

Installation and User Manual **Pikkutonttu Trend**

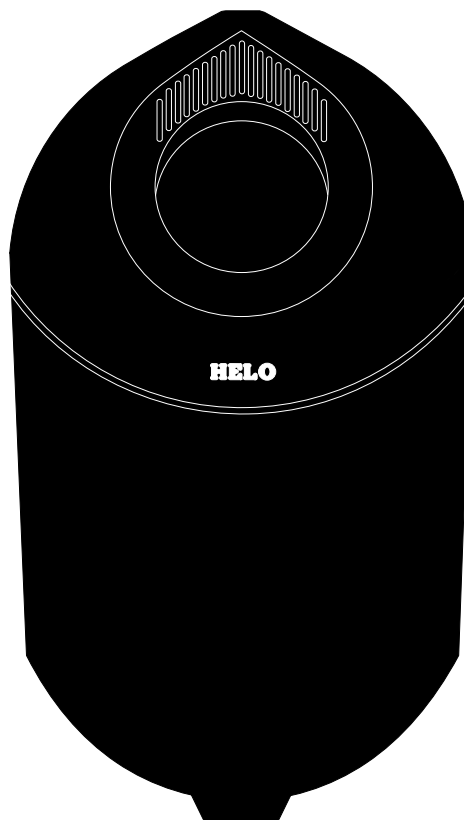
ELECTRIC SAUNA HEATER:

1116 – 45 – 040511
1116 – 65 – 040511
1116 – 90 – 040511

230V – 240V 1N~ / 2~
230V 3~
400V – 415V 3N~

CONTROL PANEL:

1601 – 31 (RA – 31) Trend)



Contents	Page
1.1. Check before taking a sauna bath	3
1.2. Sauna room	3
1.3. Information for users	3
1.4. Operation of the sauna heater controls	3
2.Heating the sauna	4
2.1. Recommended sauna room ventilation	4
2.2. Installing the sensor near a supply air vent	4
2.3. Ceiling installation of the sensor	5
2.4. Installing the Extra NTC sensor	5
2.5. Sauna heater stones	5
2.6. If the sauna heater will not heat up	6
2.7. Preparing for sauna heater installation	6
2.8. Installation	6
2.9. Sauna heater safety clearances	7
2.10. Connection of the sauna heater to the mains	8
2.11. Electric heating toggle	8
2.12. Locating the connecting box for the connection cable in the sauna room	9
2.13. Remote controlling	9
2.14. Order of RJ 10 connectors	9
2.15. Door switch	10
2.16. Wiring diagram	11
2.17. Principle image when 1601 - 31 (RA - 31 Trend) is used as control panel	12
3.Pikkutonttu Trend spare part list	13
4.ROHS	13

Figures and tables

Figure 1	Rekommended sauna room ventilation	4
Figure 2	Sauna heater installation	6
Figure 3	Safety clearances	7
Figure 4	Location for the connection box	9
Figure 5	Order of RJ 10 connectors.	9
Figure 6	Installing the door switch	10
Figure 7	Pin – order of RJ 10	10
Figure 8	Wiring diagram for the sauna heater	11
Figure 9	Principle image	12
Table 1	Safety clearances	7
Table 2	Connection cable and fuses	8
Table 3	Coupling order of RJ 10	9
Table 4.	Connecting the door switch.	10
Table 5	Himalaya Trend spare parts list	13

1. WARNINGS

1.1. Check before taking a sauna bath

1. The sauna room is suitable for taking a sauna bath.
2. The door and the window are closed.
3. The sauna heater is topped with stones that comply with the manufacturer's recommendations, the heating elements are covered with stones, and the stones are piled sparsely.

NOTE! Ceramic rocks are not allowed.

The heater's main switch is located at the bottom of the heater, on the right side as seen from the front.

The main switch is marked with a 0 – 1 sticker.

1.2. Sauna room

The walls and ceiling of a sauna room should be thermally well insulated. All surfaces that store heat, such as tiled and plastered surfaces must be insulated. It is recommended to use wooden panel cladding inside the sauna room. If there are heat storage elements in the sauna room, such as decorative stone, glass etc., note that these elements may extend the pre-heating period even though the sauna room is otherwise well insulated (see page 6, section 2.7 Preparing for sauna heater installation).

1.3. Information for users

This appliance may not be used by children aged less than eight years, by persons with reduced physical, sensory or mental capabilities, or by persons lacking experience and knowledge regarding its operation only if such have been given instructions on the safe use of the device and the risks involved. Children must not be allowed to play with the appliance or to clean and service it without supervision. (7.12 EN 60335-1:2012)

1.4. Operation of the sauna heater controls

Refer to the specific control panel operating instructions.

Rearrange the sauna stones at least once a year and replace any weathered stones. This enhances air circulation between the stones, which extends the useful life of the thermal resistors.

If you encounter any problems, please contact the manufacturer's warranty service shop.

For additional information about enjoying a sauna bath, please visit our website at :

www.tylohelo.com

2. Heating the sauna

Before turning the sauna heater on, make sure the sauna room is suitable for taking a sauna bath. When heated for the first time, the sauna heater may emit some odour. If you detect any odour while the sauna heater warms up, disconnect the sauna heater briefly, and air the room. Then turn the sauna heater back on.

You should turn the sauna heater on roughly an hour before you plan to take a sauna bath, so that the stones have time to heat up properly and the air warms up evenly in the sauna room.

Pleasant, smooth sauna bath temperature is about 70 °C.

Do not put any objects on the sauna heater. Do not dry clothes on the sauna heater or anywhere in its vicinity.

2.1. Recommended sauna room ventilation

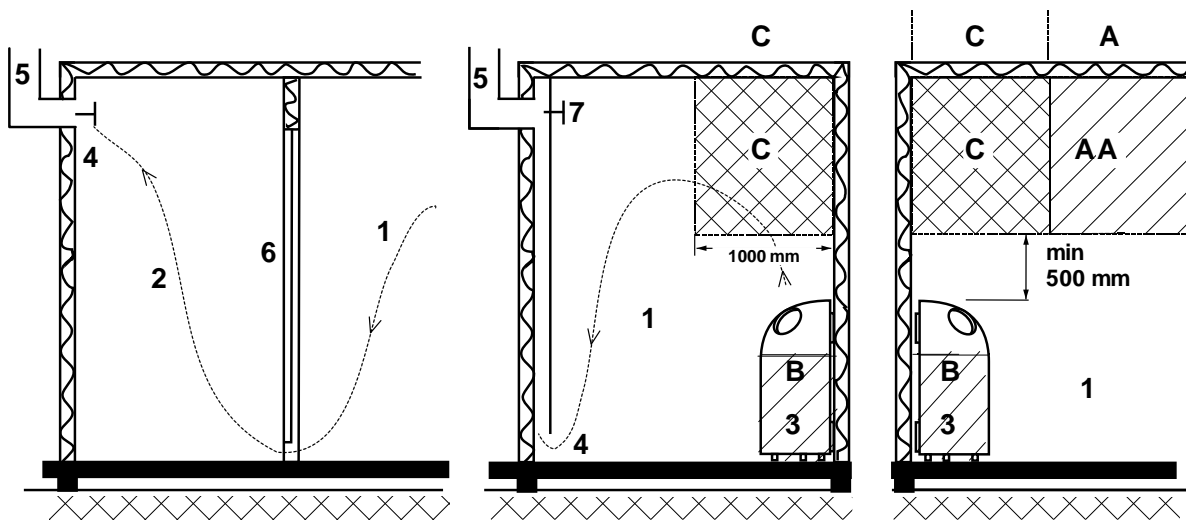


Figure 1 Recommended sauna room ventilation

- | | | |
|---------------|--------------------------|----------------------------|
| 1. Sauna room | 3. Electric sauna heater | 5. Exhaust flue or channel |
| 2. Washroom | 4. Exhaust valve | 6. Door to the sauna room |

7. A ventilation valve can be installed here to be kept closed while the sauna is heated and during bathing.

Inlet vent can be positioned in the A zone. Make sure the incoming fresh air will not interfere with (i.e. cool down) the sauna heater's thermostat near the ceiling.

The B zone serves as the incoming air zone, if the sauna room isn't fitted with forced ventilation. In this case, the exhaust valve is installed min 1m higher than the inlet valve.

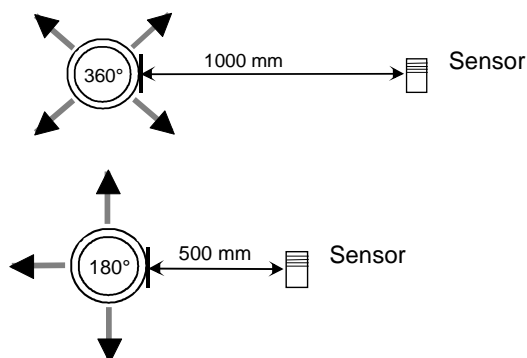
DO NOT INSTALL INLET VALVE WITHIN ZONE C, IF THE SAUNA HEATER'S CONTROL THERMOSTAT IS LOCATED IN THE SAME ZONE.

2.2. Installing the sensor near a supply air vent

The sauna room air should be exchanged six times in an hour. The diameter of the supply air pipe should be between 50 and 100 mm.

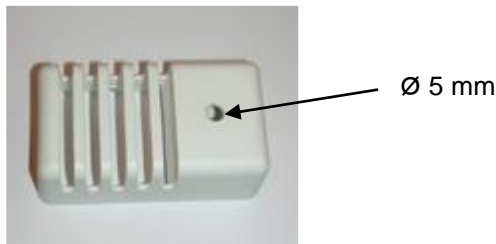
A circular air supply vent (360°) must be installed at least 1000 mm away from the sensor.

An air supply vent with a flow-directing panel (180°) must be installed at least 500 mm away from the sensor. Air flow must be directed away from the sensor.



2.3. Ceiling installation of the sensor

In ceiling installation, a 5-mm hole must be drilled to the sensor case to allow any condensed water to drain. Do not spray water directly towards the sensor or splash water at it with a sauna scoop.



2.4. Installing the Extra NTC sensor

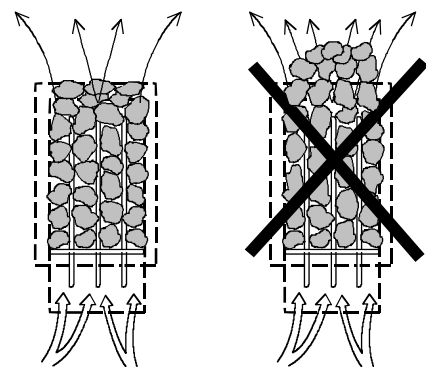
The additional OLET 31 sensor is connected to the Ext NTC connector on the RJ10 circuit board. For more details, refer to the switch diagram. The additional sensor is installed on the sauna room wall no more than 500 mm from the ceiling. Once the additional sensor has been connected to the circuit board, it is automatically activated. This means that the temperature shown on the control panel is measured by the additional sensor.

The primary sensor installed above the sauna heater only has the limiter circuit that limits the maximum temperature to 110 °C. Even if the temperature is set to 110 °C on the control panel, the maximum temperature that can be shown on the panel is approximately 90 °C, as the primary sensor above the heater limits the maximum temperature to 110 °C. Depending on individual preferences, the temperature of a sauna room is typically set between 70 and 80 °C.

2.5. Sauna heater stones

Quality stones meet the following requirements:

- Sauna stones should withstand heat and heat variation caused by vaporisation of the water thrown on the stones.
- Stones should be rinsed before use in order to avoid odour and dust.
- Sauna stones should have an uneven surface to supply a larger surface for the water to evaporate from.
- Sauna stones should be large enough, measuring about 80–120 mm to allow good ventilation between the stones. This extends the useful life of the heating elements.
- Sauna stones should be piled sparsely in order to enhance ventilation between the stones. Do not bend the heating elements together or against the frame.
- Rearrange the stones regularly (at least once a year) and replace small and broken stones with new, larger stones.
- Empty the stone compartment regularly, at least once a year in private use, remove small and broken stones and replace them with new ones.
- In commercial use this operation must be performed at least every second month.
- Stones are piled so that they cover the heating elements. Do not, however, pile a large heap of stones on the heating elements. For a sufficient amount of stones refer to Table 1 on page 7. Any small stones in the package of stones must not be piled on the sauna heater.
- The warranty does not cover defects resulting from poor ventilation caused by small and tightly packed stones.
- Structural clay tiles are not allowed. They may cause damage to the sauna heater that will not be covered by the warranty.
- Do not use soapstone as sauna rocks. Any damages resulting from this will not be covered by the stove warranty.
- Do not use lava stone as sauna rocks. Any damages resulting from this will not be covered by the stove warranty.
- **DO NOT USE THE HEATER WITHOUT STONES.**



2.6. If the sauna heater will not heat up

If the sauna heater will not heat up, please check that:

- the power is on;
- the main fuses of the sauna heater are intact;
- is there any error messages on the control panel. In case of an error message on the control panel, please refer to the control panel instructions.

THE PERSON INSTALLING THE SAUNA HEATER SHOULD LEAVE THESE INSTRUCTIONS AT THE PREMISES FOR THE FUTURE USER.

2.7. Preparing for sauna heater installation

Check the following before installing the sauna heater.

- The ratio of the heater's input (kW) and the sauna room's volume (m³). Volume recommendations are presented in Table 1 on page 7. The minimum and maximum volumes must not be exceeded.
- The sauna room height must be a min. of 1900 mm.
- Uninsulated and masonry stone walls extend the preheating time. Each square metre of plastered ceiling or wall surface adds 1.2 m³ to the sauna room's volume.
- Check page 8 Table 2 for a suitable fuse size (A) and the correct diameter of the power supply cable (mm²) for the sauna heater in question.
- Conform to the specified safe clearance around the sauna heater. Please refer to page 7.
- There should be enough room around the sauna heater controls for maintenance purposes. Also a doorway can be considered as a maintenance area.

2.8. Installation

Follow the safety clearance specifications on page 7 when installing the sauna heater.

The sauna heater is a floor-standing model. The base must be solid, because the sauna heater weighs about 115 kg with stones.

The sauna heater is levelled by the adjustable legs.

The heater is attached directly to the walls in a corner using the metal connectors supplied with the heater. Components to secure the heater to the wall and floor are supplied with the heater.

Walls or ceilings must not be clad with fibre-reinforced plaster board or other light-weight cladding, because they may cause a fire hazard.

Only a single sauna heater is allowed per sauna room.

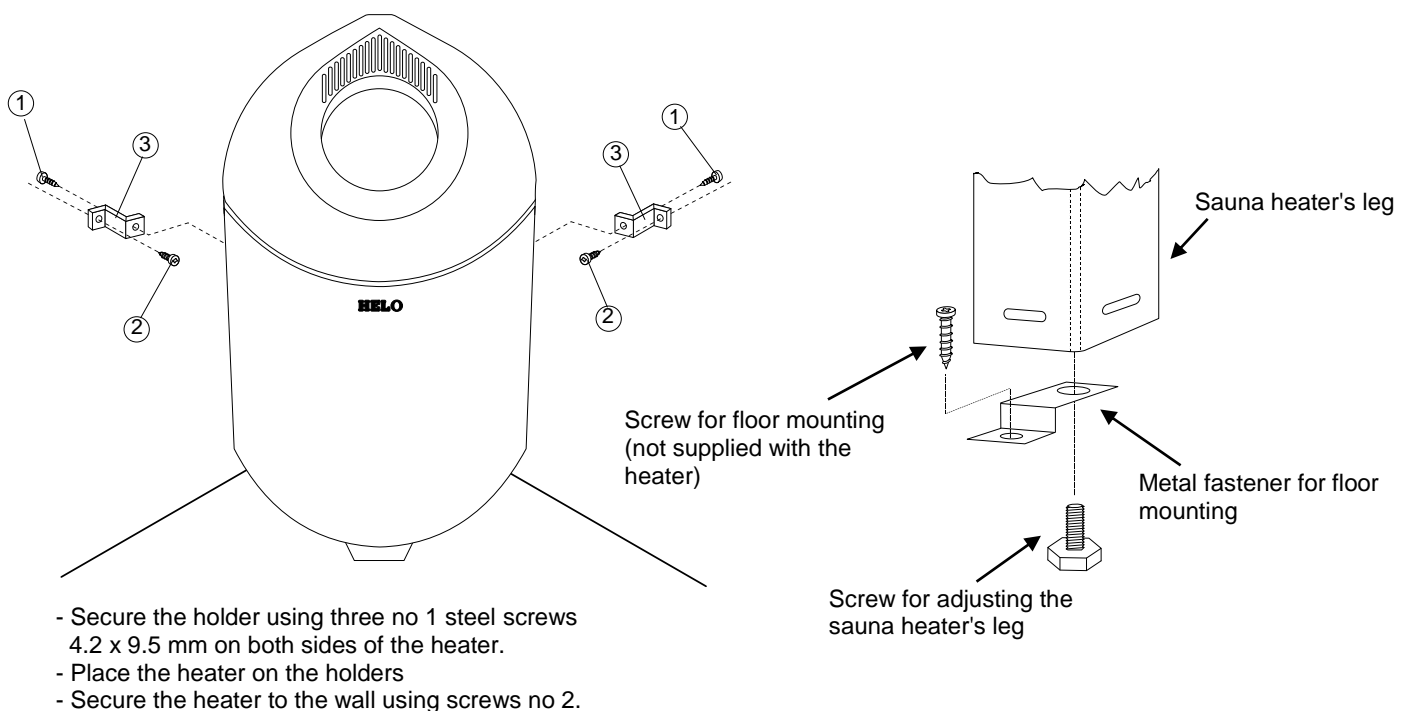


Figure 2 Sauna heater installation

2.9. Sauna heater safety clearances

Output	Sauna room		Heater minimum clearances			Amount of stones
kW	Volyme		min. mm	From front to sauan bench A mm	To ceiling mm	In kg. approx
	min. m³	max. m³				
4,5	3	6	1900	40	900	80
6,5	5	10	1900	150	900	80
9,0	9	14	1900	150	900	80

Table 1 Safety clearances

The OLET 31 sensor is installed 135 mm from the corner and 40 mm from the ceiling on a wall.
The heater must be secured to the ceiling or floor in order to keep the safety distances the same.

X) Absolute measurement

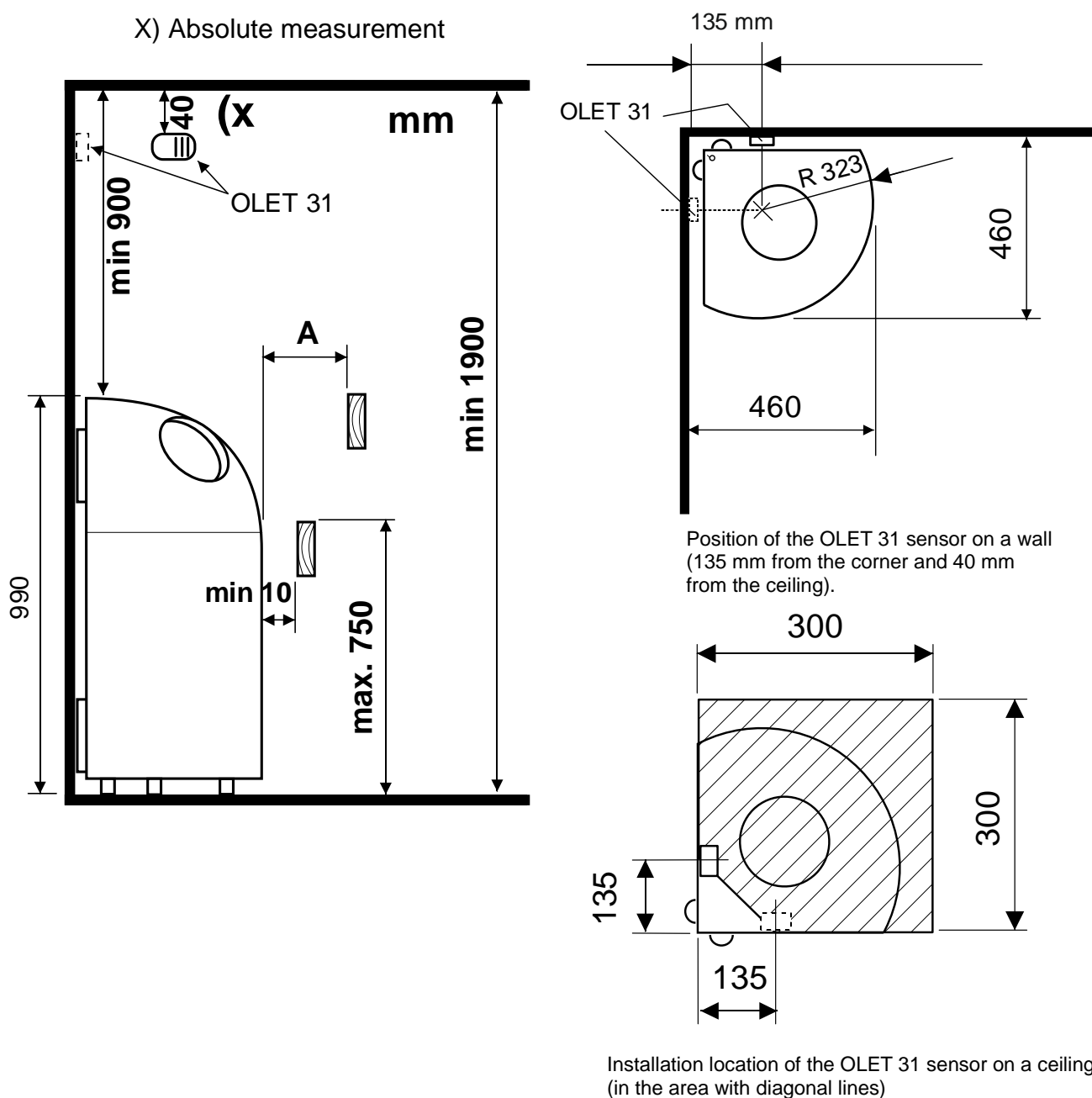


Figure 3 Safety clearances

2.10. Connection of the sauna heater to the mains

Power cable is connected to the port underneath the triangular panel on the back of the Pikkutonttu heater. The OLET 31 sensor and the control panel cable are connected to the M20 circuit board on the bottom of the heater through the strain relief bushing.

Remove the nut and the rubber grommet from the strain relief bushing. Make a vertical split in the spot where the lead-in rubber grommet aligns with the hole. Insert the RJ10 connectors and cables of the control panel and the OLET 31 sensor through the strain relief bushing. Tighten the strain relief bushing nipple.

The sauna heater must be connected to the mains by a qualified electrician and in compliance with current regulations. The sauna heater is connected with a semi-permanent connection. Use H07RN-F (60245 IEC 66) cables or a corresponding type. Other output cables (signal lamp, electric heating toggle) must also adhere to these recommendations. Do not use PVC insulated cable as a connection cable for the sauna heater.

A multipolar (e.g. 7-pole) cable is allowed, if the voltage is the same. In the absence of a separate control current fuse, the diameter of all cables must be the same, i.e. in accordance with the front fuse.

The connecting box on the sauna wall should be located within the minimum safety clearance specified for the sauna heater. The maximum height for the connection box is 500 mm from the floor. See page 9 Location the connection box

If the connection box is located at over 500mm distance from the heater, the maximum height is 1000mm from the floor.

Power kW	Sauna heater's connection cable H07RN -F/ 60245 IEC 66 mm ² 400V 3N~	Fuse A	Sauna heater's connection cable H07RN -F/ 60245 IEC 66 mm ² 230V 3~	Fuse A	Sauna heater's connection cable H07RN -F/ 60245 IEC 66 mm ² 230V 1 N~ / 2~	Fuse A
4,5	5 x 1,5	3 x 10	4 x 2,5	3 x 16	3 x 4	1 x 20
6,5	5 x 1,5	3 x 10	4 x 4	3 x 20	3 x 6	1 x 35
9,0	5 x 2,5	3 x 16	4 x 6	3 x 35	-----	-----

Table 2 Connection cable and fuses

NOTE: Controlling the lights in the sauna with the circuit board is only possible with resistive loads (incandescent light bulbs). The circuit board relay cannot withstand capacitive loads (switched-mode power supply units). If the lighting fixtures in the sauna have transformers, for example LED or halogen lamps, the stove circuit board's relay control must be fitted with a separate relay or contactor for controlling the lights.

Sauna heater insulation resistance:

The sauna heater heating elements may absorb moisture from air, e.g. during storage. This may cause leakage currents. The moisture will be gone after a few heating sessions. Do not connect the heater power supply through a ground fault interrupter.

However, adhere to the effective electrical safety regulation when installing the sauna heater.

2.11. Electric heating toggle

Electric heating toggle applies to homes with an electric heating system.

Sauna heater has connections (marked N-55) for controlling the electric heating toggle. Connectors N-55 and the heating elements are simultaneously live (230V). The sauna heater thermostat also controls the heating toggle. In other words, home heating turns on once the sauna thermostat cuts power off the sauna heater.

2.12. Locating the connecting box for the connection cable in the sauna room

A = Specified minimum safety clearance

1. Recommended location for the connecting box
2. Silumin box recommended in this area.
3. This area should be avoided. Always use a silumin box.

In other areas, use a heat-resisting box (T 125 °C) and heat-resisting cables (T 170 °C). The connection box must be clear of obstacles. When installing the connection box to zones 2 or 3, refer to the instructions and regulations of the local energy supplier.

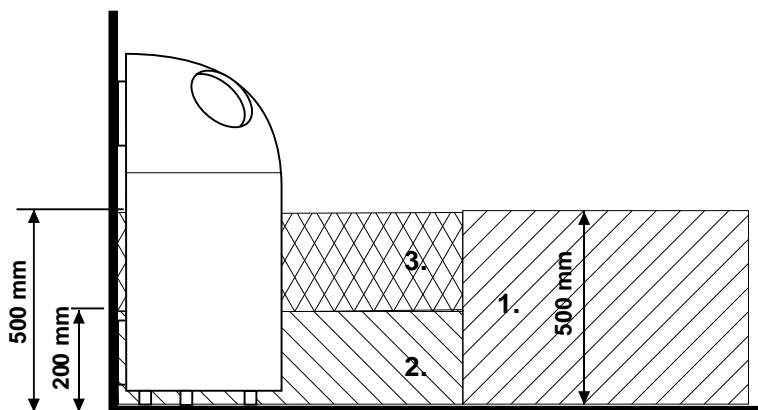


Figure 4 Location for the connection box

2.13. Remote controlling

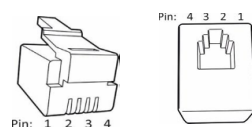
The sauna heater can be remote controlled by a push button or a closing contact (like a weekly timer or similar). The remote-control signal can be a momentary closing (impulse) or a closed contact which stays closed as long as the desired sauna time. Recommended cable size is AWG 24 (0,5mm²) or AWG 26 (0,14mm²). The maximum length for AWG 26 is 200m and for AWG 24 is it 130m.

Note! The sauna standard requires a door switch if the sauna heater is controlled from outside the sauna.

Accessory 0043233 Door switch kit.

An indicator light can be connected to the remote button terminal, it will be lit up when the remote command is activated. The indicator light shows an error by blinking rapidly, this error is caused by keeping the sauna door open for more than 5 minutes, the sauna heater will be shut down automatically.

The remotely operated sauna heater stays on as long as the setting in the control panel (in private us max 6h). The sauna heater can be shut off at any time by the remote-control device.



2.14. Order of RJ 10 connectors

NOTE: Incorrect connections may break a circuit board.

Additional sensor (NTC)			Remote control switch (Ext switch)			Door switch		
Pin 1			Pin 1			Pin 1		
Pin 2	NTC 10 kOhm	3.3 V	Pin 2			Pin 2	Alarm LED	GND
Pin 3	NTC 10 kOhm	CPU	Pin 3	To switch	GND	Pin 3	Door switch	GND
Pin 4			Pin 4	To switch	12 VDC	Pin 4	Door switch	12 VDC

Sensor (Sec/NTC)		
Pin 1	End stop	GND
Pin 2	NTC 10 kOhm	3.3 V
Pin 3	NTC 10 kOhm	CPU
Pin 4	End stop	10V

Table 3 Coupling order of RJ 10 connectors to circuit board

Control panel RJ 10 connectors



Figure 5 . Order of RJ 10 connectors.
Sensor, Door switch, Remote control, Additional NTC

2.15. Door switch

The door switch refers to the switch on the sauna door. This switch complies with regulations. Public and private saunas must have a door switch, i.e. saunas where the heater can be switched on from outside the sauna, e.g. using an On/Off button or a similar method.

If the door is opened before the heating sequence is started, (pre-set heating) automatic use (remote use) is disabled after one minute. The door must be closed and the function restarted from the control panel.

If the door has been left open for more than five minutes while the heater is on, the heater is automatically turned off. The heater can be turned on again from the control panel after the door is closed. The fault indicator light, if installed, will start flashing. See installation instructions below.

Door switch instructions for installation and connection

The door switch is installed outside the sauna room on the upper edge of the door, at least 300 mm from the inner corner. The switch part is installed on the door frame and the magnet is installed on the door. The distance between the switch and the magnet is 18 mm.

When the door switch is installed on the top part of the door, TylöHelo recommends using the TylöHelo model with product number 0043233, SSTL 8260371.

When the door switch is installed on the bottom part of the door, TylöHelo recommends using the TylöHelo model with product number SP11000326, SSTL 8263280

See the installation and user instructions for instructions.

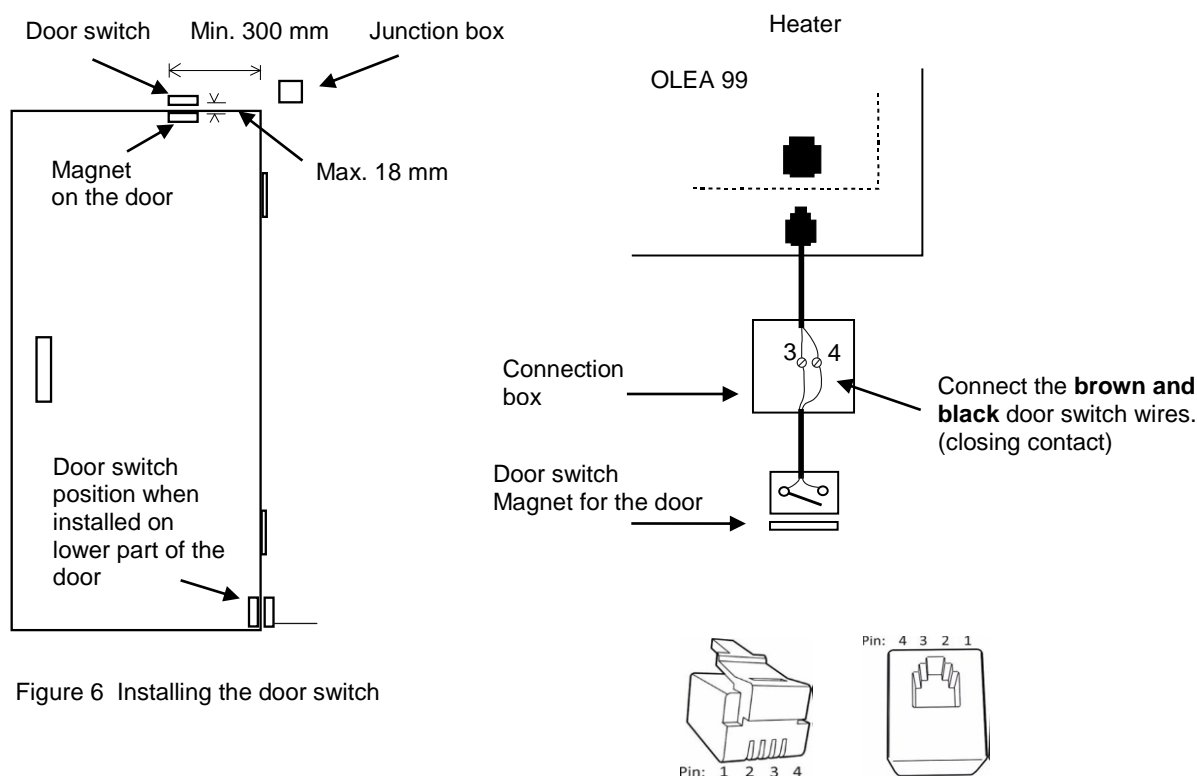


Figure 6 Installing the door switch

Figure 7. Pin – order of RJ 10

Door switch			Conductor colour
Pin 1			
Pin 2			
Pin 3	Door switch	GND	Orange
Pin 4	Door switch	12 VDC	Green/white

Table 4. Connecting the door switch.

2.16. Wiring diagram

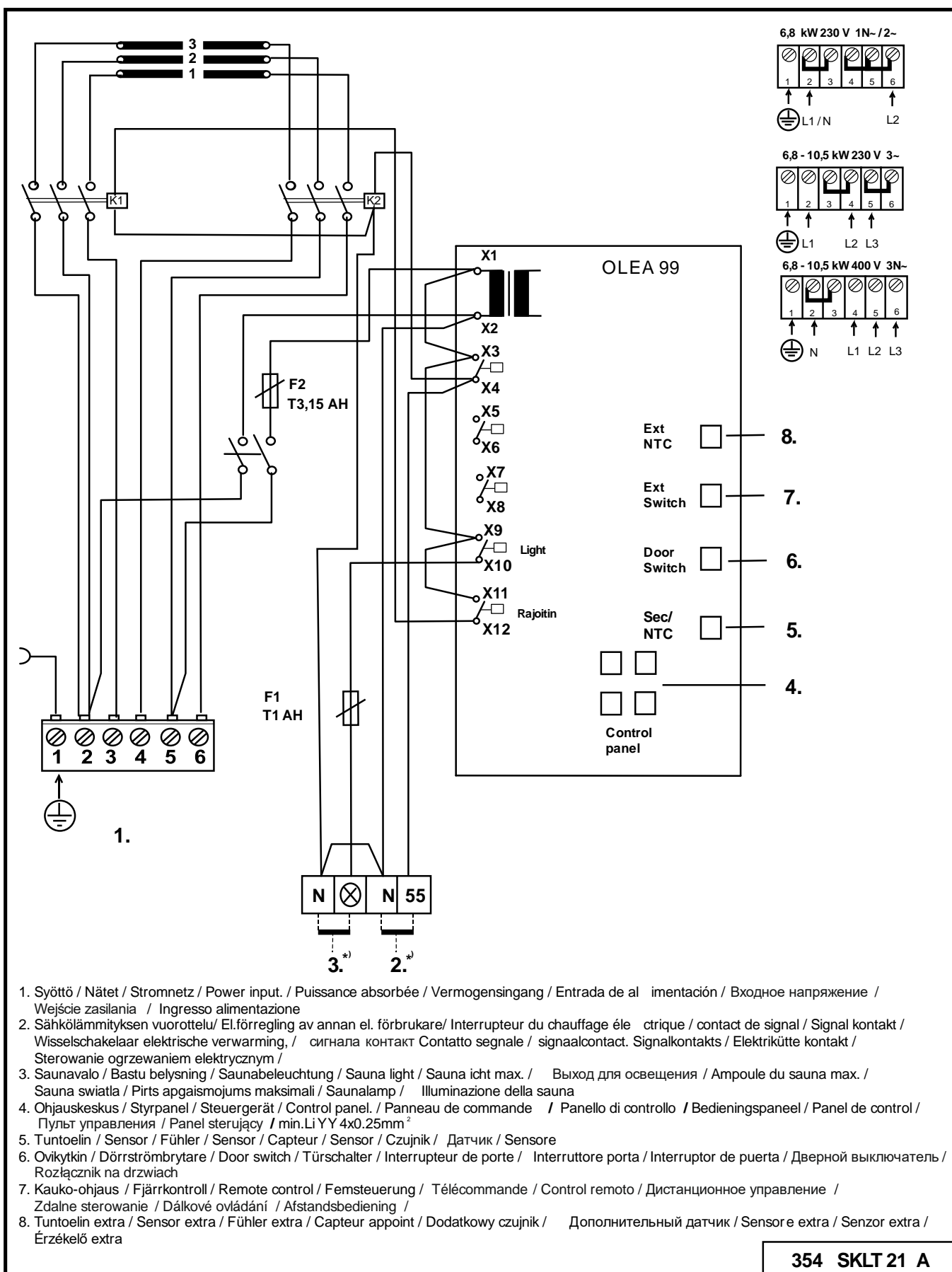


Figure 8 Wiring diagram for the sauna heater

2.17. Principle image when 1601 - 31 (RA - 31 Trend) is used as control panel

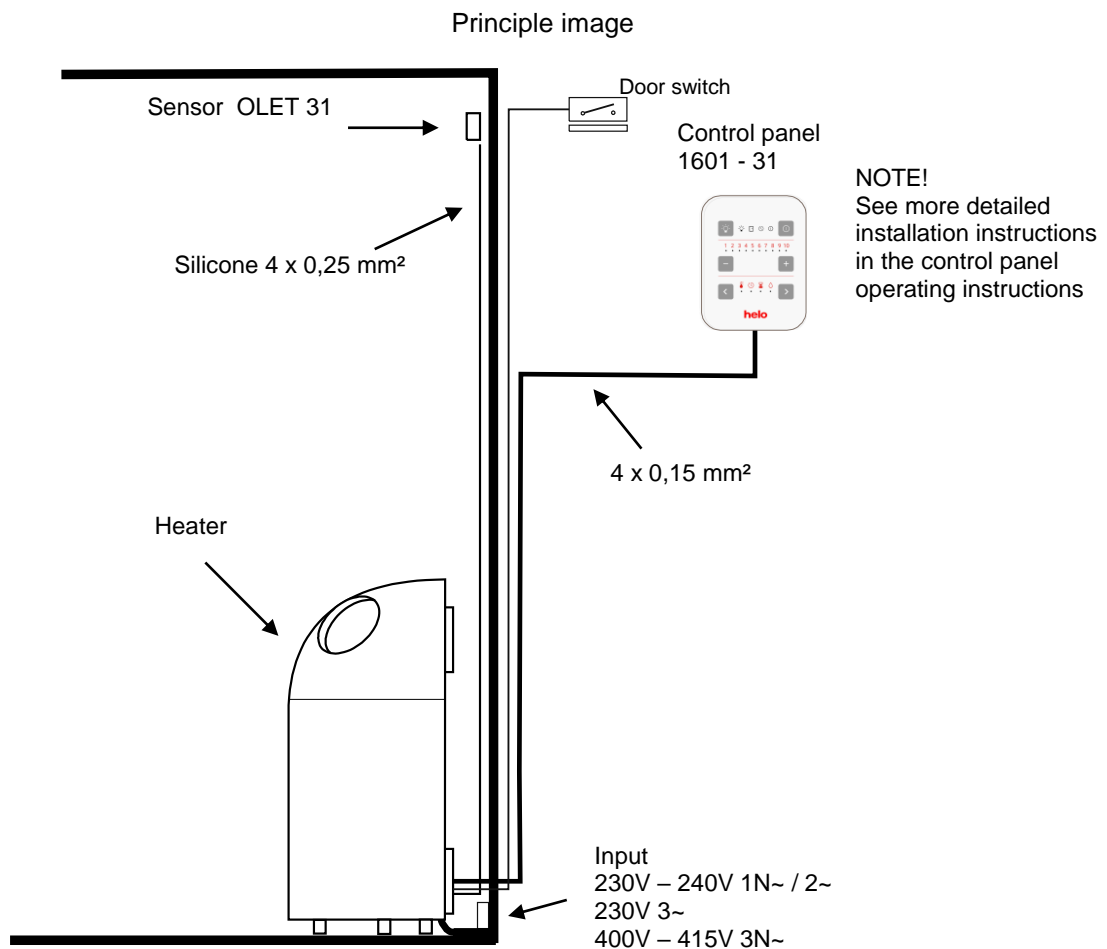
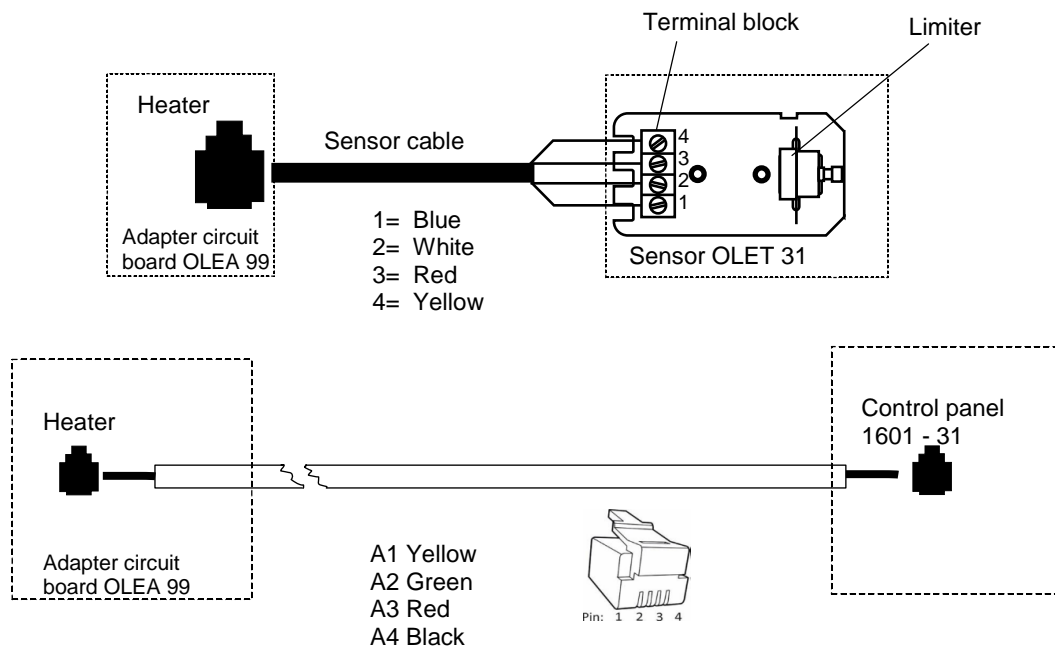


Figure 9 Principle image

3. Pikkutonttu Trend spare part list

Part	Part nummer	Part name	Pikkutonttu Trend 45	Pikkutonttu Trend 65	Pikkutonttu Trend 90
1	7712000	Cable clam	1	1	1
2	5916320	Circuit board OLEA 99	1	1	1
3	5716203	Finder relay	2	2	2
4	7801711	Fuse 1 AT	1	1	1
5	7801710	Fuse 3,15 AT	1	1	1
6	7817536	Fuse holder	2	2	2
7	6119650	Switch OARB 4	1	1	1
8	7306611	Rubber cover for rocker switch	1	1	1
9	5207780	Heating element SEPC 185 1500W / 230V	3		
9	5207781	Heating element SEPC 186 2170W / 230V		3	
9	5207782	Heating element SEPC 187 3000W / 230V			3
10	7513002	Screw M5 x 10	3	3	3

Table 5 Himalaya Trend spare parts list

4. ROHS

Instructions for environmental protection

This product must not be disposed with normal household waste at the end of its life cycle. Instead, it should be delivered to a collecting place for the recycling of electrical and electronic devices.

The symbol on the product, the instruction manual or the package refers to this.



The materials can be recycled according to the markings on them. By reusing, utilising the materials or by otherwise reusing old equipment, you make an important contribution for the protection of our environment. Please note that the product is returned to the recycling centre without any sauna rocks and soapstone cover.

Please contact the municipal administration with enquiries concerning the recycling place.