

דנמר אלקטרוניקה ובקרה בע"מ

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בקר אלקטרוני לתנור סאונה

דגם EL-1

ספר משתמש

APPLICATION

Before the installation and use the stove please assure that the voltage of the control panel and the stove is correct. For your own safety, please read this installation and operation manual and the one which is supplied with your heater carefully through.

Attention! The electrical installation must only be done by a qualified electrician. Current regulations and instructions must be followed to avoid danger to life.

INSTALLATION OF THE CONTROL UNIT TO THE WALL

Use the included template to find the exact position of the holes for attaching the control panel to the wall. Put the template to the chosen place of the control panel and draw the drilling marks on the wall. First you fasten the uppermost screw so far, that there is enough space to hang the control panel on it.

For further installation you need to remove the cover of the control panel. To do this, pull up the screw lids which are on the upper corners of the control panel. Then remove the screws which appear under the lids and turn the shell about 90° down, until it can be removed. When you have a free entry to the electric connections, pull the already installed wires out from the cable inlet. Straighten the bottom plate and fasten the both lower screws.

Please notice, that the control panel is only to be assembled outside of the sauna room. The supply circuits for the sensor, the sauna light and the stove must be connected before closing the cover.

Attention! The wires for the temperature control and the sensor must not be assembled with the supply circuits through the same cable inlet.

ELECTRIC INSTALLATION

The necessary diagrams for connections are inside of the stove, inside of the control panel and on the last page of the operation manual.

The control panel is to be connected only with a solid connection to the electrical supply. **Attention!** PVC- isolated cables are forbidden to use for connection cables due to their fragility to heat.

THE INSTALLATION OF THE SENSOR AND THE TEMPERATURE CONTROL

Use the delivered silicon cable to install the sensor and the temperature control. The wire of the sensor is white, and the temperature cut-off black. Both wires are to be connected to the small 4-pole joint which is inside the control panel on the right hand side; the black wire nr. 1 and 2, white 3 and 4. The black and the white wire connections must in no circumstances be mixed with each other.

THE INSTALLATION OF THE SENSOR IN THE SAUNA

In the wall in which the stove is attached to, is a cable channel for installing the cables from the sensor to the control panel. In the sensor housing is the temperature control and the overheating fuse.

The sensor case is to be installed on the wall above the stove about 50 mm from the ceiling (see picture 2). The overheating fuse is activated if the temperature raises over 145°C and turns off the electricity of the whole equipment. If the temperature fuse is activated, you cannot use the equipment again before changing the fuse (see technical information). Only a qualified electrician is allowed to change the fuse.

FUSES

Attention! To change the fuses in the control panel and also before opening the cover of it, you must disconnect the tension of the supply circuits. The light and the control technic have their own fuses. The fuses are located on the lower electronic plate and are available after removing the cover. The nominal current and the structure type of the fuse are to be found under "technical information". (electr. T 32 mA, lighting T1,25A).

Attention! *The electrical installation must only be done by a qualified electrician. Current regulations and instructions must be followed to avoid danger to life.*

THE STARTING OF THE HEATING

The heating is started by switching the power switch on to the position "I". The stove begins immediately to warm up.

In case you want to use the pre-setting time, push the "PRE-SETTING" button until the wanted hours are shown on the display. The stove will then switch off, until the pre-setting time has run to its end. Every push increases the pre-setting time by a half hour. The max. pre-setting time is 12 hours.

If you want to brake the pre-setting time, you can do it by "running the clock around" to zero, or by first switching the power switch off and then again on.

TEMPERATURE SETTING

The desired temperature is set with the button "HEATING". When turning the button clockwise the heating temperature increases and vice versa. When you touch the set button the desired temperature is displayed for about 10 seconds, after this either the pre-set time or the actual temperature in the sauna is displayed.

INDICATOR LIGHTS

The indicator light next to the number display shows the respective functions.

- When the **green** LED light shines, the number display shows the pre-setting time in hours.
- When the **red** light shines, the display shows you the actual sauna temperature.
- When the same LED **blinks**, the display shows the set temperature.
- The red LED, next to the temperature set button, shines when the thermostat activates the stove.

The electronic control panel is a device of precision, which has been thoroughly tested before delivery. Therefore, avoid making wrong connections, because this invalidates the warranty.

CONTROL OF THE HEATING TIME

For safety, the heating time is regulated. The control panel is programmed to heat the stove for a max. of 4 hours at a time. The heating time begins, when the device is switched on or when it is set according to the pre-setting. During the heating time a red indicator light shines. After the end of the heating time you can activate the heating again by once switching heating on and off.

MAXIMUM SET VALUES AND PRE-PROGRAMMED SAFETY LIMITS

Max. set value -110°C , graded in $\pm 1^{\circ}\text{C}$ steps
Max. temperature display 125°C

The system is protected against mechanical failures of sensor and over temperature protection circuits. If one of the circuits breaks or the sensor circuit shorts, the power circuit will break and cannot be restarted before the fault has been detected and corrected.

The shorting of sensor circuit is displayed as "Err2" and break as "Err1". The shorting of over temperature protection circuit is displayed as "Err3".

If for any reason the sauna temperature rises over 150°C , the thermal fuse in the protection circuit will operate and has to be replaced.

GENERAL ADVICE FOR THE SAUNA BATHER

The control panel, sensor, stove and the bathing room belong together and they build a functioning entity.

When using the appliance the sensor gives a signal, that the sauna is too cold and gives an order to the control panel to switch on. When the stove is warm, the surrounding air begins to circulate. After a while the warm air reaches the sensor. When all the components work correctly, the set temperature should be reached within 40-50 minutes.

THE CONTROL OF THE TEMPERATURE

Usually the temperature in the sauna room is monitored using a thermometer. This is usually a bimetal thermometer which reacts slower than the sensor, which is attached to the roof. Therefore comparisons should be made after the sauna has stabilised at the set temperature.

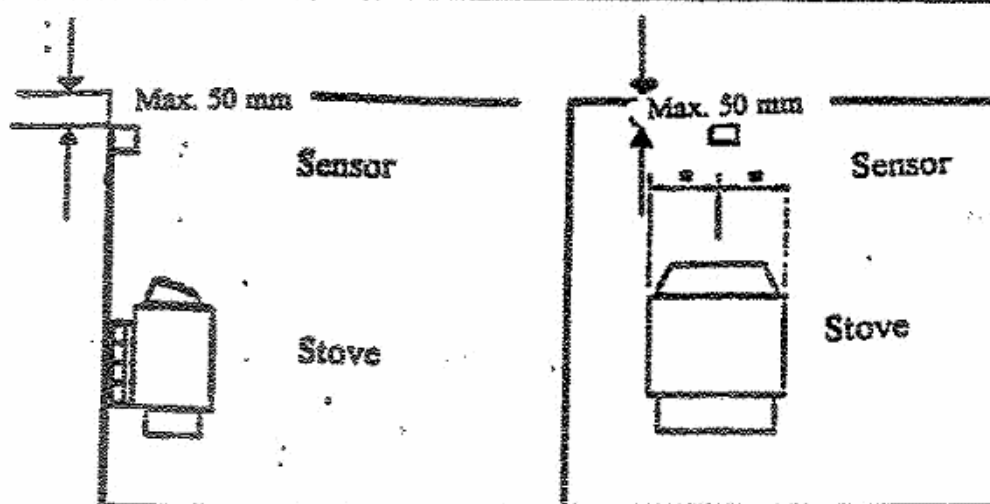
TECHNICAL INFORMATION OF THE CONTROL PANEL EL-1

Connection voltage	400 V 3 N 50 Hz
Nominal current	13 A
Power of the stove	max 9 kW (max 3 kW/Phase)
Output light	max 100 W
Fuse	T1, 25 A H(5x20)
Surrounding temperature	0°C...25°C
Protection type	IP X4
Overheating protection	145°C
Sensor breakage recogniser	built-in (limit ca. -10°C)
Stat. contr. hysteresis	ca. 1,0° K
Temperature setting-up range	ca. 40°C...110°C

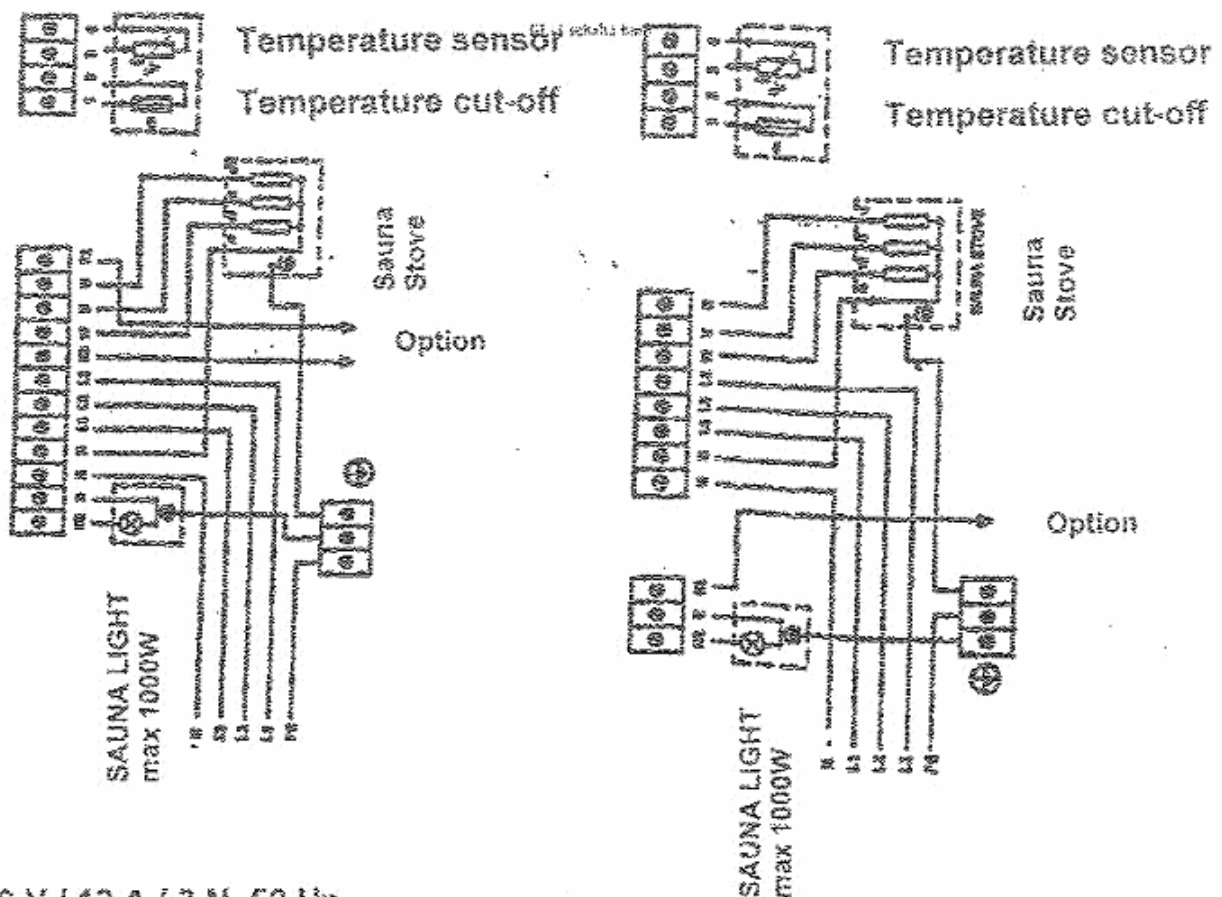
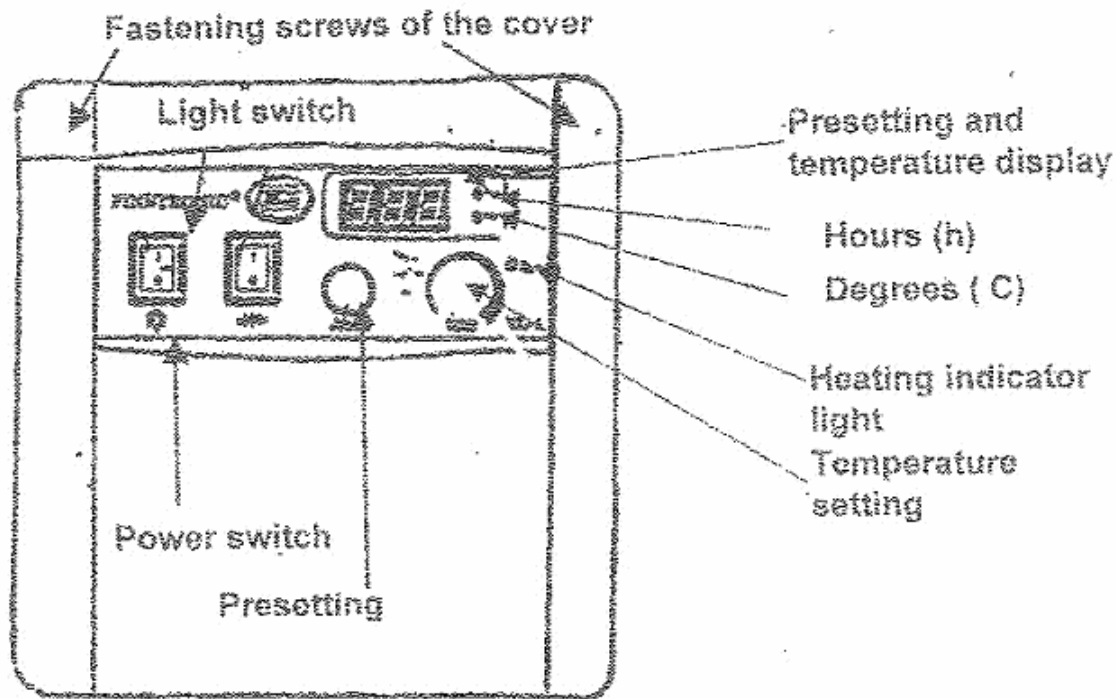
TECHNICAL INFORMATION OF THE CONTROL PANEL EL-2

Connection voltage	400 V 3 N 50 Hz
Nominal current	21,7 A
Power of the stove	max 15kW (max kW/Phase)
Output light	max 100 W
Fuse	T1, 25 A H(5x20)
Surrounding temperature	0°C...25°C
Protection type	IP X4
Overheating protection	145°C
Sensor breakage recogniser	built-in (limit ca. -10°C)
Stat. contr. hysteresis	ca. 1,0° K
Temperature setting-up range	ca. 40°C...110°C

INSTALLATION OF THE SENSOR



CONTROL BOX EL-1 & EL-2



400 V / 13 A / 3 N, 50 Hz

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