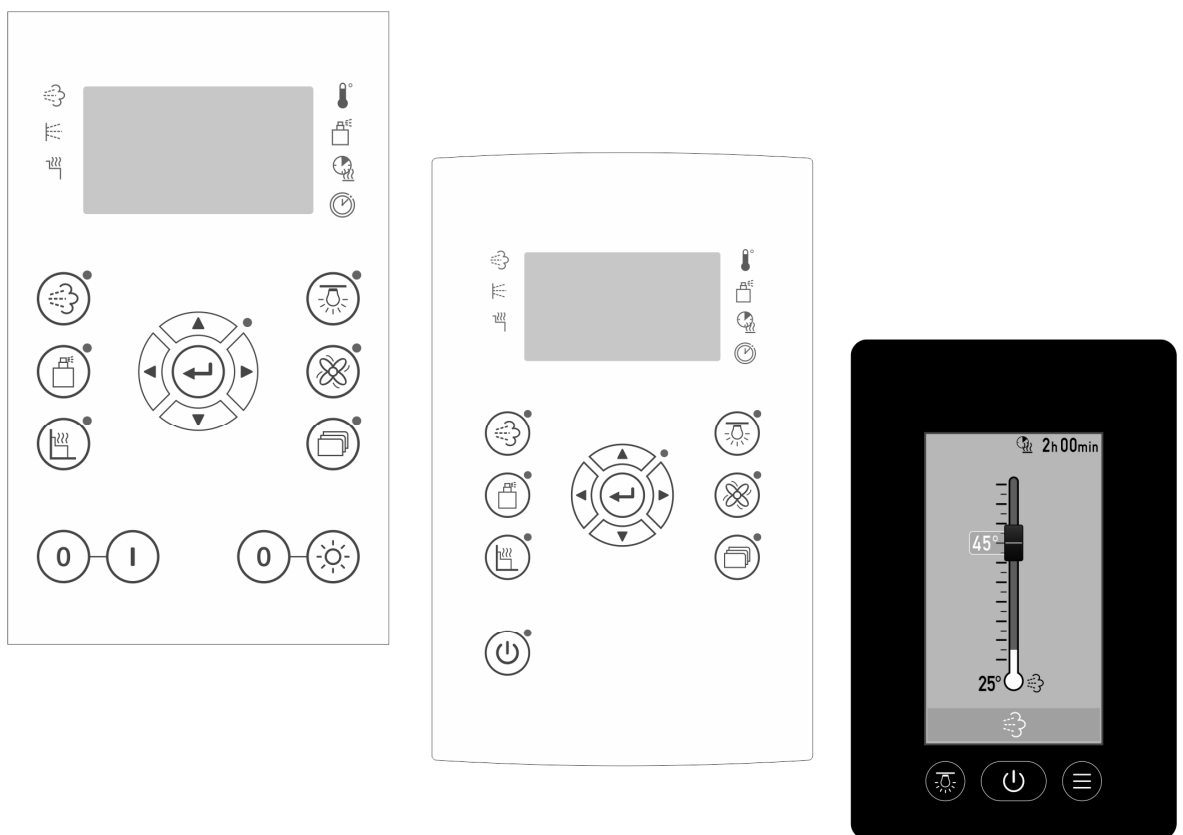


Series FCU2000/FCU3000/FCU4000/FCU5000

Installation instructions

Steam bath control

Series FCU2000/FCU3000/FCU4000/FCU5000



Doc-ID: M_FCUxxxx-Steam_EN

Version: V2.04

FASEL GmbH
Germany

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1 Safety

1.1 Explanations of symbols

Warnings

Warnings in this operating manual are indicated through symbols. The instructions are introduced through signal words, which express the degree of danger. Follow these instructions strictly and take care to avoid accidents, personal injuries and property damage.



DANGER!

...indicates an imminent dangerous situation, which could lead to loss of life or cause serious injuries if not avoided.



WARNING!

...indicates a possible dangerous situation, which can be fatal or cause serious injuries if not avoided.



CAUTION!

...indicates a possible dangerous situation, which could lead to small or slight injuries if not avoided.



ATTENTION!

...indicates a possible dangerous situation, which could lead to property damage if not avoided.

Tips and recommendations



NOTE!

...highlights useful tips and recommendations as well as information for an efficient and smooth operation.

1.2 Technical safety notes for assembly and installation



DANGER!

The control device can be installed directly on the outer side of the cabin or at another location, however not within the cabin

Note!

Appropriate VDE applies to public steam baths, that a control lamp, showing, that the evaporator is switched on, is to install in the room of the supervisor.

This lamp can be connected to the clamp  (FLE-STB).

For switching off the mains, the power supply cable must be equipped with a fuse with a contact opening width corresponding to the requirements of the excess voltage category III for total disconnection.

At FCUxxxx-Steam-Design-Glas the main switch of the control unit must be accessible.

The sensor of the thermostat must be installed in such a way that it is not affected by the incoming cool air.

1.3 Intended use

Depending on the version, the FASEL steam bath controls of the series FCU2000, FCU3000 and FCU4000 are exclusively meant for operation and control of steam bath cabins. The control devices are permitted for domestic and commercial application.

Intended use



WARNING!

Danger if not used correctly

Any improper use of the steam bath control can lead to dangerous situations.

Therefore:

- Use the steam bath control as instructed.
- Operate the steam bath control only within the permissible room temperature and moisture range. → See page 9.
- All the specifications in the operating manual and the installation manual must be strictly adhered to.

Claims of any type due to damages caused by improper use will not be accepted. Only the user is responsible for damages caused by improper use.

1.4 Modifications and alterations

Modifications and alterations of the steam bath control or installation can lead to unforeseen dangers.

All technical modifications and add-ons to the steam bath control require the written permission of the manufacturer.

1.5 Demands on technical personnel

The assembly, installation, commissioning as well as rectification of defects and repairs must be carried out by qualified persons only unless otherwise mentioned.

Inadequate Qualification



WARNING!

Danger of injury due to inadequate qualification

Improper handling can lead to significant personal injuries and material damage.

Therefore:

- The assembly, installation, commissioning as well as rectification of defects, maintenance and repairs must be carried out by qualified persons only unless otherwise mentioned.

■ **Technical personnel**

Due to their technical training, knowledge and experience as well as the knowledge of the relevant regulations these persons are in a position to carry out the tasks assigned to them and to identify possible dangers on their own. Also they are familiar in handling with ESD sensitive devices.

■ **Certified electricians**

Due to their technical training, knowledge and experience as well as the knowledge of the relevant standard specifications and regulations these experts are in a position to carry out jobs on the electrical unit and to identify possible dangers on their own. In Germany certified electricians have to fulfill the stipulations of the accident prevention regulation BGV A3 (e.g. master electrician). In other countries corresponding stipulations are applicable that have to be followed.

1.6 Operational safety and special dangers

Pay attention to the safety and warning notes in the following chapters of this manual to minimize health hazards and to avoid dangerous situations.

The following instructions are to be adhered to for your own safety and the safety of the unit:

Electric potential



DANGER!

Danger to life due to electric potential!

Contact with live components can be fatal.

Damage of the insulation of the individual components can be dangerous to life.

Therefore:

- For switching off the mains, the power supply cable must be equipped with a fuse with a contact opening width corresponding to the requirements of the excess voltage category III for total disconnection.
- Disconnect the unit from the mains before carrying out any work on it (switch off the fuse in the distribution box) and secure against restarting. Check for zero potential. The control device should be disconnected from the mains before opening the casing.
- In case of damage to the insulation, switch off the power supply immediately and carry out the repair.
- Work on electrical unit should be carried out by certified electricians only.
- Never bypass fuses or put them out **of operation**.
- While replacing fuses, pay attention to correct current specifications.
- Keep **moisture away from live components, since it can lead to short circuit**.



WARNING!

If a short circuit occurs in a 230V/400V load, the relay contact can be welded by the high short-circuit current. Is turned on before removing the short circuit, the safety relay can be also welded. This can lead to the continuous operation of the load. Turn off the circuit breaker in the junction box. Send the unit back to the factory for check/repair.

2 Technical data

2.1 General Information

Designation	Unit	Type
		FCUxxxx-Steam
Dimensions basic device	[mm]	(H x W x D) 247 x 285 x 86,5
Dimensions operating element		(H x W x D)
FCUxxxx DESIGN,	[mm]	198,5 x 124,0 x 30,5
FCUxxxx DESIGN-GLAS	[mm]	197,5 x 122,5 x 35,0
FCUxxxx DESIGN-TOUCH	[mm]	158,0 x 104,0 x 38,0
Max. Distance Basic device to operating element FCUxxxx DESIGN and FCUxxxx DESIGN-GLAS	[m]	100
Voltage supply	[V AC / Hz]	see nameplate
Ambient temperature	[°C]	0 to +40
Rel. humidity	[% r.F.]	max.80 % r. humidity, non-condensing
Storing temperature	[°C]	-10 to +60
Rel. humidity, storage	[% r.F.]	max.80 % r. humidity, non-condensing
Insulation type	[-]	see nameplate

Table 1: Technical Data – General

2.2 Voltage and switching capacity - electrical load

Designation	FCUxxxx-Steam
Nominal voltage	230 V 1 N ~ 50Hz
Seat heating ¹⁾	230 V~ max. 2 kW
PS1 (FLE-STB)	230 V~ max. 60 W
Enable Evaporator (Dampf)	230 V~ max. 120 W
Fan (supply and exhaust air)	230 V~ max. 120 W (Inrush current max. 10A for 5ms)
Cabin light	230 V~ max. 120 W (Inrush current max. 10A for 5ms)
Cleaning light	230 V~ max. 120 W
Coloured light	230 V~ / max. 120 W per relay / total capacity see circuit diagram
OUT 1 ... OUT 4 ¹⁾ OUT 5 ... OUT 12 ¹⁾	Potential free, safety extra low voltage max. 50 V / 1 A, 230 V~ / max. 120 W per relay; total capacity see circuit diagram (Inrush current max. 6A for 5ms)
IN 1 ... IN 4, IN 9 ... 12 ¹⁾ IN 5 ... IN 8 ¹⁾	Safety extra low voltage approx. 15 V, switching current approx. 10 mA , 230 V~ 50 Hz, all inputs same phase

Table 2: Technical data – voltages and switching capacity consumer

Optional

2.3 Cables

Use of inappropriate cables – Electric potential



DANGER!

Danger to life due to electric potential

Use of inappropriate cables can lead to short circuits and subsequent fires.

Damage to the insulation can be dangerous to life.

Therefore:

- All the cables, which lead to the sauna, must be designed for at least 150 °C.
- When laying the cables in the ground, it is essential to use a cable approved for underground installation. Signal lines must be routed in a separate trench, not in the same trench as the 230 / 400V lines.
- Use cables as per specifications in Table 4 and electrical circuit diagram (see annexure). The specified cross sections are designed for copper cables. In case of aluminum cables the cross sections should be appropriately increased.
- The cross sections can increase due to the length of the cables, the type of cable laying or special regulations.

Designation		Type			
		FCU2x00	FCU3x00	FCU4x00	FCU5x00
Power supply cables	Type / Cross section / Number of leads	H07RN-FG2,5 (heavy rubber hose 2,5 mm ²) Power supply cables must be polychloroprene-coated and should not be lighter than heavy polychloroprene-coated flexible cables.			
230 / 400V cables for supply to oven, evaporator, fan, light etc.	Type	Heat resistant, at least 150 °C			
Signal cables for sensors	Type	<ul style="list-style-type: none"> ■ In case of longer distances: LiYCY (flexible, shielded cable) ■ Within the cabin: heat resistant, minimum 150 °C 			
Cross section Number of leads		→ See electrical circuit diagram.			
Connecting cable Control device to operating element or interior display		The patch cable can be delivered with a standard length of 5 or 10m. If another length is desired then the cable must be configured by the electrician. Another option would be to bridge a stretch by installing two network sockets (CAT 5).			
Specification of the patch cable		<ul style="list-style-type: none"> ■ Minimum CAT 5, minimum AWG26 ■ Plugs should have no rubber covering over the locking mechanism ■ Pin 1 to Pin 1 cable configuration (straight through) 			
Conduit for patch cable		Min. M32 (inner diameter min. 24mm), smallest bending radius 30 cm			

Table 3: Technical data – cables

2.4 Cables

Use of inappropriate cables – Electric potential



DANGER! **Danger to life due to electric potential**

Use of inappropriate cables can lead to short circuits and subsequent fires.

Damage to the insulation can be dangerous to life.

Therefore:

- All the cables, which lead to the steam bath, must be designed for at least 150 °C.
- Use cables as per specifications in table 2 and electrical circuit diagram (page 29, Figure 11). The specified cross sections are designed for copper cables. In case of aluminium cables the cross sections should be appropriately increased.
- The cross sections can increase due to the length of the cables, the type of cable laying or special regulations.

Designation		Type
		FCUxxxx-Steam
Power supply cables	Type / Cross section / Number of leads	H07RN-FG2,5 (heavy rubber hose 5 x 2,5 mm ²) Power supply cables must be polychloroprene-coated and should not be lighter than heavy polychloroprene-coated flexible cables.
230 / 400V cables for supply to oven, blower, light etc.	Type	Heat resistant, at least 150 °C
	Cross section	→ See electrical circuit diagram, page 29, Figure 6.
	Number of leads	→ See electrical circuit diagram, page 29, Figure 11.
Signal cables for sensors	Type	<ul style="list-style-type: none"> ■ In case of longer distances: LiYCY (flexible, shielded cable) ■ Within the cabin: heat resistant, minimum 150 °C
	Cross section	→ See also installation plans page 21 ff., section 6.3.
	Number of leads	→ S See also installation plans page 21 ff., section 6.3.
Connecting cable Control device to operating element or interior display	The patch cable can be delivered with a standard length of 5 or 10m. If another length is desired then the cable must be configured by the electrician. Another option would be to bridge a stretch by installing two network sockets (CAT 5).	
Specification of the patch cable	<ul style="list-style-type: none"> ■ Minimum CAT 5, minimum AWG26 ■ Plugs should have no rubber covering over the locking mechanism ■ Pin 1 to Pin 1 cable configuration (straight through) 	
Conduit for patch cable	Min. M32 (inner diameter min. 24mm), smallest bending radius 30 cm	

Table 4: Technical data– cables

1)

2.5 If the steam bath control device is installed in the technical room

If the steam bath control device is not mounted directly on the outer wall of the cabin

The control device can be installed directly on the outer side of the cabin or at another location, however not within the cabin. If the installation is not done directly on the outer wall of the cabin then the following points should be noted:

- Lay the signal cables separately from the power line.
- Do not lay the signal cables parallel to the power line.
- Install a distribution box for the signal lines and another one for the power lines as per figure Figure. 1.

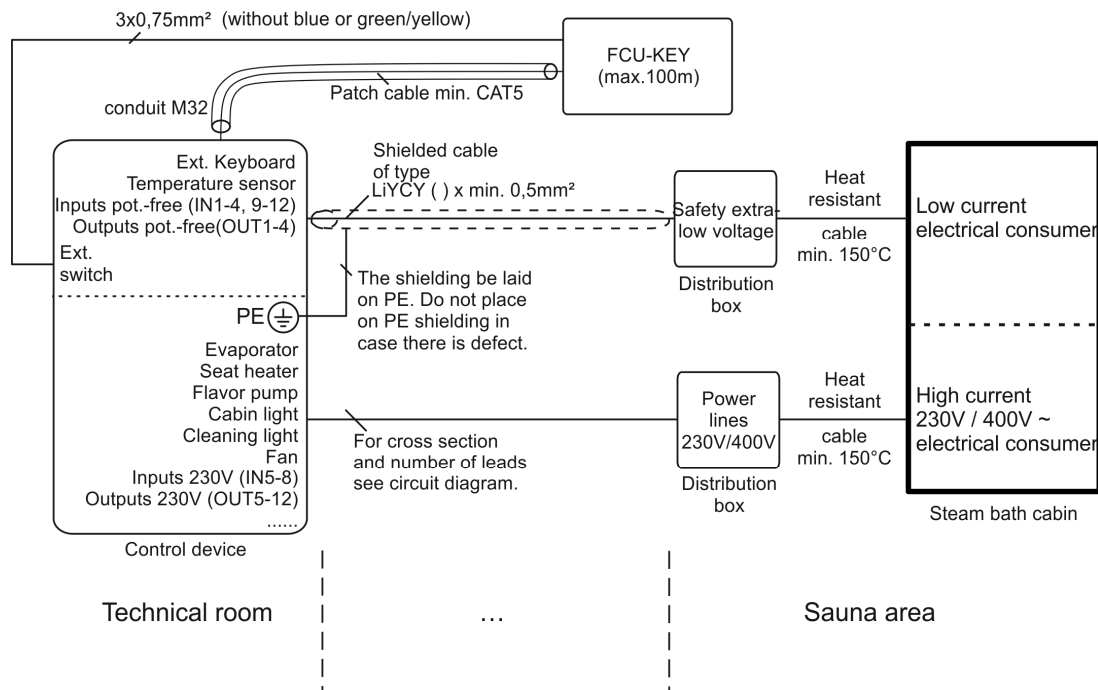


Figure. 1: Cabling while installing the steam bath control device not directly on the outer wall of the cabin

3 Identification

3.1 Nameplate

The nameplate is located on the control device on the left side:

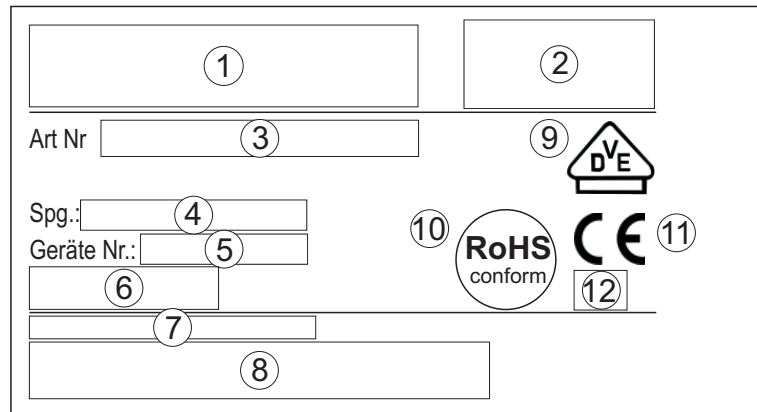


Figure. 2: Nameplate control device

- 1 Type designation
- 2 Company logo
- 3 Article number
- 4 Voltage and max. rating
- 5 Device number
- 6 Bar code
- 7 Article number
- 8 Barcode article number
- 9 VDE-symbol (in devices, which are VDE tested)
- 10 RoHS code
- 11 CE-symbol
- 12 Insulation type

4 Goods receipt, Transport and Storage

4.1 Safety

Inappropriate Transport



ATTENTION!

Damage to the control due to inappropriate transport

The control is a highly sensitive electronic device. It can get damaged due to inappropriate transport.

Therefore:

- Remove the packing only just before starting the installation

4.2 Goods receipt

After receipt, the consignment should be immediately checked for any transport damages.

In case of damages, which are visible from outside, the following course of action should be taken:

- The consignment should not be accepted or accepted conditionally only.
- Note down the scope of damage on the transport documents or on the delivery note of the transporter.
- Initiate claim.



NOTE!

Claim damages as soon as they are identified. Claims for damages can be lodged only within the valid claim period.

4.3 Packing

The packaging should provide protection against transport damages to the individual components till the time of installation. Therefore remove the packaging only just before installation.

4.4 Storage

- Store the control device under the following conditions:
- Do not store in open place, store in a dry dust free place.
- Avoid contact with any aggressive media.
- Protect against sunlight.
- Avoid mechanical shocks.
- Storage temperature: –10 to +60 °C
- Relative humidity: max. 80 %, non-condensing

5 Installation

5.1 ESD protection


ATTENTION!
Note ESD protection!

Do not touch on electrical parts because of ESD protection reasons. When assembling only touch the circuit board at the plastic case or at the edge of the board.

Also only touch the connection cable to the circuit board, on the connector. Thereby do not touch the contact surfaces.

Therefore:

- Take appropriate protections. Touch a grounded piece of metal as a minimum protection.

5.2 Installation of steam bath control device FCUxxxx-Steam

Installation

The steam bath control device should be installed at a distance of at least 5 cm from the walls or other equipment. There should be a distance of 10 cm between two steam bath control devices.

The control unit must be mounted so that it is at any time accessible! (e.g. for service, wear parts, fuses, etc.)


Note!

At FCUxxxx-Design-Glas the main switch of the control unit must be accessible.

5.3 Installation of the operating control of FCUxxxx-Steam-Design und FCUxxxx-Steam-Design-Glas

Installation

The operating control can be installed maximum 100 m away from the basic control device.


ATTENTION!

Damage or malfunction of the operating control FCUxxxx-Steam-Design-Glas by steam, humidity or water!

Therefore:

- Must be ensured, that either steam, humidity or water can occur at or in the keyboard.

5.4 Installation opening of operating control FCUxxxx-Design and FCUxxxx-Design-Glas

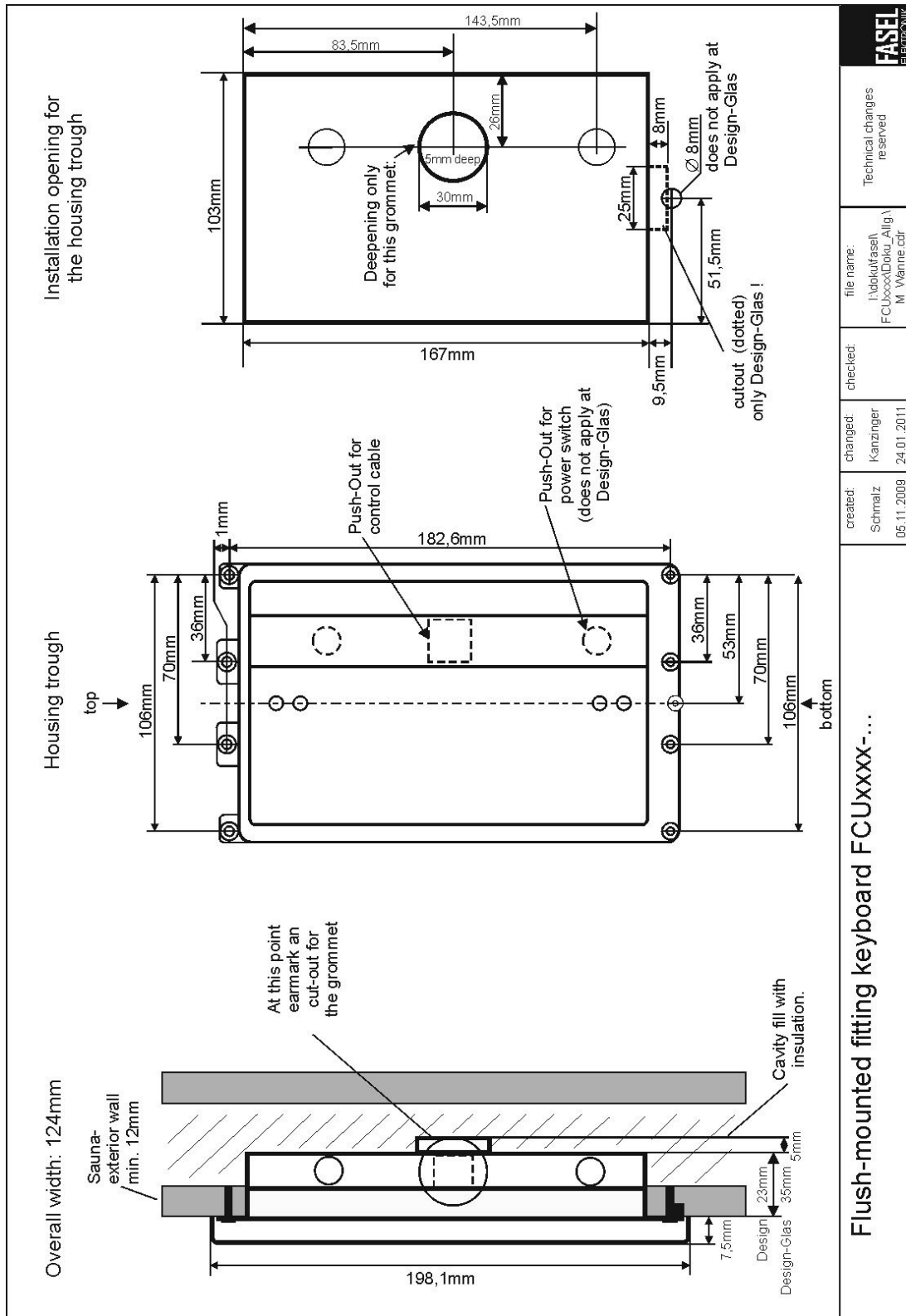
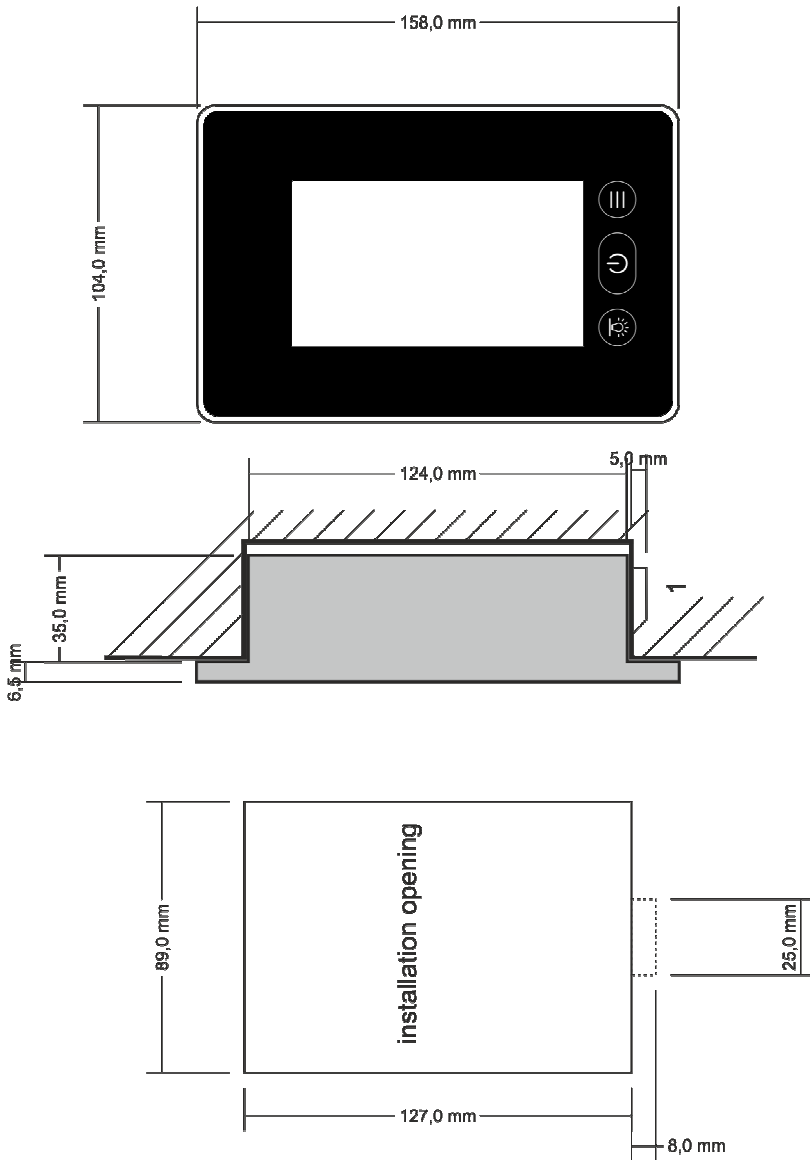


Figure 3: Installation opening for operating control FCU4x00-Design and FCU4x00-Design-Glas

6 Installation instructions for keyboard FCU5xxx-Design

VDE in preparation



1: Flattening for spring

FASEL ELEKTRONIK	
Technical changes reserved	file name: I:\doku\faeself\FCUxxxx\Doku_Allg.\M_Wanne_FCU5XXX.cdr
checked:	changed: Kunzelmann 13.02.2017
created: Kunzelmann 13.02.2017	checked: FCUxxxxDoku_Allg.\M_Wanne_FCU5XXX.cdr
Installation instructions of the keyboard FCU5xxx	

6.1 Assembly (I) / disassembly (II) of operating control FCUxxxx-Design

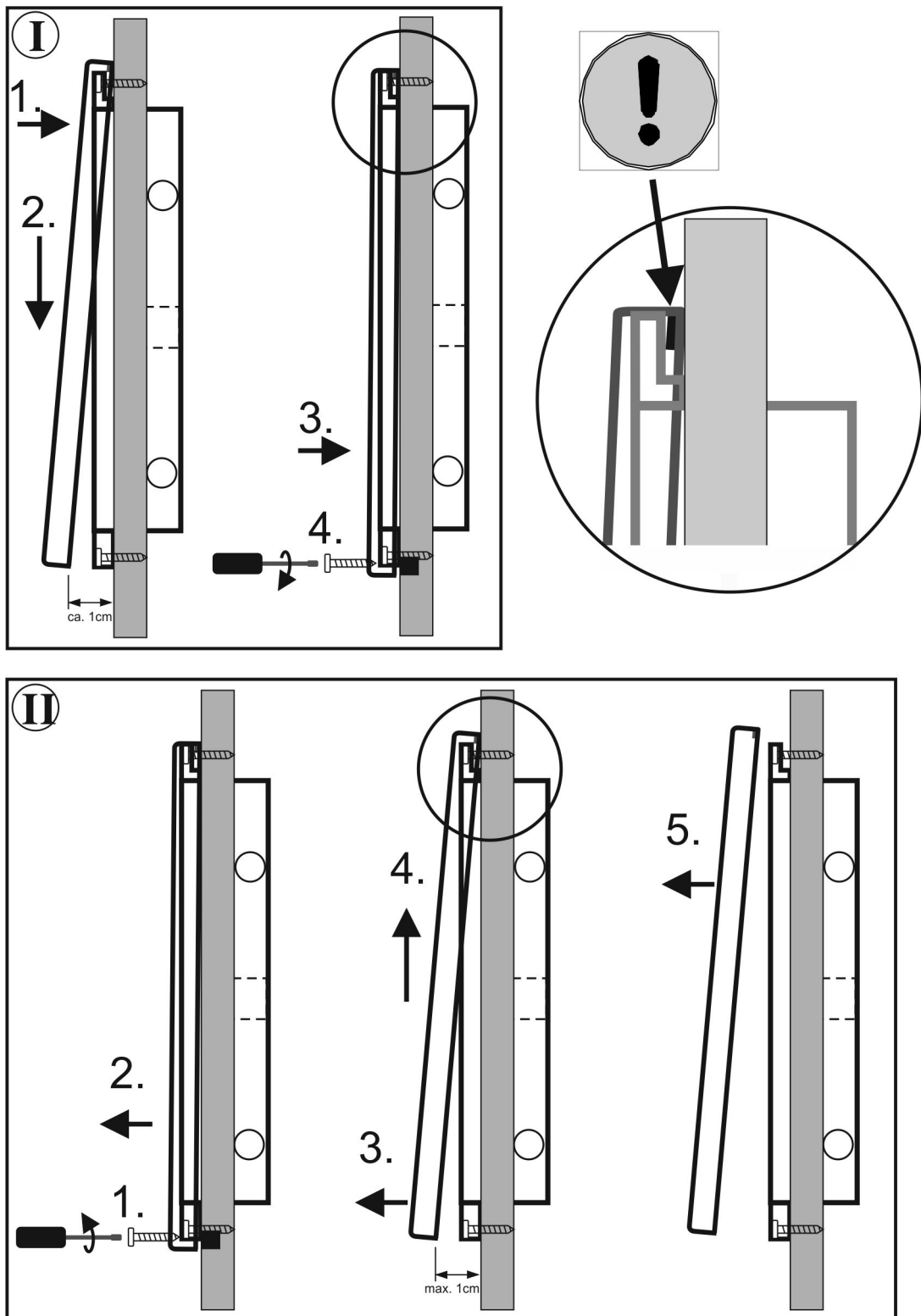
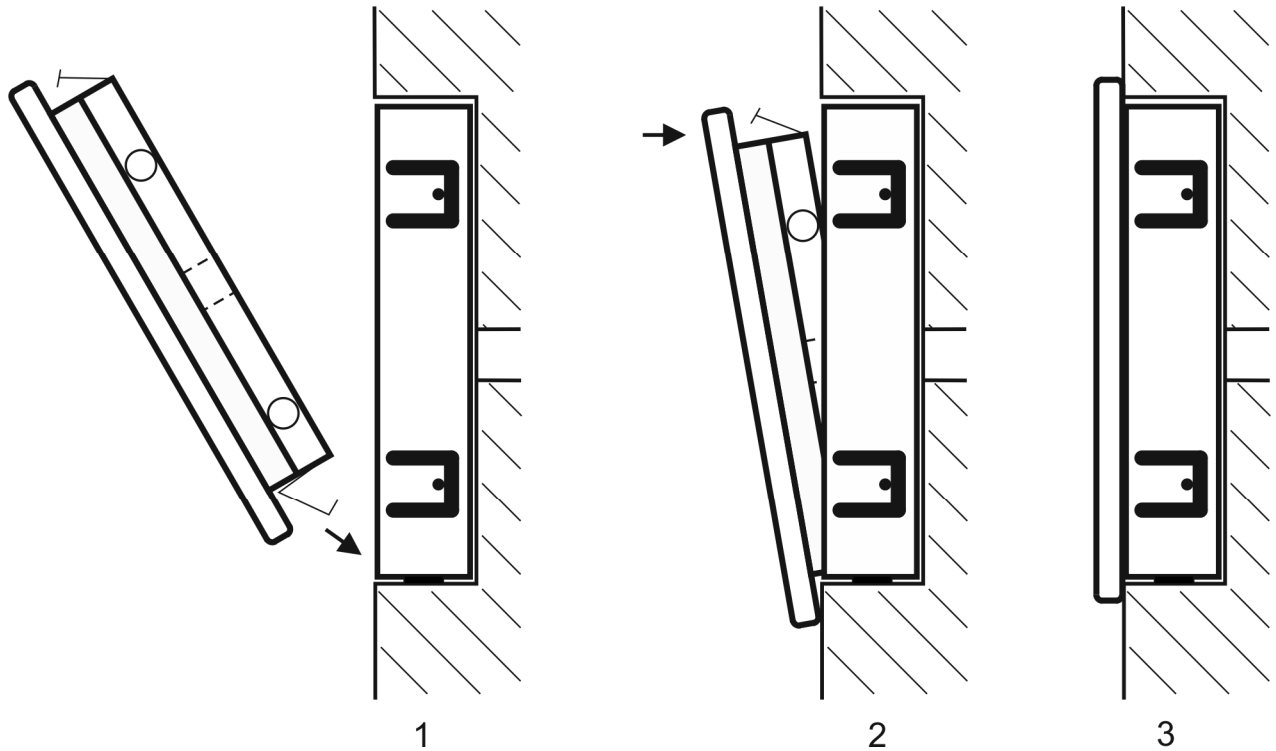
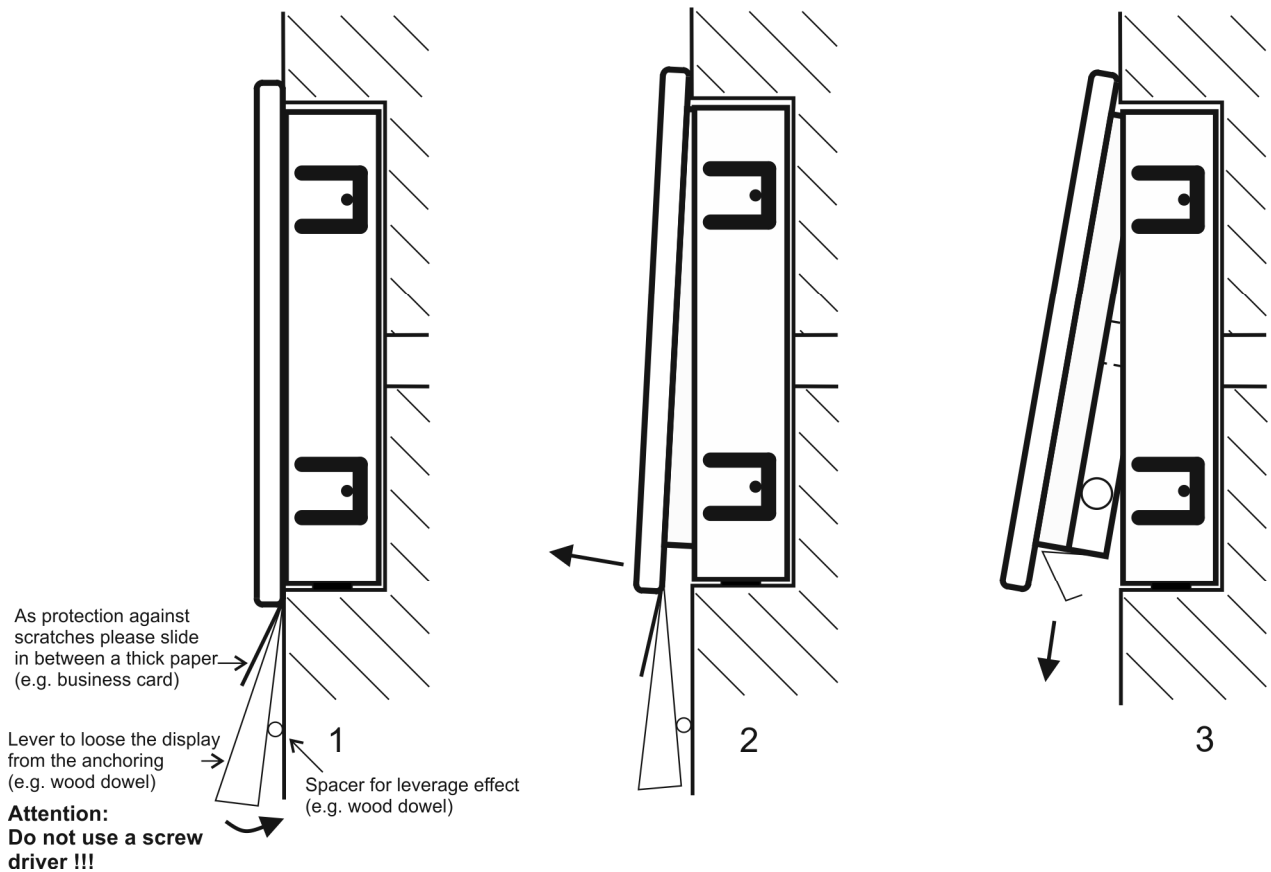


Figure 4: Assembly / disassembly of operating control FCUxxxx-Design

7 Installation of the keyboard FCU5xxx-Design



8 Removal of the keyboard FCUxxxx-Design



8.1 Installing the temperature sensor



Note!

The sensor of the thermostat must be installed in such a way that it is not affected by the incoming air.



Note!

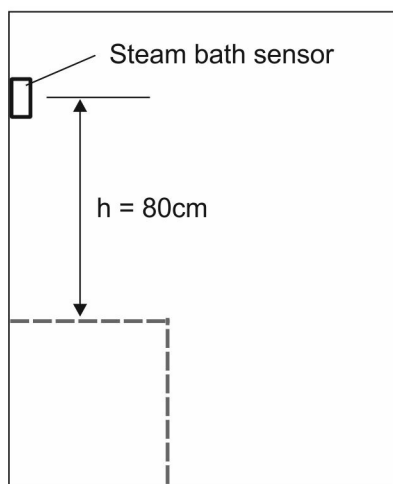
The temperature values displayed on additional thermometers in the cabin can deviate from the displayed values on the control. This could be due to the following reasons:

Depending on the cabin, the temperature differences from the floor to the ceiling can be up to 30 K.

Instruments with indicator needles react slower than electrical measuring and display systems used for the control.

Place of Installation

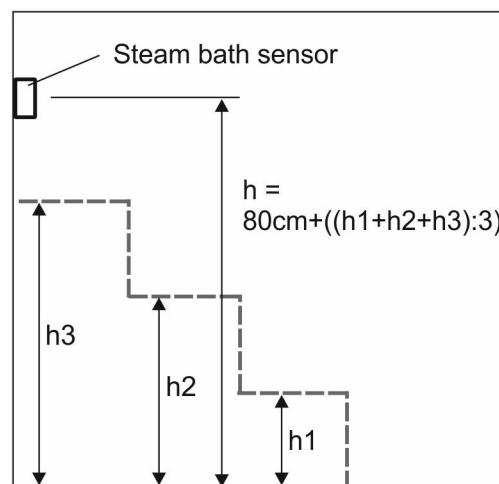
Example with 1 bench:



Lateral view steam bath cabin

The steam bath sensor should be installed 80cm above the seating.

Example with 3 benches:



Lateral view steam bath cabin

If your steam bath system has several benches, the steam bath sensor should be installed 80cm above the calculated average height of all benches.

Fig.5: Place of installation for steam bath sensor

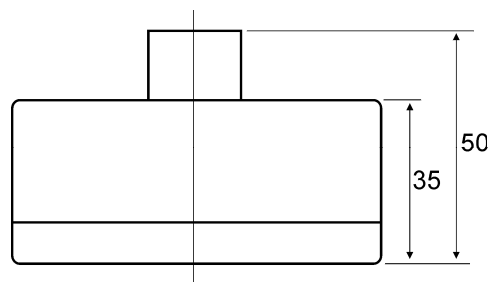
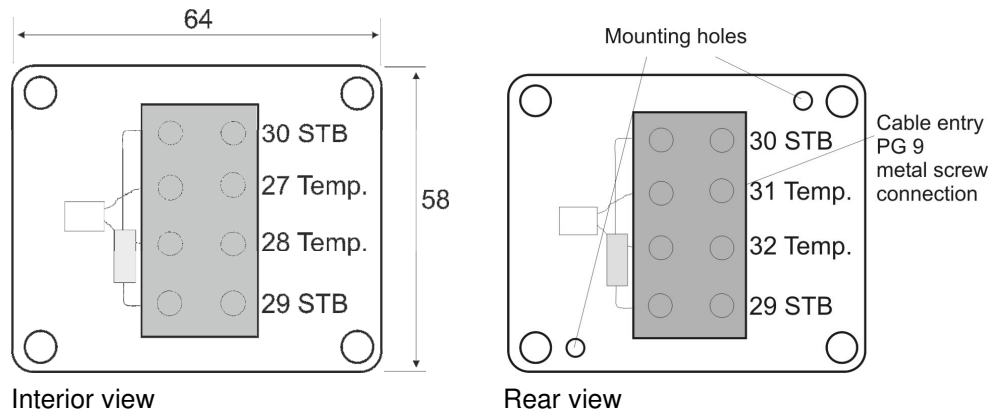
- **ATTENTION:** The assembler of the device has to consider the specific conditions of the cabin such as the position of the steam exit, the in- and out-coming air, the door(s), the shape of the ceiling etc. Then the sensor can be installed at an adequate place!

8.1.1 Temperature sensor

The following temperature sensor variants are available:

- Combined steam bath sensor consisting of temperature sensor and thermal fuse (FCU-SENSOR-STEAM-STAN-A)
- Rod sensor for temperature (FCU-SENSOR-BUSH-A)

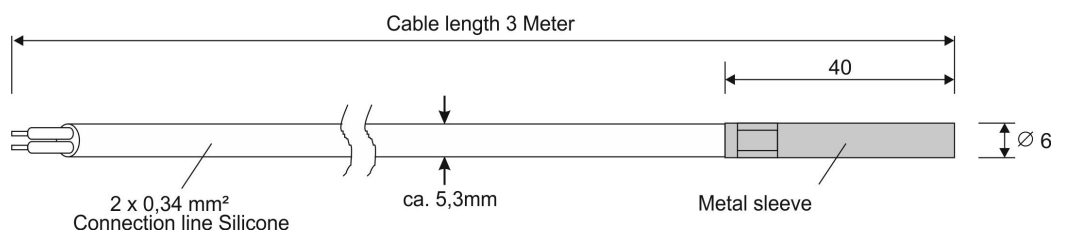
Dimensions steam bath sensor



Lateral view

Note: If the steam bath cabin is tiled, the aluminium housing can be flush mounted with the tiles.

Dimensions rod sensor without STB



Note: If the rod sensor is used, the terminals 29 and 30 on the control device must be bypassed!

Fig.6: Dimensions sensor

8.2 Installation of internal display in cabin



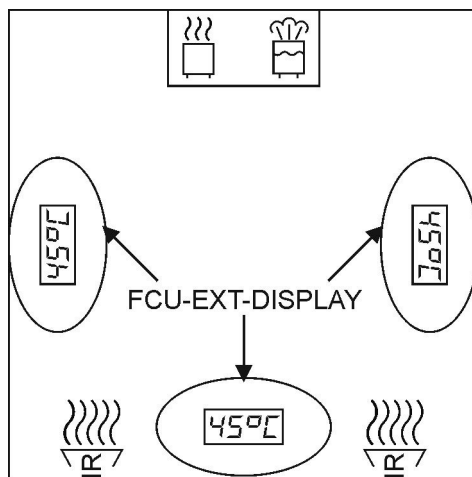
Attention!
Damage of the cabin interior display by too high temperature!

Therefore:

- Do not install the internal display directly over or next to the oven.
- Do not install the internal display in front of the infrared heater.
- Cabin interior display must be installed vapor-tight. (Seal with silicone)

Installation

Install internal display on a maximum height of 1,6 m.



Dimensions

A double flush mounted socket is provided for the installation of the FCU-EXT-DISPLAY or FCU-EXT-DISPLAY-TOUCH.

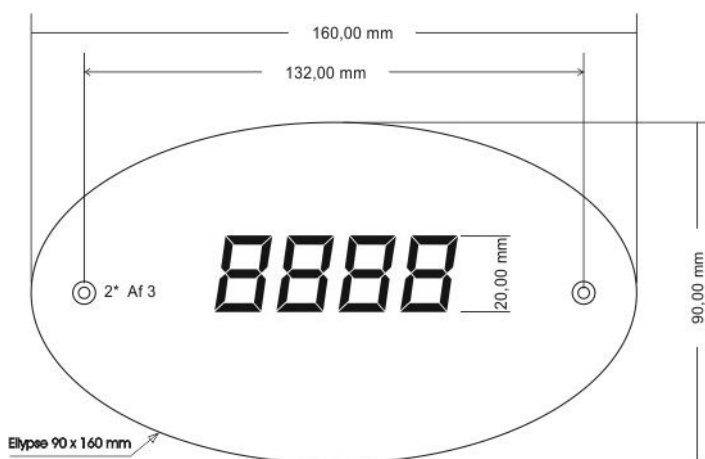
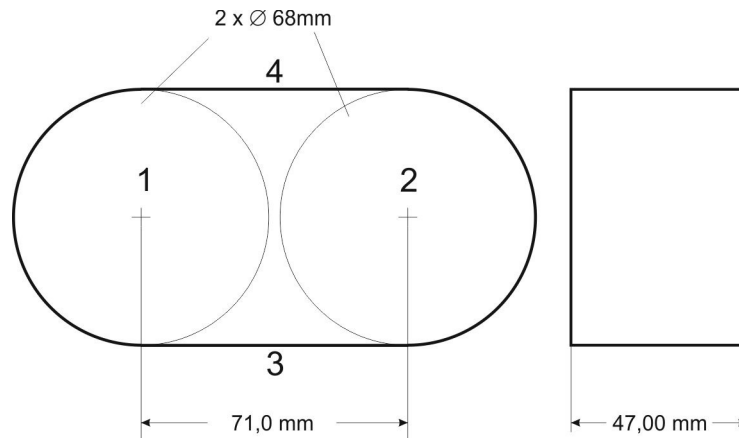


Figure 8: Dimensions of interior display

Installation of the double flush mounted socket

Installation opening of the flush mounted socket for installation of the internal display:



- 1-2: Drill with box drill
- 3-4: Saw out the left standing center bars with a jigsaw

Electrical Connection

Connect the RJ45-connector of the internal display with a patch cable to the control device.

Electrical connection diagram

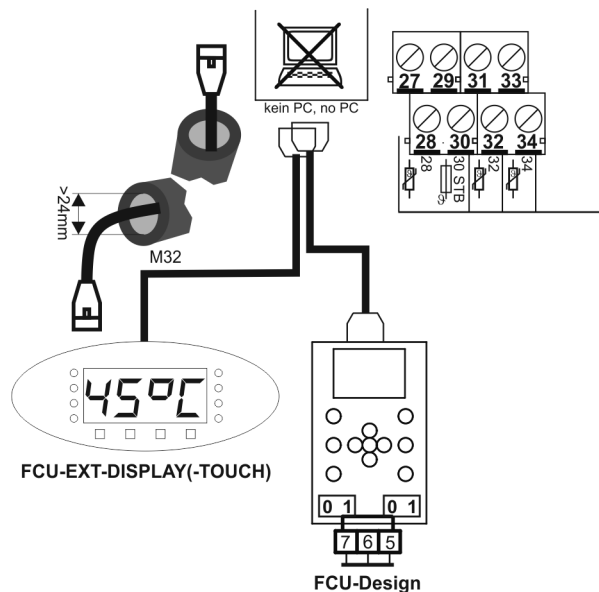


Figure 10: Connection interior display

The electrical lines for FCU-EXT-DISPLAY(-TOUCH) und FCU-DESIGN are plugged on top of each other in the Double-RJ45-Connector. Which lines will be put up or down does not matter. Both sockets are the same.

9 Electrical connection

9.1 Safety

Electric potential



DANGER!

Danger to life due to electric potential!

Contact with live components can be fatal.

Damage of the insulation of the individual components can be dangerous to life.

Therefore:

For switching off the mains, the power supply cable must be equipped with a fuse with a contact opening width corresponding to the requirements of the excess voltage category III for total disconnection.

Disconnect the unit from the mains before carrying out any work on it (switch off the fuse in the distribution box) and secure against restarting. Check for zero potential. The control device should be disconnected from the mains before opening the casing.

In case of damage to the insulation, switch off the power supply immediately and carry out the repair.

Work on electrical unit should be carried out by certified electricians only.

Never bypass fuses or put them out **of operation**.

While replacing fuses, pay attention to correct current specifications.

Keep **moisture away from live components, since it can lead to short circuit**.



WARNING!

If a short circuit occurs in a 230V/400V load, the relay contact can be welded by the high short-circuit current. Is turned on before removing the short circuit, the safety relay can be also welded. This can lead to the continuous operation of the load. Turn off the circuit breaker in the junction box. Send the unit back to the factory for check/repair.

Electro-magnetic damage



ATTENTION!

Electro-magnetic interferences can lead to malfunctions of the control device and to destruction of the components!

The control device is permitted for operation at home and at commercial facilities. Operation under different electro-magnetic conditions can lead to damage or malfunctions.

Malfunctions due to electro-magnetic interferences are disturbances, which affect the device from outside.

Pay attention to the following points:

- Lay the signal cables separate from the power supply cables and cables to the electrical consumers.
- Electrical consumers like e.g. illuminants, pumps, relays and contactors, which are connected to the control device should not emit impermissibly high interferences. If you connect inductors like e.g. a magnet valve, relay, transformer, throttle or engine, the interferences of the consumers must be suppressed.

9.2 Connecting the control device, consumers and sensor

1. Connect the power line to the steam bath control as per the electrical circuit diagram.
2. Connect the electrical consumers like the seat heating, blower, light etc, to the steam bath control as per the electrical circuit diagram.
3. Connect the sensor to the steam bath control as per the figures on page page 29, Figure 11 ff.
4. Place the shielding on the PE as per the circuit diagram. Do not place the shielding if there is malfunction in the PE.

→ For electrical circuit diagram see page 26, Figure 11.

In this process pay attention to the following points:

- Observe the technical data for power lines, cables to the electrical consumers and the signal cables. → See page 9, Table 4.
- Lay the cables in such a way that they are not accessible to the user of the cabin. If this is not possible then the cables should be provided with cord grip.
- Lay all the neutral cables on the bus bar N.
- Lay all the grounding conductors on the bus bar PE.

9.3 Electrical circuit diagram

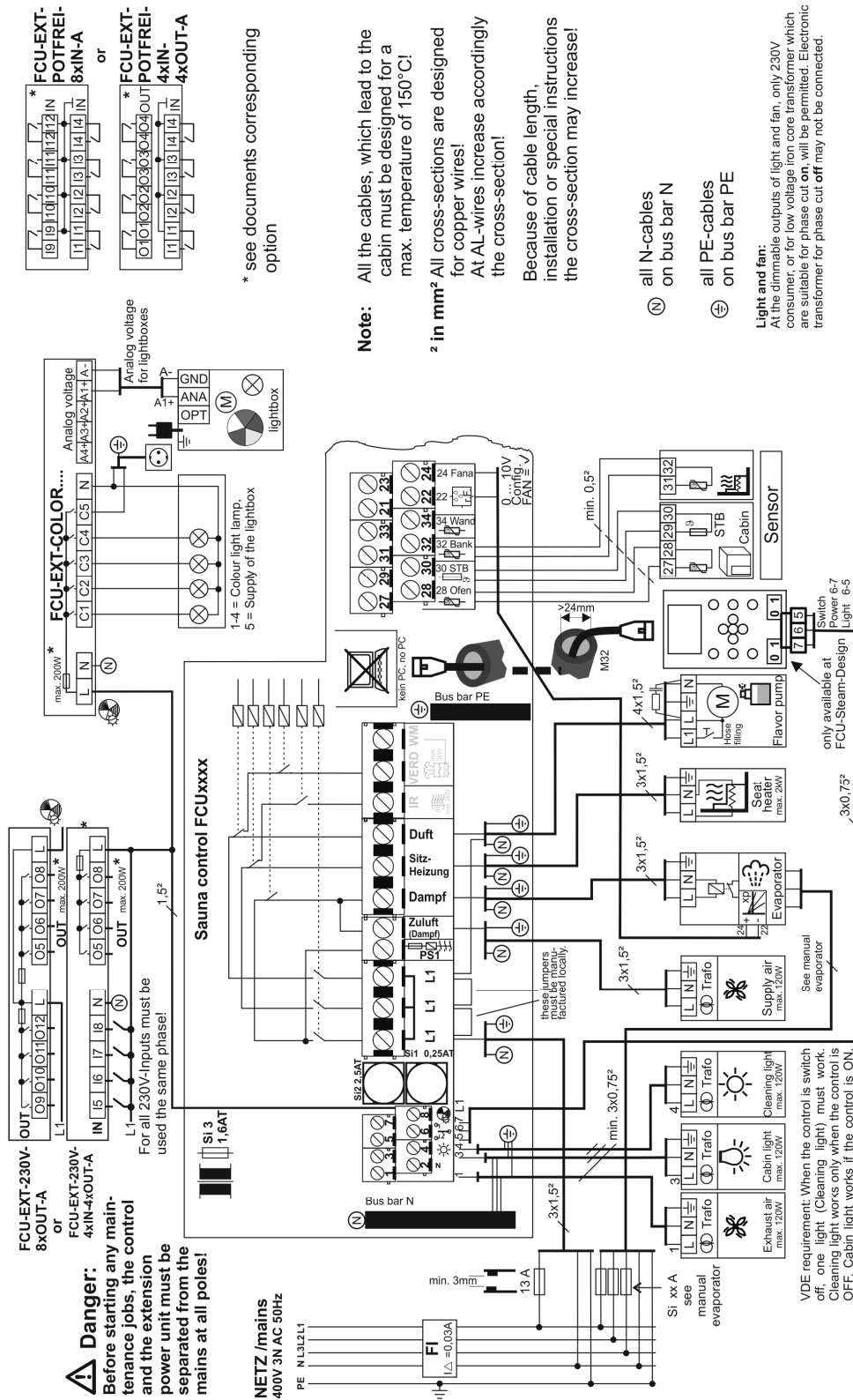


Figure 11: Electrical circuit diagram

<p>changed: Kanzliger Schmalz</p> <p>created: Schmalz 01.2010</p>		<p>Technical changes reserved</p>	<p>file name: An-FCUxxxx-Steam_EN.pdf</p>	<p>An_FCUxxxx.cdr</p>	<p>FASEL ELEKTRONIK</p>
<p>Connection diagram for FCU-Steam and FCU-Steam-Design</p>					

9.4 Checking the electrical connection

After the steam bath control device and the sensor are electrically connected the following points must be checked:

- Does the voltage supply match the specifications on the nameplate?
- Have the cable specifications given in Table 4, page 14 and the electrical circuit diagram Figure 11, page 29 been followed?
- Is the control device connected as per the electrical circuit diagram?
- Are the sensors (temperature) connected as per the electrical circuit diagram Figure 11, page 29?

10 Commissioning

10.1 Safety instructions and notes

Electric potential



DANGER!

Danger to life due to electric potential!

Contact with live components can be fatal.

Damage of the insulation of the individual components can be dangerous to life.

Therefore:

- For switching off the mains, the power supply cable must be equipped with a fuse with a contact opening width corresponding to the requirements of the excess voltage category III for total disconnection.
- Disconnect the unit from the mains before carrying out any work on it (switch off the fuse in the distribution box) and secure against restarting. Check for zero potential. The control device should be disconnected from the mains before opening the casing.
- In case of damage to the insulation, switch off the power supply immediately and carry out the repair.
- Work on electrical unit should be carried out by certified electricians only.
- Never bypass fuses or put them out **of operation**.
- While replacing fuses, pay attention to correct current specifications.
- Keep **moisture away from live components, since it can lead to short circuit**.



WARNING!

If a short circuit occurs in a 230V/400V load, the relay contact can be welded by the high short-circuit current. Is turned on before removing the short circuit, the safety relay can be also welded. This can lead to the continuous operation of the load. Turn off the circuit breaker in the junction box. Send the unit back to the factory for check/repair.

Improper operation



WARNING!
Improper operation can lead to serious injuries.

Therefore:

- Read and follow the operating manual.

Danger of scalding



WARNING!
Danger of injury due to scalding!

Objects on the steam inlet or in the surrounding area of the vaporiser can cause scalding and thus lead to injuries.

Therefore:

- Always keep the steam inlet and the surrounding area of the vaporiser free of objects.

Health hazards



WARNING!
Danger of injury due to covering of the temperature sensor!

Covering the cabin sensor can lead to increased temperature. The increased heat can lead to health hazards or to serious injuries.

Therefore:

- Do not cover the cabin sensor.
- Ensure unrestricted air circulation.

10.2 Checks before the initial commissioning

The following points should be checked before the initial commissioning:

- Does the voltage supply match the specifications on the nameplate?
- Have the cable specifications as per Table 4, page 11 and the electrical circuit diagram Figure 11, page 26 been adhered to?
- Is the control device connected as per the electrical circuit diagram?
- Are the sensors (temperature) connected as per circuit diagram Figure 11?
- Have all the neutral conductors been laid on the N- bus bar in the steam bath control device?
- Have all the earthing conductors been laid on the PE-bus bar in the steam bath control device?
- Have all the screws been tightened correctly?

10.3 Switching on and off the steam bath control

Read the operating manual and the safety instructions thoroughly and follow them before switching on.

→ See operating manual "Series FCU2000/FCU3000/4000".

10.4 Functional test of the steam bath control device and the electrical consumers

- Check the safety OFF. For this purpose disconnect the STB circuit directly on the steam bath sensor during the steam bath operation. The heating system must switch off automatically. The corresponding message is displayed on the display.
- Check the steam bath sensor temperature. For this purpose disconnect the steam bath sensor circuit directly on the steam bath sensor during the steam bath operation. The heating system must switch off automatically. The corresponding message is displayed on the display.
- For the available bathing option "Steam bath", check seat heating and scent pump for proper connection of the phase L1 to the corresponding terminal (see circuit diagram).
- Check the electrical consumers like the cabin light, cleaning light and blowers. It must be possible to switch on and switch off the electrical consumers through the corresponding operating keys on the steam bath control or the operating control.
- Check the rotating direction of the blower.
- Check the function of the electrical consumers, which are connected to the optional inputs and outputs.

10.4.1 Functional test of the sensor



NOTE!

- If the sensor or the sensors have not been properly connected then a signal is sounded and an error message is displayed on the display.
→ See also operating manual "Series FCU2000/FCU3000/FCU4000".

- Check the display of the temperature value. If required, compare the displayed value with the value on a reference temperature measuring device. After approximately 10 minutes of operation the displayed temperature must increase significantly.

11 General Information

11.1 Liability limitation

All the details and instructions in this manual have been compiled taking into consideration the relevant standard specifications and stipulations and the state-of-the-art technology as well as our knowledge and experience of many years.

The manufacturer does not take any liability for damages caused by:

Non-compliance to the operating and installation manual

Improper use

Unauthorized alterations

Technical changes

Use of unapproved spare parts and consumables.

The actual scope of delivery can deviate from the explanations and the presentation given here in case of special designs, additional orders or technical updates.

Otherwise the obligations agreed upon in the delivery contract, the general business conditions as well as the delivery terms of the manufacturer and the legal regulations valid at the time of concluding the agreement are applicable

Guarantee

The guarantee period of the manufacturer starts from the time of dispatch by the manufacturer and is valid for 24 months. The delivery date can be determined from the device number on the nameplate.

The manufacturer does not assume any liability which differs from this regulation. Guarantee claims must be submitted to the sauna manufacturer or dealer.

Copyright

Handing over the operating and installation manual to a third party without the written consent of the manufacturer is not permitted.



NOTE!

The details, texts, drawings, pictures and other representations in this manual are protected by copyright and subjected to the **industrial proprietary laws. Any misuse is liable to punishment.**

Reproduction in any manner or form – even as excerpt- as well as use and/or conveying of the content without written consent of the manufacturer is not permitted.

11.2 Scope of delivery

For information on the scope of delivery, pl. see the delivery note.

11.3 Spare parts



CAUTION

Danger of injury due to incorrect spare parts

Incorrect or defective spare parts could lead to **damage, incorrect functioning or total breakdown and can impair the safety.**

Therefore:

Use only original spare parts of the manufacturer.

Repairs of the sauna control should be carried out only by the technical experts.

Obtain spare parts from the installer or the dealer of the sauna unit. For address see the invoice, delivery note or the reverse of the manual.

11.4 Customer service

Your dealer or the installer of the sauna unit can provide technical information on request.

The address you can find on the invoice, delivery note or the reverse of this manual.



NOTE!

For quick processing, before calling note down the data on the nameplate as well as the **model, serial number, version etc..**

11.5 Light and fan

Light and fan



ATTENTION! Light and fan:

At the dimmable outputs of light and fan, only 230V consumer, or for low voltage iron core transformer which are suitable for phase cut **on**, will be permitted.

Electronic transformer for phase cut **off** may **not** be connected.

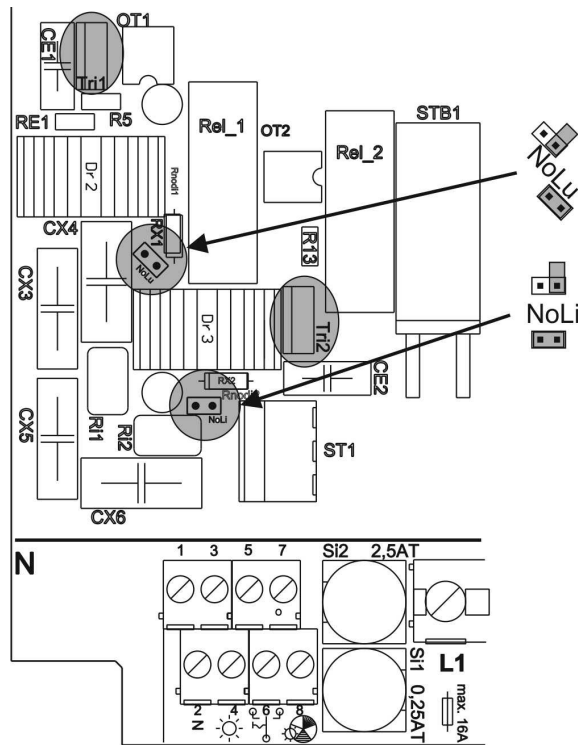
11.5.1 Disable light brightness or fan speed, or exchange triac

ATTENTION



DANGER! Danger to life due to electric potential!

Before starting any maintenance jobs, the control unit must be separated from the mains at all poles!



If light and/or fan are not suitable for phase cut **on**, you can disable this feature.

Fan speed (clamp 1) enabled

Fan speed disabled, only ON/OFF

Light dimming (clamp 3) enabled

Light dimming disabled, only ON/OFF

The jumpers are located only on one side of the pins (as in the picture above) or they are in the by-pack kit of the control unit.



Disable user menu for fan speed / light-brightness per "DIP switch S1"

DIP 4=ON, menu fan speed disabled

DIP 5=ON, menu light brightness disabled

If the light dimming no longer works through a defect in the bulb, then the triac „Tri2“ and possibly the fuse „Si2“ are blown. When replacing the triac (1 spare part is included in the by-pack kit), set the new component in correct position (mark metal flag) into the socket. Make sure that all pins are properly in the socket and then press gently.

If the fan control have been destroyed by a defect, the same applies for triac „Tri1“.



ATTENTION! Note ESD protection!

Do not touch on electrical parts because of ESD protection
Take appropriate protections. Touch a grounded piece of metal as a minimum protection.

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Address of the contractor/installer or the dealer of the
sauna unit: