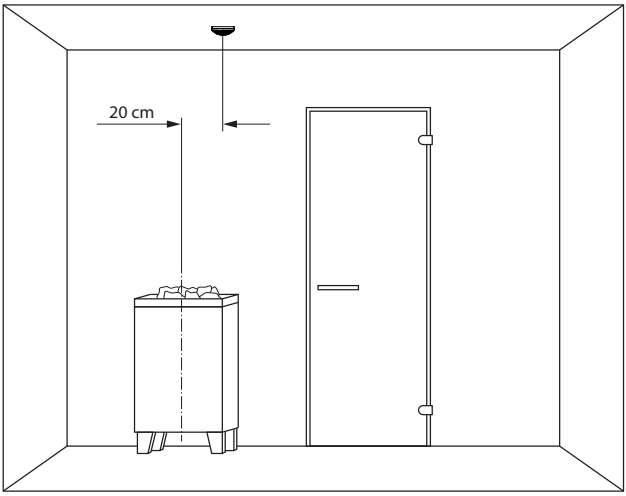
Fire hazard from overheating

Requirements that apply to installing the main sensor may exist for certain sauna heaters.

- Before installation, ensure that there are no heater-specific requirements that apply to installing the sensor.

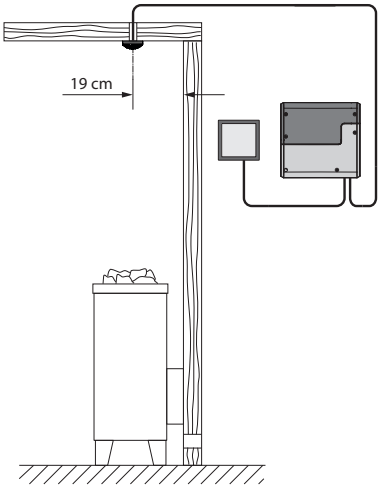
► Temperature sensor requirements

The main sensor (heater sensor) must be installed where expected temperatures are the highest, meaning directly above the sauna heater. Proper installation is necessary to ensure compliance with the temperature limits and to ensure that there is only a very slight fluctuation in temperature in the areas of the sauna cabin where there are reclining options.

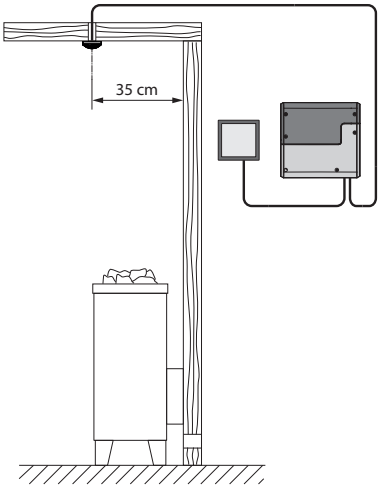


Mounting position: above sauna heater

The main sensor is installed in observance of the following distances from the cabin wall, depending on the cabin size.



Cabin smaller than 2 x2 m



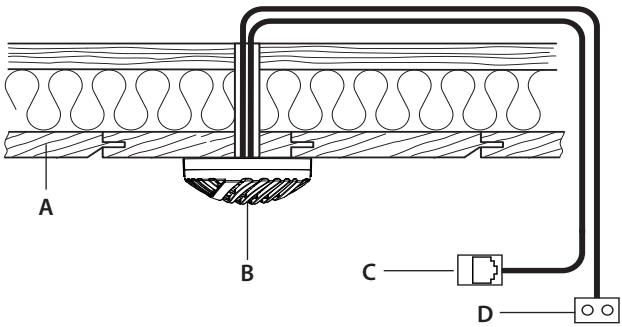
Cabin larger than 2 x2 m

► Installing the temperature sensor

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

Hardware + tools:

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

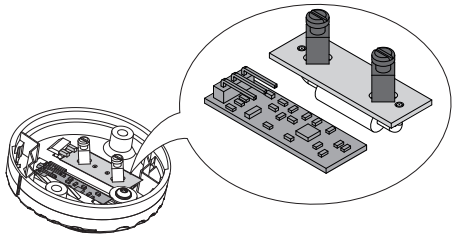


A. Cabin ceiling
B. Temperature sensor housing
C. RJ10 plug (sensor bus cable)
D. Line for overheating limiter fuse STB (2-pole)

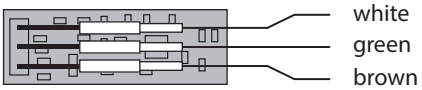
Installation scheme

Sensor installation

1. Determine a suitable location for the installation. The main sensor (heater sensor) must be installed on the cabin ceiling above the sauna heater. A second sensor (bench sensor) can be installed above the back bench.
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 sensor bus cable.

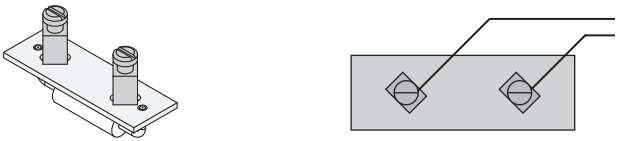


Marking on the sensor board



sensor connections

5. Connect the lines for the overheating limiter fuse (STB).
6. The overheating limiter fuse is available only in the main sensor. This step is not necessary for the bench sensor because it does not have an overheating limiter fuse.
7. If multiple sauna heaters are installed in a sauna cabin, it may be necessary to install additional overheating limiter fuses and connect them in series.
8. Screw the sensor plate to the cabin ceiling and close the housing.
9. For connection see chapter Electric Connections, Sensor.



safety temperature limiter connections

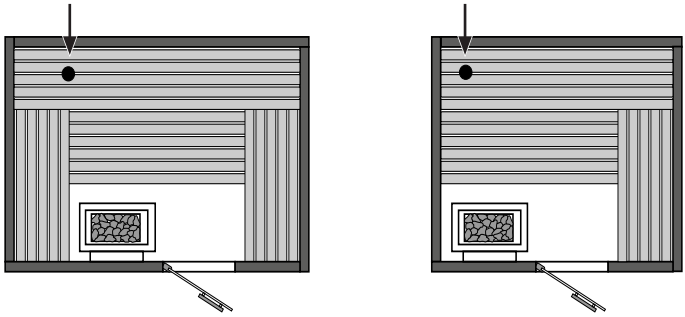
A. STB

B. Cables (white)

8. Bench sensor installation (optional)

► Bench sensor requirements

The bench sensor is mounted on the ceiling above the back sauna bench across from the sauna heater.

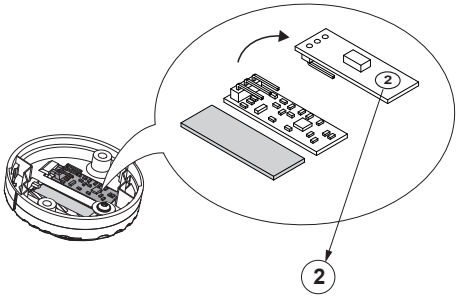


Installation configuration – bench sensor

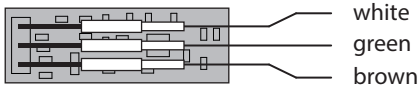
► Bench sensor installation

The installation and connection of the bench sensor is as of the main sensor. See chapter „Sensor" in installation section.

The bench sensor has no overheating temperature limiter (STB).



Marking on the main board



sensor connections

► Temperature control

Upon correct connection, the sensor will be automatically detected and configured. The display will show the corresponding symbol during start-up.

Indication on the display panel: 

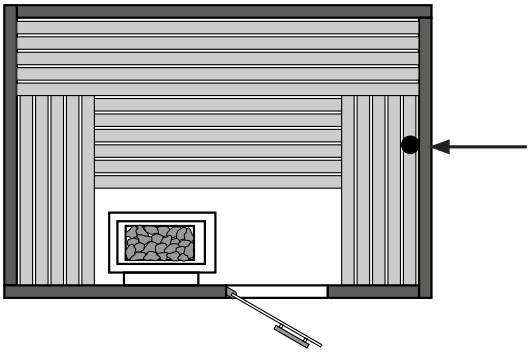
When connected the bench sensor will control temperature after the initial heat-up phase. The main sensor acts then as a temperature limiter.

This allows in certain situations, e.g. in very large saunas with complex air circulation, to optimise the heat distribution. If the bench sensor fails, the heater sensor will overtake the temperature control again.

9. Humidity sensor installation (optional)

► Humidity sensor requirements

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.

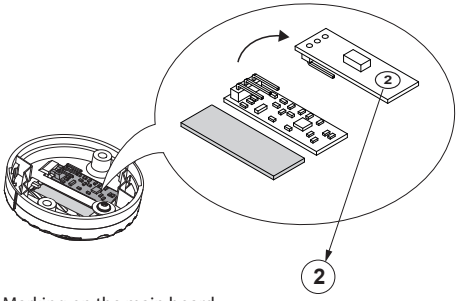


Mounting place for humidity sensor

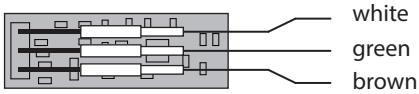
► Installing the humidity sensor

The mounting and connection of the humidity sensor is as of the main sensor. See chapter „Sensor“ in installation section.

The humidity sensor has no overheating temperature limiter (STB).



Marking on the main board



sensor connections

► Funktionsweise

Upon correct connection, the sensor will be automatically detected and configured. Upon successful connection the corresponding humidity symbol on the display will change from

.

The humidity symbol will be displayed on the start screen when the operation mode is set to humid mode. For further details please refer to the section „Electrical Installation“ > „Sensor“, as well as the section „Operation“.

10. Electrical installation

This chapter describes how to connect the relay box's circuit board lines. For information on setup of the control panel, see chapter Commissioning

► Recommended installation sequence

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

Complete installation in the following sequence:

- Plug the S-Bus and sensor lines into the relay box.
- Connect the consumer lines (sauna heater, light, fan, etc.) to the relay box.
- Establish connection to the power supply.
- In a multi-cabin installation: Program the cabin address.
- Switch on the relay box and control panel.
- Configure additional settings at the control panel, e.g. target temperature.

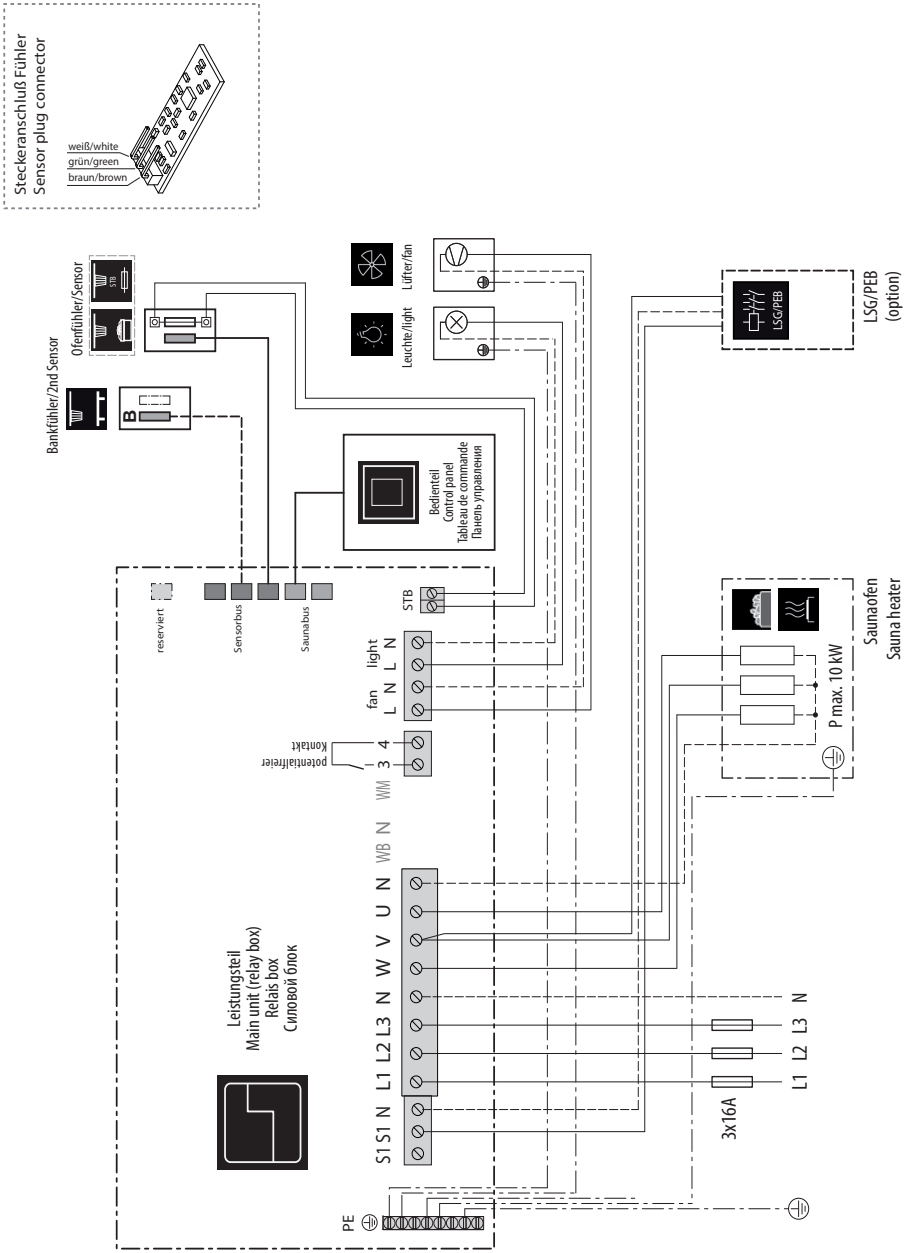
10.1 Connections

As a rule, only a fixed connection may be connected to the mains supply, whereby a configuration is provided that makes it possible to separate the system from the mains supply with a contact opening width of at least 3 mm (all poles).

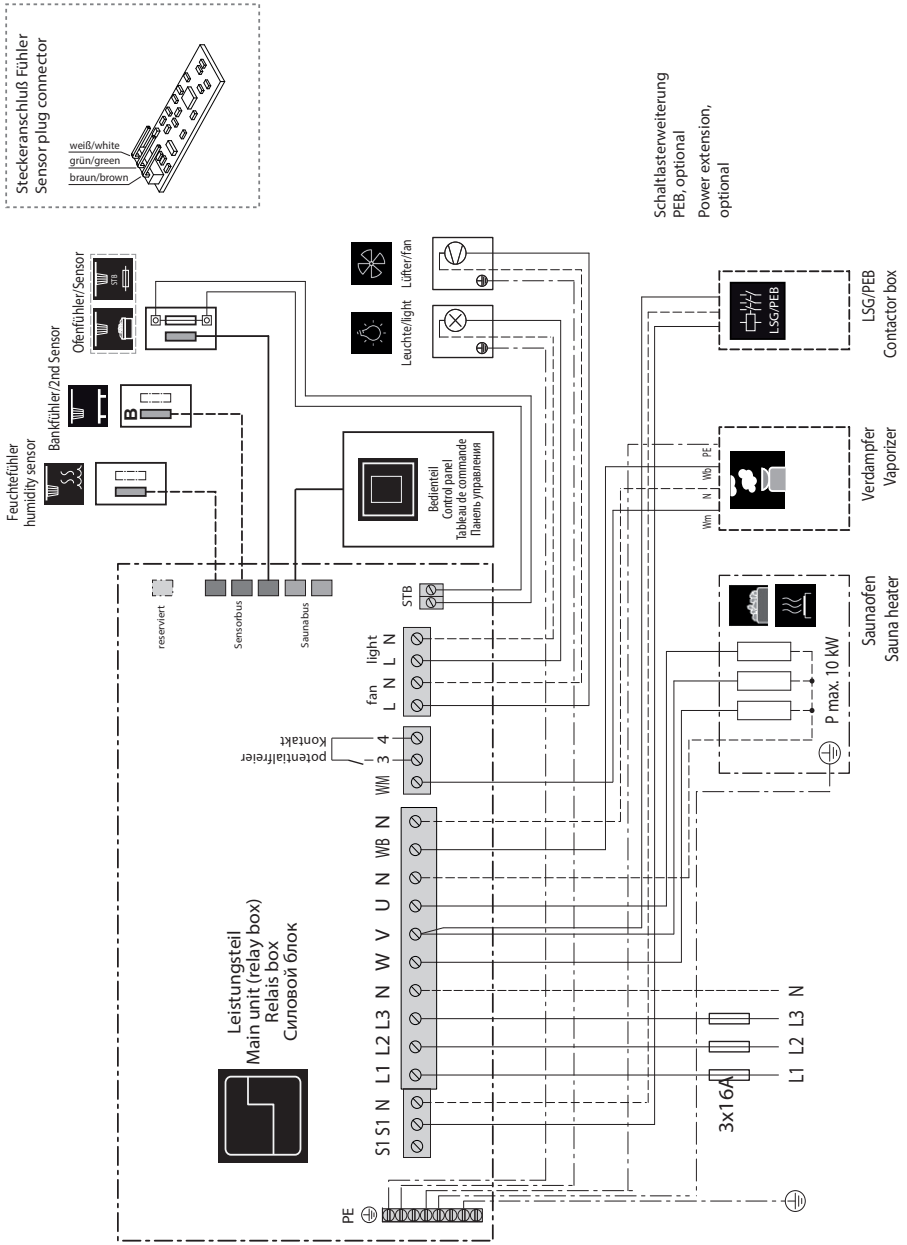
All electrical installations and all connecting lines that are installed inside a cabin must besuitable for installation in a sauna or IR cabin (IPx4).

The relay box is connected with a live current of 400 V 3 N ~ 50 Hz and fused separately with 3 x 16 A. A 16 A cut-out with at least K characteristic must be used for fuse protection.

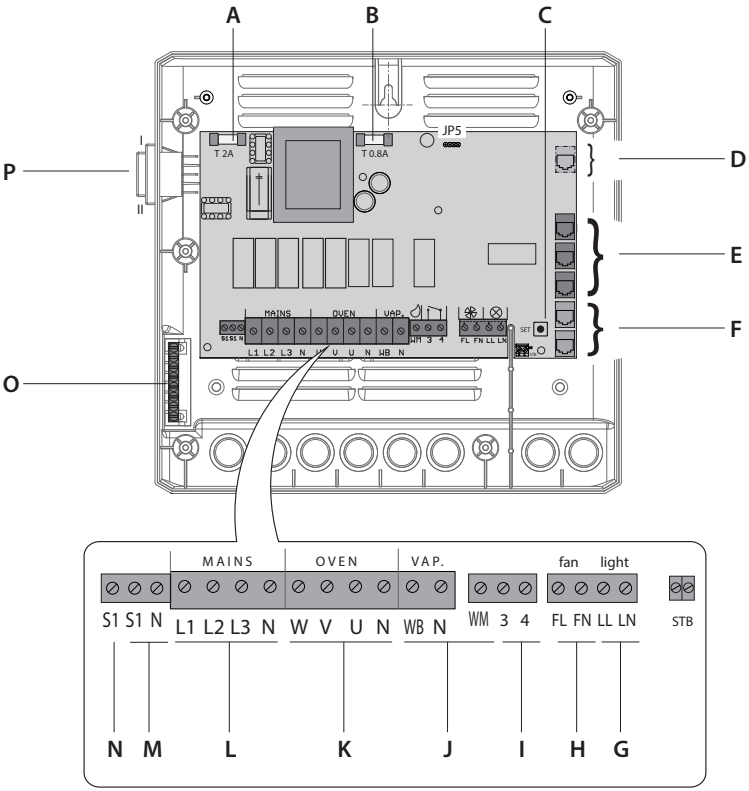
► Connection overview - D-series



► Connection overview - H-series

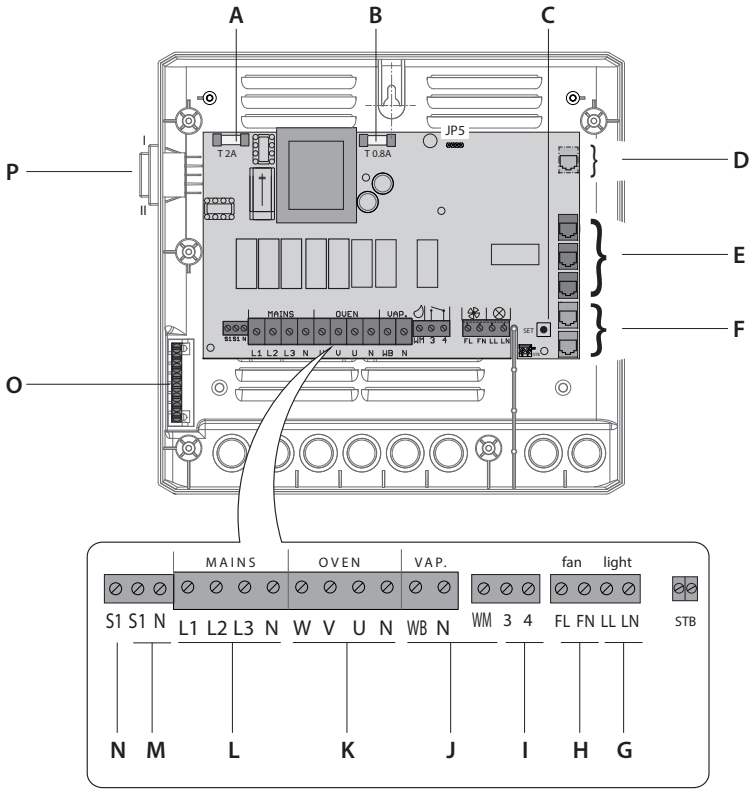


► Terminals - D-series



A. Fuse T 2A
B. Fuse T 0.8A
C. Programming button
D. Connector reserved / not used
E. Sensorbus RJ10 (sensor connection)
F. S-Bus RJ12 (connection for display and modules)
G. Connection for cabin lighting
H. Connection for fan
I. Potential free contact (PFC)
J. Terminals not in use in D-series
K. Output for sauna heater
L. Mains connection
M. Output for power extension unit
N. Output for control lamp connection
O. Ground terminals
P. P.„Switch-Off“ main switch

► Terminals - H-series



A. Fuse T 2A
B. Fuse T 0.8A
C. Programming button
D. Connector reserved / not used
E. Sensorbus RJ10 (sensor connection)
F. S-Bus RJ12 (connection for display and modules)
G. Connection for cabin lighting
H. Connection for fan
I. Potential free contact (PFC)
J. Output for vaporizer (for H-series only)
K. Output for sauna heater
L. Mains connection
M. Output for power extension unit
N. Output for control lamp connection
O. Ground terminals
P. „Switch-Off“ main switch

10.2 Sensors

The temperature/humidity in the sauna cabin is set via the control panel. The set values are checked by sensors and controlled by the relay box.

The sensors are connected to the RJ10 sensor jacks using RJ10 plugs.

Each sensor can be connected to any one of the three jacks. The connected sensors are automatically detected by the control unit.

10.3 Temperature sensor and bench sensor

The heater sensor (main sensor) controls the temperature in the sauna cabin. You can improve heat distribution in very large saunas where air circulation is a challenge by using an additional bench sensor.

In this case, the heater sensor does not control the sauna temperature, but acts as a temperature limiter (above approx. 120°C) to prevent overheating and the triggering of the safety temperature limiter in the event of a malfunction.

Here, the bench sensor regulates the temperature. If the bench sensor fails, the heater sensor regulates the temperature.

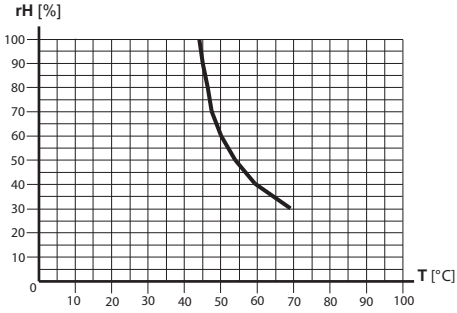
10.4 Humidity sensor (only H-series)

The (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.

The humidity sensor regulates the humidity according to the following indicated characteristic curve:

- 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 (humidity) is automatically adjusted.
- Values that lie above the characteristic curve cannot be set.



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

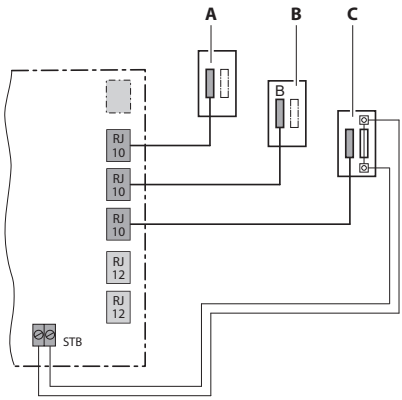
If no humidity sensors are used, the humidity is regulated in proportion to time.

For example, the humidity setting = 40 means the vaporiser is on approx. 40 % of the total 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 no humidity sensors are used, the vaporiser must be set up in relation to the cabin size in such a way that the limit curve is not exceeded when there is maximum steam.

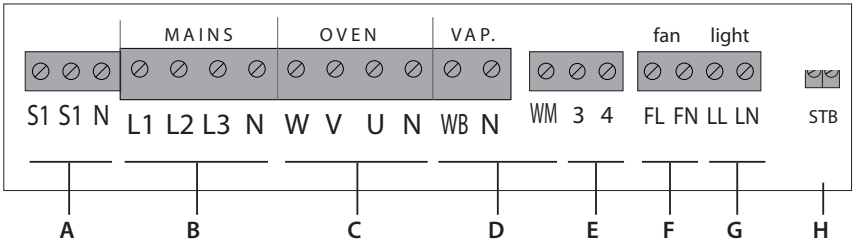
10.5 Circuit board connections



A. Humidity sensor (optional, only H-series)
B. Bench sensor (optional)
C. Heater sensor (main sensor) with STB

10.6 Terminals

All lines must be connected to the corresponding terminals. Heat-resistant cables must be used for the light, fan, and vaporiser connections.



A. Connection for power extension and control lamp
B. Mains
C. Output for sauna heater connection
D. Output for vaporizer connection (only for H-series)
E. Potential free contact (PFC)
F. Connection for ventilation fan
G. Connection for cabin lighting
H. Connection for safety temperature limiter (STB)

10.7 Safety temperature limiter (STB)

The safety temperature limiter's white cable from the main sensor (heater sensor) is connected to the safety temperature limiter terminals.

NOTICE

Equipment damage due to improper installation

Connect the safety temperature limiter (STB) as instructed in the manual.

- Connect the safety temperature limiter only to the relay box.
- Always connect the safety temperature limiter as an isolated contact.
- If the installation uses multiple sauna heaters, multiple safety temperature limiters may be required. Observe the separate EOS instructions.

10.8 Light and fan

The terminals light and fan must have only one line connection.

A fan with 5 W to 150 W may be connected to the fan terminal. The fan may not have a starting capacitor.

Fan and light connections are protected by a joint 2AF fuse.

- Connect cabin lighting to the terminals (G)
- Connect ventilation fan to the terminals (F)

10.9 Potential-free contact (PFC)

Connect the external device, which should be switched over the potential free contact, to the terminals 3 and 4 (E).

- See also page 21 for PFC specifications

10.10 Vaporiser (only H-series)

Connect the vaporizer to the terminals (D) + ground.

A heat-resistant cable must be used to connect the vaporiser. It must have a cross-section of at least 1.5 mm^2.

You can connect more than one vaporiser. If correctly connected, each vaporiser can report a water shortage separately.

See Checking for proper installation of the vaporiser.

⚠ WARNING

Fire hazard from overheating

If the connection for the water bath (WB) and water shortage (WM) are swapped, the thermostat is jumpered. The water shortage cannot be detected. The vaporiser overheats.

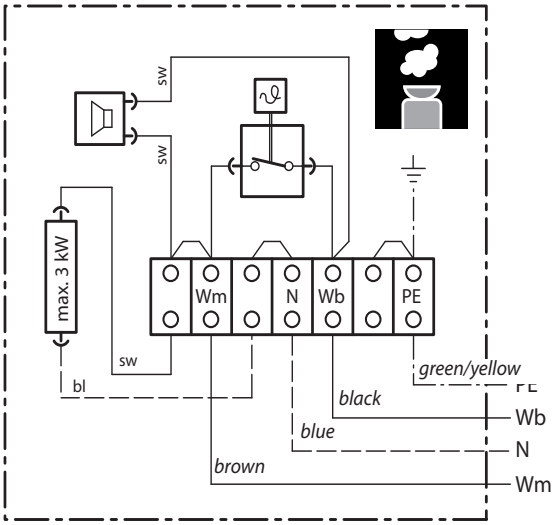
- Do not swap the connections for the water bath (WB) and water shortage (WM).
- Check for proper functioning after installation.

The control unit detects the water shortage if a there is zero potential at the WM input of the control unit.

Note the following when connecting a vaporiser

- The neutral conductor (N) of the vaporiser must be connected.
- If the entire output of the vaporisers to be connected exceeds the maximum switching output (3 kW) of the vaporiser outlet, an additional output controller must be connected to terminals S1/N/V on the relay box's circuit board, e.g. PEB18H.

► **Checking for proper installation of the vaporiser**



Vaporizer connection

If installed properly, the vaporiser will switch on and off according to the humidity setting.

- If the Wb and Wm connections on the vaporiser are swapped, the vaporiser will not switch off and continue to run uninterrupted.
- If the line to Wm is disconnected, the Water shortage error message has to appear.

10.11 Sauna heater

Connect the sauna heater to the terminals (C) + ground

The neutral conductor (N) of the sauna heater must always be connected because, in humidity mode, one phase is rerouted from the sauna heater to the vaporiser. This results in an asymmetrical heating load and power flows through the neutral conductor. (only H-series).

The switching output of the control unit for the sauna heater has a max. of 9 kW resistive load. It can be expanded as needed by an optional output controller (PEB) so that it is possible to connect sauna heaters with an output greater than 9 kW.

To connect the optional PEB, see the installation instructions for the relevant PEB.

10.12 Setting the jumper for maximum heating time

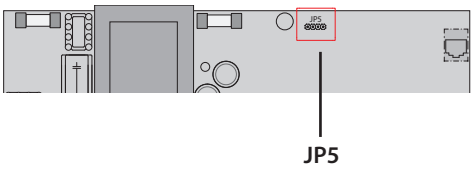
The sauna heater's heating time is limited during installation by the jumper setting. The actual runtime can be adjusted on the control panel within the limits of the jumper setting.

○○○○	Heating time of max. 6 h for private use
○○●●	Heating time of max. 12 h for commercial use without monitoring
●●○○	Heating time of max. 18 h for commercial use without monitoring
●●●●	Heating time of 24 h for 7 days For this setting, the heating time must be switched off manually. The setting is permitted only if the sauna is used commercially and monitored.

10.13 Setting JP5 jumper for heating time

WARNING! Ensure that the relay box has no power. Open the housing.

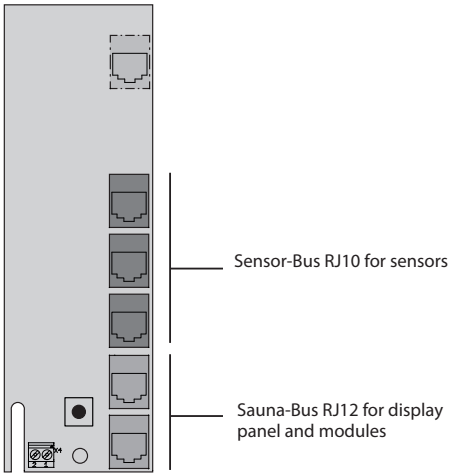
- Set jumper JP5 to the desired runtime.



10.14 Connecting data line

WARNING! Ensure that the relay box has no power. Open the housing.

- Removing the housing cover.
- Route the line through the openings at the base or on the back of the housing.
- The main relay box must be connected to the control panel.
- For connection of the control panels use the S-Bus cable RJ10/RJ14 (5 m, longer lines optionally available) and connect it to a free RJ12 S-Bus connector in the main relay box.
- Connect an optionally available extension module using the S-Bus cable RJ12/RJ12 to a free RJ12 S-Bus connector in the main relay box. Use a modular coupler if necessary.
- Only connect the power supply after all data lines have been properly connected.



⚠ WARNING

Risk of electric shock

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

- Disconnect the system 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.

10.15 Connecting and configuring consumers

► Recommended sequence:

- Connect the cabin lighting
- Connect the fan
- Connect the sauna heater
- Connect the vaporiser (if necessary)
- Connect external device to the PFC if such device is available.
- Connect the main connection

Auf maximal zulässige Leistung der angeschlossenen Geräte achten:

- Light - chapter Installation > light
- Fan - chapter Installation > fan
- Potentialfree contact - chapter Installation > Potentialfree contact (PFC)
- Sauna heater max. 9 kW
- Varporiser max. 3 kW

If the entire output exceeds these values, an additional output controller must be connected, e.g. PEB18H. See the installation instructions for the relevant PEB.

► Connecting consumers

WARNING! Ensure that the relay box has no power. Open the housing

- Route the lines through the openings at the base or on the back of the housing
- Connect consumers as per terminal connection diagram. Observe recommended sequence of connections.

10.16 Closing the relay box housing

The following work must be completed before you close the housing:

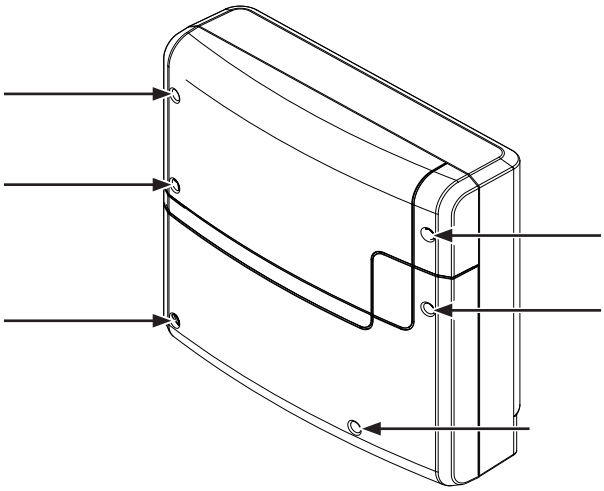
- Connecting data lines
- Connecting and configuring consumers.
- Programming of the cabin address (chapter Multicabin-Installation).

If the device is connected correctly and switched on, a green LED flashes on the main circuit board after a short start-up period. This green LED signals normal communication.

If the relay box in the plant room and the control panel are far apart, the technician can identify the correct installation.

► **Replacing the housing cover**

1. Switch on the relay box and check if the green LED is flashing.
   a) If the green LED is flashing, replace the housing cover.
   b) If the green LED is not flashing, troubleshoot the problem and resolve it.
2. First put the lower then the upper cover halves in place.
3. Screw in the 6 screws.

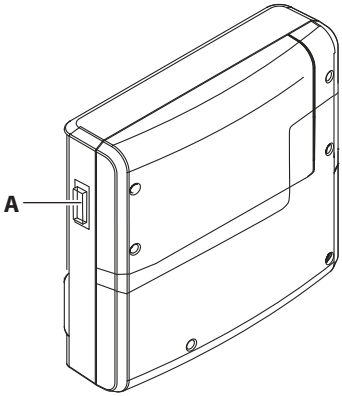


11. Setup (commissioning / first switching)

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

A unit switch is located on the left side of the relay box.

Attention! Parts of the printed circuit board will still remain energized in the switched off condition! Risk of electric shock!

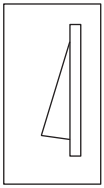


A. Unit switch on relay box

► **Position I:**

Relay box is switched on (factory setting).

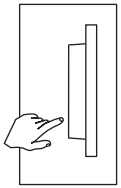
The relay box is ready for operation in standby mode.



► **Position 0:**

Relay box is completely switched off.

Parts of the circuit board are still under current.



► **Position II:**

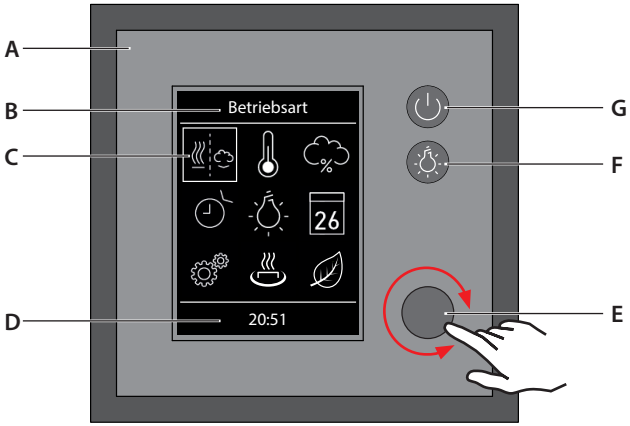
Cabin lighting is switched on, relay box is switched off.

Position for maintenance and cleaning.

11.1 Operation basics

All cabin settings are made at the control panel. All functions must be configured to commission the system.

Add-on modules or accessories are detected after the unit is switched on again and their corresponding icons appear in the sub-menus.



Control panel EmoTec

A. Control panel (front side)
B. Selected function
C. Function symbols
D. Status line
E. Jog Dial for settings
F. Cabin light switch
G. Heating on/off

► Key elements and functions

Following control elements are available:

On / Off
Heating on/off. Also works as home button by inactive heating.

Jog-dial
Rotate = select a function or change value

Light
Cabin lighting on/off

Jog-dial
Press = confirm a function or a setting.

- Selected icons are displayed inside a white frame. Once the selection is confirmed, the rame 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.

- If the jog-dial is not operated for 15 seconds the control unit will return to the start screen.
- Not yet saved settings will be lost.
- Date and time will be saved as long as the battery lasts. All other settings will be saved permanently regardless the battery.

11.2 Setup during commissioning or after a reset

The settings must be redefined upon commissioning and after a complete system reset. The program guides you through the required steps.

If you do not operate the control panel for 15 seconds during setup, it will return to the first step. Already made setting will be then lost.

► Defining the basic settings

1. Set the language and confirm.
2. Set the time and confirm.
3. Set the date and confirm.
4. Specify the type of use and confirm:

   a)  Private use

   b)  Commercial use

   Notice: Special safety regulations apply to the commercial setting. See chapter „Operator Instruction“.

5. Confirm availability of a safety system.

   Notice: If you do not confirm the availability of a safety system, the functions of remote switching, remote control and of the timer will be disabled.

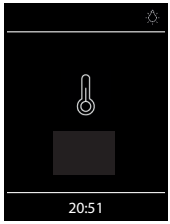
6. Select and confirm the sauna heater type.

   a)  dry sauna heater without vaporizer (or with disabled vaporizer)

   b)  sauna heater with vaporizer (Bi-O sauna heater).

Thes setup will also guide to the settings of the optional extension modules if they are connected, e.g. coloure light module, sound module, BMS control module.

The setup is then complete. The control panel will display the stand-by interface (start screen).



11.3 Changing the cabin address (ID)

The main relay box has the factory default digital cabin address (ID) set to "1".

Under normal circumstances you do not need to change this address.

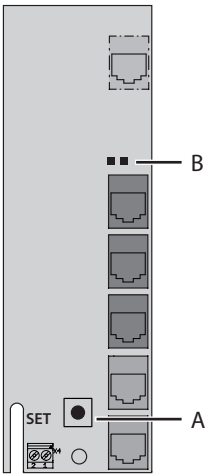
If the main relay box or a optional module have been set to another address, they will not be detected by the control panel. An error message "wrong bus configuration" will be shown.

The cabin address can have a value 1 to 8.

In such case the cabin address must be set back to ID#1. Die This setting is carried out using the „SET" button on the main board in the relay box (see illustration)..

► How to change cabin address:

1. Open the front cover of the relay box. CAUTION: live wires, risk of electric shock!
2. Press programming button (A) for 5-6 sec. until the flashing green LED (B) goes out and a red LED illuminates next to it (active programming mode).
3. Now press briefly yet firmly on the programming button. The cabin address will change one step up, the green LED will flash accordingly the number of times as per new ID. Example: old address = 1 > press SET > LED flashes 2 times > new address = 2.
4. If required press again on the SET button to set the ID until you reach the required value. If you do not press any button for 15 seconds the control unit will exit the programming mode. Red LED will go out, green LED will begin to flash. New cabin address is then active.
5. Once the correct cabin address is assigned, the control panel will automatically detect and configure the connected relay box or extension module.
6. Close the relay box.



A. Programming button „SET"

B. Green and red Status-LED

12. Manual setting of the lamp

The control unit is factory set to inductive lighting load. Hence, resistive loads can also be controlled. If required, the light output can also be switched manually to capacitive loads.

When using incandescent lamps, the lighting load must remain set to inductive load.

The current setting is shown on the display.

Display indication	Setting	Code
 R, L	Inductive / resistive load when using incandescent lamps factory setting	**8001**
 R, C	Capacitive load electronic ballasts for reverse phase control	**8002**

NOTICE

Material damage

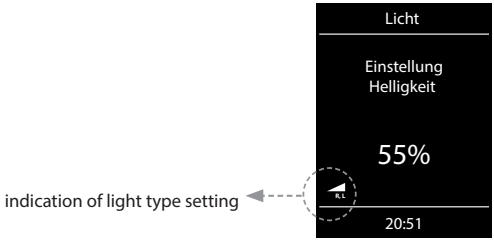
Improper settings can damage the device. In this case, the warranty expires.

- The work may only be carried out by a trained specialist from an authorised electrical company.

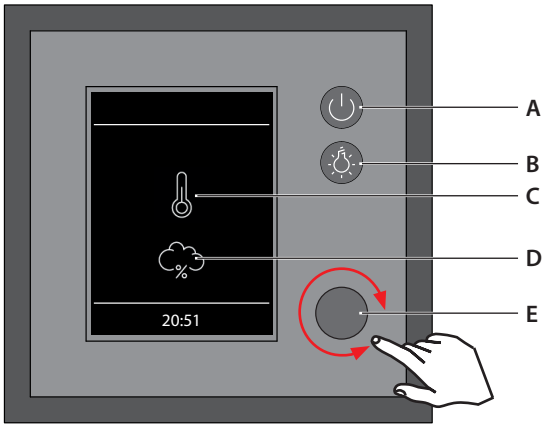
► Lichtlast auf ohmsche Last einstellen

1. If applicable, open the housing of the power unit.
2. Check whether the power unit is disconnected from the power supply.
3. Disconnect the light on the main board.
4. Switch on power unit and control panel.
5. Press  5 sec.
6. Enter code and confirm. 

7. Disconnect the power unit from the mains and reconnect the lamp.
8. Close the housing.
9. Restore the power supply and switch the power unit back on.
10. Dim the lights in the cabin:



13. Operation



EmoTec control panel

A. Heating On / Off
B. Light On / Off
C. Indication of dry sauna mode
D. Indication of humid sauna mode (only H-series models)
E. Jog-dial for operation and settings

► Switching your sauna on / off

To switch the heating on press the button for 3 sec. The sauna will switch on after the count-down 3 2 1 with the pre-set parameters (e.g. temperature, etc.). To switch off, press the button again shortly.

► Switching the light on / off

Press the button to switch the light on or off.

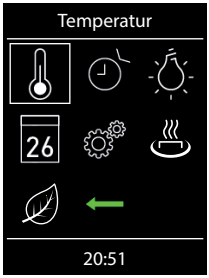
► Settings

Rotate the jog-dial knob to open the settings menu. The menu for general settings will open as shown below.

By EmoTec H models with enabled vaporizer the symbol for a quick selection between the dry and humid sauna mode will be shown at the first place.

Settings interface for EmoTec H (enabled vaporizer)

The symbol for dry or humid mode selection is shown as the 1st option.



Settings interface for EmoTec D or EmoTec H with disabled vaporizer.

13.1 Operation principle with a jog-dial knob

Rotate the jog-dial knob to the left or right, in order to reach a function. Press shortly on the jog-dial knob to open this function. Rotate the jog-dial knob to change the value (changed value turns from white to green). Press the jog-dial knob shortly to save (confirm) the setting and exit, the control panel will then return to the previous (upper) menu.

► Symbol description - main navigation menu

Operation type (only EmoTec H)

Selection between dry and humid mode (the vaporizer must be connected and enabled).

Humid sauna mode (Bi-O)

Selection for operation in humid mode.
(submenu of the operation type).

Humidity

Setting of the target humidity value in humid operation mode. % sign indicates connected humidity sensor (rel. air humidity control).

Light

Setting of the desired light intensity and light switching (light dimming 0 - 100%).

Extended settings

Submenu for further settings. Like e.g. language, time, date, screensaver, child lock, heating time, etc.

HOT-Start (only in Finnish sauna mode)

HOT-function cannot stopped once it has been started.
Icon only available when the heater is on.

Back

Return to the upper menu.

Finnish sauna mode

Selection for operation in dry Finnish mode (submenu of the operation type).

Temperature

Setting of the target temperature in the sauna cabin.

Auto-Start

Pre-set timer for later automatic switching on of the sauna up to 24 h in advance.

Timer

Setting for automatic switching on via calender. A single event switching or regular week timer switching is possible.

Potential-free contact

Switch for the potential-free contact (PFC).

ECO-Start / ECO-Stop

ECO-function can be started and stopped.
Icon only available when the heater is on.

Notice: Additional symbols for settings of the optional extension modules may be shown in the main menu.

Hint:
If you do not operate the jog-dial for more than 20 seconds the control unit will return to the start screen. All not confirmed settings will be lost in this case.

Thanks to the integrated battery (CD2032 type, in control panel), all settings will be stored in the memory and will be retained even in the case of a very long time power loss.

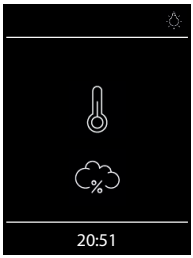
New extension modules and optional equipment will be normally automatically detected and configured. Upon restart the control panel will show the corresponding new symbols in the menu navigation.

13.2 Graphic user interface (GUI) and the current climate conditions check

Thanks to the modern graphic user interface you can quickly access all functions and make necessary settings, as well as make a simple instant query for the current sauna climate condition.

The symbols on the start screen may be displayed in different colours, in order to indicate the current operation status - e.g. white colour for standby and red/blue colour for active heating.

For every selected symbol the control panel will display the meaning of this symbol at the top in one of 19 languages and will provide additional text hints by various settings. For language selection please see the next chapter.

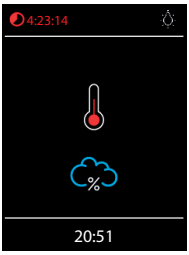


Start screen (standby mode)

In standby mode the display will show the symbol for the heater (thermometer). For EmoTec H in humid mode a cloud symbol will be additionally displayed underneath (symbolizes the vaporizer).

The "%" sign inside cloud means that the humidity sensor has been detected on the control unit (means humidity control as per rel. air humidity).

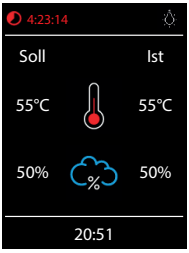
The light symbol will appear at the top right corner if the light has been switched on. At the bottom the clock will be displayed.



When the sauna is switched on - the thermometer symbol starts to pulse red during the heating time, after this it will continuously light in red.

The countdown of the remaining heating time will be shown in red at the top left corner. You can stop the heating at any time by pressing on the on/off button shortly.

The blue cloud symbolizes the active humid mode. Humidity regulation starts after the target temperature has been reached. After the humid mode a "sauna-dry" program will start (up to 30 min., only the heater will run), unless this program has been disabled in setup.



Checking the target and current sauna climate condition

You can quickly check the pre-set (target) and the real temperature (and humidity for EmoTec H). Press on the jog-dial for approx. 3 seconds.

The target and current values will be displayed on the screen. The current values correspond to the values measured at the respective sensor.

If the 2nd sensor (bench sensor) is installed, then the current temperature will be shown as measured by this sensor.

Without humidity sensor only the pre-set proportional vaporizer switching will be shown, with humidity sensor the target and the real humidity in % will be shown.

permanent display of the climate values can be switched on / off with code 6218

enter code 4346 for switching between ° C / ° F

NOTICE: Please pay attention that the shown values for the current temperature (humidity) are measured at the sensor location point. Because of the considerable differences in temperature in different parts of a sauna these values may vary from the values shown by the instruments mounted at the sauna wall. We recommend to maintain the climate as it is pleasant to you instead of blind orientation on some suggested values.

13.3 Operation and program settings (main functions)

Sauna on / off

Press the button on the control panel for approx. 3 seconds to switch the sauna on. Countdown runs 3 2 1 . The display will show the active heating state (see previous page). The cabin light will be also switched on.

To switch the sauna off press the button shortly. For EmoTec H models in humid mode the "sauna dry" program will switch on for 30 min. after the main operation. This time may be reduced or the program may be disabled in setup. After this program the sauna will switch off completely.

You can stop the "sauna dry" program at any time - just press the button again shortly.

Light on / off

Press the light button on the control panel to switch the cabin light on or off. The light will switch on automatically if the heater is switched on, after the heater switches off the light will stay on for 30 minutes. Factory setting cleaning light on, deactivate cleaning light with code 9495.

Sauna operation mode - dry sauna or humid (Bi-O) sauna (only EmoTec H)

Select the sauna mode symbol and press on the jog-dial to enter the selection menu:

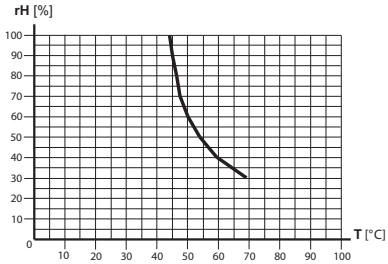
select for the dry Finnish sauna or for the humid (Bi-O) sauna mode.

If the humid mode has been selected, the humidity symbol will automatically appear in the main menu. This option is only available in EmoTec H models.

Temperature

Select and press the temperature symbol in the main menu. A submenu will open and show the current value. Set the new temperature with the jog-dial. Press the jog-dial to confirm and exit. This setting can be also made during active heating.

Humidity (only EmoTec H)



Select and press the humidity symbol in the main menu. A submenu will open and show the last stored humidity value. Set the desired humidity with the jog-dial. Press the jog-dial shortly to confirm the setting and exit. This setting can be also made during active heating (in humid mode).

With a connected humidity sensor (% sign appears inside cloud) the relative air humidity will be controlled. Without humidity sensor the humidity will be controlled in proportional to time way. "30%" then means 30% of the total heating time. The display will show the symbol.

Please observe that with a humidity sensor, the humidity setting will depend on the pre-set temperature. For safety reasons only the values to the left and under the curve may be selected. For instance at 60 °C temperature you can set up to 40 % rel. air humidity. In order to set a higher humidity, you will first need to reduce the temperature.

If the sauna has been used in dry mode with high temperatures and you switch to the humid mode, the vaporizer will only start to work after the temperature drops under the max. allowed level (70 °C).

Time pre-selection (Auto-Start)

With this function you can program your sauna to switch on at a later time with up to 24 h delay. In the main menu select and press the timer symbol with the jog-dial. A submenu will open and display "--:--". Rotate the jog-dial to set the hour for the desired automatic switch on time. Press on the jog-dial to confirm and to jump to minutes. Now set the desired value for minutes and press the jog-dial to save the setting and exit. At the start-screen you will see at the bottom right the blinking timer with the programmed time. This time means the time of day, not the delay in hours/minutes from the moment of setting.

To delete the pre-set Auto-Start timer simply press shortly on the on/off button. The blinking timer indication shall disappear.

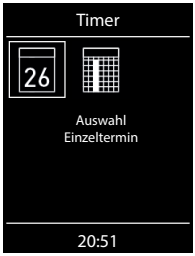
How to dim the cabin light

The light button on the control panel allows to switch the light on/off quickly. In the main menu you can adjust the light brightness (dim the light 0-100%) via the same symbol. 0-10% in single steps, 10-100% in 5 steps.

Press on the light symbol with the jog dial. The cabin light will switch on (if not yet switched on) and a submenu will open and display the current light setting in %. Rotate the jog-dial to adjust the brightness to the desired value. Press on the jog-dial shortly to confirm the new setting and to exit the submenu.

Please observe that the light dimming will only function if a dimmable transformer or a regular resistive load incandescent bulb has been connected. Make sure to observe the minimum and maximum power load for the connected lamps (see specifications or contact your dealer).

Timer (switch-on time pre-selection)



The timer function allows you to have your sauna switched on automatically with the desired climate condition at some time in the future. You have two possible options:

- single event (single time switching, not recurrent)

- week timer (regular, recurrent switching for the given day of the week, e.g. Monday, with up to 4 switching programs per day).

Week timer: all programs for individual days can be temporarily deactivated with a long press on 1, 2, ... or 7. The corresponding icons are then no longer shown in green, but in yellow. The programmed times are not lost, but are simply not executed.

All programs can be temporarily disabled with a long press on This icon is then no longer shown in green, but in white. The programmed times are not lost, but are simply not executed.

For reactivation, long press again on . The symbol turns green again, after reactivating the switch program“

⚠ WARNING

Risk of fire!

The “time pre-selection” and “timer” functions are only allowed to be used if your sauna is equiped with an approved safety system, which prevents the heater from being switched on in an unsafe condition (e.g. a towel forgotten on the heater).

- Even in the case if your sauna has such an approved system, assure yourself that there are no objects forgotten on the heater.
- Especially with an active week timer - make sure to check your sauna regularly for safe conditions.

For single event switching press on the  symbol in the main menu. In the submenu (see example above) press again on the  symbol for the single event programming.

Now set the day, month and year for the desired switching. Then in the new window set the start time (hours and minutes). Then in the new window set the operation type (dry Finnish sauna or humid sauna). Then as the last step set the preferred temperature and humidity (only for humid mode). The programming window will close after the last step. At the start screen in the bottom right corner you will now see the flashing programmed time (date and time, e.g. 15.01. and 18:30).

If you want to cancel this program go to the submenu and set the start time back to "--:--". The flashing date and time indication will disappear. Timer program is now deleted.

For week timer programming press on the  symbol (week timer). The submenu opens with the symbols for the weekdays (from 1 to 7) and the symbol  delete all appointments.

NOTICE: white colour means an empty program place. Green colour means there is a program for the given day. Yellow symbols mean that the corresponding programs have been deactivated, but not deleted.

Select a day of the week, for which you would like to assign a program (e.g. "1" for Monday) and press on the jog dial.

NOTICE: You can assign up to 4 programs to each day of the week. The maximum duration of a switching time depends on the configuration of jumper JP5 on the relay box. According to legal regulations, a continuous break time of at least 6 hours must be met within a period of 24 hours

Furthermore, you can assign individual temperature (and humidity for EmoTec H) to each program for automated sauna operation. This allows to implement flexible energy management schemes in your sauna - for instance during peak-off times you may set the sauna to run at lower temperatures with reduced energy consumption, so that it can then reach the full temperature faster at the main time of use.

Now select the program (1 of 4) and press on the jog dial knob.

1. Set the required start time (hours and minutes) - e.g. 9:30.
2. Set the required switch-off time (hours and minutes) - e.g. 9:30 + 3:30 = 13:00
   (The heating duration is displayed at the bottom of the status line instead of the time)
3. Set the required operation type - dry Finnish sauna or humid sauna (only EmoTec H)
4. Set the required temperature.
5. Set the required humidity (only EmoTec H).

After the last step the control panel will return to the week overview. All days with assigned programs will be displayed in green. Repeat the above steps for every new program you may require (max. 4 per day). After you return to the main start screen you will see the indication of the next (earliest) switching time flashing in the bottom right corner (e.g. Monday, 9:30).

► How to delete or change the week timer

In order to delete or change the program open the week timer via the main navigation menu.

1. Select the respective day of the week.
2. Select the respective program number.
3. Make the necessary adjustments (start time, switch-off time, temperature) or...
4. to delete the program, set the start time (hour and minutes) to „--“
   and press the jog dial two times shortly to confirm and exit.
5. The display will return to the week overview.

NOTICE: With an active week timer you will always see the next earliest switching time displayed flashing in the bottom right corner. Also if you programmed several switching times or a combination of the single event switching and week timer switching.

Potential-free contact

With the potential-free contact (output) you can switch an external device up to 16 A on or off. This function has to be enabled in the setup menu and the external device has to be properly connected and configured.

Please observe that the potential-free contact output only provides a switching signal.

In the main navigation menu select the symbol and press on the jog dial shortly. In the submenu you can now select and press on the (on) or (off) symbol in order to make the respective switching.

If you cannot find the symbol of the potential-free contact in the main navigation menu please contact your local dealer to have this function enabled.

HOT-function

With the HOT-function you can give an additional performance boost in the sauna where the sauna heater will heat without interruption for a preset time (5 - 20 minutes). The set-point temperature is increased to 115 °C, the cabin fan runs at full speed. The maximum temperature 115 °C is not exceeded for safety reasons.

The HOT-function is only available during Finnish operation. The HOT-function can be activated manually via the optional HOT-button or automatically at pre-programmed intervals.

Once the sauna is switched on to Finnish operation, the symbol of the HOT-function appears in the main menu. Select this symbol and press the jog dial. In the submenu you can activate the HOT-function. If an ECO-function is running, it will be stopped when the HOT-function starts.

NOTICE: once the HOT-function has started, it cannot be interrupted anymore.

While the HOT-function is running, the corresponding icon in the status bar will appear on the screen.

HOT - additional functions

The control unit can produce a 3 sec. long swithching signal at the potential-free output (PFC) upon each HOT heating phase. This can be used e.g. to launch a water splash through an external dosing system like AquaDisp or trigger a sound signal. To activate this function select and press the „settings“ icon >3 sec and give in the code 7020 in the new window using the jog dial.

ECO-function

The ECO-mode allows you to reduce energy consumption by manually lowering the sauna temperature when the sauna is not used for a certain period of time (idle). The ECO-function is only possible during operation.

Once the sauna is switched on, the corresponding ECO-symbol appears in the main menu. Select this symbol and press the jog dial. In the submenu you can activate the ECO-function. The ECO-function cannot be started when the sauna is already running in HOT-mode. The ECO-mode can be aborted at any time or programmed for a specific automatic duration up to 240 minutes.

ECO lowers the set-point temperature (T [set] - 30 ° C)) / 2, the cabin fan turns off.

While the ECO-function is running, the corresponding icon in the status bar will appear on the screen.

13.4 Extended settings

The submenu “extended settings“ provides a range of additional functions, which normally need to be set only once or quite seldom.

Select the symbol in the main menu and press shortly on the jog-dial to enter.

Language

Allows to set the language for the menu navigation. 19 languages are available:

DE, EN, FR, RU, ES, NL, IT, PL, SLO, FIN, TR, CZ, RO, BG, HU, HR, SK, DK, CRO, SE

Time

Here you can set the current time of day.

Date

Here you can set the date, month and year.

Screensaver

Here you can set the interval, after which the display will show the screensaver with floating clock.

Sleep mode

Here you can set the interval, after which the control panel goes into sleep mode in order to save power. Rotate or press on the jog dial to wake up the unit.

Child lock

Here you can lock the unit with own Pin-code. It will be still possible to switch off the heater and to switch the cabin light.

Please observe the special advice below.

Heating time (Auto-Stop)

Here you can set the desired heating time. For private use - up to 6 hours, for commercial use - up to 12 hours, 18 hours or 99 hours.

Operation data

Here you can check the firmware version, the remaining time until the next service, as well as the contacts for service issues.

Display brightness

Here you can change the display brightness in three steps.

Holiday home mode

Here you can restrict the user's access to the minimum functions with an own pin-code.

Important advice for Child Lock function

You can completely lock the control panel via  symbol with an individual pin-code. During active lock you can only switch off the heater (if it is heating) and switch the cabin light. If you attempt to reach any function you will be prompted to give in the pin-code.

How to reset the pin-code:

If you forgot the pin-code proceed as described to reset it. Press the on/off button or turn jog-dial to initiate the pin-code prompt, do not change the four "0" digits, confirm the first "0" with the jog-dial, the press and hold the jog-dial pressed at the second "0" (first two zeros turn green, the cursor will move to the third zero).

After approx 40 seconds all zeros will turn white. Now confirm all zeros (do not change them!), the display will return to the start screen and the Child Lock will be reset.

13.5 Extended settings - description of icons and functions

Language

Here you can set the language for the menu navigation and messaging system. Press on the language symbol, in the respective submenu select the required language and press on the jog dial shortly to confirm. All texts will be then shown in the new language.

Time (clock)

Here you can set the current time of day. Press on the clock symbol, in the respective submenu set the hours and minutes with the jog dial and confirm each setting by pressing shortly on the jog dial. After the last setting the display will return to the upper menu. The winter/summer time has to be adjusted manually.

Date

Here you can set the date (day, month, year). Press on the date symbol, in the respective submenu set the date, month and year and confirm each setting by pressing shortly on the jog dial. After the last setting the display will return to the upper menu. Thanks to the integrated battery the once set time will be retained even by very long time power disconnection.

Screensaver

This setting defines the period of time after which the control panel will enter the screensaver mode if no button has been operated. In this mode the display brightness will be reduced to the minimum and the display will show the current time (or EOS-Logo et al enlarged) floating across the screen. Rotate the jog dial or press on the on/off button shortly in order to return to the start screen.

Sleep mode

This setting defines the period of time after which the control panel will enter the sleep mode. In sleep mode the display will be switched off completely. Rotate the jog dial or press on the on/off or light button to wake the control panel. This function is only active if the heater is not switched on.

Child lock / Operation lock

You can lock the control panel with the individual pin-code in order to prevent unauthorized access.

To lock the control panel select the “lock“ symbol and press on it shortly with the jog dial. A submenu will open and display “0000“. You can now replace the zeros with your personal 4-digit pin code. Rotate the jog dial to select a number, press on the jog dial to confirm it and to jump to the next digit.

After the 4th digit confirmation the display will return to the start screen and the unit is now locked

For safety reasons it is still possible to switch off the heater (interrupt active heating) and to switch the light while the unit is locked. All other functions will be locked.

For all other operating attempts, the request for PIN code entry appears.

To unlock the unit rotate the jog dial in order to call the pin code prompt. Now give in your pin code. The unit is now unlocked.

Heating time

Here you can set the required heating time duration for your sauna heater.

For private use the max. heating time is limited to 6 hours. For commercial use the max. heating time may be limited to 6 hours, 12 hours, 18 hours or set to unlimited. This limitation should be set in hardware during the installation and setup (jumper 5 setting)

Press with the jog dial on the symbol and set the required heating time in hours and minutes. This setting will be then valid for every manual sauna switching. You can of course stop the heating earlier at any moment.

After switching the sauna on the remaining heating time will be displayed as a countdown clock in the upper left corner. So you can check at a glance the remaining heating time of your sauna.

Please observe that after the humid mode operation (only EmoTec H) the sauna heater will be switched in the „sauna dry" mode in order to dry your sauna cabin. The default sauna dry mode duration is 30 minutes. This time may be reduced (also the pre-set temperature and fan operation time may be adjusted) in the setup menu. Please contact your specialist dealer for further details.

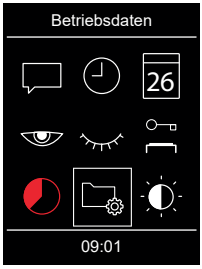
The running time is set in +/- 1 minute increments and is from 00:30 possible.

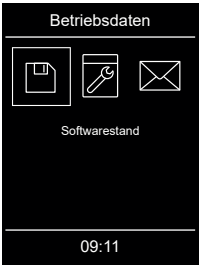
Operation data

Here you can check the important information concerning your control unit (sauna) operation.

Firmware - allows to check the currently installed firmware version.

- and select and confirm.
- select and confirm.
- Rotate the jog dial to switch between two possible parameters. "Panel Vx.xx" - shows the firmware in control panel, "Mod-LS Vx.xx" - shows the firmware in the main relay unit (x stands for a number). Press on the jog dial to close this submenu.





NOTICE: To update the firmware (update), see page 72, chapter 14.3.

Service intervals - allows to check the remaining time until the next pending servicing / maintenance of your sauna. The intervals will be set by your specialist dealer (installer) during the installation and setup.

Contacts - shows you the contact information of the sauna control unit manufacturer or your specialist dealer (installer). This information will be also displayed during error messages.

Display brightness

Here you can set the display brightness in 3 stages.

Holiday home mode

With this function you can restrict the access to the control panel with your own pin code down to the bare minimum of functions. All other functions will be disabled and their symbols will not be displayed.

Following settings are possible when the holiday home mode is active:

- Sauna on / off
- Light on / off
- Selection of the operation mode - dry or humid (only for EmoTec H)
- Temperature setting
- Humidity setting (only for EmoTec H)

To activate the mode press on the symbol. A pin code prompt window with default "0000" will open. Set your personal pin code with the jog dial. Rotate the jog dial to select a number and press shortly to confirm it and to jump to the next digit. After the 4th digit the display will return to the start screen and the holiday home mode will be activated.

HINT: To cancel the activation while setting the code press shortly on the main on/off button.

To unlock the control panel rotate the jog dial to reach the main navigation menu. Select the symbol. Press on this symbol with the jog dial. The pin code prompt window will open ("0000" default display). Enter your pin code to unlock the control panel.

► Reset holiday home mode

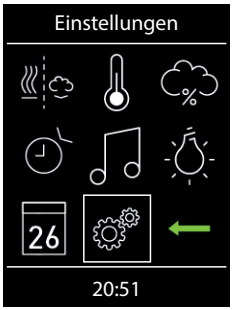
Select the symbol and press on it with the jog dial for approx. 1 minute. The pin code prompt will open, confirm all four zeros with the jog dial. After the 4th digit the control panel will be unlocked and will return to the start screen. The pin code will be reset.

14. Service & Setup level

Additional important settings and basic functions can be set up and adjusted in a separate area that is protected by a PIN code.

In the main menu select the  symbol and press it with the jog dial (or press enter button for EmoStyle models) for approx. 6 - 7 seconds until a PIN-code prompt window opens.

The PIN-code: **5349** (only to be provides to trained specialists).



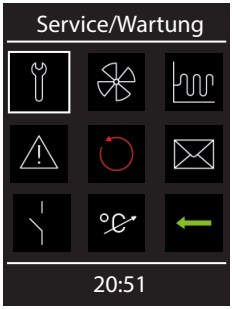
Press for approx. 6 - 7 sec.

>>

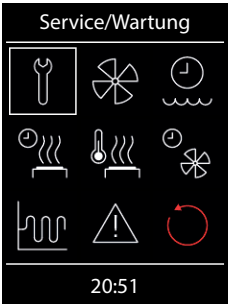
Enter the PIN code

► Service & setup level user interface

Depending on the model (D or H) the available functions will be shown as symbols. For H models some symbols will not fit the window and will be hidden. Rotate the jog-dial (or use up/down buttons for EmoStyle models) to scroll and show them on the display.



Service level interface of the D models



Service interface of the H models (immediately visible symbols)

H models interface - the lower (hidden) part of the window

14.1 Symbol description

Service / maintenance intervals

Setting the intervals for service / maintenance.

Temperature adaptation

Setting for the temperature offset +/- °C.

Fan

Fan speed settings.

HOT-time

Setting in minutes (5-20 min.)
Only for dry Finnish operation.

Refilling time

Switch-off time settings (only for EmoTec H)

HOT-auto interval time

Setting range: 30 to 480 min.
Only for dry Finnish operation.

Afterheating time

Setting for humid operation in minutes. (only for EmoTec H)

HOT-auto start time

Setting range: 0:00h to 23:59h and --:--
Only for dry Finnish operation.

Afterheating temperature

Setting for humid operation in °C.
(only for EmoTec H)

HOT-auto switch-off time

Setting range: 0:00h to 23:59h and --:--
Only for dry Finnish operation.

Fan running time

Fan operation time in minutes.
(only for EmoTec H)

ECO-time

Setting in minutes (0-240 min.)

Hysteresis

Setting of the switching hysteresis

HOME

Enables the remote operation for KNX or Modbus systems (with Modbus configuration).

Usage

Selection for private or commercial use and selection of the sauna heater

back

returns to the menu

Reset

Reset to the factory default settings, all individual settings will be deleted.

Potential-free contact

Enables or disables the potential-free contact switching function.

Contact details

Displays stored contacts.

14.2 Settings

Service intervals

Allows to set the intervals for servicing and maintenance. Upon expiry the control panel will remind the user for a short time upon every switching about the pending servicing. The end user can check the remaining time to the next servicing in the extended settings menu. This function allows as well to keep track of the total operation time of the sauna.

Default setting for private use - 500 hours.

Default setting for commercial use - 2500 hours.

Fan

Here you can set the fan operation speed in 3 stages or disable it. If activated, the fan will automatically switch on with the heater (synchronous operation). In "sauna dry" program the fan will always operate at the highest speed.

Refilling time (only H models)

Here you can set the grace time which the end user has to refill the vaporizer after the water shortage alarm. If the vaporizer has not been refilled within this time, it will be switched off (overheating protection). This function is especially important for Bi-O heaters with manual refilling.

After-heating time (only H models)

Here you can set the time for the "sauna dry" program after the humid operation. Factory default setting is 30 minutes. After every humid operation the sauna will then switch on in dry Finnish mode in order to dry the cabin. We recommend to use this function in combination with the exhaust fan in order to remove the humidity and dry the sauna cabin.

After-heating temperature (only H models)

This functions allows to set the temperature for the "sauna dry" program. Factory default setting is 90 °C.

Fan running time (only H models)

Here you can set how long the fan should operate after the Finnish or humid mode operation of 0-60. Factory default setting is 30 minutes. We recommend to use this function in combination with the "sauna dry" program in order to remove the humidity and dry the sauna cabin.

Hysteresis

Allows to adjust the hysteresis within a 1-10 K range. This adjusts the tolerance level around the temperature set-point and influences how often the heater will be switched on or off by temperature changes. For instance at 90 °C target temperature and hysteresis set to 5 K the control unit will switch the heater on at 85 °C and off at 95 °C respectively. This allows you to better adjust the sauna heater to the specific sauna cabin size and layout.

ATTENTION! A smaller hysteresis value will lead to considerably increased number of relay switchings, which reduces the service life expectation of the control unit! The factory default setting is 5K.

Type of use

Here you can set the sauna use type to private use or commercial use. The control unit will adjust relevant settings accordingly. For instance the maximum heating time limitation.

Reset

Allows you to reset the unit back to the factory default settings. All individual settings will be lost. The control unit will restart and will prompt to perform the basic setup steps as by the first switching.

Contact details

Here you can check the stored contact details. By default the contacts of the control unit manufacturer will be shown. If an optional micro-SD card with personalized firmware is inserted, the individual contact details will be shown.

Potential-free contact

Allows to enable or disable the potential-free contact switching function. If enabled the corresponding symbol will be shown in the main navigation menu, so that the end users may switch the connected external equipment. By default this feature is disabled.

The middle symbol  allows to synchronize the volt-free contact switching with the S1 output. This means the contact between terminals 3 and 4 will be closed if the sauna is switched on.

Temperature adjustment (offset)

With this function you can adjust the displayed set point temperature of the control unit in relation to the real set point value. For instance, if the thermometer shows air temperature 5 °C below the set point value you can compensate this difference by adjusting the temperature offset to +5K. The control unit will then heat with the effective set point 5K above the displayed set point which allows to reach a higher temperature in order to match the value shown on the thermometer.

Notice: Since this function bears certain risks, it may be only used by experienced and appropriately qualified persons and should be properly tested.

Possible adjustment range is from -10K to +10K.

Please make sure to observe the maximal allowed temperatures as per norm EN 60335-2 part 53.

HOT-time

In this menu the duration of the HOT-function is set. During this time, the set-point temperature is increased to 115 °C to produce a short-term performance boost.

- Setting range: 5 to 20 minutes.
- The factory default setting is 10 minutes.

HOT-auto interval time

You can start the HOT mode automatically at specific time intervals. In this menu the interval for this automatic switch-on can be set.

However, the HOT heat-up phase starts effectively a little earlier, before the set time according to the set duration. Thereby the sauna stones reach the ideal temperature at the desired start time.

If the system started at a time when the preselected time period of the heating phase should have already started, the next step of the HOT interval is executed first.

Example: When setting the start time: 8:00 and duration: 20 minutes, the HOT heat-up phase begins at 7:40, with a duration of 15 minutes - at 7:45, with a duration of 10 minutes - at 7:50.

- Setting range: 30 to 480 minutes
- Increment: 30 minutes
- Factory default setting: 60 minutes

HOT-auto start time

- In this menu, the start time for the HOT-auto or for the first water splash can be set
- Setting range: 0:00 Uhr to 23:59 Uhr, --:-- corresponds to HOT-auto deactivated
- Factory default setting: --:--

HOT-auto switch-off time

- In this menu, the switch-off time for the HOT-auto can be set
- Setting range: 0:00 Uhr to 23:59 Uhr, --:-- corresponds to HOT-auto switches off with sauna
- Factory default setting: --:--

ECO mode

The ECO mode runtime can be set in this menu. Once the pre-set time runs out the control unit returns to the normal temperature range. A vaporizer (if installed) will be off when ECO is active.

- Setting range: 0 to 240 minutes. 0 means the ECO mode has to be deactivated manually.
- Increment: 30 minutes
- Factory default setting: 0 (only manual deactivation of the ECO mode)

NOTICE: by „0“ setting the ECO mode can be only deactivated manually, but will stop after 18 hours of heating.

HOME (remote control via building management systems)

The control unit supports the possibility of remote control via building management systems running on KNX or Modbus communication protocols.

You will need an optionally available communication module to use this feature (SBM-GLT-KNX item 947078 or SBM-GLT-Mod item 947077). This module connects to the sauna control unit with the sauna bus connection cable.

Notice: During the initial setup of the sauna control unit it should be confirmed, that the sauna cabin is compliant with the legal safety regulations. Otherwise the remote control will be locked.

From the firmware R3.57 the setup of the HOME function can be reached directly during the initial setup of the sauna control unit (note the KNX or Modbus module must be connected to the control unit and must be operational).

From factory the sauna control unit is supplied with the HOME function set to „disabled“.

► Setup for remote operation via SBM-GLT-KNX module:

- Make sure the SBM-GLT-KNX module is connected and operational.
- Make sure that during the initial setup it has been confirmed that the sauna is compliant with the legal requirements for remote control (availability of the approved safety system).
- Open „Home“ setup menu either during the inital setup (from Firmware R3.57) or via the „Home“ icon in the service level settings. Open the submenu „KNX“.
- Enable (activate) KNX remote control. The setup is herewith complete, exit the menu.

► Setup for remote operation via SBM-GLT-Mod module:

- Make sure the SBM-GLT-Mod module is connected and operational.
- Make sure that during the initial setup it has been confirmed that the sauna is compliant with the legal requirements for remote control (availability of the approved safety system).
- Open „Home“ setup menu either during the inital setup (from Firmware R3.57) or via the „Home“ icon in the service level settings. Open the submenu „Modbus“.
- Enable (activate) the remote control for Modbus systems.
- Make the additional individual settings for the Modbus system. The parameters should be provided by the Modbus provider / IT-specialist.
- Parameters: Address, Stop bits, Parity, Baud Rate.
  Default setting: Address 247, 1 Stop bit, No parity, Baud Rate 19200.
- Confirm your setting. The setup is herewith complete, exit the menu.

You can change these settings at any time via the service level menu. For additional information about installation and setup of the KNX or Modbus modules please refers to their corresponding installation and operation manuals.

Weitere Funktionen des PFC

These functions can be set by entering the appropriate code, by going to the symbol in the main menu and pressing the jog-dial button for approx. 6-7 seconds and then entering one of the codes from the „PFC codes“ table.

An „AND“ in the switching conditions means that these conditions must be met at the same time.

Code	PFC-Funktion
7000	PFC operates as it is set in the service level menu (PFC = off, PFC = coupled with sauna on / off, PFC = can be switched manually in the user settings menu)
7001	PFC closes, when the cabin light is switched on and opens when the cabin light is switched off
7002	PFC closes, when the cabin light is switched off and opens when the cabin light is switched on
7003	PFC closed, when the sauna is switched on AND there is no fault, otherwise open. The normal (already existing) coupling of the PFC with the sauna-on function does not take any interference into account. PFC opens when the sauna is switched off or in after heating mode. Application: PFC closes when the sauna is on and runs without a fault shut-down.
7004	PFC closes if any fault is present. The fault is saved until the next time the sauna is switched on without a fault. Application: Fault collecting line to PFC
7005	PFC closed, when the sauna is switched on AND when there is no fault AND when steam production is requested, otherwise open. To avoid that the heater is throttled to 2/3 of its power output when steam is requested, as is the case with a heater with an integrated vaporizer, the active code 7005 will disable the WB output and also the WM water shortage input. Application: Connection of an external vaporizer to PFC instead of WB/WM connection.
7006	PFC closed, when the sauna is switched on AND if the cabin is heated up to pre-set level, otherwise open. PFC opens when the sauna is switched off or in after-heating mode. Application: An external device shall be switched once the sauna reaches pre-set level.
7007	PFC closed, when the sauna is switched on AND the heater is heating, otherwise open. Application: An external device shall be only switched if the heating is on and the heater indeed heats (gets power).

7008	PFC closed, when sauna is switched on AND when ECO is active, otherwise open. Application: An external device shall be switched when ECO mode is active.
7009	PFC closes, when the sauna is switched on and opens after the sauna has been switched off or switched in after heating time. Manual operation is possible at any time. Application: Connection of coloured light, sound, starry sky, etc.
7010	PFC closed, when the sauna is switched on AND is in the initial heat-up phase below the pre-set level, otherwise open. PFC open when the sauna is switched off or in after-heating mode. Application: Connection of IR-heating foil for a faster sensation of warmth.
7020	PFC closes for 3 sec, when the sauna is switched on AND the HOT function has ended. Application: Connection of AquaDisp water-splash system via PFC for an automatic water splash after the end of HOT runtime.

Back (exit service level)

Select and press the symbol in order to exit the service level. Alternatively you can shortly press the "Home" button (on/off button).

The service level will be automatically closed, if you do not operate the control unit for 15 seconds.

The control panel will then return to the start screen.

14.3 Updating firmware

To update the control panel software, you need a microSD or microSDHC card with a storage capacity of at least 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:

- Memory card with firmware.
- ZIP file with the zipped update files as a download from the EOS homepage.

NOTICE

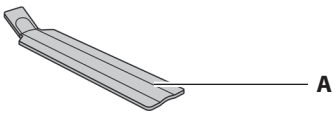
Equipment damage due to a faulty update

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.

The front panel must be removed to update the software. You will need the disassembly tool or a slotted screwdriver for disassembly.



A. Removal tools

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.

The following steps are required to create and import a backup:

- Prepare memory card on PC or notebook
- Preparing the update
- Remove front panel
- Installing the update
- Repeat update after malfunction during update

► Prepare memory card on PC or notebook

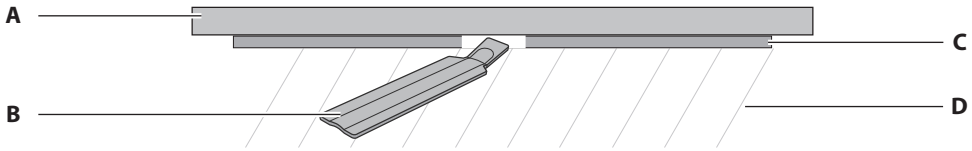
1. Insert the unformatted card into the card reader.
2. Select the card reader drive in Windows Explorer.
3. Open the context menu (right mouse button) and select Format. The micro SD card must be formatted with the FAT32 file system.

► Preparing the update

1. Download the most recent firmware from the EOS website. eos-sauna.com/service-support/software
2. Unzip the downloaded ZIP file and move 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

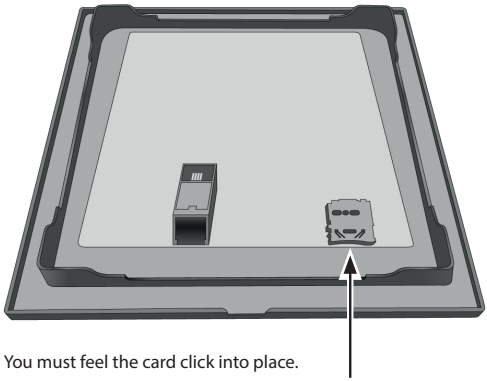
NOTICE Do not tilt the front panel to avoid damage to the display.

3. 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

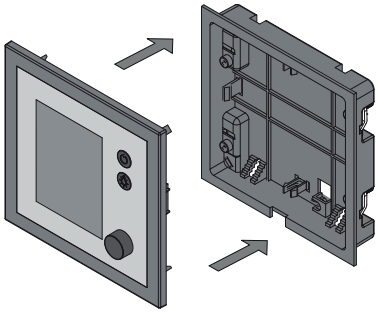
NOTICE Ensure that the power supply is not interrupted during the update process.

1. Insert the memory card into the card slot on the PCB of the control panel.



You must feel the card click into place.

2. Switch the off switch on the relay box to I.
   - The update is indicated by a coloured progress bar. The control unit restarts automatically once the update has been successfully completed.
   - If no symbols are displayed after switching the power unit back on, or if the software crashes during operation, the update has not been carried out correctly.
3. Remove the memory card after the update.
4. Place the operating front directly in front of the housing. Ensure correct alignment. The S-bus connection must point downwards.
5. Carefully press the front panel evenly into the housing until you hear it click into place.



Arrange the connecting cable in the lower section so that it does not become trapped.

► Repeat update after malfunction during update

1. Load a backup of the old software version onto the card.
2. Carry out the steps as for installation of the update
3. Once the old software version has been restored, repeat the update.

15. Troubleshooting (error messages)

The control unit can detect various malfunctions and faults and displays them on the screen. These are displayed in plain text, so that the error identification and troubleshooting is much easier.

In addition, the device also alternately displays the contact information to allow faster technical assistance.

Error message example

Errors / Error messages	Reason / Troubleshooting
Display remains dark	▪ No power supply - check fuses, check cables. ▪ Switch-Off switch in off position - check the device's main switch for correct position. ▪ Faulty connection to control panel - check the link cable (rely box - control panel) for reliable connection. ▪ Active sleep mode. *Press or rotate jog-dial switch,** press▲ / ▼ or ENTER button. (* for EmoTec, **for EmoStyle)
Sensor fault	▪ Faulty connection to the main sensor - check the sensor and cables for reliable connection. ▪ Faulty sensor- get the sensor replaced by the dealer
Thermal fuse triggered	▪ Faulty connection - check the white cable (loose wire, faulty contact, etc.) ▪ Sensor faulty - get the sensor replaced by a specialist.
Safety circuit fault	▪ No connection - check cable and connection of the overheating temperature limiter STB. ▪ STB blown due to overheating - check reasons for overheating, replace STB (spare STB is included).
Multiple temperature sensor	▪ Several identical temperature sensors connection - check sensors, disconnect redundant sensors.

Water shortage, Please refill!	▪ Too little water in vaporizer - refill water. Observe the pre-set grace time for refilling, otherwise the vaporizer will be shut-down! ▪ By automatic refilling - check the water supply line, check the FWA01 water level control device.
Door surveillance / Photoelectric sensor	▪ EOSafe safety circuit releases - check integrity of the system. Check sauna heater for safe condition.
Water shortage, sauna off, please refill!	▪ Too little water in vaporizer. Let the vaporizer cool down. ▪ Reset thermal fuse in the vaporizer. Refill water.
No bus communication	▪ Check the cable connection between the relay box and the control panel. ▪ Restart the control unit; if the fault persists, contact the dealer or EOS service.
Wrong bus configuration	▪ The relay box has a wrong cabin address (ID). Change cabin address to ID #1.
Unknown error	▪ Check cable connections and restart the control unit; if the fault persists, contact the dealer or EOS service.

If any other unidentified error messages appear, please contact EOS service. Make sure to supply the serial number, fault details and other relevant information.

The model name, item number and serial number are printed on the type plate. The type plate is attached to the left side of the main relay box.

Recycling

Devices or lighting elements that will not be used any longer have to be handed in at a recycling station according to regulation 2012/19/EU.

Do not dispose it with the normal household waste.

Packaging

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

- Paper/cardboard
- Plastic foil / plastic

Electronic waste

Electronic waste must be disposed of at the designated local collection point for electronic waste.

Additional disposal note for commercial users:

Further disposal instructions can be found under the link www.eos.sauna.de/recycling

Service Address

EOS Saunatechnik GmbH
Schneiderstriesch 1
35759 Driedorf
Germany

Tel: +49 (0)2775 82-514
Fax: +49 (0)2775 82-431
service@eos-sauna.de
www.eos-sauna.com

Please retain this address together with the installation guide for further references.

To help us answer your questions quickly and competently please provide the information printed on the type shield including the model, item no. and serial no., in all inquiries.

Date of sale:

_____

Stamp and signature of the authorized dealer:

General Terms and Conditions of Service

I. Scope

Unless otherwise agreed in writing in a specific case, these terms and conditions of service shall apply to service operations, including examining and repairing complaints. All our existing or future legal relationships shall be governed solely by the following terms and conditions of service. Our recognition of any conflicting terms and conditions of the Ordering Party shall be conditional upon our having given our express written consent to their applicability. We hereby expressly object to any terms and conditions of the Ordering Party contained in its General Terms and Conditions of Business or order confirmation. If order confirmations or deliveries are accepted without reservation, this shall not be deemed to constitute recognition of such terms and conditions. Any ancillary agreements or amendments must be confirmed in writing.

II. Costs

The Ordering Party shall bear the following costs in connection with the service operation:

- De-installation/installation and electrical works (connection / disconnection).
- Transportation, postage and packaging.
- Function testing and troubleshooting including inspection and repair costs.

There shall be no third-party billing.

III. Obligations / Ordering Party's cooperation

The Ordering Party shall provide free-of-charge assistance to the manufacturer in carrying out the service operation.

By an accepted warranty claim the manufacturer shall provide the required replacement parts to the Ordering Party free of charge.

IV. Service visit by the manufacturer

In the event that it is essential that a manufacturer employee carry out the service operation on site, this must be agreed in advance. Where the main reason for the service call is not the fault of the manufacturer, any costs incurred shall be recharged to the Ordering Party after the service visit and shall be paid as per agreed payment terms.

V. Liability

The manufacturer shall assume liability in accordance with the currently applicable statutory regulations. The packaging for all of our products is designed for the shipping of individually packed goods (pallet). We expressly point out that our packaging is not suitable for individual shipments via parcel post. The manufacturer shall accept no liability for damage incurred as a result of improper packaging in an individual shipment.

VI. Manufacturer's Guarantee

The manufacturer's guarantee shall apply only in the event that installation, operation and maintenance have been carried out in accordance with the manufacturer's specifications contained in the installation instructions and instructions for use.

- The guarantee period shall commence from the date on which proof of purchase is provided and shall be limited, in principle, to 24 months.
- Guarantee services shall be performed only if the original proof of purchase relating to the equipment can be presented.
- Any and all guarantee claims shall become void if modifications are made to the equipment without the manufacturer's express consent.
- Any guarantee 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 guarantee claims, the serial and article numbers must be indicated together with the product name and a meaningful description of the fault.
- This guarantee shall cover defective equipment parts, with the exception of usual wear parts. Wear parts are, among others, lamps, glass parts, heating elements and sauna stones.
- Only original replacement parts may be used within the warranty.
- Service visits by outside companies shall require a written order to be issued by our service department.
- The equipment in question shall be sent to our service department by the Ordering Party and at its expense.
- Electrical installation and connection works in the event of service or replacement shall be carried out at the Customer's expense and shall not be borne by the manufacturer.

Complaints in respect of our products shall be reported to the responsible authorized dealer and shall be exclusively handled via the latter.

The manufacturers General Terms and Conditions of Business, which can be found at www.eos-sauna.com/agb, shall apply in addition to the foregoing terms and conditions of service.

As of 08/2018