

Symmetra™ PX

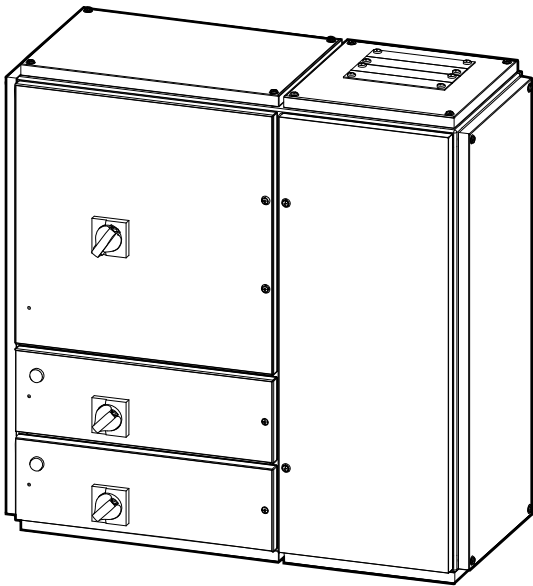
96/160 kW 400 V

Installation

Wall-Mounted Maintenance Bypass

SYWMBP96K160H

04/2015



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Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this publication.

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Important Safety Information

Read these instructions carefully and look at the equipment to become familiar with it before trying to install, operate, service or maintain it. The following safety messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety message indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in death or serious injury**.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in death or serious injury**.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in minor or moderate injury**.

Failure to follow these instructions can result in injury or equipment damage.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this type of safety message.

Failure to follow these instructions can result in equipment damage.

Please Note

Electrical equipment should only be installed, operated, serviced, and maintained by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Safety Precautions

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All safety instructions in this document must be read, understood and followed.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read all instructions in the Installation Manual before installing or working on this UPS system.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Do not install the UPS system until all construction work has been completed and the installation room has been cleaned.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- The product must be installed according to the specifications and requirements as defined by Schneider Electric. It concerns in particular the external and internal protections (upstream breakers, battery breakers, cabling, etc.) and environmental requirements. No responsibility is assumed by Schneider Electric if these requirements are not respected.
- After the UPS system has been electrically wired, do not start up the system. Startup must only be performed by Schneider Electric.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

The UPS System must be installed according to local and national regulations. Install the UPS according to:

- IEC 60364 (including 60364-4-41 - protection against electric shock, 60364-4-42 - protection against thermal effect, and 60364-4-43 - protection against overcurrent), **or**
- NEC NFPA 70, **or**
- Canadian Electrical Code (C22.1, Part 1)

depending on which one of the standards apply in your local area.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Install the UPS system in a temperature controlled environment free of conductive contaminants and humidity.
- Install the UPS system on a non-inflammable, level and solid surface (e.g. concrete) that can support the weight of the system.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

The UPS is not designed for and must therefore not be installed in the following unusual operating environments:

- Damaging fumes
- Explosive mixtures of dust or gases, corrosive gases, or conductive or radiant heat from other sources
- Moisture, abrasive dust, steam or in an excessively damp environment
- Fungus, insects, vermin
- Salt-laden air or contaminated cooling refrigerant
- Pollution degree higher than 2 according to IEC 60664-1
- Exposure to abnormal vibrations, shocks, and tilting
- Exposure to direct sunlight, heat sources, or strong electromagnetic fields

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Do not drill/punch holes for cables or conduits with the gland plates installed and do not drill/punch in close proximity to the UPS.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING
HAZARD OF ARC FLASH Do not make mechanical changes to the product (including removal of cabinet parts or drilling/cutting of holes) that are not described in the Installation Manual. Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING
HAZARD OF OVERHEATING Respect the space requirements around the UPS system and do not cover the product's ventilation openings when the UPS system is in operation. Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING
HAZARD OF EQUIPMENT DAMAGE Do not connect the UPS output to regenerative load systems including photovoltaic systems and speed drives. Failure to follow these instructions can result in death, serious injury, or equipment damage.

Electrical Safety

⚠ DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH <ul style="list-style-type: none">• Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.• The UPS system must be installed in a room with restricted access (qualified personnel only).• Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.• Turn off all power supplying the UPS system before working on or inside the equipment.• Before working on the UPS system, check for hazardous voltage between all terminals including the protective earth.• The UPS contains an internal energy source. Hazardous voltage can be present even when disconnected from the utility/mains supply. Before installing or servicing the UPS system, ensure that the units are OFF and that utility/mains and batteries are disconnected. Wait five minutes before opening the UPS to allow the capacitors to discharge.• A disconnection device (e.g. disconnection circuit breaker or switch) must be installed to enable isolation of the system from upstream power sources in accordance with local regulations. This disconnection device must be easily accessible and visible.• The UPS must be properly earthed/grounded and due to a high leakage current, the earthing/grounding conductor must be connected first. Failure to follow these instructions will result in death or serious injury.

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

In systems where backfeed protection is not part of the standard design, an automatic isolation device (backfeed protection option or other device meeting the requirements of IEC/EN 62040-1 or UL1778 4th Edition – depending on which of the two standards apply to your local area) must be installed to prevent hazardous voltage or energy at the input terminals of the isolation device. The device must open within 15 seconds after the upstream power supply fails and must be rated according to the specifications.

Failure to follow these instructions will result in death or serious injury.

When the UPS input is connected through external isolators that, when opened, isolate the neutral or when the automatic backfeed isolation is provided external to the equipment or is connected to an IT power distribution system, a label must be fitted at the UPS input terminals, and on all primary power isolators installed remote from the UPS area and on external access points between such isolators and the UPS, by the user, displaying the following text (or equivalent in a language which is acceptable in the country in which the UPS system is installed):

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Risk of Voltage Backfeed. Before working on this circuit: Isolate the UPS and check for hazardous voltage between all terminals including the protective earth.

Failure to follow these instructions will result in death or serious injury.

Product Specific Safety Information

⚠ DANGER**HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH**

Use a forklift or other lifting device to lift the maintenance bypass enclosure to the installation height.

Failure to follow these instructions will result in death or serious injury.

Specifications

Electrical

Nominal input voltage (V)	400
Nominal bypass input voltage (V)	400
Nominal output voltage (V)	400
Frequency (Hz)	50
Earthing	TN-S
Maximum rated input current (A)	400
Maximum rated output current (A)	250
Maximum short-circuit withstand (kA)	30, 0.1 sec

Switch and Breaker Sizes

Mains input breaker Q1 (A)	400
UPS output switch Q2 (A)	250
Maintenance bypass breaker Q3 (A)	250

Minimum Settings for Q1 Breaker

UPS Rating	I_o	I_r (x10)	I_{sd} (x I_r)
96 kW	160 A	1	10
160 kW	320 A	1	10

Recommended Cable Sizes

NOTE: Recommended cable sizes are for installation methods B1, B2, C in EN60364–5–52 table 52–E3.

NOTE: Use only copper conductors with a minimum rating for 70 °C.

	96 kW	160 kW	Maximum allowed by terminals
Mains input (L1, L2, L3, N, PE)	95 (mm ²)	240 (mm ²)	2/240 (mm ²)
Bypass input (L1, L2, L3, N, PE)	70 (mm ²)	150 (mm ²)	185 (mm ²)
System output (L1, L2, L3, N, PE)	70 (mm ²)	150 (mm ²)	185 (mm ²)

Weights and Dimensions

	Weight (kg)	Height (mm)	Width (mm)	Depth (mm)
Without packaging	115	1010	1010	400
With packaging	120	1300	1200	800

Environmental

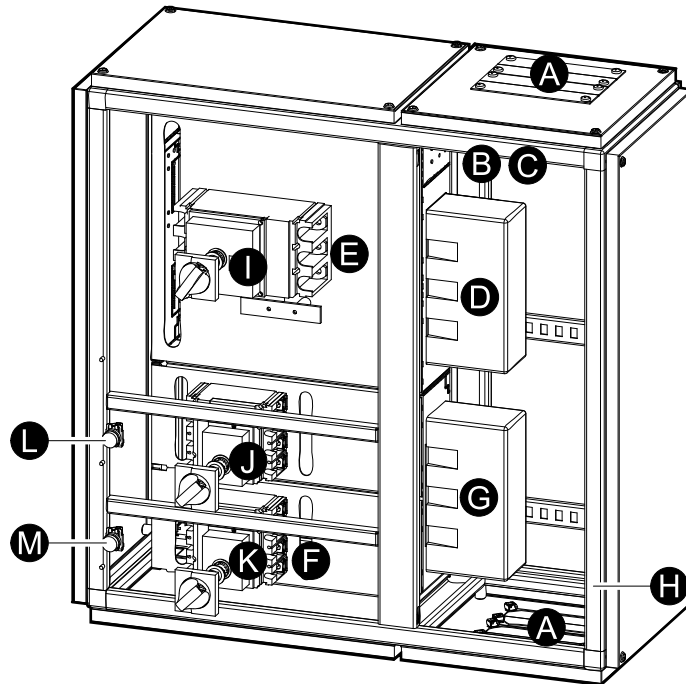
Environment	Indoor use only, protect from water and conductive contaminants
Temperature	-5 °C to + 40 °C
Humidity	0 to 95%, non-condensing
Pollution degree (IEC60439-01)	1
Protection class	IP31

Torque

Mains input terminal block (Nm)	31
Mains input to UPS terminal block (Nm)	31
UPS output terminal block (Nm)	26
System output terminal block (Nm)	31

Product Overview

Front View (Interior)



- A. Cable entry
- B. Q10 power supply for signals and alarms
- C. Communication terminal block
- D. Mains input terminal block
- E. Terminals for UPS input
- F. Terminals for UPS output
- G. System output terminal block
- H. PE/Ground
- I. Mains input breaker Q1
- J. Maintenance bypass breaker Q3
- K. UPS output switch Q2
- L. LED H3
- M. LED H2

Site Planning

NOTE: When selecting a location for the maintenance bypass enclosure, consider the need for easy access to all switches and internal components.

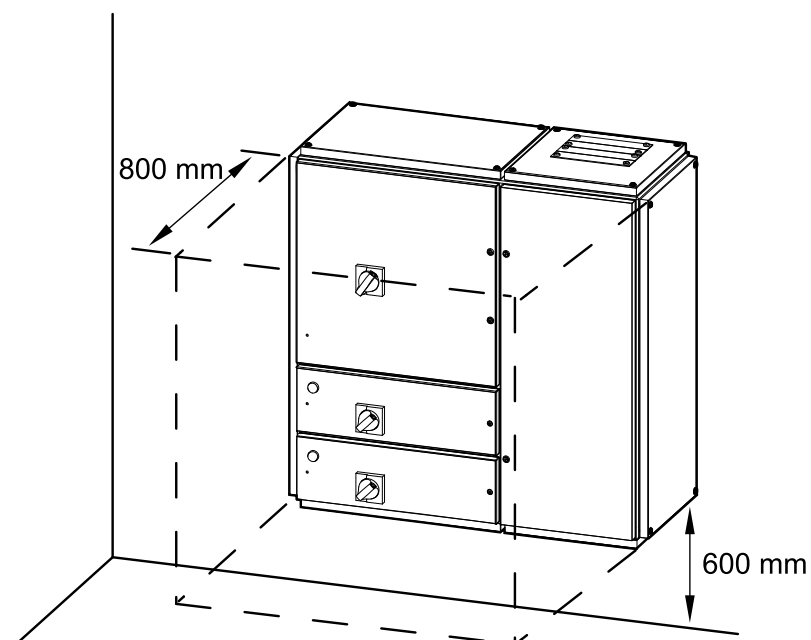
NOTE: Ensure that the selected wall is structurally sound and able to support the size and weight of the unit.

NOTE: Protect the maintenance bypass enclosure at all times from excessive moisture, construction dirt, corrosive elements, or other contaminants.

Space Requirements

Refer to the below figure to determine the space requirements for the maintenance bypass enclosure. Consult local codes for any additional requirements. Ideally, install the maintenance bypass enclosure in a location close to the UPS. When door or cable access areas are open, an IP rating of IP2XC must be used.

Front view



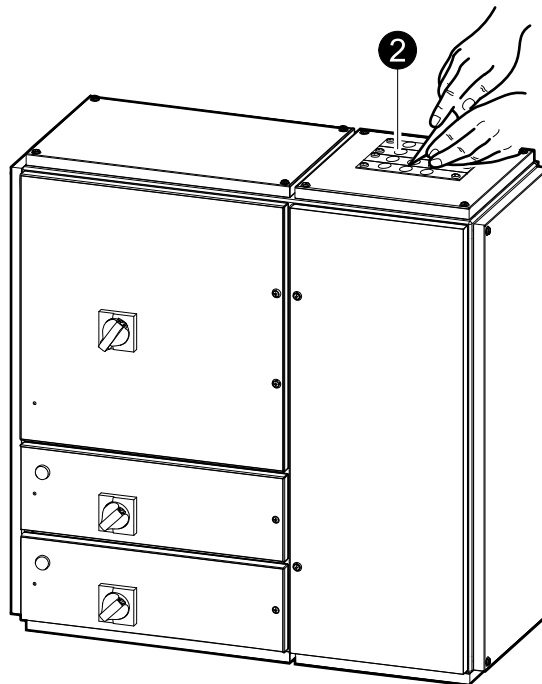
Prepare for Cables

NOTE: All power cables must be connected on site. External power cables are not supplied with the maintenance bypass enclosure.

NOTE: You can cut holes for cable access either before or after you have mounted the maintenance bypass enclosure to the wall. Schneider Electric recommends that you create all necessary holes before mounting the maintenance bypass enclosure.

NOTE: The gland plate with small holes can be replaced by the bottom plate if necessary. To maintain ingress level a gland plate must be installed in each opening.

Front view



1. Open the left front door.
2. Use a knife to cut an x in either the top or bottom gland plate of the maintenance bypass enclosure.

Mount the Maintenance Bypass Enclosure to the Wall

⚠ CAUTION

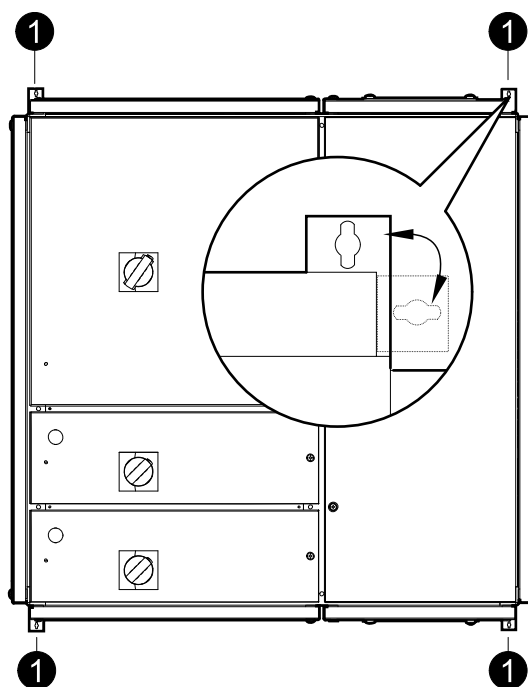
HAZARD OF INJURY

Anchoring bolts are not supplied. Use anchors/bolts that are suitable to support the weight of the maintenance bypass enclosure.

Failure to follow these instructions can result in injury or equipment damage.

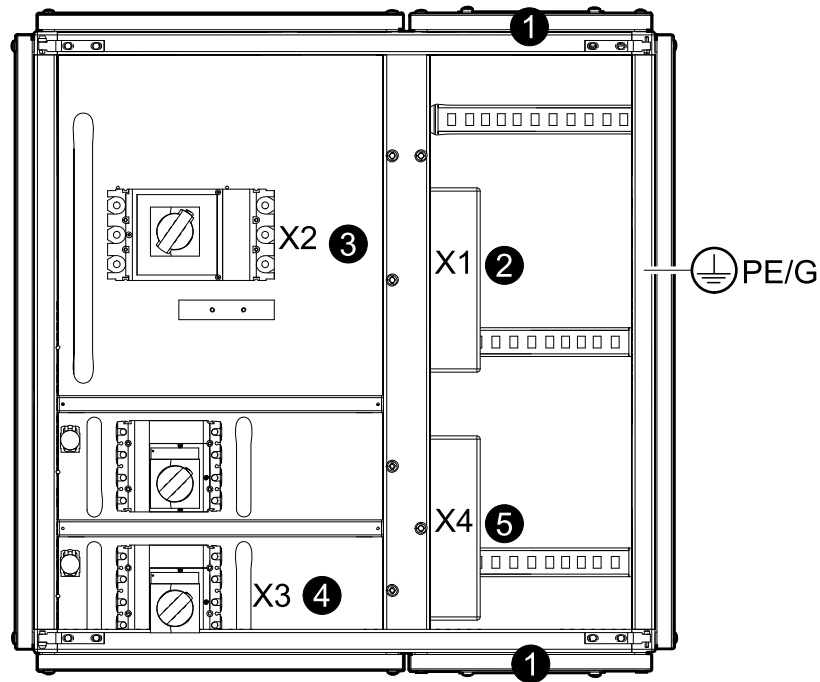
1. Measure and mark the four mounting hole locations on the wall.
2. Drill holes in each of the four marked locations and mount anchor bolts.
3. Lift the maintenance bypass enclosure, position it against the backing and line it up with the four holes/anchor bolts. Secure the maintenance bypass enclosure with the four bolts and flat washers.

Front view









Connect the Power Cables

Front view

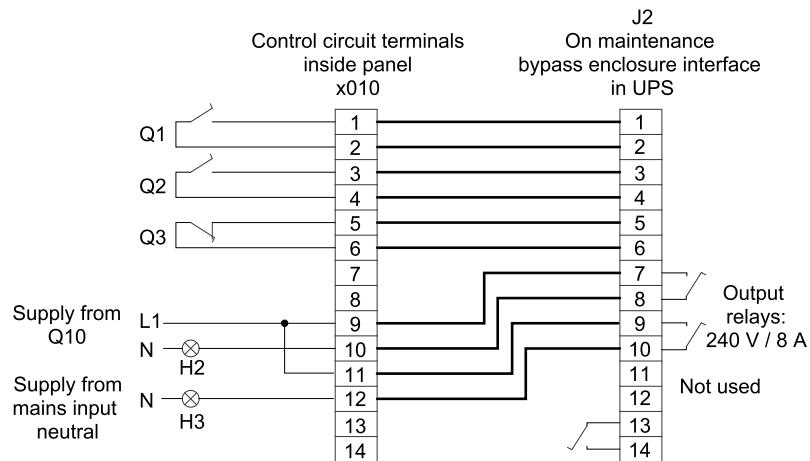


1. Route the cables through the top or bottom of the maintenance bypass enclosure.
2. Connect the mains input cables (L1, L2, L3, N) to the terminal block X1 and the PE cable to the PE/G bar.
3. Connect the input cables from the UPS (L1, L2, L3, N) to the Q1 breaker terminals X2 and the PE cable to the PE/G bar.
4. Connect the output cables from the UPS (L1, L2, L3, N) to the Q2 breaker terminals X3.
5. Connect the system output cables (L1, L2, L3, N, PE) to the terminal block X4 and the PE cable to the PE/G bar.

Connect the Communication Cables

-  Auxiliary contact N/O
-  Auxiliary contact N/C
-  Cables provided by others
-  Cables provided by vendor
-  230/240 VAC green LED
-  Open to indicate external bypass present

NOTE: For third party switchgear without surveillance, remove the jumper pin between J2 pins 13 and 14. For wall-mounted switchgear with surveillance interconnected to the maintenance bypass interface board, leave the jumper pin installed between J2 pins 13 and 14.

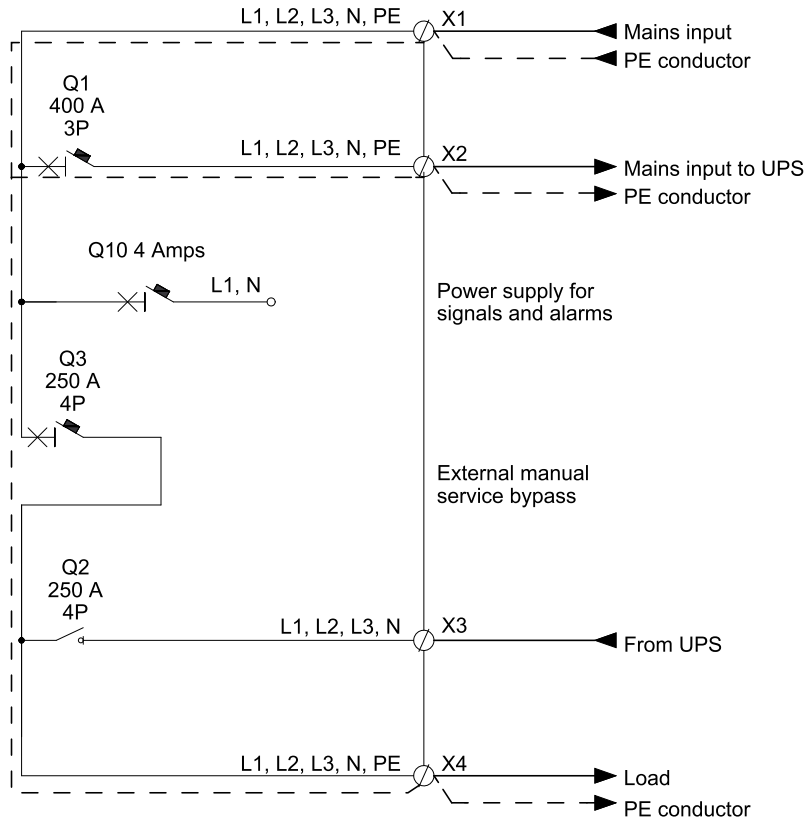


- Control cabling must be labelled at all connection points.
- Cables should be terminated with insulated ferrules or crimps.
- LEDs H2 and H3 must be located on respective panel doors.
- H2 and H3 must be terminated with insulated spade crimps.
- H2 and H3 must be 230/240 VAC green LEDs.
- Auxiliary NO contacts on Q1 and Q2 are late make with respect to the main poles of Q1 and Q2.
- Auxiliary NC contacts on Q3 is an early break with respect to the main poles of Q3.

One-line Diagram

--- Protective Earth (PE/G)

___ Input/output cables provided by others



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