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HARVIA XENIO

Digital Wall Control and Power Supply Unit

EN Instructions for Installation and Use of Control Unit

CX170-U1-15 (240v, 1ph)

CX170-U3-15 (208v, 3ph)



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.

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1. 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).
- Standard 60 minute on time.
- 10 minute to 12 hour time delay feature.
- Lighting control, max. power 100 W, 120 V 1N~
- Fan control, max. power 100 W, 120 V 1N~
- Dimensions: 3 3/8" x 4 3/8" x 1" deep
- Surface or flush mount

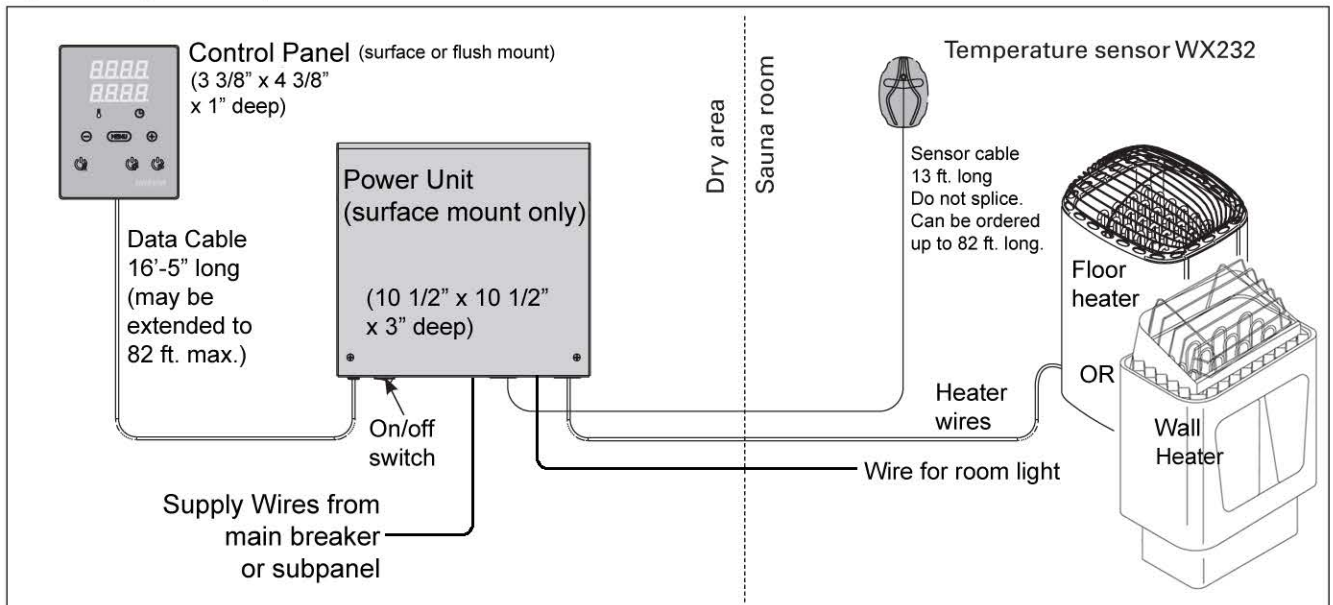
Power unit:

- Supply voltage
CX170-U1-15: 240 V 1N~
CX170-U3-15: 208 V 3N~
- Max. load
CX170-U1-15: 15 kW/10.5 kW (Two supply wires / One supply wire between the Heater and the Power unit.)
/240V 1N~
CX170-U3-15: 15 kW/208V 3N~
- Dimensions:
10 1/2" x 10 1/2" x 3" deep
- Surface mount

Sensor:

- Temperature sensor NTC thermistor 22 k Ω / T=77 °F (25 °C)
- Resettable overheat protector
- Dimensions: 2" x 3" x 1"
- Weight 175 g with leads, cable 13 ft.
- Do not splice sensor wires

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 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 faulties.
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 faulties.
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 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. Multidrive-system (see section 3.2.3.): Switch the power off from all power units. Check the data cable, sensor cable/s, Multidrive cable and their connections. The most common E9 error in a new installation is that the sensor wires are not connected in the proper order either on the power unit circuit board or on the special temperature sensor that has screw on connectors (see pg. 13).

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.

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

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.)



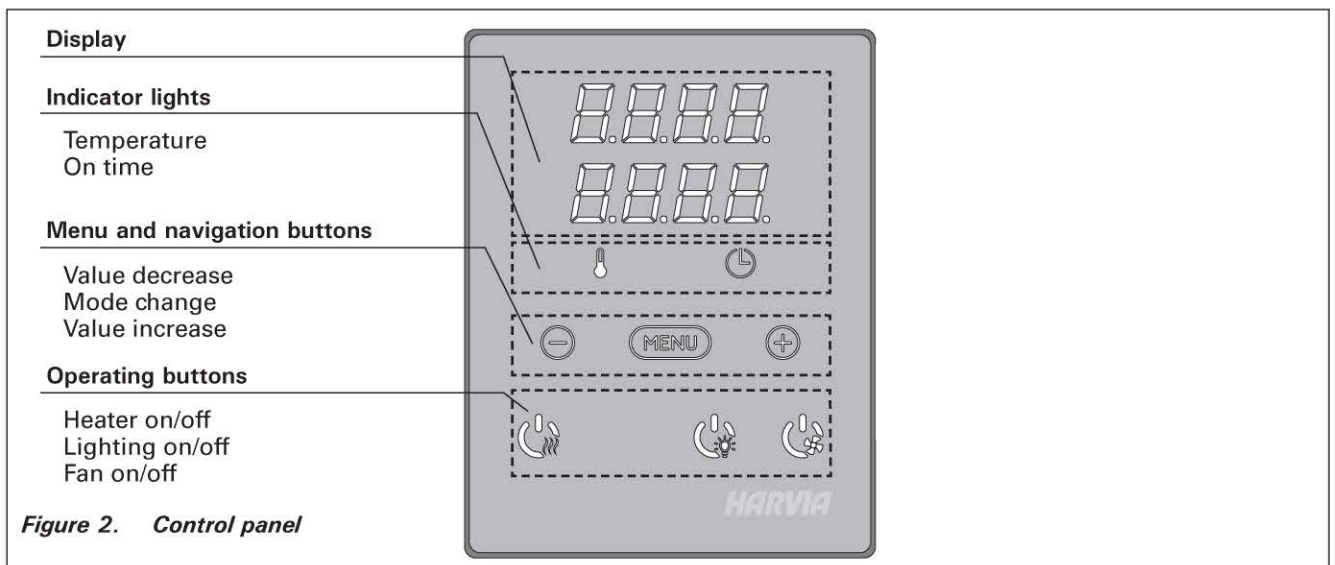
Switch the lights on/off by pressing the button on the control panel.


2.2.2. Ventilation





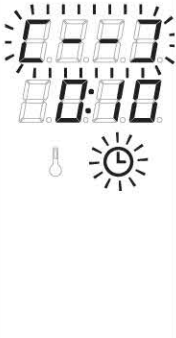

If there is a fan installed in the sauna room, it can be connected to the control unit and be controlled from the control panel.




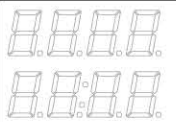
Start/stop the fan by pressing the button on the control panel.



	<p>Basic mode (heater on)</p> <p>The top row shows the temperature in the sauna room. The bottom row shows the remaining on time. Both indicator lights glow.</p>
--	--

	<p>Press the MENU button to open the settings menu.</p>
	<p>The display shows the sauna room temperature setting. Temperature indicator light blinks.</p> <ul style="list-style-type: none"> Change the setting to the desired temperature with the - and + buttons. The range is 104–194 °F (40–90 °C). <p>The programmed temperature is stored in memory and will also apply when the heater is switched on next time.</p>
	<p>Press the MENU button to access the next setting.</p>
	<p>The display shows the remaining on time. Time indicator light blinks.</p>
	<p>Set the pre-setting time:</p> <ul style="list-style-type: none"> Press the + button to set the on time to maximum (1:00). Press the + button again to enter the pre-setting time mode. The temperature indicator light switches off. Pre-setting time symbol blinks on the screen. Select the desired pre-setting 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.
	<p>Exit by pressing the MENU button.</p>

	<p>Basic mode (pre-setting time running, heater off)</p> <p>The bottom row shows the remaining pre-setting time. The decrease of time is shown until zero appears, after which the heater is switched on and will start to heat the sauna room.</p>
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	<p>Control unit standby</p> <p>I/O button's background light glows on the control panel.</p>
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	<p>Open the settings menu by pressing simultaneously the control panel buttons -, MENU and +. Press for 5 seconds.</p>
	<p>Change the temperature unit with the - and + buttons. The options are Fahrenheit (FAHR)* and Celsius (CELS).</p>
	<p>Exit by pressing the MENU button.</p>

Figure 3. 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.

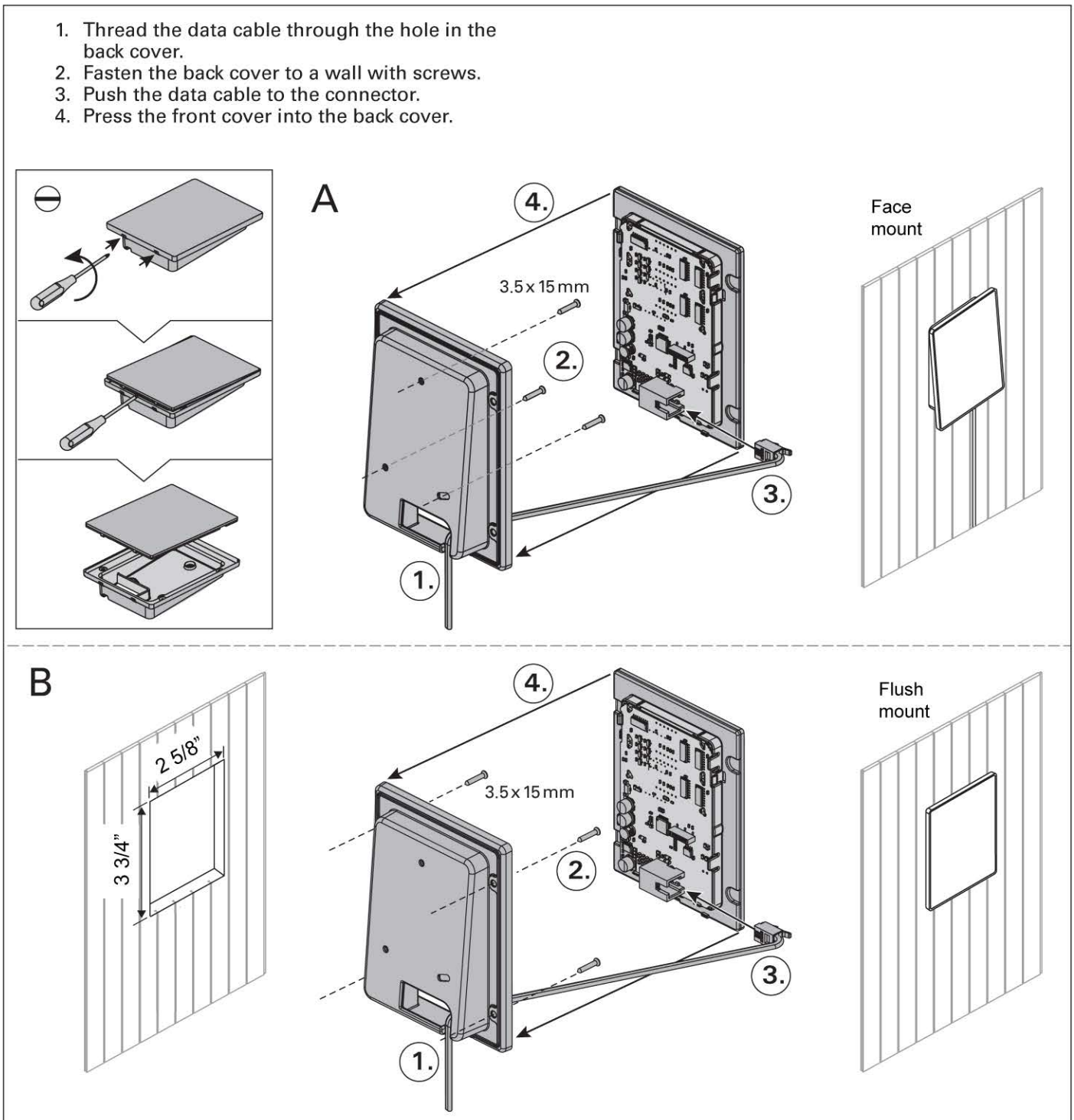


Figure 4. Fastening the control panel

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 of $>32\text{ }^{\circ}\text{F}$ ($>0\text{ }^{\circ}\text{C}$). 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 to 6d.

- 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.

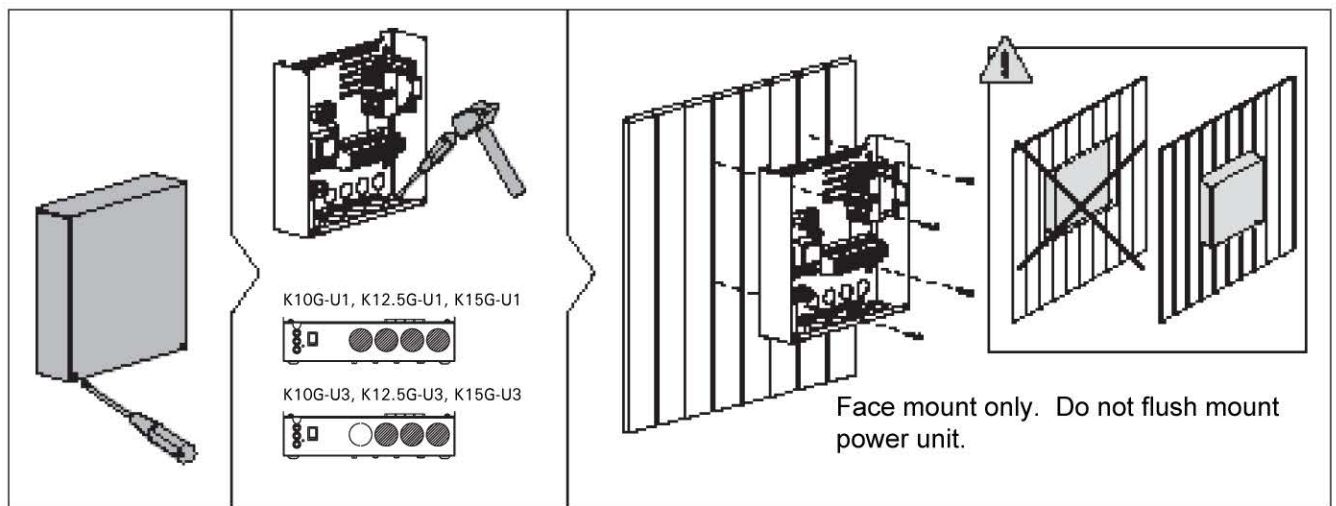


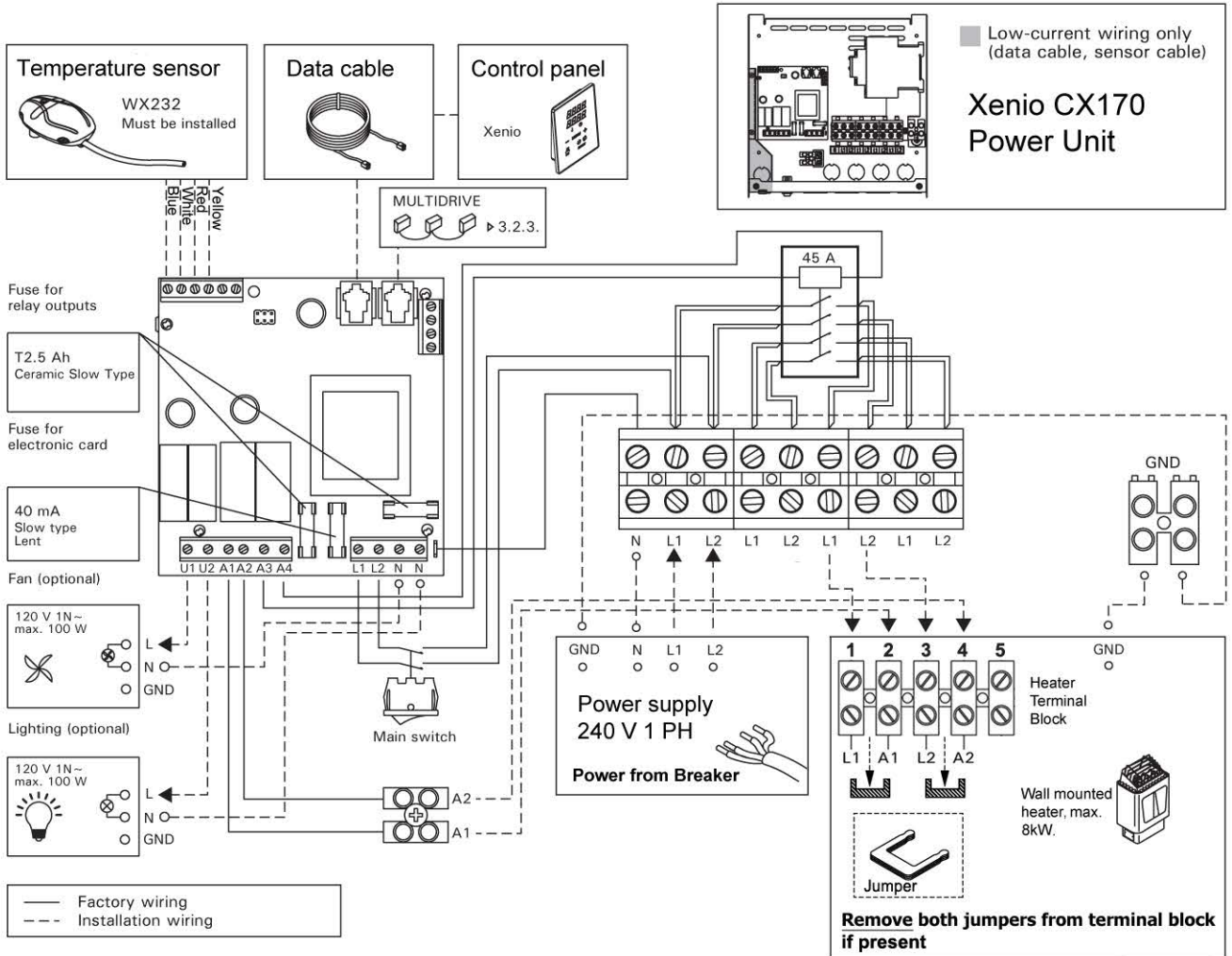
Figure 5. Opening the power unit cover and mounting the unit to a wall

3kw to 8kw 240v/1ph Wall heater and Xenio CX170-U1-15

MODEL	WATTS	AMPS	BREAKER SIZE TO USE	VOLTS	PH	WIRE SIZE		
						breaker to power unit	power unit to heater	power unit A1 & A2 to heater
KIP-30-W1, FIN-30	3,000	12.5	20	240	1	(2) #12 + N + G	(2) #12 + G	(2) #14 copper
KIP-45-W1, FIN-45	4,500	18.8	30	240	1	(2) #10 + N + G	(2) #10 + G	(2) #14 copper
KIP-60-W1, FIN-60	6,000	25.0	30	240	1	(2) #10 + N + G	(2) #10 + G	(2) #14 copper
KIP-80-W1, FIN-80	8,000	33.3	40	240	1	(2) #8 + N + G	(2) #8 + G	(2) #14 copper

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

Use Copper wire for connections



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: 82 feet

NOTE: Do not forget to connect the A1 and A2 wires from the Power Unit to the Heater.

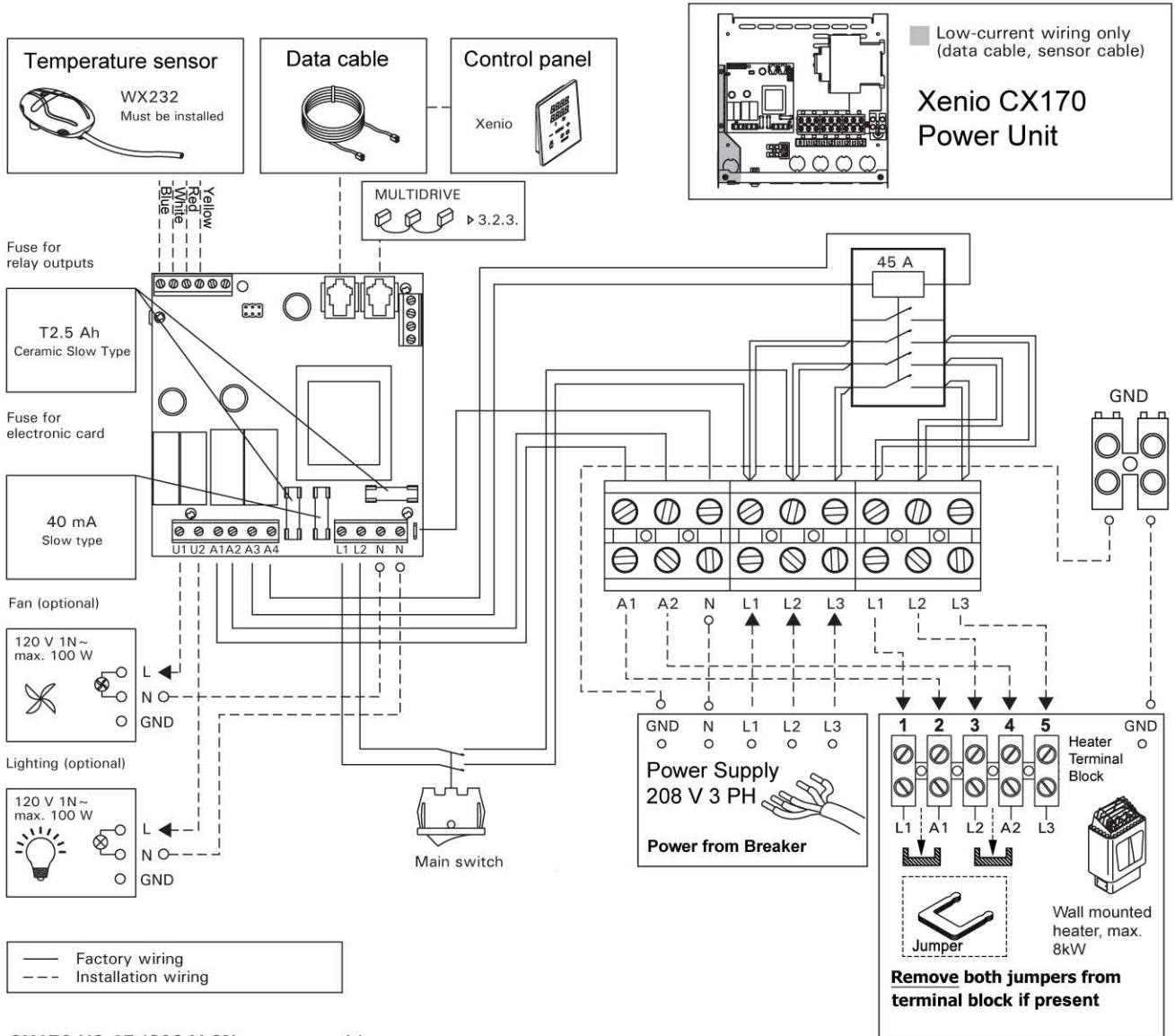
Figure 6a. Electrical connections (CX170-U1-15)

4.5kw to 8kw 208v/3ph Wall mounted heater and Xenio CX170-U3-15

MODEL	WATTS	AMPS	BREAKER SIZE TO USE	VOLTS	PH	WIRE SIZE		
						breaker to power unit	power unit to heater	power unit A1 & A2 to heater
KIP-45-W3, FIN-45-3	4,500	12.5	20	208	3	(3) #14 + N + G	(3) #14 + G	(2) #14 copper
KIP-60-W3, FIN-60-3	6,000	16.7	30	208	3	(3) #12 + N + G	(3) #12 + G	(2) #14 copper
KIP-80-W3, FIN-80-3	8,000	22.2	30	208	3	(3) #10 + N + G	(3) #10 + G	(2) #14 copper

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

Use Copper wire for connections



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. 100W) 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: 82 feet

NOTE: Do not forget to connect the A1 and A2 wires from the Power Unit to the Heater.

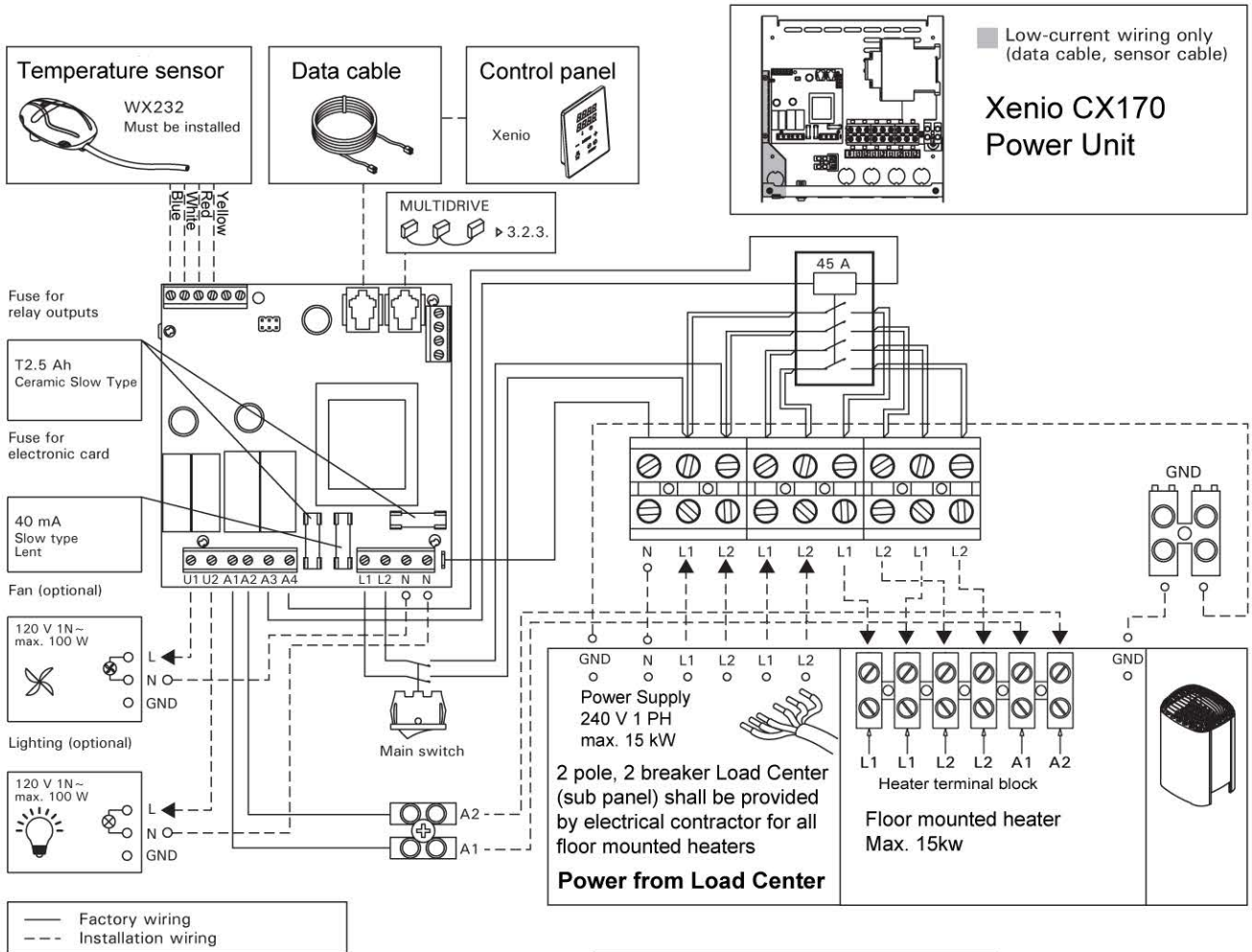
Figure 6b. Electrical connections (CX170-U3-15)

10kw to 15kw 240v/1ph Club model heater and Xenio CX170-U1-15

MODEL	WATTS	AMP DRAW	BREAKER SIZE TO USE	VOLTS	PH	WIRE SIZE			
						breaker to load center	load center to power unit	power unit to heater	power unit A1 & A2 to heater
K10G-U1	10,000	41.7	50	240	1	(2) #6 + N + G	(4) #10 + N + G	(4) #10 + G	(2) #14 copper
K12.5G-U1	12,600	52.7	60	240	1	(2) #4 + N + G	(4) #8 + N + G	(4) #8 + G	(2) #14 copper
K15G-U1	14,800	61.7	70	240	1	(2) #4 + N + G	(4) #8 + N + G	(4) #8 + G	(2) #14 copper

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

Use Copper wire for connections



NOTE: Do not forget to connect the A1 and A2 wires from the Power Unit to the Heater.

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: 82 feet

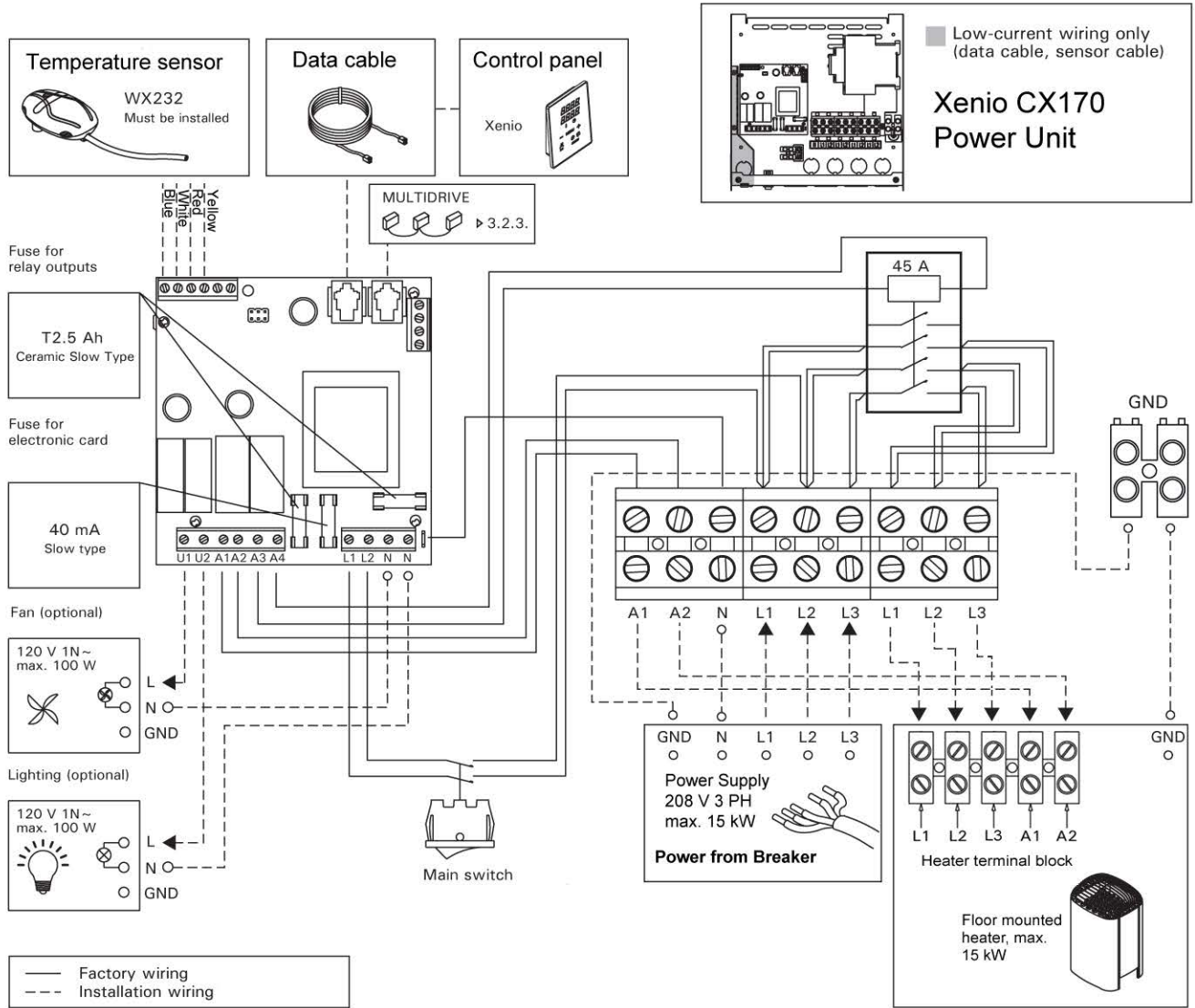
Figure 6c. Electrical connections (CX170-U1-15)

10kw to 15kw 208v/3ph Club model heater and CX170-U3-15

MODEL	WATTS	AMP DRAW	BREAKER SIZE TO USE	VOLTS	PH	WIRE SIZE		
						breaker to power unit	power unit to heater	power unit A1 & A2 to heater
K10G-U3	9,800	27.3	40	208	3	(3) #8 + N + G	(3) #8 copper + G	(2) #14 copper
K12.5G-U3	12,300	34.1	40	208	3	(3) #8 + N + G	(3) #8 copper + G	(2) #14 copper
K15G-U3	14,400	40	50	208	3	(3) #8 + N + G	(3) #8 copper + G	(2) #14 copper

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

Use Copper wire for connections



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: 82 feet

NOTE: Do not forget to connect the A1 and A2 wires from the Power Unit to the Heater.

Figure 6d. Electrical connections (CX170-U3-15)

3.2.3. Multidrive

Up to 8 power units can be connected in series so that they share the same control panel. The connection principle is shown in figure 7.

1. Connect the control panel to the first or last power unit in the chain.
2. Connect the temperature sensor to the first power unit in the chain. Install the sensor in the sauna room as described in section 3.3.
3. Install a wire loop to the temperature sensor terminals in other power units.
4. Connect the power units together with Multidrive cables.

3.3. Installing the Temperature Sensor

Floor-mounted heaters (see Figure 8)

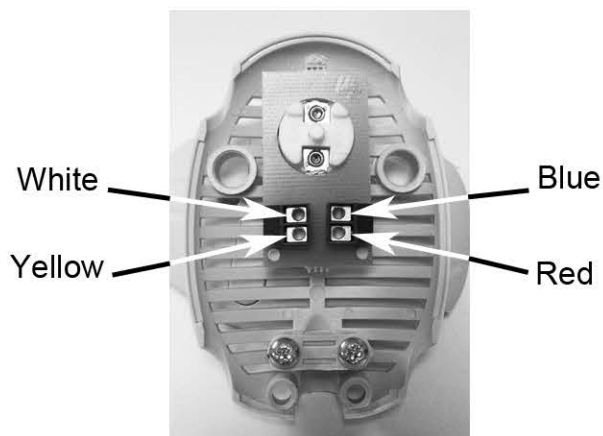
Wall-mounted heaters (see Figure 9)

- Install the temperature sensor to the wall about 12" away from either side of the heater and about 12" down from the ceiling. DO NOT install sensor directly above the heater as it will turn the heater off before reaching proper temperature.

Do not install the temperature sensor closer than 3'-3 3/8" 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 10.

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.



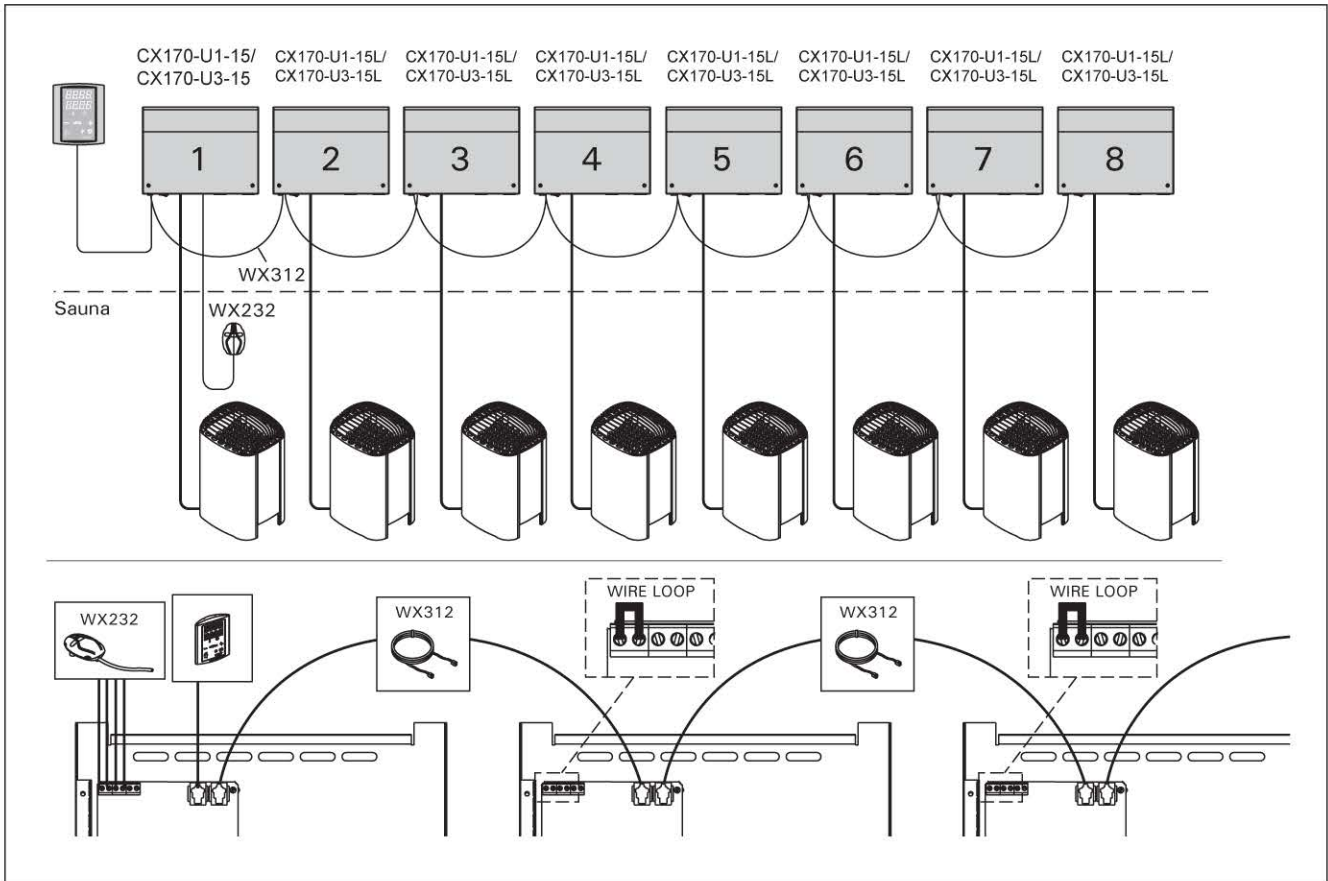


Figure 7. Multidrive hookup when two or more heaters are used in one sauna room

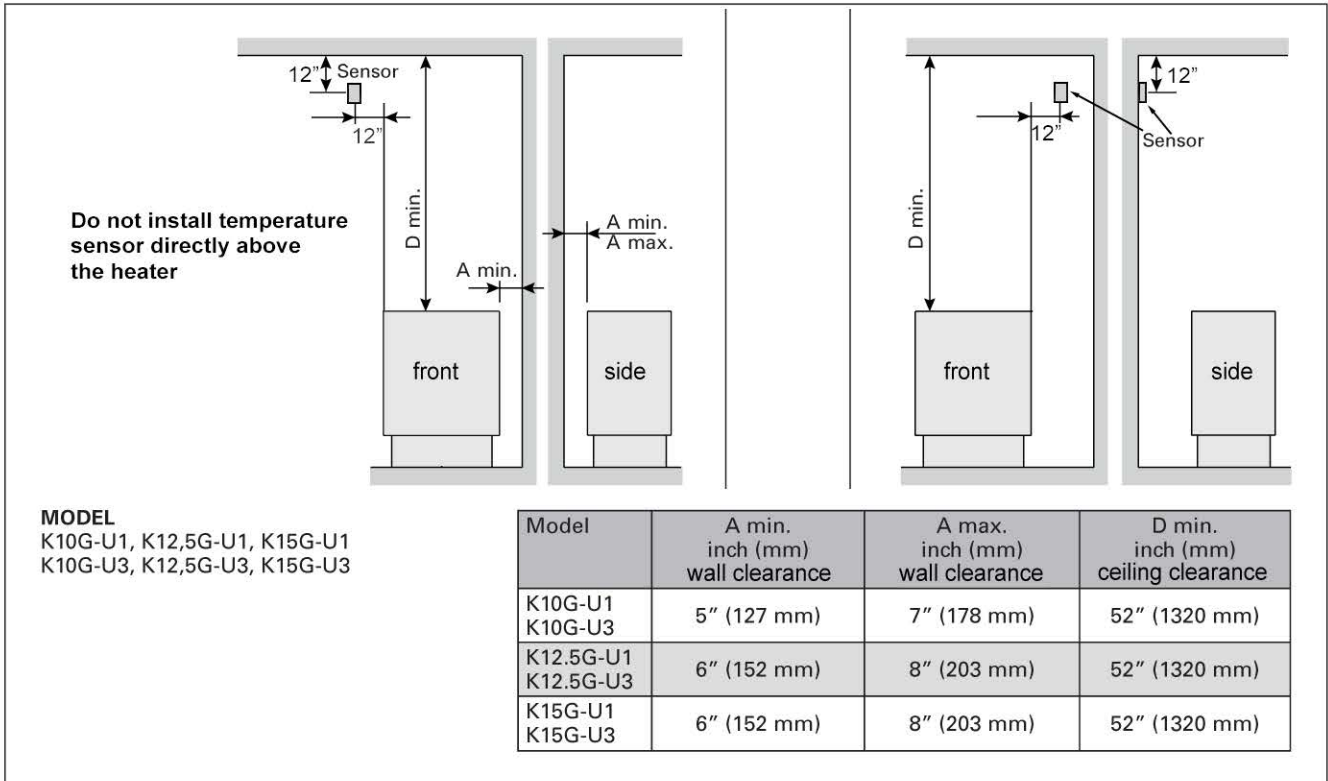


Figure 8. Placement of the temperature sensor of the control unit in connection with the floor mounted heaters

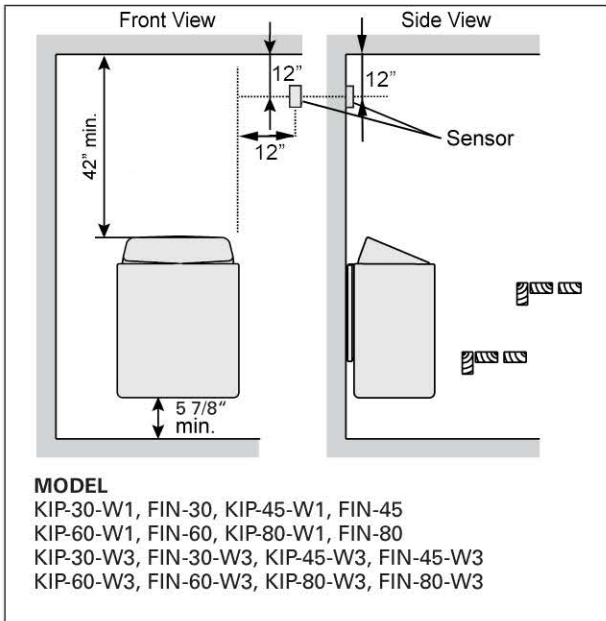


Figure 9. The placement of the temperature sensor of the control unit in connection with the wall-mounted heaters

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 11.

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

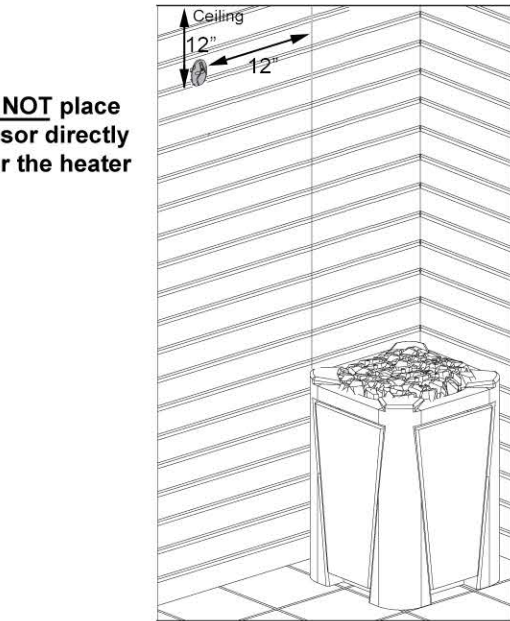


Figure 10. Sensor distance from side of heater

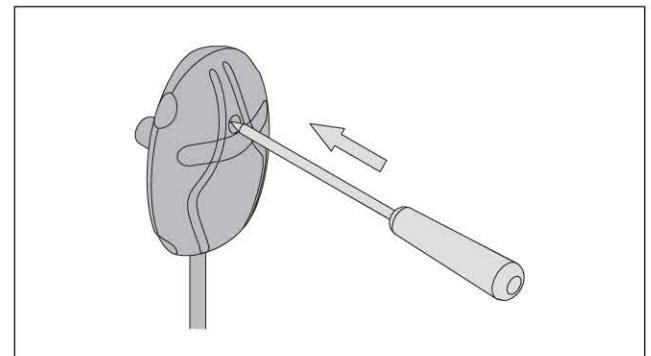
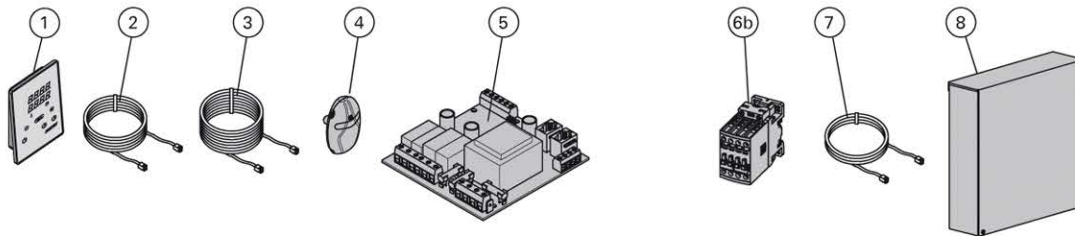


Figure 11. Reset button of the overheat protector

4. SPARE PARTS



1	Control panel	WX384
2	Data cable 16 ft.	WX311
3	Data cable extension 32.8 ft. (optional)	WX313
4	Temperature sensor	WX232
5	Circuit board	WX361
6b	Contactor 45 A (CX170-U3-15, CX170-U1-15)	ZSL-940
7	Multidrive cable 5 ft. (optional—for when 2 heaters are used in sauna room)	WX312
8	Multidrive power unit (optional—for when 2 heaters are used in sauna room)	
	1 phase, max. 15 kW	CX170-U1-15L
	3 phase, max. 15 kW	CX170-U3-15L

We recommend to use only the manufacturer's spare parts.

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
