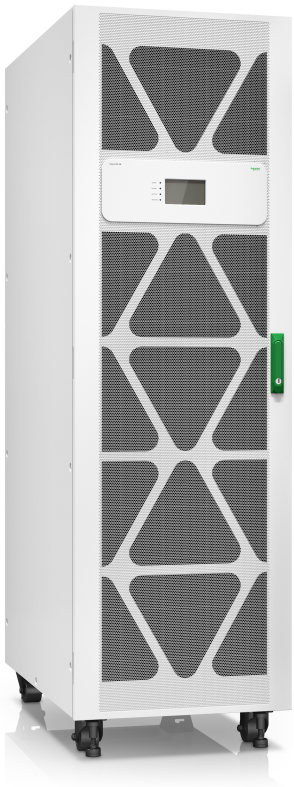
Easy UPS 3M

60-80 kVA 400 V for Internal Batteries

Installation

Latest updates are available on the Schneider Electric website

11/2024



Legal Information

The information provided in this document contains general descriptions, technical characteristics and/or recommendations related to products/solutions.

This document is not intended as a substitute for a detailed study or operational and site-specific development or schematic plan. It is not to be used for determining suitability or reliability of the products/solutions for specific user applications. It is the duty of any such user to perform or have any professional expert of its choice (integrator, specifier or the like) perform the appropriate and comprehensive risk analysis, evaluation and testing of the products/solutions with respect to the relevant specific application or use thereof.

The Schneider Electric brand and any trademarks of Schneider Electric SE and its subsidiaries referred to in this document are the property of Schneider Electric SE or its subsidiaries. All other brands may be trademarks of their respective owner.

Schneider Electric does not grant any right or license for commercial use of the document or its content, except for a non-exclusive and personal license to consult it on an "as is" basis.

Schneider Electric reserves the right to make changes or updates with respect to or in the content of this document or the format thereof, at any time without notice.

To the extent permitted by applicable law, no responsibility or liability is assumed by Schneider Electric and its subsidiaries for any errors or omissions in the informational content of this document, as well as any non-intended use or misuse of the content thereof.

Access to Your Product Manuals Online

Find the UPS Manuals, Submittal Drawings, and Other Documentation for Your Specific UPS Here:

In your web browser, type in https://www.go2se.com/ref= and the commercial reference for your product.

Example: *https://www.go2se.com/ref=**E3MUPS60KHS***

Find the UPS Manuals, Relevant Auxiliary Product Manuals, and Option Manuals Here:

Scan the code to go to the Easy UPS 3M online manual portal:

IEC (380/400/415 V)

https://www.productinfo.schneider-electric.com/easyups3m/

Here you can find your UPS installation manual, UPS operation manual, and UPS technical specifications, and you can also find installation manuals for your auxiliary products and options.

This online manual portal is available on all devices and offers digital pages, search functionality across the different documents in the portal, and PDF download for offline use.

Learn More About the Easy UPS 3M Here:

Go to *https://www.se.com/ww/en/product-range/66001* to learn more about this product.

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.

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).

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

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. Start-up 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 indoor environment free of conductive contaminants and humidity.
- Install the UPS system 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 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 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 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 equipment damage.

NOTICE

RISK OF EQUIPMENT DAMAGE

The UPS must use an external regenerative braking kit to dissipate energy when connected to regenerative loads including photovoltaic systems and speed drives.

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.
- 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. The 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 5th 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.

⚠ CAUTION

RISK OF ELECTRICAL DISTURBANCE

This product can cause a DC current in the PE conductor. Where a residual current-operated protective device (RCD) is used for protection against electrical shock, only an RCD of Type B is allowed on the supply side of this product.

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

Battery Safety

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Battery circuit breakers must be installed according to the specifications and requirements as defined by Schneider Electric.
- Servicing of batteries must only be performed or supervised by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect charging source prior to connecting or disconnecting battery terminals.
- Do not dispose of batteries in a fire as they can explode.
- Do not open, alter, or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

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

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Batteries can present a risk of electric shock and high short-circuit current. The following precautions must be observed when working on batteries

- Remove watches, rings, or other metal objects.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or metal parts on top of batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.
- Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electric shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

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

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

When replacing batteries, always replace with the same type and number of batteries or battery packs.

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

⚠CAUTION

RISK OF EQUIPMENT DAMAGE

- Mount the batteries in the UPS system, but do not connect the batteries until the UPS system is ready to be powered up. The time duration from battery connection until the UPS system is powered up must not exceed 72 hours or 3 days.
- Batteries must not be stored more than six months due to the requirement of recharging. If the UPS system remains de-energized for a long period, we recommend that you energize the UPS system for a period of 24 hours at least once every month. This charges the batteries, thus avoiding irreversible damage.

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

Symbols Used in the Product

	This is the earthing/ground symbol.
	This is the protective earth/equipment grounding conductor symbol.
	This is the direct current symbol. It is also referred to as DC.
	This is the alternating current symbol. It is also referred to as AC.
	This is the positive polarity symbol. It is used to identify the positive terminal(s) of equipment which is used with, or generates direct current.
	This is the negative polarity symbol. It is used to identify the negative terminal(s) of equipment which is used with, or generates direct current.
	This is the battery symbol.
	This is the static bypass switch symbol. It is used to indicate switches that are designed to bypass the UPS normal operation, in cases of high inrush or fault conditions.
	This is the AC/DC converter (rectifier) symbol. It is used to identify an AC/DC converter (rectifier) and, in case of plug-in devices, to identify the relevant receptacles.
	This is the DC/AC converter (inverter) symbol. It is used to identify an DC/AC converter (inverter) and, in case of plug-in devices, to identify the relevant receptacles.
	This is the fuse symbol. It is used to identify fuse boxes or their locations.
	This is the input symbol. It is used to identify an input terminal when it is necessary to distinguish between inputs and outputs.
	This is the output symbol. It is used to identify an output terminal when it is necessary to distinguish between inputs and outputs.
	This is the switch disconnector symbol. It is used to identify the disconnecting device in the form of switch that protects the equipment from short circuit or heavy load current. It opens the circuits once the current flow crosses its maximum limit.
	This is the circuit breaker symbol. It is used to identify the disconnecting device in the form of circuit breaker that protects the equipment from short circuit or heavy load current. It opens the circuits once the current flow crosses its maximum limit.
	This is the circuit breaker/switch symbol. It is used to identify the disconnecting device in the form of circuit breaker or switch that protects the equipment from short circuit or heavy load current. It opens the circuits once the current flow crosses its maximum limit.

N	This is the neutral symbol. It is used to identify the neutral conductors or their locations.
L	This is the phase conductor symbol. It is used to identify the phase conductors or their locations.

Specifications

Input Specifications

	60 kVA			80 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
Connections[1]	L1, L2, L3, N, PE					
Input voltage range (V)	342-477 at full load[2]					
Frequency range (Hz)	40-70					
Nominal input current (A)	96	91	88	128	122	117
Maximum input current (A)	109	104	100	154	146	141
Input current limitation (A)	155			206		
Total harmonic distortion (THDI)	<3% for linear loads					
Input power factor	> 0.99					
Maximum short circuit rating	Icc=10 kA					
Protection	Fuse					
Ramp-in	7 seconds					

Bypass Specifications

	60 kVA			80 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
Connections	L1, L2, L3, N, PE					
Overload capacity	110% for 60 minutes 130% for 10 minutes 130–150% for 1 minute					
Minimum bypass voltage (V)	266	280	291	266	280	291
Maximum bypass voltage (V)	475	480	477	475	480	477
Frequency (Hz)	50 or 60					
Frequency range (%)	±1, ±2, ±4, ±5, ±10. Default is ±10 (user selectable).					
Nominal bypass current (A)	91	87	83	122	115	111
Maximum short circuit rating	Icw=10 kA					

1. It is mandatory to have the neutral line for the input and the load. If the input or the load does not have a neutral line, a Δ-Y transformer for input or a Y-Δ transformer for load needs to be installed. And the capacity of the transformer should be >1.2 times the rated capacity of the UPS.
2. 150–342 V with a linear derating of the load to 30%.

Output Specifications

	60 kVA			80 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
Connections[3]	L1, L2, L3, N, PE					
Overload capacity[4]	110% for 60 minutes 125% for 10 minutes 150% for 1 minute					
Output voltage regulation	± 1%					
Dynamic load response	20 milliseconds					
Output power factor	1.0					
Nominal output current (A)	91	87	83	122	115	111
Total harmonic distortion (THDU)	<2% at 100% balanced linear load <5% at 100% non-linear load					
Output frequency (Hz)	50 or 60					
Slew rate (Hz/sec)	Programmable: 0.5 to 2.0. Default is 0.5					
Output performance classification (according to IEC/ EN62040-3)	VFI-SS–111					
Load power factor	0.5 leading to 0.5 lagging without derating					
Output short circuit current	210 A/200 ms			330 A/200 ms		

Battery Specifications

	60 kVA	80 kVA
Charging power in % of output power	1–16%	1–24%
Maximum charging power (kW)	9600	19200
Nominal battery voltage (2x20 blocks) (VDC)	± 240	
Nominal float voltage (2x20 blocks) (VDC)	± 270	
End of discharge voltage (2x20 blocks) (VDC)	± 192	
Battery current at full load and nominal battery voltage (A)	133	176
Battery current at full load and minimum battery voltage (A)	166	222
Temperature compensation (per cell)	Programmable from 0–7 mV. Default is 0 mV	
Ripple current	< 5% C10	

3. It is mandatory to have the neutral line for the input and the load. If the input or the load does not have a neutral line, a Δ-Y transformer for input or a Y-Δ transformer for load needs to be installed. And the capacity of the transformer should be >1.2 times the rated capacity of the UPS.
4. At 30 °C.

Recommended Upstream Protection

NOTE: For local directives which require 4–pole circuit breakers: If neutral conductor is expected to carry a high current, due to line-neutral non-linear load, the circuit breaker must be rated according to expected neutral current.

	60 kVA		80 kVA	
	Input	**Bypass**	**Input**	**Bypass**
Breaker type	NSX160F 36kA AC 3P3D 125A TMD C16F3TM125	NSX100F 36kA AC 3P3D 100A TMD C10F3TM100	NSX160F 36kA AC 3P3D 160A TMD C16F3TM160	NSX160F 36kA AC 3P3D 160A TMD C16F3TM160
In setting	125	100	160	160
Ir setting	125	100	160	144
Im setting	1250 (fixed)	800 (fixed)	1250 (fixed)	1250 (fixed)

Recommended Cables 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 50 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 60364-5-54.

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: The battery cable sizes given here are recommendations – Always follow the specific instructions in the battery solution documentation for battery cable sizes and battery PE cable sizes and ensure that the battery cable sizes match the battery breaker rating.

NOTE: Recommended cable sizes and maximum allowable cable size may vary for the auxiliary products. Refer to the installation manual provided with the auxiliary product.

NOTE: Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

60 kVA

Copper

	Cable size per phase (mm²)	Neutral cable size (mm²)	PE cable size (mm²)
Input	35	2x25	16

Copper (Continued)

	Cable size per phase (mm^2)	Neutral cable size (mm^2)	PE cable size (mm^2)
Bypass	25		16
Output	25	2x25	16
Battery	50	50	25

80 kVA

Copper

	Cable size per phase (mm^2)	Neutral cable size (mm^2)	PE cable size (mm^2)
Input	50	2x50	25
Bypass	50		25
Output	50	2x50	25
Battery	2x50	2x50	50

Recommended Bolts and Cable Lugs

Cable size (mm^2)	Bolt size	Cable lug type
16	M8	KST TLK16-8
25	M8	KST TLK25-8
35	M8	KST TLK35-8
50	M8	KST TLK50-8

NOTE: If the recommended lug type is not available, use a local M8 lug type as a substitute.

Torque Specifications

Bolt Size	Torque
M8	17.5 Nm

UPS Shipping Weights and Dimensions

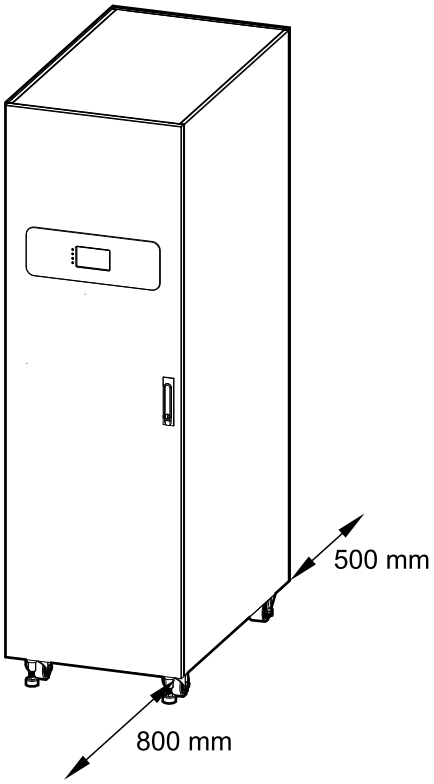
UPS	Weight kg	Height mm	Width mm	Depth mm
60 kVA	360	2102	750	1125
80 kVA	387	2102	750	1125

UPS Weights and Dimensions

UPS	Weight kg	Height mm	Width mm	Depth mm
60 kVA	311	1970	600	1000
80 kVA	339	1970	600	1000

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.



Environmental

	Operating	Storage
Temperature	0 °C to 40 °C Recommended optimal temperature for batteries: 20 °C to 25 °C	-15 °C to 40 °C for systems with batteries -25 °C to 55 °C for systems without batteries
Relative humidity	0–95% non-condensing	
Elevation According to IEC 62040–3	Power derating factor: 0-1500 m: 1.000 1500-2000 m: 0.975	< 15000 m above sea level (or in an environment with equivalent air pressure)
Audible noise	<65 dBA at full load and an ambient temperature of 30 °C[5]	
Protection class	IP20 (dust filter as standard)	
Color	RAL 9003	

Heat Dissipation

	60 kVA		80 kVA	
	W	BTU/hr	W	BTU/hr
Normal operation	3084	10523	4296	14659
Battery operation	2958	10093	4352	14850
ECO mode	540	1843	696	2375

Compliance

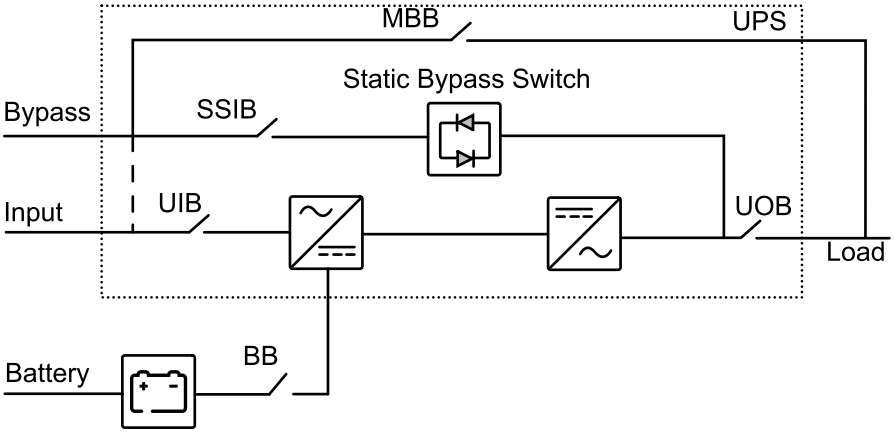
Safety	IEC 62040-1:2017, Edition 2.0, Uninterruptible power systems (UPS) – Part 1: Safety requirements IEC 62040-1: 2008-6, 1st edition, Uninterruptible Power Systems (UPS) – Part 1: General and safety requirements for UPS IEC 62040-1:2013-01, 1st edition amendment 1
EMC/EMI/RFI	IEC 62040-2:2016, Edition 3.0, Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements. IEC 62040-2:2005-10, 2nd edition, Uninterruptible Power Systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements
Performance	IEC 62040-3: 2011-03, 2nd edition Uninterruptible Power Systems (UPS) - Part 3: Method of specifying the performance and test requirements
Markings	CE, RCM, EAC, WEEE, UKCA
Transportation	ISTA 2B
Pollution degree	2
Overvoltage category	III
Earthing system	TN, TT, or IT

5. According to ISO 3746.

Overview

Overview of Single UPS

UIB	Unit input breaker
SSIB	Static switch input breaker
UOB	Unit output breaker
MBB	Maintenance bypass breaker
BB	Battery breaker

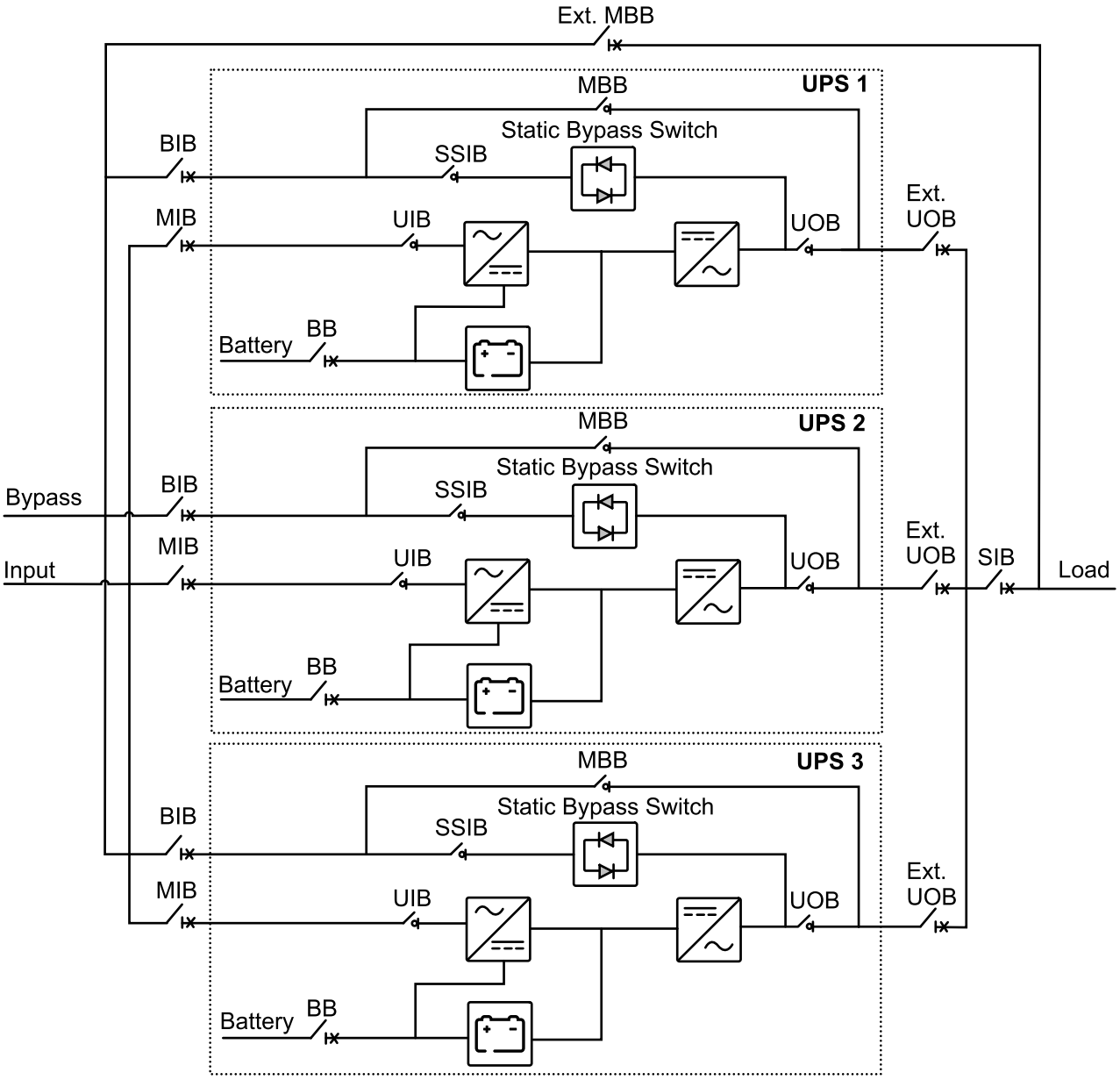


Overview of Parallel System

MIB	Mains input breaker
BIB	Bypass input breaker
UIB	Unit input switch
SSIB	Static switch input switch
UOB	Unit output switch
Ext. UOB	External unit output breaker
MBB	Maintenance bypass switch
Ext. MBB	External maintenance bypass breaker
SIB	System isolation breaker
BB	Battery breaker

NOTE: In parallel systems with an external maintenance bypass breaker Ext. MBB, the maintenance bypass breakers/switches MBB must be padlocked in the open (OFF) position.

UPSs for Internal Batteries



The impedance of the bypass paths need to be controlled in a parallel UPS system. When operating in bypass mode, the parallel load sharing is determined by the total impedance of the bypass path comprising cables, switchgear, static bypass switch, and cable formation.

NOTICE

RISK OF EQUIPMENT DAMAGE

To ensure correct load sharing in bypass operation in a parallel system, the following recommendations apply:

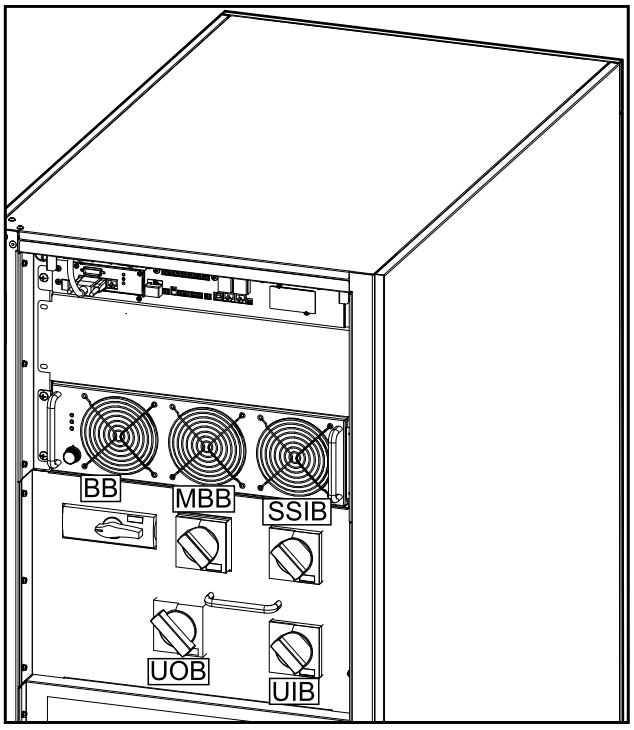
- The bypass cables must be the same length for all UPSs.
- The output cables must be the same length for all UPSs.
- The input cables must be the same length for all UPSs in a single mains system.
- Cable formation recommendations must be followed.
- The reactance of busbar layout in the bypass/input and output switchgear must be the same for all UPSs.

If the above recommendations are not followed the result can be uneven load sharing in bypass and overload of individual UPSs.

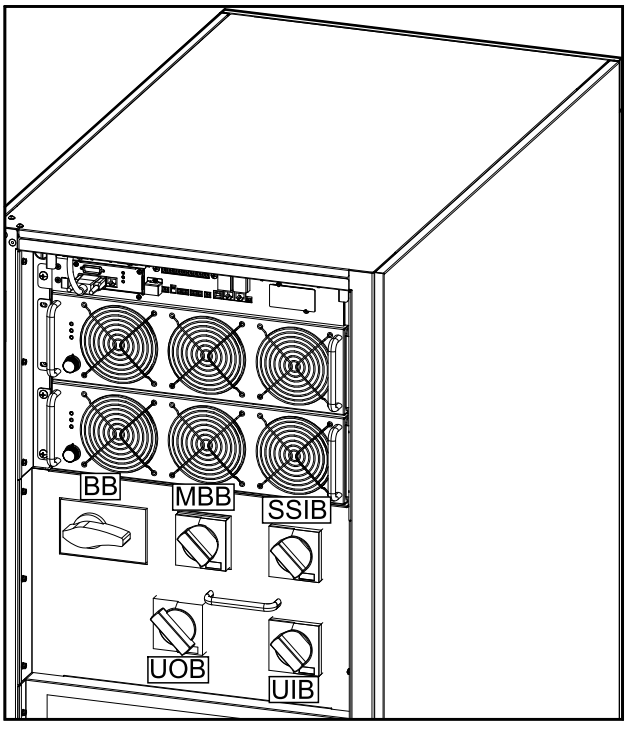
Failure to follow these instructions can result in equipment damage.

Location of Breakers and Switches

Front View of the 60 kVA 400 V UPS for Internal Batteries



Front View of the 80 kVA 400 V UPS for Internal Batteries



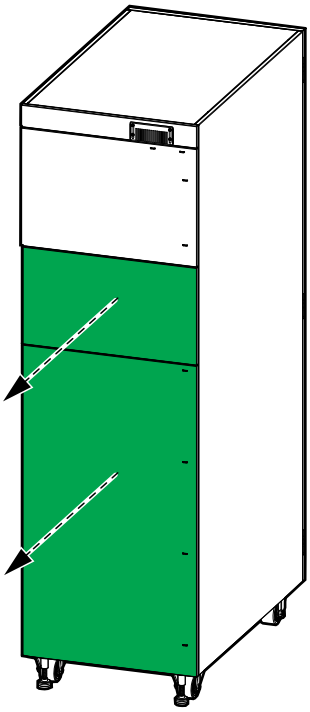
Installation Procedure

1. Connect the Power Cables, page 26.
2. Route the Signal Cables, page 31. See Input Contacts and Output Relays, page 32 for details.
3. **Only for parallel system**: Connect the Parallel Cables in a Parallel System, page 35.
4. **Optional**: Connect Synchronization Cables Between Two UPS Systems (Option), page 36.
5. Install Batteries in the UPS, page 40.

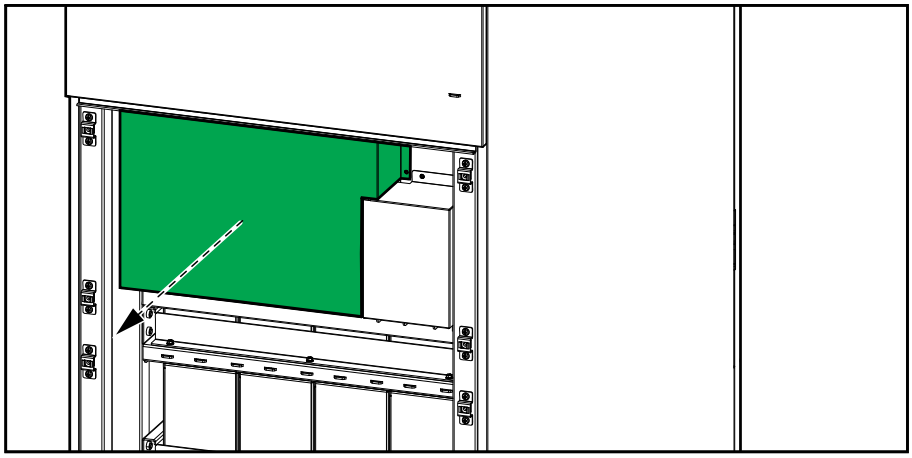
Connect the Power Cables

1. Ensure that all breakers are in the OFF (open) position.
2. Remove the two bottom rear panels.

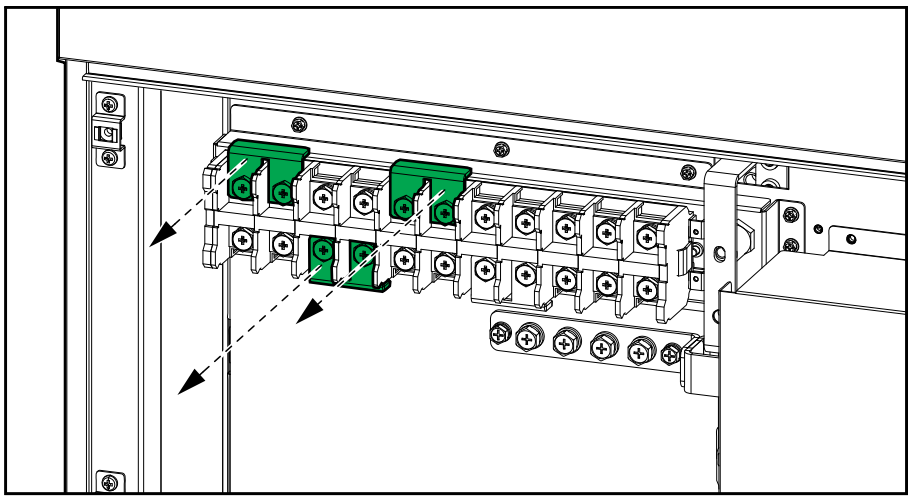
Rear View of the UPS



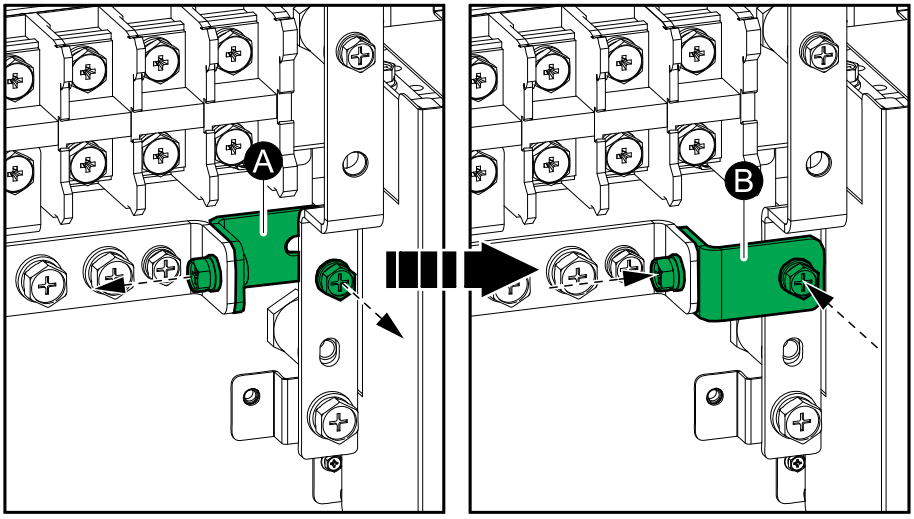
3. Remove the indicated plate.



4. In dual mains systems, remove the three single mains brackets.

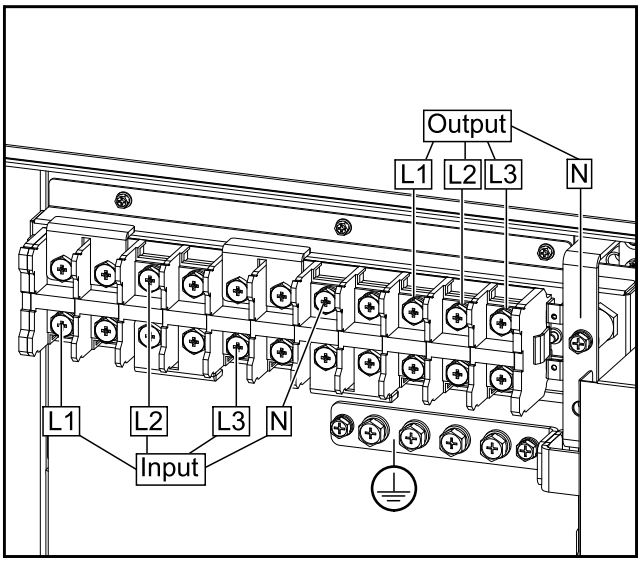


5. In TNC systems only, rotate the jumper busbar to create a connection between the PE busbar and the neutral busbar.

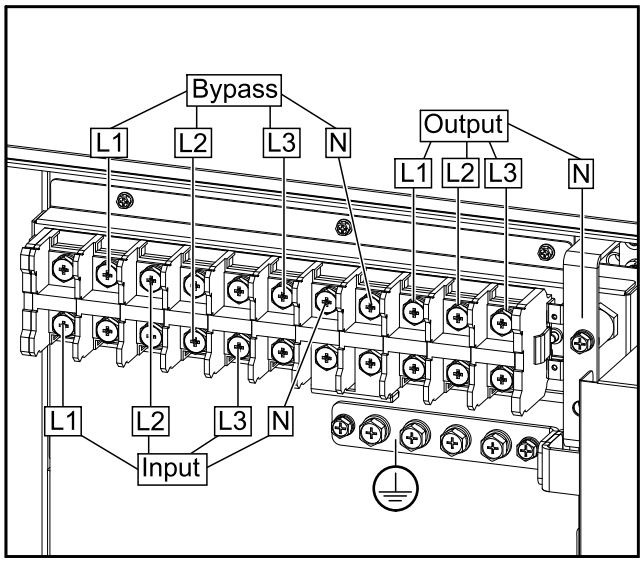


6. Route the power cables through the bottom of the UPS.
7. Connect the PE cable to the PE terminal.

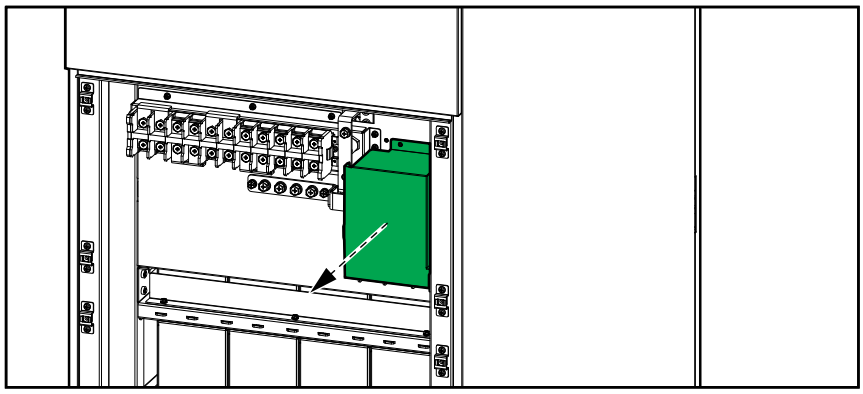
Single Mains System



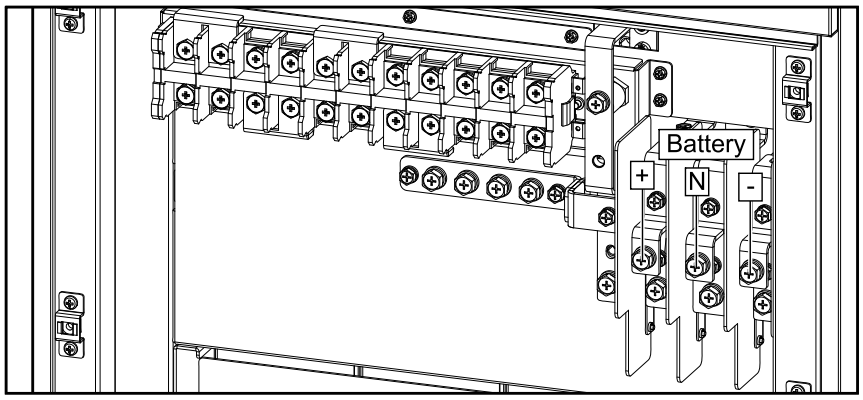
Dual Mains System



8. Connect the input, output, and bypass (if applicable) cables.
9. For installation with modular battery cabinets, connect the battery cables:
   a. Remove the indicated cover.

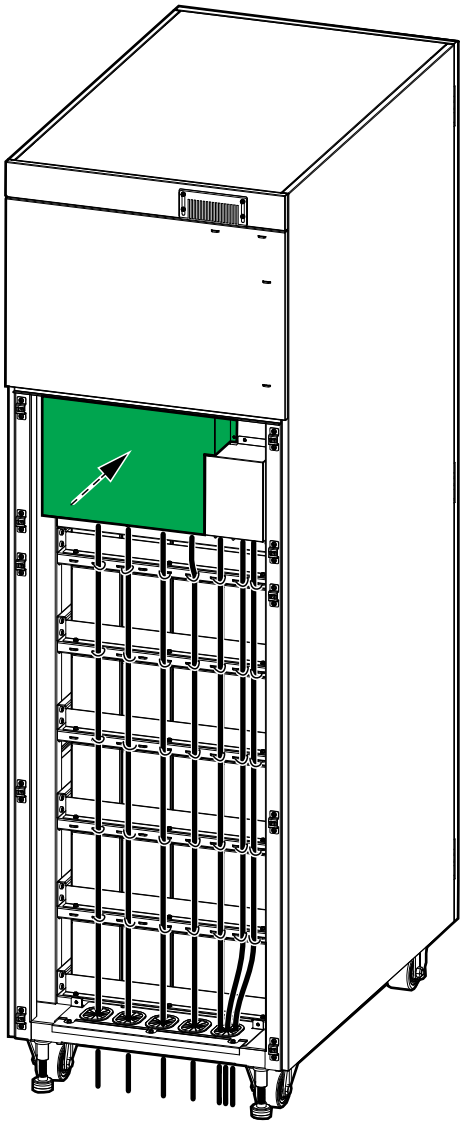


   b. Connect the battery cables.



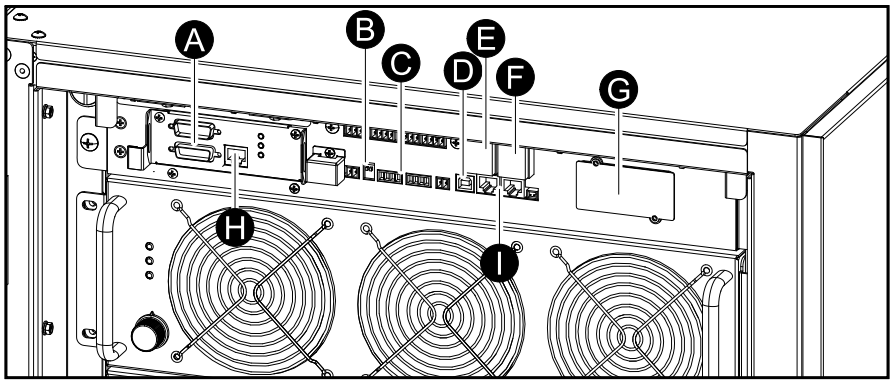
   c. Reinstall the cover over the battery terminals.

10. Fasten the cables to the cable relief in the bottom of the UPS.

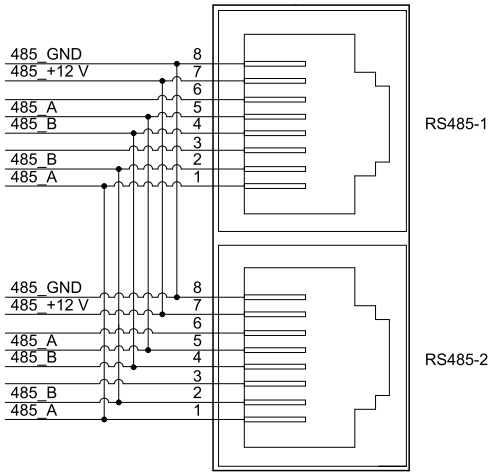


11. Reinstall the plate and the rear panels.

Communication Interfaces

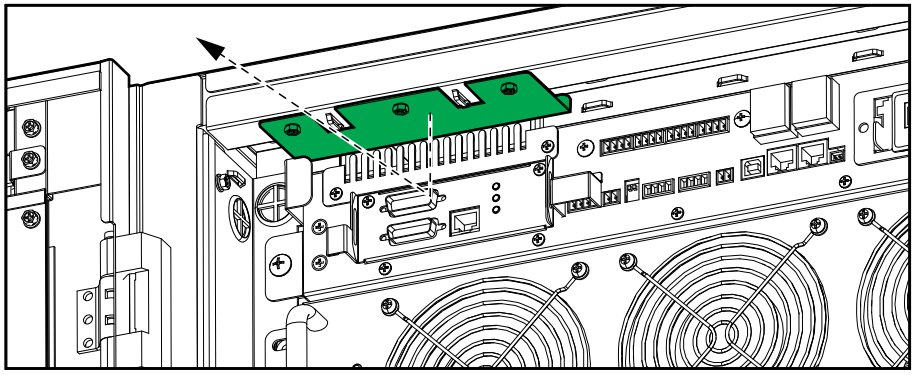


A. Parallel ports
B. CAN_R: CAN termination resistor
C. Dry contacts
D. USB port
E. EPO
F. Slot for optional cold start button
G. Network management card (NMC)
H. Load bus synchronization port
I. RS485

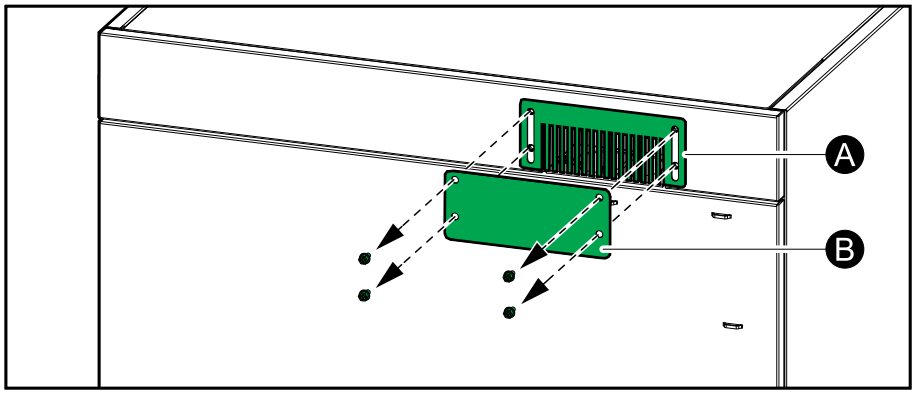


Route the Signal Cables

1. Remove the indicated plate from the front of the UPS.



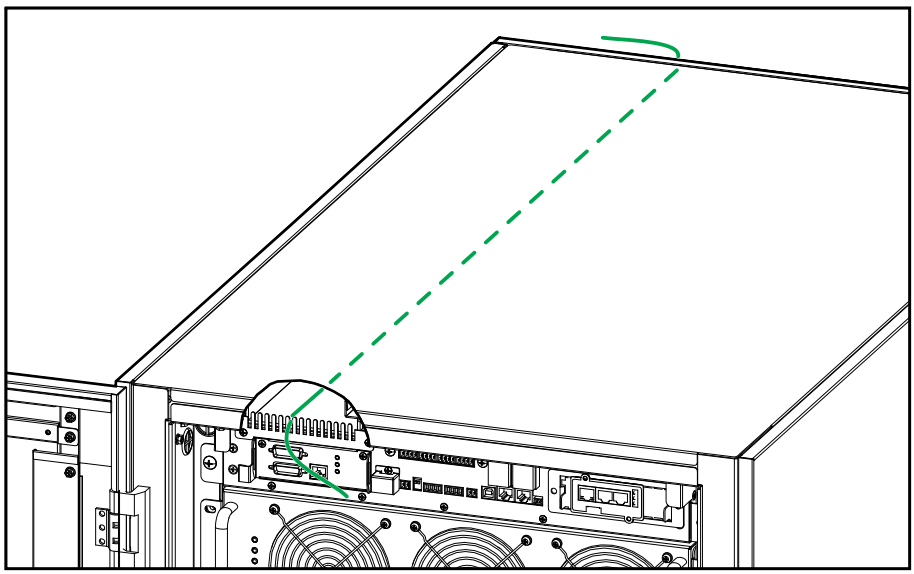
2. Remove the rear gland plate and the rear brush plate from the UPS.



A. For installations without conduits, reinstall the brush plate.

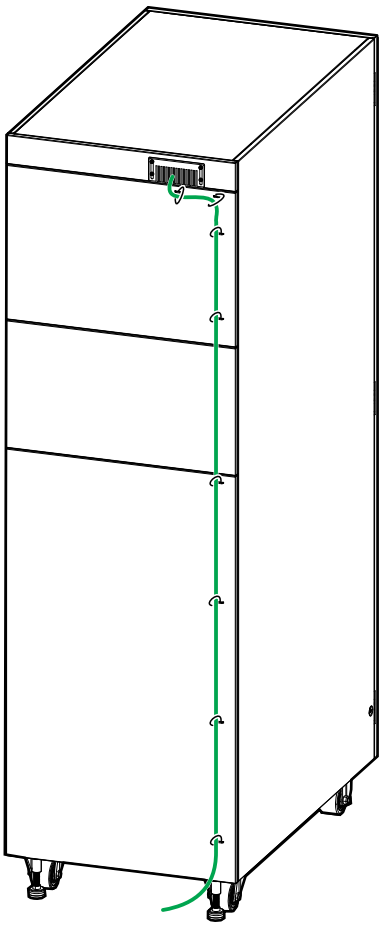
B. For installations with conduits, drill holes for conduits and reinstall the gland plate.

3. Route the signal cables through the gland/brush plate and to the front of the UPS.



4. Reinstall the plate on the front of the UPS.

5. Fasten the signal cables with cable ties on the rear of the UPS.



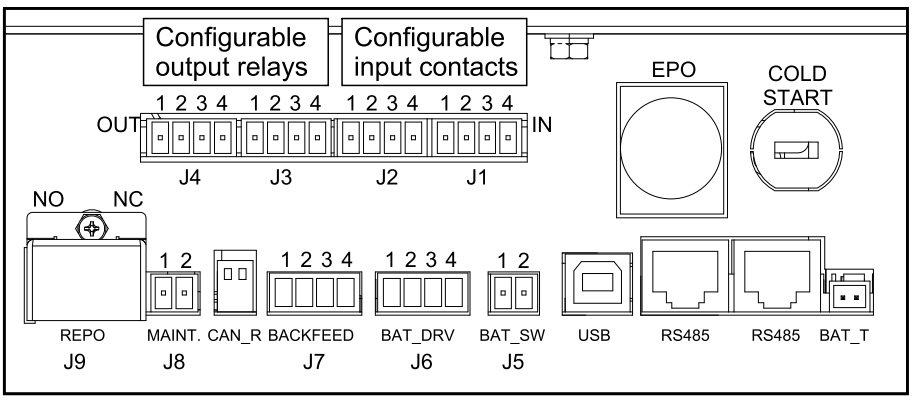
Input Contacts and Output Relays

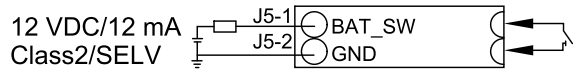
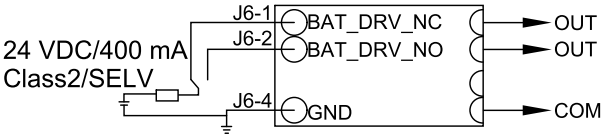
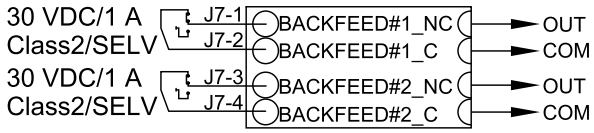
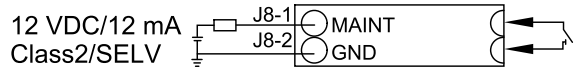
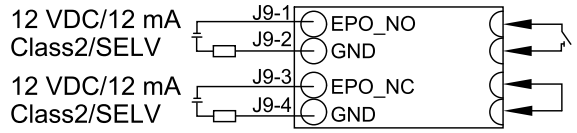
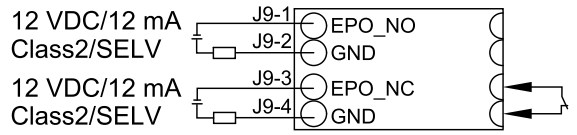
NOTICE

RISK OF EQUIPMENT DAMAGE

The battery breaker contact drive J6–1 and J6–2 can provide a maximum of +24 VDC 400 mA to the undervoltage release coil or shunt trip release coil. If this value is exceeded it can damage the UPS.

Failure to follow these instructions can result in equipment damage.

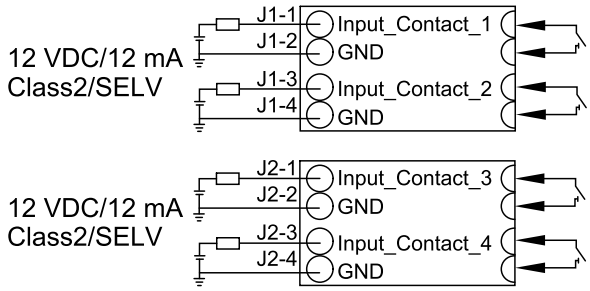


Terminal	Function	
BAT_T–1	Input contact for battery temperature sensor	
BAT_T–2	Signal ground	
J5–1	AUX contact for battery breaker	
J5–2	Signal ground	
J6–1	Normally closed output contact for battery breaker trip	
J6–2	Normally open output contact for battery breaker trip	
J6–4	Signal ground	
J7–1	Backfeed 1 output relay pin 1 (normally closed (NC) as default)	
J7–2	Backfeed 1 output relay pin 2 (normally closed (NC) as default)	
J7–3	Backfeed 2 output relay pin 1 (normally closed (NC) as default)	
J7–4	Backfeed 2 output relay pin 2 (normally closed (NC) as default)	
J8–1	AUX contact for external maintenance bypass breaker	
J8–2	Signal ground	
J9–1	Normally open EPO contact	**NO configuration**  **NC configuration** 
J9–2	Signal ground	
J9–3	Normally closed EPO contact	
J9–4	Signal ground	

Configurable Input Contacts

The four configurable input contacts can be configured from the display with the following functions:

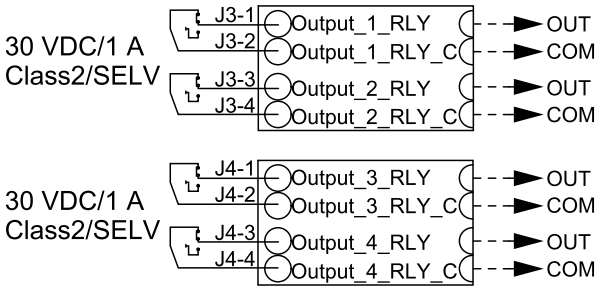
- **Disable**
- **INV ON**
- **INV OFF**
- **Battery alarm**
- **Genset enable**
- **Custom alarm 3**
- **Custom alarm 4**
- **Disable ECO**



Configurable Output Relays

The four configurable output contacts can be configured from the display with the following functions:

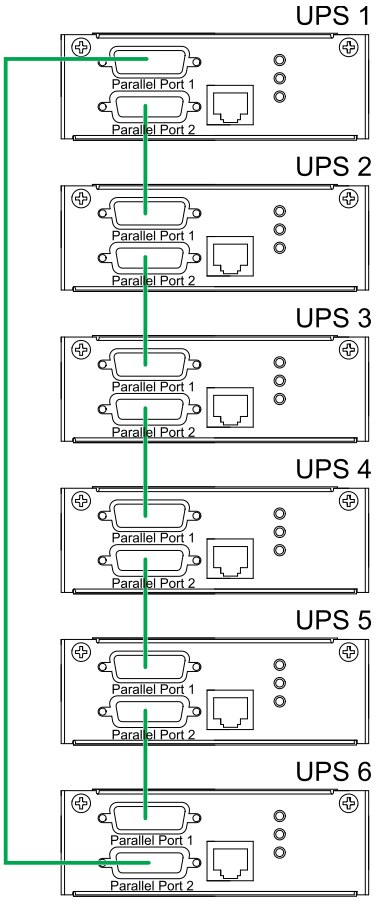
- **Disable**
- **Common alarm**
- **Normal operation**
- **Battery operation**
- **Static bypass operation**
- **Output overload**
- **Fan inoperable**
- **Battery alarm**
- **Battery disconnected**
- **Battery voltage low**
- **Input out of tolerance**
- **Bypass out of tolerance**
- **EPO activated**
- **Maintenance mode**
- **Parallel lost**



Connect the Parallel Cables in a Parallel System

1. Connect the optional parallel cables between all the UPSs of the parallel system.

   NOTE: For location of parallel ports see Communication Interfaces, page 30.



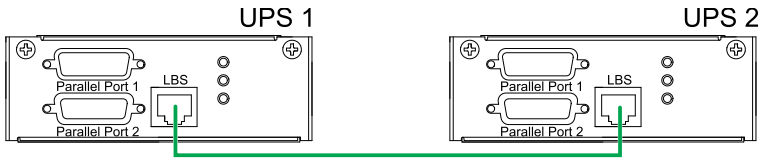
2. Verify the setting of the CAN_R (for location of CAN_R see Communication Interfaces, page 30).
   - For parallel systems with ≤ 4 parallel UPSs, CAN_R of all UPSs must be in ON position.
   - For parallel systems with ≥ 5 parallel UPSs, CAN_R of all UPSs must be in OFF position.

Connect Synchronization Cables Between Two UPS Systems (Option)

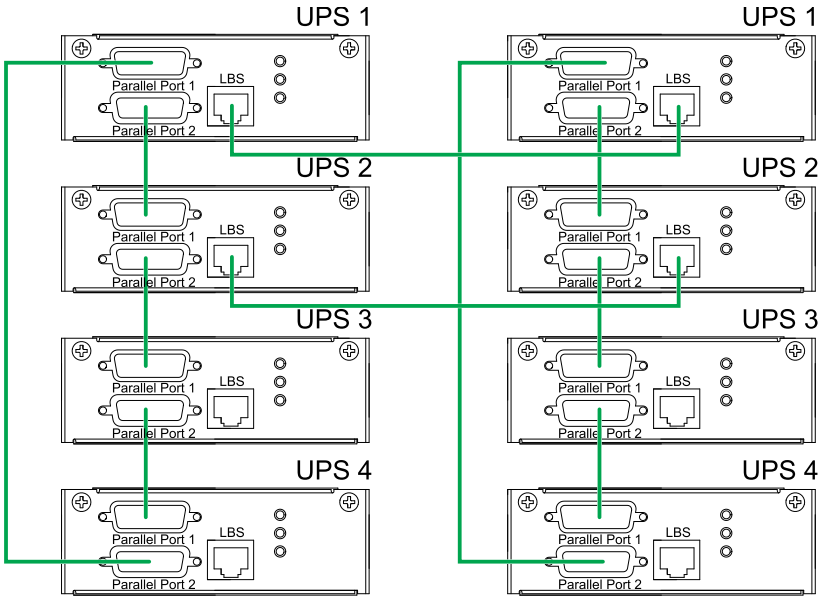
The maximum configuration is two parallel systems of four UPSs.

1. Connect the optional synchronization cables between the UPS systems according to the concept below.

Synchronization Cable Connection for Two Single UPSs



Synchronization Cable Connection for Two Parallel Systems



Backfeed Protection

⚠ 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) 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.

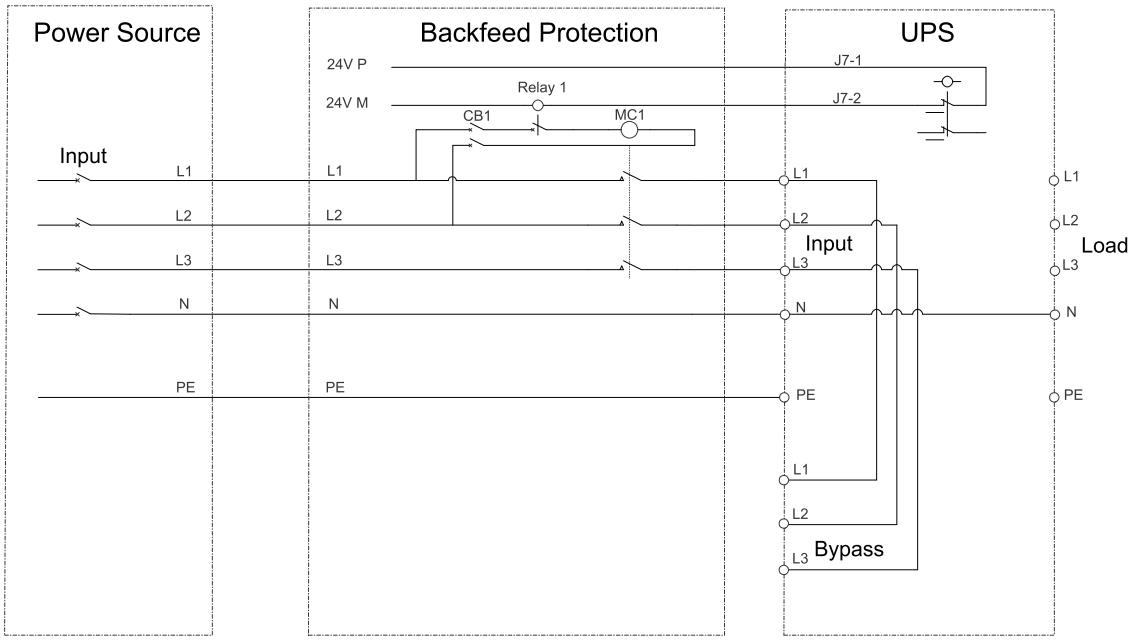
An additional external isolation device must be installed in the UPS system. A contactor can be used for this purpose. In the shown examples, the isolation device is a contactor (marked with a **MC1** for single mains systems and marked with a **MC1** and **MC2** for dual mains systems).

The isolation device must be able to withstand the electrical characteristics as described in Specifications, page 16.

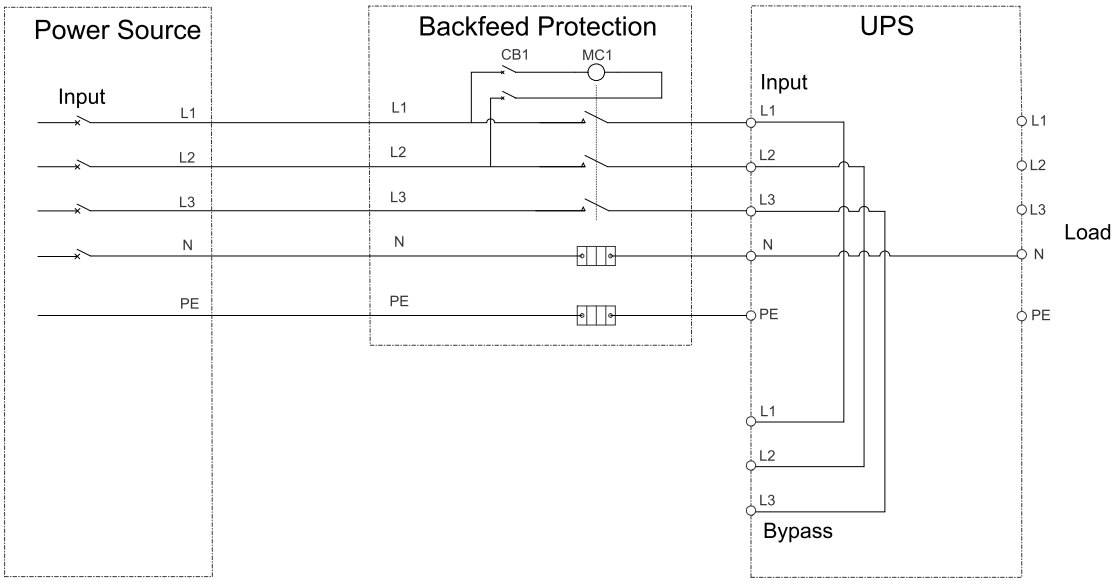
NOTE: The 24 V source should be generated from the switchgear input source in single mains configurations and from both the switchgear input and bypass source in dual mains configurations.

NOTE: The backfeed box in the diagrams is a customized device – please contact Schneider Electric for details.

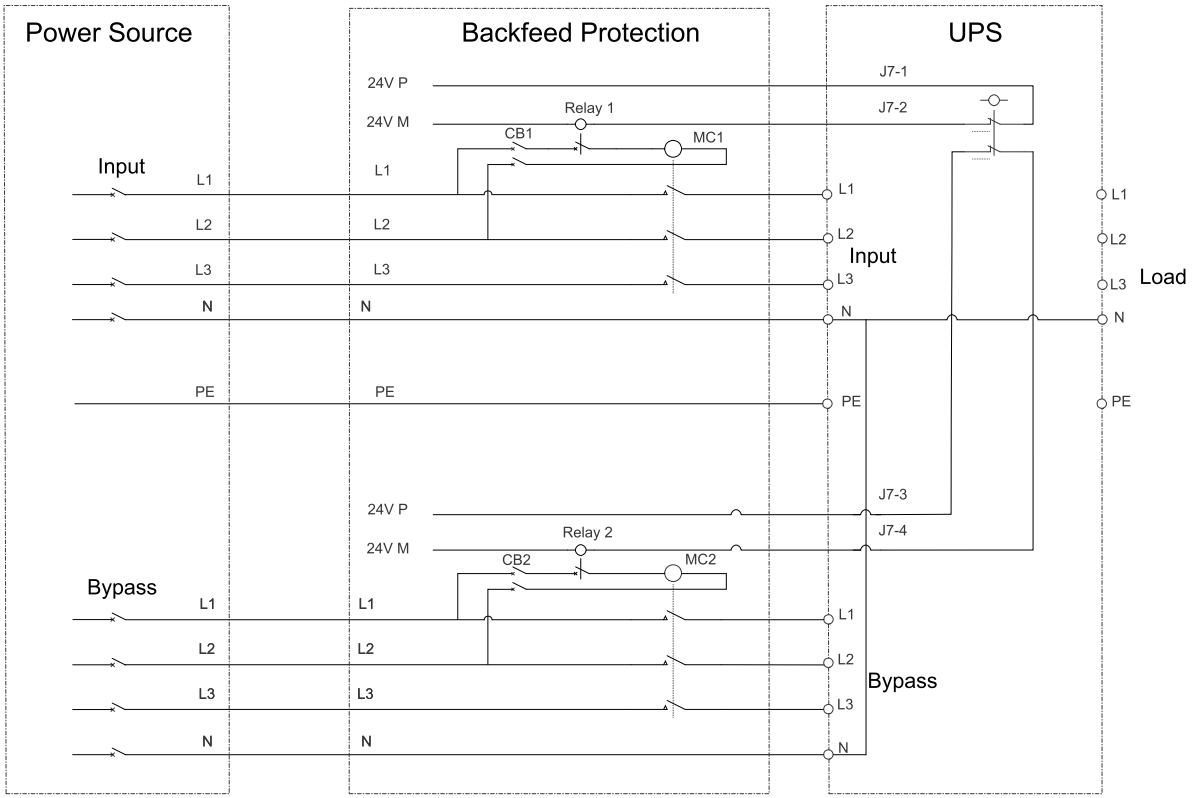
Single Mains UPS and External Isolation Device



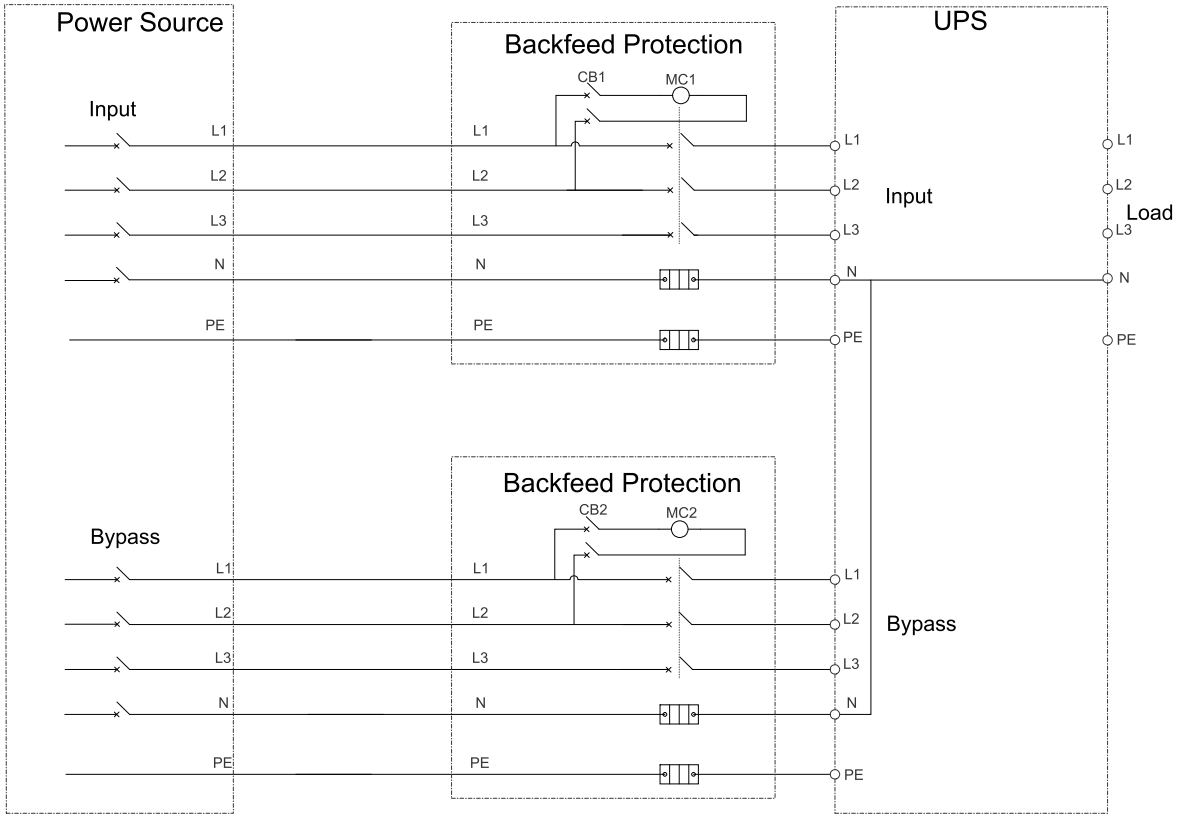
Single Mains UPS with Backfeed Box



Dual Mains UPS and External Isolation Device



Dual Mains UPS with Backfeed Box



Install Batteries in the UPS

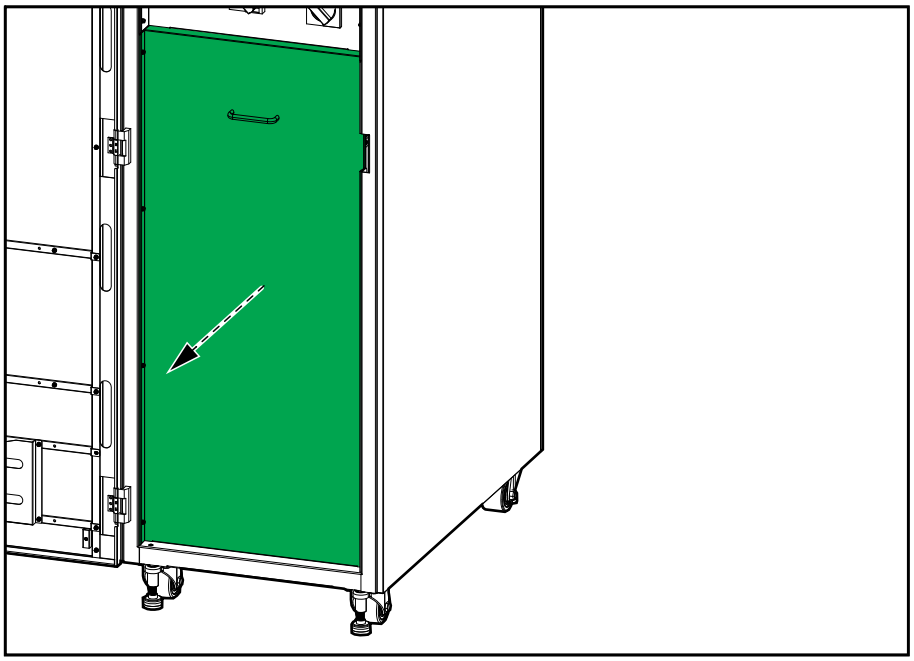
⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

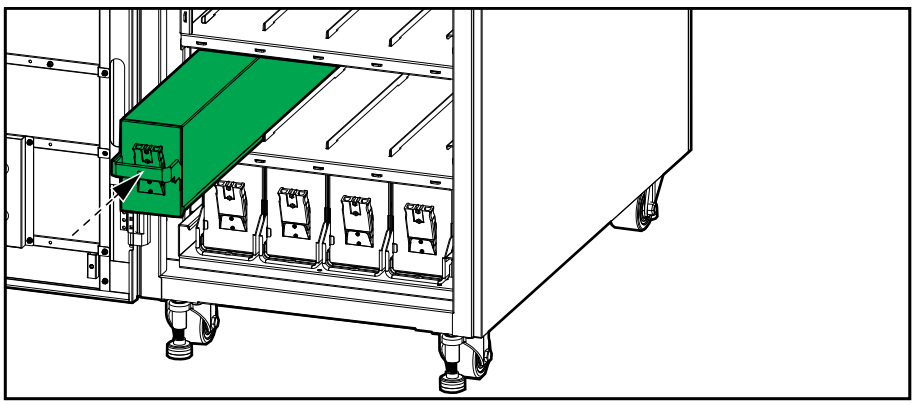
Ensure that the battery breakers (BB) are in the off position before installing batteries.

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

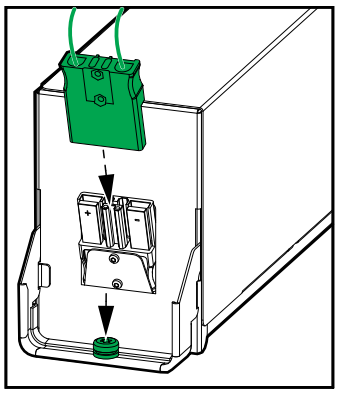
1. Remove the plate in front of the battery shelves.



2. Install battery modules one string at a time and from the bottom and up. One row is one battery string.



3. Fasten the battery modules with a screw in front of the battery module



4. Remove the shrink tubes from the power terminals and connect the power terminals to the batteries.
5. Reinstall the plate in front of the battery shelves.

Schneider Electric
35 rue Joseph Monier
92500 Rueil Malmaison
France

+ 33 (0) 1 41 29 70 00

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

990-6204D-001