



**MONDEX®**



# INSTALLATION AND OPERATING INSTRUCTIONS

**Pipe C- and E-types**

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# 1. General safety information



For safe use of sauna, please read these safety instructions first!

Electrical connections can only be done by an electrician authorized to installation according to the current regulations.

The MONDEX electric heater is suitable for use in a family sauna, one (1) heater/sauna room. Keep the installation and operating instructions for further reference.

Always check the adequacy of fire protection distances!

Failure to observe the wiring instructions may result in a fire risk!

Always check the sauna room before turning the heater on!

Always check that the controller has switched off the poser after the set time period!

Due to the risk of fire, do not use the sauna as a drying room for clothes or laundry.

Be careful with the hot heater as the stones and metal parts become very hot and can cause burns.

Steam from the heater is burning hot and may cause burns.

It is recommended to supervise children, disabled and ill persons who are using the sauna.

Benches and floors may be slippery, therefore move in the sauna with caution.

Do not go to a hot sauna under the influence of narcotic substances (alcohol, drugs, narcotics, etc.)

If the heater's stone compartment does not have stones or is improperly filled there is a risk of fire!

Covering the heater causes a fire risk.

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This device is not intended for children or persons whose physical, sensory or mental capabilities, or lack of experience and knowledge prevents them from using the device safely, without the supervision of a person responsible for their safety or before they have been instructed on how to use the device.

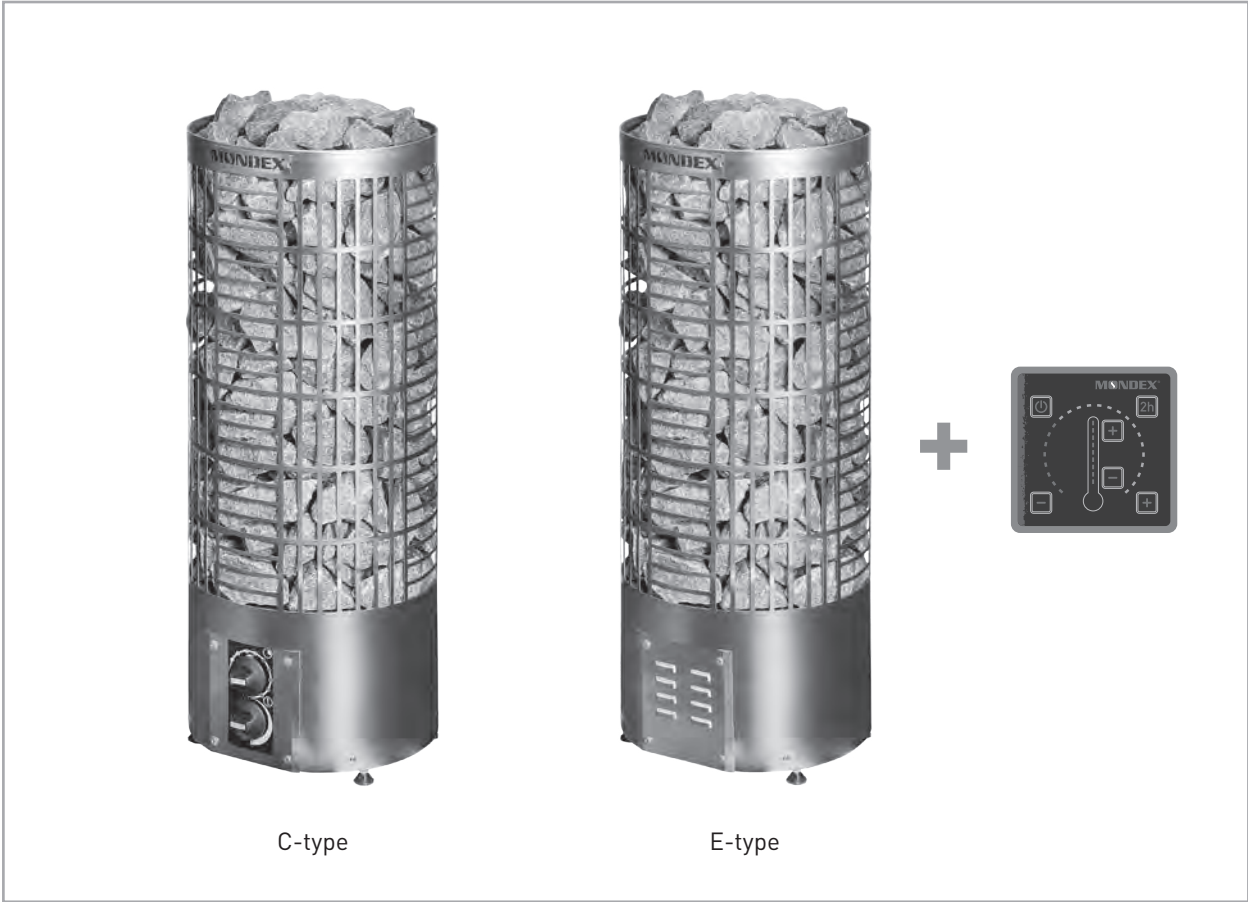
Children should be supervised to ensure that they do not play with the device.

This device complies with the requirements of:



Mondex pursues an active policy of product development and continuous improvement. For this reason, Mondex reserves the right to make changes relating to the design and technical specification of their products without prior notice.

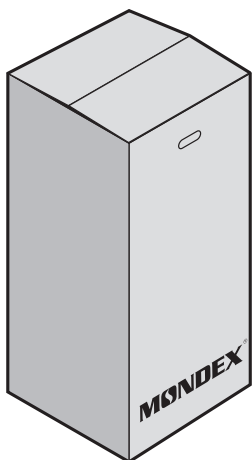
## 2. Pipe C- and E-types



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### 3. The assembly and installation of the heater

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- 1) The package includes the heater (E-type also an external control unit) and its user manual. Heater stones are not included.
- 2) Inspect the heater visually. If you notice any discrepancies, please contact the store from where you purchased the heater or [info@mondex.fi](mailto:info@mondex.fi)
- 3) The sauna's floor surface should be properly protected before beginning of the installation.
- 4) The electrician connects the wires before the heater is installed to its place. During the heater's installation observe the safety distances between the heater and any inflammable material as in Table 4.4. (see pg 7) as well as the heater's power rating according to Table 4.1 (see pg 6).
- 5) The heater should be installed on the floor and its feet should be adjusted so that the heater is upright.

#### Stacking of the stones

**Note!** Use regular olivine diabase, peridotite or olivine heater stones of less than 10 cm  $\varnothing$  in the PIPE heater. It is recommended to use protective gloves when stacking the stones. The heater stones should be stacked so that the resistors are not touching each other. The resistors should never be bended so that they would touch the metal structures of the heater.

The heater's area for stones should be entirely filled with stones, including the internal parts of the resistor column. The stones should be stacked in layers starting from the bottom of the heater. Continue filling the area step-by-step in this manner until all of the stones have been placed.

When stacking the stones, please do not batter on the heater's metal surfaces in order to avoid damage. Dents caused by the user are not covered by the manufacturer's warranty or other product liability.

## 4. Technical information

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### The power and connections of the heater

Heater	Pipe 6,6	Pipe 9,0	Pipe 10,5
Power kW	6,6	9,0	10,5
Voltage	400 V 3N	400 V 3N	400 V 3N
Connecting cable	5 x 1,5 mm <sup>2</sup>	5 x 2,5 mm <sup>2</sup>	5 x 2,5 mm <sup>2</sup>
Fuse	3 x 10 A	3 x 16 A	3 x 16 A
Size of the sauna	6 - 9 m <sup>3</sup>	8 - 15 m <sup>3</sup>	12 - 22 m <sup>3</sup>

Table 4.1

### Heater dimensions (mm)

Model	Diameter	Height
Pipe 6,6	320	850
Pipe 9,0	320	850
Pipe 10,5	370	1100

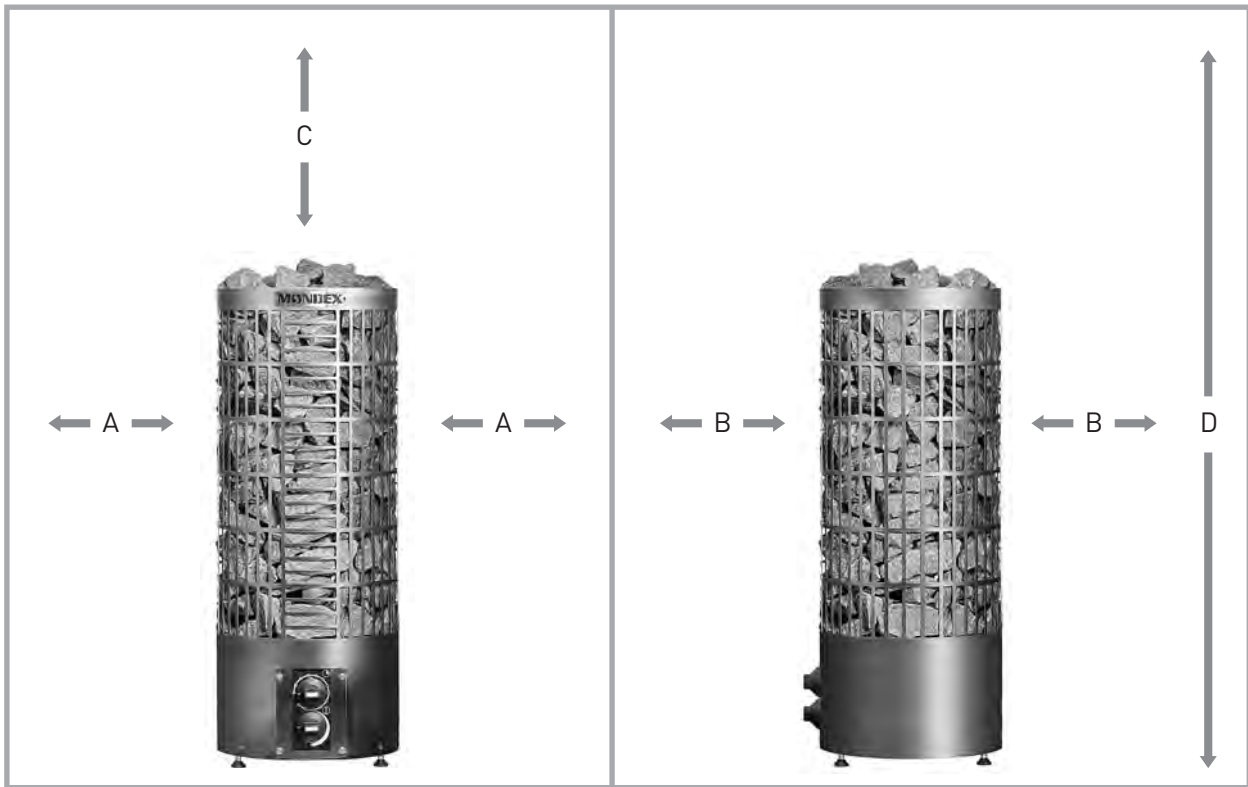
Table 4.2

### Amount of stones

Model	Stone amount (kg)
Pipe 6,6	80
Pipe 9,0	80
Pipe 10,5	140

Table 4.3

Minimum distances to inflammable material (mm)



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Model	A	B	C	D	Size of the sauna
Pipe 6,6	100	100	770	1900	6-9 m <sup>3</sup>
Pipe 9,0	120	120	770	1900	8-15 m <sup>3</sup>
Pipe 10,5	180	180	900	2000	12-22 m <sup>3</sup>

Table 4.4 Minimum distances to inflammable material (mm)

## 5. General instructions for the Pipe heater users

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### Attention!

The electrical connections may only be done by an electrician authorized to installation according to the current regulations. The Pipe electric heater is suitable for use in a family sauna, one (1) heater per sauna room. Keep the installation and operation instructions for future reference.

### Installation cable

Use rubber cable H07RN-F as a connecting cable.

### Additional connection options

Control of electric heating with the heater: The electric heating control cable is brought directly to the heater's junction box and then further to the heater's terminal block with a rubber cable that is dimensionally identical to (as strong as) the incoming cable.

**NOTE! Failure to observe the wiring instructions may result in a fire risk!**

**NOTE! Remove all plastic foils before beginning to use the heater!**

## 6. Consider the following when using the heater

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### First heating

During the first heating the resistors can emit fumes. Therefore ensure that the room is properly ventilated. NOTE! See also the first time use of type E on p. 14!

### Sauna room

Always check the sauna room before turning the heater on! Always make sure that the timer has switched off the power after the set time period!

### Temperature control

The desired temperature can be set either by a mechanical thermostat (see page 10 types C) or through the control panel (see page 14 E types). The actual heating time is dependent on the sauna's dimensions, structure and thermal insulation. The temperature in the sauna room can be maintained at the desired level with a thermostat. Should the temperature of the sauna room, for any reason, become dangerously high, the automatic temperature overheat protector will turn off power from the heater. **Always find out the cause of overheating.** The power can be turned on again by pressing the overheat protector reset button (see page 10 types C and page 14 types E).

### Heating time

Heating the sauna too long consumes energy and does not improve the steaming properties. The best steam is achieved by keeping the sauna's heating time relatively short, about 30-60 min. according to the size of the sauna and the heater's power. The size of the sauna, glass doors, windows, or materials used may increase the heating time.

### Water thrown on heater

We recommend using hand-warm water. The water used for throwing on the heater should be household fresh water. Smoother steam can be achieved by throwing the water to the heater sides / lower stones. If you want tougher and more aggressive steams, pour plenty of hot water all at once on the heater.



## Sauna room structure

The sauna, and especially its roof, should have good thermal insulation, as the steam tends to escape through the roof. Due to moisture we recommend using aluminium foil. The heater is dimensioned according to the sauna space.

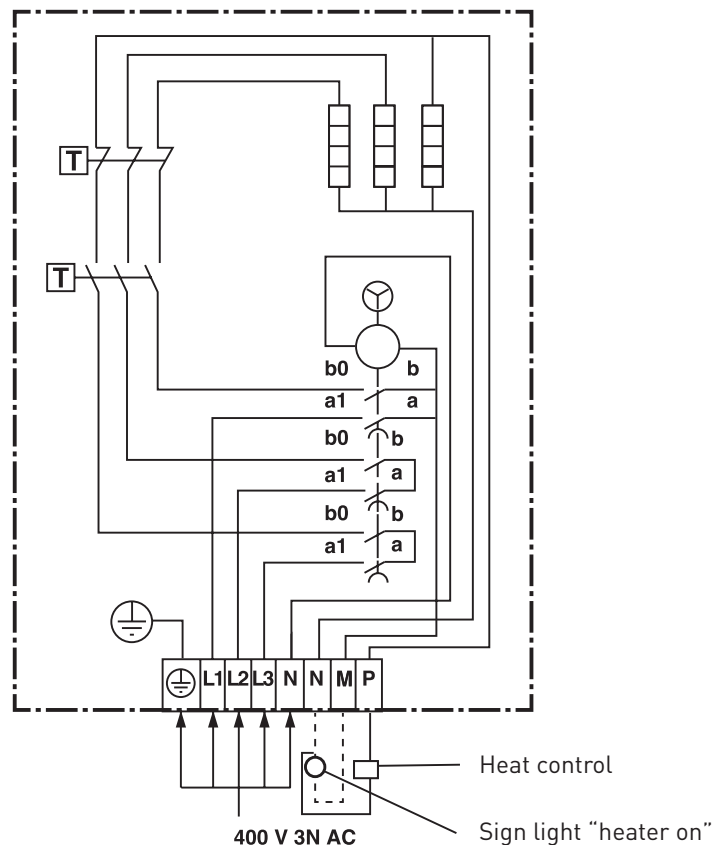
In addition to the conventional sauna structure (wool insulation, foil, timber), the power consumption is also affected by the following; if the sauna has walls made of uninsulated stone, tile or concrete surfaces or timber, the heater power should be slightly increased.

The heater power need (kW) increases for every uninsulated square meter the same amount as if increasing space by 1.2 m<sup>3</sup> and on timber surfaces by 1.5 m<sup>3</sup>. Also the glass surfaces (glass walls, doors and uninsulated stone surfaces) are calculated as 1.2 m<sup>3</sup> per square meter. Choose a higher-powered heater in borderline cases.

The sauna needs to have an efficient ventilation in order to achieve a good oxygen level and get fresh air. The air change rate needs to be at least 6 times per hour. For a sauna with an electric heater, the most convenient ventilation is mechanical. We recommend to place the valved fresh air tube above the heater (min 50 cm) either on the wall or in the roof. The exhaust valve should be placed as far away from the heater and as close to the floor level as possible. An option is to lead the exhaust air below the sauna door into the wash room. In that case there has to be a minimum 50 mm opening between the door and the floor. It is highly recommendable to install an exhaust air valve in the roof, through which moisture exits after the sauna session.

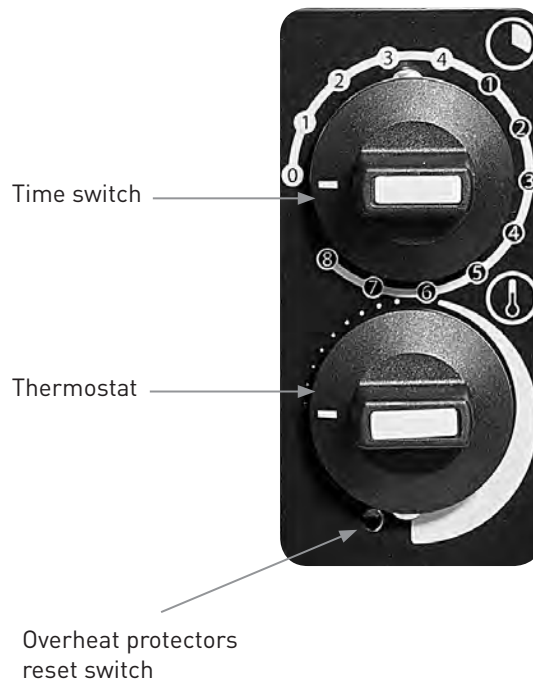
For more information, see the construction guidelines and building regulations.

## 7. Wiring diagram C-type (fixed control)



## 8. The operation of the clock timer and thermostat of the C-type

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The time switch (4+8 h) operates as the heater's main switch. After the desired time the time switch automatically turns the power off from the heater. If you wish the heater to warm up after a set time, you can set the timer to start the warm-up after 1-8 hours. The maximum warm-up time is 4 hours.

### Example:

If you wish to go to the sauna as soon as possible, set the time switch between 1 and 4. The heater switches on immediately and begins to warm up. The desired temperature can be set by turning the thermostat.

If you wish to go to the sauna in three hours, set the timer to 2 on the time switch 1-8. The timer starts and the power will be turned on and the heater will start to warm up after two hours.

When power has been turned on, the heater will remain on for up to 4 hours. After this power will be turned off automatically. If desired, power can be switched off earlier by turning the time switch to zero (0).

**Always make sure that the time switch has turned power off after the set time period!**

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### Additional connection options

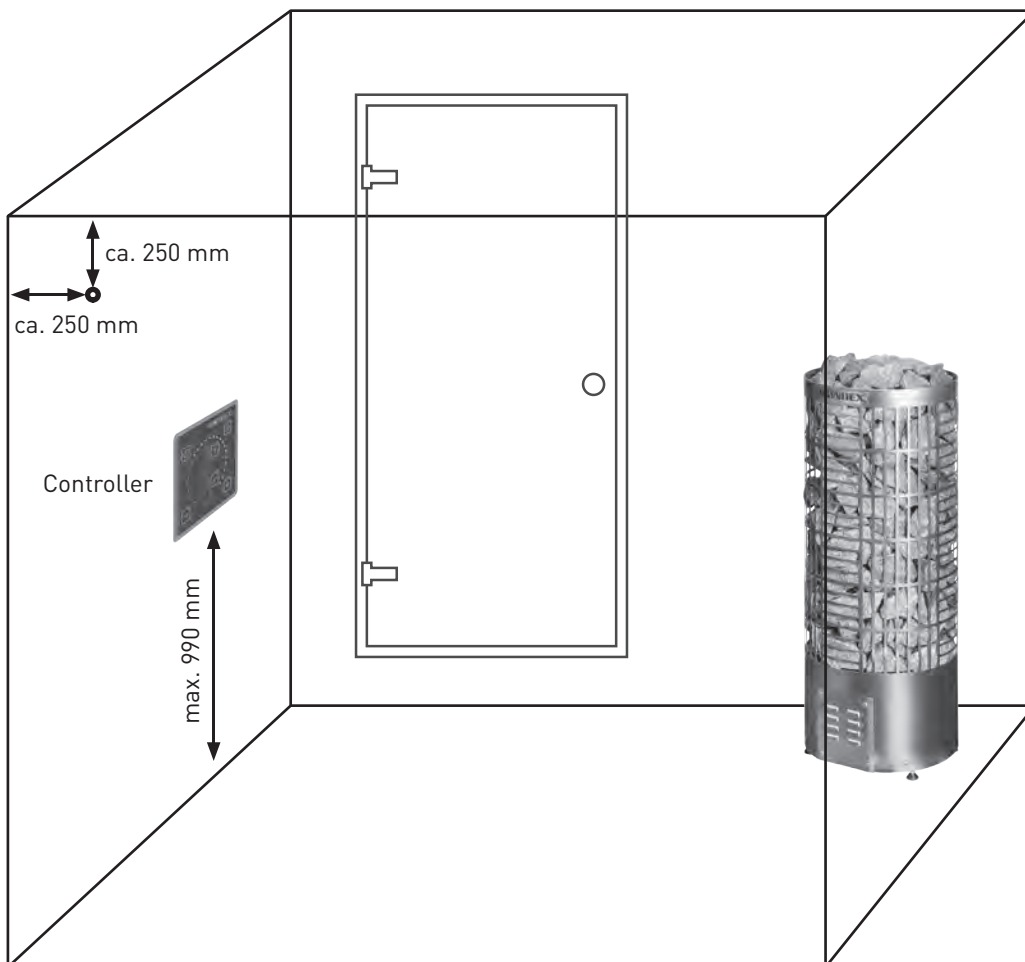
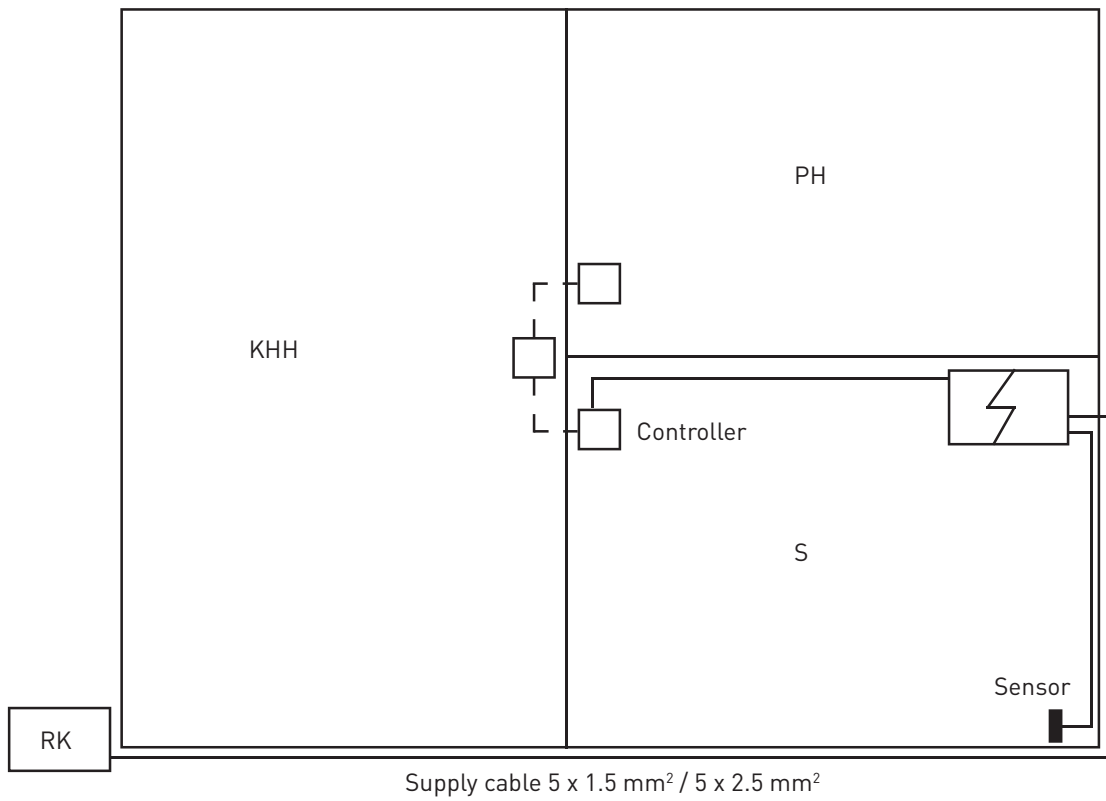
#### Wiring a signal light outside the sauna room:

The H07RN-F cable should be used as connection cable and its cross-sectional area should be the same as that of the connecting cable

#### Control of electric heating with the heater:

The electric heating control cable should be brought directly to the heater's junction box and then further to the heater's terminal block with a rubber cable as strong as the connecting cable.

## 9. Installation instructions E-type



## Installation of the external control and sensor

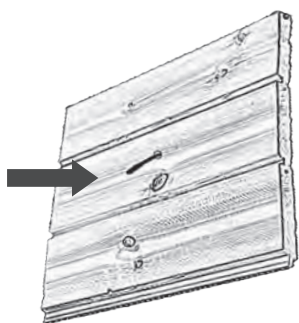
E-type heater includes:



External control



Sensor



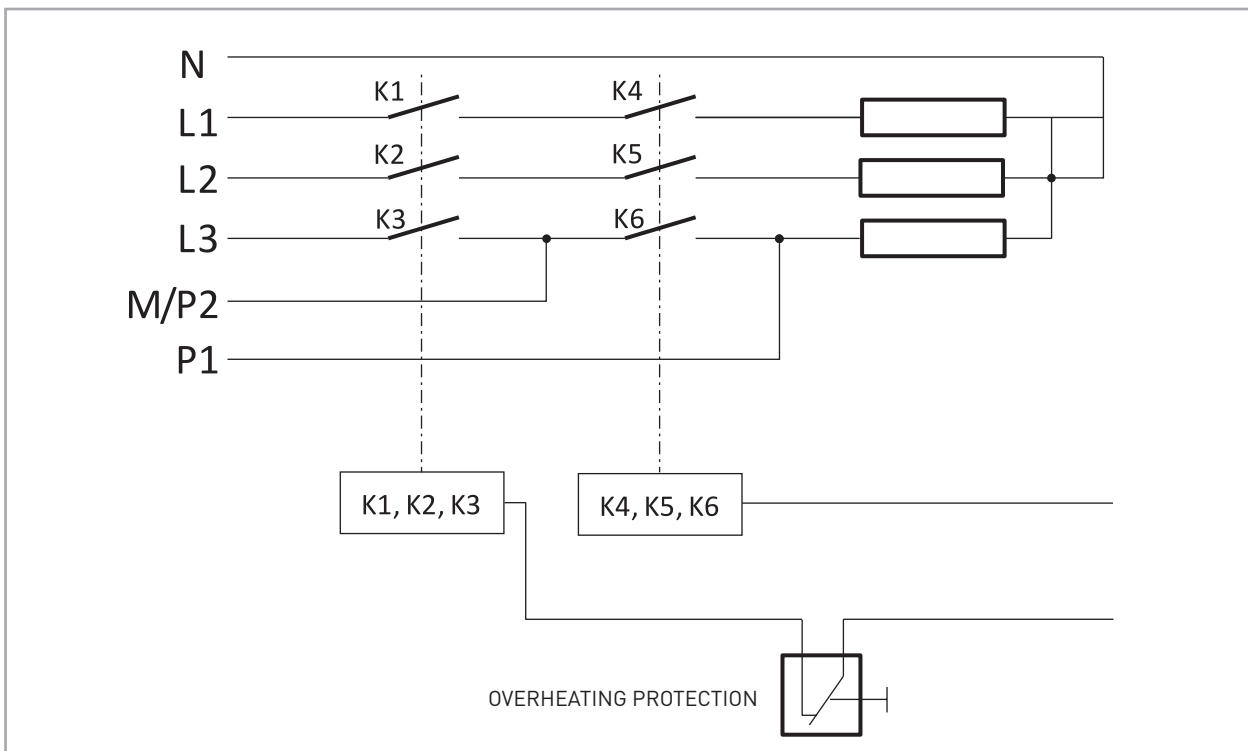
Drill a 3,5 mm hole to the panel and then bring it to the wiring panel. The sensor should remain visible for ca 10 mm. When needed, the sensor can be fixed into the hole, for instance with a small drop of silicone adhesive. The sensor cable measures 6 m. Cut the excess wire and connect the other end to the heater.



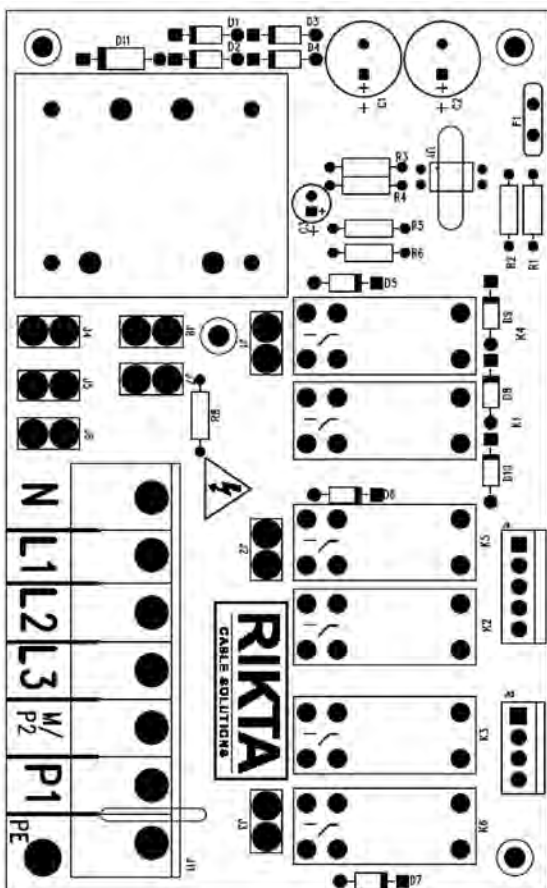
The wall mounting plate is either mounted with three screws to the wall or fixed to the bottom of the mounting box. The mounting plate is covered with a cover plate and finally with the control panel. The mounting cable is 8 m. Cut the extra cable and connect the other end to the heater. When installing the control panel, make sure that the cables are not detached or deformed.

**Note!** Remove the plastic protection foil of the control panel before using the heater.

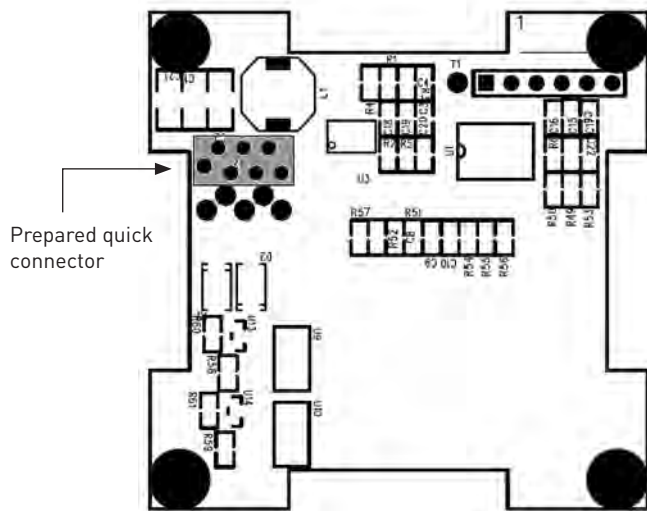
## 10. Wiring diagram E-type



Connecting the controller card in the heater

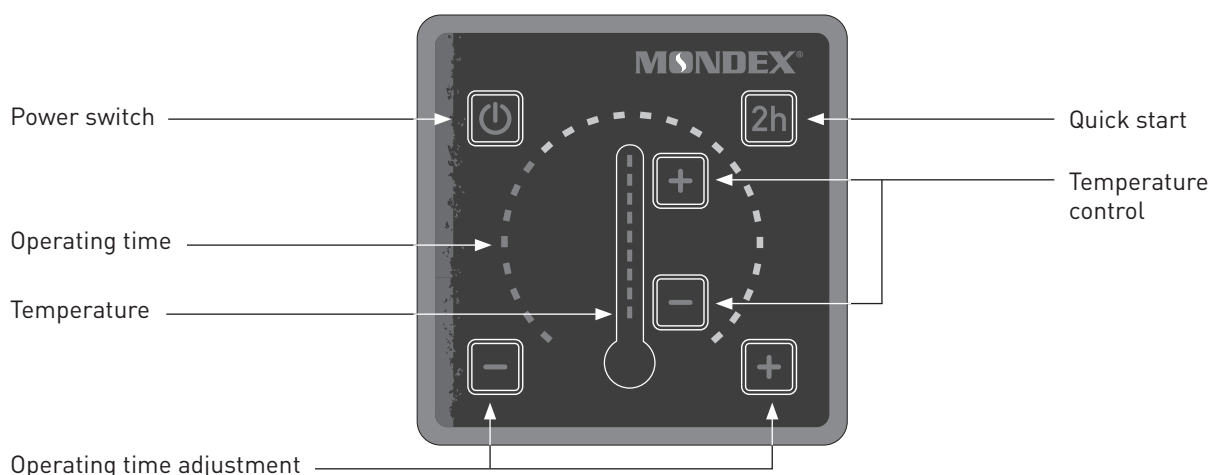


Connecting the controller card in the controller



- White
  - Grey
  - Green
  - Blue
  - Red
- To the controller
- White
  - White
  - Black
  - Black
- To the overheating protection
- White
  - Black
  - Black
- To the thermal sensor

## 11. Control and operation of the heater E-type



The heater is operated by adjusting its operating time and temperature, and then by switching the heater on from the power switch.

**Normal start:** Select the operating time with control buttons.



Operating time is displayed in light studs.  
One light equals 30 min.  
Maximum operating time is 4h.



**Quick start:** Push the quick start button.  
The heater will remain on for two hours.



**Temperature control:** Set the desired temperature with control buttons.



One light stud affects the temperature by ca. 5°C.



**Heater start-up:** When the operating time and temperature have been set, turn on the heater from the power switch. **NOTE!** In case the power switch has not been pressed, the controller lights will be blinking. **NOTE!** The heater memorizes the previous temperature setting.



**Scheduling the heater:** The heater can be scheduled to start after 30 min – 8 h. After this the heater will stay on for 4 h.

- Keep the operating time controller pressed until the red lights turn off.
- After this the light studs will turn blue and each light represents 30 min of time.
- Select the desired temperature for the sauna with the temperature control buttons.
- You can turn off the heater at any time by pressing the power switch.



### First time use of the heater/calibration

Set the temperature from the temperature control 2 leds from below. Push the quick-start button (2h). Put the heater on from the left upper corner power switch. When 2 hours have passed or the blue led at the down right hand corner has turned off, the heater

is calibrated. Do not open the sauna door during the calibration. During the calibration the heater adjusts to heat itself optimally according to the volume of the sauna. After the calibration the heater can be used normally.

### Resetting the heater

Turn off the main switch of the heater (located on the right hand lower side of the heater). Press the temperature + and - buttons of the control unit at the same time. Put the main switch of the heater on again by pressing the + and - buttons at the same time. Now the heater is ready for a new calibration. Look at the instructions about calibration at the "First-time use of the heater."

### Error codes

In case of an error in the heater, the electronics turn off the heating elements and notifies the controller of the failure with blue lights as follows:

4. lower light:

**Relay fault**

3. lower light:

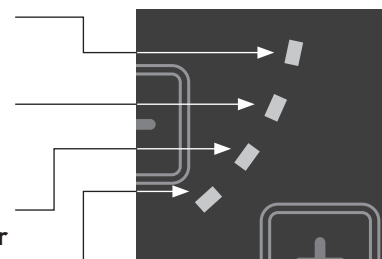
**Short circuit of the thermal sensor**

2. lower light:

**Contact failure of the thermal sensor**

1. lower light:

**Calibration status**



### Temperature limiter

The temperature limiter reset button is located above the heater's main power switch under a protective cap. Open the cap by turning it. The red reset button located under the cap is 3,5 mm thick.

## 12. Troubleshooting

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### In case the heater does not warm up

- Is the power on?
- Has the temperature limiter tripped ? → This is reset by pressing the temperature limiter reset switch with a thin-headed object until a click is heard. Always find out the reason for the temperature limiter tripping before the unit is switched on again.
- Has the time switch been turned to the point where the heater should warm up?
- Are the heater's main fuses in the electrical unit intact?
- Has the thermostat been set to higher values than the sauna temperature?
- Has the time switch stopped or got stuck (for instance in the front panel)?  
→ The suitable gap is 1-2 mm.
- Check that all the resistors are glowing when the heater is on.
- Check the error codes in Models E.

If necessary, contact the dealer or manufacturer.

### Warnings

- Due to the fire risk do not use the sauna as a drying room for clothes or laundry.
- Be careful with the hot heater as the stones and metal parts become very hot and can cause burns.
- Steam from the heater is burning hot and may cause severe burns.
- It is recommended to supervise children, disabled and ill persons who are using the sauna.
- Benches and floors may be slippery, therefore move in the sauna with caution.
- Do not go to a hot sauna under the influence of narcotic substances (alcohol, drugs, narcotics, etc.).

### Warranty

For heaters and control units in private use, the manufacturer Mondex Oy, grants a warranty of two (2) years from date of purchase. The warranty is limited to (1) year if these products are in commercial use. Keep the sales receipt or warranty card. The warranty does not cover external or internal mechanical damage caused by, for example, impacts with a stone or the heater falling over. Nor does the warranty cover defects caused by nature, like lighting or damages caused by overvoltage.

### Maintenance, spare parts

If insolvable faults appear in the heater, please contact the manufacturer or an authorized service centre. Spare parts are available from the MONDEX distributors, service centre and manufacturer. When purchasing spare parts, please refer to the name and power of the heater, so that the right parts can be supplied.

### Natural stone as material

Small pebbles or pieces may come off the natural stone used in the heater. As this is not a failure of the organic material but its natural feature that cannot be predicted at the time of manufacturing the product, the manufacturer is not responsible for any damage resulting from this.

### Changing the sauna stones

It is important to keep an eye on the stove and the condition of the stones at regular intervals. The top layer of the stones may seem in good condition, but further down the stones are exposed to much higher stress and temperatures. Crumbled stones block the flow of air through the heater which shortens the lifetime of the heating elements. Annually change the position of the stones and replace any broken pieces (in commercial use every 6 month). Warranty does not cover heating elements that brake before their normal lifetime due to above caused blocked air flow.

