Easy UPS 3M

Parallel Maintenance Bypass Panel

Installation

E3MBPAR60K200H

09/2019

www.schneider-electric.com

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Table of Contents

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.

Electromagnetic Compatibility

NOTICE

RISK OF ELECTROMAGNETIC DISTURBANCE

This is a product Category C3 according to IEC 62040-2. This is a product for commercial and industrial applications in the second environment - installation restrictions or additional measures may be needed to prevent disturbances. The second environment includes all commercial, light industry, and industrial locations other than residential, commercial, and light industrial premises directly connected without intermediate transformer to a public low-voltage mains supply. The installation and cabling must follow the electromagnetic compatibility rules, e.g.:

- the segregation of cables,
- the use of shielded or special cables when relevant,
- the use of grounded metallic cable tray and supports.

Failure to follow these instructions can result in equipment damage.

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

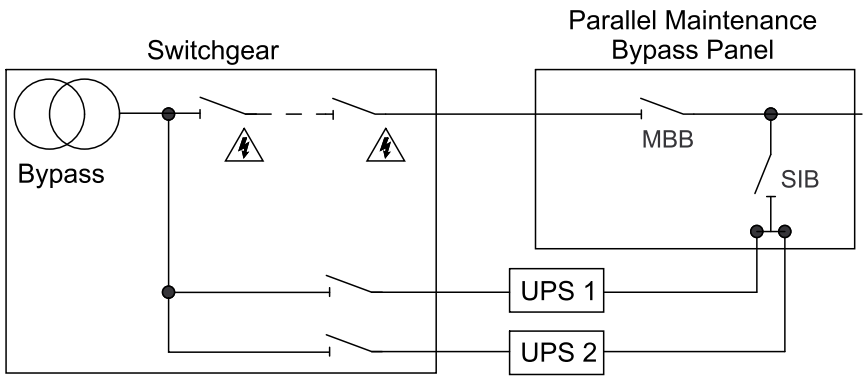
⚠DANGER

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.
- 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.

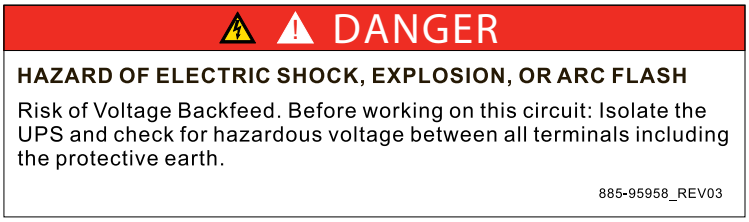
Failure to follow these instructions will result in death or serious injury.

Distribution-Related Backfeed



The upstream disconnection switchgear must be suitable for disconnection purposes. Before working on the upstream supply, the MBB must be locked in the open position using the built-in lockout function.

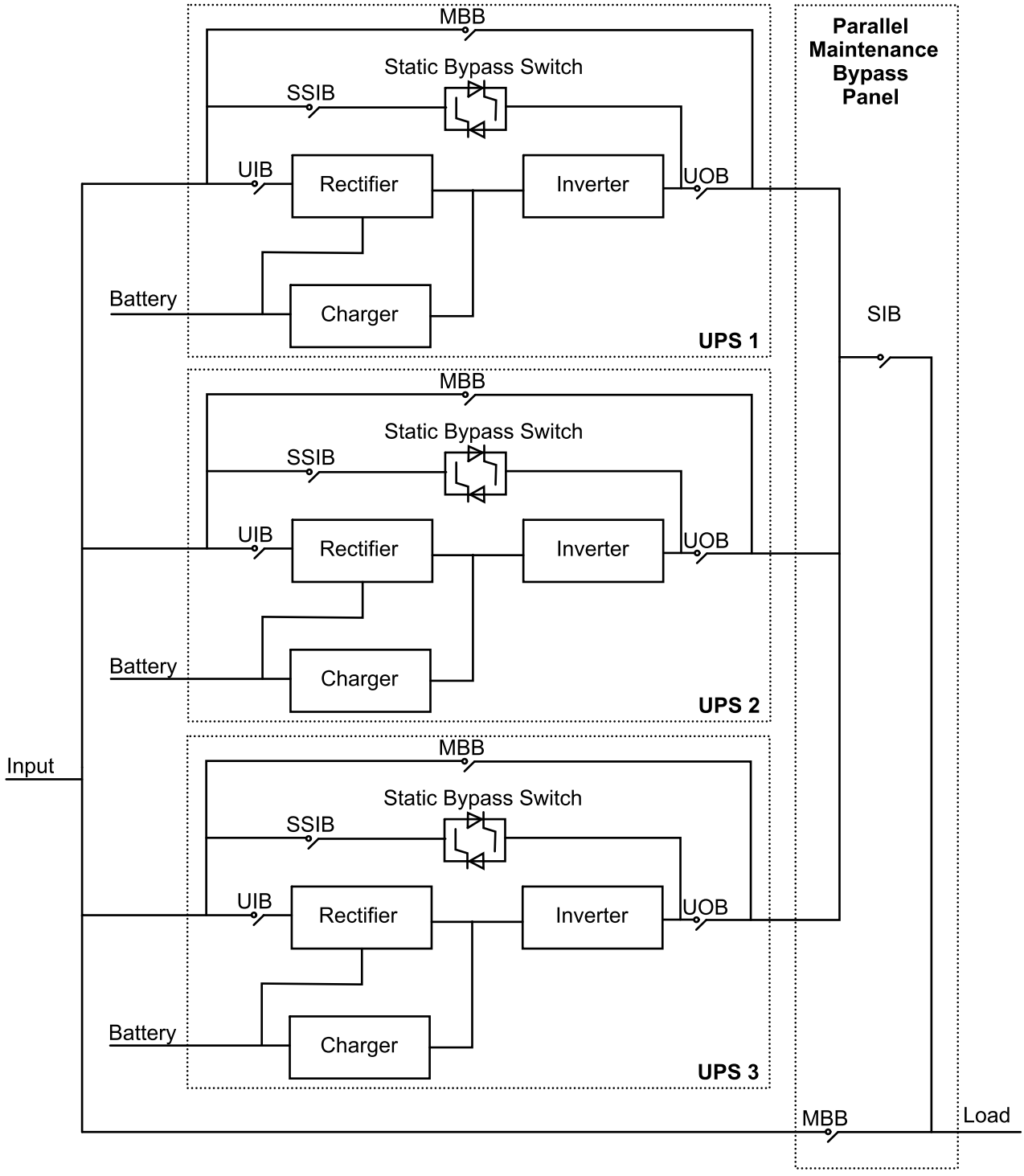
When installing the parallel maintenance bypass panel, warning labels must be posted on the load side of all upstream disconnection devices. The labels must be supplied by the user, displaying the following text (or equivalent in a language which is acceptable in the country in which the UPS system is 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.
885-95958_REV03

Overview of UPS System with Parallel Maintenance Bypass Panel

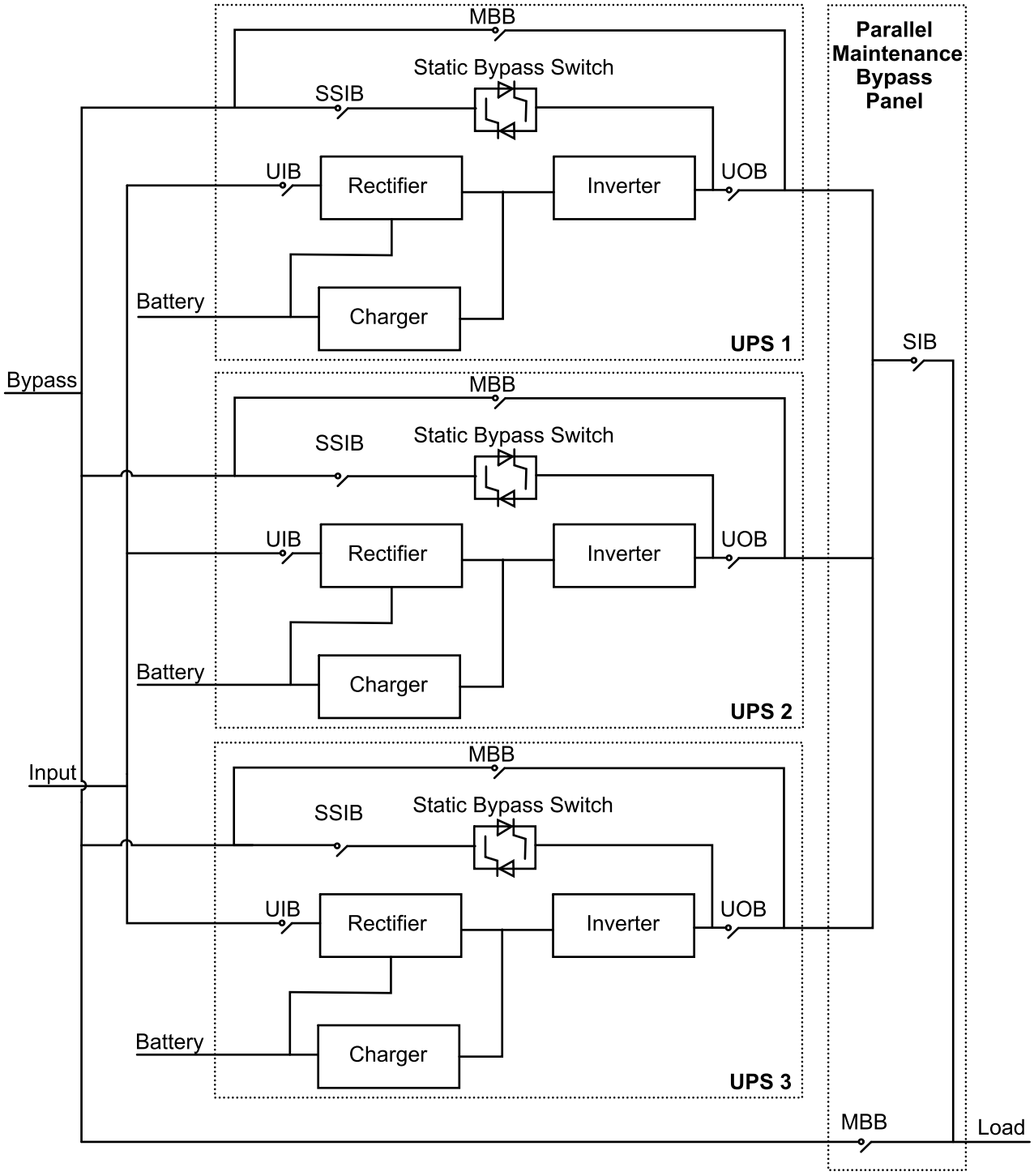
Single Mains Systems

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



Dual Mains Systems

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



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.

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 185 mm².

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

Cable sizes in this manual are based on table B.52.5 of IEC 60364-5-52 with the following assertions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper conductors
- Installation method C

PE size is based on table 54.2 of IEC 60364-4-54.

If the ambient temperature is greater than 30 °C, larger conductors are to be used in accordance with the correction factors of the IEC.

NOTE: Refer to the UPS installation manual for UPS input cable sizes.

	Cable	**3+0 Parallel Capacity**			**2+0 Parallel Capacity 2+1 Parallel Redundant**			**1+0 Single 1+1 Parallel Redundant**		
		Per Phase (mm²)	**Neutral (mm²)**	**PE (mm²)**	**Per Phase (mm²)**	**Neutral (mm²)**	**PE (mm²)**	**Per Phase (mm²)**	**Neutral (mm²)**	**PE (mm²)**
60 kVA	UPS output	25	2x25	16	25	2x25	16	25	2x25	16
	Input (single mains)/ bypass (dual mains)	2x70	4x70	70	95	2x95	50	25	2x25	16
	Load	2x70	4x70	70	95	2x95	50	25	2x25	16
80 kVA	UPS output	50	2x50	25	50	2x50	25	50	2x50	25
	Input (single mains)/ bypass (dual mains)	2x95	4x95	95	120	2x120	70	50	2x50	25
	Load	2x95	4x95	95	120	2x120	70	50	2x50	25
100 kVA	UPS output	70	2x70	35	70	2x70	35	70	2x70	35
	Input (single mains)/ bypass (dual mains)	4x50	4x95	120	2x70	4x70	70	70	2x70	35
	Load	4x50	4x95	120	2x70	2x150 or 4x70	70	70	2x70	35
120 kVA	UPS output	95	2x70	50	95	2x70	50	95	2x70	50
	Input (single mains)/ bypass (dual mains)	4x70	4x95	150	2x95	4x70	95	95	120 or 2x70	50

	Cable	3+0 Parallel Capacity			2+0 Parallel Capacity 2+1 Parallel Redundant			1+0 Single 1+1 Parallel Redundant		
		Per Phase (mm^2)	Neutral (mm^2)	PE (mm^2)	Per Phase (mm^2)	Neutral (mm^2)	PE (mm^2)	Per Phase (mm^2)	Neutral (mm^2)	PE (mm^2)
	Load	4x70	4x95	150	2x95	2x150 or 4x70	95	95	120 or 2x70	50
160 kVA	UPS output	–	–	–	120	120	70	120	120	70
	Input (single mains)/ bypass (dual mains)	–	–	–	4x50	4x70	120	120	120	70
	Load	–	–	–	2x120 or 4x50	2x150 or 4x70	120	120	120	70
200 kVA	UPS output	–	–	–	2x70	2x70	70	2x70	2x70	70
	Input (single mains)/ bypass (dual mains)	–	–	–	4x70	4x70	185	150 or 2x70	150 or 2x70	70
	Load	–	–	–	2x185 or 4x70	2x185 or 4x70	185	150 or 2x70	150 or 2x70	70

Recommended Upstream Protection

	3+0 Parallel Capacity					2+0 Parallel Capacity 2+1 Parallel Redundant					1+0 Single 1+1 Parallel Redundant				
	Breaker	Io	Ir	Isd	Tr	Breaker	Io	Ir	Isd	Tr	Breaker	Io	Ir	Isd	Tr
60 kVA	NSX400N mic2.3	320	320	1.5-10	–	NSX250N mic2.3	200	200	1.5-10	–	NSX100N TM100D	–	100	–	–
80 kVA	NSX400N mic2.3	400	400	1.5-10	–	NSX400N mic2.3	280	280	1.5-10	–	NSX160N TM160D	–	144	–	–
100 kVA	NSX630N mic2.3	500	500	1.5-10	–	NSX400N mic2.3	320	320	1.5-10	–	NSX160N TM160D	–	160	–	–
120 kVA	NSX630N mic2.3	500	500	1.5-10	–	NSX400N mic2.3	400	400	1.5-10	–	NSX250N mic2.3	250	250	1.5-10	–
160 kVA	–	–	–	–	–	NSX630N mic2.3	500	500	1.5-10	–	NSX400N mic2.3	320	320	1.5-10	–
200 kVA	–	–	–	–	–	NSX630N mic2.3	630	630	1.5-10	–	NSX400N mic2.3	400	400	1.5-10	–

Recommended Bolt and Lug Sizes

Cable Size	Terminal Bolt Diameter	Cable Lug Type
16 mm^2	M10	KST TLK16-10
25 mm^2	M10	KST TLK25-10
35 mm^2	M10	KST TLK35-10
50 mm^2	M10	KST TLK50-10
70 mm^2	M10	KST TLK70-10
95 mm^2	M10	KST TLK95-10
120 mm^2	M10	KST TLK120-10
150 mm^2	M10	KST TLK150-10
185 mm^2	M10	KST TLK185-10

Torque Specifications

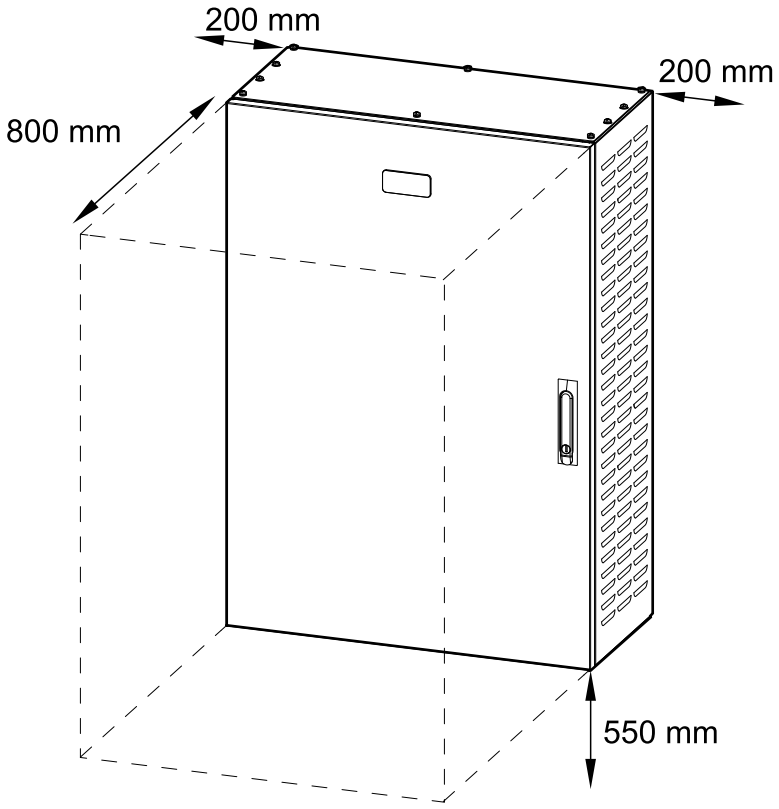
Bolt Size	Torque
M10	30 Nm

Parallel Maintenance Bypass Panel Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Parallel maintenance bypass panel E3MBPAR60K200H	62	1000	700	320

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	-25 °C to 55 °C
Relative humidity	0 – 95% non-condensing	0 – 95% non-condensing
Protection class	IP20	
Color	RAL 9003	

Installation Procedure

1. *Mount the Parallel Maintenance Bypass Panel to the Wall, page 15*.
2. *Prepare the Parallel Maintenance Bypass Panel for Cables, page 16*.
3. *Connect the Power Cables, page 18*.
4. *Connect the Signal Cables, page 18*.

Mount the Parallel Maintenance Bypass Panel to the Wall

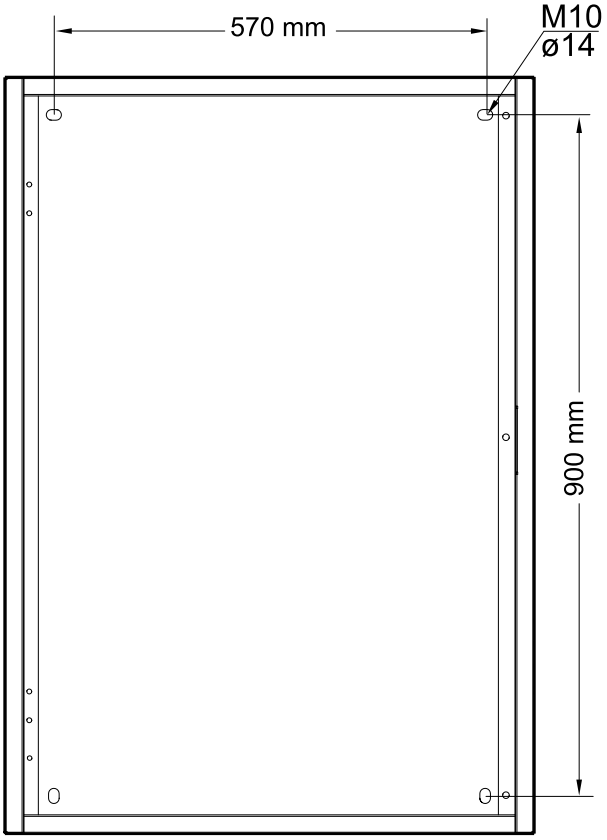
⚠CAUTION

RISK OF INJURY OR EQUIPMENT DAMAGE

- Mount the 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.

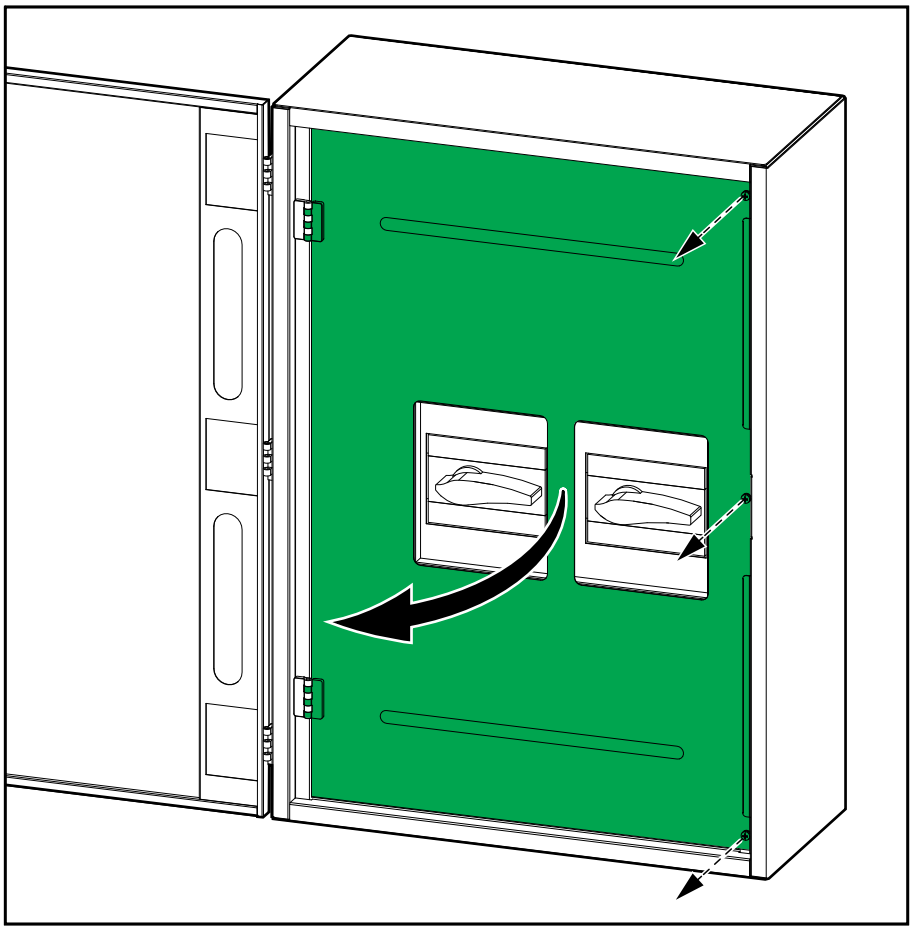
Failure to follow these instructions can result in injury or equipment damage.

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.



4. Mount the parallel maintenance bypass panel to the wall.

Prepare the Parallel Maintenance Bypass Panel for Cables

⚠DANGER

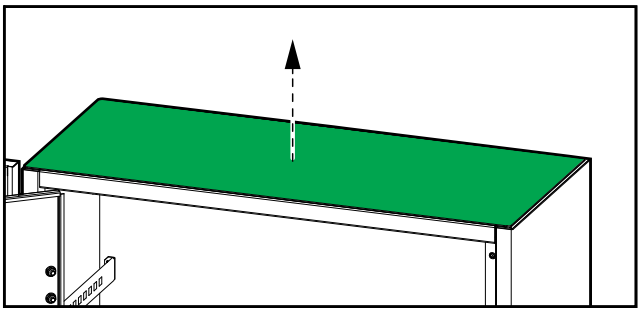
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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.

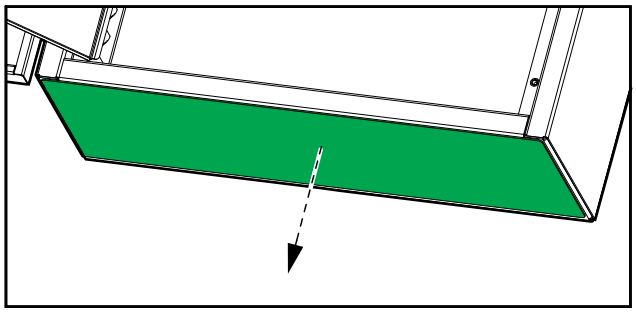
Failure to follow these instructions will result in death or serious injury.

1. Remove the top and bottom gland plates.

Top of Parallel Maintenance Bypass Panel



Bottom of Parallel Maintenance Bypass Panel



2. Drill or punch holes for cables or grommets in the gland plates.
3. Install grommets (if applicable) and refit the gland plates.

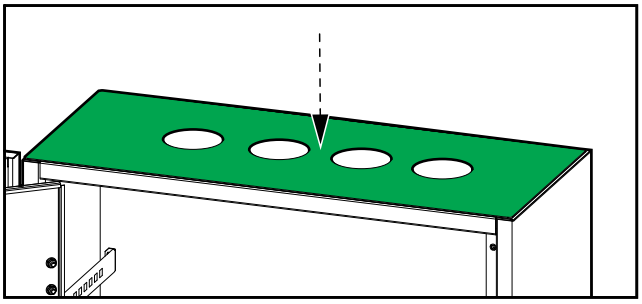
⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

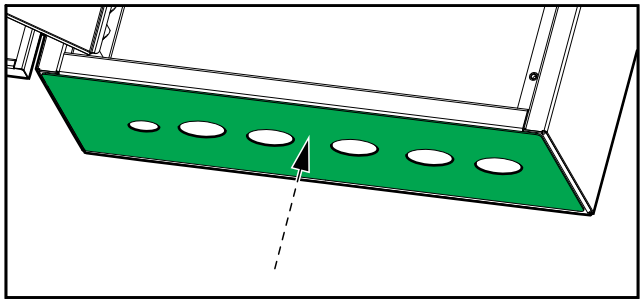
Ensure that there are no sharp edges that can damage the cables.

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

Top of Parallel Maintenance Bypass Panel

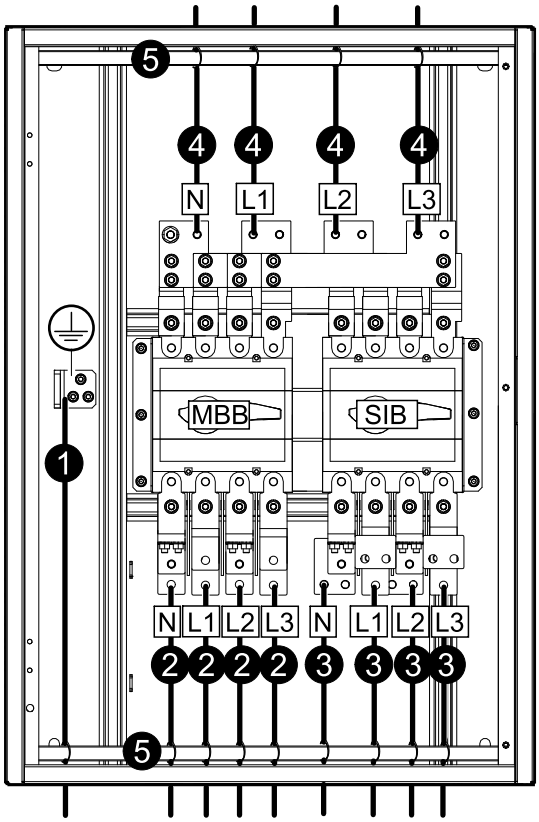


Bottom of Parallel Maintenance Bypass Panel



Connect the Power Cables

1. Connect the PE cable to the PE busbar.

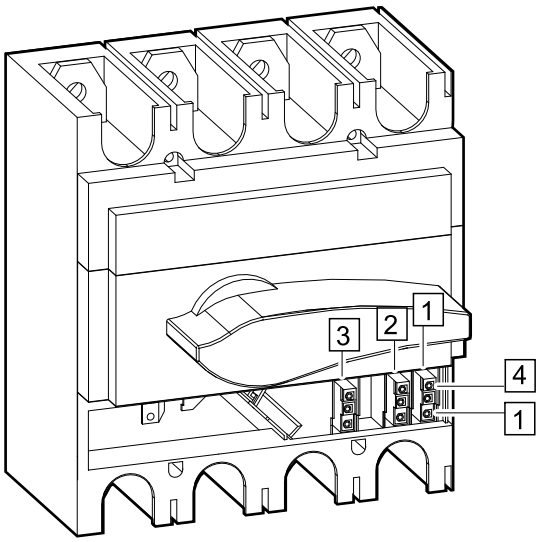


2. Connect the input/bypass cables to the maintenance bypass switch MBB.
3. Connect the UPS output cables to the system isolation breaker SIB.
4. Connect the load cables.
5. Fasten the cables with cable ties to the cable reliefs.

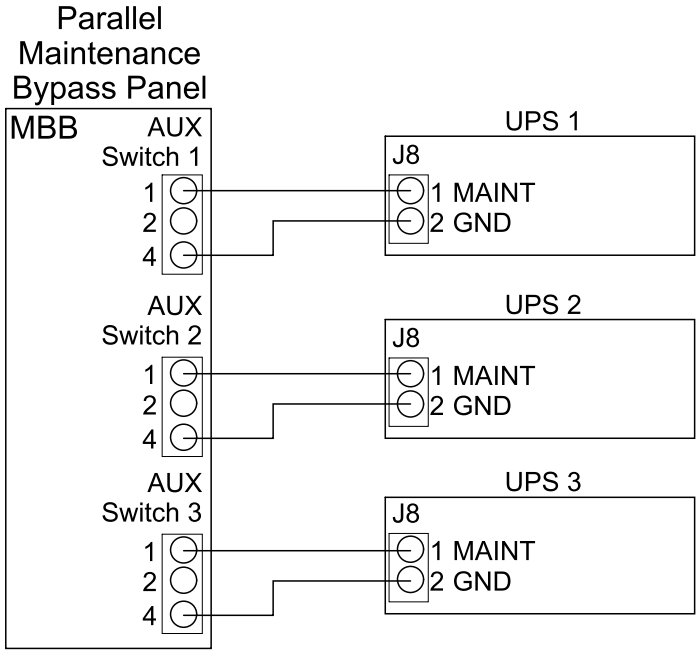
Connect the Signal Cables

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

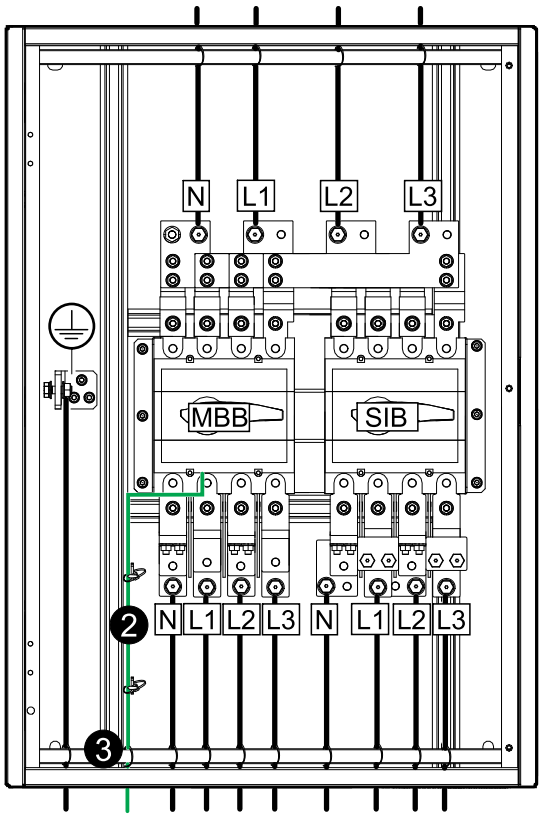
1. Remove the plastic cover of the maintenance bypass switch MBB to get access to the AUX switches.



2. Connect signal cables (not supplied) from the three AUX switches in the maintenance bypass switch MBB to the UPSs.



3. Fasten the signal cables to the cable reliefs.



4. Close the inner door and fasten with screws.
5. Close the front door.

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