

Easy UPS 3S

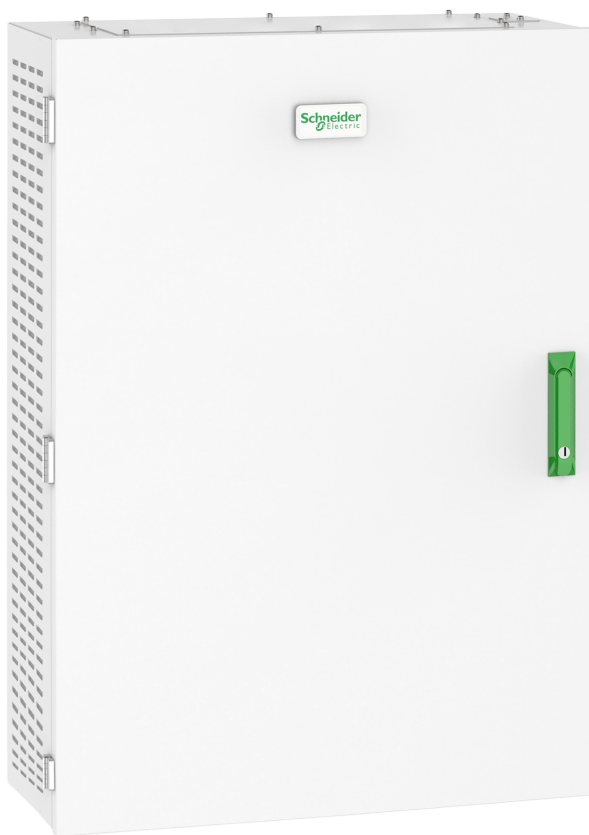
Parallel Maintenance Bypass Panel

Installation

For 10-40 kVA 208 V UPS

E3SBPAR10K40F

12/2020



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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.

FCC Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 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.

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.

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 UPS system.

 **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 leakage current, the earthing/grounding conductor must be connected first.

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 remotely 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**

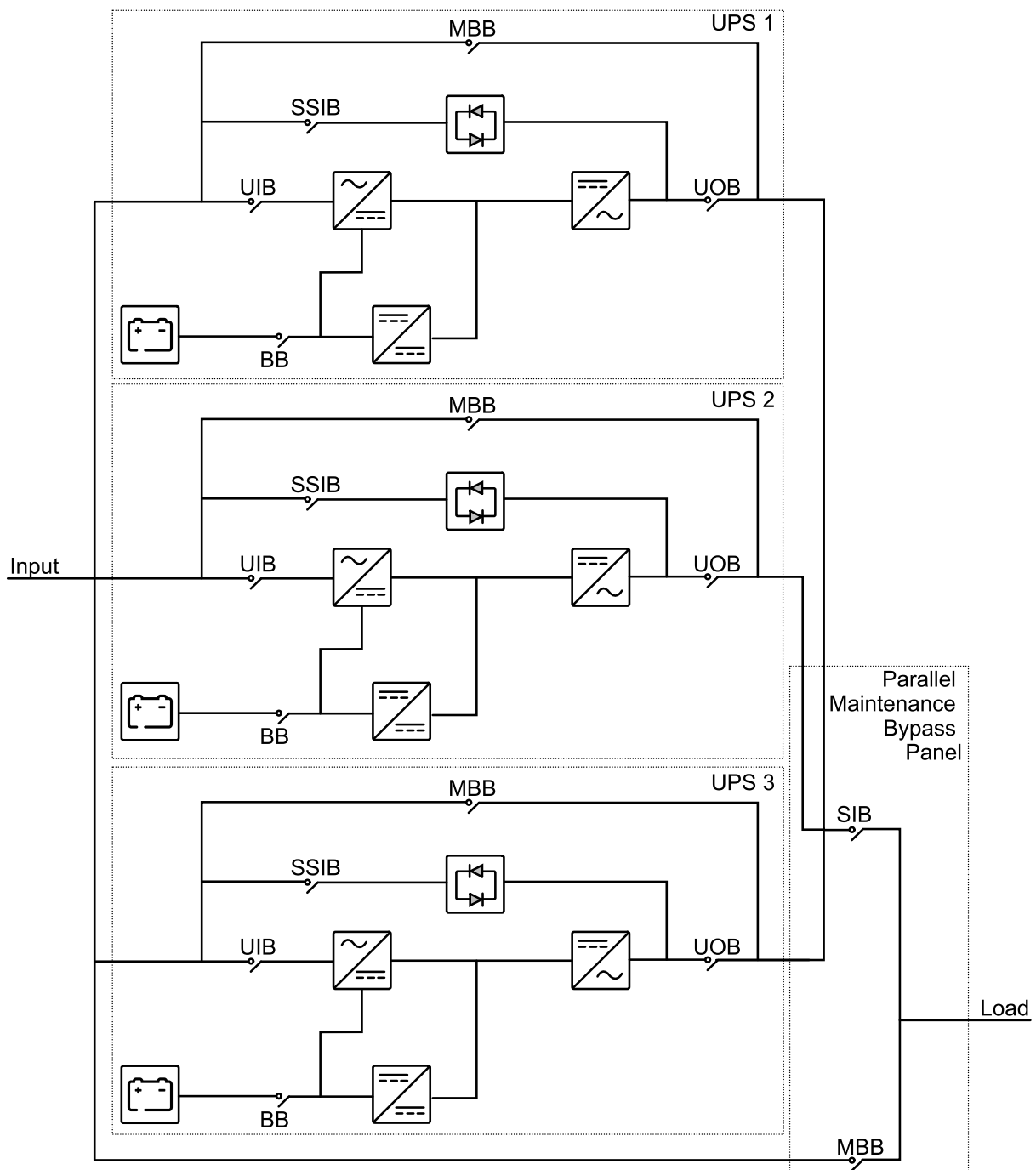
Risk of voltage backfeed. Before working on this circuit: Isolate the UPS and check for hazardous voltage between all terminals including the protective earth.

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

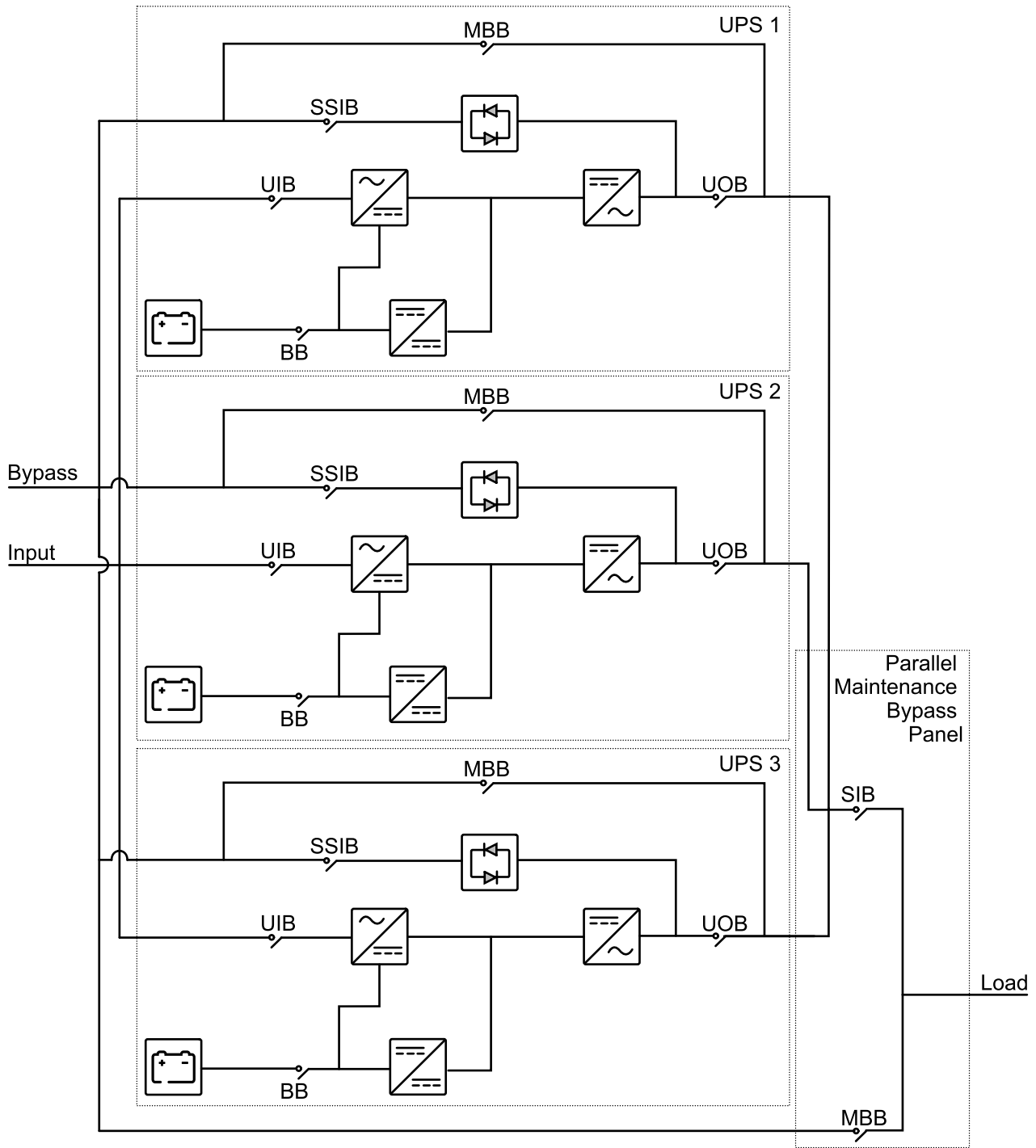
Overview of System with 3 UPS Units and Parallel Maintenance Bypass Panel

UIB	Unit input breaker
SSIB	Static switch input breaker
UOB	Unit output breaker
MBB	Maintenance bypass breaker
BB	Battery relay
SIB	System isolation breaker

Single Mains System



Dual Mains System



Specifications

Maximum Input Short-Circuit Withstand

The maximum input short-circuit withstand for the parallel maintenance bypass panel is 10 kA RMS symmetrical.

Trip Settings for Maintenance Bypass Breaker (MBB) and System Isolation Breaker (SIB)

UPS rating	3+0 Parallel System				2+1 Parallel System			
	I _r	I _{sd}	I _i	N	I _r	I _{sd}	I _i	N
10 kVA	200	1.5-10	1.5-11	4P 3D	200	1.5-10	1.5-11	4P 3D
15 kVA	200	1.5-10	1.5-11	4P 3D	200	1.5-10	1.5-11	4P 3D
20 kVA	300	1.5-10	1.5-11	4P 3D	200	1.5-10	1.5-11	4P 3D
30 kVA	400	1.5-10	1.5-11	4P 3D	300	1.5-10	1.5-11	4P 3D
40 kVA	600	1.5-10	1.5-11	4P 3D	350	1.5-10	1.5-11	4P 3D

Recommended Upstream Protection

UPS rating	3+0 Parallel System				2+1 Parallel System			
	Breaker	I _r	Tr	I _i	Breaker	I _r	Tr	I _i
10 kVA	HDF36150CU31X	100	0.5-16	1.5-15	HDF36100CU31X	70	0.5-16	1.5-15
15 kVA	HDF36150CU31X	150	0.5-16	1.5-15	HDF36100CU31X	100	0.5-16	1.5-15
20 kVA	JDF36250CU31X	225	0.5-16	1.5-15	HDF36150CU31X	150	0.5-16	1.5-15
30 kVA	LDF36400CU31X	350	0.5-16	1.5-15	JDF36250CU31X	225	0.5-16	1.5-15
40 kVA	LDF36400CU31X	400	0.5-16	1.5-15	LDF36400CU31X	300	0.5-16	1.5-15

Recommended Cable Sizes

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable cable size is 4/0.

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

NOTE: Overcurrent protection and cable lugs are to be provided by others. Cable sizes in this manual are based on Table 310.15 (B)(16) of the National Electrical Code (NEC) with the following assertions:

- 90 °C (194 °F) conductors (75 °C (167 °F) termination)
- An ambient temperature of 30 °C (86 °F)
- Use of copper conductors
- Installation method C

If the ambient temperature is greater than 30 °C (86 °F), larger conductors are to be selected in accordance with the correction factors of the NEC.

Equipment grounding conductors/Protective Earth (PE in this manual) are sized in accordance with NEC Article 250.122 and Table 250.122.

UPS rating		3+0 Parallel System		2+1 Parallel System	
		Input cables to MBB/ Output cables from MBB/ System output from SIB (AWG/kcmil)	Cables from UPSs to SIB (AWG/kcmil)	Input cables to MBB/ Output cables from MBB/ System output from SIB (AWG/kcmil)	Cables from UPSs to SIB (AWG/kcmil)
10 kVA	Phases	1	8	4	8
	Neutral	2 x 1/0	4	1/0	4
	PE	10	10	10	10
15 kVA	Phases	3/0	6	1	6
	Neutral	2 x 3/0	3	4/0	3
	PE	8	8	8	8
20 kVA	Phases	2 x 3/0	4	2/0	4
	Neutral	4 x 3/0	1/0	2 x 2/0	1/0
	PE	8	8	8	8
30 kVA	Phases	3 x 3/0	1	2 x 3/0	1
	Neutral	6 x 3/0	2 x 1/0	4 x 3/0	2 x 1/0
	PE	6	6	6	6
40 kVA	Phases	4 x 3/0	2/0	3 x 3/0	2/0
	Neutral	8 x 3/0	2 x 2/0	6 x 3/0	2 x 2/0
	PE	6	6	6	6

Recommended Cable Lugs

Cable Size	Cable Lug Type
10	LCA10-14-L
8	LCA8-14-L
6	LCA6-56-L
4	LCA4-56-L
3	LCA3-56-L
1	LCA1-56-L
1/0	LCA1/0-56-L
2/0	LCA2/0-38-L
3/0	LCA2/0-38-L
4/0	LCA4/0-38-L

Torque Specifications

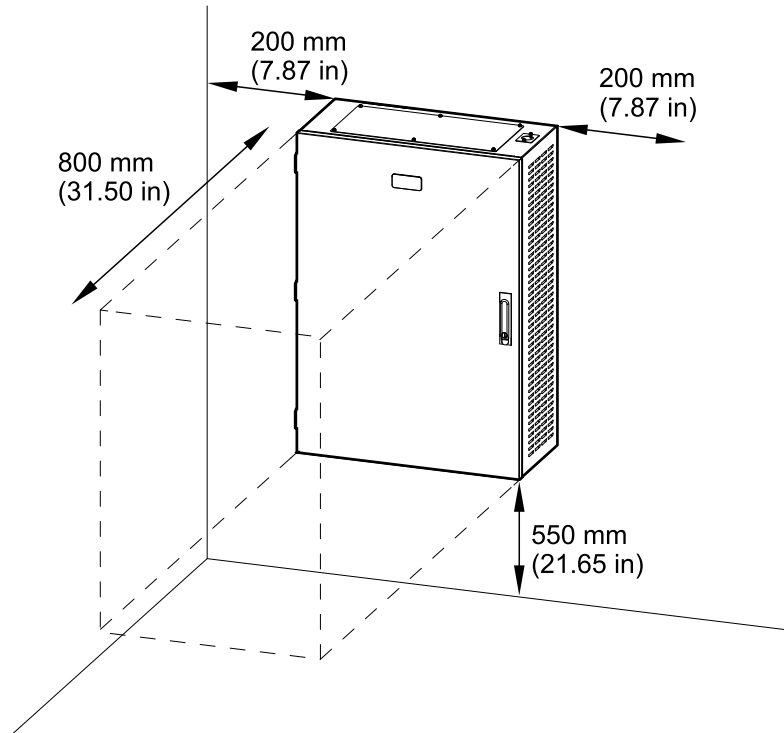
Bolt size	Torque
M6	5 Nm (3.69 lb-ft / 44.3 lb-in)
M8	17.5 Nm (12.91 lb-ft / 154.9 lb-in)
M10	30 Nm (22 lb-ft / 194.7 lb-in)

Parallel Maintenance Bypass Panel Weights and Dimensions

	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
10-40 kVA parallel maintenance bypass panel	70 (154)	1000 (39.37)	700 (27.56)	330 (12.99)

Clearance

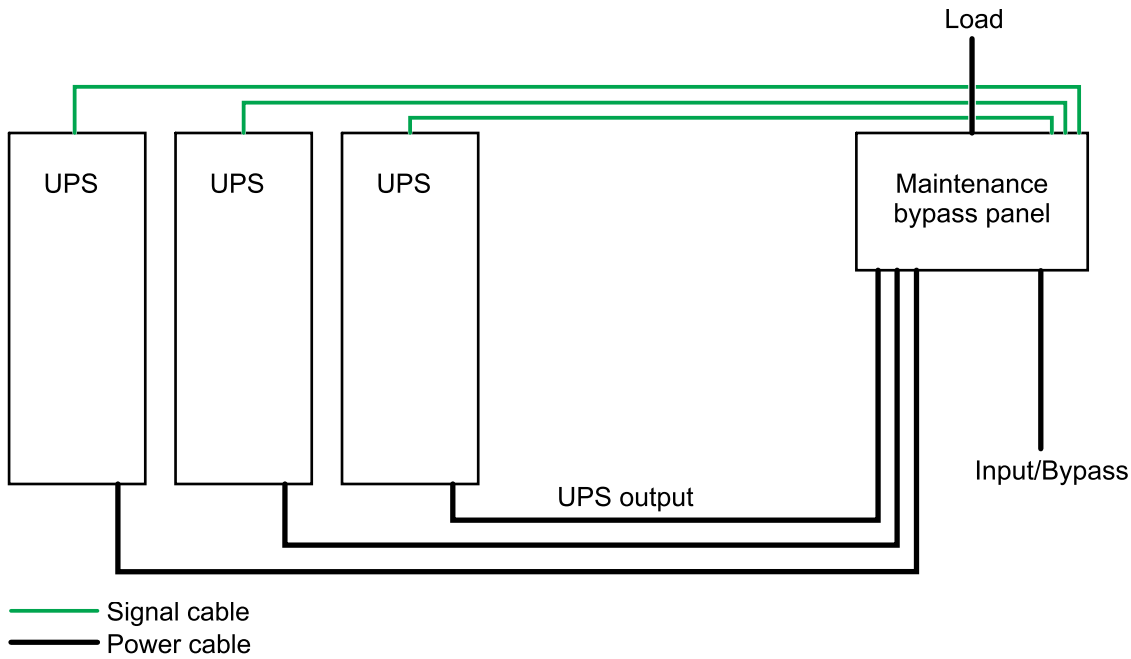
NOTE: Clearance dimensions are published for airflow and service access only. Consult with the local safety codes and standards for additional requirements in your local area.



Environment

	Operating	Storage
Temperature	0 °C to 40 °C (32 °F to 104 °F)	-25 °C to 55 °C (-13 °F to 131 °F)
Relative humidity	0-95% non-condensing	0-95% non-condensing
Elevation	0-2000 m (0-6561 feet)	
Protection class	IP20	
Color	RAL 9003, gloss level 85%	

Installation Procedure



1. Mount the Parallel Maintenance Bypass Panel to the Wall, page 14.
2. Prepare the Parallel Maintenance Bypass Panel for Cables, page 16.
3. Connect the Power Cables, page 17.
4. Connect the Signal Cables, page 18.

Mount the Parallel Maintenance Bypass Panel to the Wall

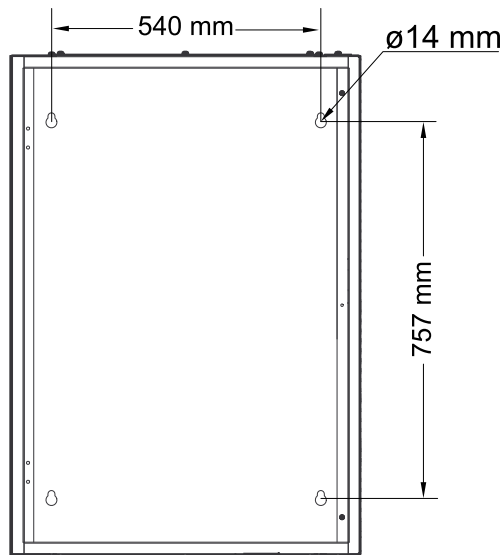
⚠ CAUTION

RISK OF INJURY OR EQUIPMENT DAMAGE

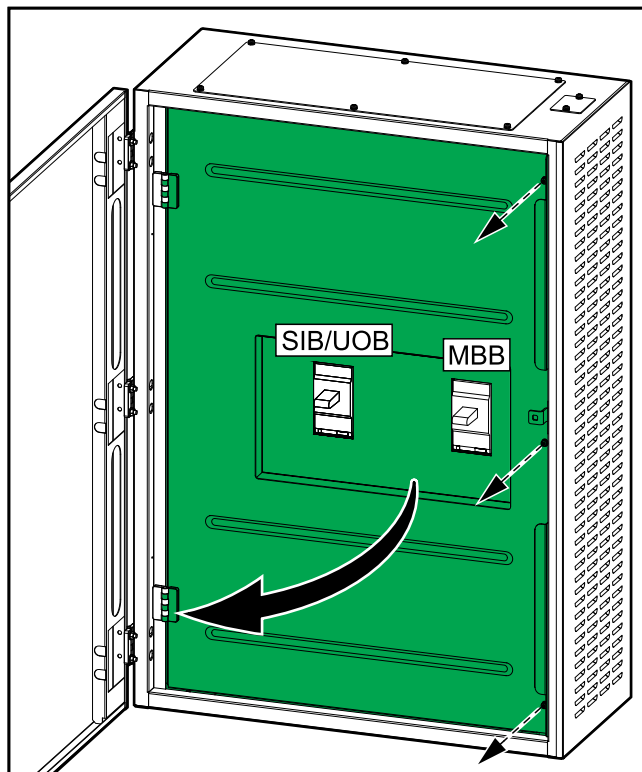
- Mount the parallel maintenance bypass panel to a wall or a rack that is structurally sound and able to support the weight of the unit.
- Use appropriate hardware for the wall/rack type.

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 the anchor bolts.
3. Remove the screws and open the inner door in the maintenance bypass panel.



4. Lift the parallel maintenance bypass panel, position it against the wall and line it up with the four anchor bolts. Mount the parallel maintenance bypass panel to the wall.

Prepare the Parallel Maintenance Bypass Panel for Cables

⚠ DANGER

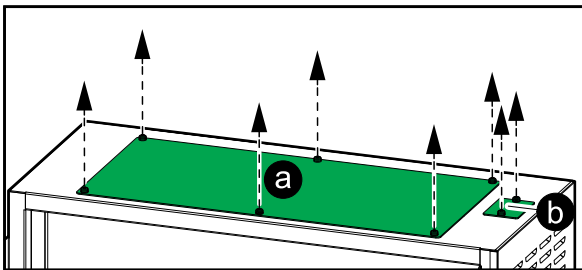
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not drill or punch holes with the gland plates installed and do not drill or punch holes in close proximity to the parallel maintenance bypass panel.

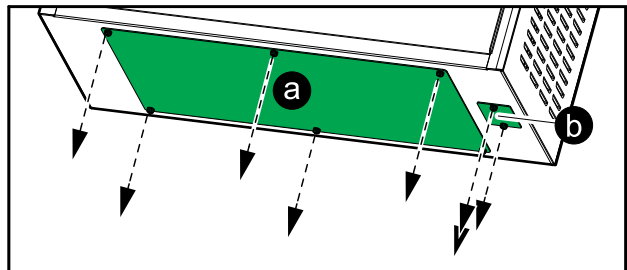
Failure to follow these instructions will result in death or serious injury.

1. Prepare the parallel maintenance bypass panel for power and signal cables:
 - a. Loosen the six bolts from the top **AND** bottom gland plates for power cables and remove the gland plates.
 - b. Loosen the two bolts from the top **OR** bottom gland plate for signal cables and remove the gland plate.

Top of Parallel Maintenance Bypass Panel



Bottom of Parallel Maintenance Bypass Panel



2. Drill or punch holes for cables/conduits.

⚠ DANGER

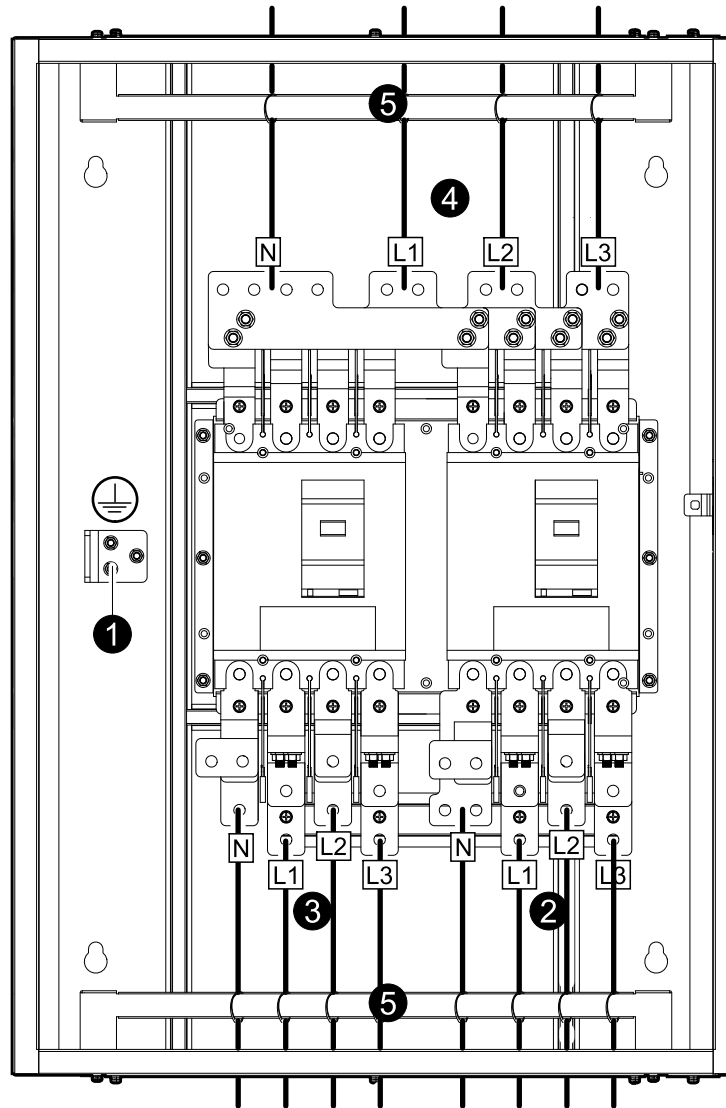
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

3. Install conduits (if applicable) and reinstall the gland plates.

Connect the Power Cables

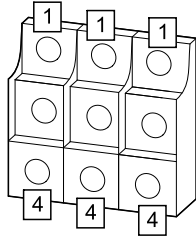


1. Route the ground cables through the top or bottom and connect.
2. Route the input cables through the bottom and connect to the terminals of the MBB breaker.
3. Route the output cables from the three UPSs through the bottom and connect to the terminals of the SIB.
4. Route the system output cables through the top and connect the system output cable landings.
5. Fasten the cables with the cable ties (provided) to the cable reliefs.

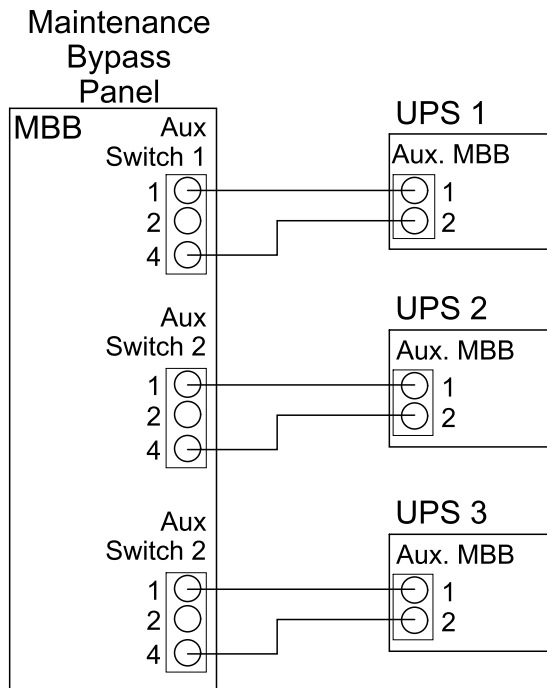
Connect the Signal Cables

NOTE: Route the signal cables separately from the power cables.

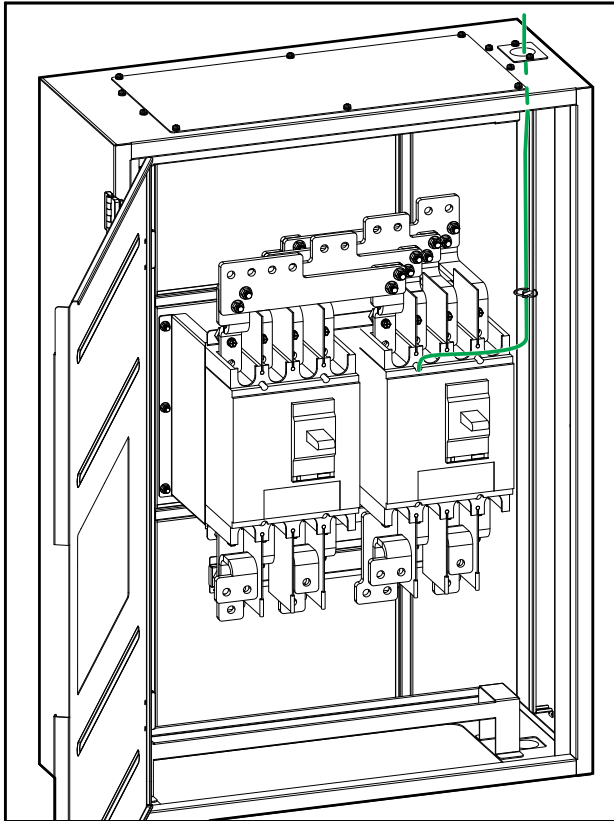
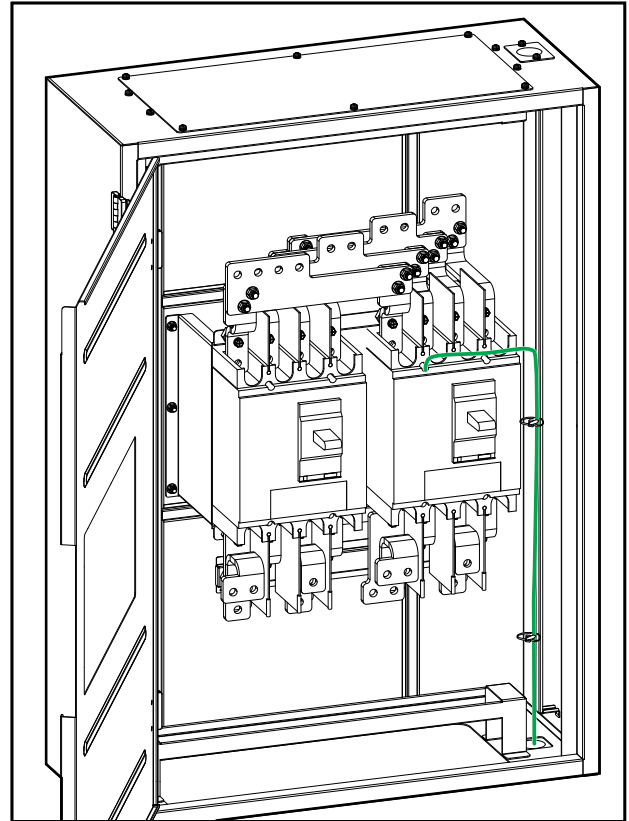
1. Remove the plastic cover of the maintenance bypass breaker MBB to get access to the auxiliary switches.



2. Connect signal cables 22 AWG (not supplied) between the maintenance bypass breaker MBB and the UPSs.



3. Route the signal cables through the top or bottom of the parallel maintenance bypass panel and fasten the signal cables to the cables reliefs.

Top Cable Entry System**Bottom Cable Entry System**

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