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SAUNA CONTROL UNIT

INSTRUCTION MANUAL



The first unique patented modular high-end sauna control unit easily operated from both outside and inside the sauna cabin.

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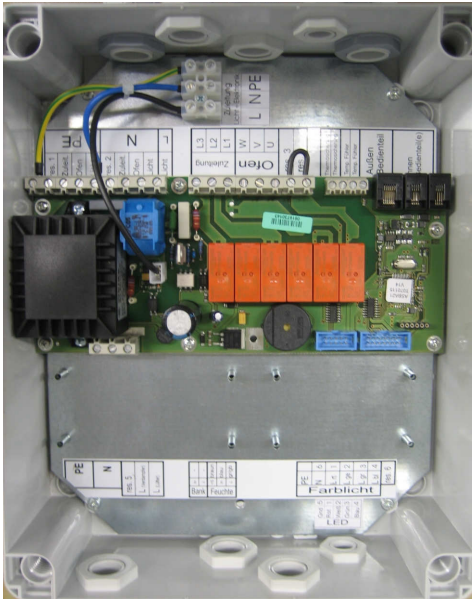
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1.0.0 UNIT DESCRIPTION

1.1.0 GENERAL

The control unit is used **exclusively** for controlling sauna cabins.

For normal operation, a sauna cabin with oven is needed besides the basic package (power unit ASBA with control unit, sensor and cable).



Power unit ASBA




Control unit

The instructions of the manual must be followed when the cabling of the components is executed.

1.2.0 OPERATIONAL MODE

The control unit is ready for operation, when all installations have been completed. If the control unit is connected to the system, a self-test starts running, where all LEDs start lighting up.

Afterwards, the control unit changes in the stand-by mode and the  LED lights up.

The control unit can be activated when pushing the  (OK) button. The control unit starts working and the interior light will be activated. Depending on the program, the control unit starts heating and controls the temperature. If the desired temperature has been reached, the heat output will be reduced. Also the time allowance starts running immediately, depending on the program.

After expiration of the time allowance, an acoustic signal is programmable. The last settings of the desired temperature, time interval and brightness will be saved and will be used again after the control unit is switched-on again. An optional humidity extension for steam-operation and a colour extension for a light-therapy are possible.

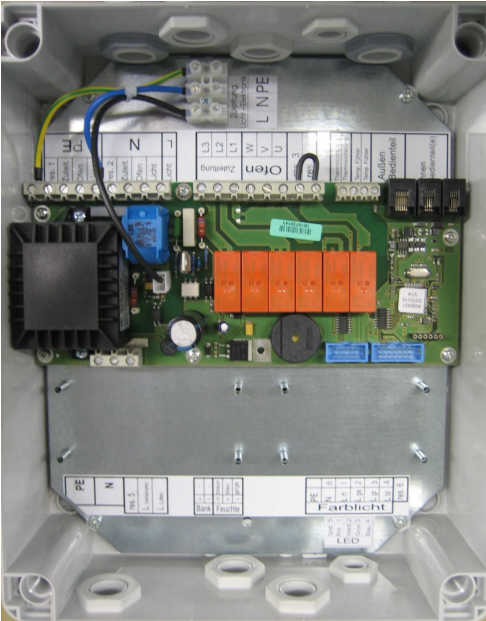
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1.3.0 SCOPE OF APPLICATION

Heater control unit for sauna cabins!

Ready for use only with the supplied original accessories: Control unit, cables, temperature sensor, thermal safety release, etc.

1.4.0 OVERVIEW/CLEANING



Power unit ASBA:

Electronic control unit for sauna heaters. The microprocessor-controlled power unit covers a control range from 30 °C to 110 °C.

The power unit controls the temperature and the internal cabin light. An electronic clock with buzzer, which reminds you to sprinkle water on the hot stone, substitutes for the traditional sand glass.

The humidity can be controlled by an extended module. A control unit for colour lamps is optionally integrated. Max. heater output: 9 kW.

Cleaning of the housing: **Once a year.**

The power unit is maintenance-free. **Never open it!** If you work on the control unit, disconnect all poles and switch it off completely from the supply line. Carefully wipe the front of the housing with a soft cloth slightly moistened with soapy water. Do not clean the back of the housing. If required, call service personnel!



Operating unit:

Input and display module with foil key pad operating mode display via LED-display and seven segment display. The operating unit is connected to the basis module.

Cleaning of the front foil: the cleaning intervals depend on the degree of dirt collection.

Disconnect the control unit completely from the supply line and switch it off all poles. Do not disassemble! Carefully wipe the **front** of the housing with soapy water. Do not clean the back of the housing and the printed circuit board behind it. If required, call service personnel.

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1.5.0 STANDARD ACCESSORIES

The scope of supply includes:

- Power unit ASBA
- Control unit
- Heat temperature sensor with thermal safety release 139 °C
- Data and sensor cable

In addition for humidity module:

- Humidity extension ASFE
- Humidity sensor
- Bench temperature sensor
- Connection and sensor cable

In addition for colour lamp:

- Colour extension ASFA (without lamp module)
- Colour control unit
- Connection and data cable

1.6.0 SOFTWARE VERSION

All modules connected to the bus are required to have the software version V14 or a better version! The bus protocol was changed at the software version 14.

2.0.0 SAUNA OPERATION

2.1.0 OPERATING AND DISPLAY ELEMENTS

The control panel consists of

- Display



- Symbols (LEDs)



- Buttons




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2.2.0 STARTING


The control unit must be connected to the power supply.


The left symbol  lights up. If the time symbol  also lights up, the automatic starting (for programming refer to 2.9.1) is activated and the control unit turns on after the time has elapsed.

If you push the  (OK) button, the control unit will be turned on and the interior light lights up. Afterwards you have to select the operating mode (refer to 2.3.0).

2.3.0 SELECTION OF THE OPERATING MODE


After **turning on** (refer to 2.2.0) select the mode with the buttons  “**Feu**” = Humidity mode

“**Fin**” = Finnish (dry) mode or “**Aus**” = turn off and confirm with the  (OK) button.

The display changes automatically to  **temperature** and starts heating with the last settings entered.

2.4.0 SETTING OF THE DESIRED TEMPERATURE



By using the  button, go to  **current and desired temperature** and select with



the  buttons the desired temperature. After ca. 3 sec. without pushing any button, the control unit changes automatically to the display of the current temperature.

Areas: In Finnish mode < 110 °C and in humidity mode < 70 °C.

NOTE:

Area changes if a correction value for the temperature will be entered (refer to 2.9.3). After starting the sauna heater, the sauna heats up until the desired temperature has been reached.


Ventilator: If  and directly after  are pressed, a connected ventilator will be activated.

To deactivate the ventilator, press  and directly after .

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2.5.0 SETTING OF THE ELECTRONIC SANDGLASS


By using the  button, go to  **time interval (electronic sandglass)** and select the

desired temperature by using the  button. After the time has expired, you will be able to hear an acoustic signal. This signal can also be turned off (refer to 2.9.5).

2.6.0 DIMMING OF THE INTERIOR LIGHTING

By using the  button, go to  **brightness** and select the desired brightness by


using the  button. After a **short** push of the  button, the interior lighting will be turned off

and by using the  button, the light will be fully turned on.

If you push the button **longer** you can change the brightness slowly and the light will be dimmed.

2.7.0 SETTING OF THE DESIRED HUMIDITY VALUE (OPTIONAL WITH HUMIDITY MODULE)

By using the  button, go to  **current and desired humidity** and change the

desired humidity by using the  button. After ca. 3 sec. without pushing any button, the control unit changes automatically to the display of the current humidity.

Areas:

Depending on temperature. With 70 °C, a max. of 70 % rel. humidity can be selected and with lower temperatures, a higher humidity can be selected. The max. value is reached at 41 °C with 99 % rel. humidity.

The sum of temperature in °C and humidity value in % shall not exceed the value of 140.

NOTE:

Area changes after a corrective value has been selected. After starting the heater, it heats up until the desired humidity and the desired temperature has been reached. The water steamer has to be furnished with a safety switch when a water shortage is present.

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2.8.0 SWITCH-OFF

In normal mode, the control unit changes to the operating mode (refer to 2.3.0) if you push the




button once. Now you can select "AUS" by using the




button and press the




button to confirm. The control unit turns off.

If the humidity mode  gets turned off, the control unit changes to the **after-drying programme**. On the display appears "dry". After the programme finished (normally 2 x 15 min), the system will automatically be turned off.

Lighting and heater are afterwards turned off and the far left symbol  lights up. We recommend to fully switch-off by using the mains switch.

2.9.0 PROGRAMMING

2.9.1 AUTOMATIC STARTING

The mains switch has to be turned on and the control unit has to be in stand-by mode. Only the far left symbol  lights up. If you press both



and buttons at the same time (3 sec.), you can

programme the automatic starting. With the






button, you can set the desired time between 1h

and 24h or you can turn it off. With the



button you can select the desired mode

(similar to 2.3.0) and confirm with the  button. (If the symbols  and  light up). The automatic starting is activated. The digital display shows the hours remaining before switch-on (countdown). The hour display only changes after every full hour. If outage occurs or when turning on the control unit, the automatic starting will be deactivated.

2.9.2 AUTOMATIC SWITCH-OFF

The mains switch must be switched-on. In the stand-by mode, only the left symbol  lights up.

If you push the



and buttons at the same time (3 sec.), the automatic switch-off is

programmable. With the



you can set the desired time between 1h and 12h, confirm it

with the




button.

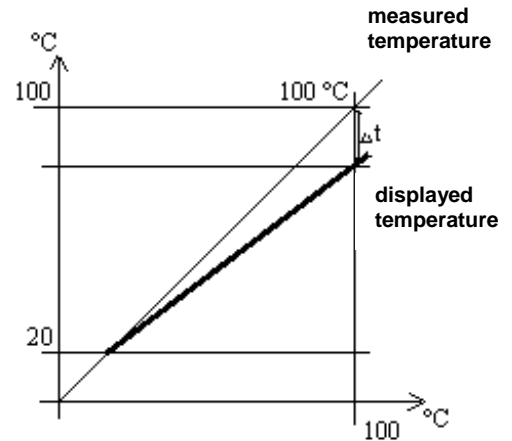
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2.9.3 TEMPERATURE ADJUSTMENT

Since the temperature is measured at the ceiling above the oven, the temperature can diverge from the temperature in the seating area. This difference can be adjusted by entering a correction value for 100 °C. Change to the **thermometer**

symbol  and press the  button at the same time (3 sec.) The symbol and the display start blinking and you can




enter a value between **-9** and **+9** with the  button. This value equals the Δt in the figure.




A value of 9, for example, means that if the measured temperature equals 100 °C, the actual temperature accounts for 109 °C; a value of -5 °C means that if the measured temperature is 100 °C, the actual temperature equals 95 °C.

So you can adjust the temperature individually. Due to safety reasons, the maximum target temperature with a correction value of less than 0 will be reduced by this value, since the maximum reachable temperature is 110 °C. As standard, the temperature correction value is set.




2.9.4 CHANGING OF THE TIME INTERVAL

With the **MODE**  button you can switch to the  **time symbol**. The time is showed in minutes. By pressing the  buttons once, the interval timer will be reset to the starting value.

The starting value can be increased or decreased by using the  buttons. After expiration of the time set, an acoustic signal starts to resound every time (programmable refer to 2.9.5).

2.9.5 PROGRAMMING OF THE ACOUSTIC SIGNAL

The acoustic signal (beeper) can be switched on and off in the following way.

Switch with the **MODE**  button to the  **time symbol**. Push both buttons  at the same time for about 3 seconds. The number of the actual mode appears on the **display**.

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Value	Mode	Function
0	Quiet	No acoustic signal
<u>1</u>	<u>Sandglass (= Standard)</u>	<u>Sandglass</u> after expiration for 1 sec. active
2	Water shortage	Continuous tone at <u>water shortage</u>
3	Sandglass + water shortage	Both signals active
4	Remote control	
5	Remote control + sandglass	



Select the favoured value with the  button.




Confirm with  button or  button.



If a mode was selected by using the remote control value (4 or 5), so can be chosen at this point, if the control unit after decline of the DISTANCE CONTACT VOLTAGE remains turned on (selection = "On") or should be turned off (selection = "Off").







Confirm with  or .


2.9.6 AUTOMATIC SWITCHING OF THE DISPLAY

The display can be programmed to switch forward automatically. The display switches between temperature, time, lighting and optional humidity. By using the  button, switch to **light**

intensity . Push the  buttons at the same time for about 3 seconds. On the **display**













appears either "ON" or "OFF". Switch on by using  or switch off by using . Confirm by

using either  or . Afterwards you can select if the sauna lamp and the colour LED should light up at the same time (Setting "All") or if only the colour LED should light up, if both are activated (Setting "LED"). The colour relay module can always be turned on regardless if the

sauna lamp is turned on or off. Confirm with  or .

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2.9.7 AFTER-DRYING PROGRAMME AND HUMIDITY ADJUSTMENT



Switch to the  **humidity symbol** and press  and  at the same time for about 3 seconds. The humidity symbol starts blinking and you can enter the humidity correction value between **-9** and **+9** by using the  and  button. This value will be added to the measured humidity. As standard, a correction value of "0" is set. With **MODE** you can switch and the symbols    light up. Now you can select the after-heating time with heating and ventilation between 0 and 2h. With **MODE** you can go further and the symbols   light up. Now you can select the after-heating time without heating and with ventilation between 0 and 30 minutes. With **MODE** you can switch and the symbol  lights up. Now you can enter the after-heating temperature between 70 °C and 90 °C. Finally you have to confirm by using the  button.

2.9.8 USE OF SEVERAL SAUNA CONTROL UNITS

In order to use several sauna control units, every unit has to have an own address (0-3). The control units ex factory do have the address 0. To change the address, you have to do the following:

Disconnect the 6-pole bus/supply cable from the control unit.

Press the  button at the same time. Reconnect the cable during you press the button. Display starts blinking and the address, which was set for that particular control unit, appears.

Change the address with the  or  button. Finally you have to confirm the new settings with **MODE**.

IMPORTANT!

After this new setting, restart the sauna basis unit (disconnect it from the mains supply for a short moment) so that the new control unit can be recognized. Because the recognition of the participants occurs at the start-up of the sauna basis unit.

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Two sauna control units with the same address should never be connected at the same time!
The sauna control unit and the colour control unit are address-independent from each other.
Therefore, a sauna control unit can have the same address as a colour control unit.

2.10.0 AUTOMATIC SAUNA CONTROL SWITCH-OFF

For safety reasons, the sauna control unit will be automatically turned off after a programmable time (standard = 3h) (see 2.9.2, page 6).

2.11.0 SAFETY SWITCH-OFF

The electronic control unit is **equipped with a safety switch-off** through a safety temperature limiter. This safety temperature limiter lies in the **sensor female connector**, which is situated above the sauna heater. **If the sauna heater** should not turn off, for any reason, the safety temperature limiter disconnects **at about 139°C** automatically the connection to the circuit and **turns off the sauna heater**. The safety temperature limiter **needs to be replaced** and an **expert needs to be consulted** if this scenario takes place.

2.12.0 ERROR DISPLAYS


The control unit is equipped with complex diagnosis software. If you turn it on, a **self-test** will be retrieved and various conditions will be checked during the normal use. As soon as an error was found, the control unit turns off, all user symbols start blinking and an error number appears on the display. The following table gives information about the cause. You should tell the **error number** to your service personnel when you return the control unit, because it allows and fastens the reparation process. **A restart can be carried out if the control unit is completely disconnected from the supply line.**

Error number	Description	Repair/Cause
-5	No control unit is connected.	No control unit is connected or bad connection.
-10	No control unit is connected, after at least one was recognized at the high start.	Check connection to the control unit.
-21	Heater temperature sensor broken.	Damaged temperature sensor or bad connection.
-22	Heater temperature sensor short circuit.	Damaged temperature sensor or bad connection.
-24	Bench temperature sensor broken.	Damaged temperature sensor or bad connection.
-25	Bench temperature sensor short circuit.	Damaged temperature sensor or bad connection.
-26	Humidity sensor broken.	Damaged humidity sensor or badly connected.
-27	Humidity sensor short circuit.	Damaged humidity sensor or badly connected.
-30	Faulty thermal safety release.	Faulty heater sensor or bad connection. Contact service personnel!

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2.13.0 VERSION DISPLAY

By pressing the buttons ,  and  at the same time in the stand-by mode, the software version number of the sauna base unit will be displayed (i.e. "14").

If you press the  button during this time again, the software number of the control unit will be displayed with the previous "P" (like panel), in order to separate it (i.e. "P14"). After the time has elapsed, the display turns back to the stand-by mode.



3.0.0 OVERVIEW OF THE COLOUR FUNCTIONS

3.1.0 COLOUR CODING



The colours are assigned the following digits:


0..... dark, off	5..... green
1..... red	6..... green, blue
2..... red, yellow	7..... blue
3..... yellow	8..... red, yellow, green and blue
4..... yellow, green	


3.2.0 COLOUR SWITCH-ON


The control unit must be connected to the supply line. Only the bottom left symbol  "ready for use" lights up. The control unit will be activated if you push the  (OK) button and the colour control unit changes to the last activated condition (automatically or manually).


3.3.0 COLOUR AUTOMATIC MODE

After colour **switch-on** (refer to 3.2.0), the symbols  "ready for use" and  "automatic" light up. The digit displayed shows the actual colours (refer to 3.2.0). After a programmable time,

the control unit changes automatically to the next highest colour. With the  buttons, you can




manually change the colours. If you push the buttons  at the same time, the colour transition period of the colour LED modules can be programmed (refer to instruction manual colour LED





module). With the  button you get to the programming mode of the automatic time. With

 you turn it off.






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3.4.0 COLOUR AUTOMATIC TIME






As soon as the control unit is turned on the symbols  “ready for use”,  “automatic” and  “time” light up. The display shows the remaining time (in minutes) of the active colour till the next switch.

With the  buttons you can shorten or lengthen the interval time once. The next switch occurs with the standard interval time set. Through pushing the  buttons **together**, you can set the standard interval time (refer to 3.5.0). With the  button, you get to the manual mode (refer to 3.6.0). With  (OK) you turn it off.



3.5.0 SETTING OF COLOUR INTERVAL TIME

As soon as the control unit is turned on the symbols  “ready for use”,  “automatic” light up and  “time” is blinking. The display shows the programmed standard interval time (in minutes). With the buttons  you can lengthen or shorten the interval time. Every change occurs then with this programmed standard time interval. With  you get back to the mode “colour automatic time” (refer to 3.4.0).

3.6.0 COLOUR MANUAL OPERATION

As soon as the control unit is turned on the symbols  “ready for use” and  “manual mode” light up. The digit of the display shows the current colour (refer to 3.1.0). With the  buttons, you can switch colours. The new selected colour lights up until you change it manually or turn it off. By using the  button, you get to the “colour automatic mode” (refer to 3.4.0). With the  (OK) button, you turn it off.


3.7.0 COLOUR SWITCH-OFF

By pushing the  (OK) button you deactivate the colour control unit. Only the left symbol  “ready for use” lights up. The colour control unit memorises the last activated status (automatically or manually) for the next switch-on.

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3.8.0 USE OF SEVERAL COLOUR CONTROL UNITS

In order to use several sauna control units at the same time, each has to have its own address (0-3). The control units ex factory have the address 0. To change the address, you have to do the following:

Disconnect the 6-pole bus/supply cable from the control unit. Press the  buttons at the same time.

Reconnect cable during you press the buttons.

The display starts blinking and the address, which was set for that particular control unit, appears.

Change the address with the  or  button. Finally you have to confirm the new settings

with **MODE** and jump to the “programming of the master/slave colour control unit” (refer to 3.9.0).

3.9.0 PROGRAMMING OF THE MASTER/SLAVE COLOUR CONTROL UNIT

Here you can change the settings and enter if the control unit is used in the

- **slave mode:**
Selection “SLA”, standard setting, with sauna base unit as master. For the activation of the colour relay module, this mode is to use.
Or use the
- **single/master mode:**
Selection “SIN”, without sauna base unit.
Setting only for colour LED activation without sauna function (refer to instruction manual colour LED module).



Change the selection by using the  button or the  button.

Confirm your settings by using the **MODE** button and jump to the programming of the “LED/REL menu” (refer to 3.10.0)

3.10.0 PROGRAMMING OF THE LED/REL MENU

Here you can set if the menu has to be adjusted to the activation of the colour relay module or the colour LED module.

Difference: The relay module has 8 adjustable colours, the LED module has 7. The setting is only efficient with the colour control unit with address 0.

The selection can be changed by using  or . Confirm settings by pressing **MODE**.

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IMPORTANT!


If the control unit is used in the slave mode, the sauna base unit has to be restarted (disconnect it from the mains supply for a moment), so that the control unit can be recognised. The recognition of the participants occurs at the start-up of the sauna base unit.

Two colour control units with the same address should not be connected at the same time.

The sauna and colour control unit are address-independent from each other. Therefore, the sauna control unit can have the same address as the colour control unit.

3.11.0 VERSION DISPLAY

By pushing the  ,  and  buttons at the same time in the stand-by mode, the software version number of the sauna control unit will be displayed for 3 seconds, i.e. "14".

If you push the  button within that period again, the software version number of the control unit will be displayed with a "P" (like panel) in front of the number, in order to differentiate it from the control unit (i.e. "P14").

If you are using the control unit in the single/master mode (without base unit), only the control unit version will be displayed. After the time has elapsed, the display returns to the stand-by mode.

4.0.0 IMPORTANT FACTS FOR INSTALLATION**ATTENTION!**

This manual is supplied together with the installation manual of the sauna cabin! Follow all instructions concerning the cabin construction.

ATTENTION!

The electrical connections of the control unit must be exclusively carried out by licensed specialists in accordance with the provisions of the local power supply companies. Use original parts only.

ATTENTION!

You should use a sauna heater that conforms to the following standards: EN60335-1 and EN60335-2-53.

ATTENTION!

Please note that the EN60335-2-53 standard, table 101, provides for a maximum heater output depending on room size.

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The control unit must be connected in strict compliance with these instructions! Only use the supplied original cables and original parts! We refuse to accept any responsibility for damage or consequential damage caused by any parts supplied by other manufacturers or parts that have been incorrectly connected.

Check all cables for damage. Even cables with minor damage (e.g. squashing, etc.) are dangerous! Have such cables exchanged by service personnel immediately! We refuse to accept any responsibility for damage or consequential damage caused by any damaged parts.

ATTENTION!

The control unit is ready for normal operation only after all electrical and mechanical installation work (lighting, etc.) has been completed!

5.0.0 COMPONENT INSTALLATION

ATTENTION!

Install the components only with a screwdriver and not with a portable electric drill!

5.1.0 INSTALLATION OF THE POWER UNIT

Exterior view

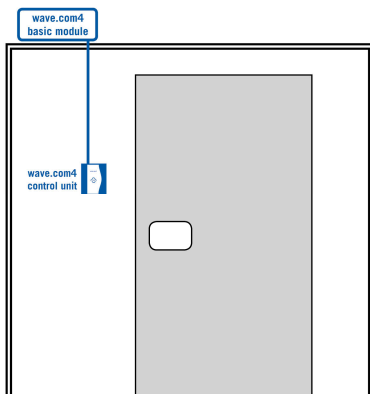


fig. 4

The power unit will be preferable installed on the sauna cabin roof, where all cables come together. Open the housing. The cover is easily removable. The housing contains holes in the corners to screw it tightly to the wall. The electrical connection must be completed in **accordance** with the relevant standards. The connection diagram is shown in section 6.

5.2.0 INSTALLATION OF THE SENSOR LINES

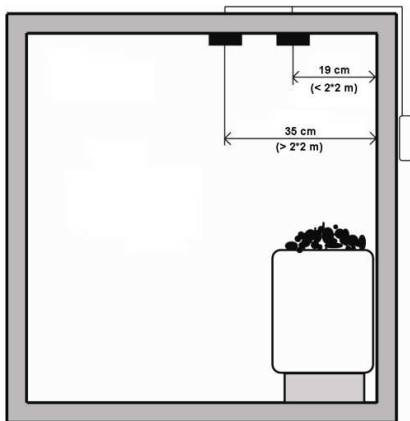


fig. 5

NOTE:

The sensor must be installed with the utmost precision, as this is of decisive importance for the sauna climate.

The sensor lines should not be installed together with power cables and should not be led through common holes, as this may cause electronic malfunctions!

The sensor lines are not temperature-resistant. Therefore, they must be installed outside the cabin or in the cabin wall!

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5.3.0 INSTALLATION OF THE HEATER SENSOR

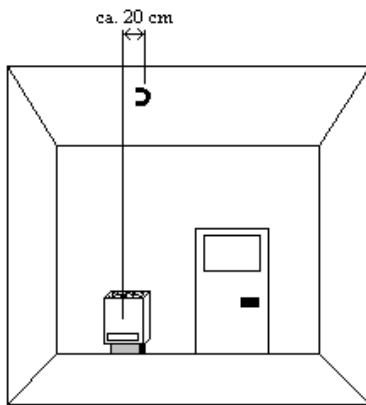


fig. 6

The (4-pole) **heater sensor** is comprised of a temperature sensor and a thermal safety release. The wooden sensor housing is mounted on the **cabin ceiling above** the sauna heater. For the respective dimensions, please refer to illustrations 5 and 6. Please note that the installation distance to the cabin wall must be **19 cm for sauna cabins up to 2 x 2 m and 35 cm for bigger cabins**, unless some other position is explicitly indicated in the cabin description.

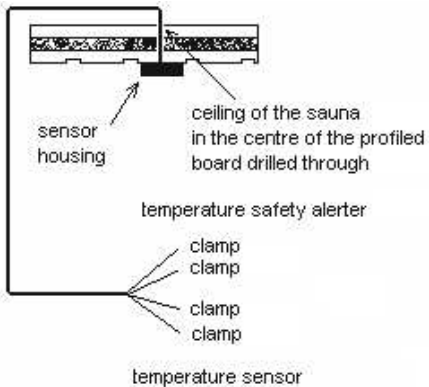


fig. 7

A 8 mm diameter hole is drilled through the cabin ceiling at the designated spot in the centre of the profiled board and sensor lines are installed (figure 7). The temperature sensor and the thermal safety release are marked at the connection wires.

5.4.0 INSTALLATION OF THE HUMIDITY SENSOR (ONLY WITH HUMIDITY EXTENSION)

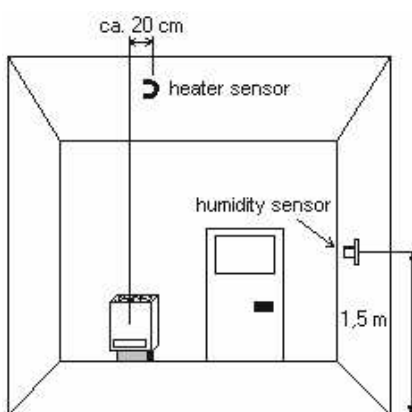
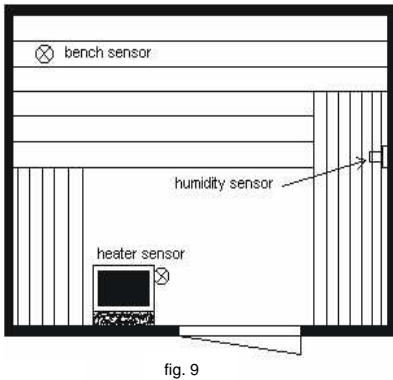


fig. 8

The (3-pole) humidity sensor is mounted at the centre of the farther side wall, at a height of about 1.5 m (refer to figures 8 and 9). The **connection cable** will also be routed through the cabin wall.

5.5.0 INSTALLATION OF THE BENCH SENSOR (ONLY WITH HUMIDITY EXTENSION)

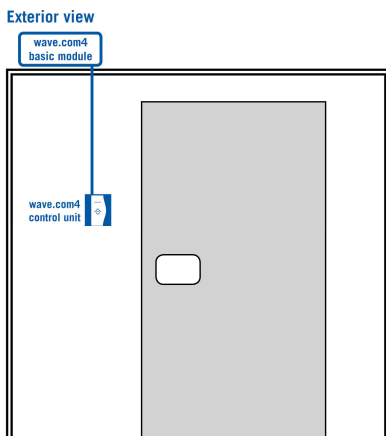


The (2-pole) bench sensor is mounted **via the back bench on the cabin ceiling**. For this, an **8 mm diameter** hole is drilled through the ceiling at the designated spot in the centre of the profiled board (figure 7) and sensor lines are installed.

5.6.0 INSTALLATION OF THE LIGHTING SYSTEM

When installing the lighting system, please make sure that it is installed at the **greatest possible distance from the sauna heater** (preferably in the opposite corner). Also make sure that the **sauna light** conforms to the requirements of the “splash-proof” degree of protection and is suitable for an ambient temperature of 140 °C. The sauna lighting system can then be connected to the power unit.

5.7.0 INSTALLATION OF THE CONTROL UNIT



For the installation of the control unit, a **cavity wall drilling machine with 70 mm diameter** is used. **The interior display is installed in the cable duct on the cabin interior wall**. The interior display **should not** exactly be installed **inside the exterior display**. Underneath, a 10 – 20 cm diameter hole is drilled (by means of a cavity wall drilling machine) for **the interior display (refer to figure), whereat the internal cabin wall needs only to be drilled up to the insulating material**. **The cable of the interior display is fed to the basis module between the inner and outer wainscot**. Now the interior display is fed into the drilled hole and afterwards screwed tightly by turning the enclosed screws clockwise.

5.8.0 FINAL INSTALLATION OF ALL MODULES AND CABLES

Upon installation, all lines are fed into the power unit through the respective holes. Subsequently, all lines are connected in accordance with the terminal diagram. **Before the module can be mounted at the sauna, the cables and the basis module of “wave.com4” have to be installed.**

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6.0.0 ELECTRICAL CONNECTIONS

NOTE:

Disconnect all poles until all work has been completed and fuse prior to re-connecting! The connection of the sauna control unit must be completed by a licensed specialist (electrician) in accordance with the relevant standards. The cable used must comply with the relevant statutory provisions.

NOTE:

According to standard EN60335, light and oven have to have a separate power supply. Since the sauna control unit is powered via the light supply, it is crucial that the light supply is connected!

6.1.0 TERMINAL OVERVIEW

Connected load in kW	Minimum cross section in mm ² (copper)				
	Supply conductor	Heater line	System fusing	Evaporator	Exhauster
7,5	5 x 2,5	5 x 1,5	3 x 16 A	3 x 1,5	3 x 1,5
9	5 x 2,5	5 x 1,5	3 x 16 A	3 x 1,5	3 x 1,5
12 ¹	5 x 2,5	5 x 1,5	2 x 16 A, 1 x 20 A	3 x 1,5	3 x 1,5
18 ²	5 x 4,0	5 x 4,0	3 x 32 A	3 x 1,5	3 x 1,5

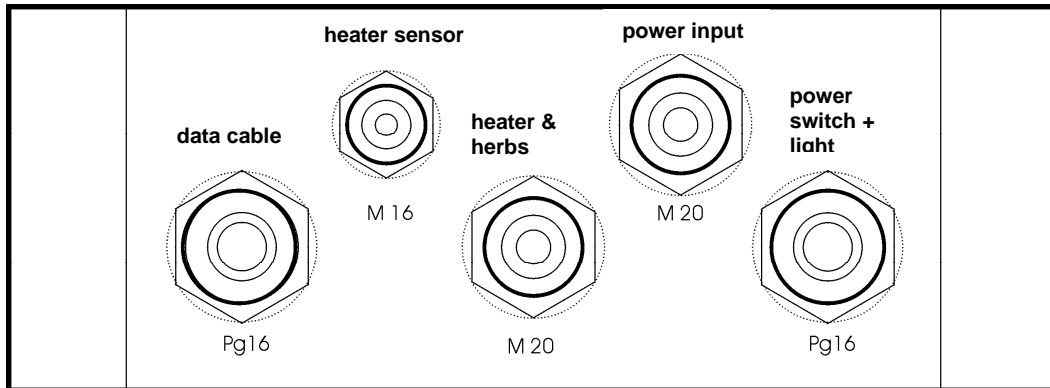
¹ Only with special wiring usable!

² Only with power extension!

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6.2.0 OVERVIEW OF CABLE FEEDTHROUGH

right:



CABLE FEEDTHROUGH
 „Data cable“: remove gasket and mount cable carefully (max. 3 pieces). Afterwards insert them and screw them on tightly.

left:

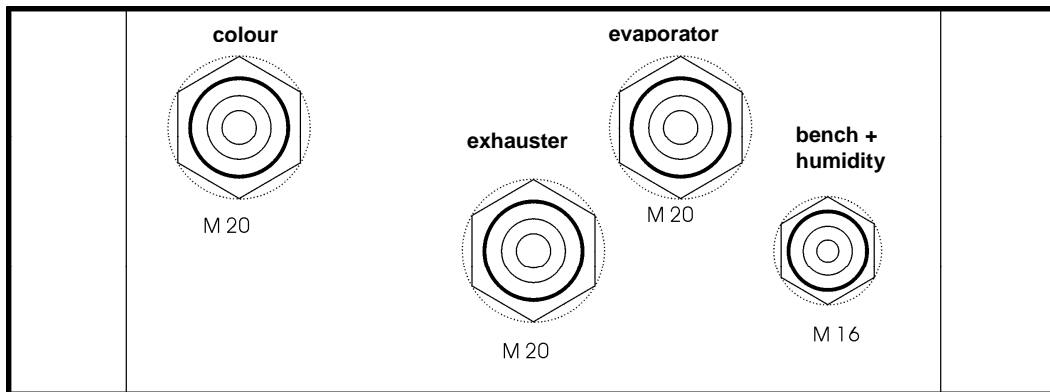
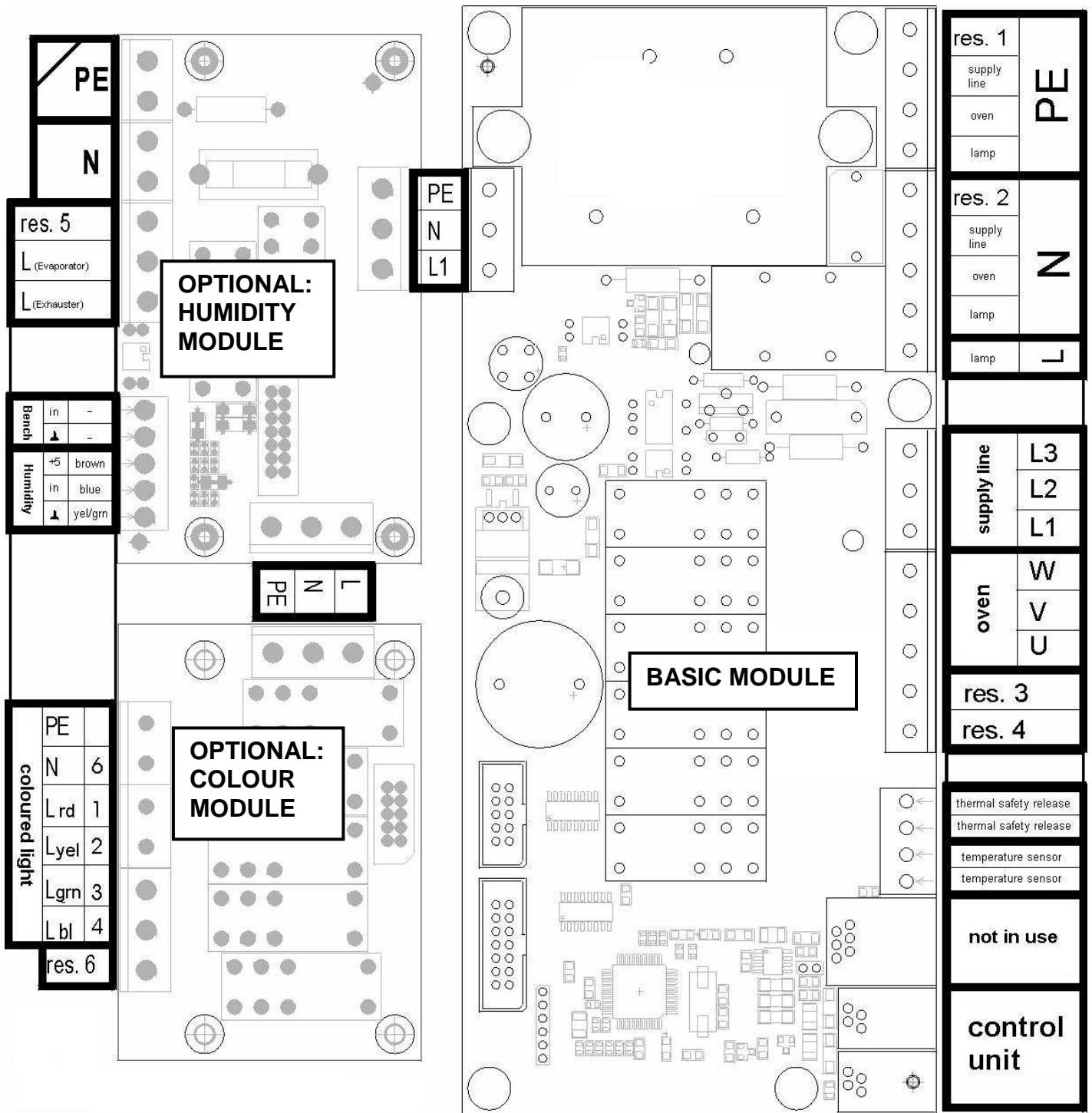


IMAGE 1: Data cable, heater sensor, heater and herbs, power input, power switch & light
 IMAGE 2: Colour, exhauster, evaporator, bench and humidity

WE DO IT FIRST.

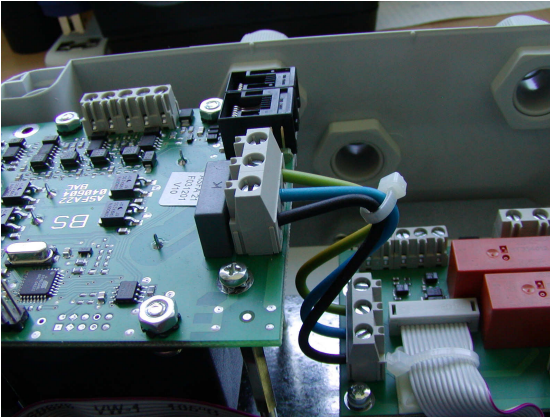
6.3.0 OVERVIEW OF THE POWER UNIT



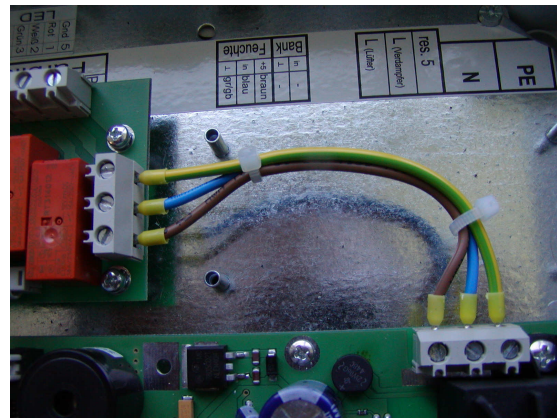
WE DO IT FIRST.

6.4.0 CONNECTIONS OF THE BASIC MODULE (ASBA)

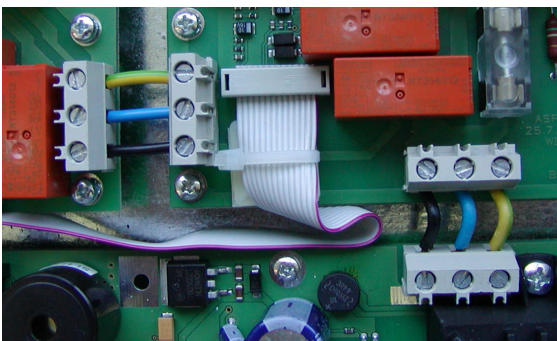
Since the supply of the additional modules (colour-LED, colour-230 V or humidity module) changes depending on its presence, you have to pay attention that these possess a sufficient conductor cross-section (1,5 mm²) and that these conductors are mechanically mounted together, which is apparent on the next images.



230 V- colour module
with humidity module



230 V- colour module
without humidity module

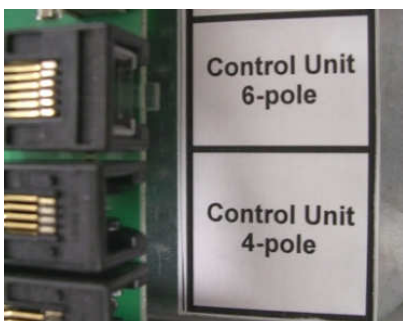


230 V- colour module with
humidity module

There is **no** additional mount **necessary** due to the short conductors.

6.4.1 CONTROL UNIT

Modular jack's 2 pieces 4/4 and 1 piece 6/6:



ATTENTION:

Do not plug the 4-pole cable in a 6-pole jack. This can cause damage to the control unit.

Insert the cables in the cable feed through & plug them in

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6.4.2 TEMPERATURE SENSOR & THERMAL SAFETY RELEASE



thermal safety release
thermal safety release
temperature sensor
temperature sensor

Insert the cables in the housing by putting it through the cable feed through. Please pay attention to the cable labelling and don't twist it! Falsely attached cables can cause lasting damage.

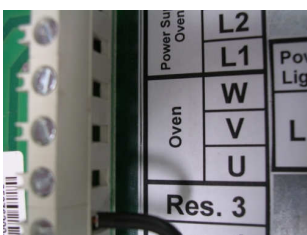
6.4.3 RES. 3/RES. 4



Reserve connection 3
Reserve connection 4

At this point the clamp gets looped through. For this purpose, a clip needs to be put between the clamps.

6.4.4. OVEN CONNECTION

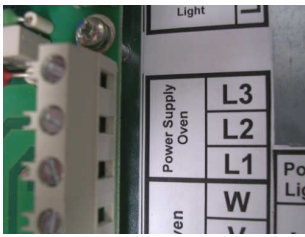


L3 activated
L2 activated
L1 activated

Those connections are for the 5-pole oven cable. The protective earth conductor & the neutral line need to be contacted on the bus connection 6.4.7 and 6.4.8. Put the cable through the provided cable feed through.

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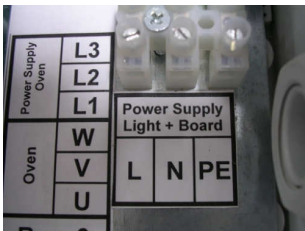
6.4.5 POWER SUPPLY FOR OVEN



L3
L2
L1

Those connections are for the 5-pole main connection. The supply will be best possible come from the home power line via an all-pole main circuit breaker. The protective earth conductor and the neutral conductor need to be put on the multiple connection 6.4.7 and 6.4.8. Put the cable through the designated connections.

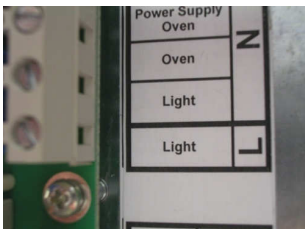
6.4.6 POWER SUPPLY FOR LIGHT AND ELECTRONICS



PE
N
L

Those connections are for the 3-pole power supply (supply line for light and electronics). Feed the cable through the designated cable feed through.

6.4.7 LIGHT CONNECTION



Light N – Dimmer output for the lamp
Light L – Dimmer output for the lamp

Those connections can only be used for lamps 230 V~ (< 100 W). A given protective earth conductor can be put on the multiple connections 6.4.8. Put the cable through the designated connections (if necessary with additional mains switch).

6.4.8 NEUTRAL LINE BUS CONNECTION (N)



N
N
N

Those connections are connected with each other on the printed circuit board (bus connection).

6.4.9 PROTECTIVE EARTH CONDUCTOR MULTIPLE CONNECTION



PE
PE
PE
PE

Those connections are connected with each other on the printed circuit board (bus connection).

6.4.10 INTERNAL MAINS SWITCH HUMIDITY

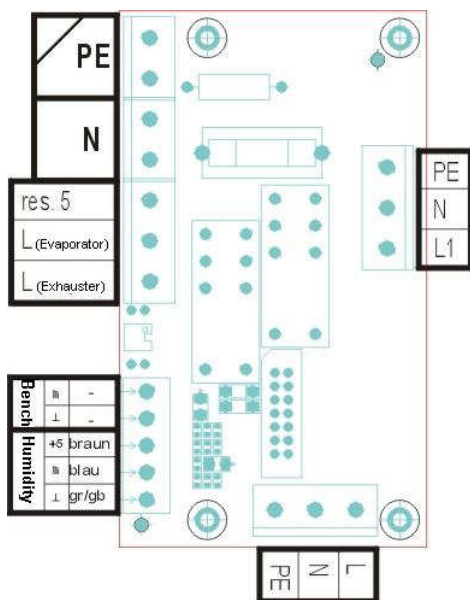


PE
N
L1

Those terminals are for the internal supply of the optional humidity extension.

6.5.0 HUMIDITY MODULE CONNECTIONS (ASFE)

6.5.1 HUMIDITY SUPPLIES



The neutral conductor “N” and the protective earth conductors “PE” are multiple connections.

The supply on the right will be connected to the basis module internally (refer to 6.4.10).

The evaporator will be installed via the cable connection and will be connected to the terminals L (evaporator), N and PE. **The evaporator needs to have an own safety-turn-off switch in case of water shortage!**

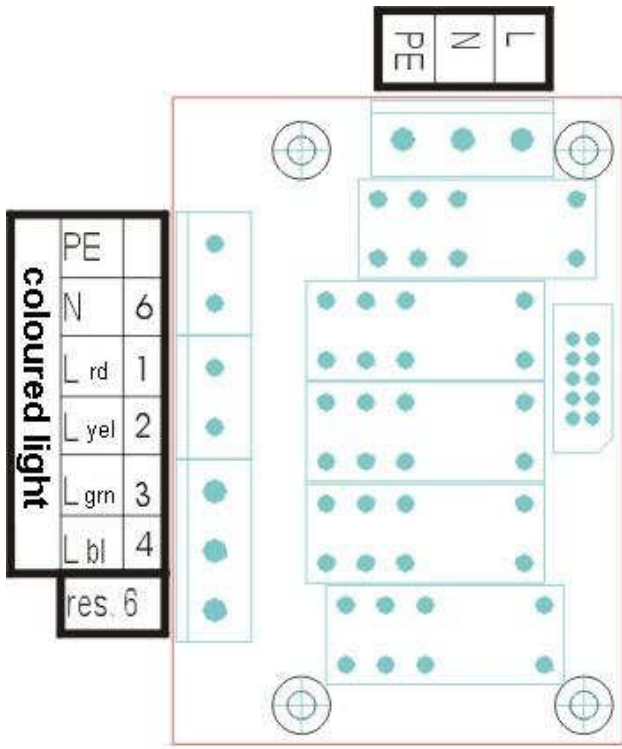
The water shortage connector can be connected to “res. 5”.

The ventilation cable lead in through the cable connection and connected to the terminals L (ventilation), N and PE. The outgoing line is secured with a 4 A delay fuse.

6.5.2 HUMIDITY SENSOR AND BENCH SENSOR

Both the **bench sensor and the humidity sensor** need to be connected to the terminals at the bottom left. Installation work at the sensors can be made only if the control unit is fully disconnected from the power line. Connect the circuit just as labelled to the signal cables. Consider the polarities! Failure can lead to lasting damage.

6.6.0 COLOUR MODULE CONNECTION (ASFA)



6.6.1 SUPPLY

The above terminals serve the internal supply of the optional colour extension. The supply normally comes from the humidity module right above. Otherwise from the terminal of the basis module (refer to 6.4.10).

6.6.2 LIGHT TERMINAL

The sidwise terminals serve the connection to the colour lamps. The circuits will be laid from that point to the lamps. A 6-pole cable should be laid. For individual lamp cables, the neutral line connection needs to be externally gathered. The allocation occurs in accordance with the plan of the lamp module. The connection "res. 6" is not usable.

6.7.0 PLUG CONNECTION

Connect modular jack 6/6 (supply and communication) as far until you can hear it snack in.



+5 V=
CAN+
CAN-
earth

7.0.0 TECHNICAL DATA

7.1.0 POWER UNIT (ASBA)

System connection	For 3 x 400 V ~ 50 Hz with L1-L2-L3-N-PE; 1 x 230 V ~ 50 Hz with L-N-PE; Housing only for standardised service connection with fusing and residual current circuit breaker (RCCB). The mains switch must have a minimum contact gap of 3 mm!
Connection internal display	4-pole with 5 V = supply and communication; length = 3 m
Control voltage	Extra low voltage 5 V=
System cable	Typically 5 x 2.5 mm ² for oven (cross section refer to 6.1.0) Typically 3 x 1,5 mm ² for light + electronic
Light connection	With integrated phase dimmer, for 2 (3) pole connection of the 230 V incandescent lamp(s); max. 100 W
Heater connection	3 x 400 V ~ 5-pole, up to max. 3 kW depending on the heater output, and/or 14 A per phase
Thermal safety release	Integrated into the temperature sensor as over temperature protection; release temperature 139 °C
Temperature sensor	2-pole; semi conductor sensor 9 °C to 140 °C
Position accuracy	+/- 1 °C; +/- 1 min.
Power input	Mode FIN: max. 3 x 3 kW (hâter) Mode FEU: max. 2 x 3 kW (heater) and max. 1 x 3 kW (evaporator) For light: max. 100 W
Ambient conditions	0 °C to max. 50 °C, max. 95 % reel. Humidity, not condensation!
Housing	IP54
Fixing	Screwing on by means of 4 M3 fixing holes
Dimensions: L x W x H	300 x 210 x 100 mm
Weight	~ 1114 g without packaging

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7.2.0 HUMIDITY MODULE (OPTIONAL)

Supply	3-pole with L1, N, PE
Power input	12 V= / ~ 20 mA normal mode (~ 0,3 W)
Fuse	4 A for the ventilation output
Ambient conditions	0 °C – 50 °C, max. 95 % reel. Humidity, not condensation!
Housing	Open blank in the housing of the power unit
Fixing	Of the blank by means of M3 bolt on bearer plate
Dimensions: L x W x H	80 x 60 x 25 mm
Weight	~ 100 g without packaging

7.3.0 COLOUR MODULE (OPTIONAL)

Supply	3-pole with L1, N, PE
Power input	Only at illumination, max. 4 x 60 W
Fuse	Unsecured or via 4 A if supplied by above humidity module
Ambient conditions	0 °C – 50 °C, max. 95 % reel. Humidity, not condensation!
Housing	Open blank in the housing of the power unit
Fixing	Of blank by means of M3 bolt on bearer plate
Dimensions: L x W x H	100 x 60 x 25 mm
Weight	~ 150 g without packaging

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7.4.0 TECHNICAL DATA CONTROL UNIT

Connection	4-pole with supply and communications line
Power input	5 V= / < 100 ma normal mode (< 0, 5 W)
Temperature	Display of current temperature and desired temperature 30 °C – 110 °C (+/- 1 °C) depending on the programme
Time interval/el. Sandglass	0 - 99 min with disengage able beeper
Light dimmer	0 % - 100 % (+/-2 %) for up to 100 W
Humidity module (optional)	Display of current temperature and desired temperature 0 % - 80 % reel. humidity (+/- 5 %) depending on the program
Ambient conditions	0 °C - 110 °C, max. 99 % reel. Humidity, not condensation!
Housing	Mounting socket, blank, light conductor for display, wooden front with temperature resistant foil
Fixing	Of blank by means of M2, 5 bolts on wooden front backside with mounting socket
Dimensions: L x W x H	130 x 110 x 65 mm
Weight	~ 212 g without cable and without packaging

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8.0.0 MANUFACTURER'S DECLARATION

**ABATEC Electronic AG
Overeager Strafe 48
A-4844 Reggae**

Declares for the following products:

SAUNA CONTROL UNIT „WAVE.COM4“with

**Power unit „ASBA“and
Humidity module „ASFE“and
Colour module „ASFA“and
Control unit**

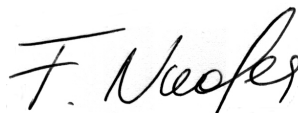
To be in accordance with the following terms:

**Low voltage Directive 73/23
As amended by Council Directive 93/68/EWG new: 2006/95/EG
EMC Directive 89/336/EWG
new: 2004/108/EG**

Applied harmonised standards:

Standard description

- 1 EN 61000-6-3:2007
- 2 EN 61000-6-1:2007
- 3 EN 61000-3-2:2006
- 4 EN 61000-3-3 A2 2005
- 5 EN 60335-1:2006
- 6 EN 60335-2-53:2003



**ABATEC Electronic AG
Friedrich Niederndorfer, CEO**

Technical modifications, which are made for improvement, are subject to change. This instruction manual was written to the best of our knowledge. Please inform your distributor, or us, if you still detect errors. Thank you!

ABATEC Electronic AG

for:

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9.0.0 GUARANTEE

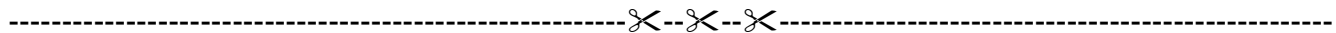
Congratulations on having purchased an innovative “wave.com4” sauna control unit from ABATEC.

Should your unit show any defect (exceptions: lamps, oven, house connection), please return it to your distributor. The control unit will be sent to us directly from the distributor.

The guarantee period for the control unit is 24 months from the date of invoice. In this period you will get a new sauna control unit at no charge. After the guarantee period has expired, we only charge you the fixing costs.

In the case of any complaints within such guarantee period, please return the control unit and enclose the below guarantee form, completed with your data and your distributor’s confirmation, as well as the invoice. Failing this, we must assume that the guarantee period has expired.

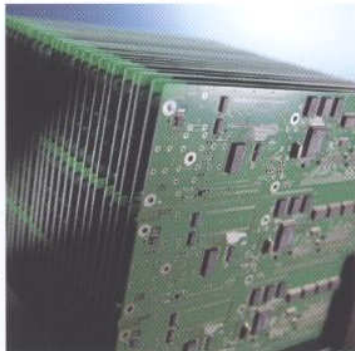
In such cases where the damage has been caused by non-compliance with the instructions or improper start-up, no guarantee can be granted. Thank you for your confidence in ABATEC. We wish you relaxing hours with your “wave.com4” sauna control unit.



GUARANTEE FORM

Purchaser:	
Address:	
Postal code:	
Telephone no.:	
(*) Purchase date:	
(*) Distributor’s stamp and (*) signature:	
<small>(*) obligatory information!</small>	

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FIRST.**

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