HARVIA XENIO COMBI

CX30C-U1   Digital Control and Power Unit

EN Instructions for Installation and Use of Control Unit

For use with HLS VIRTA COMBI heater

ETL LISTED
CONFORMS TO
UL STD 875
CERTIFIED TO
CAN/CSA STD
E60335-2-53-05

Intertek
3159549

These instructions for installation and use are intended for owners of saunas, heaters and control units, persons in charge of managing saunas, heaters and control units, and for electricians responsible for installing heaters and control units. Once the control unit is installed, these instructions of installation and use are handed over to the owner of the sauna, heater and control unit, or to the person in charge of maintaining them. Congratulations on making an excellent choice and choosing a Harvia control unit!

HARVIA XENIO CONTROL UNIT CX30C-U1

Control unit's purpose of use: The control unit is meant for controlling the functions of an electric sauna heater and steamer, or a Combi heater, which is their combined version. It is not to be used for any other purpose.

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1. HARVIA XENIO

1.1. General

The Harvia Xenio control unit consists of a control panel, a power unit, a temperature sensor and a humidity sensor. See Figure 1.

The control unit regulates the temperature and humidity in the sauna room based on information given by the sensors. The temperature sensor and the overheat protector are located in the sensor box. The temperature is sensed by an NTC thermistor, and there is a resettable overheat protector (see section 3.5.).

The control unit can be used to delay the start of the heater and/or steamer (timer delay). See Figure 3d.

1.2. Technical Data

Control panel:
* Temperature adjustment range 104–194 °F (40–90 °C).
* Humidity adjustment range: 20–95 rH
* Timer delay time adjustment range 0–12 h.
* Lighting control, max. power 100 W, 120 V 1 Ph
* Fan control, max. power 100 W, 120 V 1 Ph
* Dimensions: 3 3/8" x 4 3/8" x 1" deep

Power unit:
* Supply voltage
  CX30C-U1: 240 V 1 Ph

  Max. load
  CX30C-U1: 12.7 kW/240V 1 Ph
  Dimensions: 10 1/2" x 14 1/4" x 3" deep

Sensor:
* The temperature sensor WX232 is equipped with a resettable overheat protector and a temperaturesensing NTC thermistor (22 kΩ/T=77 °F (25 °C)).

* The humidity sensor WX325 measures relative humidity.
* Dimensions: 2" x 3" x 1" deep

* Weight 175 g with wire, cable 13 ft. long. Cable may be ordered up to 82 ft. long but it should not be cut or spliced.
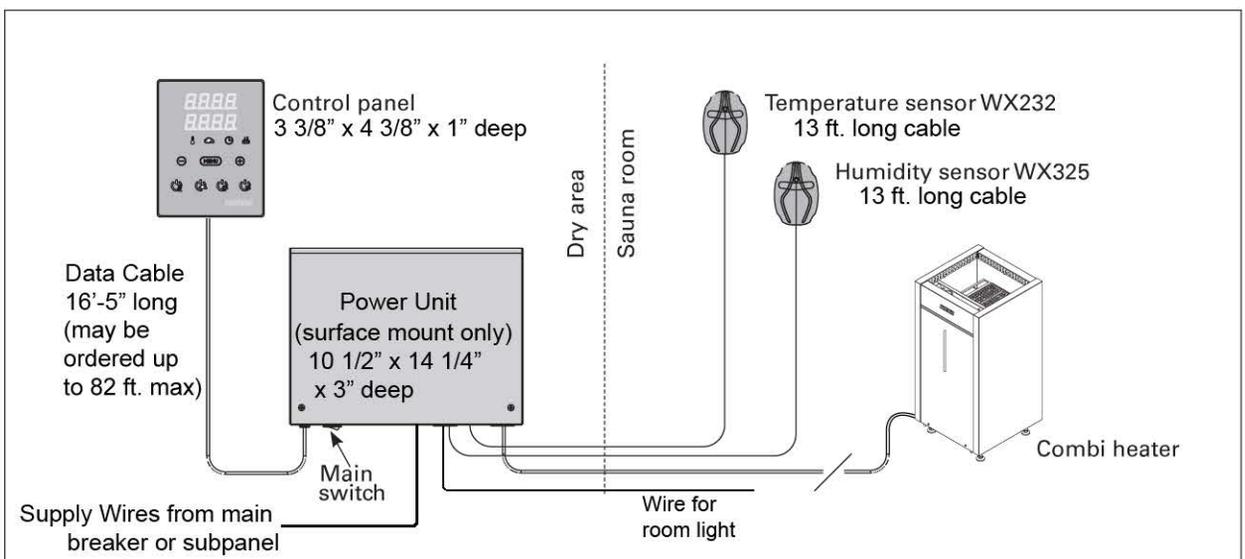

Figure 1. System components   Electrical wires to hook up power unit, sauna heater, and room light not provided.

1.3. Troubleshooting

If an error occurs, the power to the heater will be cut off and the control panel will show an error message "E (number)", which helps troubleshooting the cause of the error. Table 1.

Note! The overheat protector can be reset by user. All other maintenance must be done by licensed professional maintenance personnel. Control unit should not be opened by unlicensed personel.

If the heater does not heat properly, check heater grade from settings menu. See figure 3b.

	Description	Remedy
E1	Temperature sensor's measuring circuit broken.	Check the red and yellow wires to the temperature sensor and their connections (see Figures 6a and 6b) for faulties.
E2	Temperature sensor's measuring circuit short-circuited.	Check the red and yellow wires to the temperature sensor and their connections (see Figures 6a and 6b) for faulties.
E3	Overheat protector's measuring circuit broken.	Press the overheat protector's reset button (see section 3.5.). Check the blue and white wires to the temperature sensor and their connections (see Figures 6a and 6b) for faulties.
E6	Humidity sensor's temperature measuring component failure.	Check the brown and blue wires to the humidity sensor and their connections (see figures 6a and 6b) for faulties. Replace the sensor.
E7	Humidity sensor's humidity measuring component failure.	Check the brown and blue wires to the humidity sensor and their connections (see figures 6a and 6b) for faulties. Replace the sensor.
E8	Humidity sensor's humidity measuring circuit broken.	Check the brown and blue wires to the humidity sensor and their connections (see figures 6a and 6b) for faulties.
E9	Connection failure in the system.	Switch the power off from the main switch (figure 1). Check the data cable, sensor cable/s and their connections. Switch the power on.
	Water level low or steamer's overheat protector engaged. Water level warning light blinks.	Add water (manual filling models) or check the water supply (automatic filling models). Check the steamer's overheat protector. **See the steamer's or Combi heater's manual for more instructions and safety information.**

Table 1. Error messages. Note! The overheat protector can be reset by user. All other maintenance must be done by licensed professional maintenance personnel. No user-serviceable parts inside.

2. INSTRUCTIONS FOR USE

2.1. Using the Heater and the Steamer

WARNING! Before switching the heater on always check that there isn't anything on top of the heater or inside the given safety distance.

IMPORTANT ! Before switching the heater on for the first time, choose the right heater grade from the settings menu (SET 3). See figure 3b. See the right heater grade from the heater's type label, under "control unit grade settings".

The right heater grade must be chosen to pair the control unit and the heater. Right heater grade optimizes heater and ensures the best possible sauna experience.

2.1.1. Heater and/or Steamer On

Heater and steamer are switched on and off independently (only with the Harvia Xenio CX30C-U1 model).

Start the heater by pressing the I/O button on the control panel.

Start the steamer by pressing the steamer I/O button on the control panel.

When the heater and/or steamer starts, the display will show previously set values for five seconds. The shown values (temperature/humidity/on-time) differ depending on which devices are started.

When the desired temperature and/or humidity has been reached in the sauna room, the heating elements are automatically turned off. To maintain the desired temperature and/or humidity, the control unit will automatically turn the heating elements on and off in periods.

If the heater efficiency is suitable and the sauna has been built correctly, the sauna takes no more than an hour to warm up.

Display

Indicator lights

    Temperature
    Humidity
    On-time
    Water level warning

Menu and navigation buttons

    Value decrease *)
    Mode change
    Value increase *)

*) Press and hold to make the value change faster.

Operating buttons

    Heater on/off
    Steamer on/off
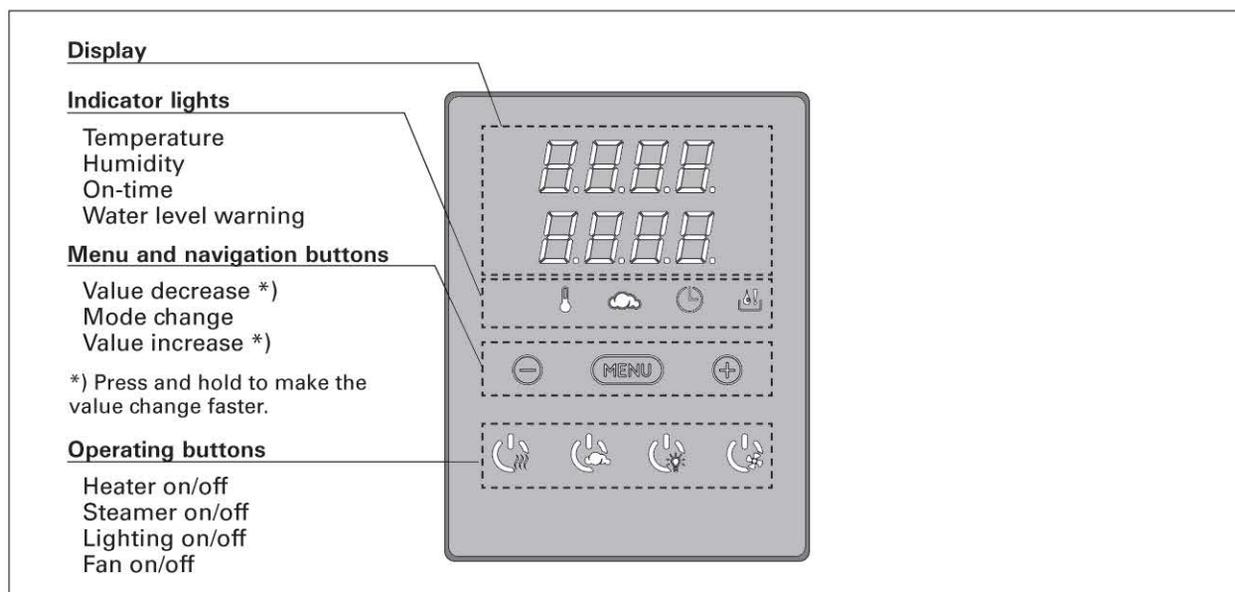   Lighting on/off
    Fan on/off

Figure 2.   Control panel

2.1.2. Heater and/or Steamer Off

The heater and/or steamer turn off and the control unit switches to standby-mode when

- the I/O button is pressed
- the on-time has elapsed or
- an error occurs.

If the water container runs empty, the steamer will be turned off, the water level warning light will blink and the display will show the text "OFF".

If the water level sensor develops a failure, the steamer's overheat protector will engage, the water level warning light will blink and the display will show the text "OFF".

NOTE! It is essential to check that the control unit has cut off power from the heater after the on-time has elapsed, the dehumidification has ended or the heater has been switched off manually.

2.1.3. Changing the Settings

The settings menu structure and changing the settings is shown in figure 3d.

The programmed temperature and humidity values and all values of additional settings are stored in memory and will also apply when the devices are switched on next time.

Note! The humidity value determines the maximum temperature in the sauna. The sum of temperature and humidity values can be 140 at maximum (temperature 60 °C + humidity 80 rH). This is due to safety reasons. If the steamer is activated and you try to set the temperature too high, the humidity value will blink in the display.

2.2. Using Accessories

Lighting and ventilation can be started and shut down separately from their own operating buttons.

2.2.1. Lighting

The lighting in the sauna room can be set up so that it can be controlled from the control panel. (Max 100 W.)

Switch the lights on/off by pressing the button on the control panel.

2.2.2. Ventilation

If there is a fan installed in the sauna room, it can be connected to the control unit and be controlled from the control panel.

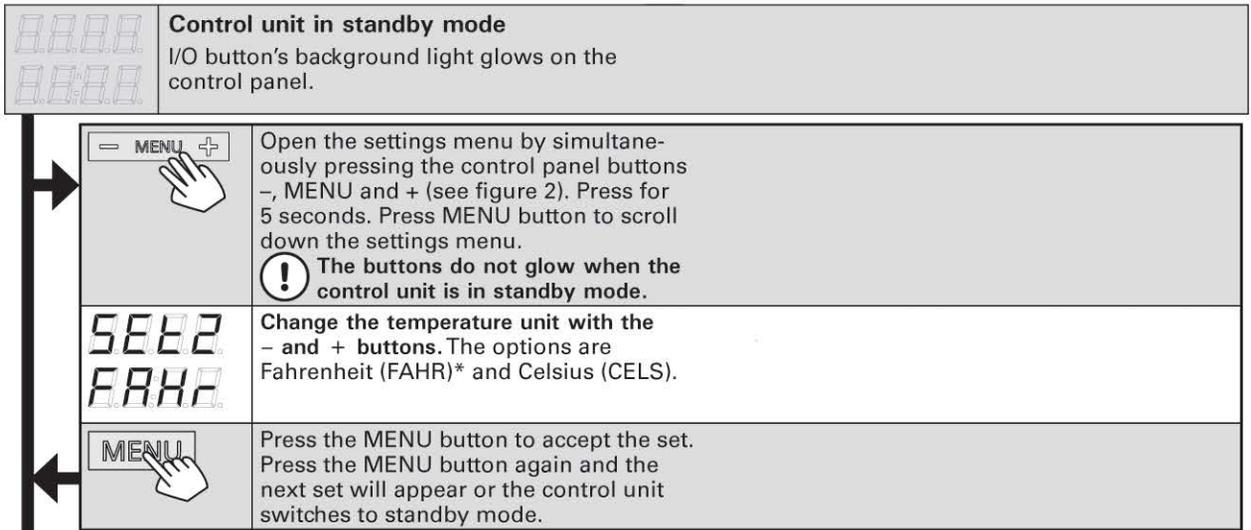Start/stop the fan by pressing the button on the control panel.

`88:88` `88:88`	**Control unit in standby mode** I/O button's background light glows on the control panel.
⊟ MENU ⊞	Open the settings menu by simultaneously pressing the control panel buttons –, MENU and + (see figure 2). Press for 5 seconds. Press MENU button to scroll down the settings menu. (!) **The buttons do not glow when the control unit is in standby mode.**
`SEt2` `FAHr`	**Change the temperature unit with the – and + buttons.** The options are Fahrenheit (FAHR)* and Celsius (CELS).
MENU	Press the MENU button to accept the set. Press the MENU button again and the next set will appear or the control unit switches to standby mode.

Figure 3a. Changing the temparerature unit

CONTROL UNIT GRADE SETTINGS

D4
FOR HL6, HL7, HL8, HL9
D2
FOR HL11

HEATER MODEL LABEL

`88:88` `88:88`	**Control unit in standby mode** I/O button's background light glows on the control panel.
⊟ MENU ⊞	Open the settings menu by simultaneously pressing the control panel buttons –, MENU and +. Press for 5 seconds.
`SEt3` `  b1`	**Heater grade** Heater grade can be changed with the - and + buttons. See the right grade from the heater's type label, under "control unit grade settings".
MENU	Press the MENU button to accept the set. Press the MENU button again and the next set will appear or the control unit switches to standby mode.

Figure 3b. Changing the heater grade (See section 2.1.)

`8.8.8.8.` `8.8.8.8.`	**Control unit in standby mode** I/O button's background light glows on the control panel.

➡ `— MENU ＋` 👆	Open the settings menu by simultaneously pressing the locations of the buttons –, MENU and +. Press for 5 seconds.
`5EE.Y` `8.0.F.F` `8.d.r.Y` `8.0:4.5` *Sauna dehumidifying in progress*	**Sauna dehumidifying interval** The sauna dehumidifying interval turns the fan on (If installed / accessory) and dries out the sauna room to keep it in a good condition. The sauna dehumidifying interval can be turned ON or OFF*). The interval will begin when the devices are switched off from the I/O buttons or when the set on-time runs out. The lenght of the interval is 45 minutes. When the time runs out, the fan turns off automatically. The interval can also be stopped manually at any time by pressing the I/O button.
⬅ `MENU` 👆	Press the MENU button to accept the set. Press the MENU button again and the next set will appear or the control unit switches to standby mode.

Figure 3c. Changing the Sauna dehumidifying interval

`120F` `50rH` 🌡️ ☁️ 🕐 ♨️	**Basic mode (heater and steamer on)** The top row shows the sauna room temperature. The bottom row shows the humidity level (or remaining on-time, if the steamer is not activated).

MENU 👆	Press the MENU button to open the settings menu.
`120F` `----` 🌡️(blink) ☁️ 🕐 ♨️	**Sauna room temperature (shown if the heater is activated)** The display shows the sauna room temperature setting. Temperature indicator light blinks. 🌡️ • **Change the setting to the desired temperature with the – and + buttons.** • The sum of temperature and humidity can be 140 at maximum (see chapter 2.1.3.)
MENU 👆	Press the MENU button to access the next setting.
`----` `50rH` 🌡️ ☁️(blink) 🕐 ♨️	**Sauna room humidity level (shown if the steamer is activated)** The display shows the sauna room humidity setting. Humidity indicator light blinks. ☁️ • **Change the setting to the desired humidity with the – and + buttons.** • The sum of temperature and humidity can be 140 at maximum (see chapter 2.1.3.)
MENU 👆	Press the MENU button to access the next setting.
`----` `0:40` 🌡️ ☁️ 🕐(blink) ♨️	**Remaining on-time** Press the – and + buttons to adjust the remaining on-time. 🕐 Example: the heater will be on for 40 minutes.

`E--3`(blink) `0:10` 🌡️ ☁️ 🕐(blink) ♨️	**Set the timer delay in remaining on time mode:**
	• **Press the + button to set the on time to maximum (1:00).**
	• **Press the + button to enter the timer delay mode.** The temperature indicator light switches off. 🌡️
	  Timer delay symbol blinks on the screen.
	  `E--3`
	• **Select the desired delay time using the – and + buttons.** The time changes in 10 minute steps. Press and hold the button to make the time change faster. The adjustment range is from 10 minutes to 12 hours.
	
	Example: the heater will start after 10 minutes.

MENU 👆	Press the MENU button to exit.

`E--3` `0:59` 🌡️ ☁️ 🕐 ♨️	**Basic mode (timer delay running, heater and steamer off)** The decrease of remaining delay time is shown until zero appears, after which the activated devices (heater and/or steamer) are switched on. The bottom row shows the remaining delay time.

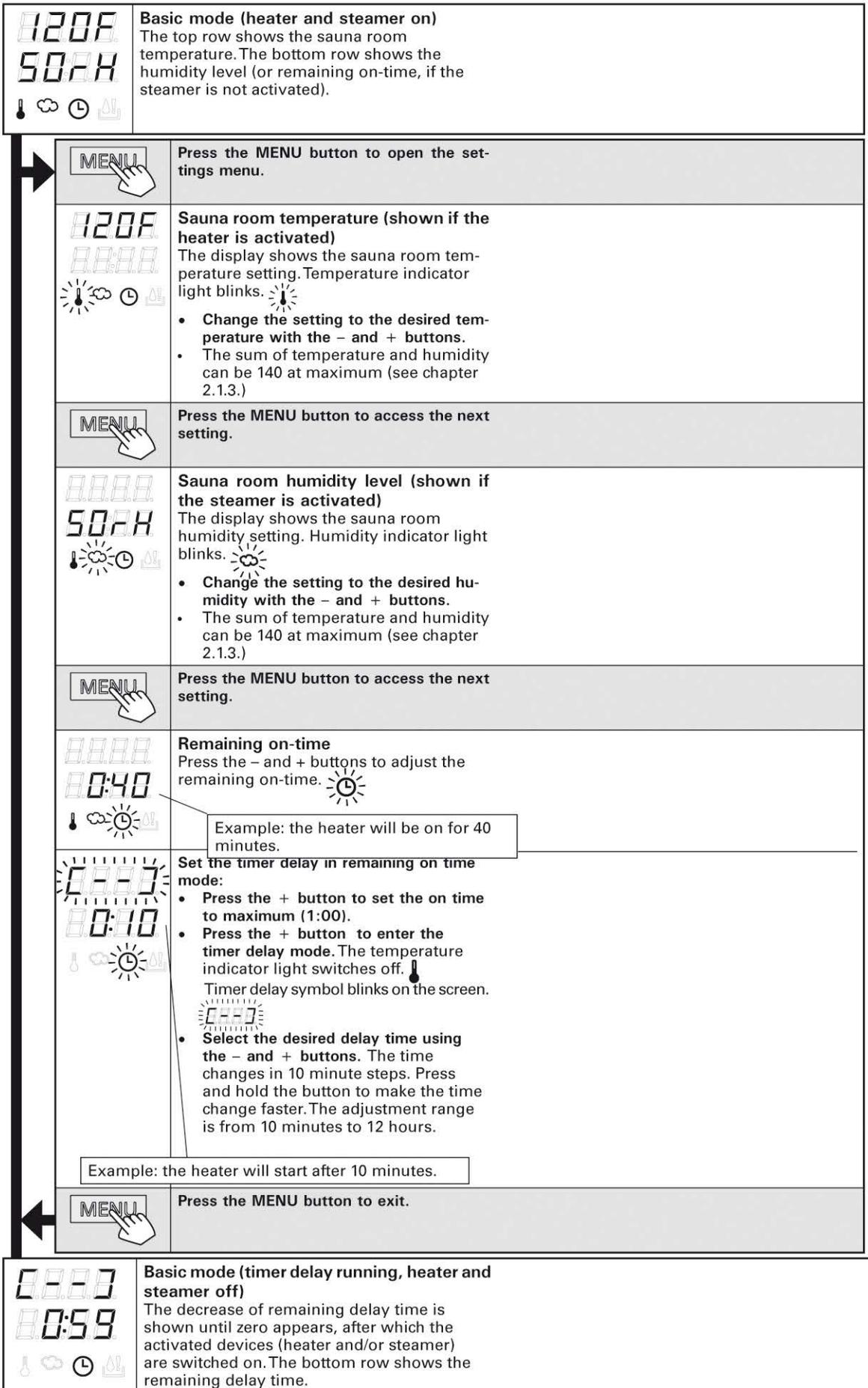*Figure 3d. Settings menu structure*   *) Factory setting

3. INSTRUCTIONS FOR INSTALLATION

The electrical connections of the control unit may only be made by an authorised, professional electrician and in accordance with the current regulations. When the installation of the control unit is complete, the person in charge of the installation must pass on to the user the *Instructions for Installation and Use* that come with the control unit and must give the user the necessary training for using the heater and the control unit.

3.1. Installing the Control Panel

Install the low voltage control panel outside the sauna room by the door, in the dressing room, or in the living quarters. Figure 4. It should be located in a dry area where the temperature is above freezing. Keep away from water splashes and humid areas.
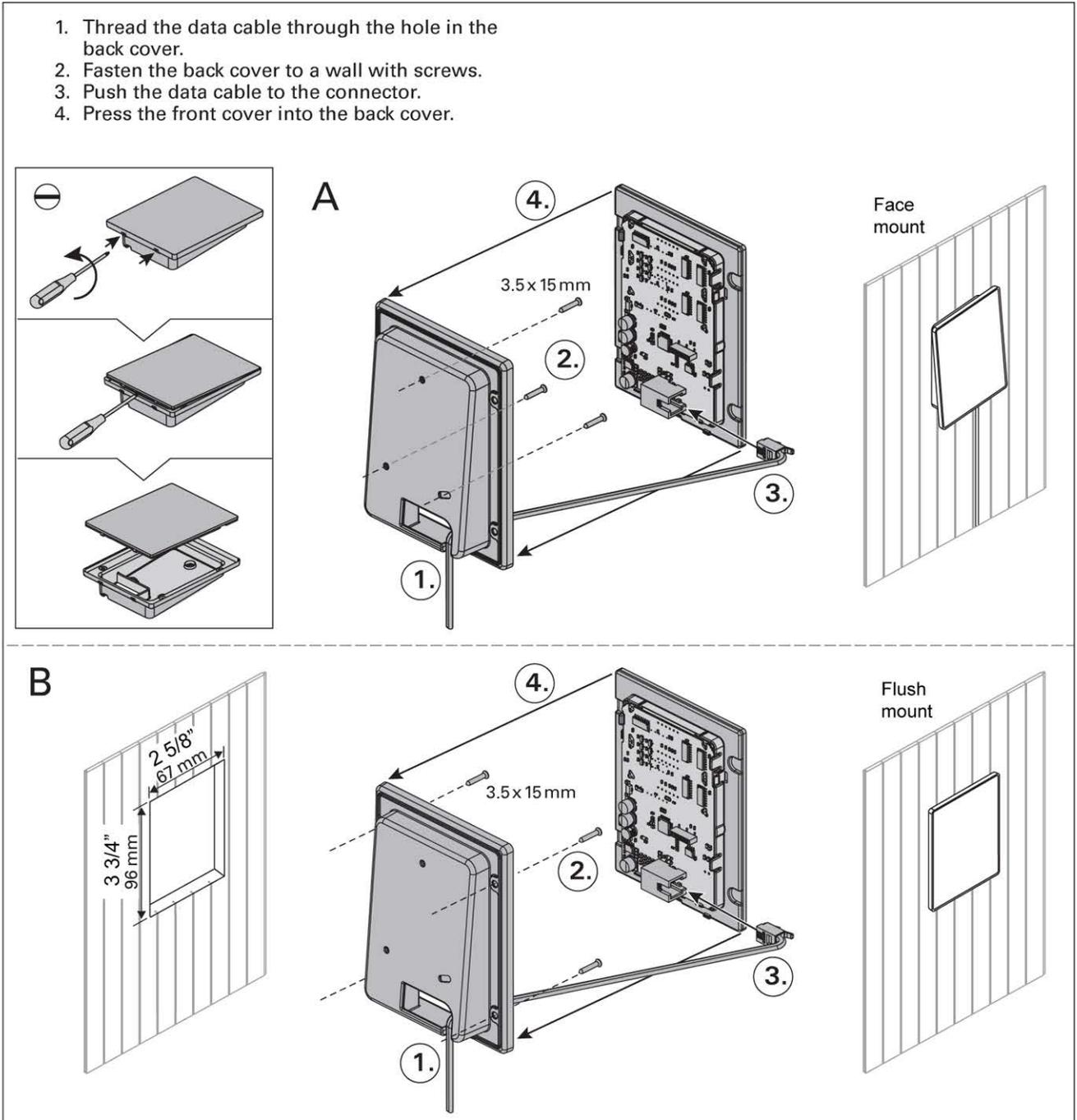
1. Thread the data cable through the hole in the back cover.
2. Fasten the back cover to a wall with screws.
3. Push the data cable to the connector.
4. Press the front cover into the back cover.

Figure 4. Fastening the control panel

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3.2. Installing the Power Unit

Install the power unit to a wall outside the sauna room, in a dry place with an ambient temperature more than 32 °F (0 °C). See Figure 5 for instructions on how to open the power unit cover and how to fix the unit to the wall.

Note! Do not embed the control unit into the wall, since this may cause excessive heating of the internal components of the unit and lead to damage. See Figure 5.

3.2.1. Electrical Connections

The heater and control unit may only be connected to the electrical network in accordance with the current regulations by a licensed professional electrician.

Figures 6a and 6b shows the electrical connections of the power units. For more detailed installation instructions seeThe Instructions for Installation and Use of the selected heater model.
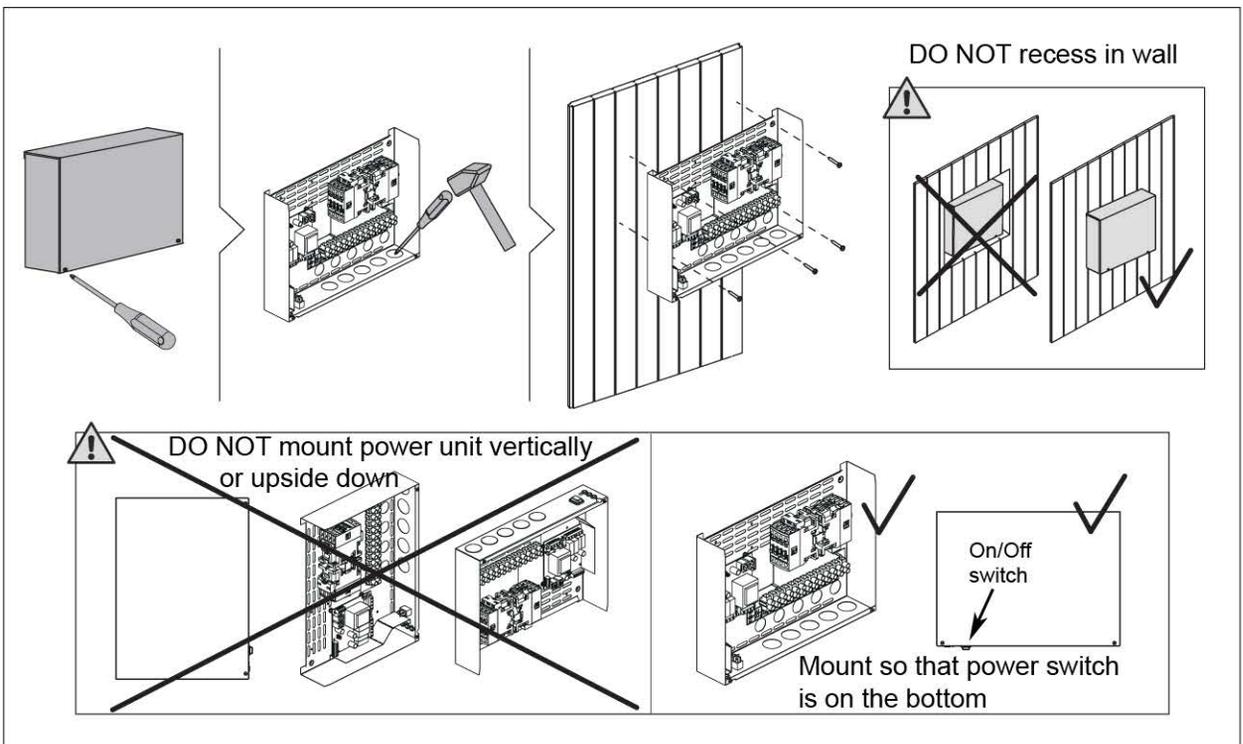

Figure 5. Opening the power unit cover and mounting the unit to a wall

3.2.2. Instructions for Installation

The power unit of CX30C-U1 is controlled by control panel Xenio.

- Control panel is connected to power unit via data cable.
- Only one control panel can be connected to the power unit.

Temperature sensor:

- WX232 is needed to operate CX30C-U1. See section 3.3. for correct temperature sensor placement.

Humidity sensor:

- WX325 is needed to operate CX30C-U1. See section 3.4. for correct humidity sensor placement.

Two relay outputs (120 V 1Ph):

- For driving a fan (max. 100 W) and lighting (max. 100 W).

Breakers on the electronics card (if a breaker has blown, see section 3.2.3.):

- F1 = 2,5 A
- F2 = 40 mA

Breakers on the factory wirings (if a breaker has blown, see section 3.2.3.):

- F3 = 10 A

Technical specifications:

- Max. length of data cable: 82' (25 m)
- Max. heater power raitings (Table 2)

CX30C-U1 240 V 1Ph	
Max power (kW)	Min wire size (AWG)
12.7	10

Table 2.   Max. heater power ratings.

HEATER MODEL	WATTS HEATER & STEAMER	VOLTAGE & PHASE	MIN/MAX CUBIC FT.	AMPS	MAIN BREAKER SIZE	WIRE SIZE BREAKER TO LOAD CENTER	LOAD CENTER BREAKERS	LOAD CENTER OR BREAKER TO POWER UNIT	WIRE SIZE POWER UNIT TO HEATER	DIGITAL CONTROL
HL6-U1S	6000 + 2100	240/1	176-294	33.75	40A	(2) #8+ N+G	(2) 20A	(4) #12+ N+G	(5) #12 + (3) #14+G	CX30C-U1
HL8-U1S	8000 + 2100	240/1	250-431	42.1	50A	(2) #6+G N+G	(2) 30A	(4) #10+ N+G	(5) #10 + (3) #14+G	CX30C-U1
HL9-U1S	9000 + 2100	240/1	282-494	46.25	60A	(2) #6+G N+G	(2) 40A	(4) #8+ N+G	(5) #8 + (3) #14+G	CX30C-U1
HL11-U1S	10500 + 2100	240/1	317-636	52.5	60A	(2) #4+G N+G	(2) 40A	(4) #8+ N+G	(5) #8 + (3) #14+G	CX30C-U1

Use double pole non-GFCI type breaker   **All supply wire to be 90 °C copper**

Figure 6a.   Electrical connections 240 V, 1Ph (CX30C-U1)

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3.2.3. Power Unit Breaker Faults

Replace a blown breaker by a new one with the same resistance. The placement of the breakers in the power unit is shown in Figures 6a and 6b.

- If the breaker F2 for the electronic unit has blown, there is likely a fault in the power unit and it might need to be replaced. Service is required.
- If the breaker F1 has blown, there is a problem with lighting or fan. Check the wiring and functioning of lighting and fan.
- If the breaker F3 has blown, there is a problem with the heater's overheat protector circuit. In the heater, check the safety contactor circuit, overheat protector and their wiring.
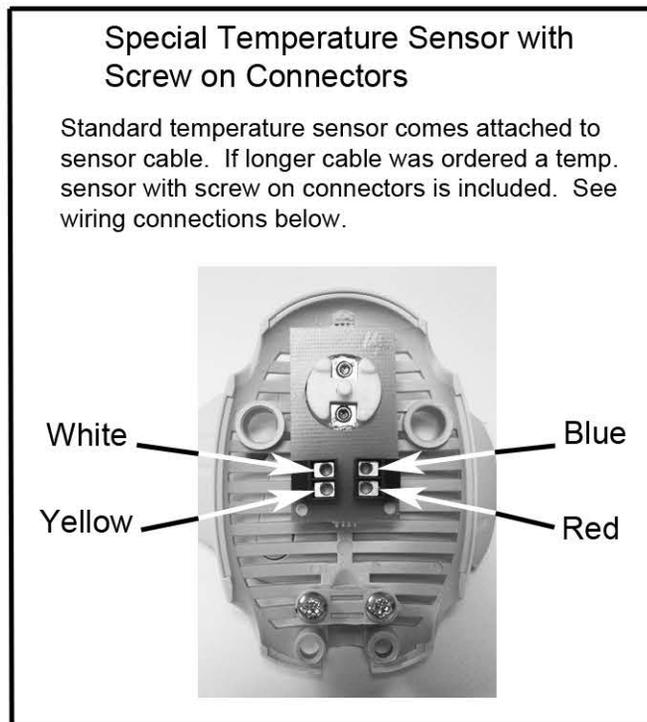
NOTE! Only a qualified licensed electrician should replace the electronic card or breaker of the control unit, by following the necessary precautions!

3.3. Installing the Temperature Sensor
Floor-mounted heaters (see Figure 7)

- The temperature sensor is mounted on the wall about 12" down from the ceiling and 12" away from the side of the sauna heater.

Do not install the temperature sensor closer than 40" to an air vent. The air flow near an air vent cools down the sensor, which gives inaccurate temperature readings to the control unit. As a result, the heater might overheat. See Figure 9.

Special Temperature Sensor with Screw on Connectors

Standard temperature sensor comes attached to sensor cable. If longer cable was ordered a temp. sensor with screw on connectors is included. See wiring connections below.

White ___   ___ Blue

Yellow ___   ___ Red

3.4. Installing the Humidity Sensor

Fasten the humidity sensor on the wall as far from the heater as possible and at a distance of 20–28" (500–700 mm) from the ceiling. See figures 7 and 8.

3.5. Resetting the Overheat Protector

The sensor box contains a temperature sensor and an overheat protector. An NTC thermistor senses the temperature, and the resettable overheat protector cuts off the heater power in a case of malfunction, after which the protector can be reset. See Figure 10.

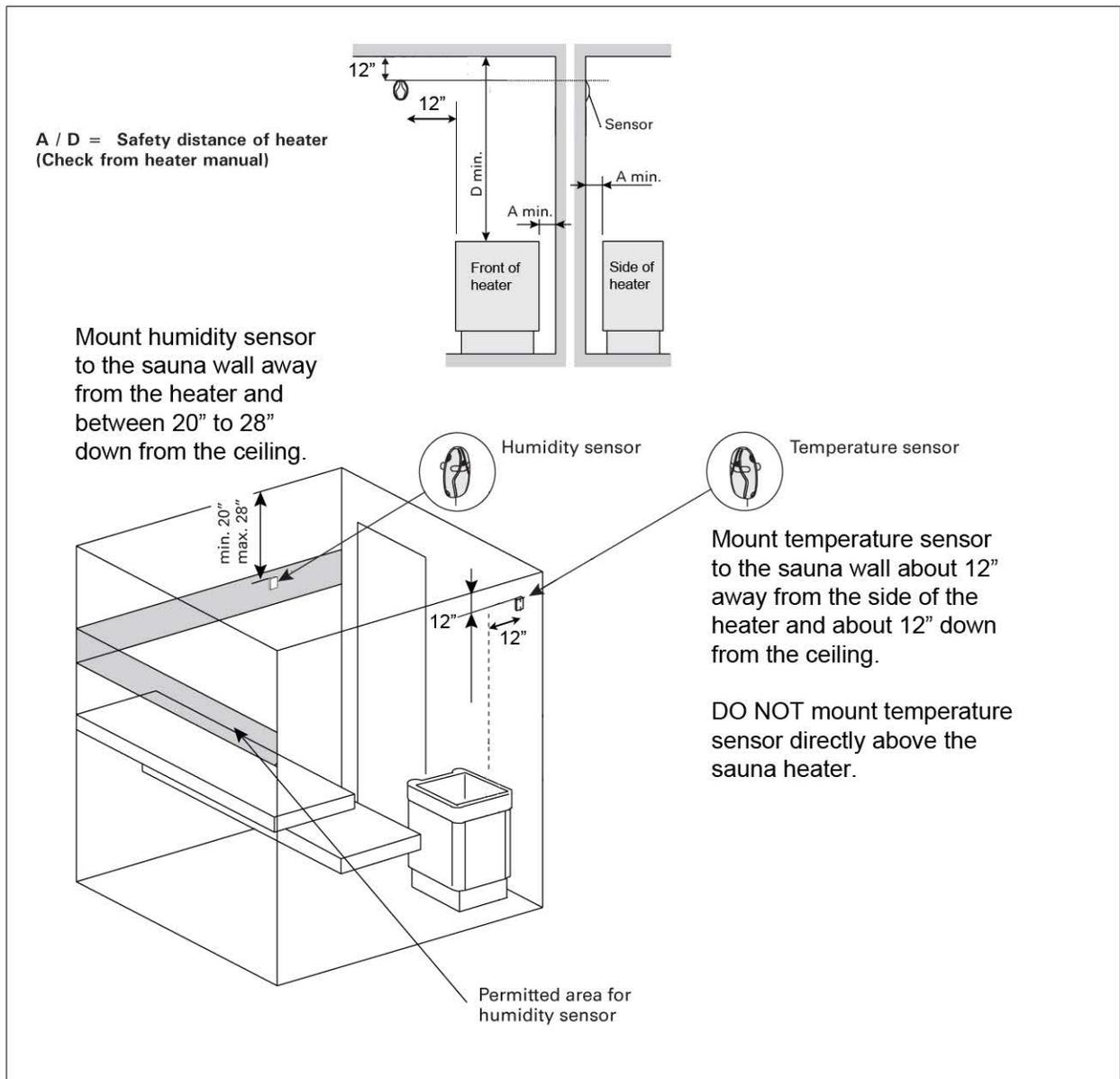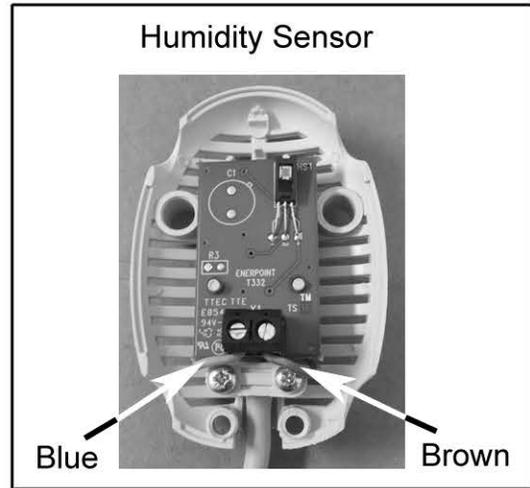**Note! The reason for the going off must be determined before the button is pressed.**

Humidity Sensor

Blue   Brown

A / D = Safety distance of heater
(Check from heater manual)

12"
12"
Sensor
D min.
A min.
A min.
Front of heater
Side of heater

Mount humidity sensor to the sauna wall away from the heater and between 20" to 28" down from the ceiling.

min. 20"
max. 28"

Humidity sensor

Temperature sensor

12"
12"

Mount temperature sensor to the sauna wall about 12" away from the side of the heater and about 12" down from the ceiling.

DO NOT mount temperature sensor directly above the sauna heater.

Permitted area for humidity sensor

Figure 7.   The place of the temperature sensor of the control unit in connection with floor-mounted heaters
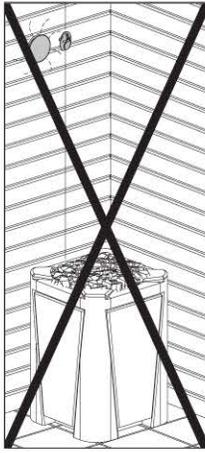
15

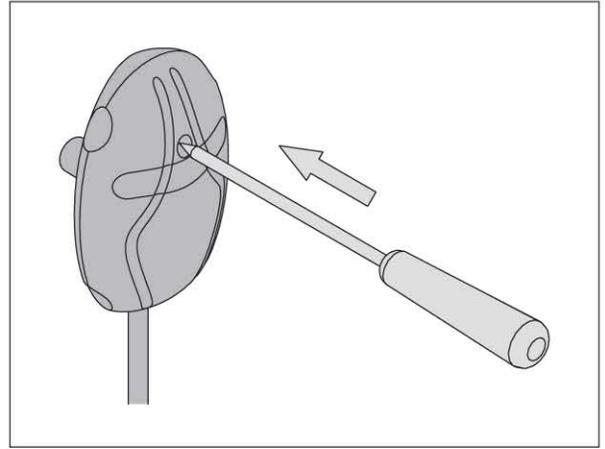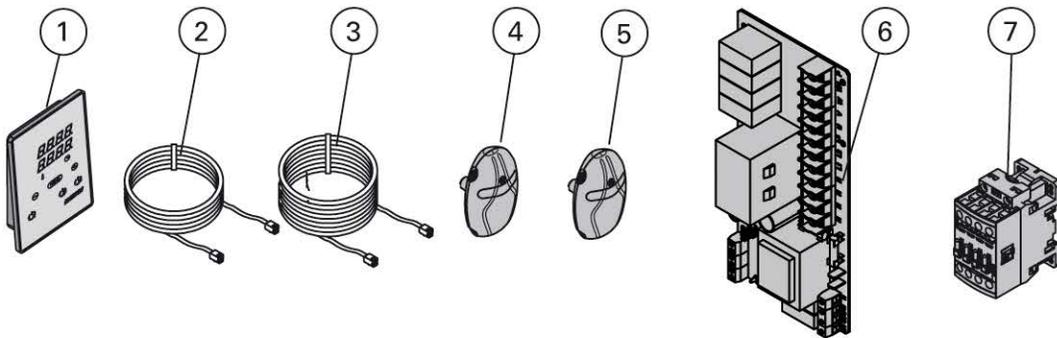*Figure 9.* **Do not mount sensor above heater or close to an air vent**

Figure 10. **Reset button of the overheat protector**

4. SPARE PARTS

Use only parts approved by the manufacturer!

1	Control panel	WX384
2	Data cable 5 m	WX311
3	Data cable extension 10 m (accessory)	WX313
4	Temperature sensor	WX232
5	Humidity sensor	XW325
6	Circuit board	WX357
7	Contactor 30 A	ZSK-778

MAINTENANCE INSTRUCTIONS

1. All service operations must be done by professional licensed maintenance personnel. Control unit should NOT be opened by unlicensed personel.
2. Wipe dust and dirt from the power unit and the control panel with a damp cloth. DO NOT use running water!
3. Prevent any water to go inside the power unit at anytime.
4. The control panel is splashproof.

GUARANTEE

The manufacturer gives a one year guarantee for this control unit. The guarantee starts from the date of purchase and includes all the parts of the control unit.

The guarantee covers faults from the manufacture and material only. The guarantee includes a supply of spare parts by the manufacturer or importer after the faulty parts have been returned. Replacing any parts in the control unit does not extend the original guarantee period of one year.

The guarantee does not cover defects caused by normal wear and tear, defects caused by improper installation, poor maintenance or failure to follow the manufacturer's instructions for installation, use and care, or alterations made to the product. The guarantee is void if the control unit is used improperly. The guarantee does not cover delivery costs of the faulty part or repair costs on the field. If the control unit is returned to the manufacturer or importer within five years from the date of purchase, the importer will provide free repair work, but may charge for spare parts if the one-year guarantee has expired.

The guarantee is void if installation and wiring has not been carried out by licensed electrician or authorized and licensed service representative. Please not that the installers signature is needed below.

The guarantee is void if the information below is not filled out and returned to the manufacturer or importer within 15 days of purchase. The guarantee applies only to the first installation of the product and to the original purchaser.

Harvia control unit model

Model number _____

Date of purchase _____

Original purchaser _____

Address _____

_____

Purchased from _____

Date of electrical installation _____

Signature of the installer _____

License number _____