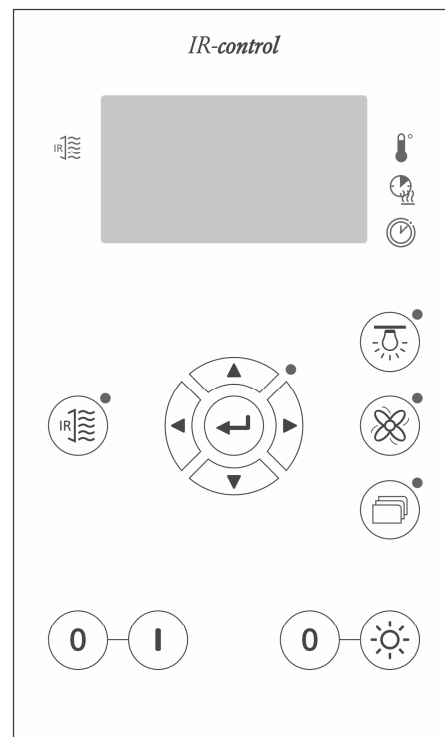
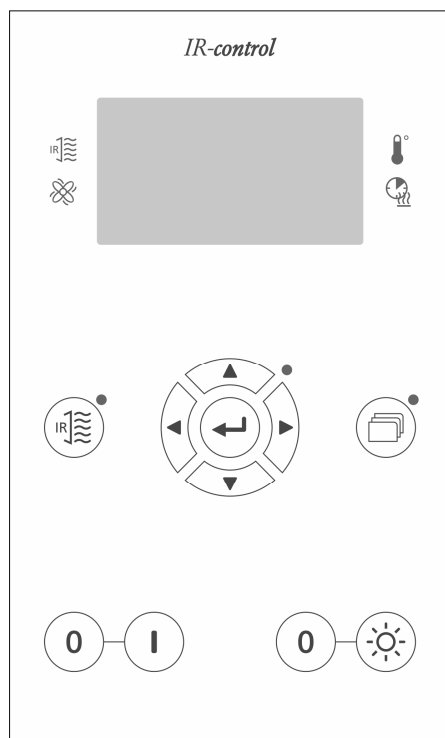


Installation instructions

Infrared control Series FCU2000/3000/4000-IR



Doc-ID: M_FCUxxxx_EN
Version: V 1.07



FASEL GmbH
Germany

Table of contents

1	Safety	5
1.1	Explanations of symbols	5
1.2	Technical safety notes for assembly and installation	6
1.3	Intended use	6
1.4	Modifications and alterations	6
1.5	Demands on technical personnel	7
1.6	Operational safety and special dangers	8
2	Technical Data	9
2.1	General information	9
2.2	Voltage and switching capacity - electrical load	9
2.3	Cables	10
2.4	If the infrared control device is installed in the technical room	11
3	Identification	12
3.1	Nameplate.....	12
4	Goods receipt, Transport and Storage	13
4.1	Safety	13
4.2	Goods receipt.....	13
4.3	Packing	13
4.4	Storage	13
5	Installation	14
5.1	ESD protection.....	14
5.2	Installation of infrared control device FCUxxxx, basic control device FCUxxxx-IR-Design and FCUxxxx-IR-Design-Glas	14
5.3	Installation of the operating control of FCUxxxxIR-Design und FCUxxxx-IR-Design-Glas	14
5.4	Installation opening of operating control FCUxxxx-IR-Design	15
5.5	Assembly (I) / disassembly (II) of operating control FCUxxxx-IR-Design.....	16
5.6	Installing the temperature sensor	17
5.6.1	Temperature sensor	17
5.7	Installation of internal display in cabin	19
6	Electrical connection	21
6.1	Safety	21
6.2	Connecting the control device, consumers and sensor	22
6.3	Checking the electrical connection	23
6.4	Electrical circuit diagram	24
7	Commissioning	25
7.1	Safety instructions.....	25
7.2	Checks before the initial commissioning.....	26
7.3	Switching on and off of the infrared control	26
7.4	Functional test of the infrared control device and the electrical consumers.....	27
7.4.1	Functional test of the sensor	27

Table of contents

8	General Information	28
8.1	Liability limitation	28
8.2	Copyright	28
8.3	Scope of delivery	28
8.4	Spare parts	29
8.5	Customer service	29
8.6	Light and fan	30
8.6.1	Disable light brightness or fan speed, or exchange triac	30
	Index.....	31

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

Appropriate VDE applies to public saunas and infrared cabins, that a control lamp, showing, that the heater 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-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.

Use the sauna control device only with a cover guard for sauna heaters or disable the timer option in service menu.

1.3 Intended use

Depending on the version, the FASEL infrared controls of the series FCUxxxx-IR, are exclusively meant for operation and control of infrared cabins. The control devices are permitted for operation in houses and commercial facilities.

Intended use



WARNING!

Danger if not used correctly

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

Therefore:

Use the infrared control correctly.

Operate the infrared control only within the permissible room temperature and moisture range. → See technical data

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 infrared control or installation can lead to unforeseen dangers.

All technical modifications and add-ons to the infrared 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 risks 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 switch them off.

While changing the 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	Series FCUxxxx-IR
Dimensions basic device FCUxxxx-IR (-DESIGN)	[mm]	(H x W x D) 247 x 285 x 86,5
Dimensions operating element FCUxxxx-IR-DESIGN	[mm]	(H x W x D) 198,5 x 124 x 30,5
Dimensions operating element FCUxxxx-IR-DESIGN-GLAS	[mm]	(H x W x D) 197,5 x 122,5 x 35
Max. Distance Basic device to operating element FCUxxxx-IR- DESIGN or interior display	[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
Storage temperature	[°C]	-10 to +60
Storage rel. humidity,	[% 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	Series FCUxxxx-IR	Series FCU4000-IR-6kW
Nominal voltage	230 V 1N ~ 50Hz	400 V 2 N ~ 50Hz
Infrared	230 V~ max. 3 kW (2 x 1,5 kW)	230 V~ max. 2 x 3 kW (z.B. L1 = 4x 750 W , L2 = 2x 1,5 kW)
FLE-STB	230 V~ max. 60 W	
Fan	230 V~ max. 120 W (Inrush current max. 10A for 5ms)	
Cabin light	230 V~ max. 120 W (at series FCU2000-IR not available) (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

1) Optional



NOTE!

FASEL additionally offers a switching capacity extension for a total connected load of 6 kW, 12 kW and 21 kW.

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.
- Use cables as per specifications in table below and electrical circuit diagram. 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
		Series FCUxxxx-IR
Power supply cables	Type / Cross section / Number of leads	H07RN-FG2,5 (heavy rubber hose for FCUxxxx-IR 3 x 2,5 mm ² ; for FCU4000-IR-6kW 4 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 IR-heater, fan, light etc.	Type	Heat resistant, at least 150 °C
	Cross section Number of leads	→ See electrical circuit diagram.
Signal cables for sensors	Type	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	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 If the infrared control device is installed in the technical room

If the infrared control device is not directly installed 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

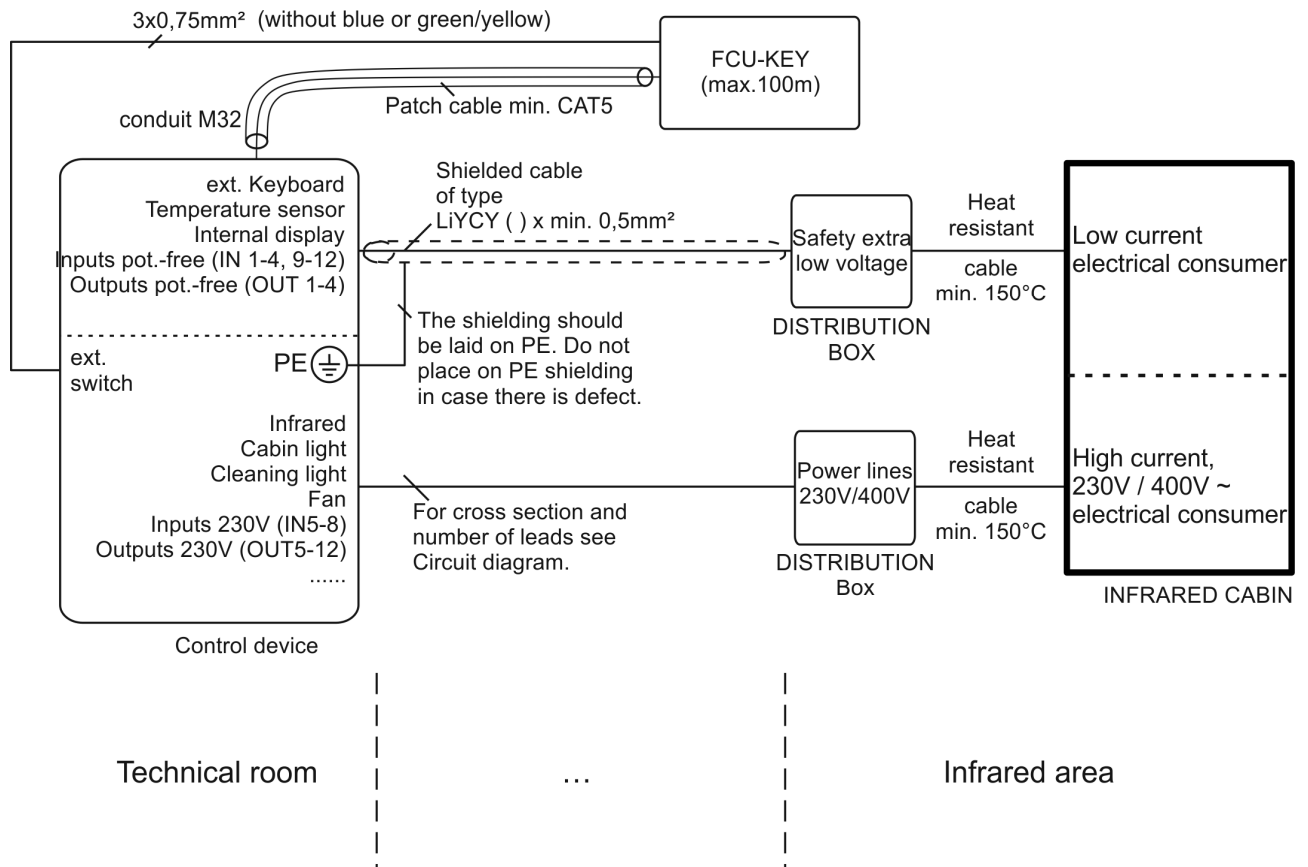


Figure 1: Cabling while installing the infrared control device not directly on the outer wall of the cabin

3 Identification

3.1 Nameplate

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

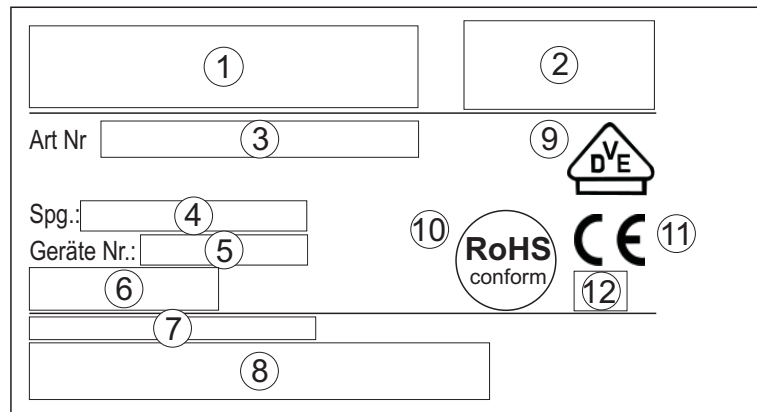


Figure. 2: Nameplate control device

- 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 infrared control device FCUxxxx, basic control device FCUxxxx-IR-Design and FCUxxxx-IR-Design-Glas

Installation

The infrared 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 infrared 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 FCUxxxxIR-Design und FCUxxxx-IR-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-Design-Glas by steam, humidity or water!

Therefore:

- It must be ensured, that neither steam, humidity or water can occur at or in the keyboard.

5.4 Installation opening of operating control FCUxxxx-IR-Design

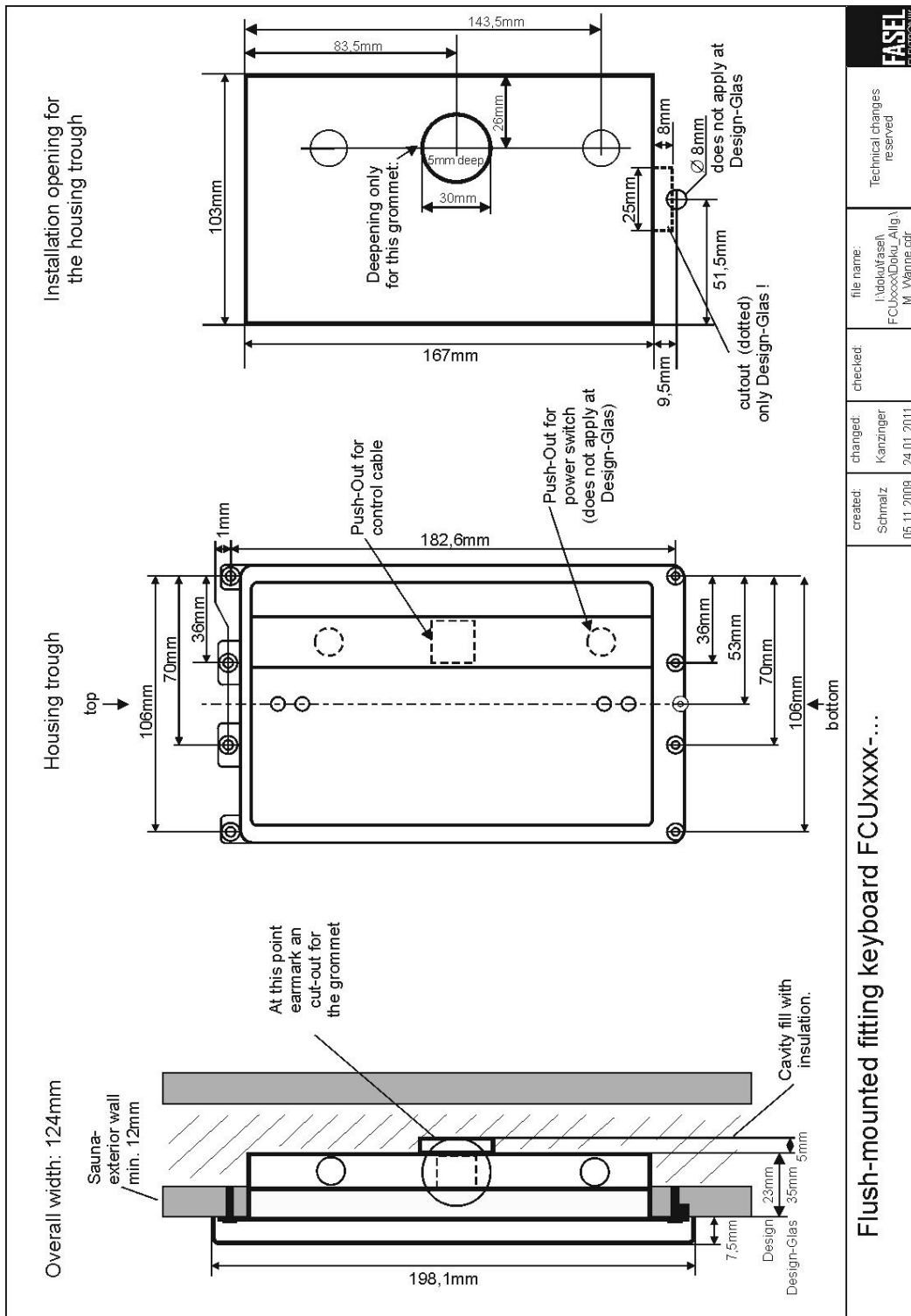


Figure 3: Installation opening for operating control FCU4x00-Design and FCU4x00-Design-Glas

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

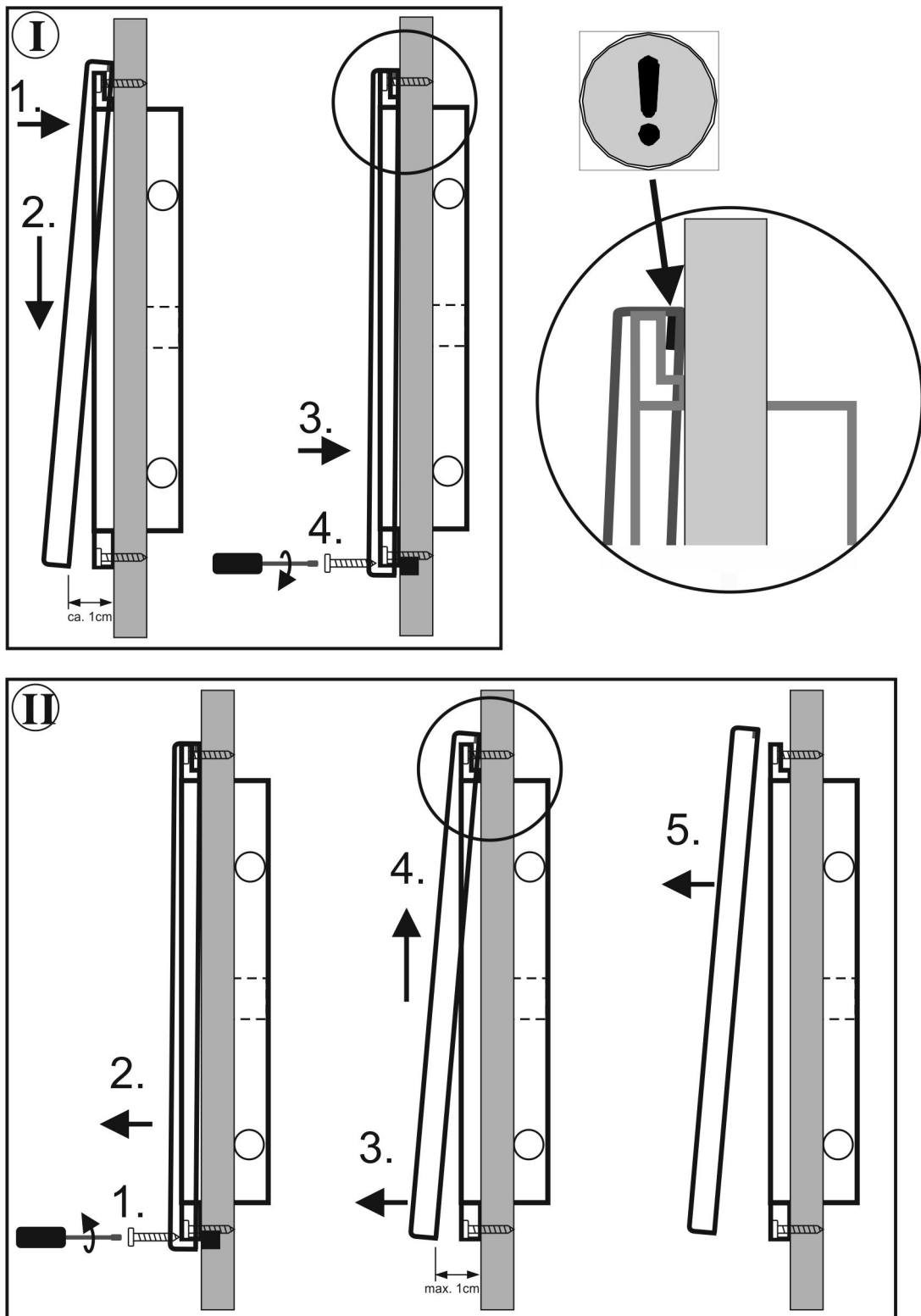


Figure 4: Assembly / disassembly of operating control FCUxxxx-Design

5.6 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 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 or from the heater to the opposite wall can be up to 40 K.

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

Dimensions of temperature sensor

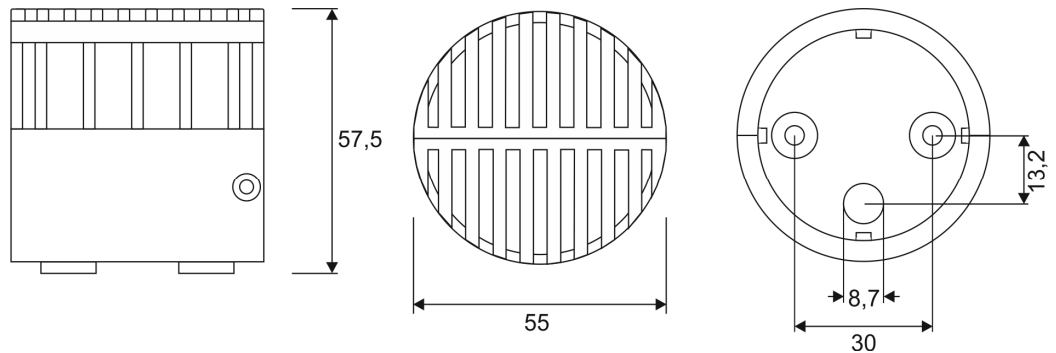


Figure 5: Dimensions of the sensors

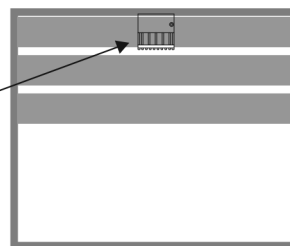
5.6.1 Temperature sensor

The following temperature sensor variants are available:

- Oven sensor for temperature with safety temperature limiter (STB 141 °C ^{+0/-5°C}) (FCU-SENSOR-OVEN-A)
- Surface sensor for temperature (FCU-SENSOR-BENCH-A)

Installation site

Install sensor together with thermal fuse centered above the bench



Top view infrared cabin

Figure 6 : Installation site of heater sensor /surface sensor

Sensor for temperature

- This position of the sensor is just a suggestion for standard cabins.
- **ATTENTION:** The assembler of the device has to consider the specific conditions of the cabin such as the position of the infrared-heater, 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.
- A free circulation of air has to be guaranteed.

Installation temperature sensor



1. Lead the heat resistant signal cable for the sensor through the cable aperture provided and through the bore of the securing plate.
2. Place the cable clip as cord grip.
3. Screw the securing plate with the screws provided. It is important to ensure that the marking, on the back side, is aligned to the top. When the mounting plate is fixed wrongly, pent-up water cannot drain.



4. Connect the signal cable to the board as per the circuit diagram given in figure 8.



5. Insert the board in one half of the casing. Pay attention to the indentation in the sensor plate.
6. Push the casing half with the board sideways on the securing plate. Pay attention to the indentation in the securing plate.



7. Push the other casing half sideways on the securing plate.
8. Screw on the casing halves with the screws provided.

5.7 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.

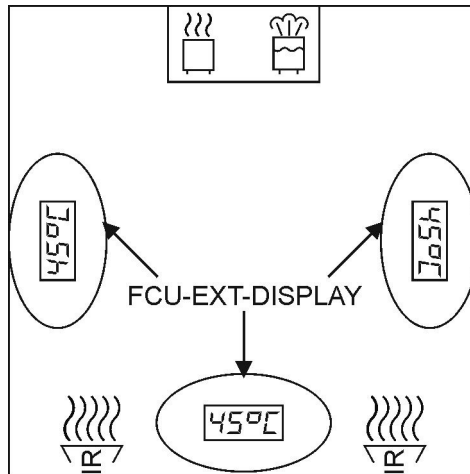


Fig. 7: Location cabin interior display

Dimensions

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

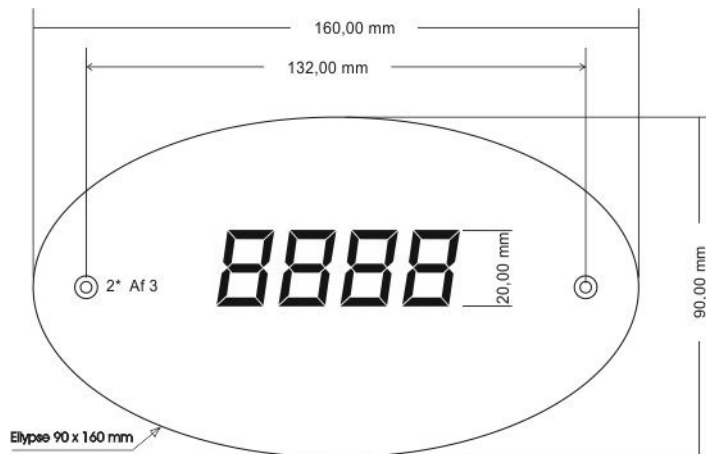


Figure 8: Dimensions of interior display

Installation

Installation of the double flush mounted socket

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

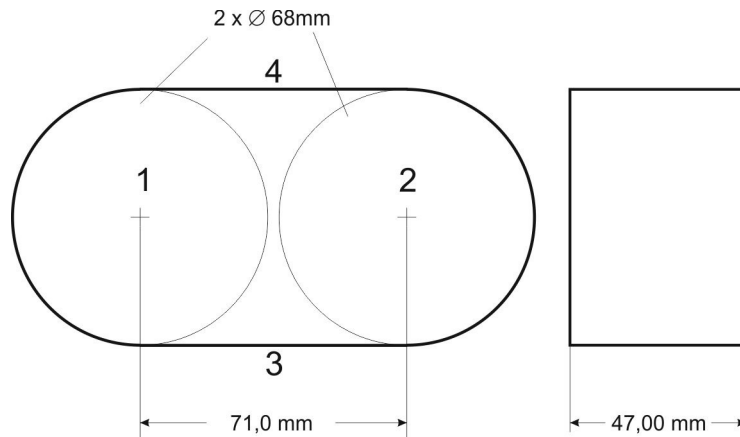


Fig. 9: Mounting hole of the double flush mounted socket

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

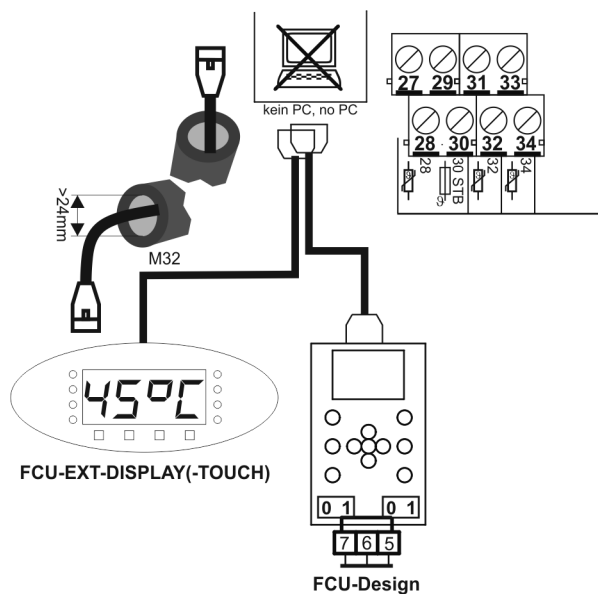


Figure 10: Connection interior display

The electrical lines for FCU-EXT-DISPLAY(-TOUCH) and 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.

6 Electrical connection

6.1 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 switch them off.

While changing the 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.

6.2 Connecting the control device, consumers and sensor

1. Connect the power line to the infrared control as per the electrical circuit diagram.
2. Connect the electrical consumers like the infrared heater, fan, light etc, to the infrared control as per the electrical circuit diagram.
3. Connect the sensor to the infrared control as per the figures on page 17 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 27, Figure 12

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 2.3 page 9.
- 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.

Electrical circuit diagrams for sensor

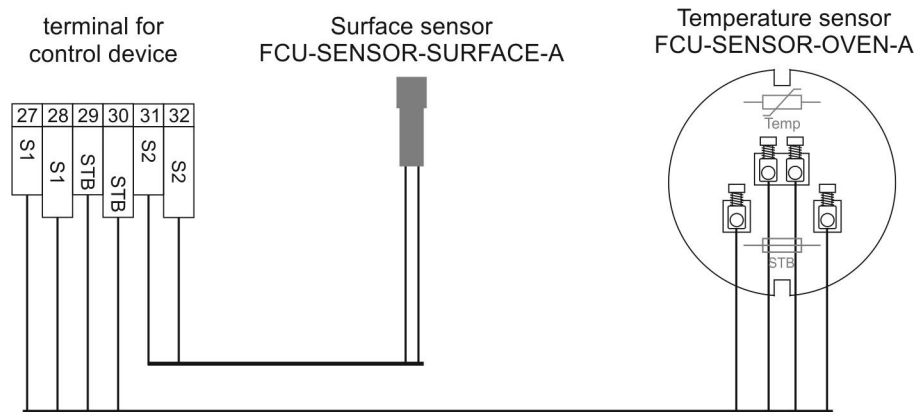


Figure 11: Connection of heater sensor for temperature and surface sensor for temperature

6.3 Checking the electrical connection

After the infrared control device and the sensor are electrically connected the following points should be checked:

- Does the voltage supply match the specifications on the nameplate?
- Have the cable specifications given 2.3, page 10 and the electrical circuit diagram, Figure 12, page 27 been followed?
- Is the control device connected according to the electrical circuit diagram?
- Are the sensors connected as per section 5.6, page 17 ff?

6.4 Electrical circuit diagram

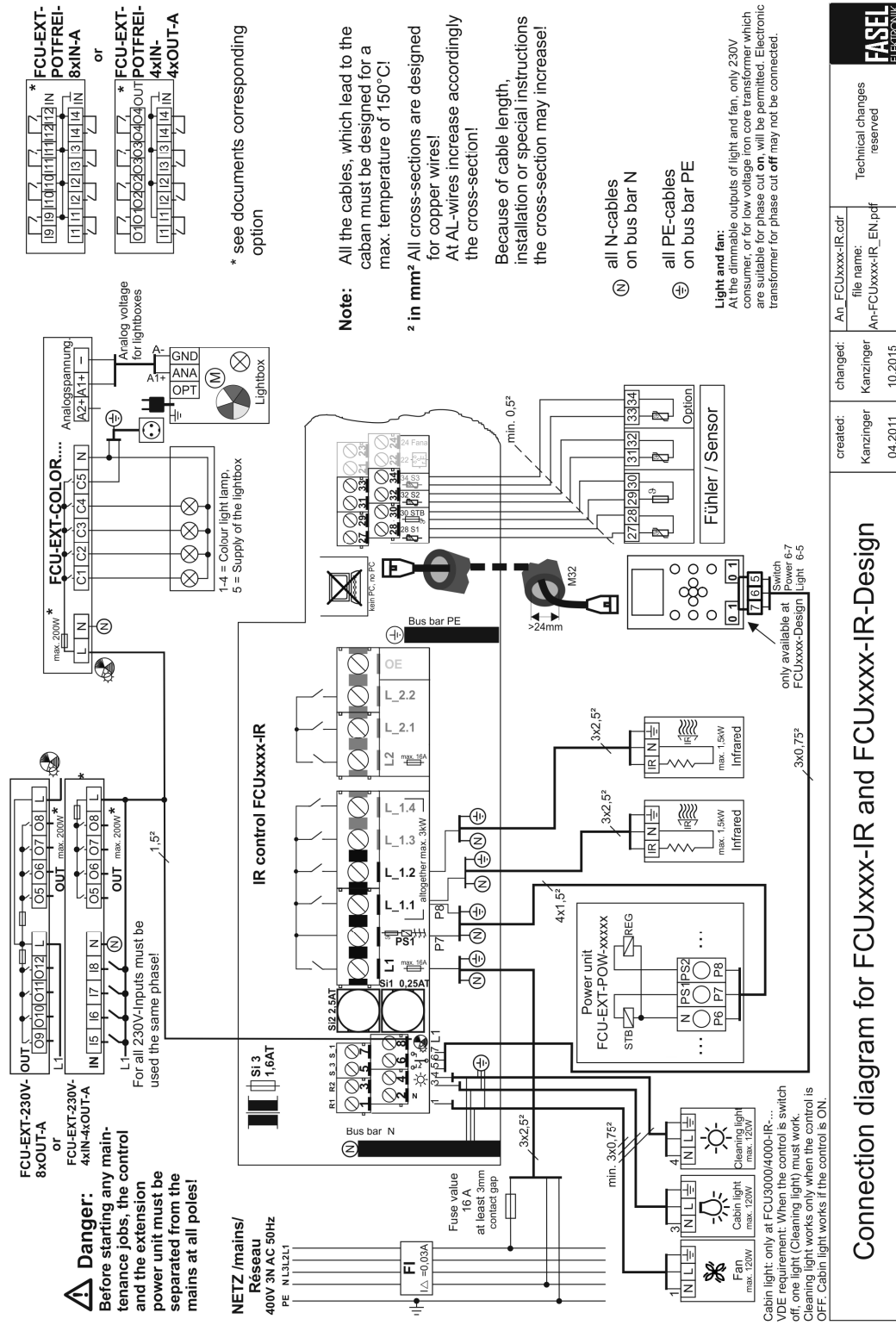


Figure 12: Electrical circuit diagram

Connection diagram for FCUxxxx-IR and FCUxxxx-IR-Design		FASEL ELEKTRONIK
created:	Kanzinger	04.2011
changed:	Kanzinger	10.2015
An_FCUxxxx-IR.cdr	file name:	Technical changes reserved
An_FCUxxxx-IR_EN.pdf		

7 Commissioning

7.1 Safety instructions

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 fire



WARNING!
Danger of injury due to fire

Objects on the oven or near the oven can cause fire and thus lead to injuries.

Therefore:

- Always keep the oven and its surrounding free of objects.

Health hazards



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

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

Therefore:

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

7.2 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 2.3, page 10 and the electrical circuit diagram Electrical circuit diagram, page 27 been adhered to?
- Is the control device connected as per the electrical circuit diagram?
- Are the sensors connected as per section 5.6, page 17 ff?
- Have all the neutral conductors been laid on the N- bus bar in the infrared control device?
- Have all the earthing conductors been laid on the PE-bus bar in the infrared control device?
- Have all the screws been tightened correctly?

7.3 Switching on and off of the infrared control

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

→ See operating manual "Series FCU2x00/FCU3x00/4x00".

7.4 Functional test of the infrared control device and the electrical consumers

- Check the safety OFF. For this purpose disconnect the STB circuit directly on the heater sensor during sauna operation. The heating system must switch off automatically. The corresponding message is displayed on the display.
- Check the heater sensor. For this purpose disconnect the heater sensor circuit directly on the heater sensor during the sauna operation. The heating system must switch off automatically. The corresponding message is displayed on the display.
- Check, whether the phases have been connected to the appropriate terminals (see circuit diagram).
- Check the electrical consumers like the cabin light, cleaning light and fans. It must be possible to switch on and switch off the electrical consumers through the corresponding operating keys on the infrared control or the operating control.
- Check the rotating direction of the fan.
- Check the function of the electrical consumers, which are connected to the optional in- and outputs.



NOTE!

At the control unit with an adjustable temperature, the phases L_1.1 and L_1.2 are switched off alternately just before reaching the set temperature. The duration of the change can be adjusted as well.



NOTE!

Operation of a foil heating:

In case of foil heating a surface sensor has to be installed (according to the manufacturer) for protecting the foil of too high temperature.

7.4.1 Functional test of the sensor



NOTE!

– If the sensor or the sensors have not been properly connected then a signal is audible and an error message is shown on the display. → See also operating manual "Series FCU4000/ FCU4200/FCU4400".

- 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.

8 General Information

8.1 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.

8.2 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.

8.3 Scope of delivery

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

8.4 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.

8.5 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..

General Information

8.6 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.

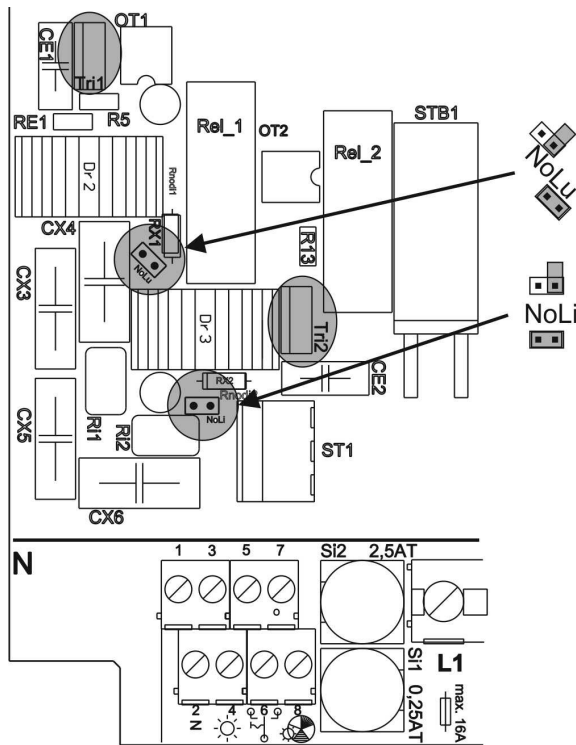
8.6.1 Disable light brightness or fan speed, or exchange triac

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.

Index

C

Cables.....	10
Capacity consumer.....	9
Certified electricians	7
Checking	
Electrical connection	23
Checks before the initial commissioning	26
Commissioning	25
Connecting	
Consumers.....	11, 22
Control device	11, 22
Sensor.....	11, 22
Copyright	28
Customer service.....	29

D

Danger of fire	26
Dimensions	
Sensor.....	17

E

Electric potential	8, 10, 21, 25
Electrical circuit diagram.....	24
Electrical connection.....	21
Electrical Connection	
Checking	23
Electro magnetic damage.....	22
Explanations of symbols.....	5

F

Functional test	
Consumers.....	27
Sauna control device	27
Sensor.....	27

G

General Information.....	28
Goods receipt	13
Guarantee.....	28

I

Identification	12
----------------------	----

Improper operation	25
Installation.....	14
Instructions	
Commissioning.....	25
Intended use	6

L

Liability limitation.....	28
Light and fan	30

N

Nameplate.....	12
----------------	----

O

Operational safety.....	8
-------------------------	---

P

Power supply cables	10
---------------------------	----

S

Safety	5
Commissioning.....	25
Electrical connection	21
Transport.....	13
Scope of delivery	28
Sensor	
Electrical connection	17
Installation	17
Signal cables for sensors.....	10
Special dangers	8
Storage	13
Switching off.....	26
Switching on	26

T

Technical Data	9
Technical personnel.....	7
Temperature sensor	17

W

Warnings.....	5
---------------	---

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