Easy UPS 3S

10–40 kVA 3:3

Installation

12/2017



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

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

Table of Contents

Important Safety Instructions — SAVE THESE INSTRUCTIONS 5
- Electromagnetic Compatibility 6
- Safety Precautions 6
  - Electrical Safety 8
  - Battery Safety 9

Specifications 11
- Input Specifications 11
- Bypass Specifications 11
- Output Specifications 12
- Battery Specifications 12
- Recommended Upstream Protection and Cable Sizes 12
- Recommended Bolts and Cable Lugs 14
- Torque Specifications 14
- UPS Weights and Dimensions 14
- UPS Shipping Weights and Dimensions 14
- Clearance 15
- Environmental 15

Receiving 16
- Remove the UPS from the Pallet 16

Connect the Power Cables 19
- Connect the Power Cables in the 10–15 kVA UPS 19
- Connect the Power Cables in the 20–30 kVA UPS 20
- Connect the Power Cables in the 40 kVA UPS 22

Communication Interfaces 24
- Overview of Dry Contacts and Functions 25
  - Input Contacts for Battery and Room Temperature 25
  - Input Contact for Remote EPO 26
  - Input Contact for Generator 26
  - Input Contacts for Battery Breaker 26
  - Output Contact for Battery Low Warning 27
  - Output Contact for General Alarm 27
  - Output Contact for Input Failure 27
- Connect the Signal Cables in Parallel Systems 28

Backfeed Protection 30
- Install External Backfeed Protection in Single Mains System 30
- Install External Backfeed Protection in Dual Mains System 31

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

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 a Schneider Electric certified engineer.

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

Do not connect the UPS output to regenerative load systems 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.
- The UPS system must be installed in a room with restricted access (qualified personnel only).
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Turn off all power supplying the UPS system before working on or inside the equipment.
- Before working on the UPS system, check for hazardous voltage between all terminals including the protective earth.
- The UPS contains an internal energy source. Hazardous voltage can be present even when disconnected from the utility/mains supply. Before installing or servicing the UPS system, ensure that the units are OFF and that utility/mains and batteries are disconnected. Wait five minutes before opening the UPS to allow the capacitors to discharge.
- A disconnection device (e.g. disconnection circuit breaker or switch) must be installed to enable isolation of the system from upstream power sources in accordance with local regulations. This disconnection device must be easily accessible and visible.
- The UPS must be properly earthed/grounded and due to a high leakage current, the earthing/grounding conductor must be connected first.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

In systems where backfeed protection is not part of the standard design, an automatic isolation device (backfeed protection option or other device meeting the requirements of IEC/EN 62040–1 **or** UL1778 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.

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.

NOTICE

RISK OF EQUIPMENT DAMAGE

- Wait until the system is ready to be powered up before installing batteries in the system. The time duration from battery installation 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, Schneider Electric recommends 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 equipment damage.

Specifications

Input Specifications

	10 kVA			15 kVA			20 kVA			30 kVA			40 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**
Connections	L1, L2, L3, N, PE														
Input voltage range (V)	304–477														
Frequency range (Hz)	45–65														
Nominal input current (A)	16	15	15	24	23	22	32	31	30	48	46	44	65	61	59
Maximum input current (A)	19	18	18	29	28	26	38	37	36	58	55	53	78	73	71
Input current limitation (A)	22	20	20	33	31	30	44	42	41	65	63	60	89	83	80
Total harmonic distortion (THDI)	<3% at 10 kVA <4% at 15–40 kVA														
Input power factor	> 0.99														
Maximum input shortcircuit withstand	Icc=10 kA														
Protection	Circuit breaker and fuse									Switch and fuse					
Ramp-in	15 seconds														

Bypass Specifications

	10 kVA			15 kVA			20 kVA			30 kVA			40 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**
Connections	L1, L2, L3, N, PE														
Overload capacity	125% continuous 125–130% for 10 minutes 130–150% for 1 minute >150% for 300 milliseconds														
Minimum bypass voltage (V)	304	320	332	304	320	332	304	320	332	304	320	332	304	320	332
Maximum bypass voltage (V)	437	460	477	437	460	477	437	460	477	437	460	477	437	460	477
Frequency (Hz)	50 or 60														
Nominal bypass current (A)	15	14	14	23	22	21	30	29	28	46	43	42	61	58	56
Maximum input short circuit withstand	Icc=10 kA														

Output Specifications

	10 kVA			15 kVA			20 kVA			30 kVA			40 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**
Connections	L1, L2, L3, N, PE														
Overload capacity	110% for 60 minutes 125% for 10 minutes 150% for 1 minute >150% for less than 200 milliseconds														
Output voltage tolerance	+/- 1.5%														
Dynamic load response	40 milliseconds														
Output power factor	1.0						1.0[1]								
Nominal output current (A)	15	14	14	23	22	21	30	29	28	46	43	42	61	58	56
Total harmonic distortion (THDU)	<3% at 100% linear load <5.5% at 100% non-linear load														
Output frequency (Hz)	50 or 60														
Slew rate (Hz/sec)	Programmable: 0.5 or 2. Default is 0.5.														
Output performance classification (according to EN62040–3)	VFI-SS–111														

Battery Specifications

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Charging power	Programmable from 1% to 20% of UPS capacity. Default is 10%.				
Maximum charging power (W)	2000	3000	4000	6000	8000
Nominal battery voltage (16–20 blocks) (VDC)	+/-192 to +/- 240				
Nominal float voltage (16–20 blocks) (VDC)	+/- 216 to +/- 270				
End of discharge voltage (16–20 blocks) (full load) (VDC)	+/- 158 to +/- 198				
End of discharge voltage (16–20 blocks) (no load) (VDC)	+/- 168 to +/- 210				
Battery current at full load and nominal battery voltage (16–20 blocks) (A)	28–22	42–33	55–44	83–66	111–89
Battery current at full load and minimum battery voltage (16–20 blocks) (A)	34–27	50–40	67–54	101–81	134–107
Temperature compensation (per cell)	Programmable from 0–5 mV. Default is 3 mV.				
Ripple current	< 5% C10				

Recommended Upstream Protection and Cable Sizes

NOTE: Overcurrent protection must be provided by others.

Cable sizes in this manual are based on:

- 105 °C conductors

1. When ambient temperature is below 30 °C. When the ambient temperature is above 30 °C, the power factor is 0.9.

- An ambient temperature of 30 °C
- Use of copper conductors
- Single core cables type U1000 R02V
- Specific to AC cables: Maximum length 100 m with a line voltage drop <3% installed on perforated cable trays, XLPE-type insulation, single layer trefoil formation, THDI between 15% and 33% , 35 °C at 400 V grouped in four touching cables
- Specific to DC cables: Maximum length 25 m with a line voltage drop <1%

10 kVA UPS

	Breaker	**Cable Size per Phase (mm²)**	**PE Cable Size (mm²)**
Input: Single mains Dual mains	 C65H-D-4P-63A/C60H-D-4P-63A C65H-D-4P-50A/C60H-D-4P-50A	6	6
Bypass	C65H-D-4P-63A/C60H-D-4P-63A	6	6
Output	C65N-B-4P-10A/C60N-B-4P-10A/ C65N-B-4P-10A /C60N-C-4P-6A	6	6
Battery	Compact NSX100F DC TM50D - 3P	8	6

15 kVA UPS

	Breaker	**Cable Size per Phase (mm²)**	**PE Cable Size (mm²)**
Input: Single mains Dual mains	 C65H-D-4P-63A/C60H-D-4P-63A C65H-D-4P-50A/C60H-D-4P-50A	6	6
Bypass	C65H-D-4P-63A/C60H-D-4P-63A	6	6
Output	C65N-B-4P-10A/C60N-B-4P-10A/ C65N-B-4P-10A /C60N-C-4P-6A	6	6
Battery	Compact NSX100F DC TM63D - 3P	8	6

20 kVA UPS

	Breaker	**Cable Size per Phase (mm²)**	**PE Cable Size (mm²)**
Input: Single mains Dual mains	 C65H-D-4P-63A/C60H-D-4P-63A C65H-D-4P-50A/C60H-D-4P-50A	10	10
Bypass	C65H-D-4P-63A/C60H-D-4P-63A	10	10
Output	C65N-B-4P-10A/C60N-B-4P-10A/ C65N-B-4P-10A /C60N-C-4P-6A	10	10
Battery	Compact NSX100F DC TM80D - 3P	25	10

30 kVA UPS

	Breaker	**Cable Size per Phase (mm²)**	**PE Cable Size (mm²)**
Input: Single mains Dual mains	 C120H-D-4P-80A C120H-D-4P-80A	16	16
Bypass	C120H-D-4P-80A	16	16
Output	C65N-B-4P-16A/C60N-B-4P-16A/ C65N-C-4P-10A /C60N-C-4P-10A	16	16
Battery	Compact NSX160F DC TM125D - 3P	25	16

40 kVA UPS

	Breaker	Cable Size per Phase (mm²)	PE Cable Size (mm²)
Input: Single mains Dual mains	 C120H-D-4P-125A C120H-D-4P-125A	25	16
Bypass	C120H-D-4P-125A	25	16
Output	C65N-B-4P-20A/C60N-B-4P-20A/ C65N-C-4P-10A /C60N-C-4P-10A	25	16
Battery	Compact NSX160F DC TM160D - 3P	35	16

Recommended Bolts and Cable Lugs

Cable Size (mm²)	Bolt Size	Cable Lug Type
6	M5	KST TLK6-5
8	M5	KST RNBS8-5
10	M6	KST TLK10-6
16	M6	KST TLK16-6
25	M6	KST DRNB6-25
35	M6	KST TLK35-6

Torque Specifications

Bolt Size	Torque
M5	4 Nm
M6	5 Nm

UPS Weights and Dimensions

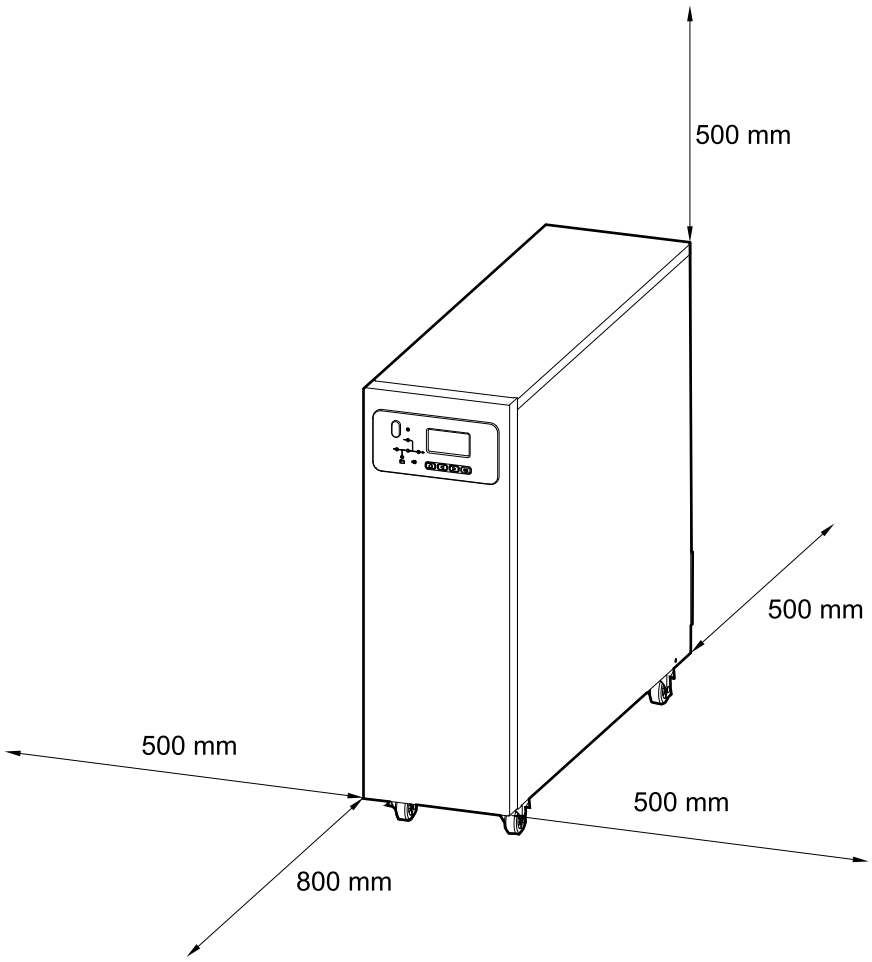
UPS	Weight kg	Height mm	Width mm	Depth mm
10 kVA	36	530	250	700
15 kVA	36	530	250	700
20 kVA	58	770	250	800
30 kVA	60	770	250	800
40 kVA	70	770	250	900

UPS Shipping Weights and Dimensions

UPS	Weight kg	Height mm	Width mm	Depth mm
10 kVA	50	772	400	857
15 kVA	50	772	400	857
20 kVA	75	1015	400	982
30 kVA	77	1015	400	982
40 kVA	86	1015	400	1050

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

	Operation	Storage
Temperature	0 °C to 40 °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 derating according to IEC 62040–3	1000 m: 1.000 1500 m: 0.975 2000 m: 0.950 2500 m: 0.925 3000 m: 0.900	< 15000 m above sea level (or in an environment with equivalent air pressure)
Audible noise	10–20 kVA: <60 dBA at full load 30–40 kVA: <63 dBA at full load	
Protection class	IP20 (dust filter as standard)	
Color	RAL 9003	

Receiving

External Inspection

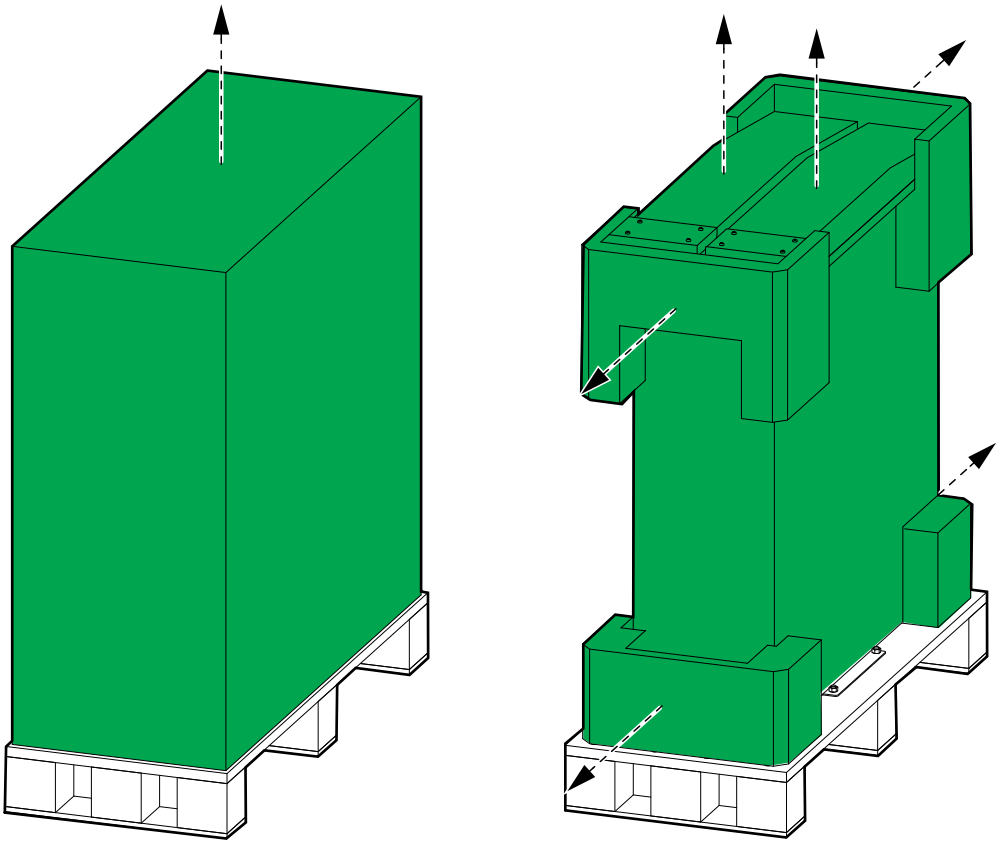
When the shipment arrives, inspect the shipping material for any signs of damage or mishandling. Check tilt and impact indicators. Do not attempt to install the system if a damage is apparent. If any damage is noted, contact Schneider Electric and file a damage claim with the shipping agency within 24 hours.

Compare the components of the shipment with the bill of lading. Report any missing items to the carrier and to Schneider Electric immediately.

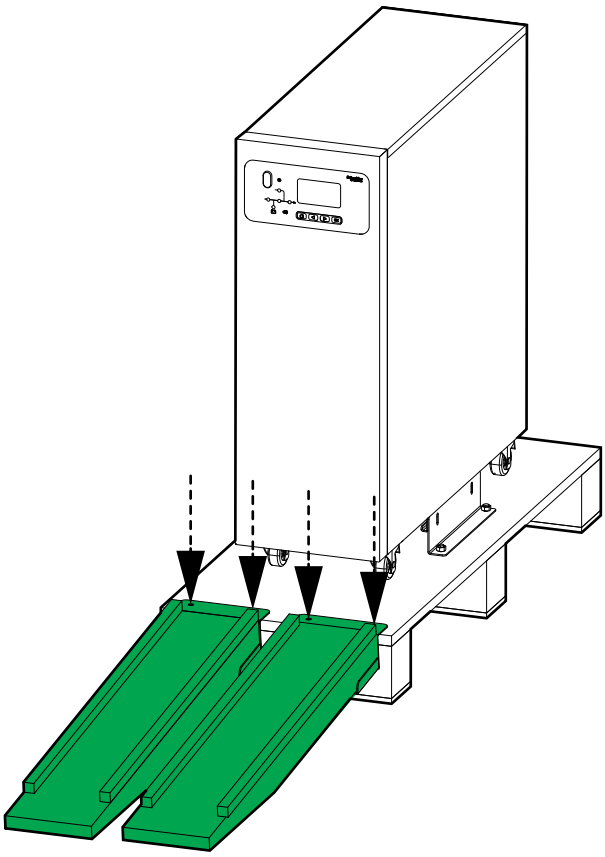
Verify that labelled units match the order confirmation.

Remove the UPS from the Pallet

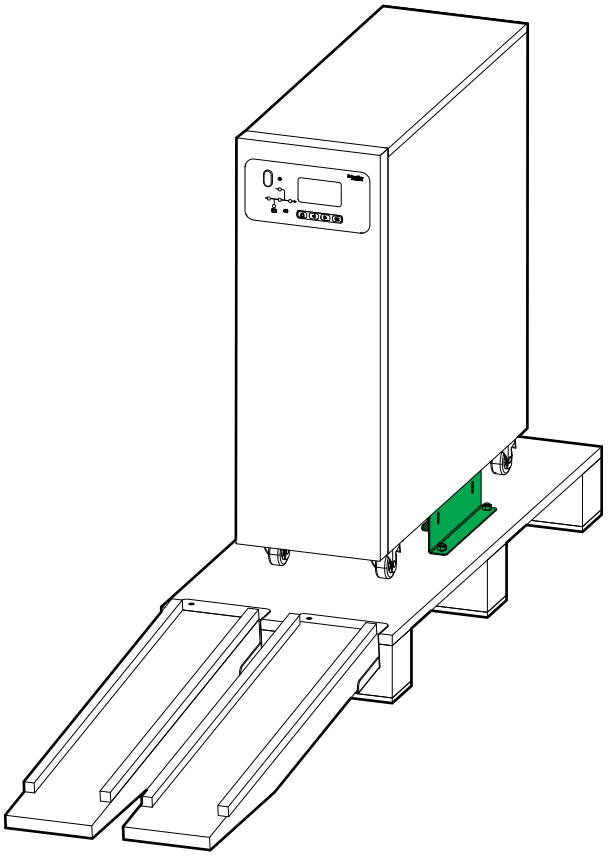
1. Transport the UPS to the final installation area using a forklift.
2. Remove the shipping materials and the ramp from the UPS.



3. Place the ramp on the pallet and fasten with the provided bolts.

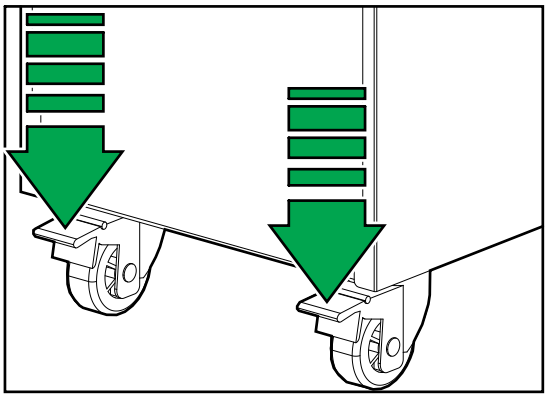


4. Loosen the bolts and remove the shipping brackets. Dispose of the shipping brackets.



5. Roll the UPS cabinet down from the pallet.

6. Move the UPS cabinet to its final installation area and lock the wheels.

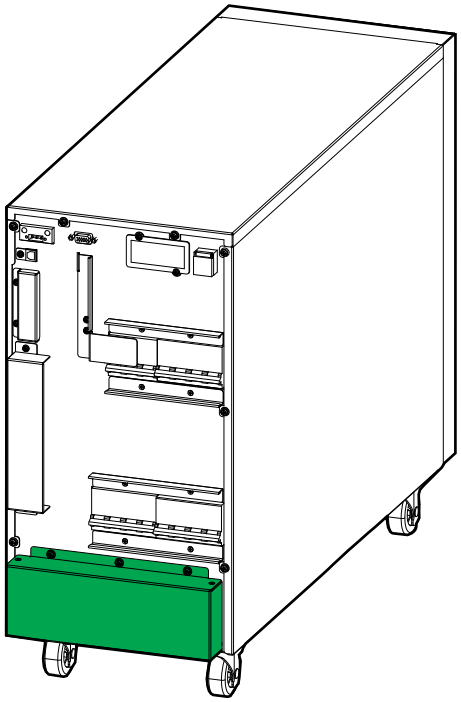


Connect the Power Cables

Connect the Power Cables in the 10–15 kVA UPS

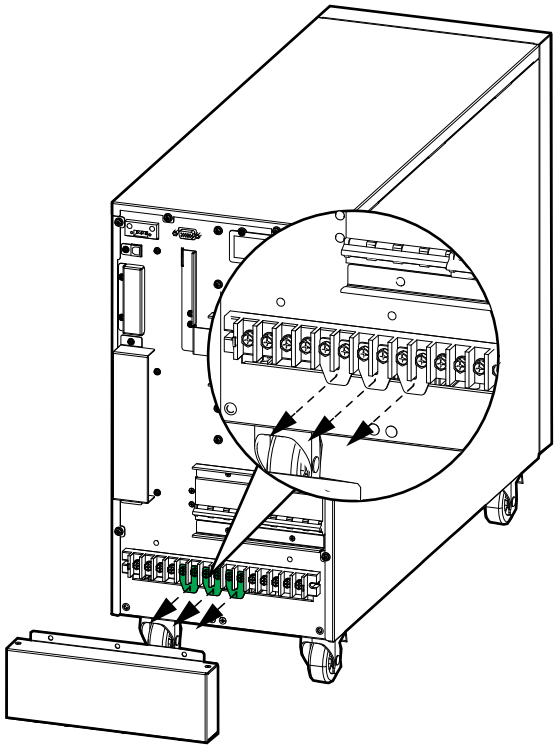
1. Ensure that all breakers are in the OFF (open) position.
2. Remove the conduit box.

Rear View of the 10–15 kVA UPS



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

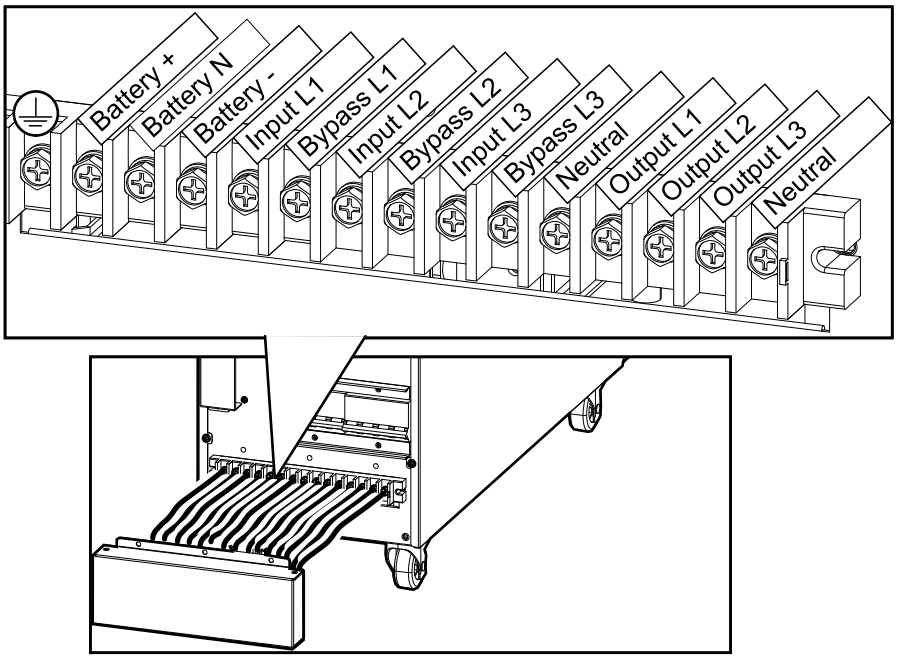
Rear View of the 10–15 kVA UPS



4. Route the power cables through the bottom of the conduit box.

5. Connect the PE cable to the PE terminal.

Rear View of the 10–15 kVA UPS

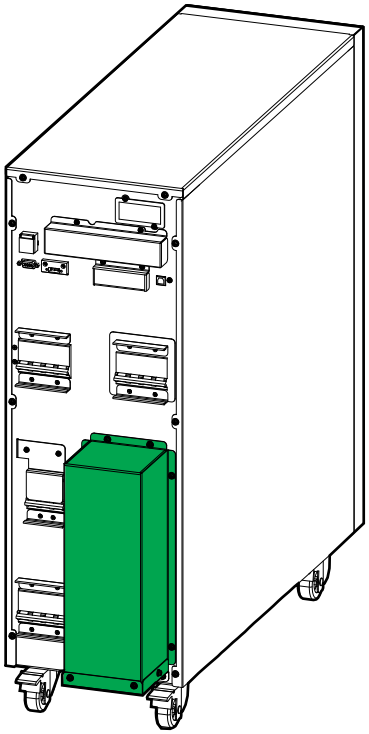


6. Connect the input, output, and bypass (if applicable) cables.
7. Connect the battery cables.
8. Reinstall the conduit box.

Connect the Power Cables in the 20–30 kVA UPS

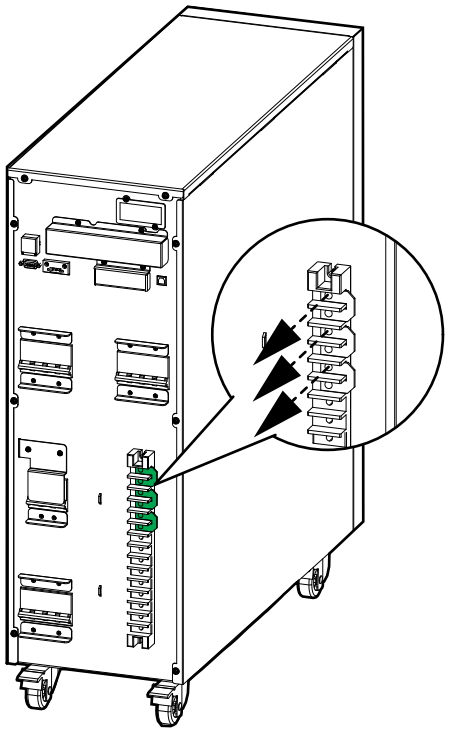
1. Ensure that all breakers are in the OFF (open) position.
2. Remove the conduit box.

Rear View of the 20–30 kVA UPS



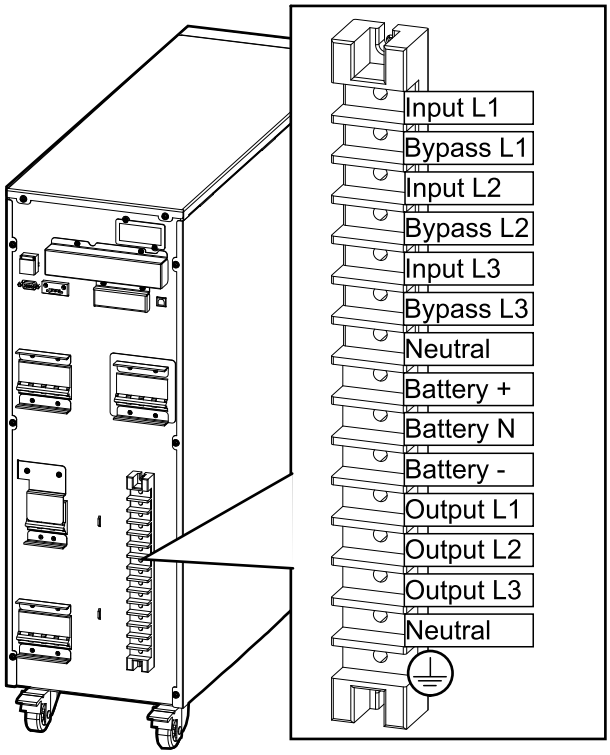
3. In dual mains systems, remove the three single mains brackets.

Rear View of the 20–30 kVA UPS



4. Route the power cables through the bottom of the conduit box.
5. Connect the PE cable to the PE terminal.

Rear View of the 20–30 kVA UPS

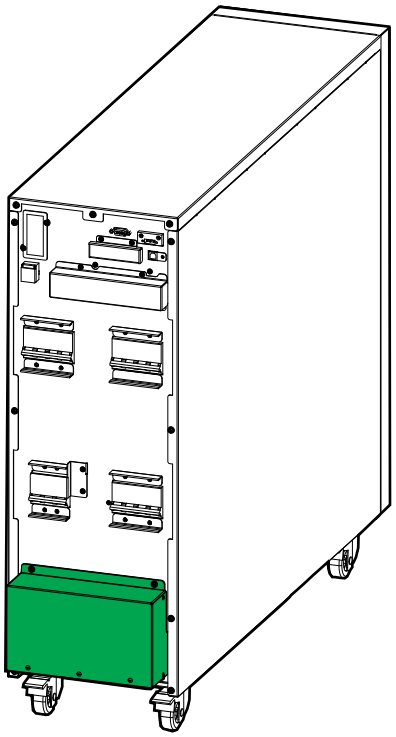


6. Connect the input, output, and bypass (if applicable) cables.
7. Connect the battery cables.
8. Reinstall the conduit box.

Connect the Power Cables in the 40 kVA UPS

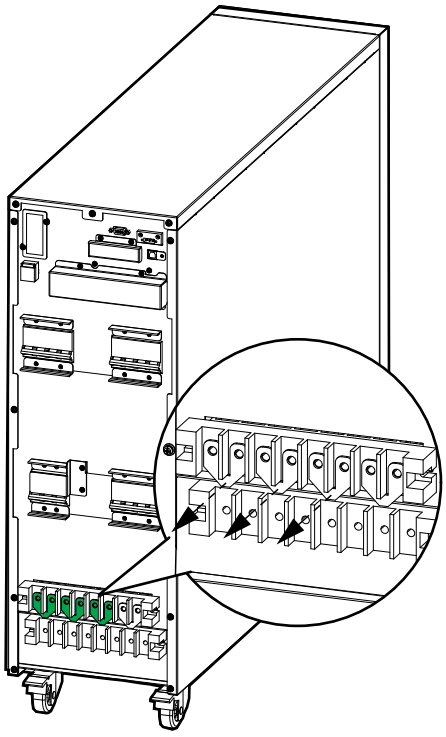
1. Ensure that all breakers are in the OFF (open) position.
2. Remove the conduit box.

Rear View of the 40 kVA UPS



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

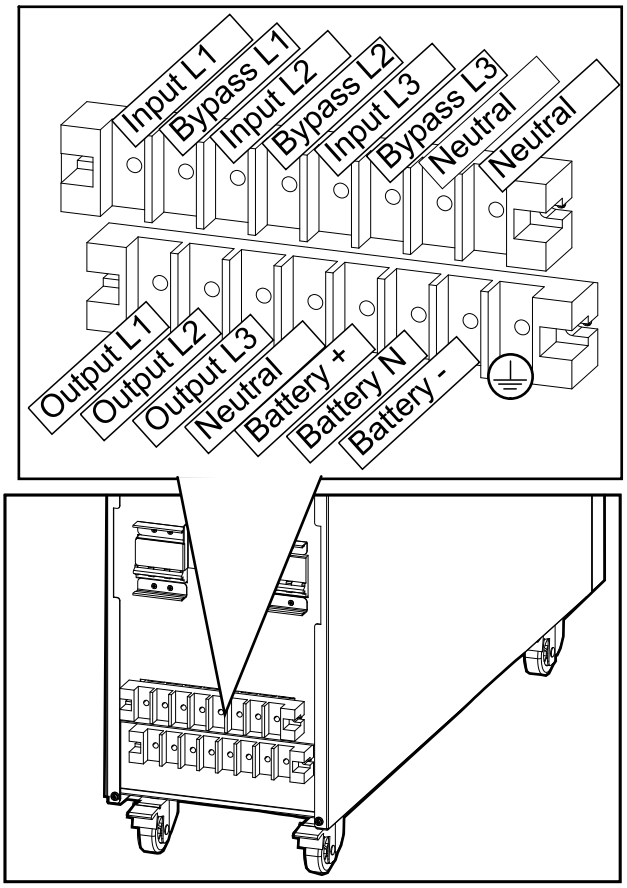
Rear View of the 40 kVA UPS



4. Route the power cables through the conduit box.

5. Connect the PE cable to the PE terminal.

Rear View of the 40 kVA UPS

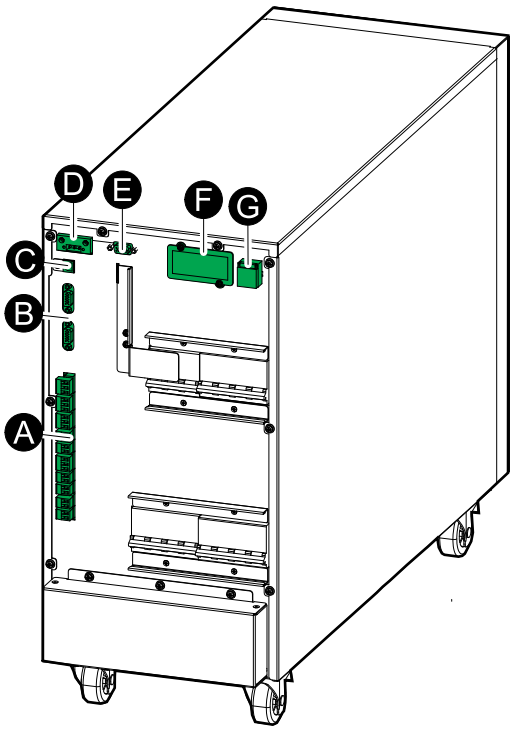


6. Connect the input, output, and bypass (if applicable) cables.
7. Connect the battery cables.
8. Reinstall the conduit box.

Communication Interfaces

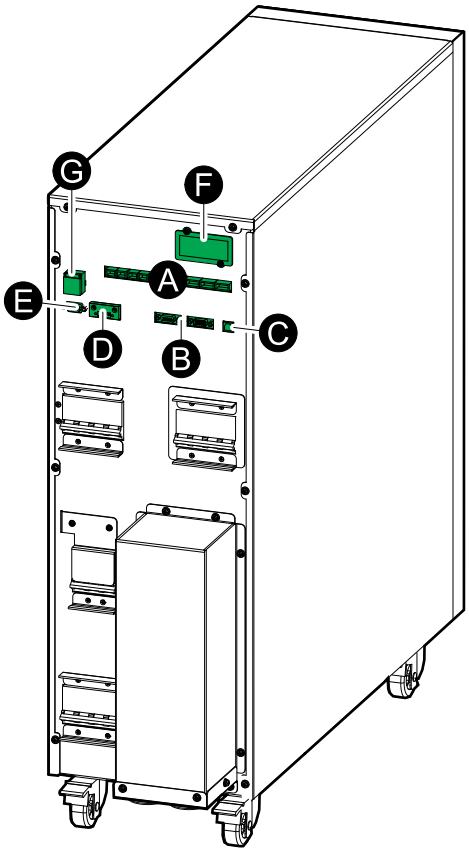
10–15 kVA UPS

A. Dry contacts
B. Parallel ports
C. USB (for service)
D. RS485 (for service)
E. RS232
F. Slot for optional SNMP
G. Cold start (optional)



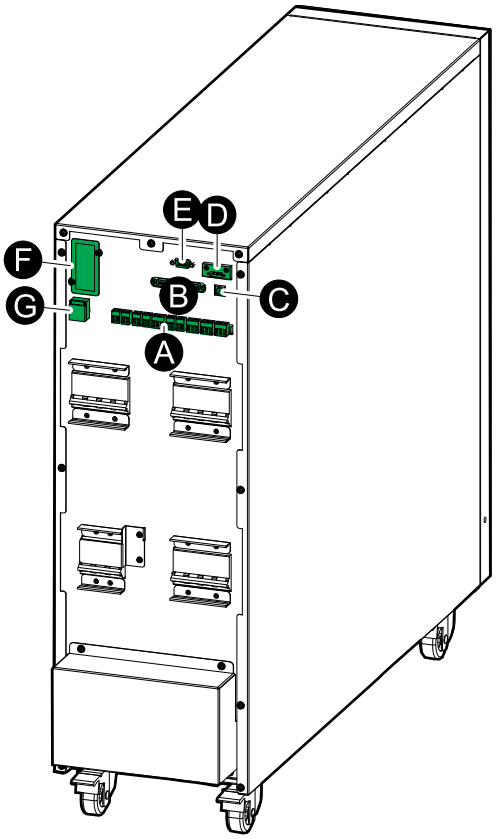
20–30 kVA UPS

A. Dry contacts
B. Parallel ports
C. USB (for service)
D. RS485 (for service)
E. RS232
F. Slot for optional SNMP
G. Cold start (optional)

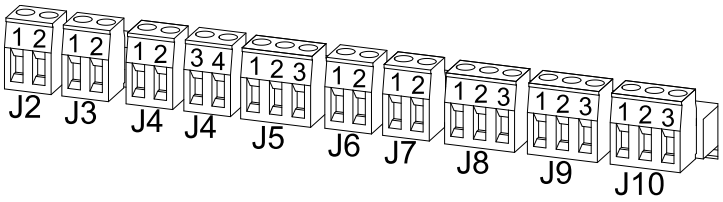


40 kVA UPS

A. Dry contacts
B. Parallel ports
C. USB
D. RS485 (for service)
E. RS232 (for service)
F. Slot for optional SNMP
G. Cold start (optional)

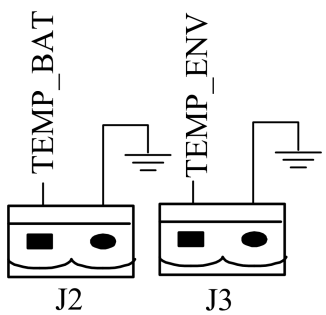


Overview of Dry Contacts and Functions

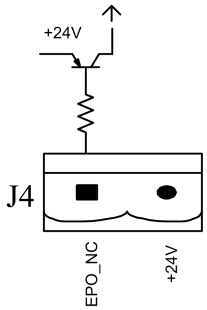
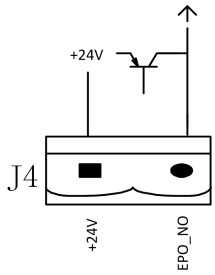


Input Contacts for Battery and Room Temperature

The input dry contacts J2 and J3 can detect the room and battery temperature. This data is used in environment monitoring and for battery temperature compensation.

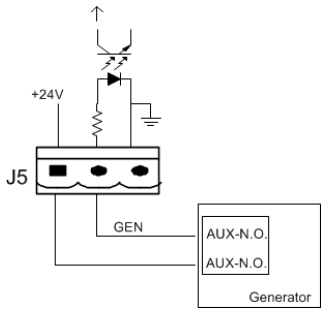
	Port	Name	Function
	J2-1	TEMP_BAT	Battery temperature
	J2-2	TEMP_COM	Ground
	J3-1	ENV_TEMP	Room temperature
	J3-2	TEMP_COM	Ground

Input Contact for Remote EPO

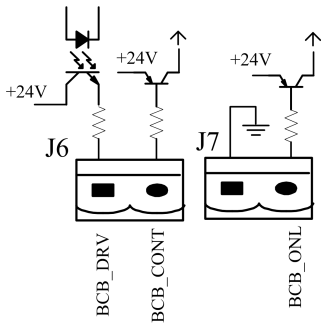
	Port	Name	Function
Normally Closed  **Normally Open** 	J4-1	EPO_NC	Trigger EPO when disconnected from J4-2
	J4-2	+24 V_DRY	+24 V
	J4-3	+24 V_DRY	+24 V
	J4-4	EPO_NO	Trigger EPO when connected to J4-3

Input Contact for Generator

When pin 2 of J5 is connected to a +24 V power supply, it indicates that a generator has been connected to the system.

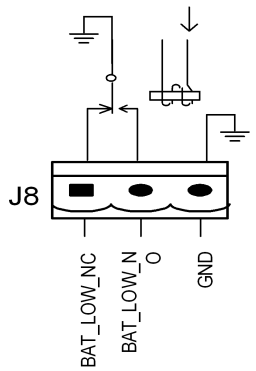
	Port	Name	Function
	J5-1	+24 V_DRY	+24 V
	J5-2	GEN_CONNECTED	Generator connection status
	J5-3	GND_DRY	Ground for +24 V

Input Contacts for Battery Breaker

	Port	Name	Function
	J6-1	BCB_DRV	Battery breaker contact drive that provides a +24 V, 20 mA drive signal
	J6-2	BCB_CONT	Battery breaker contact status that connects to the normally open signal of BCB
	J7-1	GND_DRY	Ground for +24 V
	J7-2	BCB_ONL	When an external battery breaker with ON/OFF status detection and trip function is used, J7 must be connected (factory default). If not, J7 must be disconnected

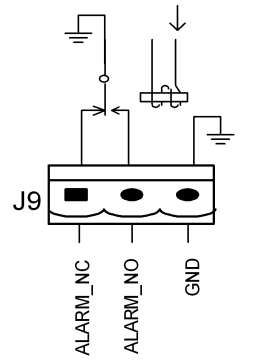
Output Contact for Battery Low Warning

When the battery voltage is lower than the predefined value, an auxiliary dry contact will be activated via the isolation of a relay.

	Port	Name	Function
	J8-1	BAT_LOW_NC	Battery low warning relay (normally closed)
	J8-2	BAT_LOW_NO	Battery low warning relay (normally open)
	J8-3	GND	Ground

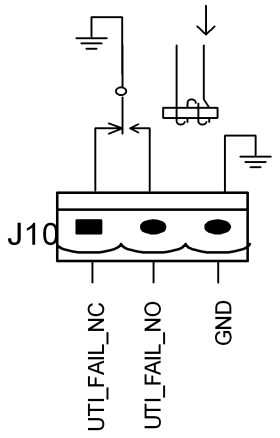
Output Contact for General Alarm

When one or more warnings are triggered, an auxiliary dry contact will be activated via the isolation of a relay.

	Port	Name	Function
	J9-1	GENERAL_ALARM_NC	Warning relay (normally closed)
	J9-2	GENERAL_ALARM_NO	Warning relay (normally open)
	J9-3	GENERAL_ALARM_GND	Ground

Output Contact for Input Failure

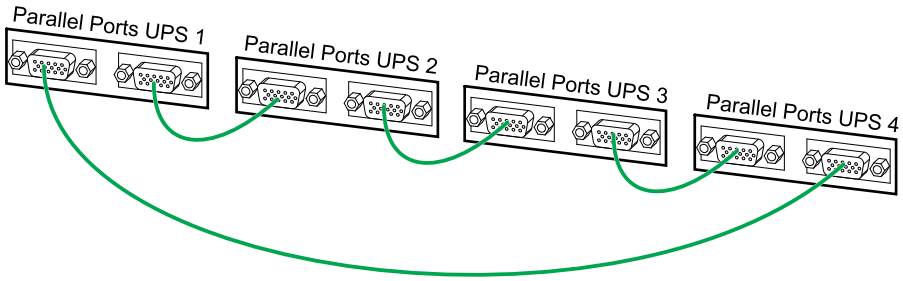
This relay is reserved for backfeed alarm.

	Port	Name	Function
	J10-1	UTILITY_FAIL_NC	Input failure warning relay (normally closed)
	J10-2	UTILITY_FAIL_NO	Input failure warning relay (normally open)
	J10-3	UTILITY_FAIL_GND	Ground

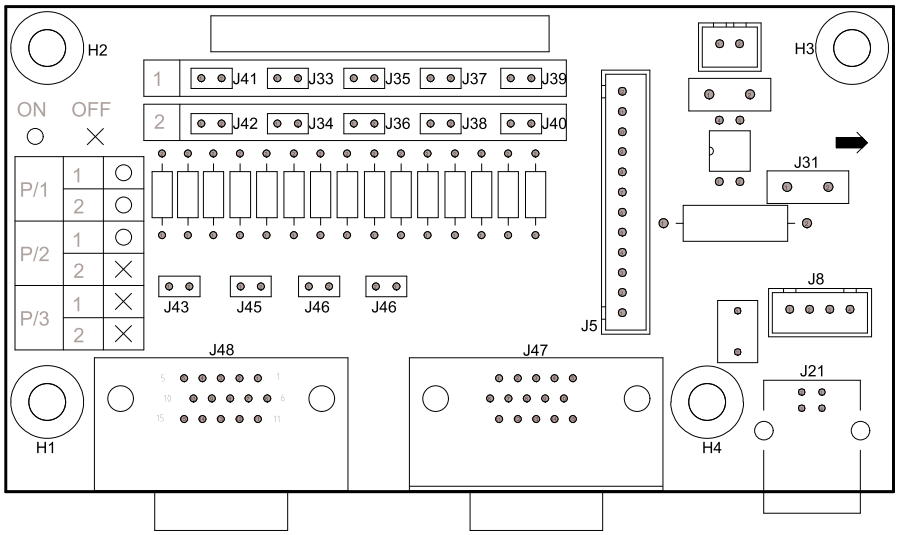
Connect the Signal Cables in Parallel Systems

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

   NOTE: See *Communication Interfaces, page 24* for location of parallel ports.

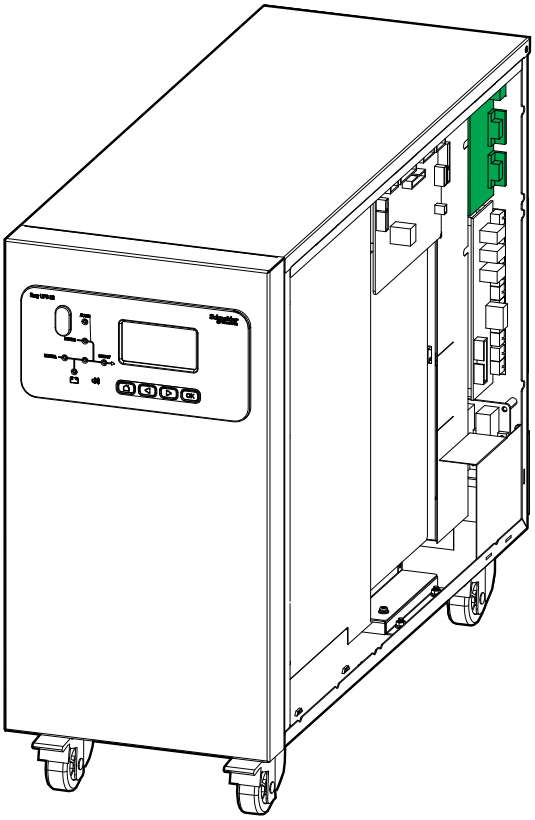


2. Remove the top or side panel of the UPSs.
3. Remove the jumpers from the parallel board according to your system:

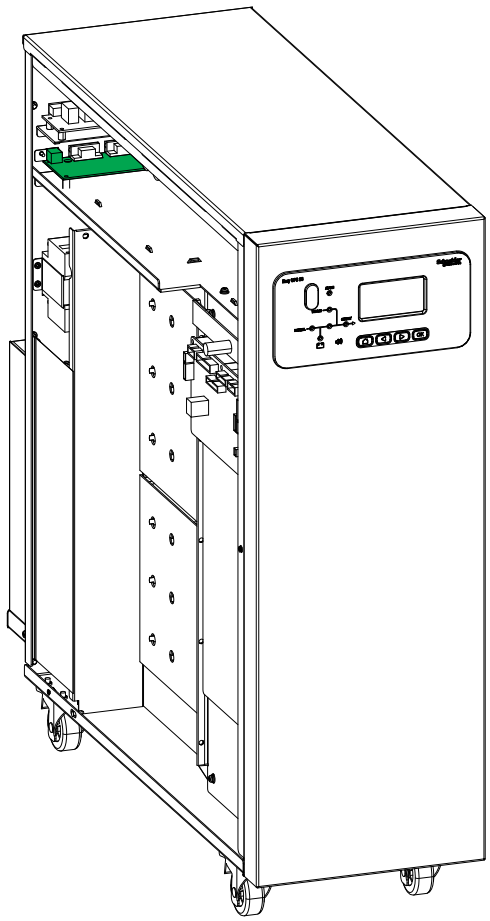


   – In parallel systems with two UPSs, remove the jumpers from J34, J36, J38, J39, J42 on both boards.
   – In parallel systems with three and four UPSs, remove all jumpers.

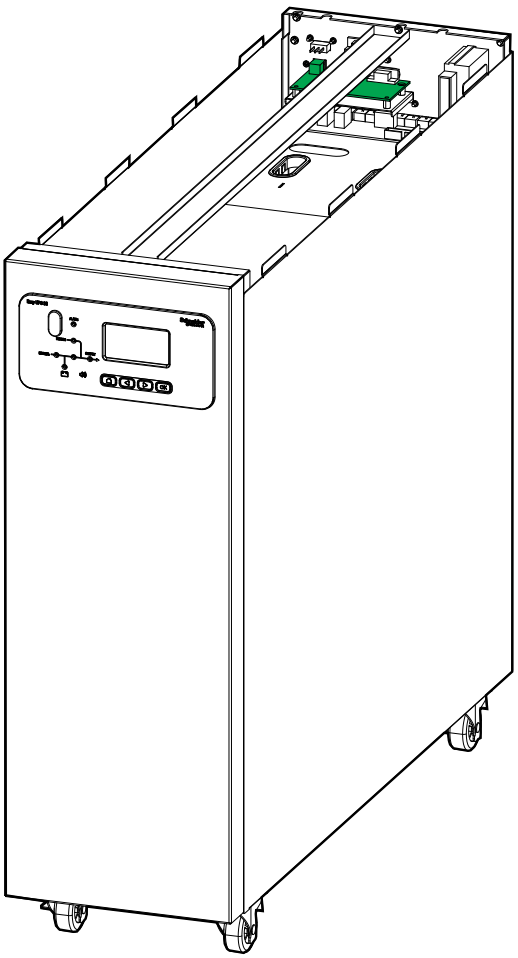
Location of Parallel Board in the 10–15 kVA UPS



Location of Parallel Board in the 20–30 kVA UPS



Location of Parallel Board in the 40 kVA UPS



Backfeed Protection

NOTE: The presence of a backfeed protection on input and bypass is mandatory according to IEC 62040-1.

An additional external isolation device must be installed in the UPS system. A magnetic contactor or a circuit breaker with UVR (Under Voltage Release) functionality can be used for this purpose. In the shown examples, the isolation device is a magnetic contactor (marked with a **C1** for single mains configurations and marked with a **C1** and **C2** for dual mains configurations).

The isolation device must be able to carry the UPS input current. Check with the relevant input current in *Input Specifications, page 11*.

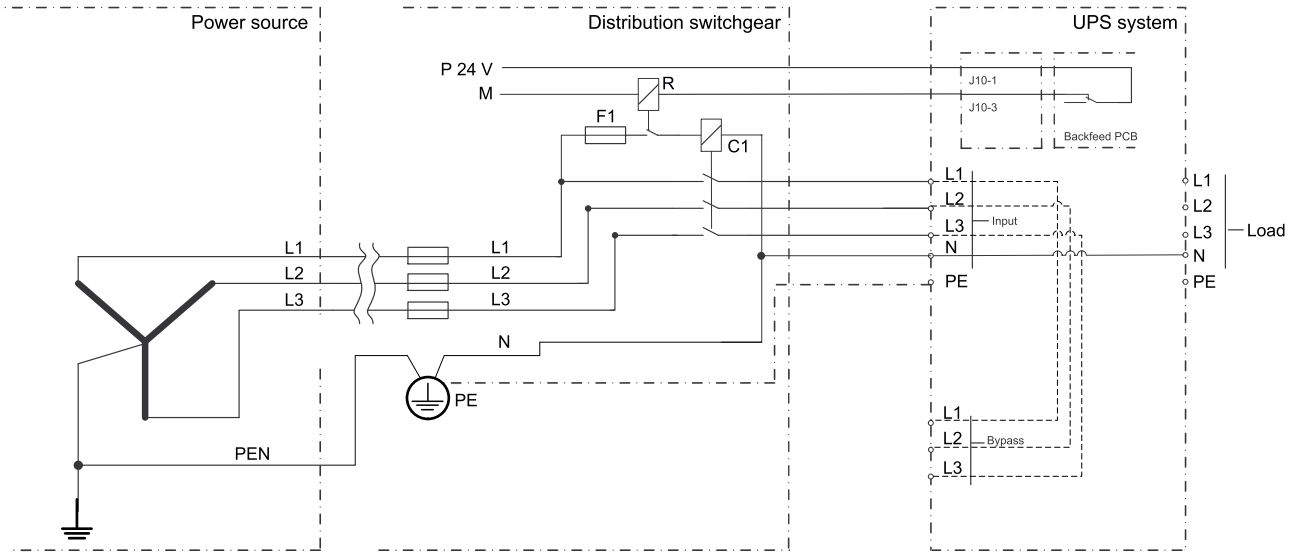
NOTE: The 24 V source should be generated from the input source in single mains configurations and from the bypass source in dual mains configurations.

NOTE: The examples shown in the backfeed protection instructions are for TN earthing systems. For other earthing systems, the external isolation device schematics are similar. In case of an IT earthing system installation, where the upstream protection is a 4 pole device, the external isolation device must also be 4 pole.

Install External Backfeed Protection in Single Mains System

1. Connect the UPS backfeed dry contact J10-1 to an external +24 VDC supply pole “+”. Route the cable with the other signal cables.
2. Connect the UPS backfeed dry contact J10-3 to a terminal of the relay R coil. Route the cable with the other signal cables.
3. Connect the other terminal of the relay R coil to a +24 VDC supply pole “-”(M).
4. Serial-connect the fuse (F1), the auxiliary contact of relay R, and the coil of C1 as shown in the illustration below.
5. Connect C1 (L1, L2, L3) to UPS input (L1, L2, L3) as shown in the illustration below.
6. Connect C1 (L1, L2, L3) to input (L1, L2, L3) in distribution switchgear as shown in the illustration below.
7. Connect UPS input (N) to PE in the distribution switchgear, and connect PE in the distribution switchgear to PE in the UPS.

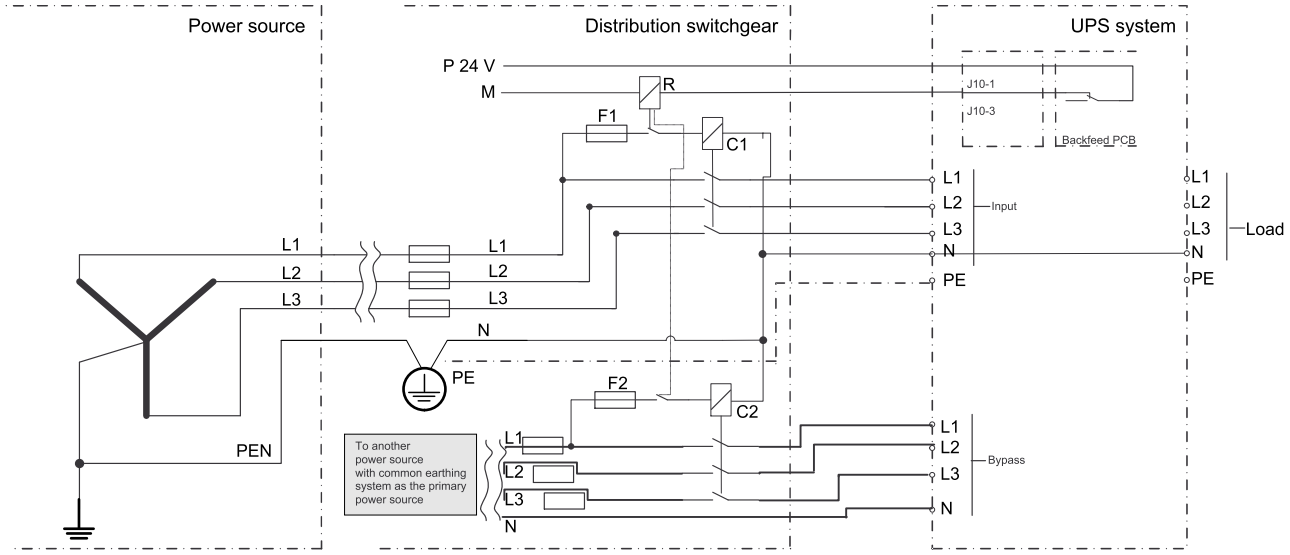
Single Mains UPS and External Isolation Device



Install External Backfeed Protection in Dual Mains System

1. Connect the UPS backfeed dry contact J10-1 to an external +24 VDC supply pole “+”. Route the cable with the other signal cables.
2. Connect the UPS backfeed dry contact J10-3 to a terminal of the relay R coil. Route the cable with the other signal cables.
3. Connect the other terminal of the relay R coil to a +24 VDC supply pole “-”(M).
4. Serial-connect the fuse (F1), the auxiliary contact of relay R, and the coil of C1 as shown in the illustration below.
5. Connect C1 (L1, L2, L3) to UPS input (L1, L2, L3) as the shown in the illustration below.
6. Connect C1 (L1, L2, L3) to input (L1, L2, L3) in the distribution switchgear as shown in the illustration below.
7. Connect UPS input (N) to PE in the distribution switchgear, and connect PE in the distribution switchgear to PE in the UPS.
8. Connect the other fuse (F2), the other auxiliary contact of relay R, and the coil of C2 as shown in the illustration below.
9. Connect C2 (L1, L2 , L3) with UPS bypass input (L1, L2, L3) as shown in the illustration below.
10. Connect C1 (L1, L2, L3) with the input feeding (L1, L2, L3) in distribution switchgear as shown in the illustration below.
11. Connect bypass input (N) with mains feeding (N) in distribution switchgear.

Dual Mains UPS and External Isolation Device



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