HARVIA XENIO Digital Control and Power Unit

CX30-U1-U3/CX45-U1-U3

EN **Instructions for Installation and Use of Control Unit**

CX30-U1-U3 (For 240v/1ph or 208v/3ph use)

CX45-U1-U3 (For 240v/1ph or 208v/3ph use)

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

Intertek
3159549

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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 (CX30-U1-U3, CX45-U1-U3)

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 delay the start of the heater (timer delay). See Figure 3c.

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" w x 4 3/8" h x 1" d
- Surface or flush mount
- Data cable 82 ft. max. length

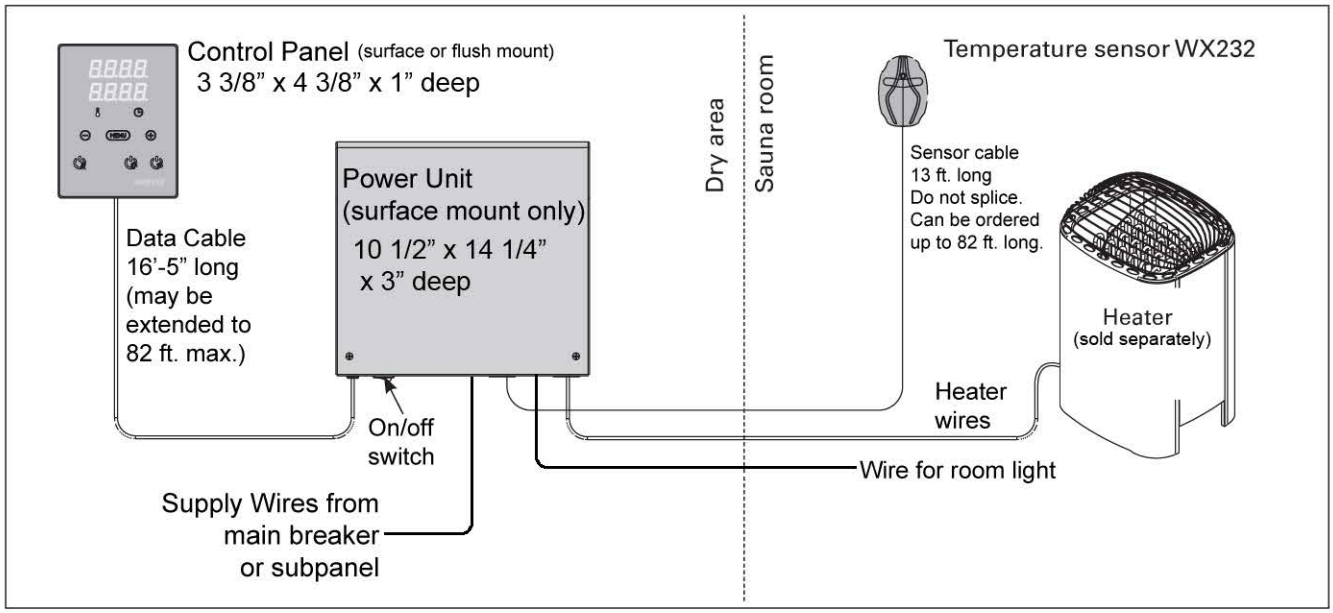
Power unit:

- Supply voltage
  CX30-U1-U3: 240 V 1 Ph or 208 V 3 Ph
  CX45-U1-U3: 240 V 1 Ph or 208 V 3 Ph
- Max. load
  CX30-U1-U3: 11 kW for 1 ph or 10.5 kW for 3 ph
  CX45-U1-U3: 17 kW for 1 ph or 15 kW for 3 ph
- Dimensions:
  10 1/2" h x 14 1/4" w x 3" d
- Surface mount only

Sensor:

- Temperature sensor NTC thermistor 22 kΩ/ 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, longer wires can be ordered (max. 82 ft. sensor wire length)

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 firgure 3b.

	Description	Remedy/Solution
E1	Temperature sensor's measuring circuit broken.	Check the red and yellow wires to the temperature sensor and their connections (see Figure 6) for faults.
E2	Temperature sensor's measuring circuit short-circuited.	Check the red and yellow wires to the temperature sensor and their connections (see Figure 6) 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 Figure 6) 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. Multidrive-system (see section 3.2.4.): 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. 16).

*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

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, change 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.

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.

The settings menu structure and changing the settings is shown in figure 3c. Changing the temperature unit (Fahrenheit/Celsius) is shown in figure 3a.

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.)

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 (auxilary) on/off

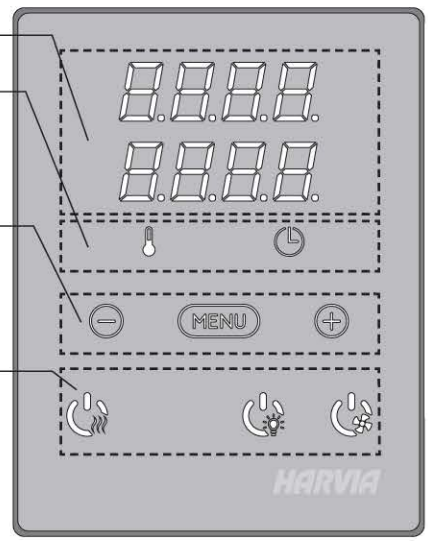


Figure 2. Control panel

Figure 2. Control panel

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

2.2.2. Ventilation (auxilary)

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 tempararerature unit

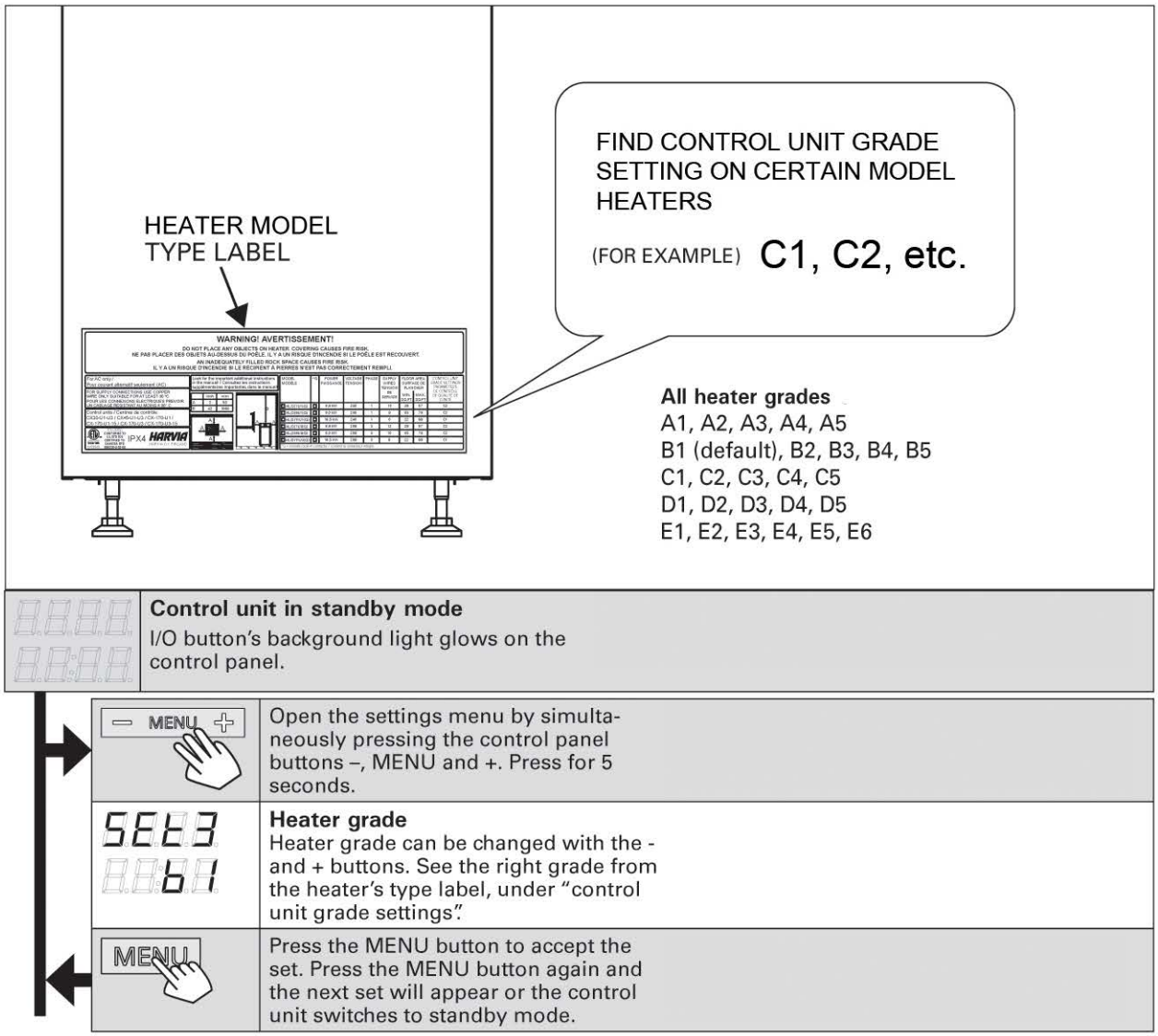


Figure 3b. Changing the heater grade (See section 2.1.)

NOTE: Virta and Cilindro heaters have control unit grade settings noted on the heater model label that can be entered on the control pad to fine tune operation. Club model heaters do not have an adjustment setting.

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

Press the MENU button to open the settings menu.

The display shows the sauna room temperature setting. Temperature indicator light blinks.

- **Change the setting to the desired temperature with the – and + buttons.** The range is 104–194 °F (40–90 °C).

The programmed temperature is stored in memory and will also apply when the heater is switched on next time.

Press the MENU button to access the next setting.

Remaining on-time
Press the – and + buttons to adjust the remaining on-time.

Example: the heater will be on for 40 minutes.

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.
- **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.

Exit by pressing the MENU button.

Basic mode (timer delay running, heater off)
The bottom row shows the remaining delay 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.

Figure 3c. 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.

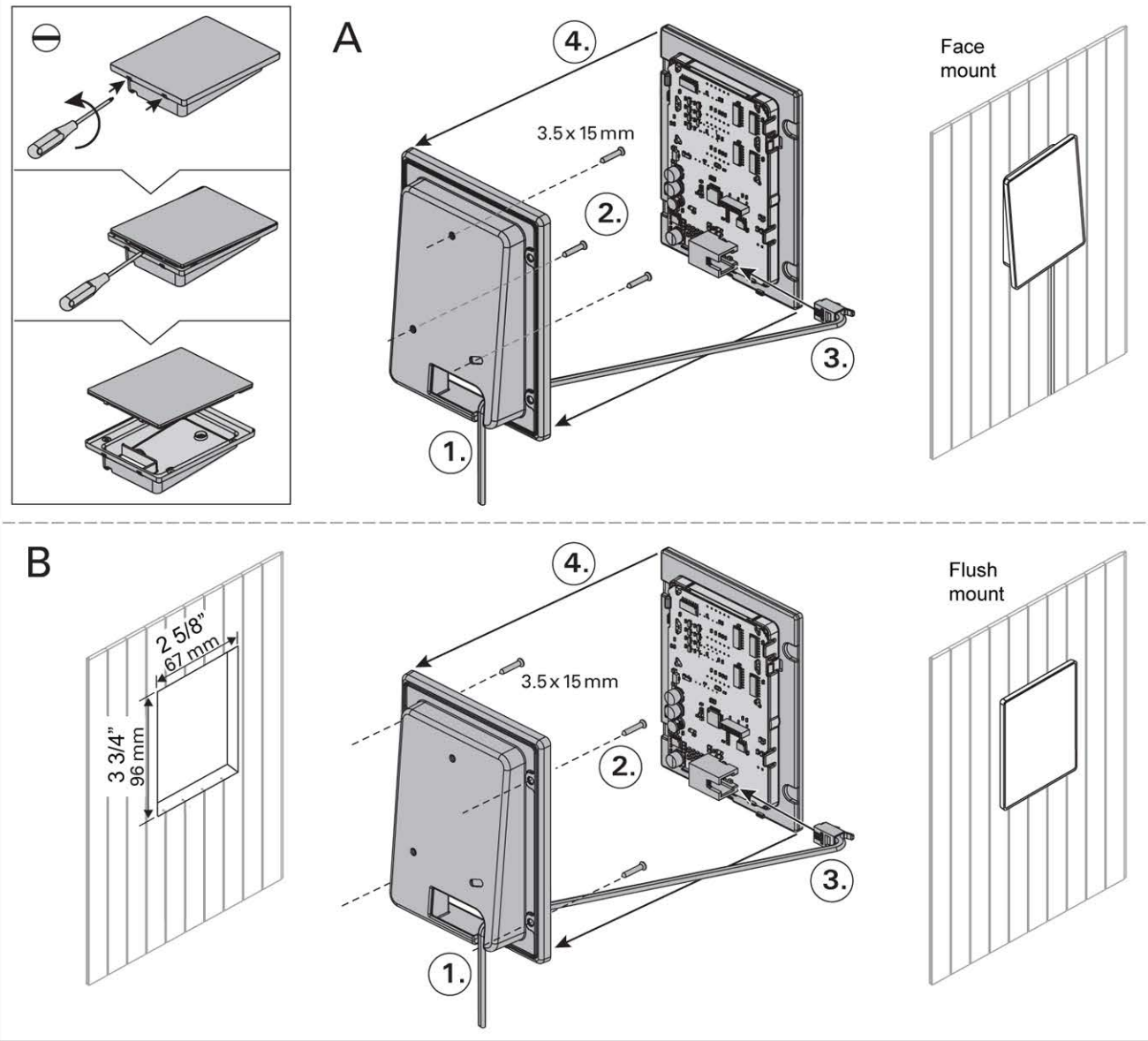


Figure 4. Fastening the control panel

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 power 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.

Figure 6 shows the electrical connections of the power unit. For more detailed installation instructions see *The Instructions for Installation and Use* of the selected heater model.

3.2.2. Instructions for Installation

The power unit of CX30-U1-U3 and CX45-U1-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 CX30-U1-U3 and CX45-U1-U3. See section 3.3. for correct temperature sensor placement.

Two relay outputs (120 V 1Ph):

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

Fuses on the circuit board (if a fuse has blown, see section 3.2.3.):

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

Technical specifications:

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

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 Figure 6.

- 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 F3 has blown, there is a problem with lighting or fan. Check the wiring and functioning of lighting and fan.
- If the breaker F1 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 fuse of the control unit, by following the necessary precautions!

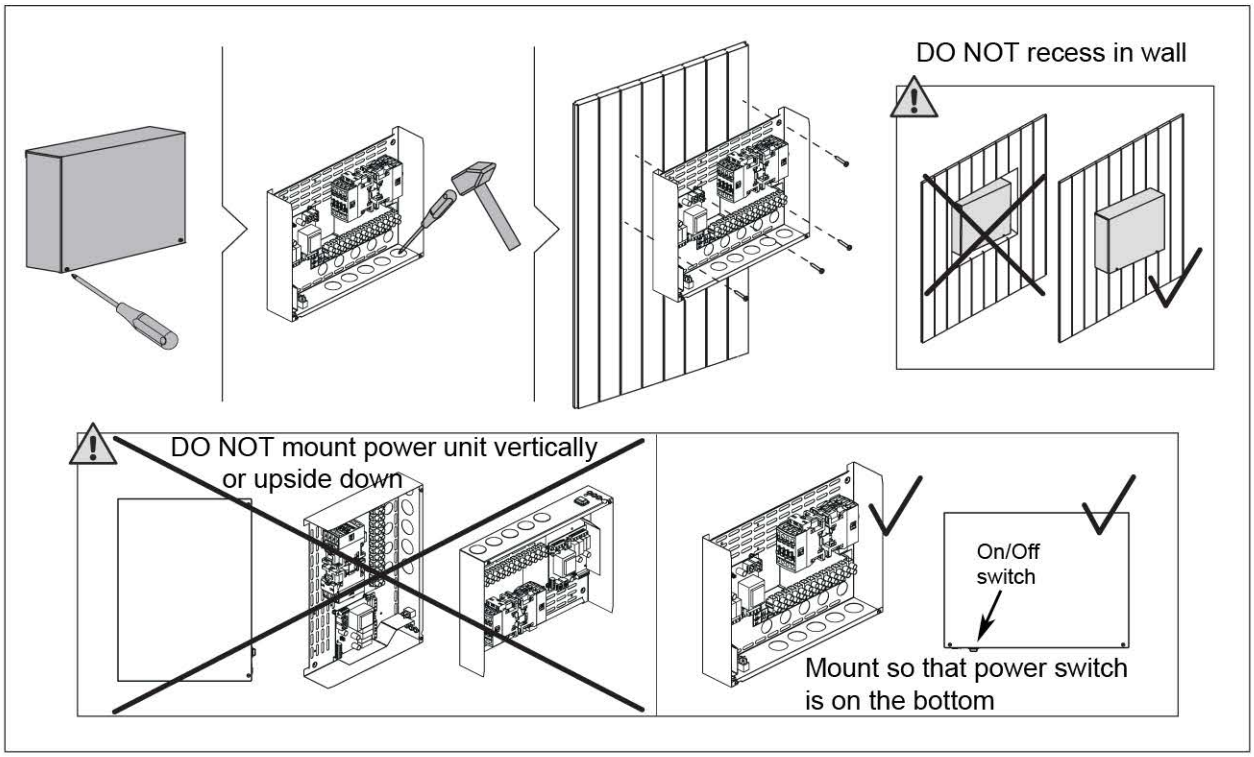


Figure 5. Opening the power unit cover and mounting the unit to a wall

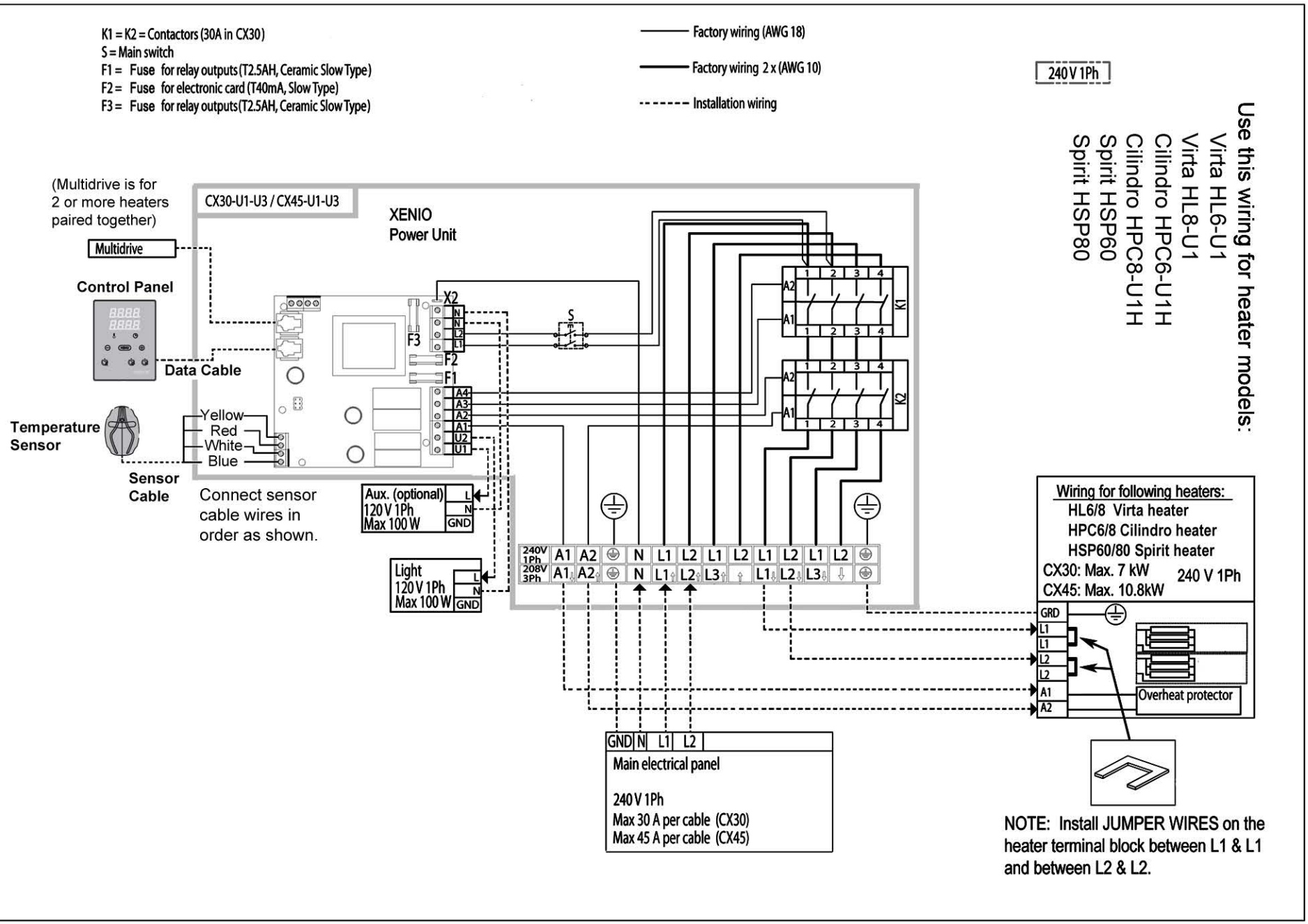


Figure 6a. Electrical connections (CX30-U1-U3, CX45-U1-U3)

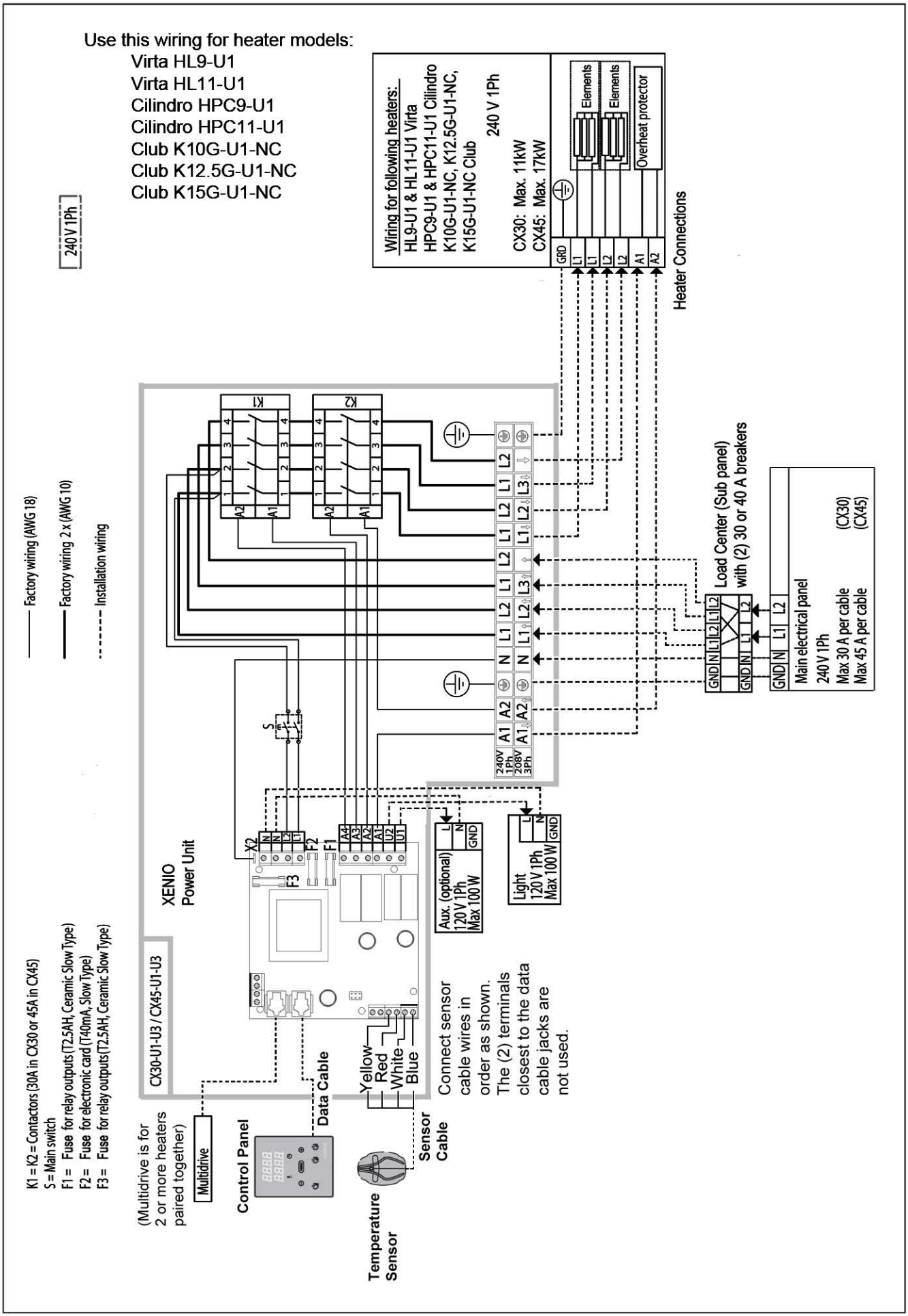


Figure** 6b. **Electrical connections (CX30-U1-U3 / CX45-U1-U3)

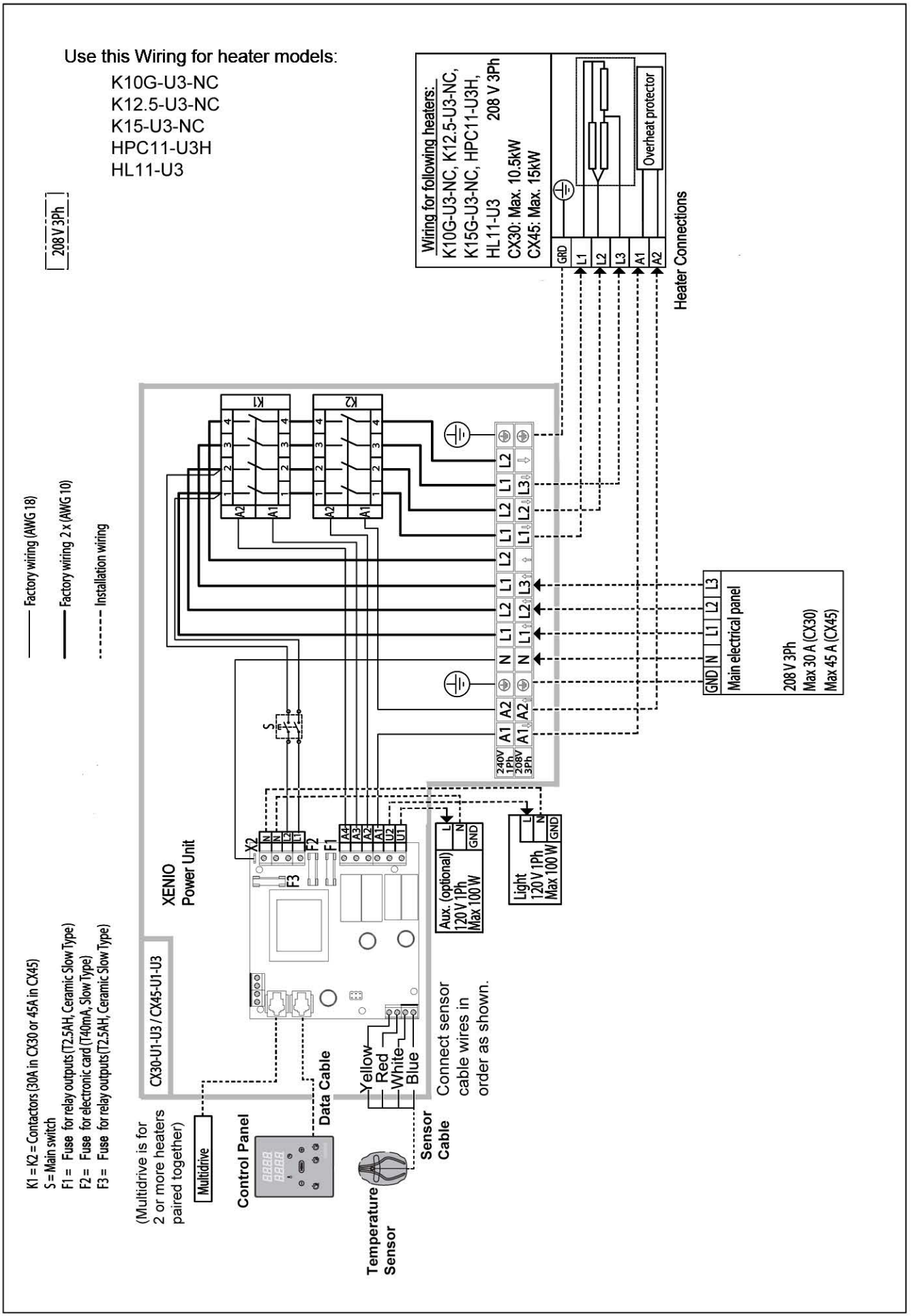


Figure** 6c. **Electrical connections (CX30-U1-U3 / CX45-U1-U3)

Heater Model	Xenio Control	Watts	Amps	Main Breaker Size	Load Center Breakers	Wires from Breaker to Load Center	Wires from Load Center or Main Breaker to Power Unit	Wires from Power Unit to Heater
HL6-U1	CX30	6000	25	30	n/a	n/a	(2) #10 + N + G	(2) #10 + (2) #14 + G
HL8-U1	CX45	8000	33.4	40	n/a	n/a	(2) #8 + N + G	(2) #8 + (2) #14 + G
HL9-U1	CX30	9000	37.5	50	(2) 30	(2) #6 + N + G	(4) #10 + N + G	(4) #10 + (2) #14 + G
HL11-U1	CX30	10500	43.75	50	(2) 40	(2) #6 + N + G	(4) #8 + N + G	(4) #8 + (2) #14 + G
HL11-U3	CX30	10500	29.2	40	n/a	n/a	(3) #8 + N + G	(3) #8 + (2) #14 + G
HPC6-U1H	CX30	6000	25	30	n/a	n/a	(2) #10 + N + G	(2) #10 + (2) #14 + G
HPC8-U1H	CX45	8000	33.4	40	n/a	n/a	(2) #8 + N + G	(2) #8 + (2) #14 + G
HPC9-U1H	CX30	9000	37.5	50	(2) 30	(2) #6 + N + G	(4) #10 + N + G	(4) #10 + (2) #14 + G
HPC11-U1H	CX30	10500	43.75	50	(2) 40	(2) #6 + N + G	(4) #8 + N + G	(4) #8 + (2) #14 + G
HPC11-U3H	CX30	10500	29.2	40	n/a	n/a	(3) #8 + N + G	(3) #8 + (2) #14 + G
HSP60	CX30	6000	25	30	n/a	n/a	(2) #10 + N + G	(2) #10 + (2) #14 + G
HSP80	CX45	8000	33.3	40	n/a	n/a	(2) #8 + N + G	(2) #8 + (2) #14 + G
K10G-U1-NC	CX30	10000	41.7	50	(2) 30	(2) #6 + N + G	(4) #10 + N + G	(4) #10 + (2) #14 + G
K12.5G-U1-NC	CX45	12600	52.7	60	(2) 40	(2) #4 + N + G	(4) #8 + N + G	(4) #8 + (2) #14 + G
K15G-U1-NC	CX45	14800	61.7	70	(2) 40	(2) #4 + N + G	(4) #8 + N + G	(4) #8 + (2) #14 + G
K10G-U3-NC	CX30	9800	27.3	40	n/a	n/a	(3) #8 + N + G	(3) #8 + (2) #14 + G
K12.5G-U3-NC	CX45	12300	34.1	40	n/a	n/a	(3) #8 + N + G	(3) #8 + (2) #14 + G
K15G-U3-NC	CX45	14400	40	50	n/a	n/a	(3) #8 + N + G	(3) #8 + (2) #14 + G

Table 2. Max. heater power ratings and min supply wire size

U1= 240v/1ph
U3= 208v/3ph

All supply wire to be 90 °C copper
Use only non-GFCI type breakers

3.2.4. 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.

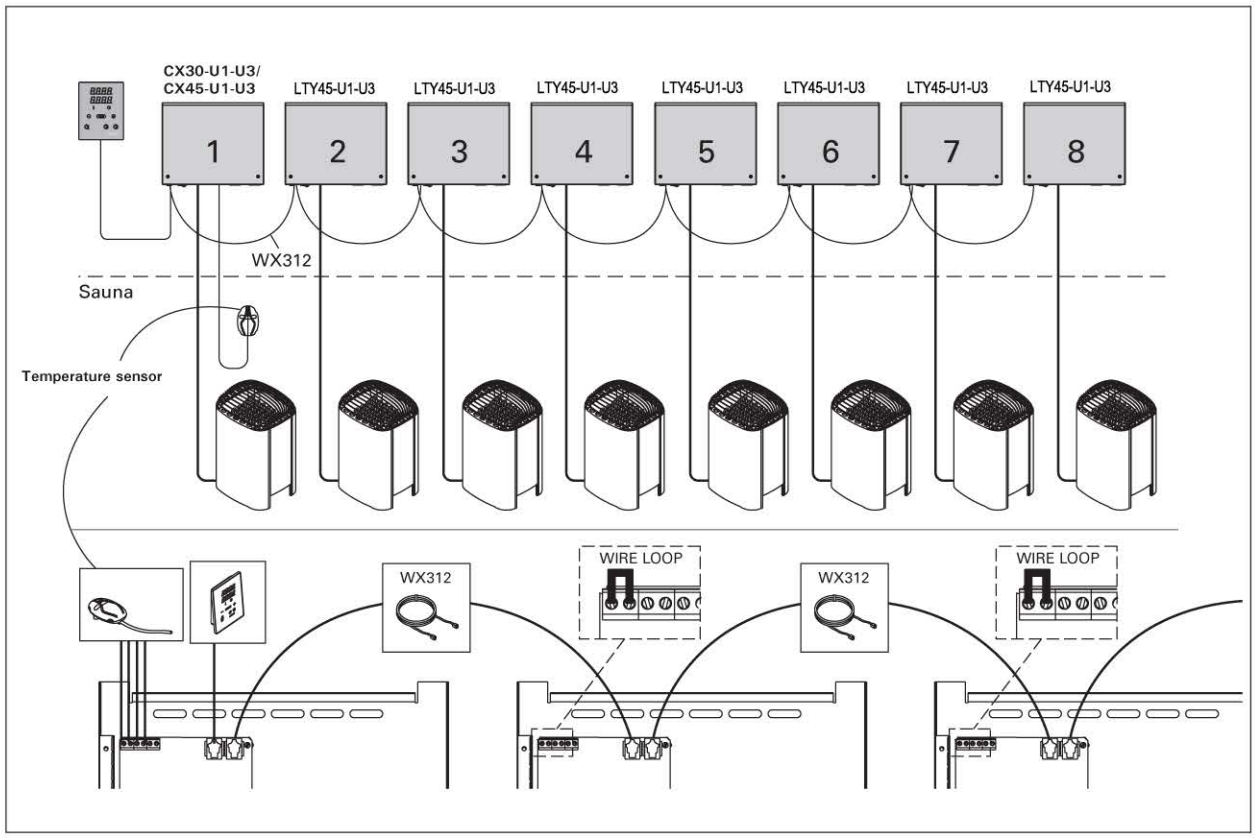


Figure 7. ***Multidrive for connecting multiple heaters and power units for one sauna room***

Mount temperature sensor to the sauna wall about 12” down from the ceiling and 12” away from the side of the sauna heater.
DO NOT mount sensor directly above the heater.

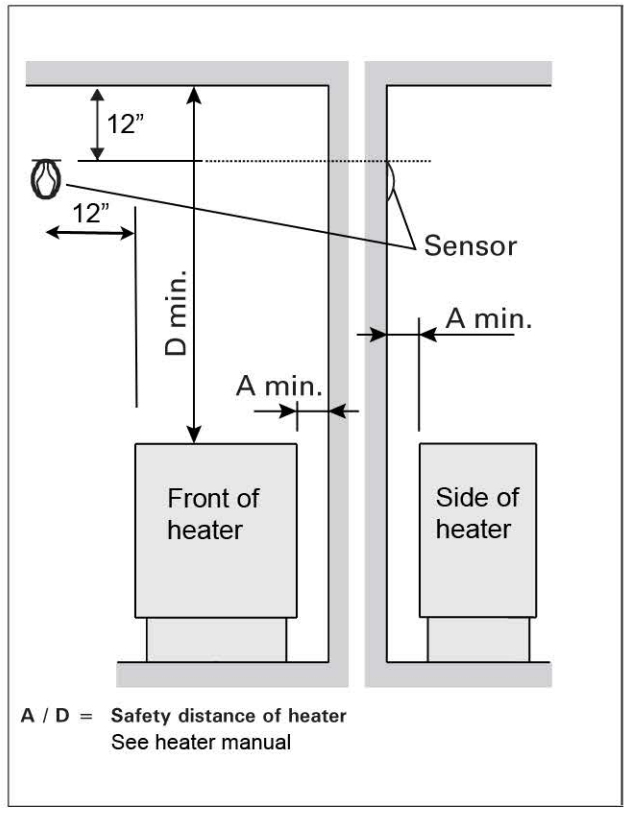


Figure 8. ***The placement of the temperature sensor in relation to floor model heaters.***

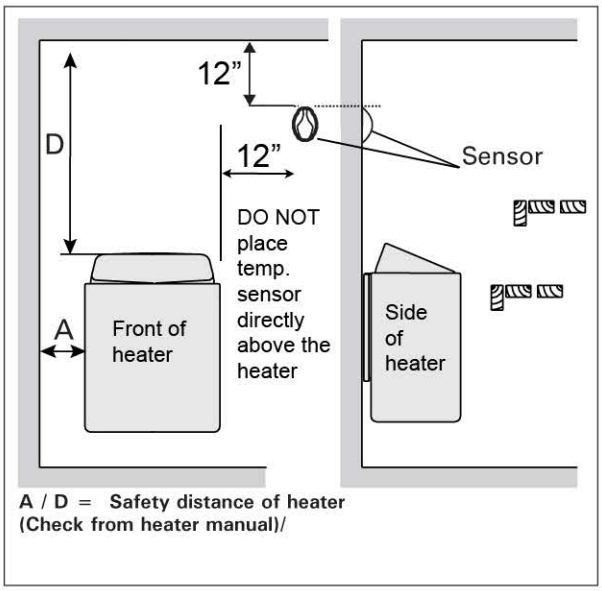


Figure 9. The placement of the temperature sensor in relation to a wall mounted sauna heater

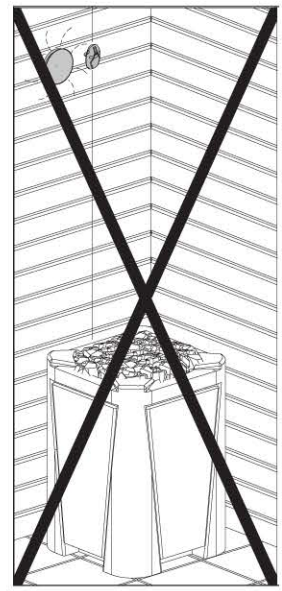


Figure 10. Do not install sensor directly above the heater. Do not install sensor next to an air vent.

3.3. Installing the Temperature Sensor

Floor-mounted heaters (see Figure 8)

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

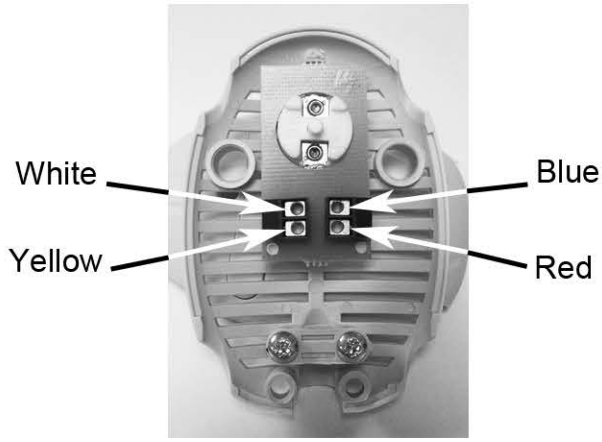
Wall-mounted heaters (see Figure 9)

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

NOTE: The temperature sensor is located in either the Xenio control box or in the heater box. If you happen to end up with 2 sensors, use the one that comes in the heater box. The sensor wire can be a maximum of 82' long. Proper length wire may be ordered. Wire should be in one piece (do not splice).

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.



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 10.

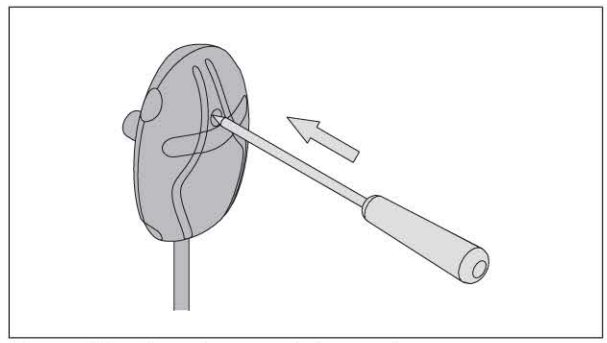


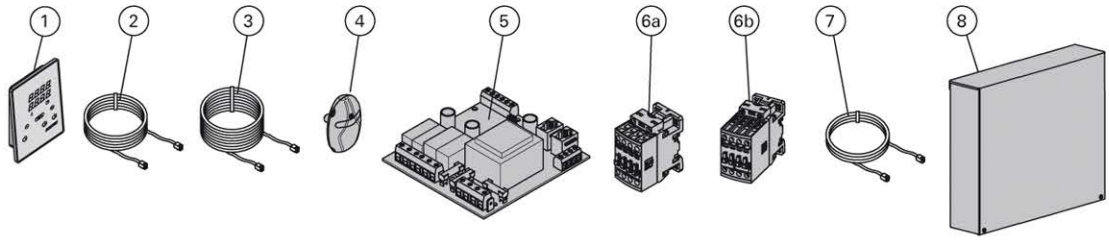
Figure 11. Reset button of the overheat protector

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.

4. SPARE PARTS



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

1	Control panel	WX384
2	Data cable 5 m	WX311
3	Data cable extension 10 m (accessory)	WX313
4	Temperature sensor	WX232
5	Circuit board	WX361
6a	Contactor 30 A (CX30-U1-U3)	ZSK-778
6b	Contactor 45 A (CX45-U1-U3)	ZSL-940
7	Multidrive cable 1.5 m (optional)	WX312
8	Multidrive power unit (optional)	LTY45-U1-U3

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 _____