

Backfeed Box

For Easy UPS 3S, Easy UPS 3S Pro, and Easy UPS 3M Installation

SP3OPT008, SP3OPT009, SP3OPT010

Latest updates are available on the Schneider Electric website

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Important Safety Instructions — SAVE THESE INSTRUCTIONS

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.

Per IEC 62040-1: "Uninterruptible power systems (UPS) -- Part 1: Safety Requirements," this equipment, including battery access, must be inspected, installed and maintained by a skilled person.

The skilled person is a person with relevant education and experience to enable him or her to perceive risks and to avoid hazards which the equipment can create (reference IEC 62040-1, section 3.102).

Safety Precautions

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read all instructions in the installation manual before installing or working on this product.

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 product 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.

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 system 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 product in a temperature controlled indoor environment free of conductive contaminants and humidity.
- Install the product on a non-flammable, 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 product 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 or cut holes for cables or conduits with the gland plates installed and do not drill or cut holes in close proximity to the 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 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 will result in death or serious injury.

NOTICE

RISK OF OVERHEATING

Respect the space requirements around the product and do not cover the ventilation openings when the product is in operation.

Failure to follow these instructions can result in equipment damage.

Electrical Safety

This manual contains important safety instructions that should be followed during the installation and maintenance of the backfeed box.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Disconnection devices for AC and DC must be provided by others, be readily accessible, and the function of the disconnect device marked for its function.
- 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 mains supply. Before installing or servicing the UPS system, ensure that the units are OFF and that mains and batteries are disconnected. Wait five minutes before opening the UPS to allow the capacitors to discharge.
- The UPS must be properly earthed/grounded and due to a high touch current/leakage current, the earthing/grounding conductor must be connected first.

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

Specifications

NOTICE

HAZARD OF EQUIPMENT DAMAGE

Refer to the UPS installation manual for detailed specifications for the UPS system.

Failure to follow these instructions can result in equipment damage.

Backfeed Contactor Specifications

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

The SP3OPT008, SP3OPT009, and SP3OPT010 must only be used with the UPSs listed in the compatibility matrixes below.

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

Easy UPS 3S Compatibility Matrix

		Easy UPS 3S 3:1	Easy UPS 3S 3:3
	UPS rating	10-30 kVA	10-40 kVA
Single mains system	Input	1 x SP3OPT009	1 x SP3OPT008
	Input current limitation (A)	65 A, 3 phases (input current limitation) 172 A, 1 phase (bypass current) ⁽¹⁾	89 (3 phases)
Dual mains system	Input	1 x SP3OPT008	1 x SP3OPT008
	Input current limitation (A)	65 (3 phases)	89 (3 phases)
	Bypass	1 x SP3OPT009	1 x SP3OPT008
	Bypass current (A) ⁽¹⁾	172 (1 phase)	77 (3 phases)

Easy UPS 3S Pro Compatibility Matrix

		Easy UPS 3S Pro 3:3
	UPS rating	10-40 kVA
Single mains system	Input	1 x SP3OPT008
	Input current limitation (A)	81 A (3 phases)
Dual mains system	Input	1 x SP3OPT008
	Input current limitation (A)	81 A (3 phases)
	Bypass	1 x SP3OPT008
	Bypass current (A) ⁽¹⁾	67 A (3 phases)

⁽¹⁾ Current includes the overload capacity of 125% continuous for Easy UPS 3S in static bypass mode.

Easy UPS 3M Compatibility Matrix

		Easy UPS 3M 3:3					
	UPS rating	60 kVA	80 kVA	100 kVA	120 kVA	160 kVA	200 kVA
Single mains system	Input	1 x SP3OPT009	1 x SP3OPT009	1 x SP3OPT009	1 x SP3OPT010	1 x SP3OPT010	1 x SP3OPT010
	Input current limitation (A)	155	206	258	309	412	515 ⁽²⁾
Dual mains system	Input	1 x SP3OPT009	1 x SP3OPT009	1 x SP3OPT009	1 x SP3OPT010	1 x SP3OPT010	1 x SP3OPT010
	Input current limitation (A)	155	206	258	309	412	515 ⁽²⁾
	Bypass	1 x SP3OPT009	1 x SP3OPT009	1 x SP3OPT009	1 x SP3OPT010	1 x SP3OPT010	1 x SP3OPT010
	Bypass current (A)	91	122	152	184	246	307

	SP3OPT008	SP3OPT009	SP3OPT010
Power contactor	95 A, 3P LC1D95V7; AC3 duty 95 A	275 A, 3P LC1G150LSEA, AC1 duty 275 A	550 A, 3P LC1G400LSEA, AC1 duty 550 A
Rated operational voltage	Refer to the UPS installation manual for rated UPS operational voltage.		
Coil operating voltage	320-440 VAC	200-500 VAC	200-500 VAC
Frequency (Hz)	50/60		
Short circuit capacity	10 kA Icc conditioned by the upstream protection listed in the UPS installation manuals.		
Earthing system	TNS – TT. Not compatible with IT earthing system where 4 pole contactor is required.		

Recommended Upstream Protection

Refer to the UPS installation manual for recommended upstream protection.

Recommended Cable Sizes

NOTE: Aluminum cables are not supported.

Refer to the UPS installation manual for recommended cable sizes.

Recommended Bolt and Lug Sizes

Copper

Cable size	Bolt size	Cable lug type
16 mm ²	M8	KST TLK16-8
25 mm ²	M8	KST TLK25-8
35 mm ²	M8	KST TLK35-8
50 mm ²	M10	KST TLK50-10
70 mm ²	M10	KST TLK70-10

⁽²⁾ 515 A at operating temperature of 0 °C to 30 °C. Maximum 450 A at operating temperature of 30 °C to 40 °C.

Copper (Continued)

Cable size	Bolt size	Cable lug type
95 mm ²	M10	KST TLK95–10
120 mm ²	M10	KST TLK120–10
150 mm ²	M10	KST TLK150–10

Torque Specifications

Bolt size	Torque
M4	1.7 Nm
M5	2.2 Nm
M6	5 Nm
M8	17.5 Nm
M10	30 Nm
M12	50 Nm

Backfeed Box Weights and Dimensions

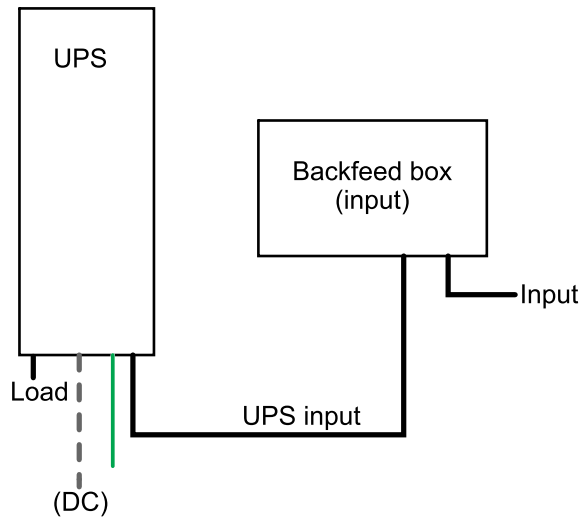
Commercial reference	Weight kg	Height mm	Width mm	Depth mm
SP3OPT008	20	300	550	200
SP3OPT009	33	600	600	250
SP3OPT010	58	800	700	400

Environment

	Operating	Storage
Temperature	SP3OPT008 and SP3OPT009: 0 °C to 40 °C. SP3OPT010: 0 °C to 30 °C. Operation at 30 °C to 40 °C at maximum 450 A.	-25 °C to 55 °C
Relative humidity	0-95% non-condensing	0-95% non-condensing
Elevation	Designed for operation in 0-2000 m	
Protection class	IP20	
Color	RAL 9003, 85% gloss	

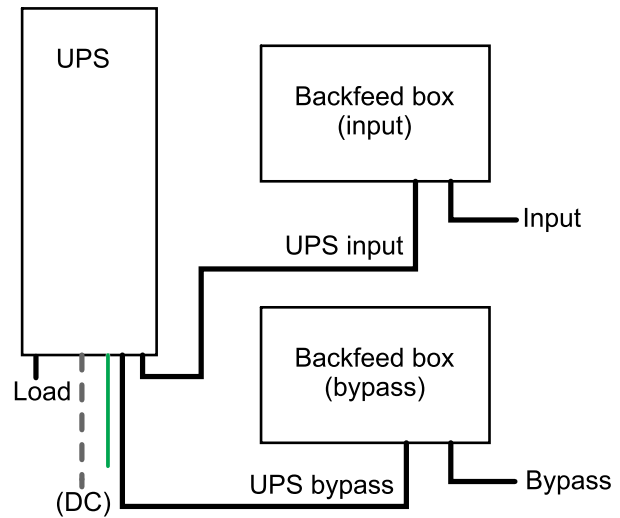
Installation Procedure

Single Mains System



— Signal cable
— Power cable

Dual Mains System



1. Mount the Backfeed Box to the Wall, page 13.
2. Prepare the Backfeed Box for Cables, page 15.
3. Connect the Input Power Cables to the Input Backfeed Box, page 17.
4. **Only in dual mains system:** Perform one of the following:
 - Connect the Bypass Power Cables to the Bypass Backfeed Box for 3:1 System (Dual Mains System Only), page 19, **OR**
 - Connect the Bypass Power Cables to the Bypass Backfeed Box for 3:3 System (Dual Mains System Only), page 21.

Mount the Backfeed Box to the Wall

⚠ CAUTION

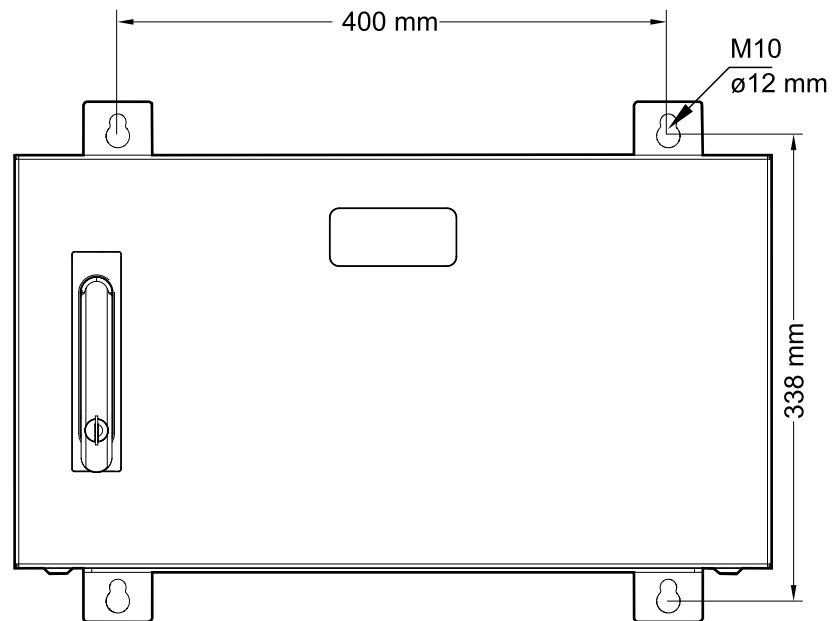
RISK OF INJURY OR EQUIPMENT DAMAGE

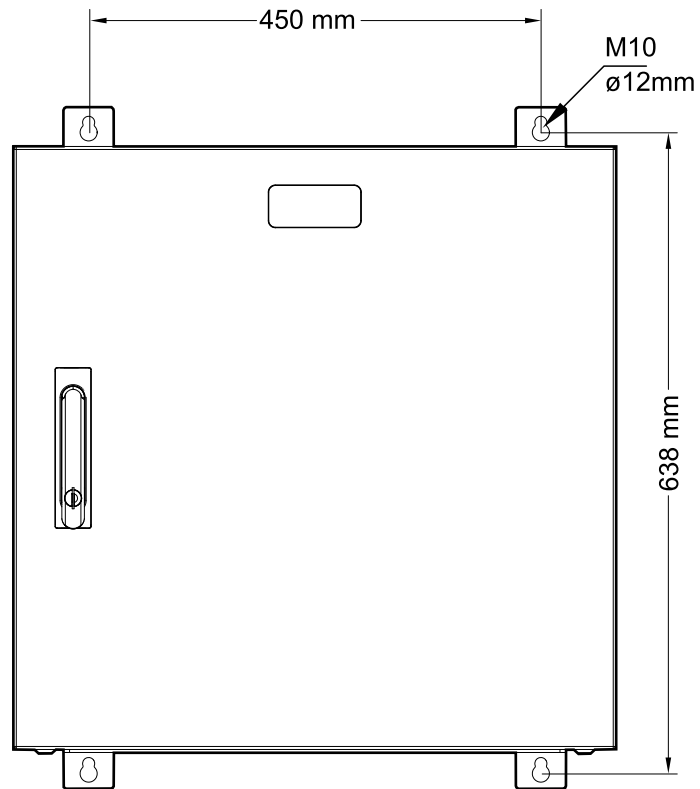
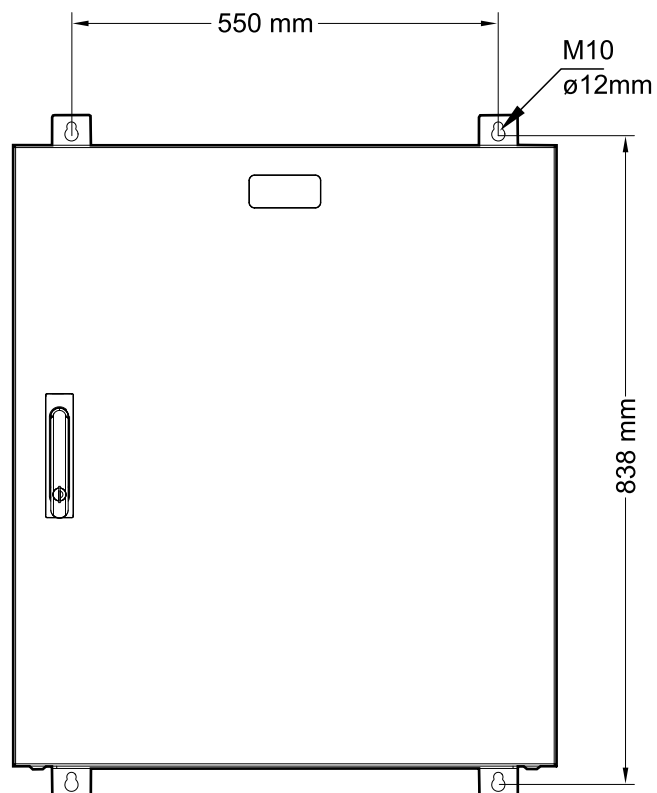
- Mount the backfeed box to a wall or a rack that is structurally sound and able to support the weight of the unit.
- Use appropriate M10 hardware (not supplied) to mount the backfeed box to the wall.

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

1. Measure and mark the four mounting hole locations on the wall.

SP3OPT008



SP3OPT009**SP3OPT010**

2. Drill holes in each of the four marked locations.
3. Mount the backfeed box to the wall.

Prepare the Backfeed Box for Cables

⚠️⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

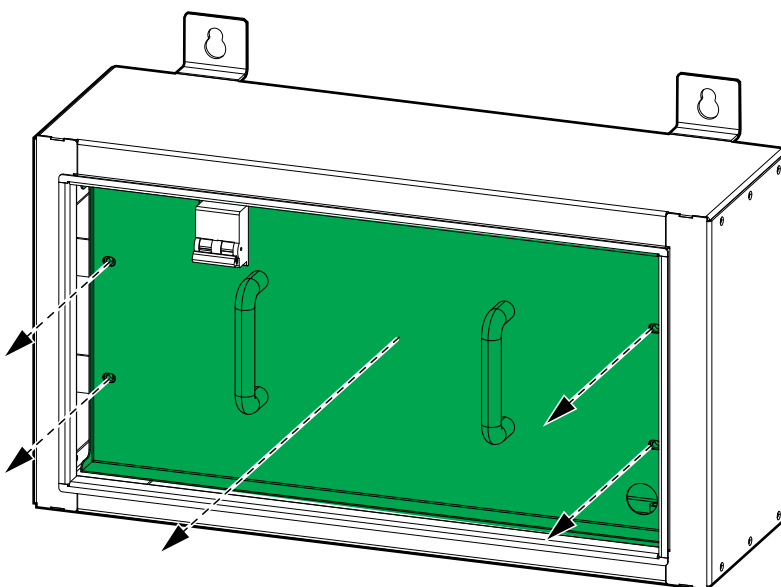
Do not drill or punch holes for cables or conduits with the gland plates installed, and do not drill or punch holes in close proximity to the product.

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

Illustrations show SP3OPT008. The procedure is the same for SP3OPT009 and SP3OPT010.

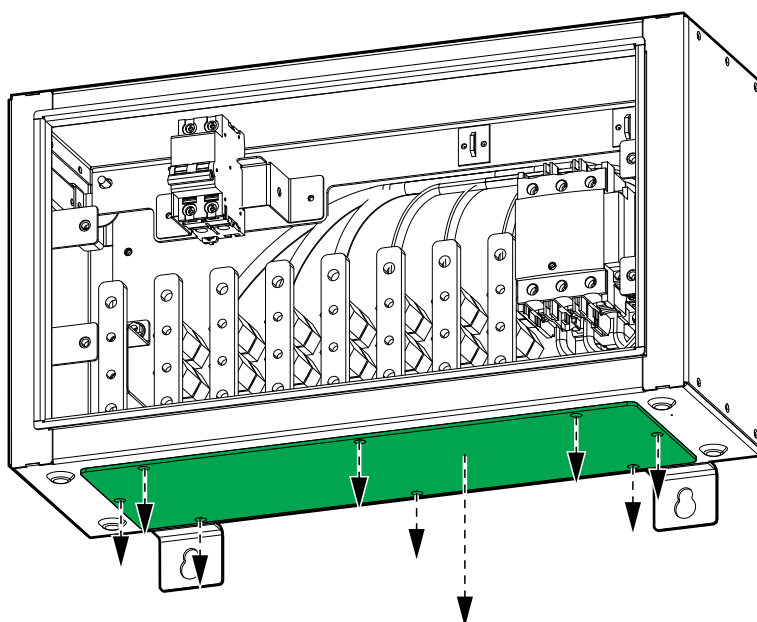
1. Open the front door.
2. Remove the screws and the front plate.

SP3OPT008



3. Remove the gland plate.

SP3OPT008



4. Drill or punch holes for cables or grommets/conduits (not provided) in the gland plate.
5. Install grommets/conduits (if applicable) and refit the gland plate.

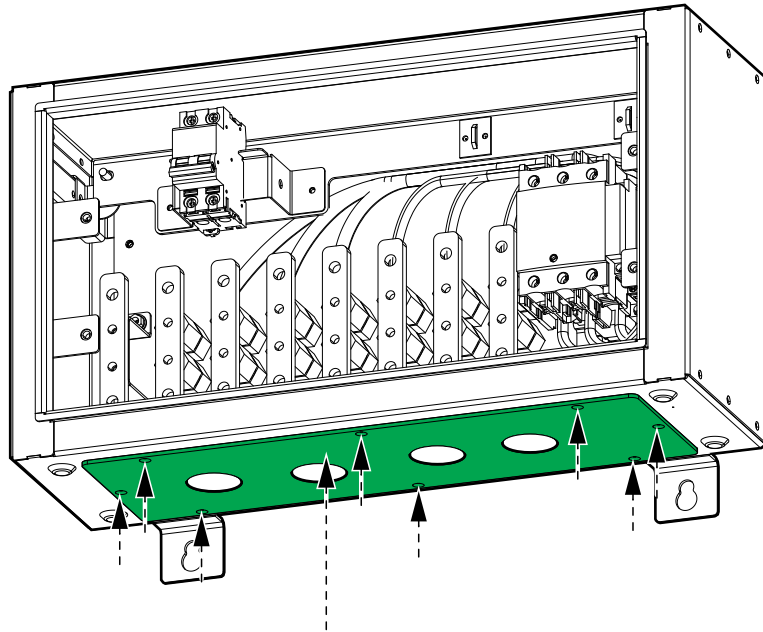
⚠️⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Ensure that there are no sharp edges that can damage the cables.

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

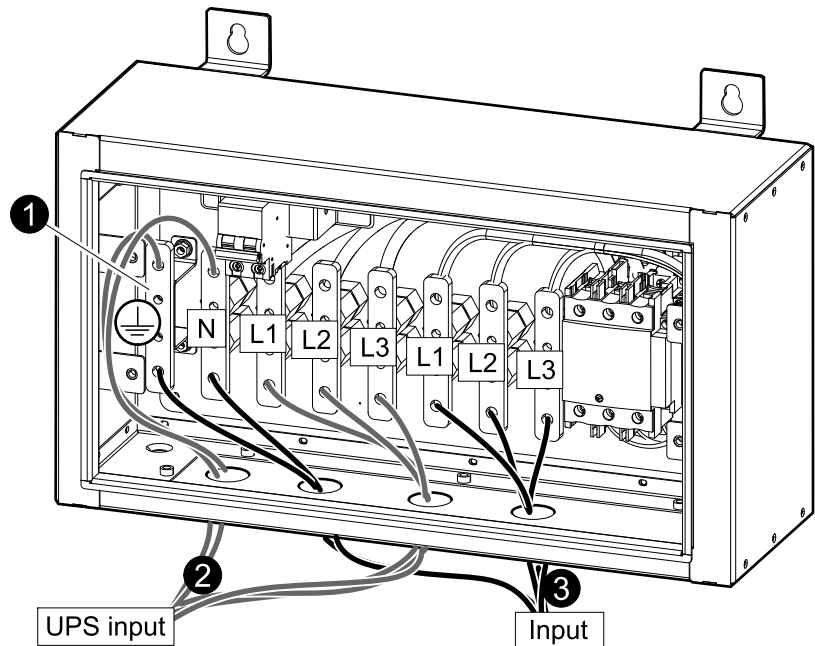
SP3OPT008



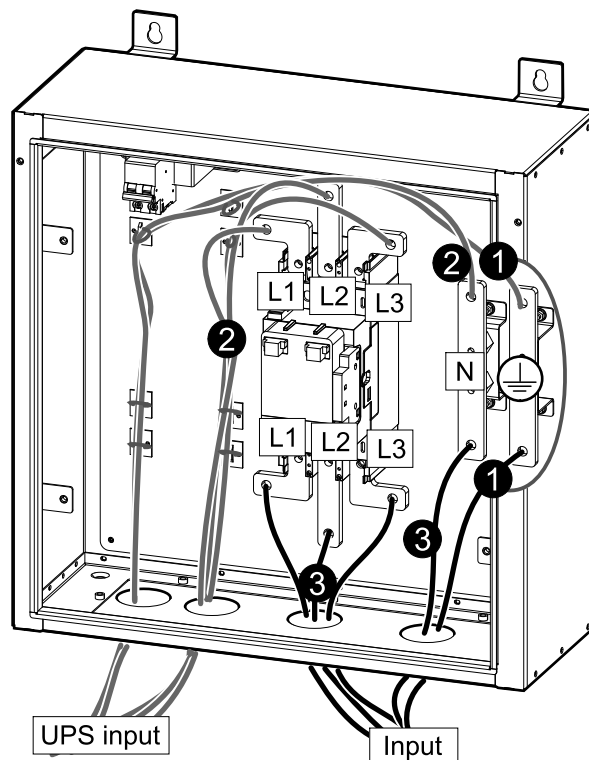
Connect the Input Power Cables to the Input Backfeed Box

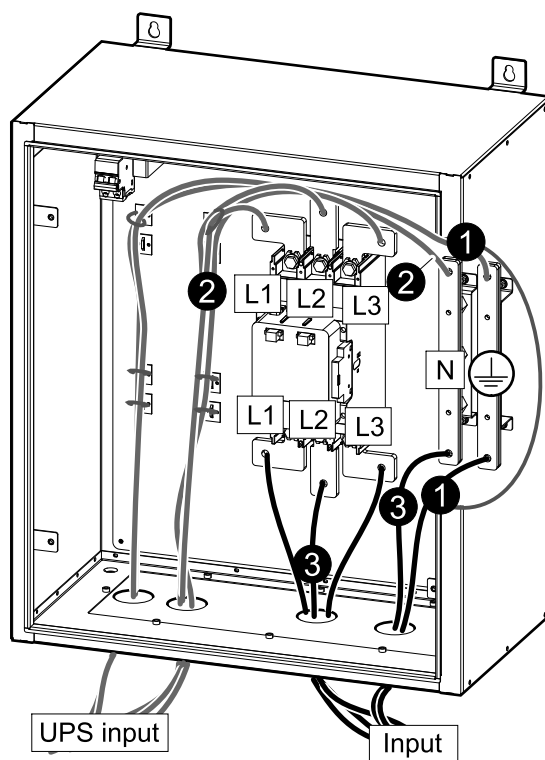
1. Connect the PE cables.
2. Connect the UPS input cables (L1, L2, L3, N).
3. Connect the input cables (L1, L2, L3, N).
4. Reinstall the front plate with the screws.
5. Close and lock the front door.

SP3OPT008 (Input Only)



SP3OPT009 (Input Only)



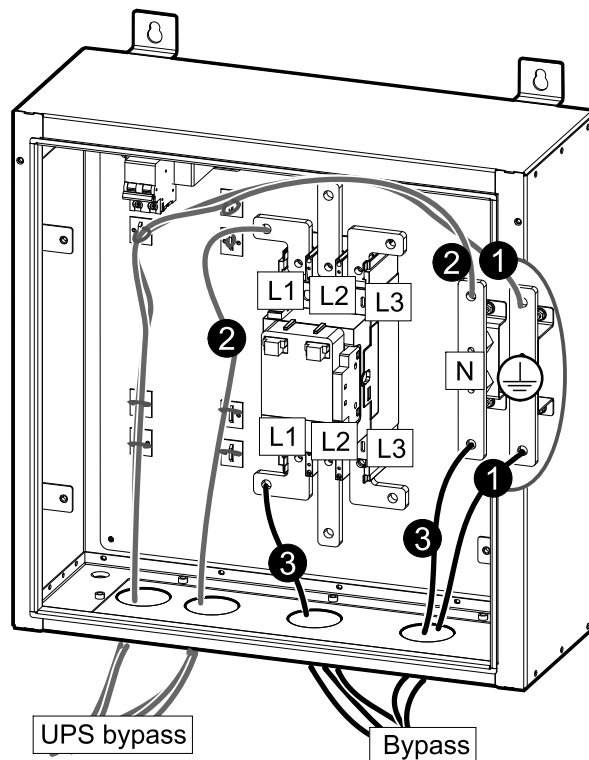
SP3OPT010 (Input Only)

Connect the Bypass Power Cables to the Bypass Backfeed Box for 3:1 System (Dual Mains System Only)

NOTE: Follow the UPS installation manual to remove the single mains busbars in the UPS.

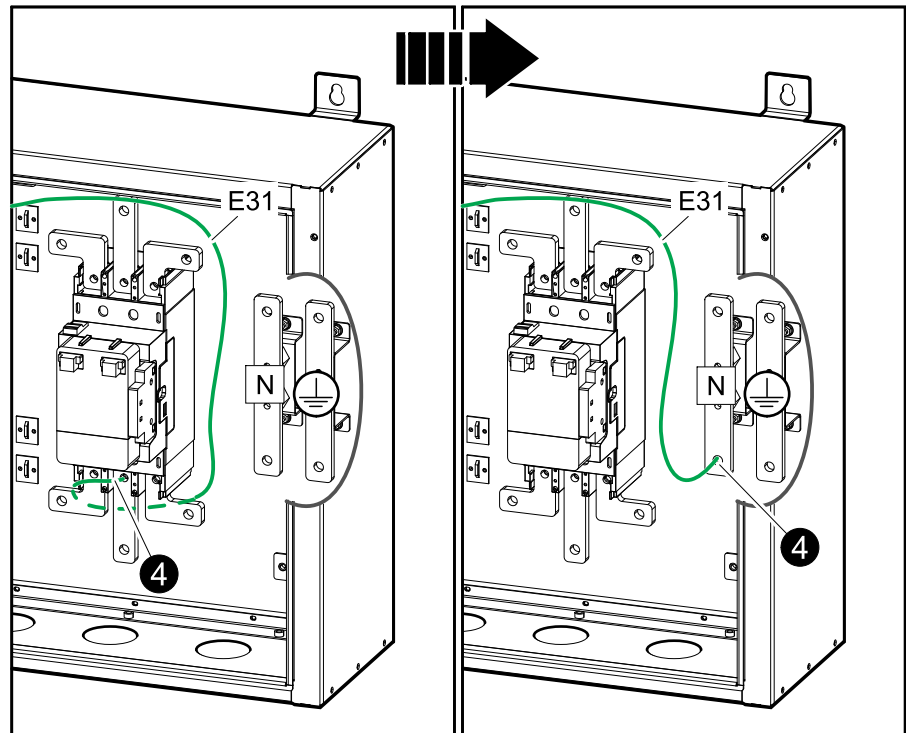
1. Connect the PE cables.
2. Connect the UPS bypass cables (L1, N).
3. Connect the bypass cables (L1, N).

SP3OPT009 for 3:1 System (Bypass Only)



4. Disconnect the signal cable E31 from the L2 busbar of the power contactor. Reconnect the E31 signal cable to the neutral busbar.

SP3OPT009 for 3:1 System (Bypass Only)



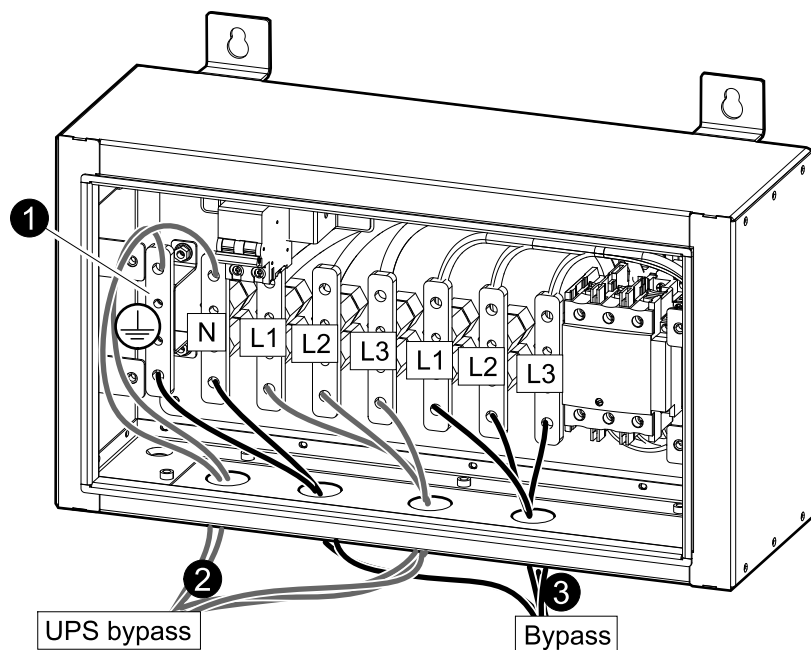
5. Reinstall the front plate with the screws.
6. Close and lock the front door.

Connect the Bypass Power Cables to the Bypass Backfeed Box for 3:3 System (Dual Mains System Only)

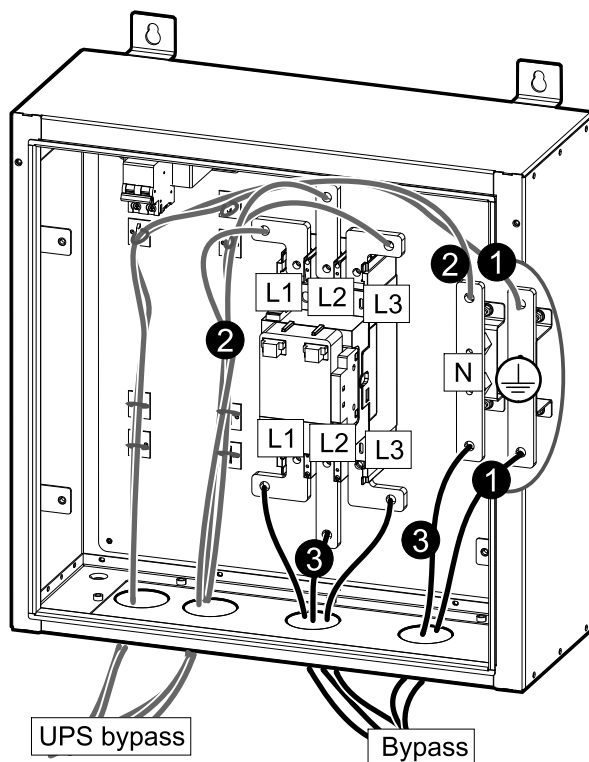
NOTE: Follow the UPS installation manual to remove the single mains busbars in the UPS.

1. Connect the PE cables.
2. Connect the UPS bypass cables (L1, L2, L3, N).
3. Connect the bypass cables (L1, L2, L3, N).
4. Reinstall the front plate with the screws.
5. Close and lock the front door.

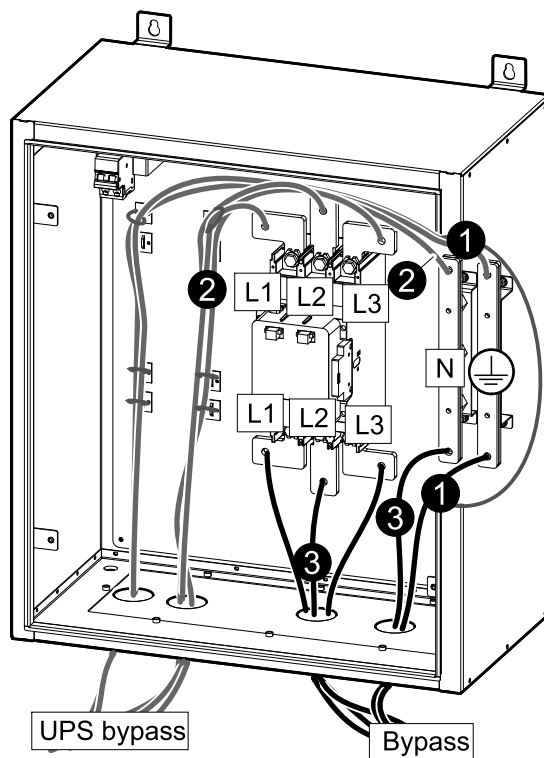
SP3OPT008 for 3:3 System (Bypass Only)



SP3OPT009 for 3:3 System (Bypass Only)



SP3OPT010 for 3:3 System (Bypass Only)

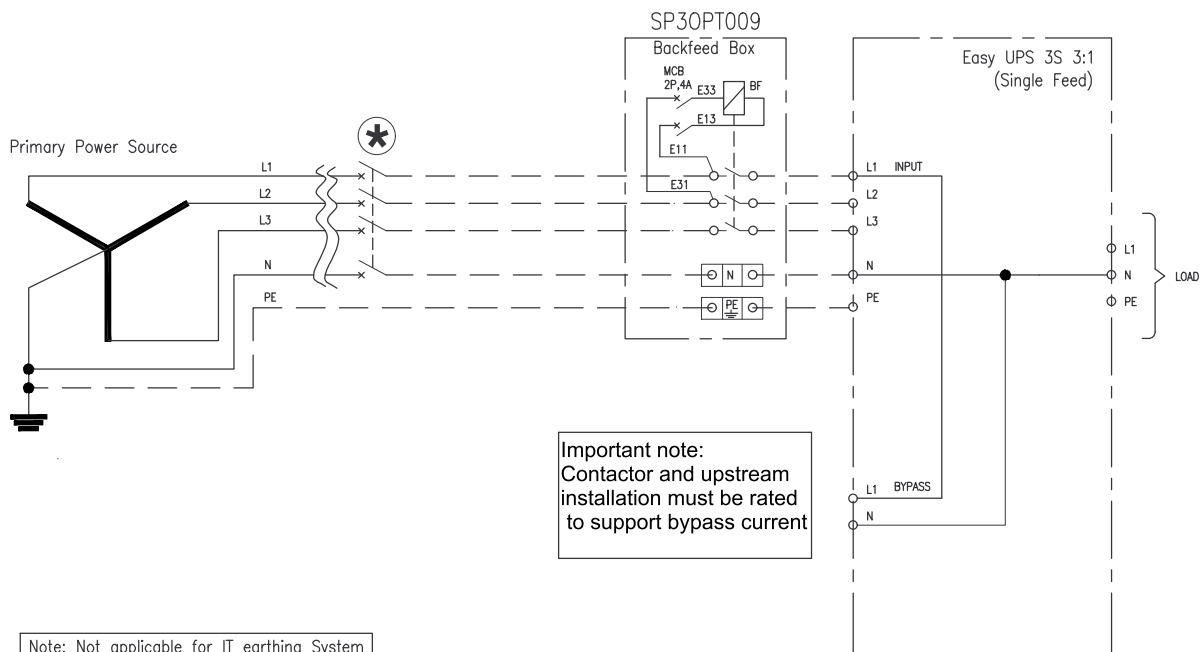


Backfeed Box One Line Drawing

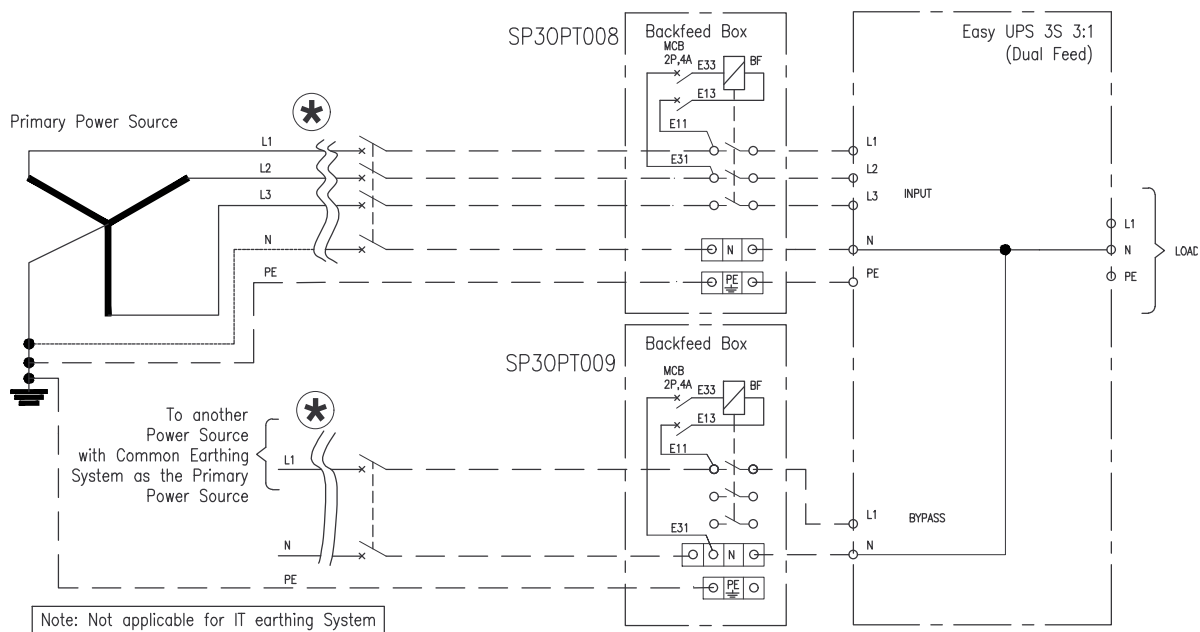


Instruction to end user as follows:

- Easy UPS backfeed box having a rated conditional short-circuit current and not exceeding 10 kA r.m.s.
- Easy UPS backfeed box shall be protected by current-limiting devices having a cut-off current not exceeding 17 kA with the maximum allowable prospective short-circuit current at the terminals of the incoming circuit of the ASSEMBLY.



Single Mains UPS (3:1)

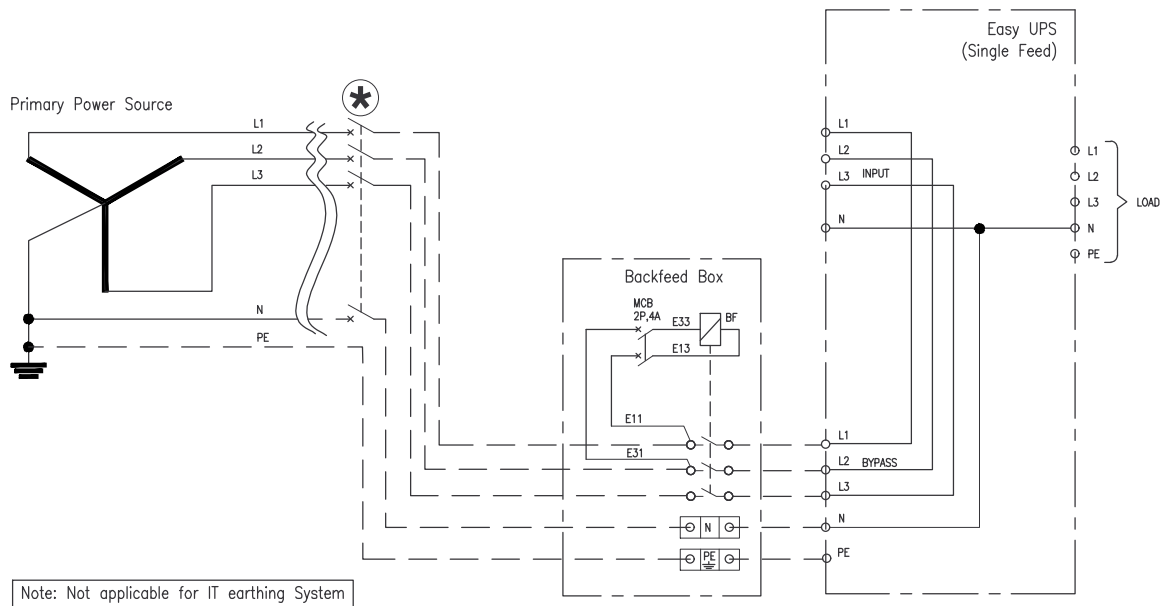


Dual Mains UPS (3:1)

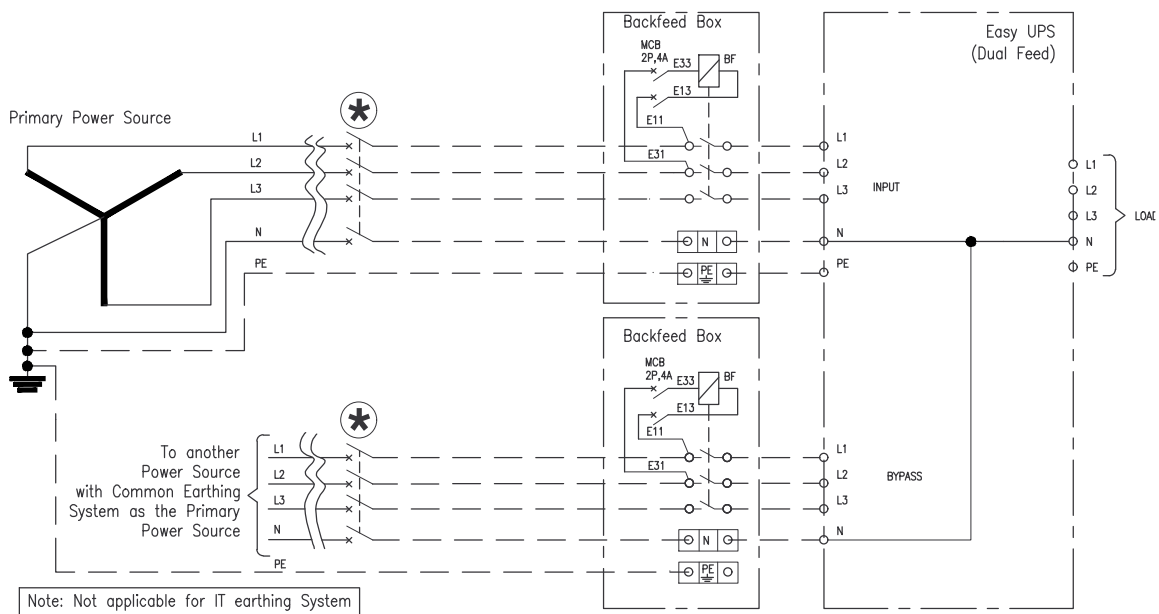


Instruction to end user as follows:

- Easy UPS backfeed box having a rated conditional short-circuit current and not exceeding 10 kA r.m.s.
- Easy UPS backfeed box shall be protected by current-limiting devices having a cut-off current not exceeding 17 kA with the maximum allowable prospective short-circuit current at the terminals of the incoming circuit of the ASSEMBLY.



Single Mains UPS (3:3)



Dual Mains UPS (3:3)

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

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