HARVIA
HARVIA CX170-U Series Xenio Control Unit

HARVIA CX170-U Series Xenio Control Unit Owner's Manual

Contents

HARVIA

HARVIA CX170-U Series Xenio Control Unit

Specifications:

- Models: CX170-U1, CX170-U1-15, CX170-U3, CX170-U3-15
- Voltage: 240 V 1N~, 208 V 3N~
- Date: 07052020/Y05-0653

FAQ

Q: What should I do if I see error message E1 on the control panel?

A: The error indicates an issue with the temperature sensor’s measuring circuit. Check the red and yellow wires for faults and connections as shown in Figures 6 and 7.

Q: How do I reset the overheat protector?

A: Press the overheat protector’s reset button as instructed in section 3.4 of the manual.

Instructions for Installation and Use of 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~

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

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.

Technical Data

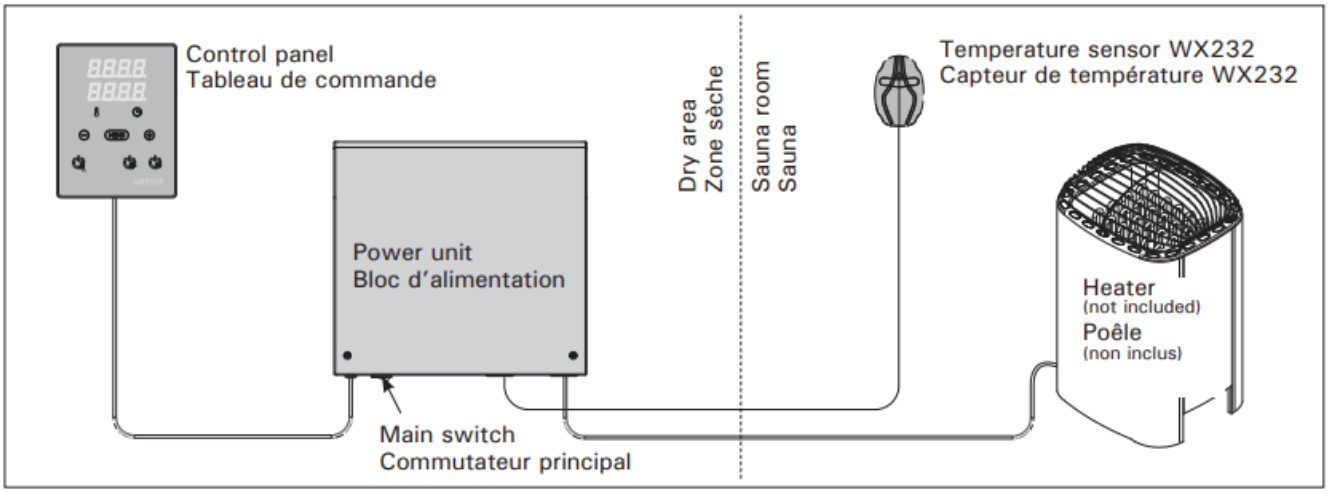
Control panel:

- Temperature adjustment range 104–194 ºF (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
Figure 1. Composants de système



Sensor:

- Temperature sensor NTC thermistor 22 kΩ/T=77 ºF (25 ºC)
- 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)

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**
E 1	Temperature sensor's measuring circuit broken.	Check the red and yellow wires to the temperature sensor and t heir connections (see Figures 6 and 7) for faulties.
E 2	Temperature sensor's measuring circuit short-circuited.	Check the red and yellow wires to the temperature sensor and t heir connections (see Figures 6 and 7) for faulties.
E 3	Overheat protector's measuring circuit b roken.	Press the overheat protector's reset button (see section 3.4.). C heck the blue and white wires to the temperature sensor and th eir connections (see Figures 6 and 7) for faulties.
E 9	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 po wer 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	–
	Temps de pause actif	–
rc on	Remote control activated	–
	Contrôle à distance activé	–

INSTRUCTIONS FOR USE

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, pre-setting time and the desired sauna room temperature is shown in figure 3. Changing the temperature unit (Fahrenheit/Celsius) is shown in figure 3a.

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

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.

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.

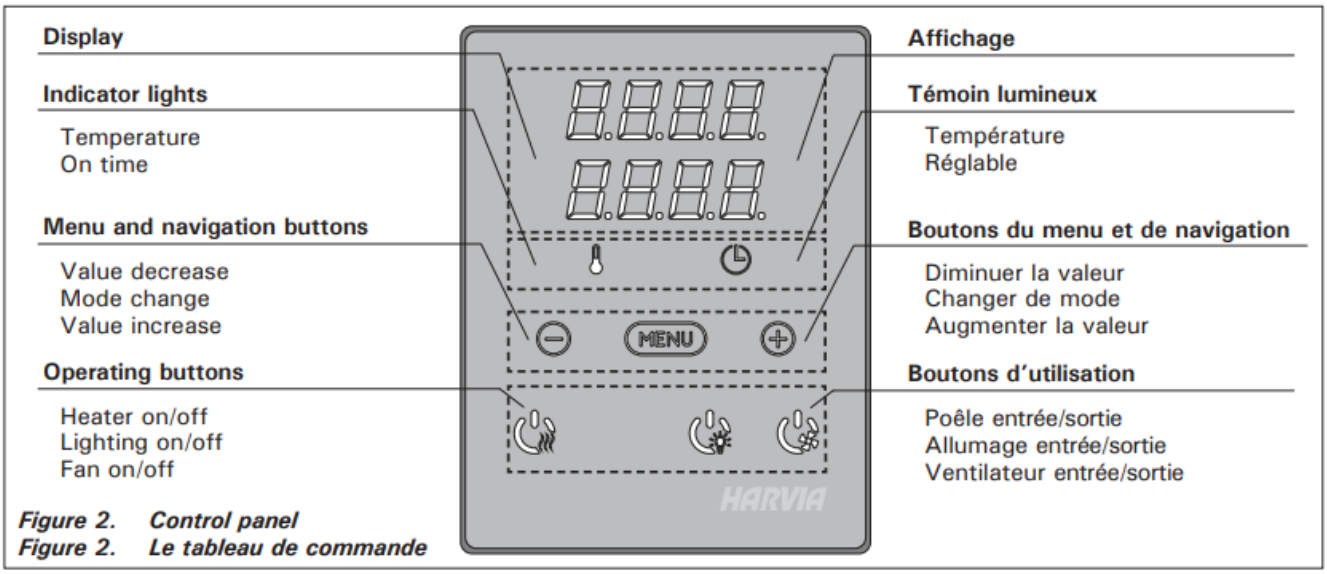


Figure 2. Control panel
Figure 2. Le tableau de commande

BASIC SETTINGS

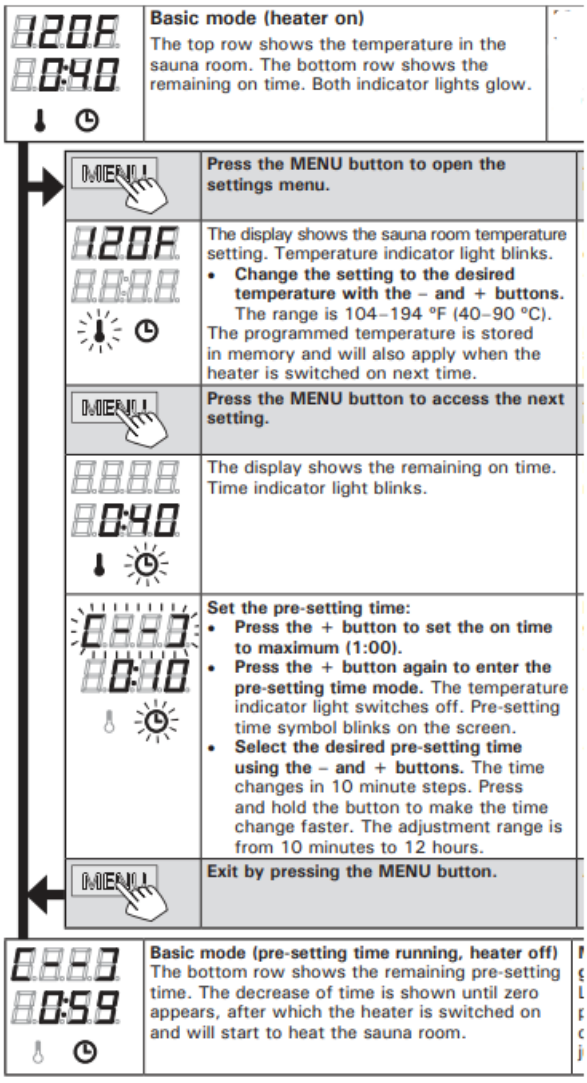


Figure 3. Settings menu structure

ADDITIONAL SETTINGS

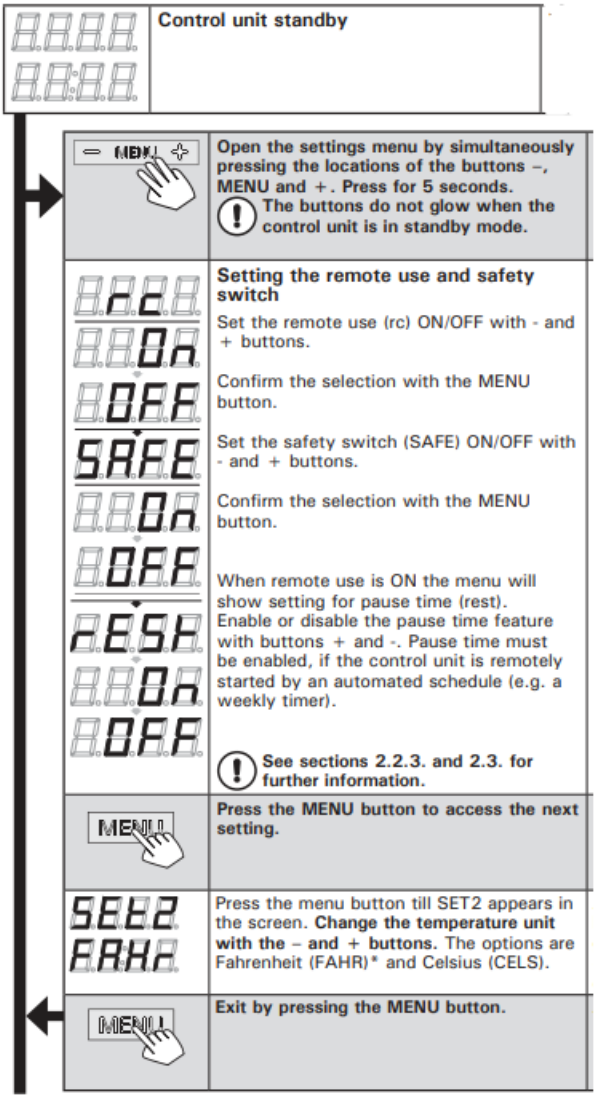


Figure 3a. Settings menu structure, additional settings

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

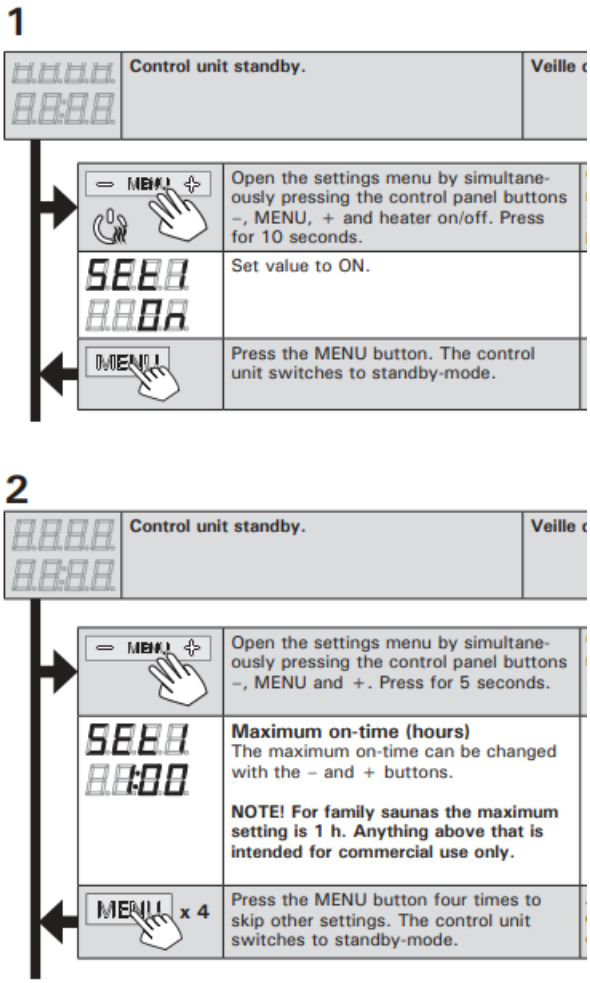


Figure 3b. Changing the maximum on-time (for commercial use only)

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.

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.

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.

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.

Installing the Control Panel
The control panel is splashproof 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.

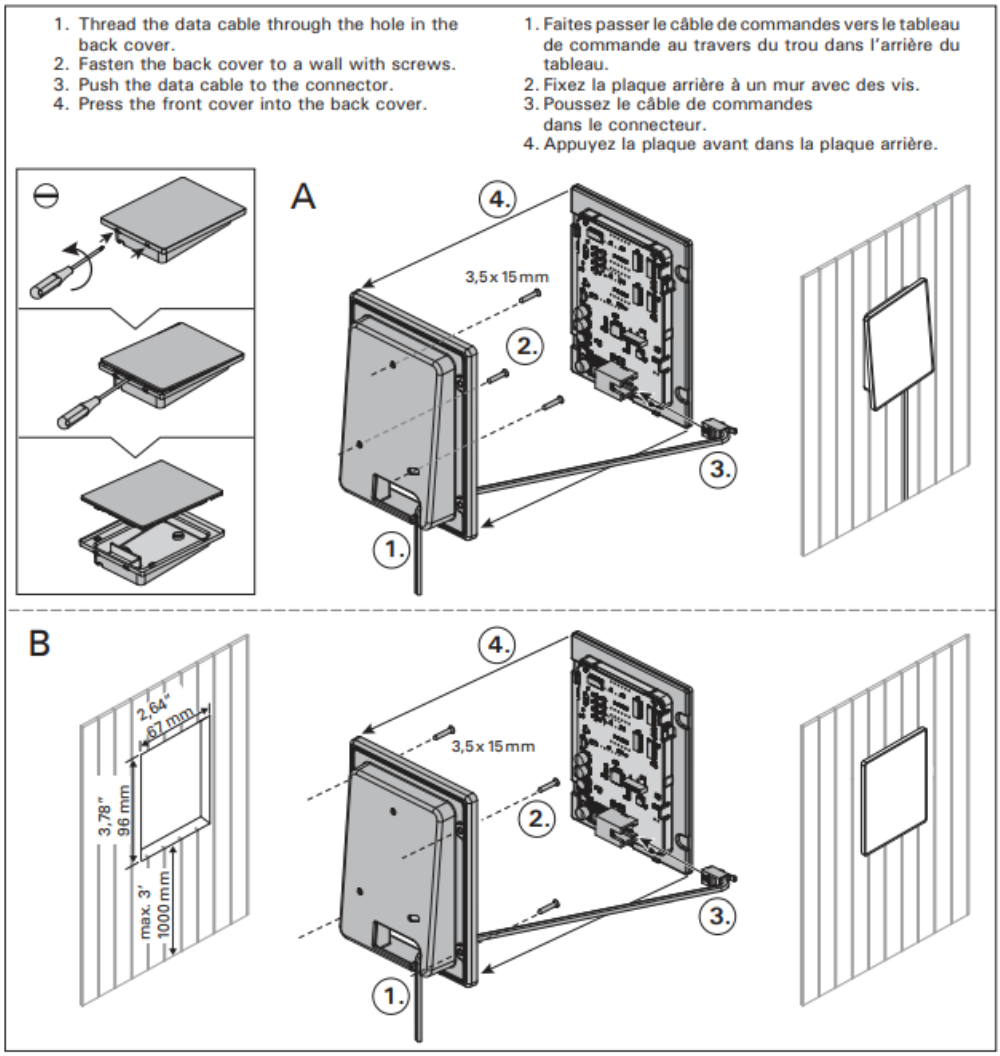


Figure 4. Fastening the control panel

be at the minimum safety distance from the heater and at a maximum height of one metre from the floor. Figure 4.

Conductor tubing (ø 1"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.

Installing the Power Unit

Install the power unit to a wall outside the sauna room, in a dry place with an ambient temperature of >32 ºF (>0 ºC). 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.

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.

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.

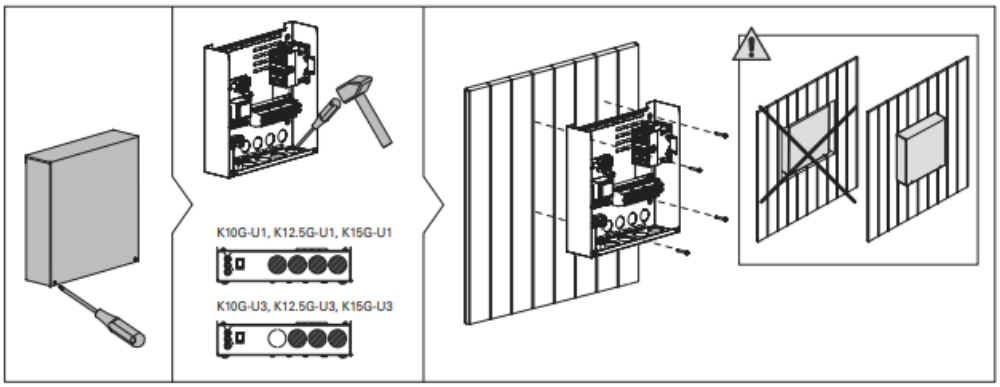
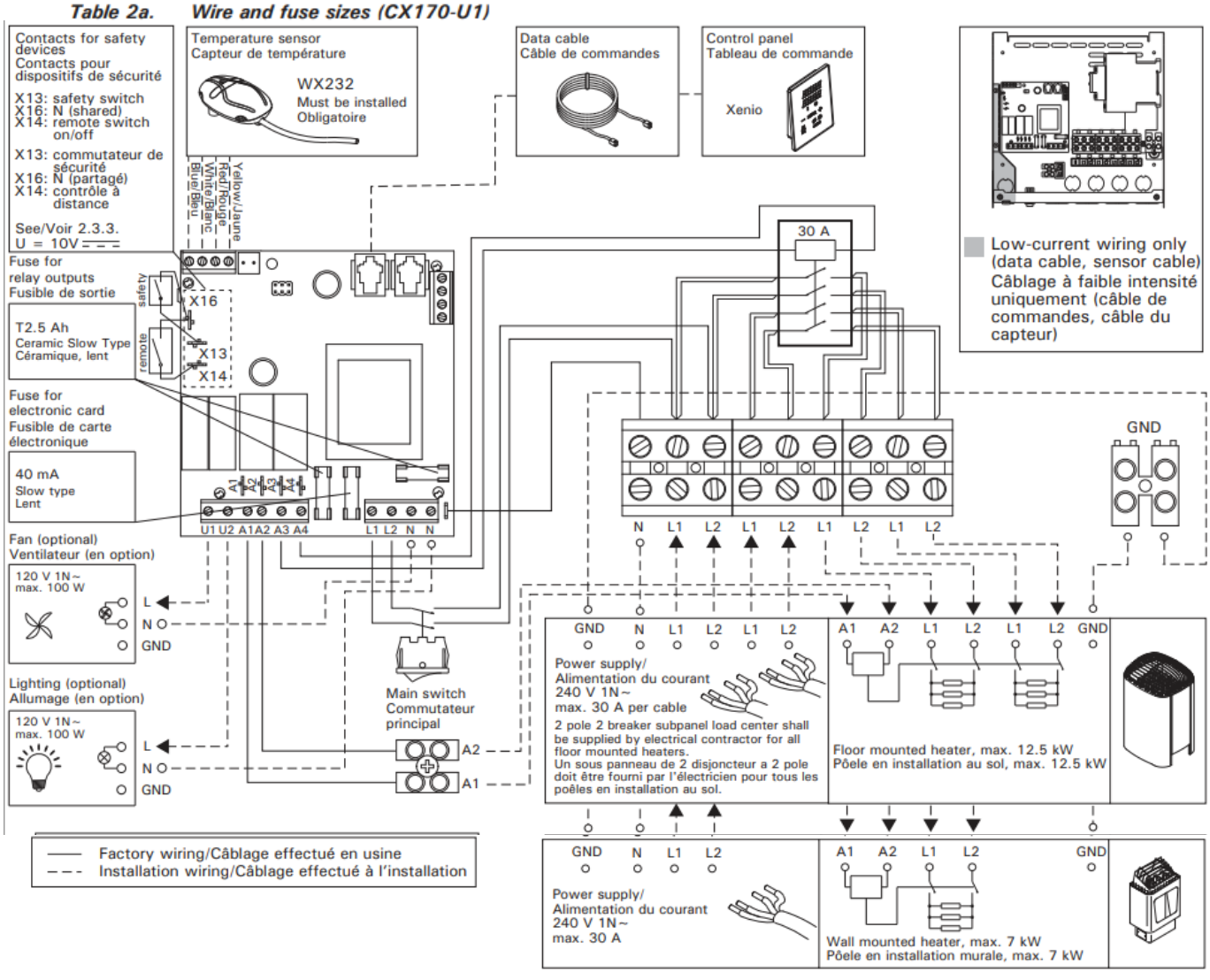


Figure 5. Opening the power unit cover and mounting the unit to a wall

MODEL MODÈLE	WATTS	AMPS AMPÈRES	VOLTAGE TENSION	PH	WIRE SIZE/CALIBRE DE FIL		
					breaker to power unit du coupe-circuit au bloc d'alimentation		power unit to heater du bloc d'alimentation au poêle
KIP-30-W1, FIN-30	3 000	12,5	240	1	#14 copper/cuivre		(2) #14 copper/cuivre
KIP-45-W1, FIN-45	4 500	18,8	240	1	#12 copper/cuivre		(2) #12 copper/cuivre
KIP-60-W1, FIN-60	6 000	25,0	240	1	#10 copper/cuivre		(2) #10 copper/cuivre
					breaker to load center du coupe-circuit au panneau de distribution	load center to power unit du panneau de distribution au bloc d'alimentation	power unit to heater du bloc d'alimentation au poêle
K10G-U1	10 000	41,7	240	1	#6 copper/cuivre	(4) #10 copper/cuivre	(4) #10 copper/cuivre
K12,5G-U1	12 600	52,7	240	1	#6 copper/cuivre	(4) #10 copper/cuivre	(4) #10 copper/cuivre

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



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.

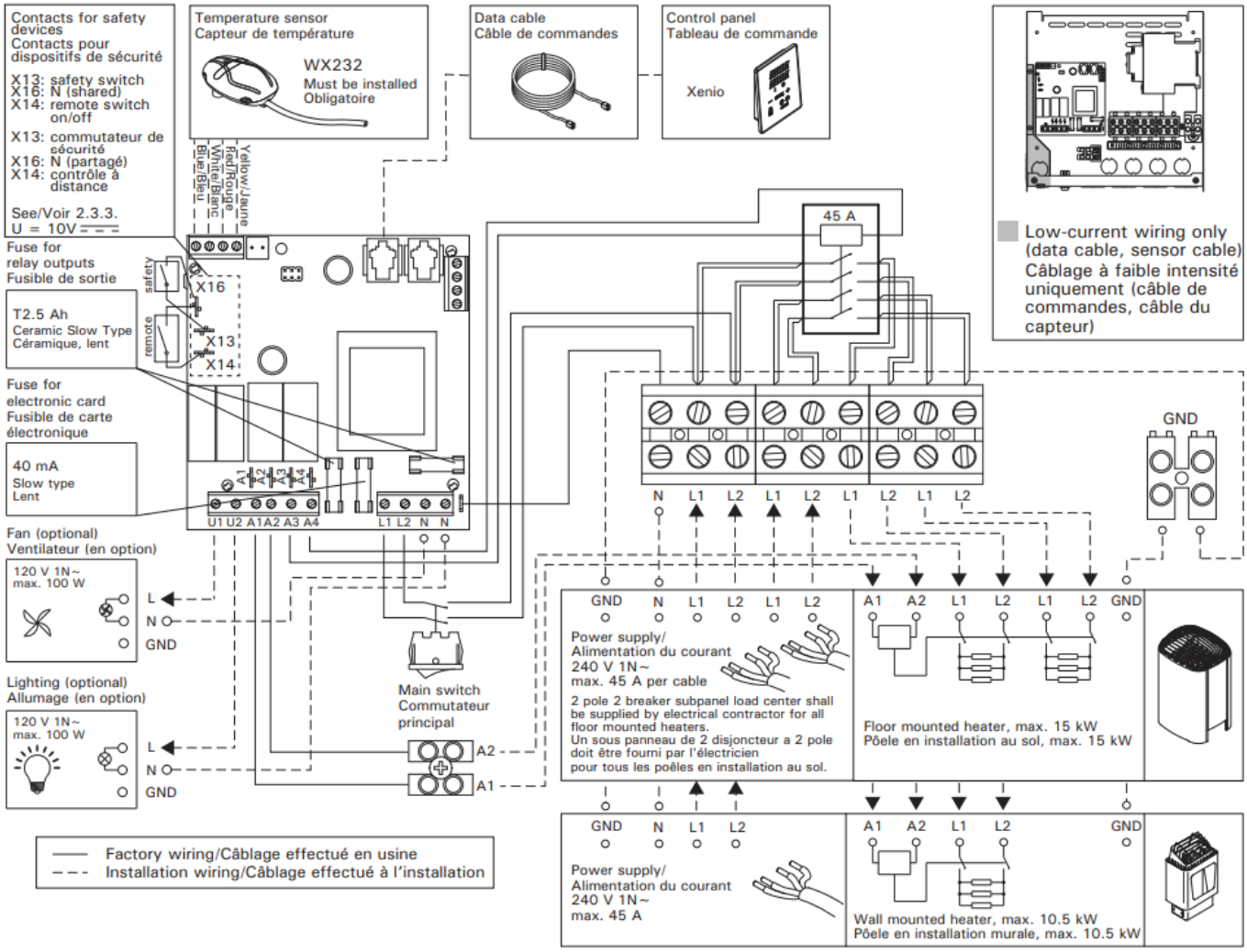
Two relay outputs (120 V 1N~):

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

MODEL MODÈLE	WATTS	AMPS AMPÈRES	VOLTAGE TENSION	PH	WIRE SIZE/CALIBRE DE FIL		
					breaker to power unit du coupe-circuit au bloc d'alimentation		power unit to heater du bloc d'alimentation au poêle
KIP-30-W1, FIN-30	3 000	12,5	240	1	#14 copper/cuivre		(2) #14 copper/cuivre
KIP-45-W1, FIN-45	4 500	18,8	240	1	#12 copper/cuivre		(2) #12 copper/cuivre
KIP-60-W1, FIN-60	6 000	25,0	240	1	#10 copper/cuivre		(2) #10 copper/cuivre
KIP-80-W1, FIN-80	8 000	33,3	240	1	#8 copper/cuivre		(2) #8 copper/cuivre
					breaker to load center du coupe-circuit au panneau de distribution	load center to power unit du panneau de distribution au bloc d'alimentation	power unit to heater du bloc d'alimentation au poêle
K10G-U1	10 000	41,7	240	1	#6 copper/cuivre	(4) #10 copper/cuivre	(4) #10 copper/cuivre
K12,5G-U1	12 600	52,7	240	1	#6 copper/cuivre	(4) #10 copper/cuivre	(4) #10 copper/cuivre
K15G-U1	14 800	61,7	240	1	#4 copper/cuivre	(4) #8 copper/cuivre	(4) #8 copper/cuivre

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.

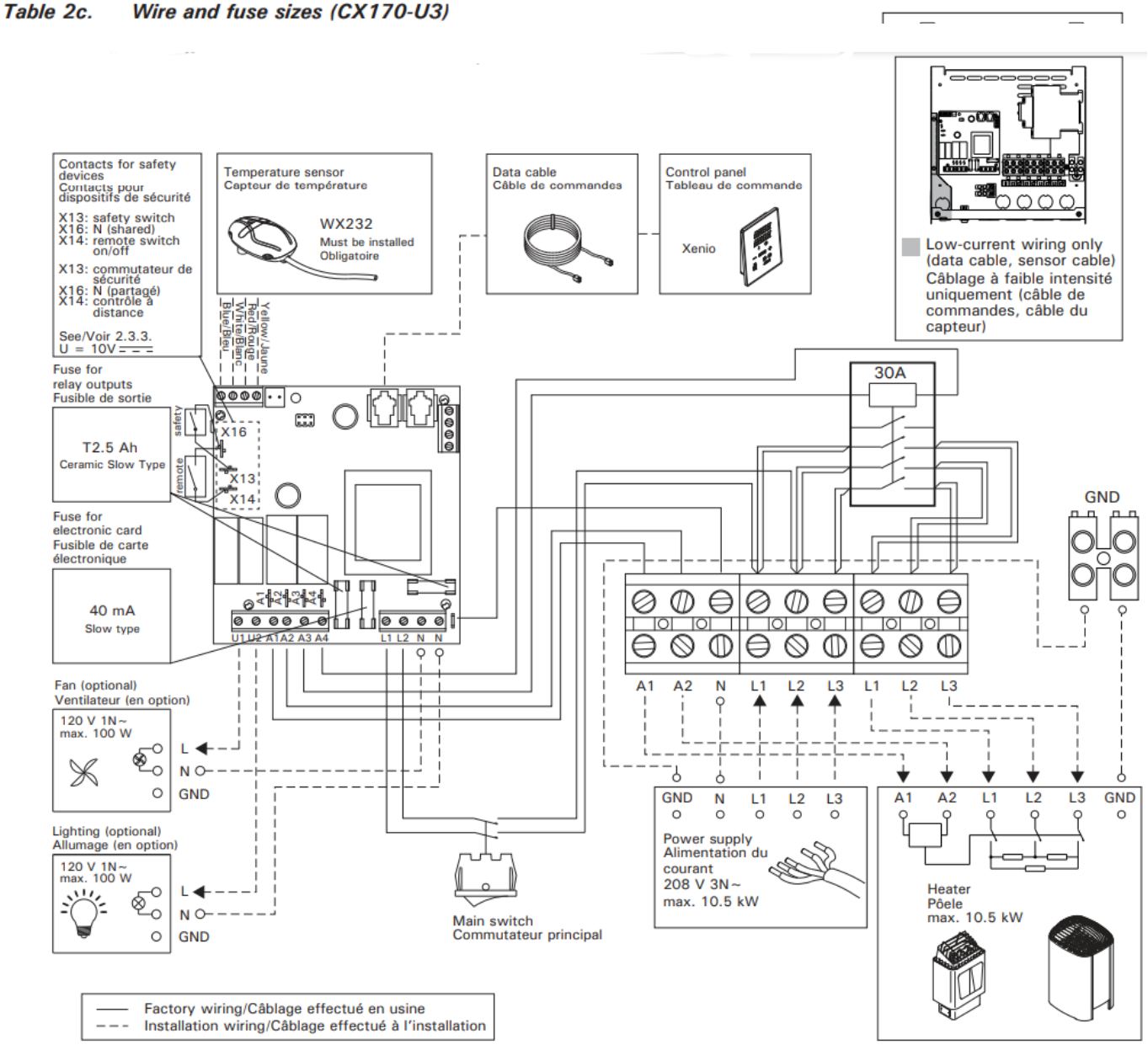
Two relay outputs (120 V 1N~):

- 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

MODEL MODÈLE	WATTS	AMPS AMPÈRES	VOLTAGE TENSION	PH	WIRE SIZE/CALIBRE DE FIL	
					breaker to power unit du coupe-circuit au bloc d'alimentation	power unit to heater du bloc d'alimentation au poêle
KIP-30-W3, FIN-30-W3	3 000	8,3	208	3	#16 copper/cuivre	#16 copper/cuivre
KIP-45-W3, FIN-45-W3	4 500	12,5	208	3	#14 copper/cuivre	#14 copper/cuivre
KIP-60-W3, FIN-60-W3	6 000	16,7	208	3	#12 copper/cuivre	#12 copper/cuivre
KIP-80-W3, FIN-80-W3	8 000	22,2	208	3	#10 copper/cuivre	#10 copper/cuivre
K10G-U3	9 800	27,3	208	3	#10 copper/cuivre	#10 copper/cuivre

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~):

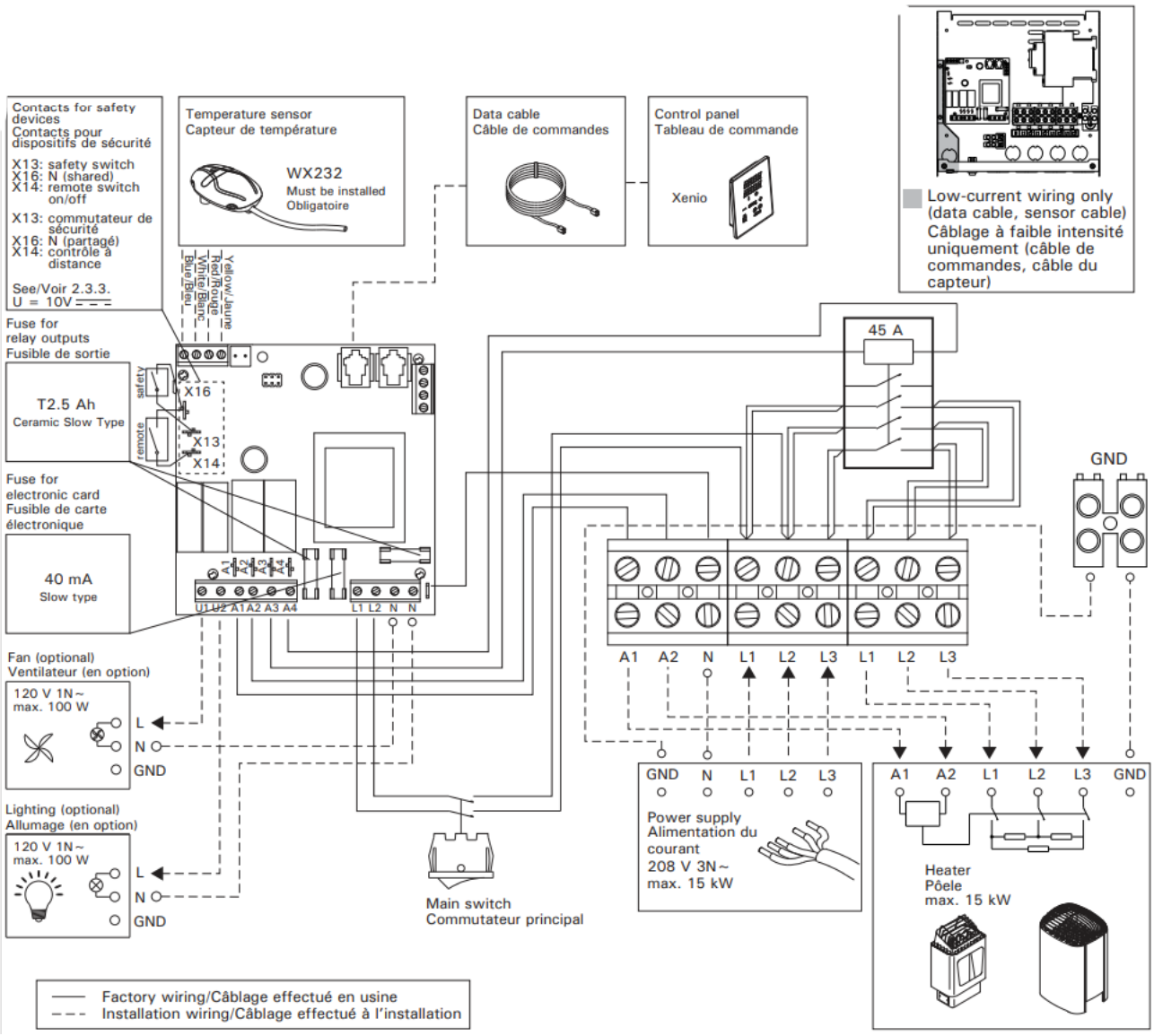
- For driving a fan (max. 100 W) and lighting (max. 100 W). Fuses on the electronics card (if a fuse has blown, see section 3.2.2.):
- 40 mA fuse for electronic unit.
- Two 2.5 Ah fuses for relay outputs U1, U2, A1, A2.

Technical specifications:

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

MODEL MODÈLE	WATTS	AMPS AMPÈRES	VOLTAGE TENSION	PH	WIRE SIZE/CALIBRE DE FIL	
					breaker to power unit du coupe-circuit au bloc d'alimentation	power unit to heater du bloc d'alimentation au poêle
KIP-30-W3, FIN-30-W3	3 000	8,3	208	3	#16 copper/cuivre	#16 copper/cuivre
KIP-45-W3, FIN-45-W3	4 500	12,5	208	3	#14 copper/cuivre	#14 copper/cuivre
KIP-60-W3, FIN-60-W3	6 000	16,7	208	3	#12 copper/cuivre	#12 copper/cuivre
KIP-80-W3, FIN-80-W3	8 000	22,2	208	3	#10 copper/cuivre	#10 copper/cuivre
K10G-U3	9 800	27,3	208	3	#10 copper/cuivre	#10 copper/cuivre
K12,5G-U3	12 300	34,1	208	3	#8 copper/cuivre	#8 copper/cuivre
K15G-U3	14 400	40,0	208	3	#8 copper/cuivre	#8 copper/cuivre

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

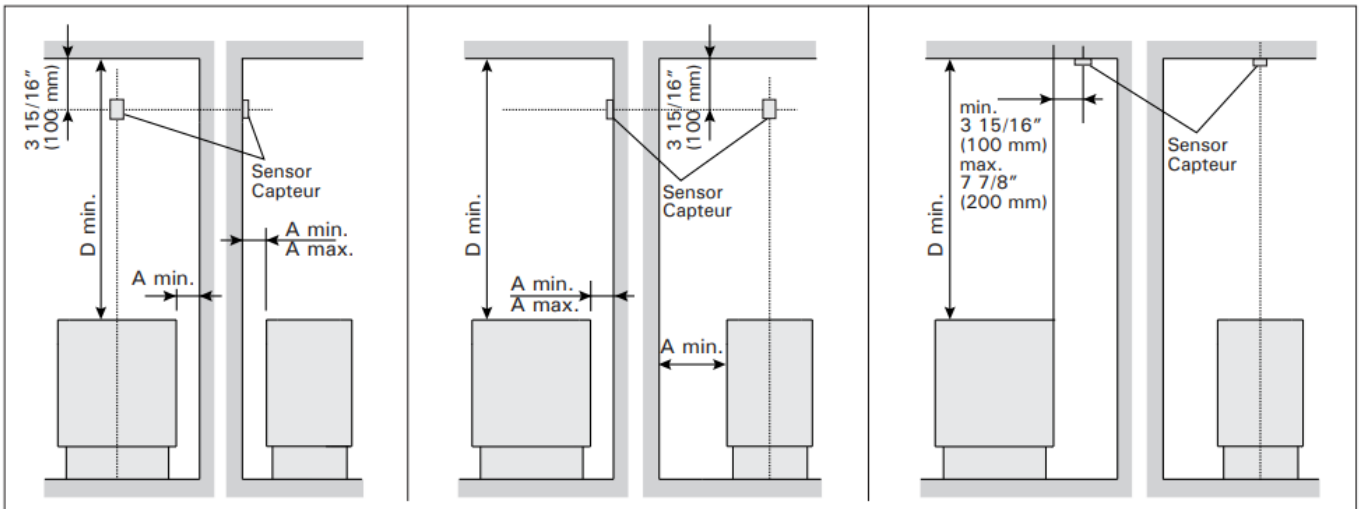
Installing the Temperature Sensor Floor-mounted heaters (see Figure 7)

- 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.

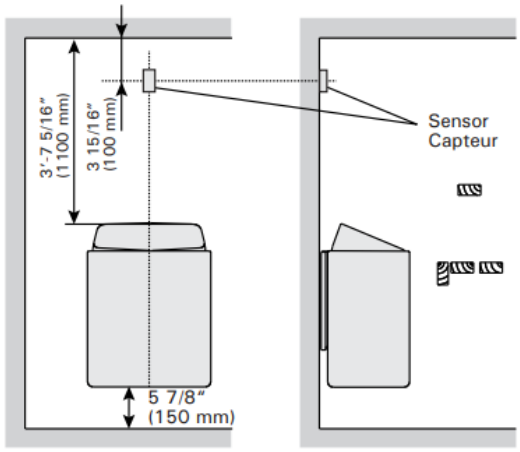
Do not install the temperature sensor closer than 3’-3 3/8” (1000 mm) to an air vent. The air flow near an air vent cools down the sensor, which gives inaccurate temperature readings to the control unit. As a result, the heater might overheat. See Figure 9.



MODEL/MODÈLE
K10G-U1, K12,5G-U1, K15G-U1
K10G-U3, K12,5G-U3, K15G-U3

Model Modèle	A min. inch (mm) pouces (mm)	A max. inch (mm) pouces (mm)	D min. inch (mm) pouces (mm)
K10G-U1 K10G-U3	5″ (127 mm)	7″ (178 mm)	52″ (1320 mm)
K12.5G-U1 K12.5G-U3	6″ (152 mm)	8″ (203 mm)	52″ (1320 mm)
K15G-U1 K15G-U3	6″ (152 mm)	8″ (203 mm)	52″ (1320 mm)

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



MODEL/MODÈLE
KIP-30-W1, FIN-30, KIP-45-W1, FIN-45
KIP-60-W1, FIN-60, KIP-80-W1, FIN-80
KIP-30-W3, FIN-30-W3, KIP-45-W3, FIN-45-W3
KIP-60-W3, FIN-60-W3, KIP-80-W3, FIN-80-W3

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

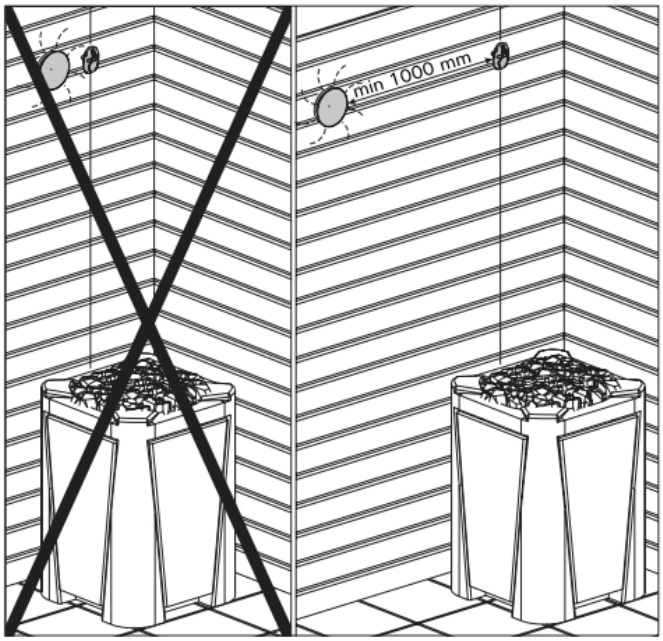


Figure 9. Sensor's minimum distance from an air vent
Figure 9. Distance minimale du capteur avec le conduit d'air

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.

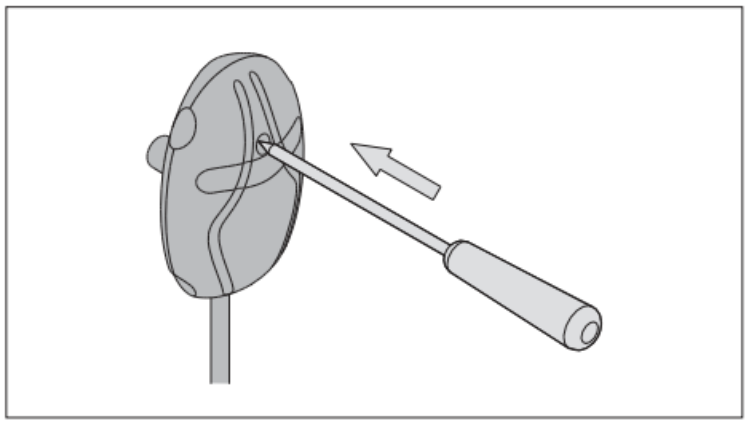
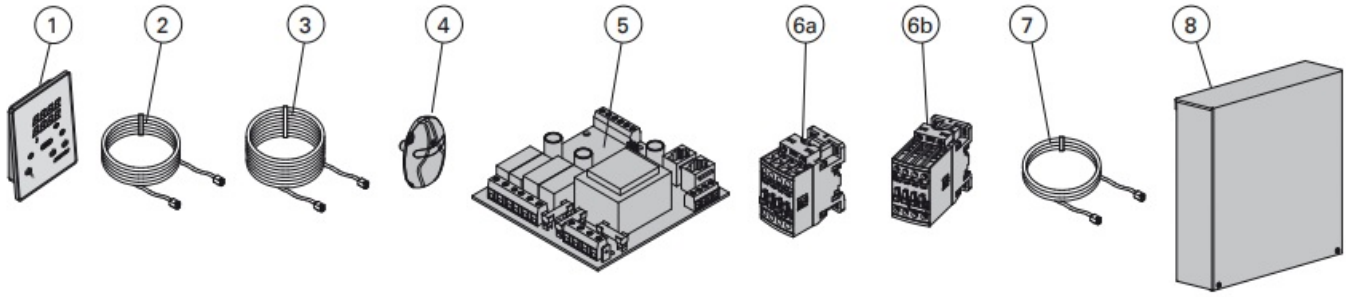


Figure 10. Reset button of the overheat protector

SPARE PARTS



Use only parts approved by the manufacturer!

1	Control panel	Tableau de commande	WX384
2	Data cable 5 m	Câble de commandes 5 m	WX311
3	Data cable extension 10 m (optional)	Câble de rallonge 10 m (en option)	WX313
4	Temperature sensor	Capteur de température	WX232
5	Circuit board	Circuit imprimé	WX361
6 a	Contactor 30 A (CX170-U1, CX170-U3)	Contactor 30 A (CX170-U1, CX170-U3)	ZSK-778
6 b	Contactor 45 A (CX170-U3-15, CX170-U1-15)	Contactor 45 A (CX170-U3-15, CX170-U1-15)	ZSL-940

Use only parts approved by the manufacturer!

1. Control panel
2. Data cable 5 m
3. Data cable extension 10 m (optional)
4. Temperature sensor
5. Circuit board
6. Contactor 30 A (CX170-U1, CX170-U3)
7. Contactor 45 A (CX170-U3-15, CX170-U1-15)

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 not 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

Documents / Resources

	HARVIA CX170-U Series Xenio Control Unit [pdf] Owner's Manual CX170-U1, CX170-U1-15, CX170-U3, CX170-U3-15, CX170-U Series Xenio Control Unit, CX170-U Series, Xenio Control Unit, Control Unit, Unit

References

- **User Manual**