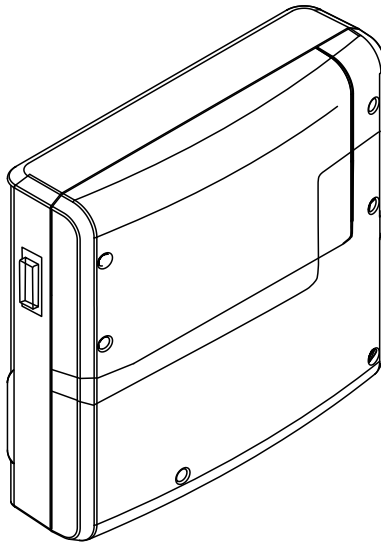**EOS**

INNOVATIVE SAUNA TECHNOLOGY

SBM-IR-Relaismodul

Relay Box for Infrared Cabins

Installation Instructions for retailers

Made in Germany

CE EAC

Documentation

Manufacturer

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Original installation instructions EN

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Characters, symbols and illustrations

ⓘ	Additional information about an operating step
☐	Cross-reference to a page
📖	Read instructions
☑	Result of a step
☐	Table title
🖾	Title of figure

Revision history

Date	Version	Description
15 June 2021	01.00	First version

Contents

1 General safety instructions

1.1 Safety levels

Safety instructions and important operating instructions are classified according to ANSI Z535.6. 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.

1.2   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 701.

▶ The system must be disconnected and removed entirely from the mains supply before commencing installation and repair work.

▶ The housing cover must only be removed by a specialist.

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

Fire hazard from overheating

Infrared emitters and heating foils without overheat protection can lead to overheating of the cabin and fire. Flammable parts must not exceed a temperature of 140°C when the unit is operated as intended or in the event of a malfunction.

▶ Install only infrared emitters or heating foils that are designed and installed in such a way that they do not pose a fire hazard when the unit is operated as intended. Alternately, infrared emitters or heating foils with overheat protection as per EN 60335-2-53 may be used.

▶ Install a safety temperature limiter if needed.

▶ Observe the manufacturer's safety and installation instructions for infrared emitters and heating foils.

▶ Observe the cabin manufacturer's safety and installation instructions.

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.

1.3   Operator instruction

The operator of the infrared or sauna cabin must be instructed in the general safety instructions during commissioning. The operator must be given a copy of the operating instructions.

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

Risk of burns and chemical burns

Touching hot parts may lead to skin burns and chemical burns of the skin.

▶ 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 period and understand how it is controlled.

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

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

▶ In a commercial infrared or sauna cabin, the heating period must be set so that it switches off automatically after a specific period of time.

▶ If the heating does not switch off automatically after a defined heating period, cabin use must be supervised at all times.

▶ Inspect the cabin before each use.

Operation by children or persons with reduced mental capacity

Children and persons with reduced mental capacity can be a risk.

▶ Children must be supervised to ensure they do not play with the unit.

▶ Children under 8 should not operate the infrared cabin.

▶ The settings for the heating period must only be used by children under 8 years of age if they are supervised by an adult.

▶ The infrared cabin must only be used by persons with reduced mental capacity, or limited physical or sensory abilities under supervision or if they have already been instructed in its use and understand the risks.

▶ Children and persons who have not received proper instruction must not clean or service the system.

1.4 Standards and regulations

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

2   Identification

The SBM-IR relay module can be used in the following ways:

- For connection to a relay box in an infrared and/or sauna cabin.

- For connection to the SBM-LSG-IR relay box.

2.1   Information about the units

2.1.1   SBM-IR-Relaismodul

Nameplate

The nameplate is attached to the underside of the base of the housing.

A Name	**F** Country of origin
B Model	**G** Manufacturer
C Item number	**H** Manufacturing date
D Operating voltage	**I** Serial number
E Switching output for connected consumers	

⊞ Nameplate (example)

Requirements for operation and storage

The IR relay module must only be mounted outside of sauna cabins, infrared cabins and steam rooms. The installation location must meet the following environmental conditions:

- Ambient temperature during operation -10°C to 40°C

- Storage temperature: -20°C to 60°C

2.1.2   Control panels

The IR relay module can be operated with one of the following control units:

- EmoTec, EmoTec IR (software release R. 3.63 or higher)
- EmoStyle, InfraStyle (software release R. 3.63 or higher)
- EmoStyle i, InfraStyle i (software release R. 3.63 or higher)
- EmoTouch 3 (software release R. 2.18 or higher)

Check your control unit's software version. Update your software if it does not match the specifications above. The control units are not included in the scope of delivery.
For more information on the control units, please refer to the relevant operating instructions.

2.2   Intended use

The IR relay module is the preferred means of operation for infrared foils in infrared and/or sauna cabins. Emitters may also be connected. The (dimmable) IR module or IR relay box is recommended for emitters.
The IR relay module is suitable for use with private or commercial cabins. It must be mounted on a wall.

The IR relay module 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.

Foreseeable misuse

The following are considered instances of foreseeable misuse:

- The control and sensor cable plugs are plugged in incorrectly.
- The cabin addresses are programmed 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 module.
- The unit is operated by children or persons with reduced mental capacity or by persons who have not been thoroughly instructed in its use.

📖 1 General safety instructions, 🗋 EN-5

3 Description of the units

3.1 Scope of delivery

The following components are included in the scope of delivery:
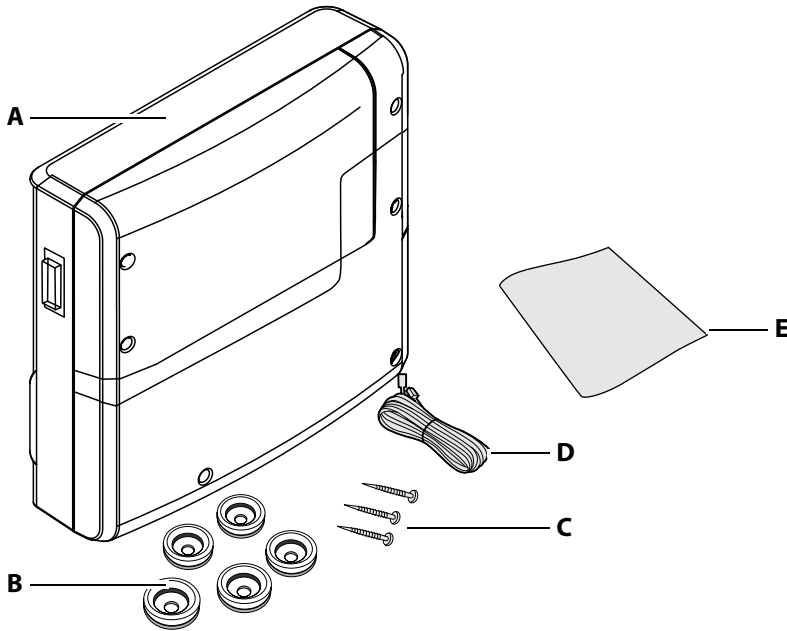
|			
A	Relay box with 2-piece front cover	**D**	5 m connecting cable with RJ14/ RJ10 modular plug for control panel
B	5 bushings	**E**	Installation and operating instructions
C	3 wood screws 5 x 25 mm		

▨ Relaismodul scope of delivery

Check the scope of delivery for completeness prior to installation.

Accessories (optional)

Accessories	Item no.
10 m connecting cable for control panel (RJ10/RJ14)	94.6802
25 m connecting cable for control panel (RJ10/RJ14)	94.6285
50 m connecting cable for control panel (RJ10/RJ14)	94.6968
100 m connecting cable for control panel (RJ10/RJ14)	94.6969
10 m connecting cable for sauna bus (RJ12/RJ12)	94.5861
25 m connecting cable for sauna bus (RJ12/RJ12)	94.4647
50 m connecting cable for sauna bus (RJ12/RJ12)	94.4648
SBM-IR module as installation add-on	94.6966
IR plug-in adapter with adapter cable	94.2046
IR plug-in adapter without adapter cable	94.4960
2.5 m connecting cable for IR plug-in adapter	94.4396
SBM-ECO module	94.6980
SBM remote start	94.5782
SBM-FL75/150 coloured light module	94.5996, 94.6007
SBM-S BT sound module	94.5921
Infrared receiver for coloured light module and sound module	94.6810
SBM-GLT-MOD Modbus module	94.7077
SBM-GLT-KNX KNX module	94.7078
Modular distributor RJ12 for sauna bus connecting cable	2001.5298

3.2   Overview
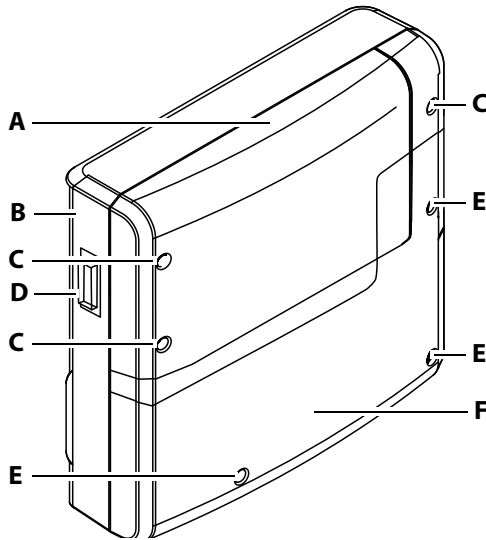
A	Housing cover – top piece	**D**	Unit switch
B	Housing	**E**	Retaining screws for bottom piece
C	Retaining screws for top piece	**F**	Housing cover – bottom piece

⌨ Relaismodul

Unit switch

The relay box is equipped with an on/off switch on the left side.

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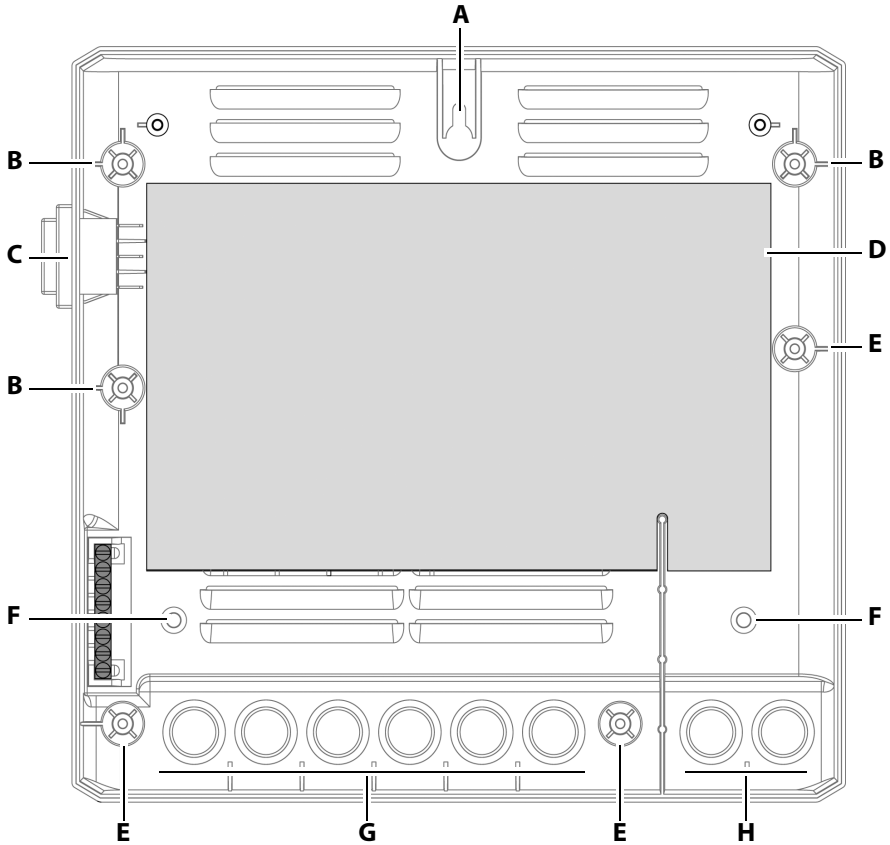The relay box is ready for operation in standby mode.

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

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

3.3   Internal view

A Top mounting hole
B Housing cover fixtures – top piece
C Unit switch
D Circuit board

E Housing cover fixtures – bottom piece
F Lower mounting holes
G Feed-throughs for cables with mains voltage
H Feed-throughs for cables with low voltage

▨ Housing base

The cables for mains supply and low voltage can be routed through the holes on the back side or base of the housing.
Holes can be punched out at the predetermined points where needed.

For more information on the circuit board, see
5.2 Circuit board assignment, ⬚ EN-32

3.4 Technical data

Ambient temperature	-10°C to +40°C
Storage temperature	-20°C to +60°C
Relay box housing	Plastic
Relay box dimensions (H x W x D)	240 x 230 x 70 mm
Weight	Approx. 1.5 kg
Compatible control units	EmoTec IR, EmoTec, EmoStyle, EmoStyle i, InfraStyle, InfraStyle i, EmoTouch 3
Power unit outputs/ inputs	3 x RJ10 jack for sensor connection 4 x RJ12 jack for control panel and add-on modules
Power supply	230 V 1N AC 50 Hz
Switching output	Max. 3.5 kW
Circuits	5 separate circuits with a total output of 3.5 kW, can be freely defined – all non-dimmable
Temperature control	Based on ambient temperature: 30–70°C
Control characteristics	Two-point control
Connection for lighting	Min. 5 W (20 mA), max. 100 W
Sensor system	Digital sensor for ambient temperature
Heating period limita- tion	6 hrs, 12 hrs, 18 hrs, 24 hrs

4   Installation

This chapter describes how to install the SBM-IR relay module.
All data and power supply lines must be laid prior to installing the device on the cabin wall.

NOTICE

Damage due to incorrect mounting location
Weather conditions lead to the formation of condensation in the housing of the relay box and control panel and destroy the lines and circuit boards.

▶ Mount and operate devices only inside buildings.
▶ Protect devices from high levels of humidity or moisture.
▶ Protect devices from conditions in the ambient air that promote corrosion.
▶ Protect devices from frost and direct sunlight.
▶ Protect devices from mechanical damage.
▶ Salt aerosols should only be used inside the cabin.

4.1   Power supply and data lines

All electrical installations and all connecting lines routed inside the cabin must be suitable for an ambient temperature of at least 70°C in infrared-only cabins.

All lines must be routed in such a way that they are well-protected, e.g. in a cable duct.

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 ducts.

Line routing

The lines from the individual IR emitters (IR foils or IR emitters) to the power unit may not exceed 5.5 m in length.

If you connect more than one emitter per heating circuit, you must terminate the corresponding lines in the on-site plug-in adapters outside the relay box. See ⊞ Example – plug-in adapter (optional), ⎙ EN-34

The control line must only be routed between the insulation and the outer wall of the cabin. Cabin insulation must be installed in such a way that the temperature of the external wall cannot exceed 65°C.

4.2   Installation work inside the cabin

The SBM-IR relay module can be connected to an existing sauna installation via a bus connection. To do this, the existing sauna installation can be expanded by a max. of 10 IR emitters (IR foils or IR emitters).
It is preferable to connect infrared foils or IR emitters of the IRS series to the SBM-IR relay module.
At minimum, the cabin lighting must be installed inside the cabin.

Additional connections are possible, depending on the features of the IR or sauna cabin. However, it is preferable that these be assigned to the corresponding relay box for the control unit, e.g. temperature and humidity sensor.
Observe the relevant installation and operating instructions and check the basic configuration of the cabin.
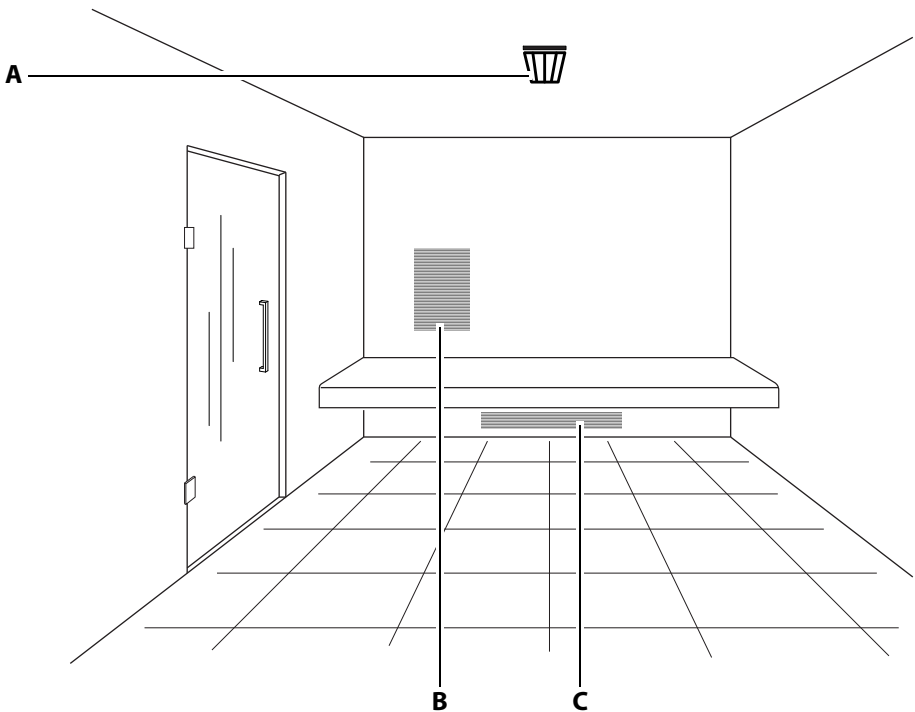
A Temperature sensor   **B** IR foil (installed inside the wall)
                                              C IR emitter

⊞ Example – cabin

The position and number of IR emitters can vary depending on the design of the cabin.

4.2.1   Installing an infrared emitter

⚠ **WARNING**

Fire hazard from overheating

Infrared emitters and heating foils without overheat protection can lead to overheating of the cabin and fire. Flammable parts must not exceed a temperature of 140°C when the unit is operated as intended or in the event of a malfunction.

▶ Install only infrared emitters or heating foils that are designed and installed in such a way that they do not pose a fire hazard when the unit is operated as intended. Alternately, infrared emitters or heating foils with overheat protection as per EN 60335-2-53 may be used.

▶ Install a safety temperature limiter if needed.

▶ Observe the manufacturer's safety and installation instructions for infrared emitters and heating foils.

▶ Observe the cabin manufacturer's safety and installation instructions.

Observe the manufacturer's separate installation instructions for IR emitters.

You can connect multiple IR emitters to terminals IR-1 to IR-5. The lines must have the same cross-section.
The total output may not exceed 3.5 kW.

Connection	Control	Max. load	Total output
IR-1	Switchable	3.5 kW	
IR-2	Switchable	3.5 kW	
IR-3	Switchable	3.5 kW	Max. 3.5 kW
IR-4	Switchable	3.5 kW	
IR-5	Switchable	3.5 kW	

Example: If IR-1 reaches the total output of 3.5 kW, no other emitters may be connected to terminals IR-2 to IR-5.

Use a plug-in adapter if you want to connect multiple IR emitters to one IR terminal.
See ⊞ Example – plug-in adapter (optional), ⟋ EN-34.

See 5.3 Connection diagram, ⟋ EN-35.

4.3   SBM-IR-Relaismodul

The SBM-IR relay module is used as an add-on module for connecting additional IR emitters in an existing sauna or IR cabin. The device must only be mounted outside of the cabin. Observe the following guidelines.
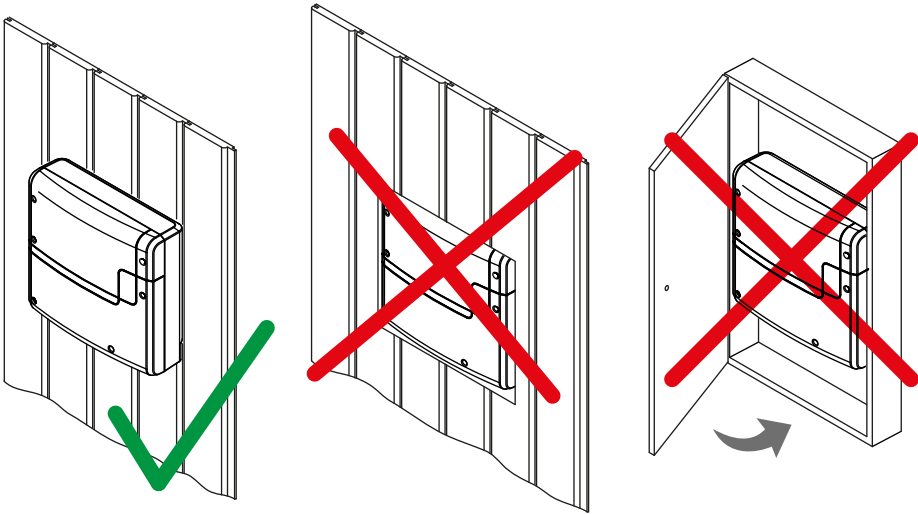
4.3.1   Requirements

⚠ **WARNING**

Risk to life and limb and risk of fire
Risk to life and limb from electric shock and fire in the event of improper or faulty electrical connection. This risk also applies following completion of the installation work.
▶ Do not install modules in enclosed cabinets or wood panelling.

⊞ Proper and improper relay box installation

Recommended installation locations are:

- Outer wall of the cabin, however not outside of the building.
- Plant room

All lines should be routed before installing the IR relay module. Connections can be established later. Data lines must be routed and connected in such a way that they are not openly accessible.
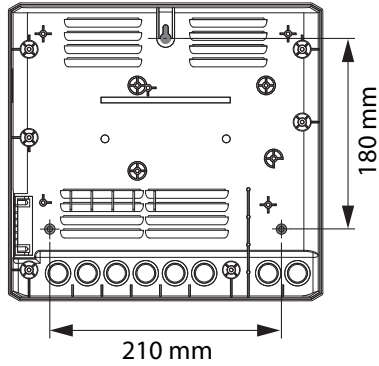
<table>
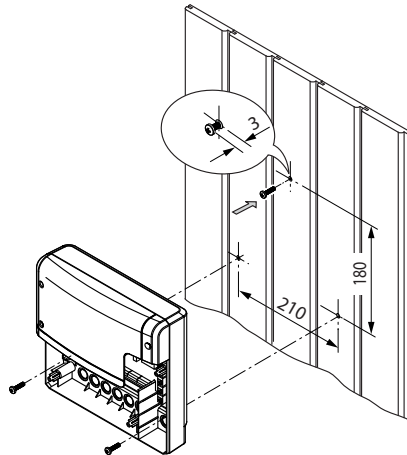<tr><td>**NOTICE**</td></tr>
</table>

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.

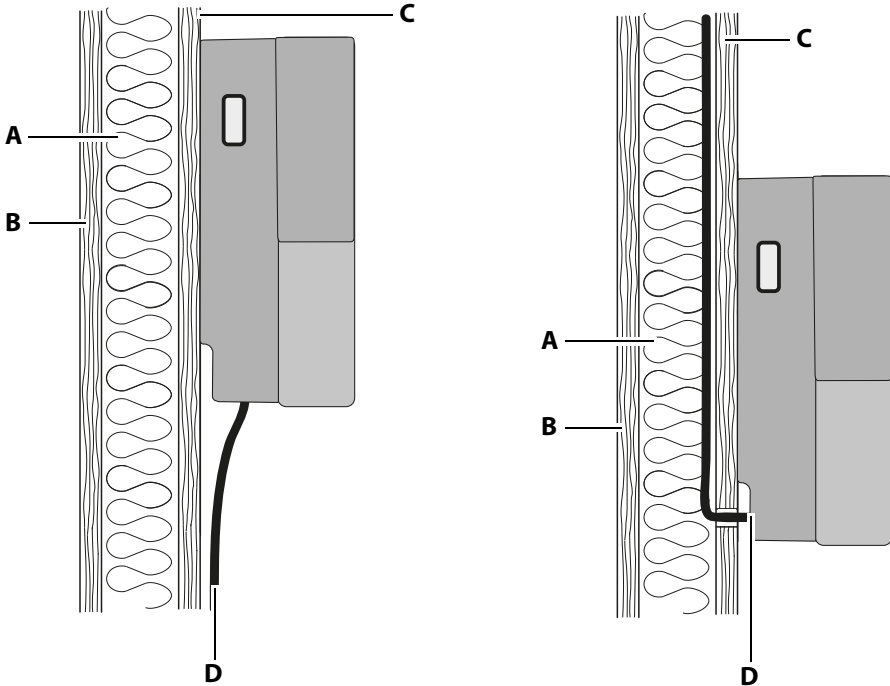▶ Route cable ducts separately.

Measurements for installation

180 mm

210 mm

⊠ Rear side of IR relay module

3

180

210

⊠ Installation diagram

Line routing

A	Insulation	**C**	Outer wall of the cabin
B	Inner wall of the cabin	**D**	Connecting lines

Diagram – routing of data and control line(s)

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.

In both cases, the cabin insulation must be installed in such a way that the temperature in the area in which cables are routed cannot exceed 65°C.

4.3.2   Mounting the relay module

Necessary steps:

▶ Preparing for installation, ⃞ EN-26

▶ Removing the housing cover, ⃞ EN-26

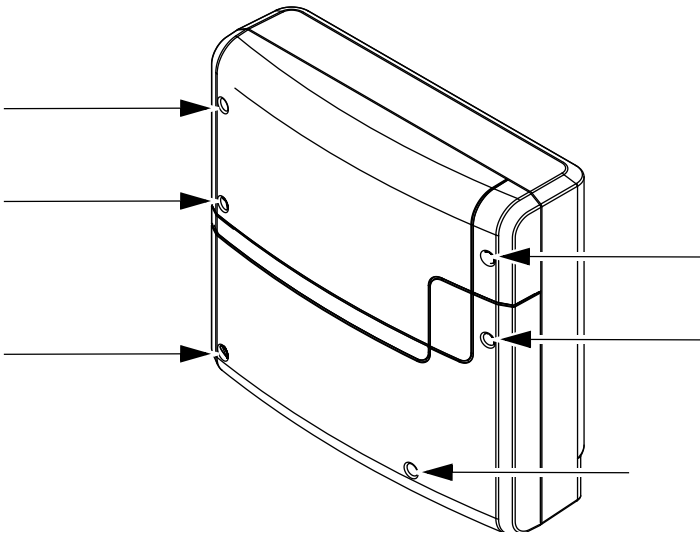▶ Mounting the relay module, ⃞ EN-27

Tools + hardware

▪ Drill

▪ Wood screws 4 x 25 mm

▪ Mounting on a fixed wall: Screws 4 x 25 mm and corresponding anchors

▶ **Preparing for installation**

1   Determine a suitable location for the installation.
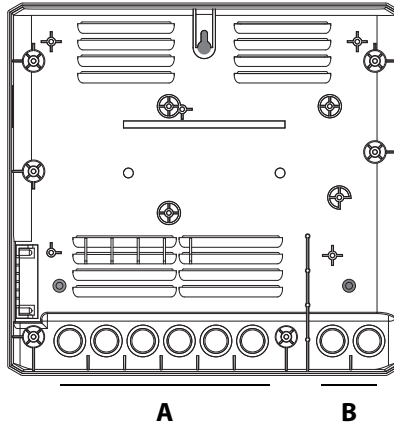
2   Route the lines.

▶ **Removing the housing cover**

1   Unscrew the 6 screws for both parts of the housing.

2   Remove both halves of the cover.

   ⓘ If you have already routed all data lines, you can set the dip switches
      on the circuit board after you install the relay box.

3 Open the conduits for the lines on the bottom of the housing.

A   **B**

A Lines with mains voltage, e.g. mains supply line, heat

B Lines with low voltage, e.g. sensor line, S-Bus (sauna bus)

ⓘ Either from below or from the rear.

4 Insert supplied rubber grommets into the openings of the lower part of the housing.
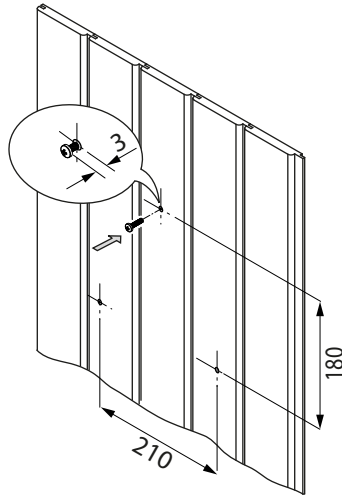
▶ **Mounting the relay module**

1 Drill one (1) hole above and two (2) holes below.
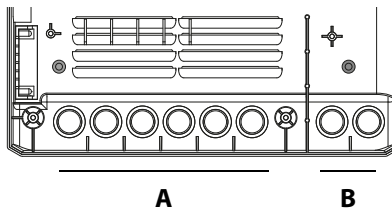
Horizontal distance between drill holes: 210 mm

Vertical distance between drill holes: 180 mm

2 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 IR relay module.
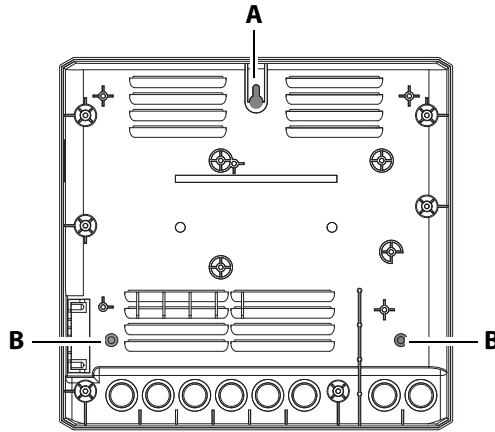
3 Route the connecting cables through the openings.

A	**B**

A Lines with mains voltage, e.g. mains supply line, heat **B** Lines with low voltage, e.g. sensor line, S-Bus (sauna bus)
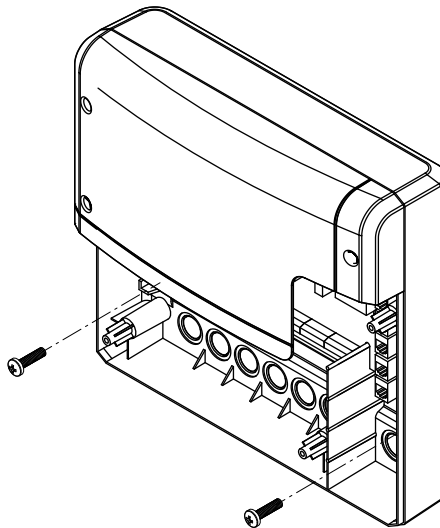
ⓘ Either from below or from the rear.

4 Hook the IR relay module into the upper screw using the upper mounting hole.

A Top mounting hole   **B** Lower mounting holes

**5** Securely tighten the IR relay module using the two lower mounting holes.

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

ⓘ 5.4 Plugging in connecting cables, ⬛ EN-36
5.5 Setting the emitter type and device address, ⬛ EN-39

5   Connections

This chapter describes how to connect lines to the device's circuit board. For information on setup of the control panel, see chapter 6 Commissioning, 🗎 EN-41.

You can connect both infrared radiators and infrared foils. Both types are referred to as IR emitters in the following section. However, in instances where different settings must be made, they will be referred to specifically by name.
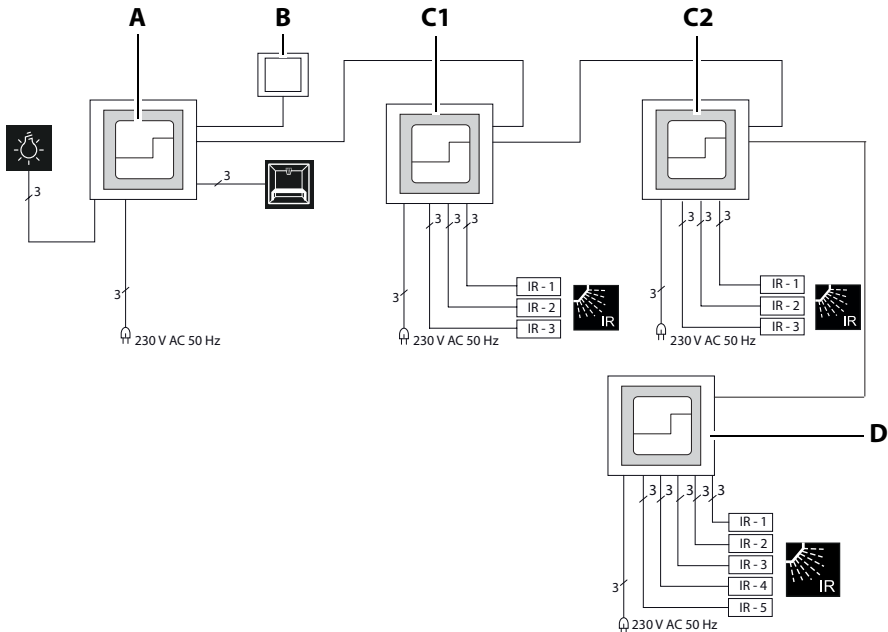
A   Sauna relay box   **C1, C2** IR module
B   Control panel   **D**   IR relay module

▦ Installation example for one cabin

This example shows one sauna relay box (**A**) with two connected IR modules and one IR relay module.

The modules (**C1**, **C2**, **D**) are connected in a chain to the relay box via the sauna bus. Control loops are controlled simultaneously. Module data is transferred via the bus connection. The control panel (**B**) identifies a module by device type and device address.

The IR relay module has an internal power supply unit.

Recommended installation sequence

- Install the IR emitter, lighting, etc. in the cabin.
- Check the position of the temperature sensor and adjust as needed.
- Mount the control panel.
- Insert the plug in the relay box.
- Connect the lines for the relay box.
- Set the dip switch for the device address.
- Set the dip switch for unit configuration.
- Switch on the relay box.
- Set up the infrared channels at the control panel.

5.1   Installation examples

Depending on the control unit, an installation can be expanded as follows:

- Sauna control unit: Three IR modules and a max. of 2 IR relay modules can be connected to the relay box.
- SBM-IR-LSG: Two IR modules and a max. of 2 IR relay modules can be connected to the relay box.

5.2   Circuit board assignment

The sauna bus and sensor bus plugs are connected to the relay module cir-cuit board. The IR emitters and the cabin lighting must be connected via terminals.
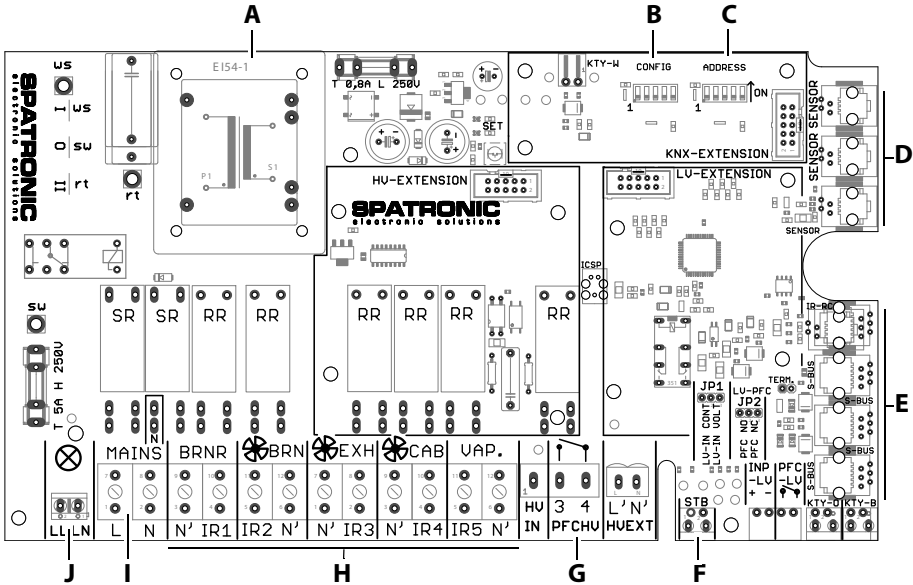
A   Internal power supply unit
B   Setting for foil/emitter – dip switch
C   Setting for device address – dip switch
D   RJ10 jacks (SENSOR)

E   RJ14 jacks (S-Bus)
F   Safety temperature limiter
G   Potential-free contact
H   Terminals for emitter
I   Main power supply
J   Terminal for lighting

⌗   IR relay module circuit board

Digital sensors, e.g. temperature sensors, can be connected to the RJ10 jacks (**D**).
Only IR emitters without their own device dimmer may be connected to terminals IR1–IR5 (**H**).

Channel groups

Channel groups are assigned to the connected IR emitters. All IR emitters belonging to a channel group are controlled together.
The terminals are assigned 1:1 to channel groups A to E. See
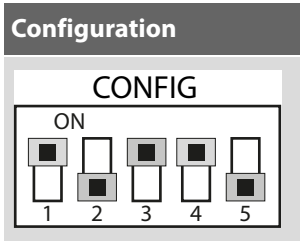6.1 Configuring the IR control system, 🗎 EN-41.

5.2.1   Type of IR emitters – CONFIG dip switch

The type of the connected IR emitters must be set via dip switches:

- Switch set to ON = IR emitter
- Switch set to OFF = IR foil

It is preferable to connect only IR foils.
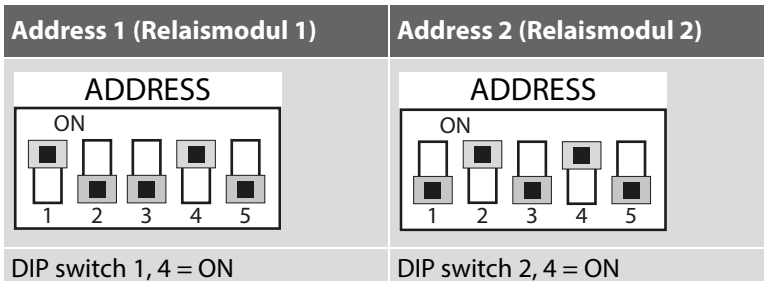The number on the dip switch corresponds to the number of the IR terminal, for example:

Configuration

CONFIG

ON

1 2 3 4 5

In this example, the following IR emitters are connected:

CONFIG number – IR terminal	Position	Type of IR emitter
1 – IR1	ON	Emitter
2 – IR2	OFF	Foil
3 – IR3	ON	Emitter
4 – IR4	ON	Emitter
5 – IR5	OFF	Foil

5.2.2   Unit address – ADDRESS dip switch

Every device is identified by an address.
In an installation scenario with one relay box and two relay modules, the first IR relay module has address 1 and the second relay module has address 2.

Address 1 (Relaismodul 1)	Address 2 (Relaismodul 2)
ADDRESS	ADDRESS
ON 1 2 3 4 5	ON 1 2 3 4 5
DIP switch 1, 4 = ON	DIP switch 2, 4 = ON

5.2.3 IR terminals and channel groups

The terminals are assigned 1:1 to the channel groups A–E. See 6.1 Configuring the IR control system, 📄 EN-41.
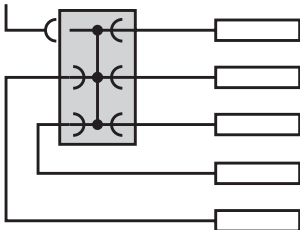The channel groups are controlled by the control panel.

A
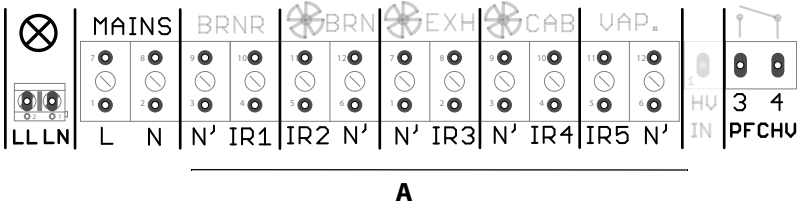
A   IR emitter connection

⊞   IR terminals

If you connect more than one emitter per heating circuit, you must connect the lines to a plug-in adapter outside the relay box.
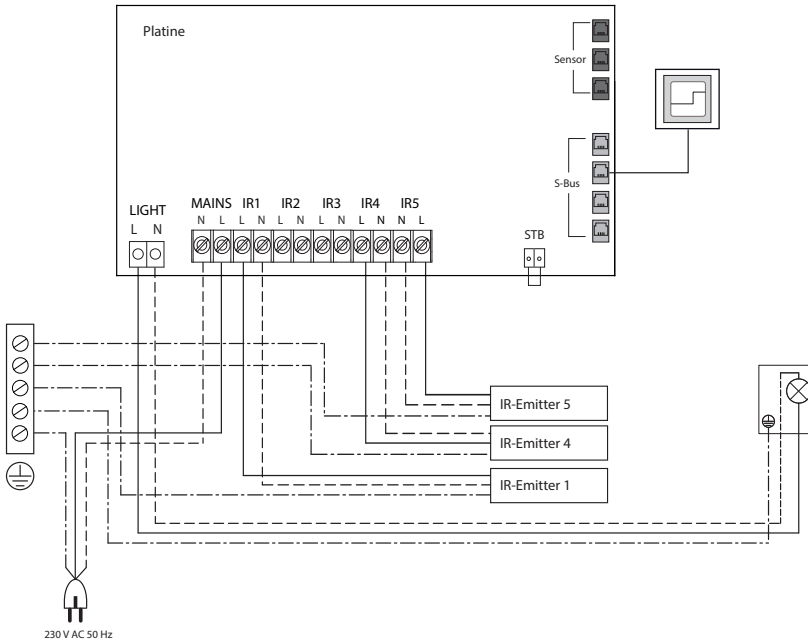

⊞   Example – plug-in adapter (optional)

The cross-section of the lines must be identical. The total output of IR1 + IR2 + IR3 + IR4 + IR5 may not exceed 3.5 kW.

5.3 Connection diagram

The SBM-IR relay module is connected by a plug in a socket that is sepa-
rately fused with 16 A. A 16 A cut-out with at least K characteristic must be
used for fuse protection.

Example – connection for three IR emitters

To prevent overheating, install only infrared emitters or heating foils that
are designed and installed in such a way that they do not pose a fire hazard
when the unit is operated as intended. Alternately, infrared emitters or
heating foils with overheat protection as per EN 60335-2-53 may be used.

It is preferable to connect infrared foils to the SBM-IR relay module.

5.4   Plugging in connecting cables

⚠ 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.

NOTICE

Equipment damage due to improper installation
Additional modules with a safety temperature limiter can be mounted in a cabin.
▶ Connect the safety temperature limiter only to the relevant module.
▶ Never connect more than one safety temperature limiter to a module.
▶ Always connect the safety temperature limiter as an isolated contact.

A safety temperature limiter is not needed for an IR-only installation, since temperatures above 70°C cannot be reached by the IR emitters. By default, the safety temperature limiter terminal is jumpered at the relay module circuit board.

Recommended sequence:

- 5.4.1 Connecting data lines, 🗋 EN-37
- 5.4.2 Connecting IR emitters, 🗋 EN-38
- 5.5 Setting the emitter type and device address, 🗋 EN-39

5.4.1   Connecting data lines

The temperature sensor (main sensor) and the control panel are connected to the cabin relay box. Only the sauna bus line from the relay box must be plugged in to the SBM-IR relay module.

▶ Connecting data lines

1   DANGER! Ensure that the IR relay module has no power.
Open the housing.
ⓘ ▶ Removing the housing cover, 🗋 EN-26

2   Route the line through the openings at the base or on the back of the housing.
ⓘ ▶ Removing the housing cover, 🗋 EN-26

3   Plug the sauna bus line into the free jack RJ14 (S-BUS) (**B**).
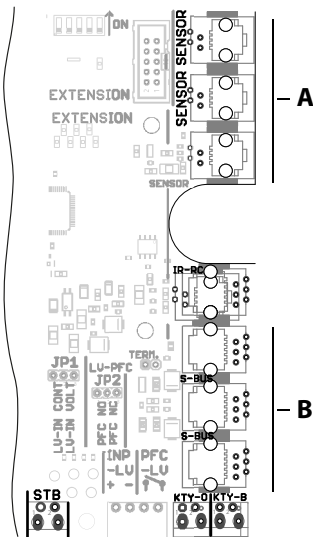
A RJ10 jacks for sensors	**B** RJ14 jacks for sauna bus line (S-Bus)

4   Plug any other optional devices into a free RJ14 jack (**B**).
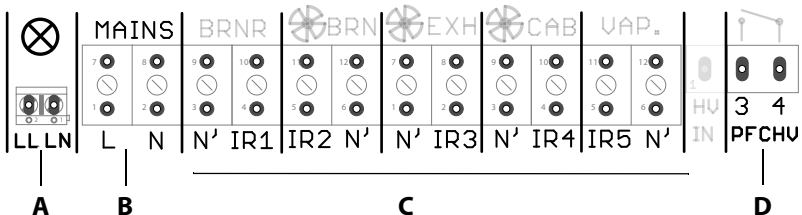
5.4.2   **Connecting IR emitters**

IR emitters are grouped into channel groups and controlled by the control panel. Outputs IR1 to IR5 correspond to channel groups A–E.

▶ **Connecting consumers**

1   DANGER! Ensure that the IR relay module has no power.
Open the housing.
ⓘ ▶ Removing the housing cover, ▯ EN-26

2   Route the lines through the openings at the base or on the back of the housing.

3   Connect the IR emitters to IR1–IR5.

A   Cabin lighting connection   **C**   IR emitter connection
B   Power connection   **D**   Potential-free contact

You can connect one or two IR emitters to one terminal. The lines of both IR emitters at the same terminal must have the same cross-section. Use one plug-in adapter for two IR emitters.

The output of the IR emitters at one terminal must not exceed 3.5 kW; the total output of all terminals must not exceed 3.5 kW.

Note that they type of each IR emitter must be set at the CONFIG dip switch. Therefore, connect only IR emitters of the same type to each output.

ⓘ 5.2.1 Type of IR emitters – CONFIG dip switch, ▯ EN-33

ⓘ An additional light source can be connected to the Light terminal (**A**). However, this light source is not dimmed by the module.

4   Connect the main power supply to the mains (**B**) terminal.

5.5   Setting the emitter type and device address

Once the IR emitters are installed and connected, the dip switches for the emitter type must be set. It is preferable to connect only IR foils.
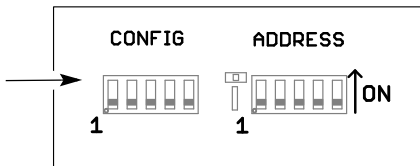The device address must be set only if two IR relay modules are connected to one relay box.
▶ Setting the dip switch for the IR emitter type, ⬚ EN-39
▶ Setting the device address for IR relay module 2, ⬚ EN-39

▶ **Setting the dip switch for the IR emitter type**

1   DANGER! Ensure that the IR relay module has no power.
Open the housing as needed.
ⓘ ▶ Removing the housing cover, ⬚ EN-26

2   Set the dip switch for each IR output to OFF (foil) or ON (emitter).
See 5.2.1 Type of IR emitters – CONFIG dip switch, ⬚ EN-33

▶ **Setting the device address for IR relay module 2**

1   Set the unit address as needed.
ⓘ You must set the device address only if two IR relay modules are connected to one relay box.
Address no. 1 is set by default.
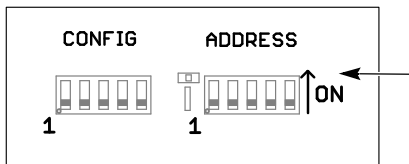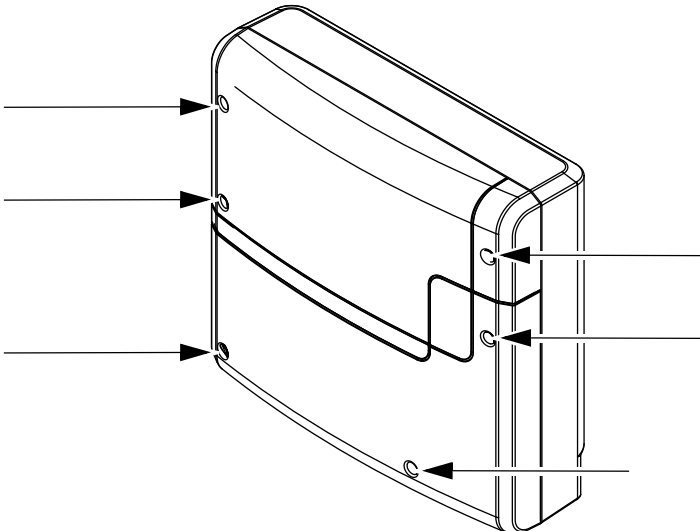

Set address 2 as follows:
OFF-ON-OFF-ON-OFF

5.6   Closing the IR relay module housing

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

- 5.4 Plugging in connecting cables, ☐ EN-36
- 5.5 Setting the emitter type and device address, ☐ EN-39

▶ **Replacing the housing cover**

1 Put the upper and lower cover halves in place.

2 Screw in the 6 screws.

6   Commissioning

The term IR emitter refers to infrared emitters and heating foils in the following documentation.

In order to commission the cabin with the installed IR emitters, the cabin must be switched on at the control panel. If the display is blank, the relay box might be switched off.
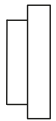
An on/off switch is located on the left side of the relay box.

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 energised.

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

6.1   Configuring the IR control system

The control system cannot be configured until the IR emitters are installed and connected. The following describes only how to configure the IR emitters. Complete configuration and operation are described in the operating instructions for the control panels.

You should be familiar with the basic operating steps, e.g. navigating the menus and sub-menus and entering and saving settings.

6.2 Adjusting the IR emitters

The IR emitters have two operating modes.

These operating modes allow you to determine how the IR emitters can be used: via intensity and/or temperature.

The terminals IR1 to IR5 are permanently assigned to channel groups A to E.

Operating mode	Temperature	Intensity
IR ℃	Ambient temperature can be set via temperature sensors Emitters heat until the temperature has been reached	All channel groups at 100%
IR	Ambient temperature increases slowly via channel group intensity	Can be set for each channel group

The control mode of the connected IR emitters depends on whether a foil or emitter is connected.

See 5.2.1 Type of IR emitters – CONFIG dip switch, 🗋 EN-33

IR intensity operating mode

The following settings are available in IR intensity operating mode for outputs IR1 to IR5:

Foils	Emitters	Intensity setting
	x	0% or 100%
x		20% to 100%, switch off > 74℃

IR temperature operating mode

The following settings are available in temperature operating mode for outputs IR1 to IR5:

Foil	Emitter	Control mode for relay output
x		Control via T (target) Switch-off > 74℃
	x	Switch-off > 74℃

Note that the intensity and temperature settings impact the duration of the heat-up phase.

6.3 IR control for EmoTec IR, InfraStyle and InfraStyle i

After installation, you can set the operating mode, temperature and/or intensity. You can also define the switching hysteresis for the IR emitters.
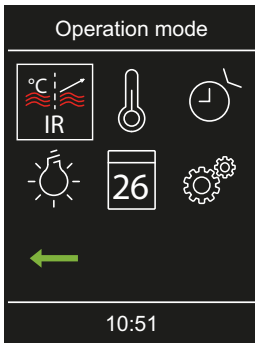
6.3.1 IR operating mode

These operating modes allow you to determine how the IR emitters can be used: via intensity and/or temperature.
See 6.2 Adjusting the IR emitters, ☐ EN-42

▶ **Setting the operating mode**

1   [icon] : Select and confirm.

2   Select the IR operating mode and confirm.

 a) [icon] IR intensity. In this operating mode, only the intensity of the IR emitters can be set.

 b) [icon] IR temperature. In this operating mode, both the IR temperature and the intensity of the IR emitters can be set.
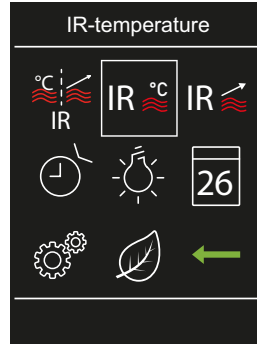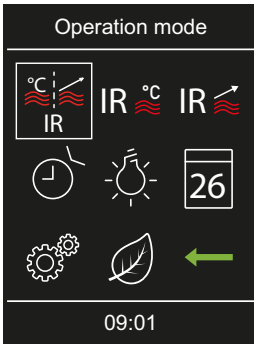
 ⓘ Depending on the IR operating mode you select, you can now set the temperature and/or intensity.
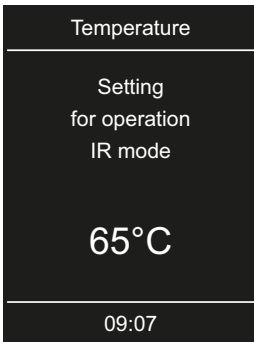
6.3.2   Setting the IR temperature

The setting depends on the operating mode; see 6.2 Adjusting the IR emitters, 🗋 EN-42

▶ **Setting the temperature**

1   IR °C : Select and confirm.

Operation mode	IR-temperature

2   Set the temperature and confirm.

```
Temperature

Setting
for operation
IR mode


65°C

09:07
```

3   Confirm the set value.

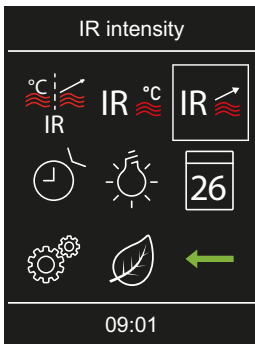☑ The value is saved and the display returns to the screen for operating mode selection.

6.3.3   Setting the IR intensity

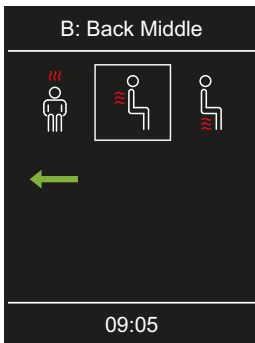The setting depends on the operating mode; see 6.2 Adjusting the IR emitters, ⬚ EN-42
You can set the intensity of the IR emitters per channel group.
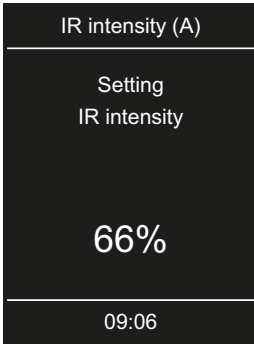
▶ **Setting the IR emitter intensity**

1   IR⬚ : Select and confirm.

2   Select the channel and confirm.

3 Set the IR emitter intensity.

```
┌─────────────────────────┐
│     IR intensity (A)     │
│   ───────────────────    │
│        Setting           │
│      IR intensity        │
│                          │
│                          │
│         66%              │
│                          │
│   ───────────────────    │
│        09:06             │
└─────────────────────────┘
```

ⓘ The value can be set in increments of 2% between 20% and 100%.

4 Confirm the set value.

☑ The value is saved and the display returns to the screen for operating mode selection.

5 Repeat steps **1** to **4** for the next channel.

6.3.4   Switching hysteresis for the IR temperature

In the service settings, you can also set a temperature range within which the IR emitters are switched on and off. It applies to all connected IR emitters.
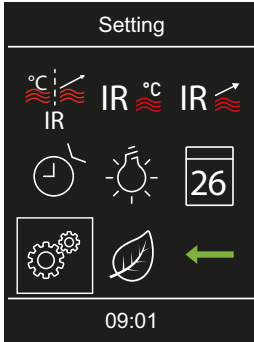Example – 46°C target temperature and hysteresis 4 K: The IR emitter is switched off at 50°C and switched on at 42°C.

▶ **Adjusting the hysteresis**

1   [⚙] : Select and confirm by pressing and holding until the code entry is displayed.
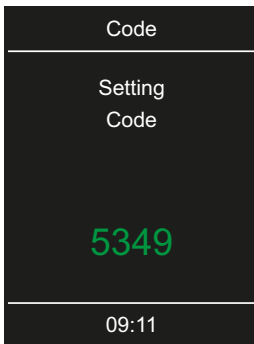
    a) EmoTec: Press and hold the jog dial.

    b) EmoStyle: Press and hold the Enter icon.

2   CAUTION!   Only trained personnel may change settings at the service level.
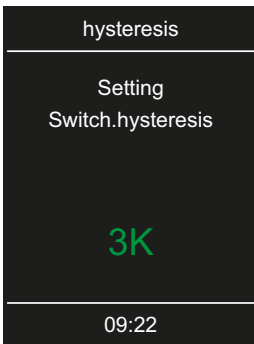Enter code **5349** and confirm.

ⓘ Increase or decrease the numbers and confirm by pressing Enter. Confirmed numbers appear green.

3   ⊞ : Select and confirm.

hysteresis

09:21

4   Set the desired value and confirm.

hysteresis

Setting
Switch.hysteresis

3K

09:22

☑ The value is saved and the display returns to the selection screen for advanced settings.

6.4 IR control – EmoTouch 3

After installation, you can set the operating mode, temperature and/or intensity for each IR cabin. You can also define the switching hysteresis for the IR emitters.

6.4.1 Setting the IR operating mode

The following icons are displayed for selection.

IR °C | IR temperature operating mode:
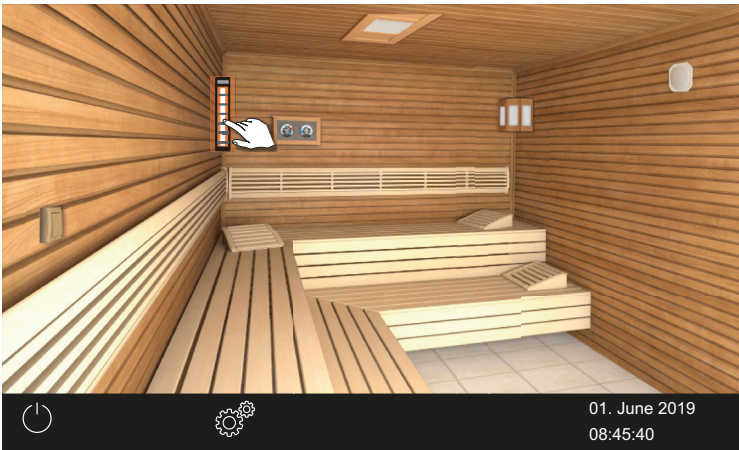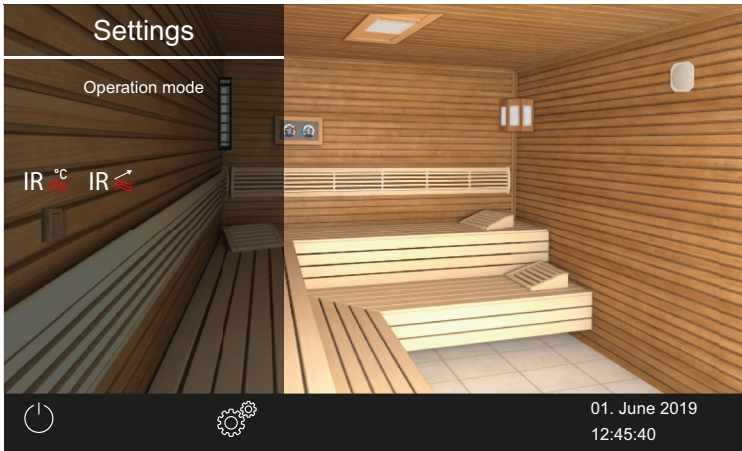You can set the temperature of the IR emitters and the intensity per channel.

IR | IR intensity operating mode:
You can set the intensity of the IR emitters per channel.

▶ **Setting the operating mode**

1 Press and hold the emitter icon for 5 seconds.

2   Select the operating mode and confirm.

a) IR intensity.

b) IR temperature.

6.4.2   Setting the IR temperature

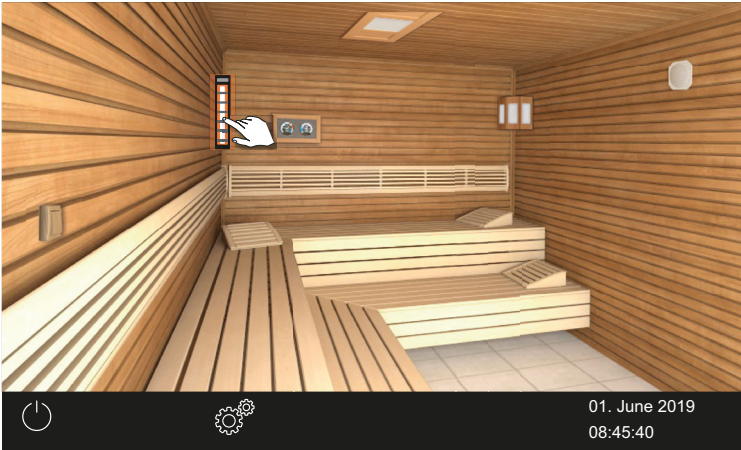You can set the temperature only after you have selected the IR temperature operating mode. ▶ Setting the operating mode, 🗋 EN-49
You can also set the temperature while the system is in operation. The temperature applies to all IR emitters.
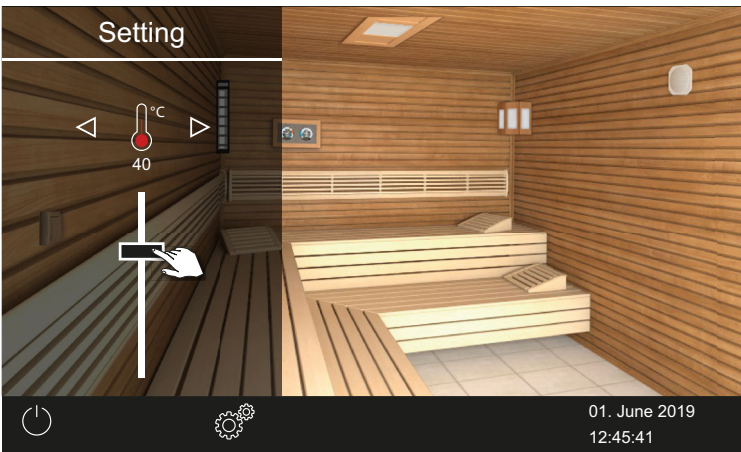The ambient temperature in the IR-only cabin cannot exceed 70°C. This maximum temperature cannot be exceeded even if all IR emitters are operating at full intensity.

▶ **Setting the IR temperature**

1 Select the cabin.

2 Tap the IR emitter icon.

3 Move the slider to the desired temperature.

☑ The emitter is immediately set to the new temperature.

6.4.3   Setting the IR intensity

You can set the intensity once you have selected either the IR temperature or IR intensity operating mode. ▶ Setting the operating mode, ⬜ EN-49
You can set the intensity of the IR emitters while the system is in operation. It generally applies to one channel group.

▶ Setting the IR emitter intensity

1   Select the cabin.

2   Tap the IR emitter icon.
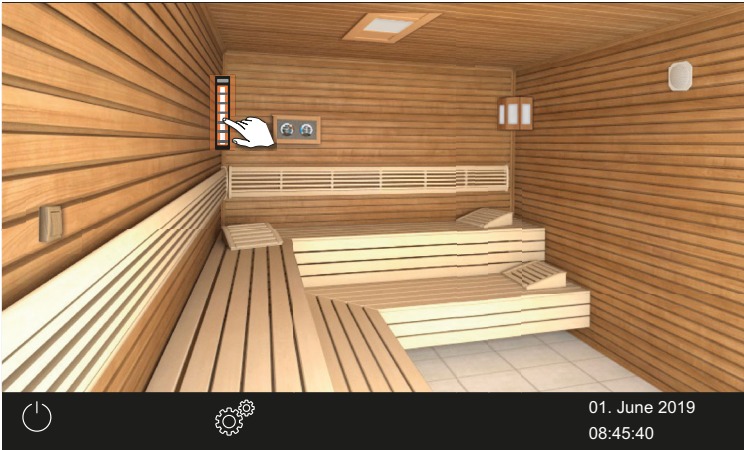
3   Tap ▷ to switch to the intensity settings as needed.
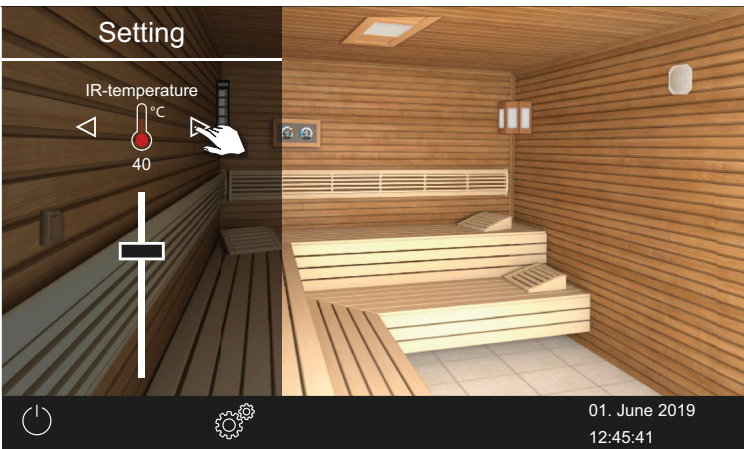
ⓘ The first channel group is displayed first.

4 Move the slider to the desired intensity.
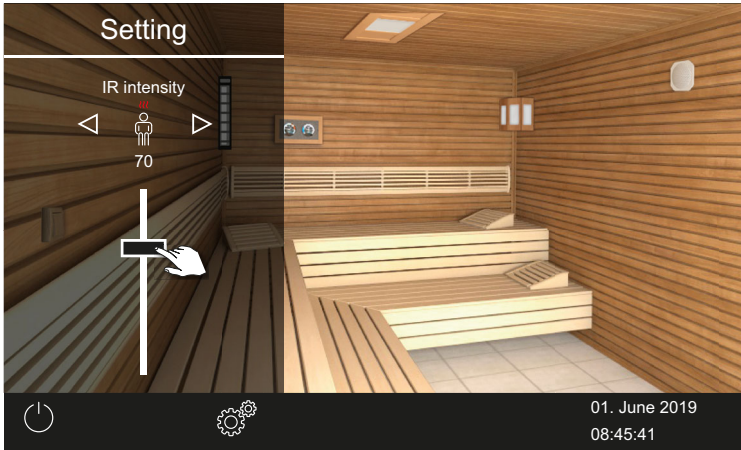
ⓘ The selected channel group's icon appears above the slider.

☑ The channel group emitters are immediately set to the new intensity. This means they are not set to the target temperature.

5 Tap ▷ to switch to the next channel group as needed.

6.4.4   Switching hysteresis for the IR temperature

In the service settings, you can also set a temperature range within which the IR emitters are switched on and off. It applies to all connected IR emitters.

Example – 46°C target temperature and hysteresis 4 K: The IR emitter is switched off at 50°C and switched on at 42°C.

▶ **Adjusting the hysteresis**

1   Press and hold �घ for 3 seconds.

2   Enter code **5349** and confirm.

3   Tap 〽 and confirm the selection.

4   Set the value with ➕ and ➖, and then confirm.
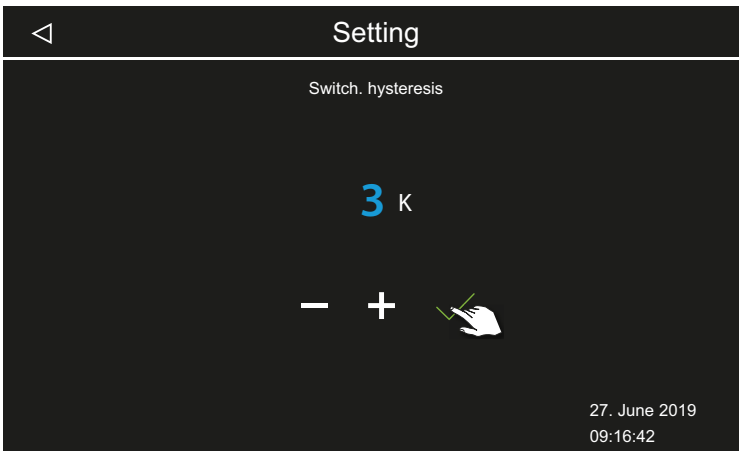
ⓘ The value can be set in increments of 2% between 0% and 100%.
ⓘ For emitters, you must select either 0% or 100% as the intensity. The selected intensity for foils may be selected in increments of 2% between 0% and 100%.

6.5   Potential-free contact (PFC)

A potential-free contact (PFC) that can switch a consumer up to 16 A is available on the main circuit board.
See ⊞ IR relay module circuit board, ⬜ EN-32.

You can use this contact in a variety of ways:

- Switch on/off manually via the menu
- Connect to the IR emitters
- Switch in certain situations

6.5.1   Setting the switch logic with EmoTec, InfraStyle, InfraStyle i

The following options are available:
▶ Switching contact manually or with sauna heater, ⬜ EN-58
▶ Enter the code to switch in specific situations, ⬜ EN-59

Codes for potential-free contact (PFC)

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

Code	Switching condition
7000	This is the factory default. The PFC can be controlled via the menu. See ▶ Switching contact manually or with sauna heater, ▯ EN-58.
7001	The PFC is NO if the cabin light is on. The PFC is NC if the cabin light is off.
7002	The PFC is NO if the cabin light is off. The PFC is NC if the cabin light is on.
7003	The PFC is NO only if the sauna is switched on and there is no fault. Coupling of the PFC with the sauna ON function for code 7000 does not factor in any faults. The PFC is NC when the sauna is switched off, during post-cycle or if a fault occurs. Application: to display proper operation.
7004	The PFC is NO if any type of fault occurs. The fault is saved until the sauna is switched on again without a fault. Application: manifold fault line
7005	The PFC is NO if the sauna is switched on, there is no fault and steam is requested. The contact is NC in all other cases. To ensure that a heater is not cut back to 2/3 power when steam is requested, which is what happens in the case of a heater with integrated vaporiser, code 7005 is used to switch off the WB output. In that case, it is no longer functional, like the WM water shortage input. Application: connection of an external vaporiser to the contact.
7006	The PFC is NO if the sauna is switched on and the cabin is heated. The PFC is NC when the sauna is switched off or during post-cycle. Application: it is possible to display that the sauna is heated.
7007	The PFC is NO if the sauna is switched on and the heater is on.
7008	The PFC is NO if the sauna is switched on and the ECO function is active. Application: it is possible to display that the ECO function is active.

Code	Switching condition
7009	The PFC is NO if the sauna is switched on. The PFC is NC after the sauna switches off or switched to post-cycle. Manual operation via the menu is possible at any time. Application: connection for coloured light, sound, starlit sky, etc.
7010	The PFC is NO if the sauna is switched on and the heater heats the cabin after the sauna has been switched on. The PFC is NC when the sauna is switched off or during post-cycle. Application: e.g. connection of an IR foil for faster heat sensing.
7020	The PFC is NO for 3 sec. if the sauna is switched on and the HOT function has ended. Application: AquaDisp connection to PFC for automatic water splash when the HOT function ends.

▶ **Switching contact manually or with sauna heater**

1 Open the service settings.

2 ⟍ : Select and confirm.

contact	contact
09:11	Select contact · 09:12
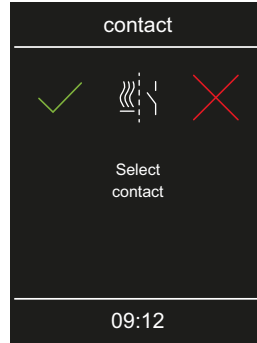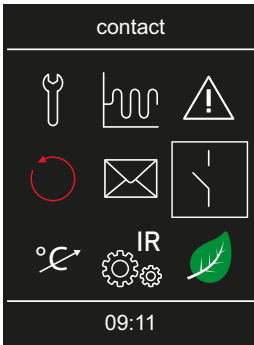
3 Select the setting and confirm.

a) ✓ The potential-free contact is controlled via the main menu. See 6.5.1 Setting the switch logic with EmoTec, InfraStyle, InfraStyle i, ☐ EN-55.

b) The connected consumer is automatically started when the sauna heater is commissioned.

c) ✕ The potential-free contact is deactivated.

▶ **Enter the code to switch in specific situations**

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

Settings	Code
🌡️ 🕐 🔆	Settings Code
26 ⚙️ ⎍	
←	7000
10:51	10:52
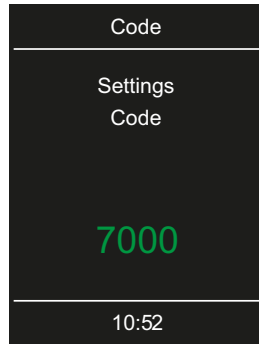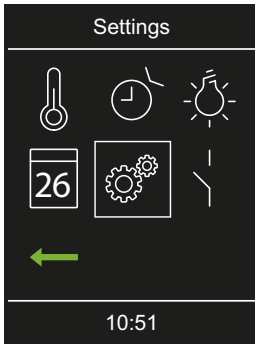
2 CAUTION! Entering a code other than 7000 overrides the entries in the menu; see ▶ Switching contact manually or with sauna heater, 🗎 EN-58. Enter the desired code and confirm.

ⓘ Increase or decrease the individual numbers and confirm. Confirmed numbers appear green.

6.5.2   Setting the potential-free contact with EmoTouch 3

Make settings for the potential-free contact to stipulate when the connected device should be switched on.

The following icons are used to make settings:

	Manual switching via the control panel.		Deactivating the potential-free contact. The switch on the cabin image is not shown, the output becomes inactive.
	Switch ON if light is on.		Switch ON if light is off.
	Switch ON, once target temperature has been reached.		Switch ON, once target temperature has been reached.
	Switch ON if there is a shortage of water. For Bi-O sauna only; not assigned for Finnish sauna.		Switch ON, once water level has been reached. For Bi-O sauna only; not assigned for Finnish sauna.
	Switch for an additional vaporiser. Switch coupling to WB vaporiser outlet. For Bi-O sauna only; not assigned for Finnish sauna.		
	Switch ON, once actual temperature rises above 50°C.		Switch ON, once actual temperature drops below 50°C.
	Switch ON if cabin is on.		Switch ON if cabin is off.

▶ **Setting the potential-free contact**

1 Open the service settings.

2 Tap [icon] and confirm the selection.

3 Tap the icon for the desired switching of the potential-free contact.
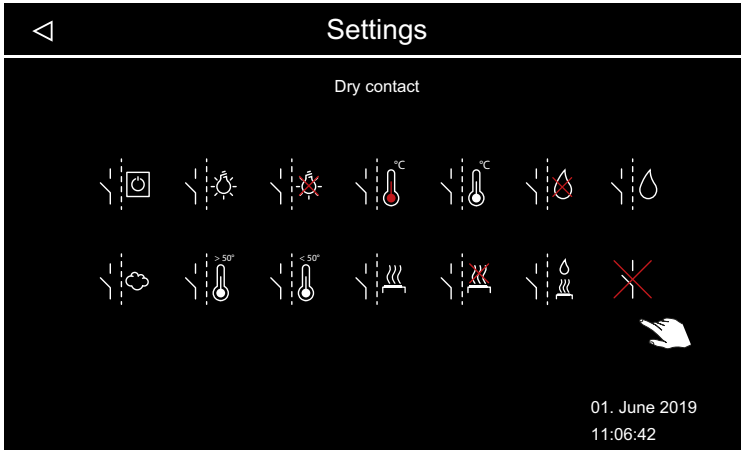
ⓘ The icons for the BiO sauna and for the sauna with humidity mode do not work for cabins with Finnish mode.

4 Choose the icon that should be assigned to the potential-free contact.
ⓘ The icon on the cabin image is displayed only with manual switching.

6.6   Troubleshooting

Error messages and icons on the control panel indicate IR relay module operating statuses and fault conditions.

Error	Reason	Solution
Control panel display is blank	No power supply.	Switch on the relay box.
		Check the relay box's mains connection.
		Check fuses.
IR temperature cannot be set	Channels are not set.	Define channel groups.
Communication error	Sauna bus not plugged in.	Check data line and connections.
	IR relay module is disconnected.	Plug in the sauna bus again. Set the heater operating mode and IR parameters on the control panel.
	Channel groups not defined.	Define channel groups.
IR emitters do not heat.	Unit not detected.	Set unit address for the module.
Cabin is not displayed.	Cabin is not detected.	Check and set cabin address. Check the sequence of connections.
Thermo-fuse tripped.	Temperature too high.	Check cause of excess temperature. Replace fuse.
Unknown error.		Restart unit. Contact technical support.

7 General terms and conditions of service

(T&C, Dated 08-2018)

I. Scope

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

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

II. Costs

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

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

There shall be no third-party billing.

III. Performance and cooperation obligations

The customer shall provide assistance free of charge to the manufacturer in rendering services.
In the case of a warranty claim, the manufacturer shall provide spare parts necessary for servicing free of charge.

IV. Service visit by the manufacturer

Services rendered on site by an employee of the manufacturer must be agreed in advance.

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

V. Liability

The manufacturer shall assume liability in accordance with the currently applicable statutory regulations. All our products are packaged in such a way that the individually packed goods (pallets) can be shipped.

We wish to point out that our packaging is not suitable for individual shipments via parcel post. The manufacturer shall accept no liability for damages incurred as a result of improper packaging in an individual shipment.

VI. Manufacturer's warranty

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

- The warranty period shall commence from the date on which proof of purchase is provided and shall be limited, in all cases, to 24 months.

- Warranty services shall be performed only if proof of purchase of the equipment can be presented.

- Any and all warranty claims shall become void if modifications are made to the equipment without the manufacturer's express consent.

- Any warranty claim shall likewise become void in the case of defects that arise due to repairs or interventions made by unauthorised persons or due to improper use.

- In the case of warranty claims, the serial and article numbers must be provided, together with the unit designation and a meaningful description of the error.

- This warranty shall cover defective equipment parts, with the exception of normal wear parts. Wear parts shall include, for example, light sources, glass elements, tubular heating elements and sauna heater stones.

- Only original spare parts may be used within the warranty period.

- Service visits made by third parties shall require a written order issued by our service department.

- The equipment in question shall be sent to our service department by the customer at the customer's own expense.

- Electrical assembly and installation work, including service visits and parts replacements, shall be carried out at the customer's expense; costs shall not be borne by the manufacturer.

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

8 Disposal
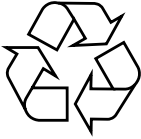
Electrical devices that are no longer needed must be recycled at a recycling station as per EU guideline 2012/19/EU or as per the Electrical and Electronic Equipment Act (ElektroG).
Observe local provisions, laws, regulations, standards and directives when disposing of the unit.

Do not dispose of the unit with household waste.

Packaging

The packaging of the SBM-IR relay module can be completely separated for disposal and recycled. The following materials are used in the packaging:

- Used paper, cardboard
- Plastic foil
- Foam material

Electronic waste

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

Service address

EOS Saunatechnik GmbH
Schneiderstriesch 1
35759 Driedorf, Germany

Tel.	+49 2775 82-0
Fax	+49 2775 82-431
Mail	servicecenter@eos-sauna.com
Web	www.eos-sauna.com

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

Date of sale

Stamp/retailer signature: