Model *Lotos 105Z*

Environmental conditions:

Storage temperature	- 25^{O}C to +70^{O}C
Operating temperature	-10^{O}C to 40^{O}C
Air humidity	Max. 90%

Minimal temperature stability of the connecting lines:

Heater wiring, lighting circuits, heater sensor lines must be heat-resistant to at least 150ºC.

Maximal lengths of lines:

Heater sensor FI	4,5 m

Control:

Switching voltage	400V, 3N 50Hz/60Hz
Switching capacity	3 x 3,5kW (tot. 10,5 kW)
Switched current each phase/heater AC1	16A
AC1 switched power, light	100 W
Switched current, light	1A
Nominal supply voltage	230V
Min./max. pick-up capacity	7/12VA
Degree of protection (splash-proof)	IPX4

Connection to the main circuit as non-detachable (permanent) wiring.

Range of adjustment:

Sauna operation	40 ^{O}C – 120^{O}C /above heater/
Temperature adjustment step	1^{O}C
Step selecting time (gradually)	15 min
Min. delayed start time	15 min
Max. delayed start time	24 h

Thermal safety

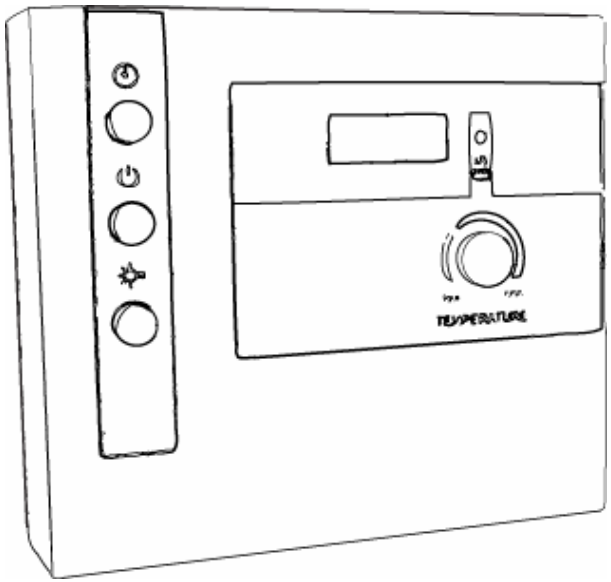
Heater sensor with overtemperature protector, shutdown temperature 139ºC. Automatic shutdown is at the maximum of 6 hours.

*** If used in hotels, spa, recreational centers etc. the automatic shutdown timeframe can be extended up to 12 hours.

Edition I, 10.2010

Sauna device *Lotos 105Z*

Installation manual
User manual



11 Cleaning

⚠ **CAUTION**: **Damage of Device**: Do not water the device or do not clean it with a wet cloth.

For cleaning use a cleaning cloth slightly dampened in a soap solution.

12 In case of a long non-operation period of time

Turn off the main device fuses if the control is not going to be used long period of time.

13 Errors and troubleshooting

(13.1) Limitation in time

- Device automatically turns off and resets in standby mode in case of continuous operation for more than 6 hours.

(13.2) Cabin light does not work

- Turn off device via button switch on/off position 4.
- Turn off lights in the cabin via button position 3.
- Turn off the fuses of the device.
- Change the light bulbs.
- Turn on fuses and push button position 3.
- Call an electrician, if the light in the cabin is still not working.

14 Maintenance

- Device is not an object of repair by unauthorized staff.
- Device is tested in accordance with accidents prevention rules procedures during commercial use.

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3. Device is started, the LED indicator lights continuously and the display indicates the cabin temperature.
   - If the temperature measured is lower than set temperature the heater is running.
   - If the cabin temperature is higher than set temperature heater is turned off.
4. Adjust the desired temperature via knob position 3.

Adjusted temperature is indicated on the display position 1.

- if the knob has not been turned for more than 2 sec. the display returns to cabin temperature indication.

5. Turn the control off as described in 5.2.

10 Delayed start in Sauna mode

(10.1) Setting of delayed start-time

You can set the time delay after which the heater will turn ON. Minimal delay time is 15 min. (the display indicates 00.15), max delay is 24 h (the display indicates 24.00).

Note: Door control (see chapter 3).

1. Switch ON the control as described in 5.1.
2. Push and hold timer button position 6.
   a. Time indication resets and starts counting in 15 min steps.
3. Release button position 6.
   a. Display indicates the time set.
   b. Counting time to start. The point is flashing.
4. Desired temperature is selected in advance via knob position3.
5. After timeout the control switches ON, indicator lights continuously and the display indicates the cabin temperature.
   - If the temperature measured is lower than the set temperature the heater is running.
   - If the cabin temperature is higher than the set temperature the heater do not operate.
6. Switch the control OFF as described in 5.2.

(10.2) Cancellation of preset start time

1. Push button position 6 shortly.
   - The preset start time will be cancelled. The device starts immediately. (see 6.3.)

Table of Contents:

Attention!

- Installation must be performed by an electrician or other qualified staff only.
- Make sure the control is disconnected from the main power supply before assembling starts.
- Read the installation instructions carefully. In doing so you will utilize all the benefits of the device and perform a safe assembly.
- For additional self-protection turn to your supplier about any particular problems, which are not described or dealt with in this manual.
- Unauthorized changes or modifications of the control are not permitted due to safety reasons.
- The manufacturer reserves all rights applying technical changes.

Symbols used:

WARNING: If not closely observed may cause severe or lethal injuries.

CUATION: If not closely observed may cause light injuries or damage of materials.

NOTE: Gives advice concerning applications and useful information.

For quick and easy reference of important safety and operational information in the course of exploitation keep this manual!

General safety information

- On installation: three-phased automatic safety breaker with 3mm contact opening needs to be provided in the main electric panel.
- A circuit breaker is recommended, if there is none in the main electric system of the building.

Directions of use:

- Prior to turning on the sauna control, make sure the heater is clear of flammable objects.
- ***Lotos 105 Z*** control is used for the described in the technical data functions.
  Lotos 105Z controls 3 heating circuits 3,5kW each (tot. 10,5 kW).

  Please, dispose of the packaging in appropriate places in accordance with the current administrative disposal regulations.

7 Error messages

Error messages indicate electrical damages in the system

In case of device malfunction:

1. Read the error message
2. Turn off the main safety fuses of the control.
3. Call an electrician.
4. Mark the device as “inoperative“.

(7.1) Possible error messages

E-F1	a short circuited or defected line of the heater sensor.
E-Pt	a damaged potentiometer for temperature adjustment.
E-tS	a damaged safety fuse or a defected cable.

Error messages are followed by sound alarm as well as blinking LED indicator.

8 Switching On/Off the control and the cabin lighting /fig. 3/

(8.1) Switching on the control

Symbols used:

WARNING: Fire hazard:
Prior to turning on the sauna control and setting start-time make sure there are no flammable objects on top of the heater.

Switch ON/OFF control button position 5.

1. If device is on the LED indicator lights.
2. The display indicates 00.00.
3. The control is ready to operate.

(8.2) Switching OFF the control

1. The display and the LED indicator are turned off
2. The control is turned off.

(8.3) Switching the sauna light ON

Button position 4 turns on/off the internal cabin lighting.

9 Quick-start of Sauna mode

1. Turn on the control as described in 5.1.
2. Push the time setting button shortly /less that 2 sec/ position 6

4 Operation modes

You have operating mode “Sauna” available: dry sauna with user-defined temperature. The mode can be started directly /see chapter 6/ or after short time /delayed start of the heater chapter 7/.

5 Indications – fig. 3

An indicator position 2 lights up when device is turned on.
The display indicates the selected temperature or the inner cabin temperature- position 1 - 111°;
Countdown to delayed start is indicated by a blinking point on the display hh.mm / 24 h – position 1;
Standby mode is indicated by blinking 0000;

Door	indicates open sauna cabin door;
LL°	indicates subzero temperature measured by one of the two sensors;
HH°	indicates temperature over 140°C measured by one of the two sensors;

6 Door cabin safety-monitor (optional)

Additional fire hazard prevention is provided by monitoring the status of the sauna cabin door with a door sensor (not included in the set) after setting the delayed start.
To prevent anyone from entering in the cabin after setting delayed start and perhaps placing objects on the heater, the control has a protective self-switch off function for reaction according to the operational status.

(6.1) Status – heater is not operating

Delayed start is set. Heater is not turned on. Sauna door is open:

- Display indicates “door”
- Delayed start time is reset

Delayed time need be set again after closing the door.

(6.2) Status – heater is running

Preset time to start has elapsed. Heater is ON. Sauna door is open:

1. The temperature is below 40°C
   - Display indicates “door”, heater turns off and the temperature regulating process stops.
   - To reset: close the cabin door and restart sauna mode.
2. The temperature is above 40°C
   - Holding the door open for longer than 5 sec causes “door” indication on the display and heater switching off.
   - Temperature regulation is resumed after closing the door.

1 Device installation

Install the device on the cabin door at a height of 1.7 m or in accordance with the recommendations of the cabin’s manufacturer.
Power is supplied via permanent connection. Quality of the power supply cable is at least H07RN-F.

CUATION: Damages of device:
The device is splash-proof (degree of protection IPX4). Do NOT allow direct water contact! Install the device at a dry place! Environmental conditions (not to be exceeded): -10^{O}C + 40^{O}C, maximal air humidity 90%.

1. Carefully push the clip /fig.1, position 8/ and remove the lid.
2. Screw-in a screw at a height of 1.8 meters on the wall; max distance from cabin wall 7mm (details on fig. 1).
3. Hook the device box in position 2, fig.1 on the mounted screw

CAUTION: Possible damages of the device:
Lotos 105Z could be used for control of up to 3 circuits with max. power 3,5kW each. Optional 18kW-30kW through terminal W1, position 12 (fig.1).

1. Heater sensor lines should be guided through mounting holes - fig.1, position 5 (low voltage area fig.1, position 4) on the bottom of the box and in accordance with diagram (fig.4), connect to terminal position 3 (fig.1).

2. Guide the door sensor (optional) trough the mounting holes position 5 (fig. 1) (low voltage area fig.1, position 4) on bottom of the box in accordance with diagram connect them to terminal position 3

3. Light lines should be guided through mounting holes - position 10 (fig.1) (voltage area 230V/400V fig. 1, position 11) on the bottom of the box and in accordance with diagram (fig. 4), connect them to terminal position 12.

4. Power supply and heaters wiring should be guided through mounting holes position 10 (fig.1) (voltage area 230V/400V- position 11, fig.1) on the bottom of the box and in accordance with diagram (fig.4), connect them to terminal position 12 (fig.1).

5. Connect the grounding lines to terminal - position 7 (fig. 1).

6. Screw both slot headed screws into the mounting holes - position 6, position 9 (fig. 1).

7. Place the lid back in its place – top first and push until it clicks.

2 Installing heater sensor FI with overtemperature protector /fig. 2/

Install the sensor with overtemperature protection in the sauna cabin about 15 cm. below the ceiling and above the heating system or in accordance with requirements of the manufacturer.
Install only the sensor 150ºC temperature-resistant connection line applied in the device set. Cable extension is permitted outside the sauna cabin.

⚠ **CAUTION**: Double insulation is required:
The wiring of the heater sensor must be separated from high voltage cable. Cover lines with insulation.

1. Connect the sensor lines position 1 (fig.2), according to position 3 (fig.2).
2. Connect to sauna control position 3 (fig.1).
3. Perform tests according to chapter „Testing".
1. Fix the sensor to the wall position 2 (fig.2) – over the heater, 15 cm below the ceiling or in accordance with manufacturer's requirements.

3 Testing

Tests must be conducted by authorized electrician only.

⚠ **WARNING**: Electric shock hazard:
Tests are conducted with main supply power on.

1. Test contact to terminal position 7 (fig.1).
2. Test connections and contact between phases L1, L2, L3 and U, V, W.
3. Test if short circuit or interruption in sensor's signal lines are recognized and indicated as errors. In such a case the heater does not to turn on or (if is already operating) turns off automatically:
    a. In case of disconnected sensor's white or red wire or short circuited white wire the heater must turn off automatically.
    b. If any of the described in a) cases the red LED indicator position 1(fig.3) is blinking.
    c. Error messages are indicated on the display
    E-F1 Short circuited or interrupted white line of the heater temperature sensor
    E-tS Interrupted red line or damaged thermal protector
    d. Acoustic indicator alarms

Dear User,

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- *Lotos 105Z* control is used for the described in the technical data functions.

Lotos 105Z controls 3 heating circuits 3,5kW each (tot. 10,5 kW).

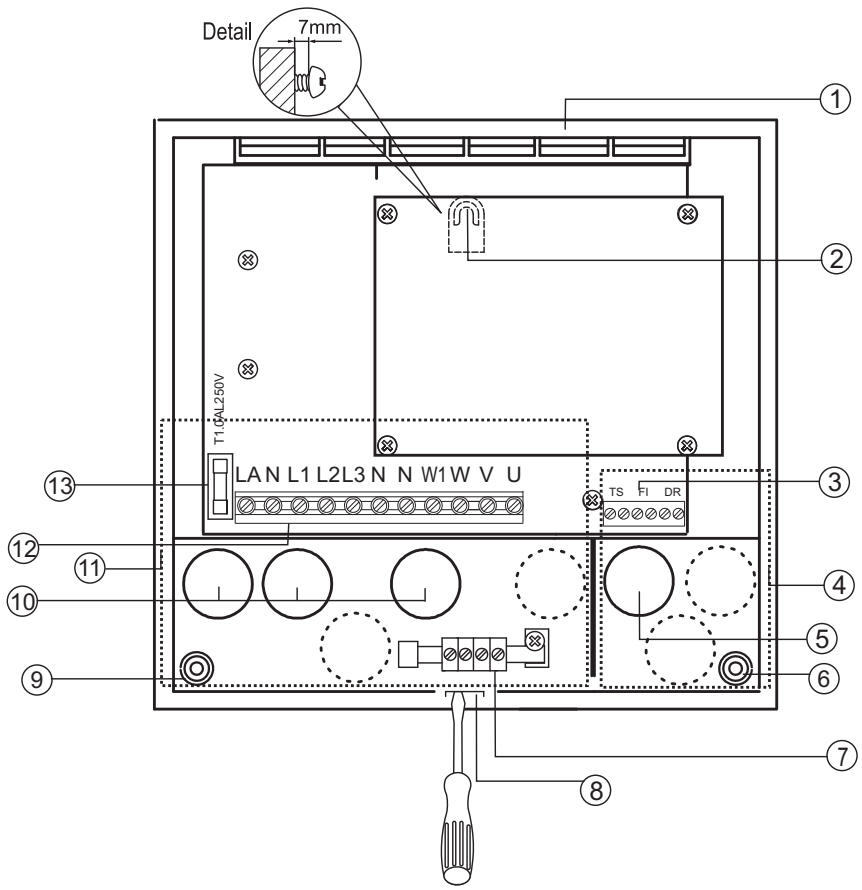
Disposal:

- Old used devices contain recyclable materials. Do not dispose of them anywhere but inquire at the administration of your district about the possibility of recycling.

In case of a long non-operation period of time

- Turn off the main device fuses if the control is not going to be used long period of time.

1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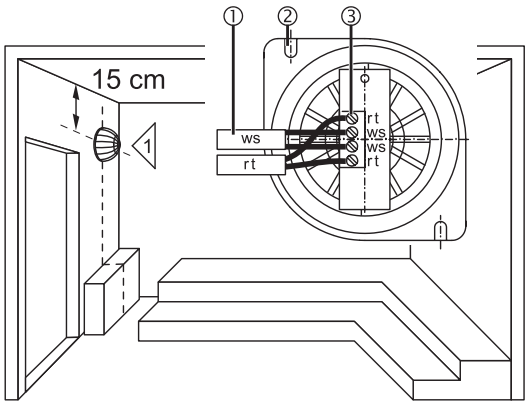
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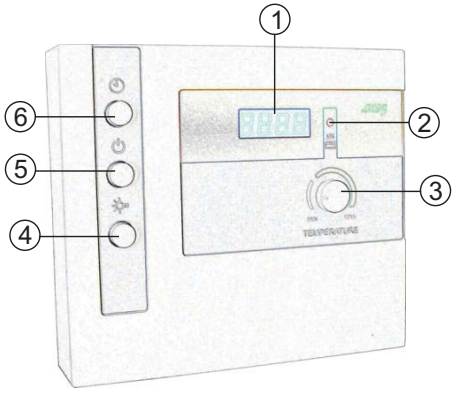
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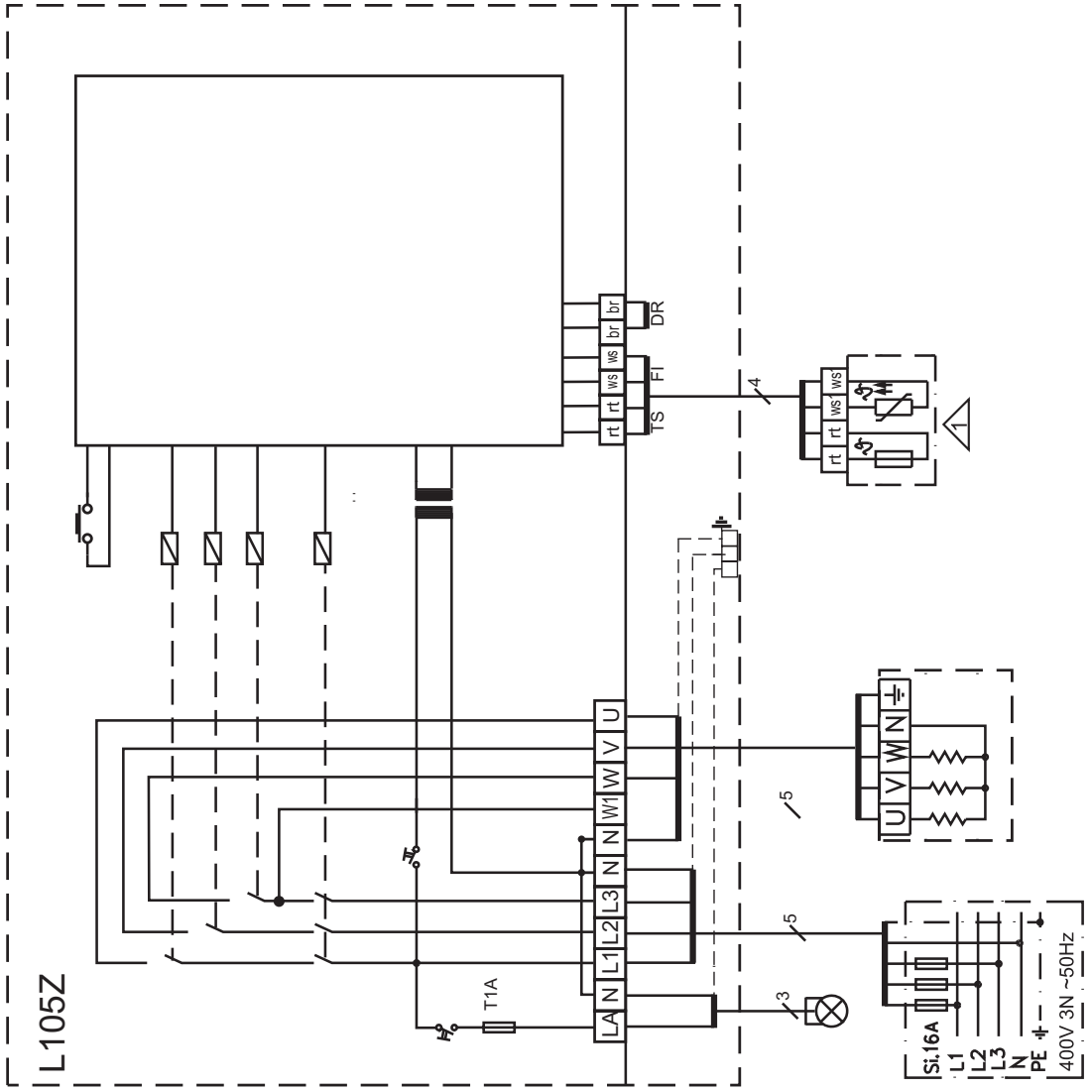
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