



HARVIA CX170-U1 Control Unit Owner's Manual

[Home](#) » [HARVIA](#) » HARVIA CX170-U1 Control Unit Owner's Manual 

HARVIA

Owner's/Operator's Manual
Instructions for Installation and Use of Control Unit

Contents

- [1 CX170-U1 Control Unit](#)
- [2 HARVIA XENIO](#)
- [3 INSTRUCTIONS FOR USE](#)
- [4 INSTRUCTIONS FOR INSTALLATION](#)
- [5 SPARE PARTS](#)
- [6 GUARANTEE](#)
- [7 Documents / Resources](#)
- [8 Related Posts](#)

CX170-U1 Control Unit

IMPORTANT! This manual must be left with owner, manager, or operator of Sauna after it is used by electrician!

MODEL

CX170-U1 240 V 1N~
CX170-U1-15 240 V 1N~
CX170-U3 208 V 3N~
CX170-U3-15 208 V 3N~



ETL LISTED

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

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 (CX170-U1, CX170-U1-15, CX170-U3, CX170-U3-15) Control unit's purpose of use: The control unit is meant for controlling the functions of an electric sauna heater. It is not to be used for any other purpose.

HARVIA XENIO

1.1. General

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

The control unit regulates the temperature in the sauna room based on information given by the sensor. 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 3.4.).

The control unit can be used to preset the start of the heater (pre-setting time). See Figure 3.

1.2. Technical Data Control panel:

- Temperature adjustment range 104–194 °F (40–90 °C).
- Pre-setting time adjustment range 0–12 h.
- Lighting control, max. power 100 W, 120 V 1N~
- Fan control, max. power 100 W, 120 V 1N~
- Dimensions: 3.4" x 1.0" x 4.4" (85 mm x 24 mm x 110 mm) Power unit:
- Supply voltage

CX170-U1: 240 V 1N~

CX170-U1-15: 240 V 1N~

CX170-U3: 208 V 3N~

CX170-U3-15: 208 V 3N~

- Max. load

CX170-U1: 12.5 kW/7 kW (Two supply wires / One supply wire between the Heater and the Power unit. See Figure 6a. page 10) /240V 1N~

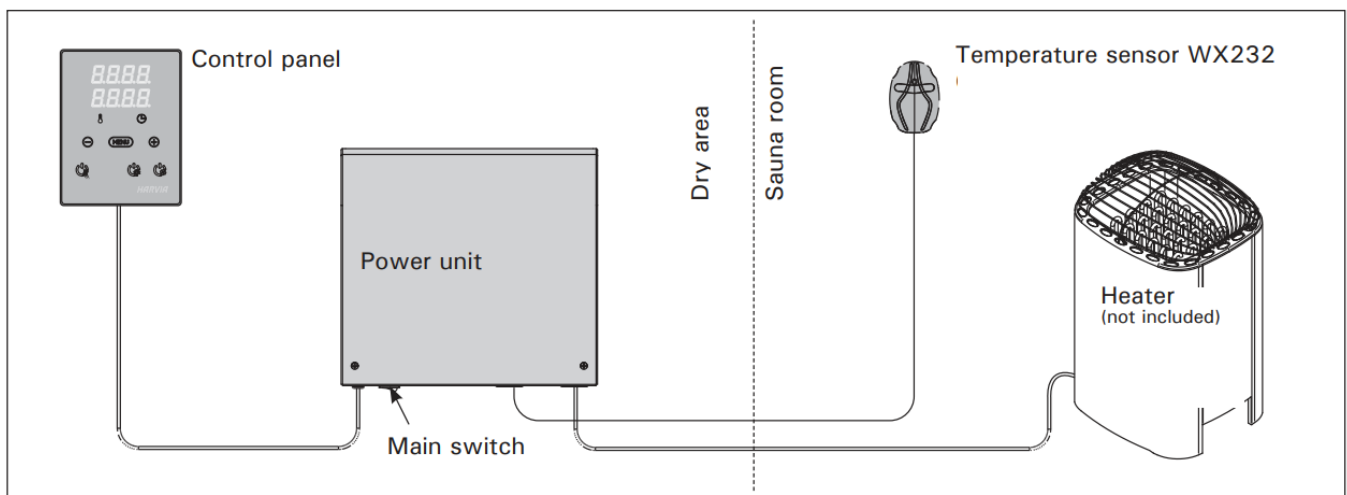
CX170-U1-15: 15 kW/10.5 kW (Two supply wires / One supply wire between the Heater and the Power unit. See Figure 6b. page 11) /240V 1N~

CX170-U3: 10.5 kW/208V 3N~

CX170-U3-15: 15 kW/208V 3N~

- Dimensions: 10.6" x 3.0" x 10.6" (270 mm x 75 mm x 270 mm)

Figure 1. System components



Sensor:

- Temperature sensor NTC thermistor 22 kΩ/ T=77 °F (25 °C)
- Resettable overheat protector
- Dimensions: 2.0" x 2.9" x 1.1" (51 mm x 73 mm x 27 mm)
- Weight 175 g with leads, ca 13 ft (4 m)

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 professional maintenance personnel. No user-serviceable parts inside.

	Description	Remedy/Solution
E1	Temperature sensor's measuring circuit broken.	Check the red and yellow wires to the temperature sensor and their connections (see Figures 6 and 7) for faults.
E2	Temperature sensor's measuring circuit short-circuited.	Check the red and yellow wires to the temperature sensor and their connections (see Figures 6 and 7) for faults.
E3	Overheat protector's measuring circuit broken.	Press the overheat protector's reset button (see section 3.4). Check the blue and white wires to the temperature sensor and their connections (see Figures 6 and 7) for faults.
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.

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

STATUS MESSAGES

SAFE	Safety switch circuit is open	Remove the object from atop the safety switch
rEst	Pause time active	—
rc on	Remote control activated	—

INSTRUCTIONS FOR USE

2.1. Using the Heater

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



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

When the heater starts, the top row of the display will show the set temperature and the bottom row will show the set on time for five seconds.

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

The heater will turn off when the set on time runs out, the I/O button is pressed or an error occurs.

Changing the settings for remaining on time, presetting time and the desired sauna room temperature is shown in figure 3. Changing the temperature unit (Fahrenheit/Celsius) is shown in figure 3a.

2.2. Using Accessories

Lighting and ventilation can be started and shutdown 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.

Display

Indicator lights

Temperature
On time

Menu and navigation buttons

Value decrease
Mode change
Value increase

Operating buttons

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

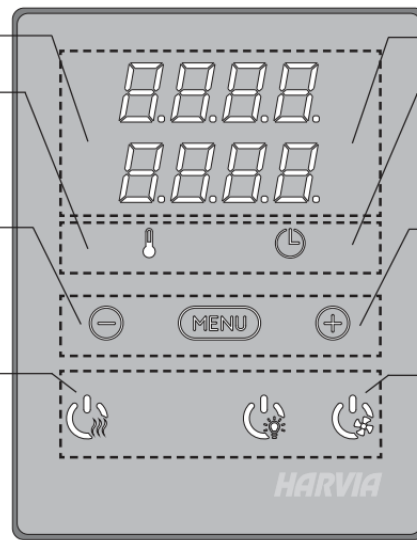


Figure 2. Control panel

BASIC SETTINGS

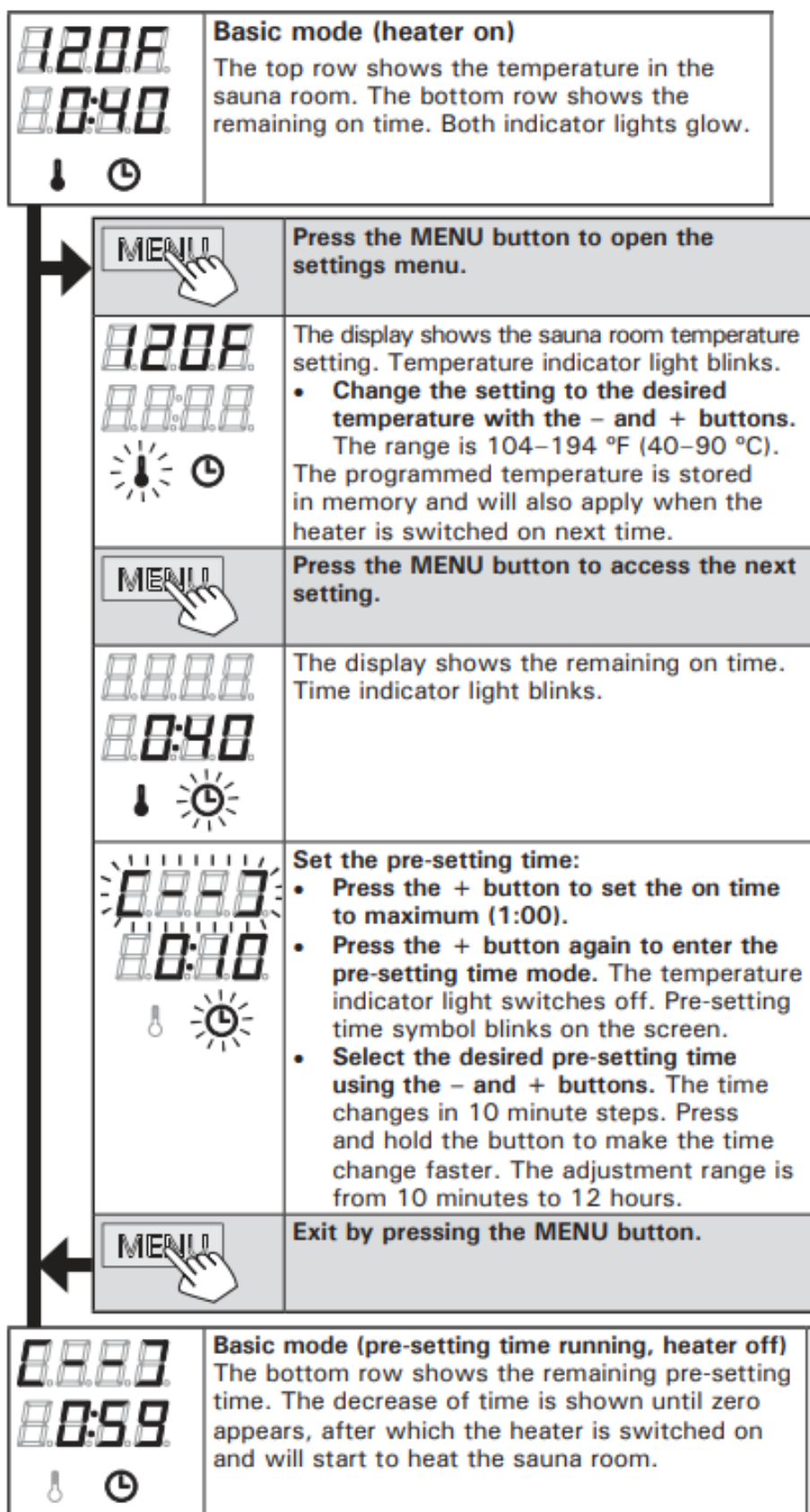


Figure 3. Settings menu structure

ADDITIONAL SETTINGS

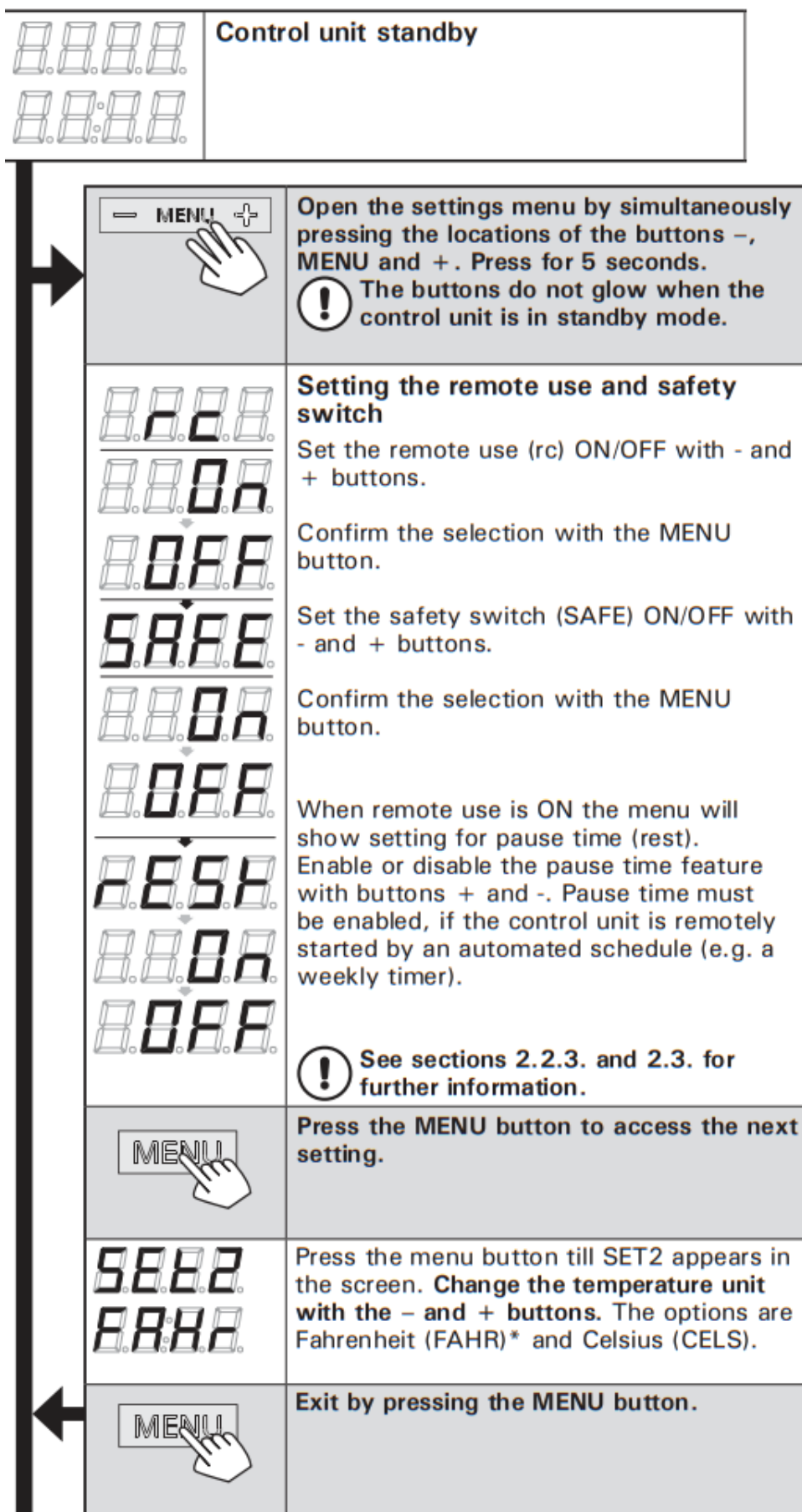
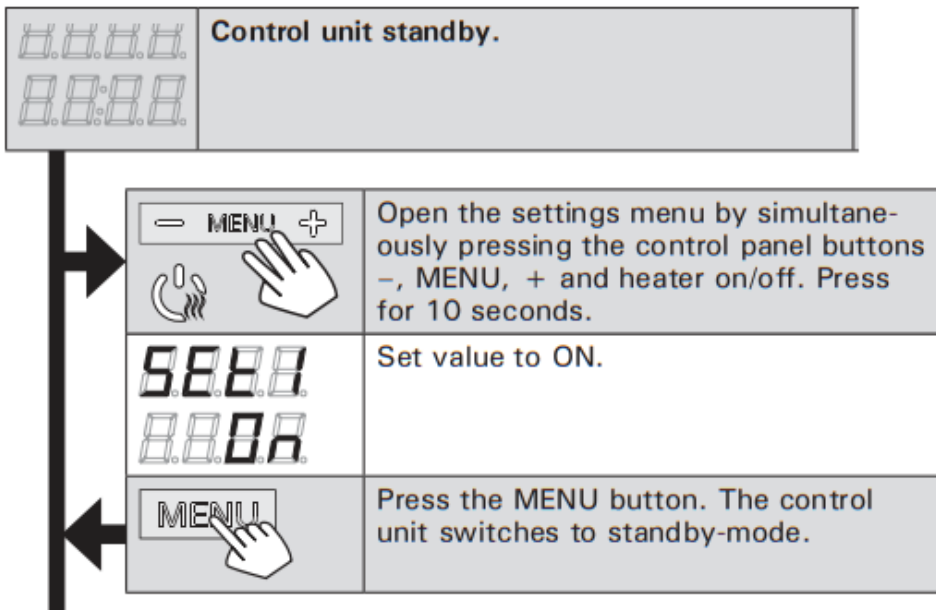


Figure 3a. Settings menu structure, additional settings

*) Factory setting

Maximum on-time 1–18 h
(FOR COMMERCIAL USE ONLY)

1



2

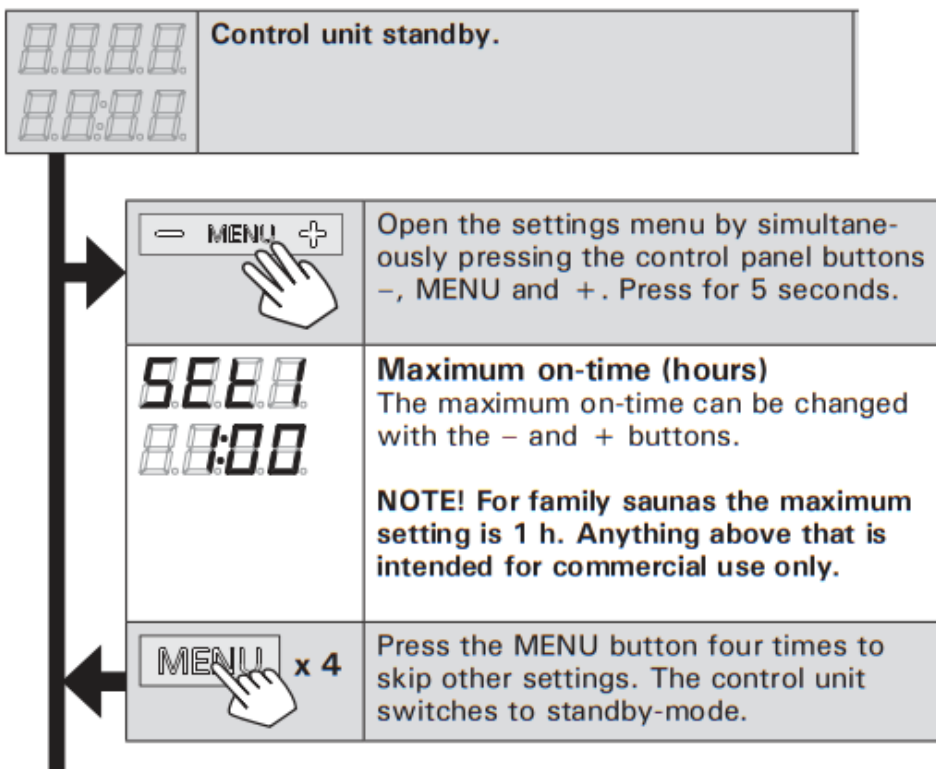


Figure 3b. Changing the maximum on-time (for commercial use only)

2.2.3. Safety switch

Safety switch refers to e.g. Harvia SFE, a safety device installed above or integrated to the heater, preventing the heater from heating should any object(e.g. towel, piece of clothing) drop or be placed on top of the heater and cause a fire hazard.

The switch is connected to the control unit according to their manuals. See also figures 6a,6b, 6c and 6d in this manual.

2.2.4 Remote switch

To remotely control the heater's power input, the control unit can be equipped with an on/off remote switch (e.g. building automation). For more information, see section 2.3.

2.3. Remote control

According to the product standard IEC/EN 60335 -2-53 regulating electrical sauna heaters, a control unit can be used to remotely control the heater once the heater is equipped with a safety switch.



Using with a safety switch: the heater can be turned on remotely, if the safety switch circuit is closed. If the circuit is open, "SAFE" is displayed and the heater will not start.

Pause time: These features are limited by a pause time that prevents the heater from turning on if it has been less than 6 hours since the heater was last turned off. Trying to remotely turn the heater on during the pause time period (6 hours), text "rEst" is displayed. The heater can be remotely started after the pause time has elapsed and "rc" is displayed.

Memory for power failures: the control unit resumes operation, if the remote switch has remained in ON position.

Preset time: if the control unit is on preset delay time, it cannot be controlled with a remote switch. After the preset delay has passed and the heater is turned on, it can be turned off with a remote switch.

2.4. Control panel lock

	Press and hold the heater and light buttons for three seconds.
	-CL- is shown on the display. Panel lock can be activated only in standby mode. Panel lock also prevents remote start.

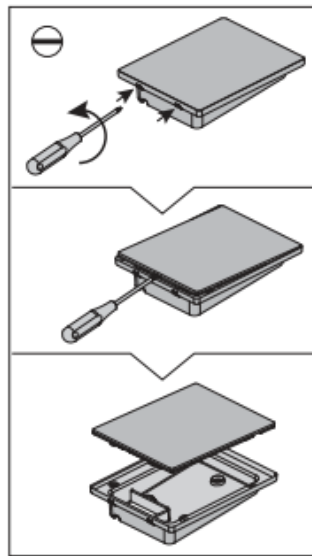
INSTRUCTIONS FOR INSTALLATION

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.

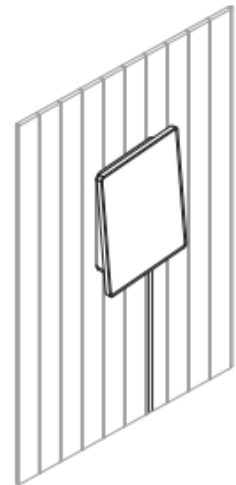
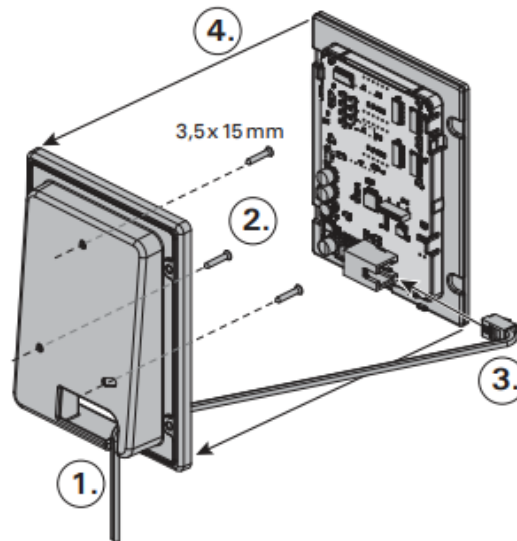
3.1. Installing the Control Panel

The control panel is splash proof and has a small operating voltage. The panel can be installed in the washing or dressing room, or in the living quarters. If the panel is installed in the sauna room, it must

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.



A



B

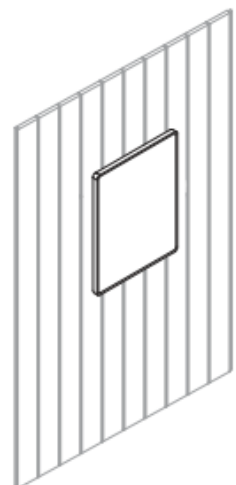
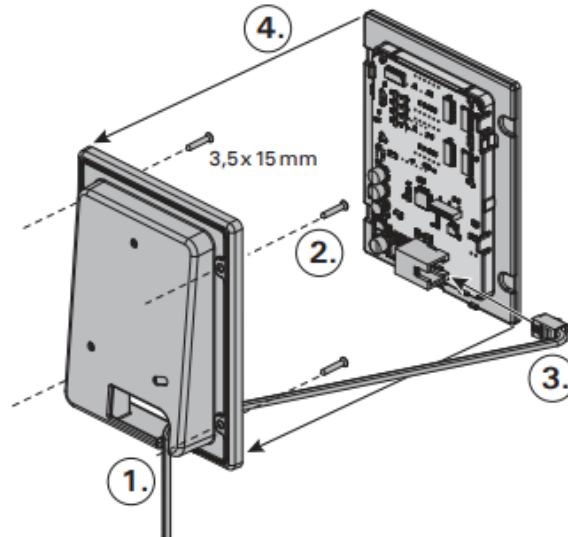
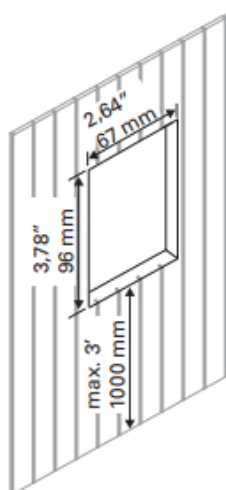


Figure 4. Fastening the control panel

be at the minimum safety distance from the heater and at a maximum height of one metre from the floor. Figure 4. Conductor tubing ($\varnothing 1\frac{3}{16}$, 30 mm) inside the wall structure allows you to thread the data cable hidden within the wall – otherwise the installation will have to be on the wall surface. We recommend you to install the control panel embedded in to the wall and far away from possible splashes.

3.2. Installing the Power Unit

Install the power unit to a wall outside the saunaroom, in a dry place with an ambient temperature of $>32^{\circ}\text{F}$ ($>0^{\circ}\text{C}$). 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

Figures 6a, 6b, 6c and 6d show the electrical connections of the power unit. Tables 2a, 2b, 2c and 2d show the wire and fuse sizes. For more detailed installation instructions see The Instructions for Installation and Use of the selected heater model.

3.2.2. Power Unit Fuse Faults

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

- If the fuse for the electronic unit has blown, there is likely a fault in the power unit and service is required.
- If the fuse in the line U1, U2 has blown, there is a problem with lighting or fan. Check the wiring and functioning of lighting and fan.
- If the fuse in the line A1, A2 has blown, there is a problem with the heater's overheat protector circuit. In the heater, check the safety contactor, overheat protector and their wiring.

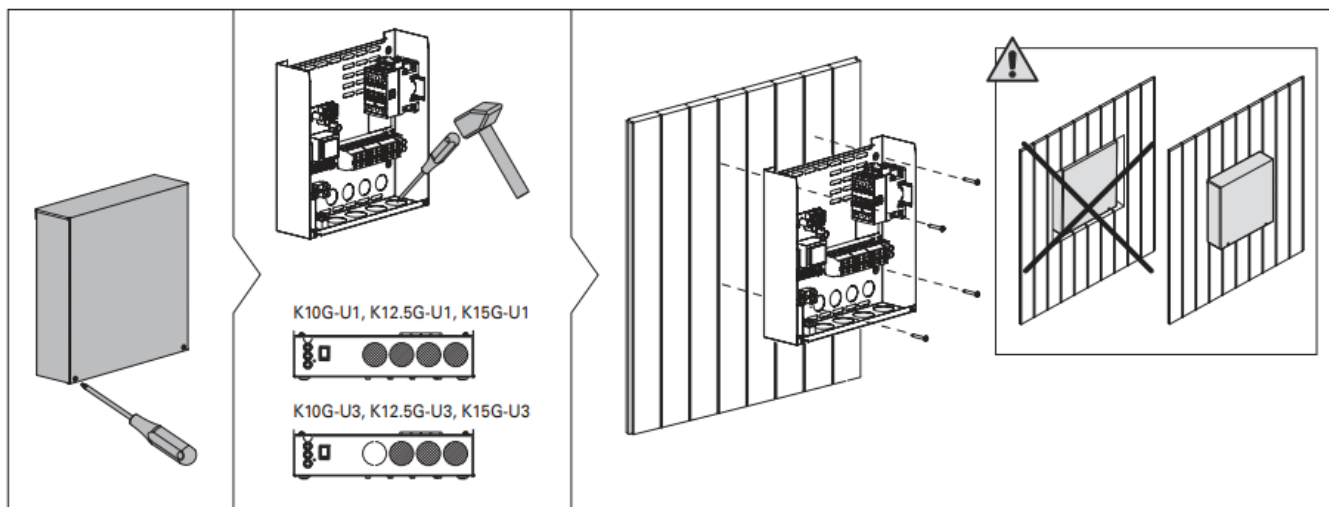
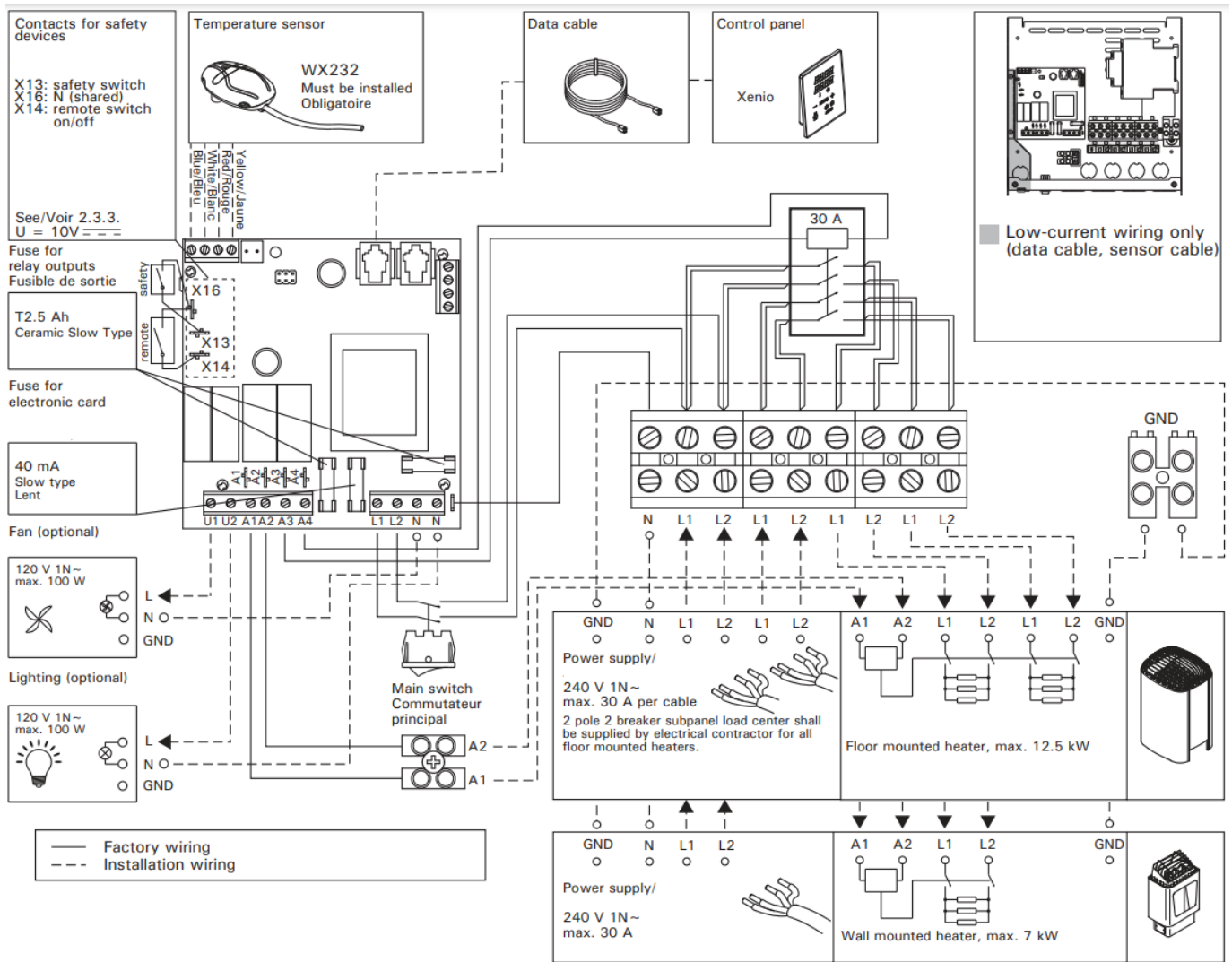


Figure 5. Opening the power unit cover and mounting the unit to a wall

MODEL	WATTS	VOLTAGE TENSION	PH	WIRE SIZE	
KIP-30-W1, FIN-30	3 000	240	1	#14 copper	(2) #14 copper
KIP-45-W1, FIN-45	4 500	240	1	#12 copper	(2) #12 copper
KIP-60-W1, FIN-60	6 000	240	1	#10 copper	(2) #10 copper
				breaker to load center	load center to power unit
K10G-U1	10 000	240	1	#6 copper	(4) #10 copper (4) #10 copper
K12,5G-U1	12 600	240	1	#6 copper	(4) #10 copper (4) #10 copper

Table 2a. Wire and fuse sizes (CX170-U1)



CX170-U1 (240 V 1N~ power unit) Instructions for Installation

The power unit of CX170-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 CX170-U1. See section 3.3. for correct temperature sensor placement. Two relay outputs (240 V 1N~):
- For driving a fan (max. 100 W) and lighting (max. 100 W).

Fuses on the electronics card (if a fuse has blown, see section 3.2.2.)

- 40 mA fuse for electronic unit.
- Two 2.5 Ah fuses for relay outputs U1, U2, A1, A2.

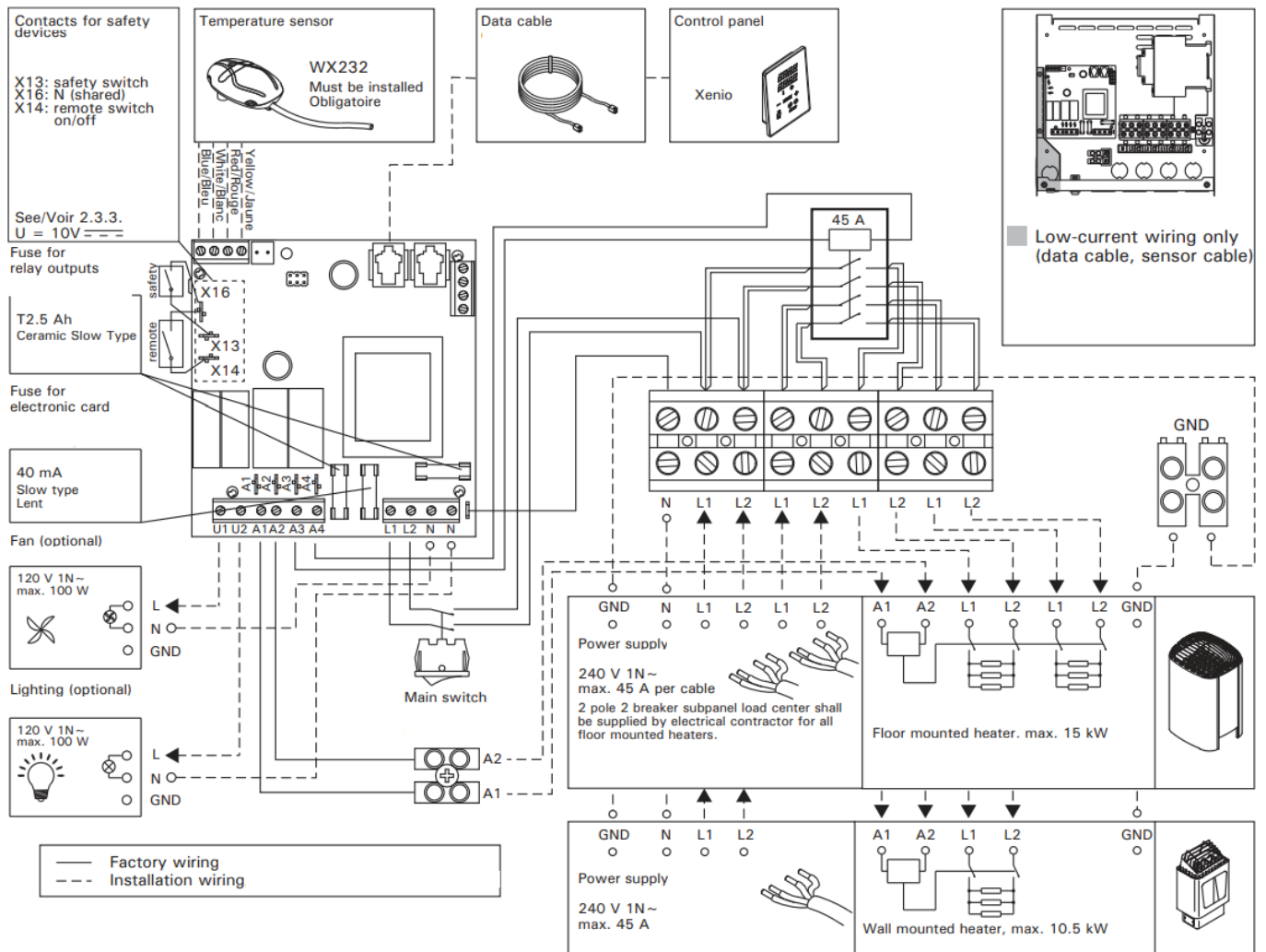
Technical specifications:

- Max. heater power rating: 12,5 kW
- Max. length of data cable: 25 m

Figure 6a. Electrical connections (CX170-U1)

MODEL	WATTS	AMPS	VOLTAGE	P H	WIRE SIZE		
					breaker to power unit	power unit to heater	
KIP-30-W1, FIN-30	3000	12,5	240	1	#14 copper	(2) #14 copper	
KIP-45-W1, FIN-45	4500	18,8	240	1	#12 copper	(2) #12 copper	
KIP-60-W1, FIN-60	6000	25,0	240	1	#10 copper	(2) #10 copper	
KIP-80-W1, FIN-80	8000	33,3	240	1	#8 copper	(2) #8 copper	
					breaker to load center	load center to power unit	power unit to heater
K10G-U1	10000	41,7	240	1	#6 copper	(4) #10 copper	(4) #10 copper
K12,5G-U1	12600	52,7	240	1	#6 copper	(4) #10 copper	(4) #10 copper
K15G-U1	14800	61,7	240	1	#4 copper	(4) #8 copper	(4) #8 copper

Table 2b. Wire and fuse sizes (CX170-U1-15)



CX170-U1-15 (240 V 1N~ power unit) Instructions for Installation

The power unit of CX170-U1-15 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 CX170-U1-15. See section 3.3. for correct temperature sensor placement.

Two relay outputs (120 V 1N~):

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

Fuses on the electronics card (if a fuse has blown, see section 3.2.2.

- 40 mA fuse for electronic unit.
- Two 2.5 Ah fuses for relay outputs U1, U2, A1, A2.

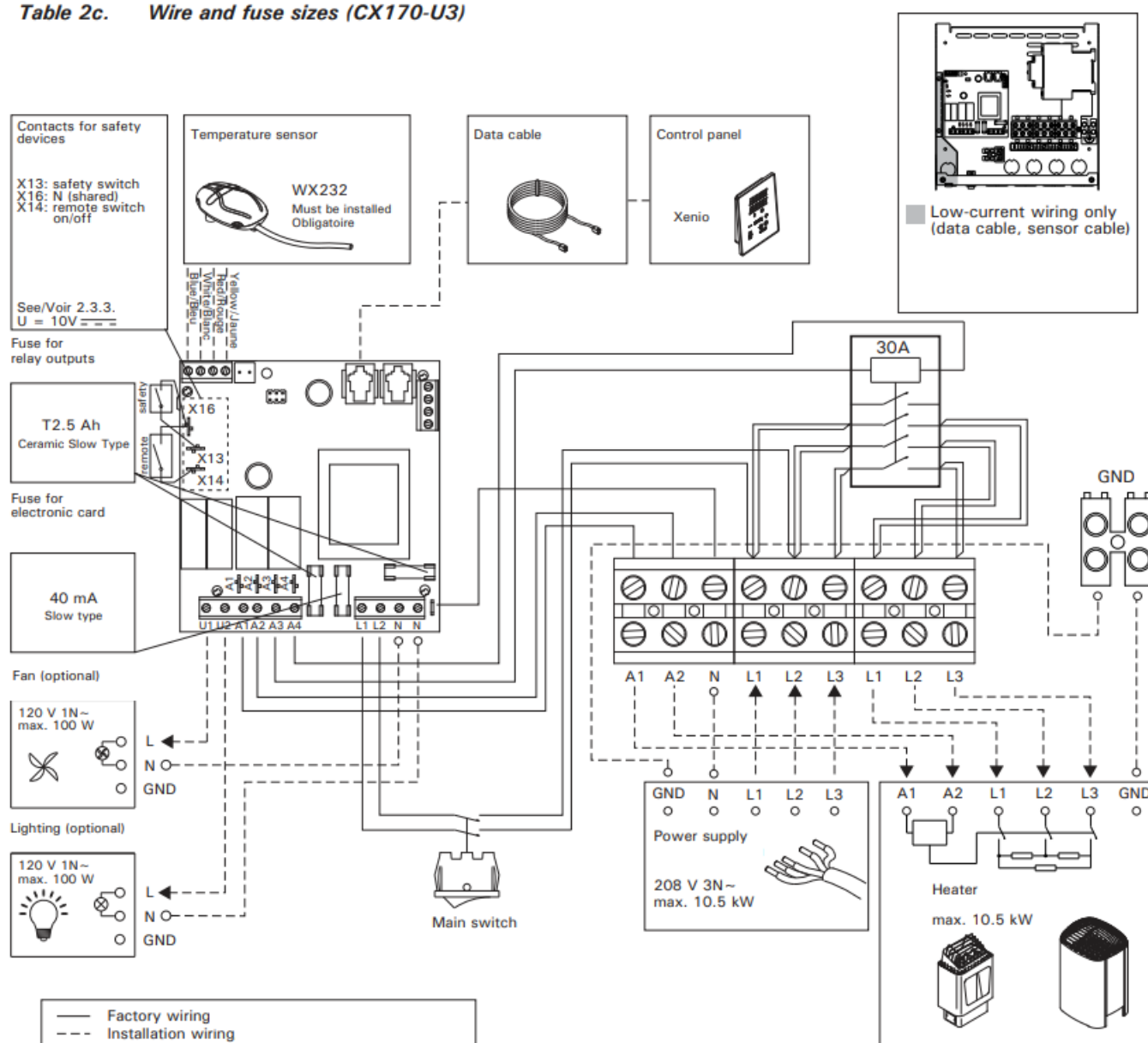
Technical specifications:

- Max. heater power rating: 15 kW
- Max. length of data cable: 25 m

Figure 6b. Electrical connections (CX170-U1-15)

MODEL	WATT S	AMPS	VOLTAGE	P H	WIRE SIZE	
					breaker to power unit	power unit to heater
KIP-30-W3, FIN-30-W3	3000	8,3	208	3	#16 copper	#16 copper
KIP-45-W3, FIN-45-W3	4500	12,5	208	3	#14 copper	#14 copper
KIP-60-W3, FIN-60-W3	6000	16,7	208	3	#12 copper	#12 copper
KIP-80-W3, FIN-80-W3	8000	22,2	208	3	#10 copper	#10 copper
K10G-U3	9800	27,3	208	3	#10 copper	#10 copper

Table 2c. Wire and fuse sizes (CX170-U3)



CX170-U3 (208 V 3N~ power unit) Instructions for Installation

The power unit of CX170-U3 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 CX170-U3. See section 3.3. for correct temperature sensor placement.

Two relay outputs (120 V 1N~):

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

Fuses on the electronics card (if a fuse has blown, see section 3.2.

- 40 mA fuse for electronic unit.
- Two 2.5 Ah fuses for relay outputs U1, U2, A1, A2.

Technical specifications:

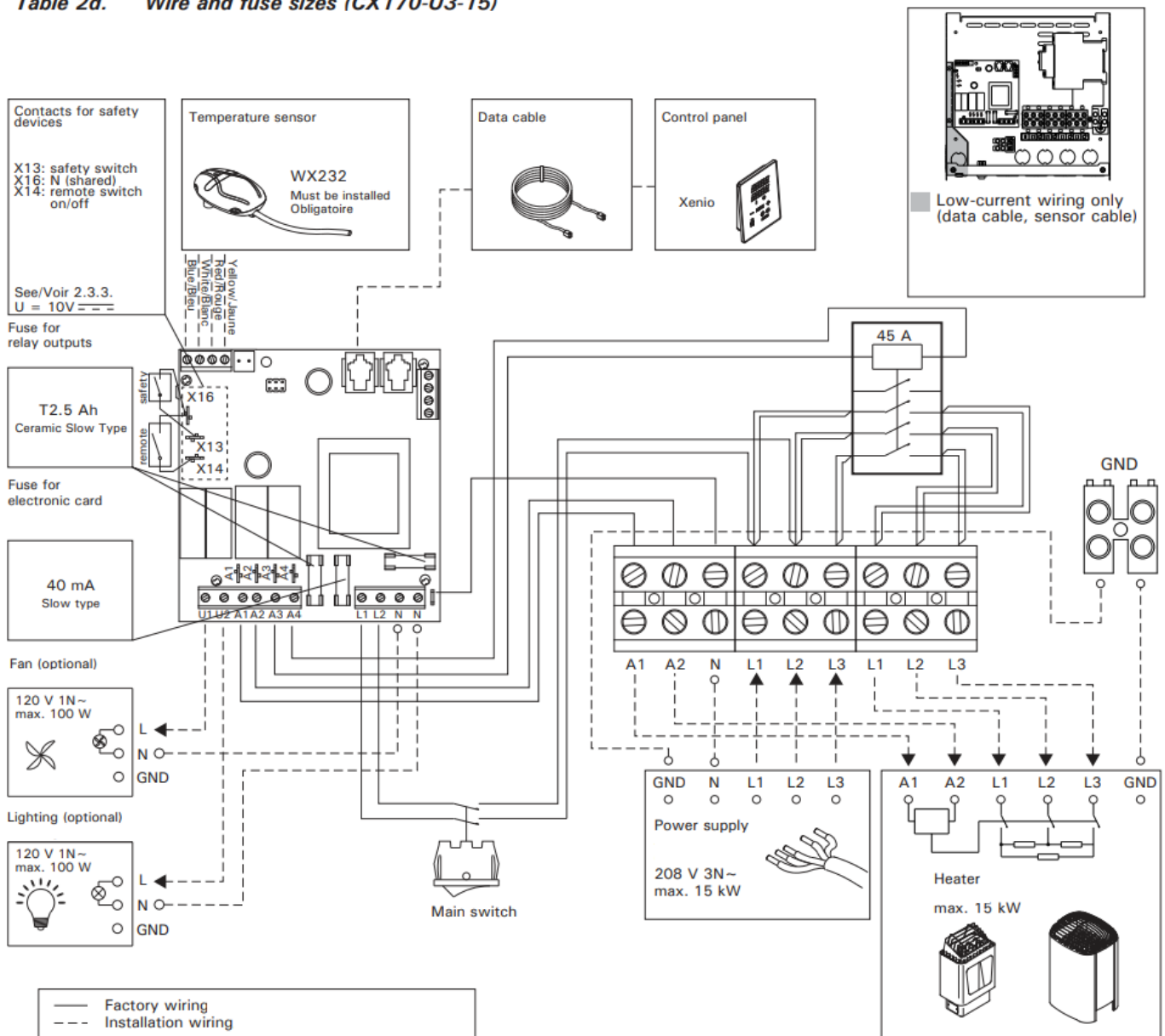
- Max. heater power rating: 10.5 kW
- Max. length of data cable: 25 m

Figure 6c. Electrical connections (CX170-U3)

MODEL	WATT S	AMPS	VOLTAGE	P H	WIRE SIZE	
					breaker to power unit	power unit to heater
KIP-30-W3, FIN-30-W3	3000	8,3	208	3	#16 copper	#16 copper
KIP-45-W3, FIN-45-W3	4500	12,5	208	3	#14 copper	#14 copper
KIP-60-W3, FIN-60-W3	6000	16,7	208	3	#12 copper	#12 copper
KIP-80-W3, FIN-80-W3	8000	22,2	208	3	#10 copper	#10 copper
K10G-U3	9800	27,3	208	3	#10 copper	#10 copper
K12,5G-U3	12300	34,1	208	3	#8 copper	#8 copper
K15G-U3	14400	40,0	208	3	#8 copper	#8 copper

Table 2d. Wire and fuse sizes (CX170-U3-15)

Table 2d. Wire and fuse sizes (CX170-U3-15)



CX170-U3-15 (208 V 3N~ power unit) Instructions for Installation

The power unit of CX170-U3-15 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 CX170-U3-15. See section 3.3. for correct temperature sensor placement.
 - Two relay outputs (120 V 1N~):
 - For driving a fan (max. 100 W) and lighting (max. 100 W).
 - Fuses on the electronics card (if a fuse has blown, see section 3.2.2.)
 - 40 mA fuse for electronic unit.
 - Two 2.5 Ah fuses for relay outputs U1, U2, A1, A2.
 - Technical specifications:
 - Max. heater power rating: 15 kW
 - Max. length of data cable: 25 m
- Figure 6d. Electrical connections (CX170-U3-15)

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

- Option 1: The temperature sensor is mounted on the wall above the heater, along the vertical centre line running parallel to the sides of the heater, at a distance of 3 15/16" (100 mm) from the ceiling.
- Option 2: The temperature sensor is mounted to the ceiling above the heater, at a distance of 7 14/16" (200 mm) from the vertical centre line of the heater's side.

Wall-mounted heaters (see Figure 8)

- The temperature sensor is wall-mounted above the heater, along the vertical centre line running parallel to the sides of the heater, at a distance of 3 15/16" (100 mm) from the ceiling.

Do not install the temperature sensor closer than 3'-3 3/8" (1000 mm) 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.

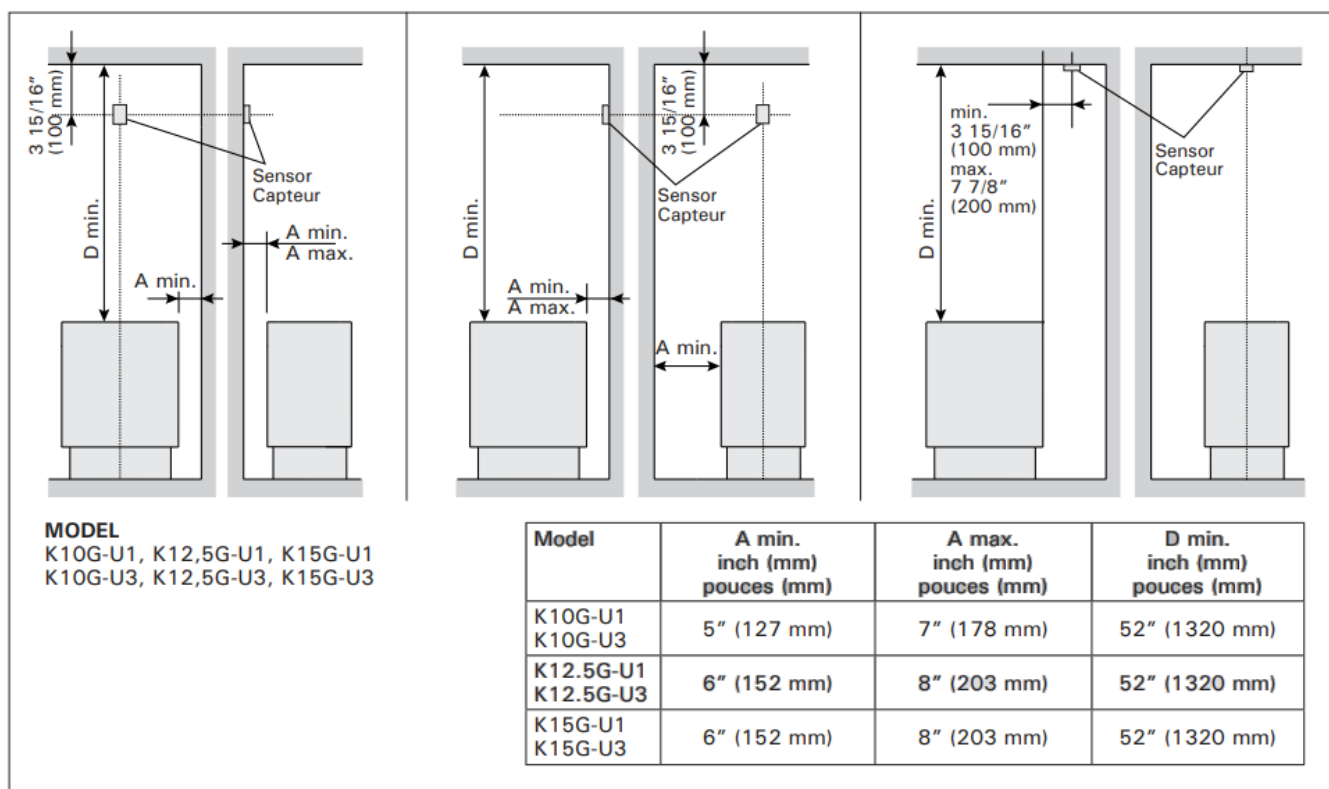


Figure 7. The place of the temperature sensor of the control unit in connection with floor-mounted heaters

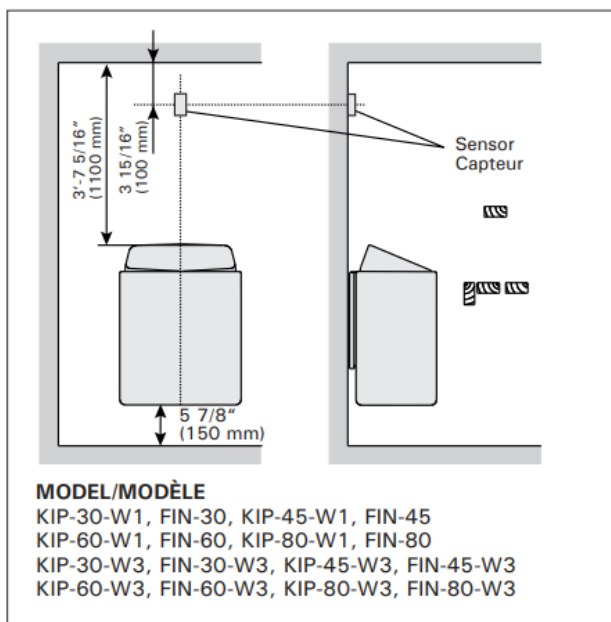


Figure 8. The place of the temperature sensor of the control unit in connection with wall-mounted heaters

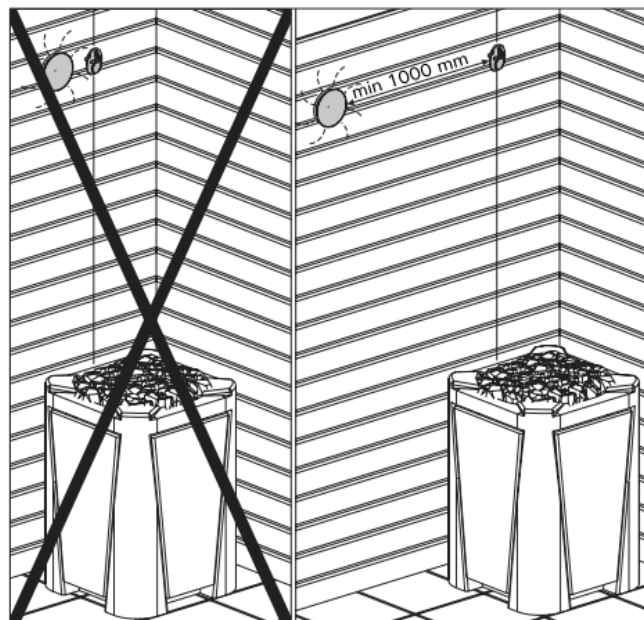


Figure 9. Sensor's minimum distance from an air vent

3.4. 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.

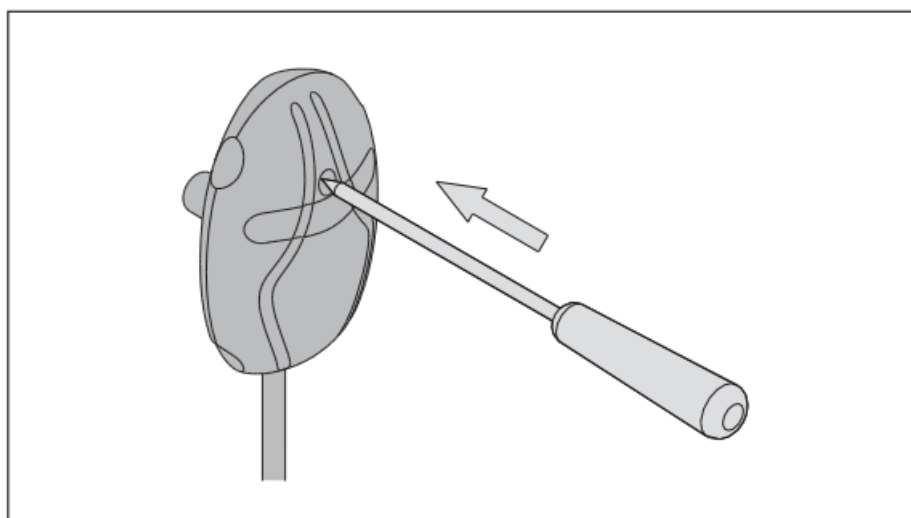
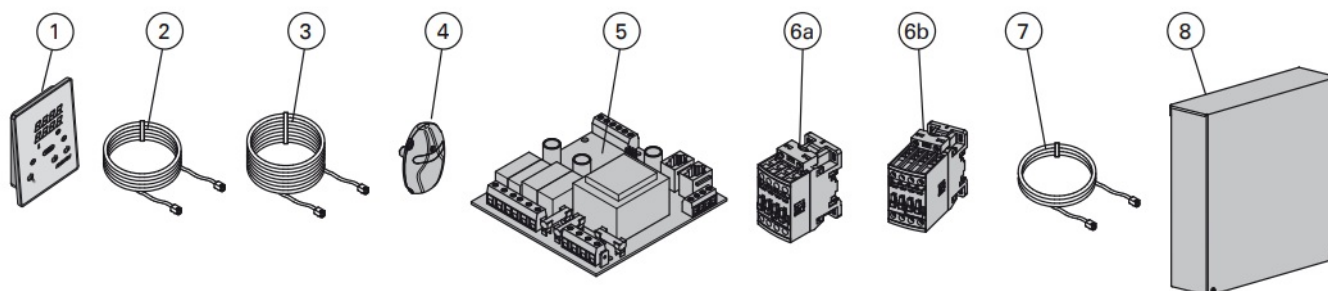


Figure 10. Reset button of the overheat protector

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 (optional)	WX313
4	Temperature sensor	WX232
5	Circuit board	WX361
6a	Contactor 30 A (CX170-U1, CX170-U3)	ZSK-778
6b	Contactor 45 A (CX170-U3-15, CX170-U1-15)	ZSL-940

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 certified electrician or authorized and qualified service representative. Please note that the installer's 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.....

HARVIA

Documents / Resources

	<p>HARVIA CX170-U1 Control Unit [pdf] Owner's Manual CX170-U1, CX170-U1-15, CX170-U3, CX170-U3-15, CX170-U1 Control Unit, CX170-U1, Control Unit</p>
---	--

