ИБП APC MGE Galaxy 4000 - руководство по установке. Юниджет

Постоянная ссылка на страницу: https://www.uni-jet.com/catalog/ibp/on-line-ibp/apc-mge-galaxy-4000/

Galaxy 4000

40–75 kVA 208 V

Installation

05/2015

www.schneider-electric.com

Schneider Electric

Legal Information

Table of Contents

Important Safety Information

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.

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. Startup 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 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.

⚠WARNING

HAZARD 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 death, serious injury, or equipment damage.

⚠WARNING

HAZARD 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 death, serious injury, or 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 4th 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.

⚠ CAUTION

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, 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.

Specifications

Input Specifications

	40 kVA	50 kVA	65 kVA	75 kVA
Voltage (V)	208, +15%/-15%/			
Connections	5-wire (3PH + N + G)			
Input frequency (Hz)	60± 5			
THDI	Less than 3% for full load			
Nominal input current (A)	102	127	166	191
Maximum input current (A)	120	150	195	225
Input current limitation (peak) (A)	300	375	490	575
Input power factor correction	>98%			

Bypass Specifications

	40 kVA	50 kVA	65 kVA	75 kVA
Connections	5-wire (3PH + N + G)			
Input frequency (Hz)	60			
Overload capacity	>212% for one cycle >150% for 30 seconds			
Nominal input current (A)	111	139	181	208

Output Specifications

	40 kVA	50 kVA	65 kVA	75 kVA
Voltage (V)	208, +1%/-1%			
Connections	4-wire (3PH + G) or 5-wire (3PH + N + G)			
Overload capacity	120% of rated load for 100 seconds, 130% of rated load for 60 seconds, 145% of rated load for 30 seconds			
Nominal output current (A)	111	139	180	208
Output frequency (sync to input) (Hz)	60 ±1% (selectable up to 4%) 60 ±0.1% when free running.			
Slew rate (Hz/Sec)	1.0 maximum (selectable up to 2.0)			
THDU	Maximum 2% total (THD) and 1% any single harmonic on 100% linear loads			
Voltage transient (step load) response	±3% for 50% step load change, ±5% for 100% step load change, ±1% for loss or return of AC input power or manual transfer at full load			
Load power factor	0.8 at the rated volt amperes (VA)			
Output voltage regulation	±1.0% for balanced load, ±1.75% for 50% unbalanced load, ±2.5% for 100% unbalanced load			
Crest factor	2.7			

Battery Specifications

	40 kVA	50 kVA	65 kVA	75 kVA
Type	VRLA			
Nominal voltage (VDC)	240 (or 2.00 volts per cell)			
Float voltage (VDC)	282 (or 2.35 volts per cell)			
End of discharge voltage (VDC)	198 (or 1.65 volts per cell)			
Battery current at full load (A)	157	196	255	294
Maximum current (at end of discharge) (A)	190	238	309	357
Maximum charging power (A)	23			
Typical recharge time	6 to 8 hours			
End voltage (VDC)	198 (or 1.65 volts per cell)			

Recommended Breaker Sizes

	40 kVA	50 kVA	65 kVA	75 kVA
Input (A)	150	175	250	300
Bypass (A)	150	175	250	300
Output (A)	150	175	250	300
Battery (A)	250	250	400	400

Recommended Cable Sizes

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

All wiring must comply with all national and/or local electrical codes.

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

NOTE: The recommended cable sizes are based on an environment with an ambient temperature of 30 °C (86 °F).

Type	40 kVA	50 kVA	65 kVA	75 kVA
Input	1/0 AWG	2/0 AWG	250 MCM	350 MCM
Bypass	1/0 AWG	2/0 AWG	250 MCM	350 MCM
Output	1/0 AWG	2/0 AWG	250 MCM	350 MCM
Battery	250 MCM	250 MCM	2 X 3/0 AWG	2 X 3/0 AWG

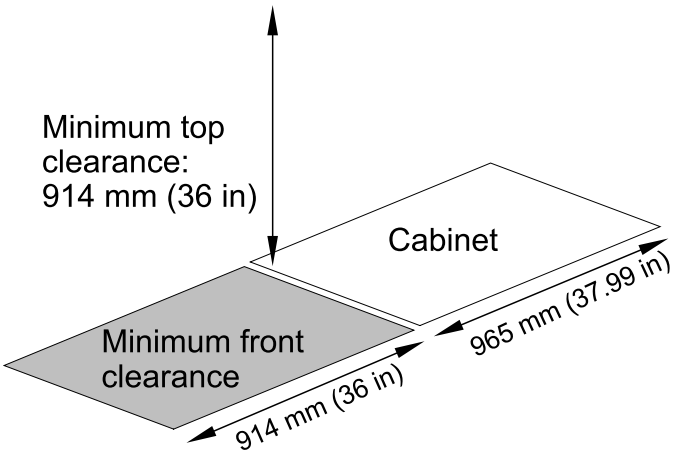
Physical

Weights and Dimensions

UPS	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
40 kVA	482 (1060)	1831 (72.10)	851 (33.50)	904 (35.60)
50 kVA				
65 kVA	562 (1235)			
75 kVA				

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

⚠WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Install the UPS system in a temperature controlled area free of conductive contaminants and humidity. Moisture inside the cabinet can create short circuits.
- Install the UPS system on a non-inflammable, level and solid surface (e.g. concrete) that can support the weight of the system.

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

⚠WARNING

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 three 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 death, serious injury, or equipment damage.

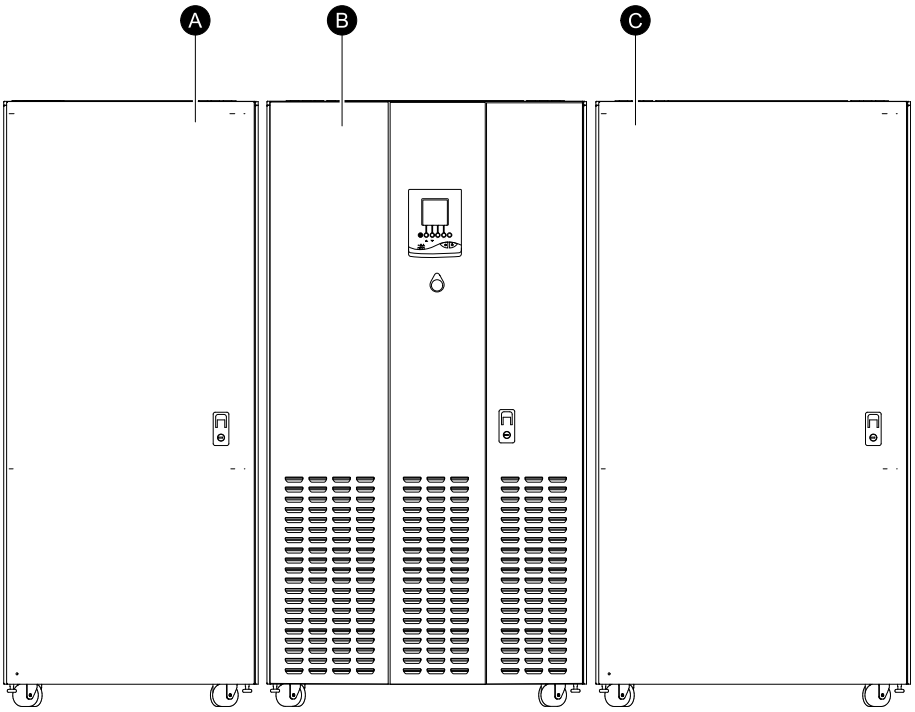
		Operation	Storage
Temperature		0 °C to 30 °C (32 to 86 °F)	-20 °C to 45 °C (-4 to 113 °F)
Relative humidity	40-50 kVA	0-95% non-condensing	0-85% non-condensing
	65-75 kVA	0-90% non-condensing	0-90% non-condensing
Elevation		1000 meters (0-3333 feet)	<9000 meters (0-30000 feet)
Audible noise (1 meter from front of cabinet)		≤70 dBA at full load	
Color		Light grey	

Heat Dissipation

	40 kVA	50 kVA	65 kVA	75 kVA
Heat dissipation kW (BTU/hr)	14900	18700	24200	28000

Introduction

The UPS system consists of the following cabinets:



A. Power Distribution Unit (PDU) cabinet (optional).

   Installed to the left of the UPS. The PDU cabinet provides a 42 pole panel board with an optional circuit breaker.
   The PDU cabinet is designed for top and bottom cable entry.

B. UPS cabinet.

   The UPS cabinet is designed for top and bottom cable entry.

C. External battery cabinet (optional).

   Installed to the right of the UPS or remotely. The external battery cabinets are provided in two different cabinet sizes depending on the selected battery type. Up to four battery cabinets can be installed.
   The battery cabinets are designed for top and bottom cable entry.

Prepare for Installation

Install Seismic Anchoring

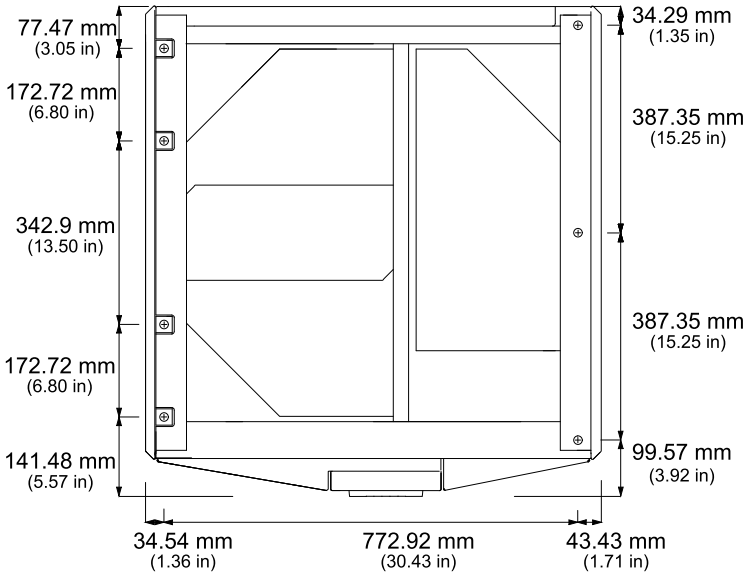
NOTE: The structural engineer or design engineer of record is responsible for detailing the equipment anchorage requirements for the given installation. The installer and manufacturers of the anchorage system are responsible for assuring that the mounting requirements are met. Schneider Electric is not responsible for the specification and performance of anchorage systems.

NOTE: The anchor bolts are not provided. Use anchor bolts that suit the floor material. The minimum requirement is ½ in grade 5 hardware.

NOTE: The PDU cabinet is seismically anchored in the same way as the UPS cabinet. If present, anchor the PDU cabinet first.

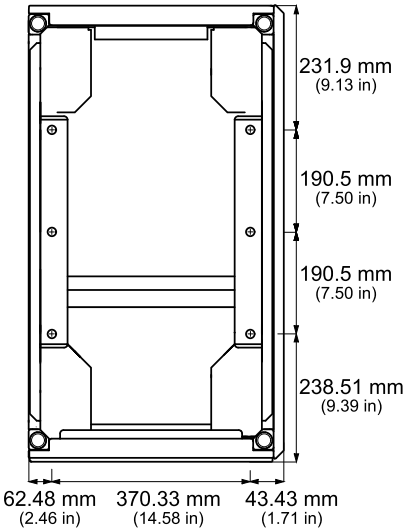
1. Drill anchoring holes in the floor according to the hole positions shown for the UPS and PDU cabinet.

Hole Positions for UPS Cabinet



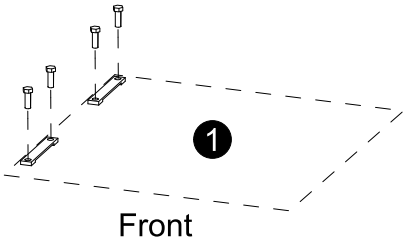
Front

Hole Positions for PDU Cabinet



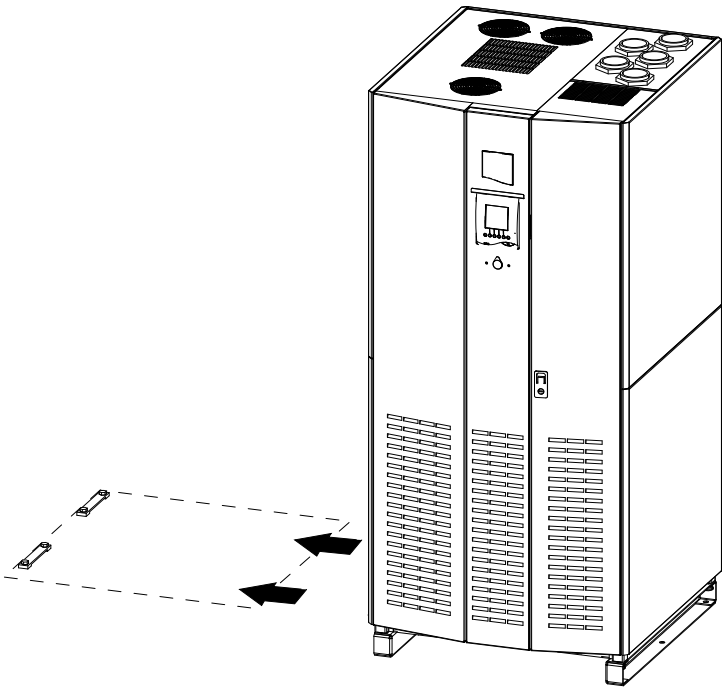
Front

2. Install the seismic straps on the floor.

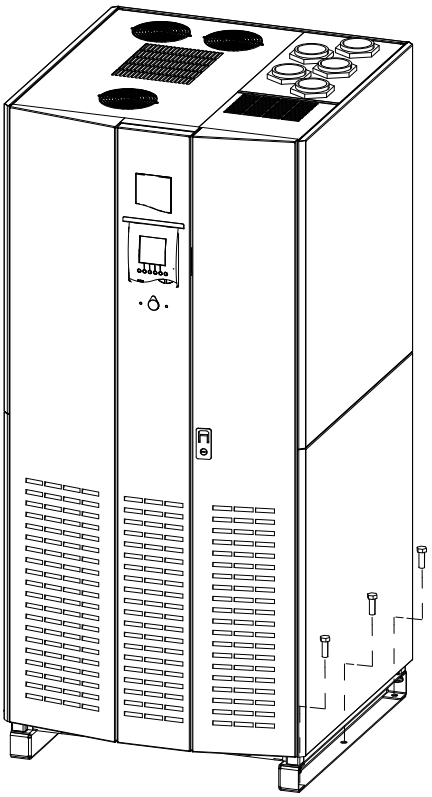


Front

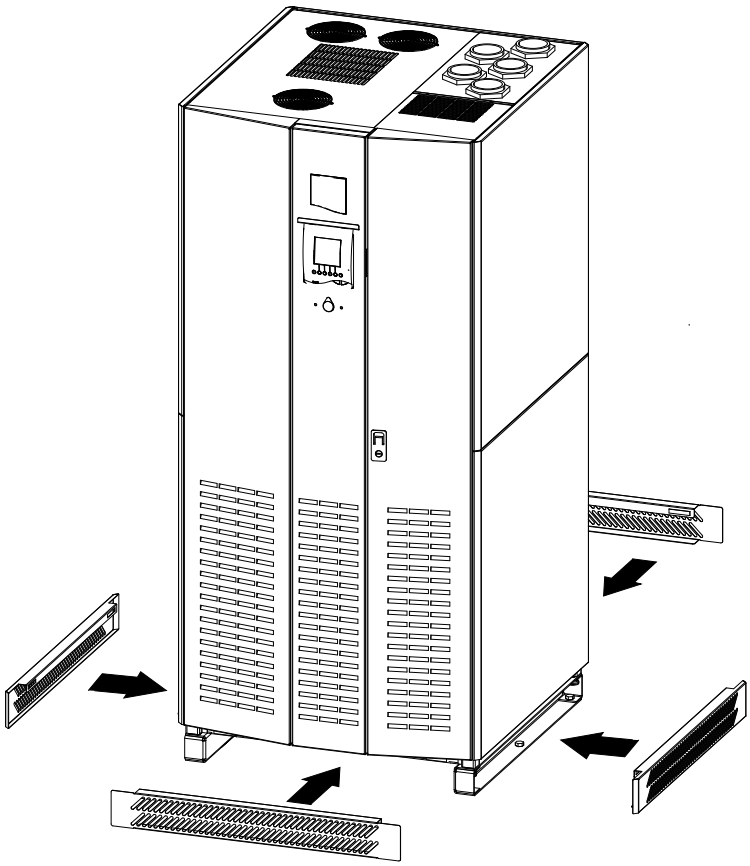
3. Slide the UPS cabinet brackets under the seismic straps.



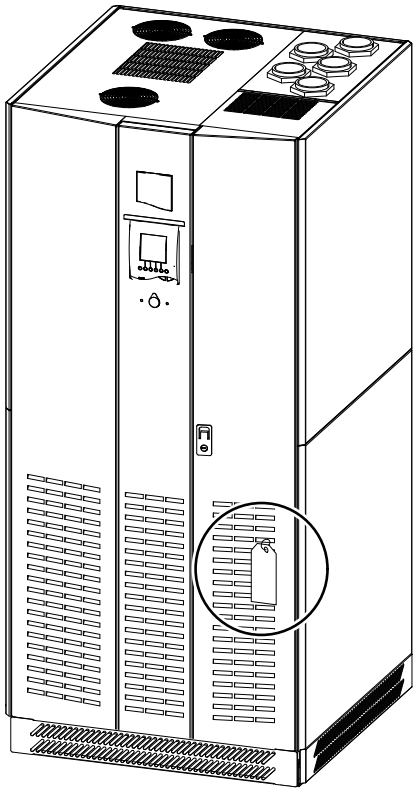
4. Install three anchor bolts on the right bracket of the UPS cabinet.



5. Install the kick plates on the sides of the UPS cabinet.



6. If a OSHPD review is required, position all OSHPD certification labels on the UPS cabinet.



NOTE: For Galaxy 4000 range, OSHPD Application # : OSP-0261-10, Special Seismic certification valid up to 1.48 g.

Prepare for Bottom Cable Entry

All cables can be routed through the bottom of the UPS cabinet, the PDU cabinet and the battery cabinet.

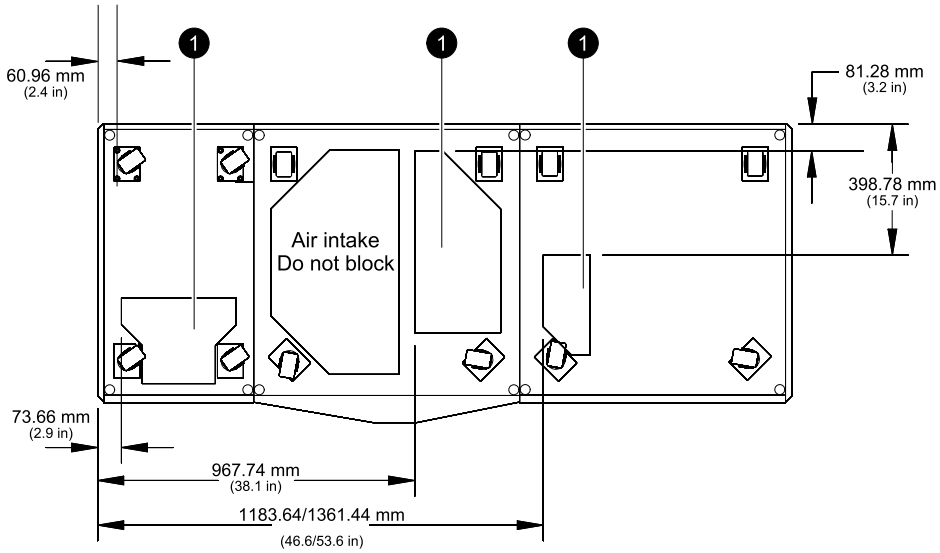
⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

1. Remove the screws from the bottom gland plate(s) on the UPS cabinet, the PDU cabinet, and the battery cabinet(s).
2. Remove the bottom gland plate(s).
3. Drill or punch holes for conduits in the bottom gland plate(s).
4. Install the conduits.
5. Reinstall the bottom gland plate(s).
6. Secure with the screws.



Prepare for Top Cable Entry

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

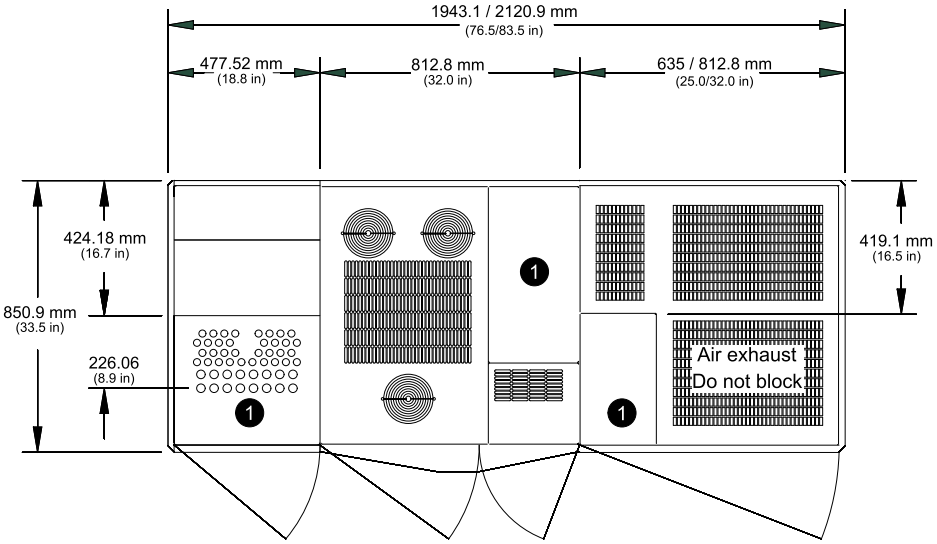
Do not drill or punch holes for cables or conduits with the gland plates installed and do not drill or punch holes in close proximity to the UPS.

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

Input and output cables can be routed through the top of the UPS cabinet. All cables can be routed through the top of the PDU cabinet and the battery cabinet.

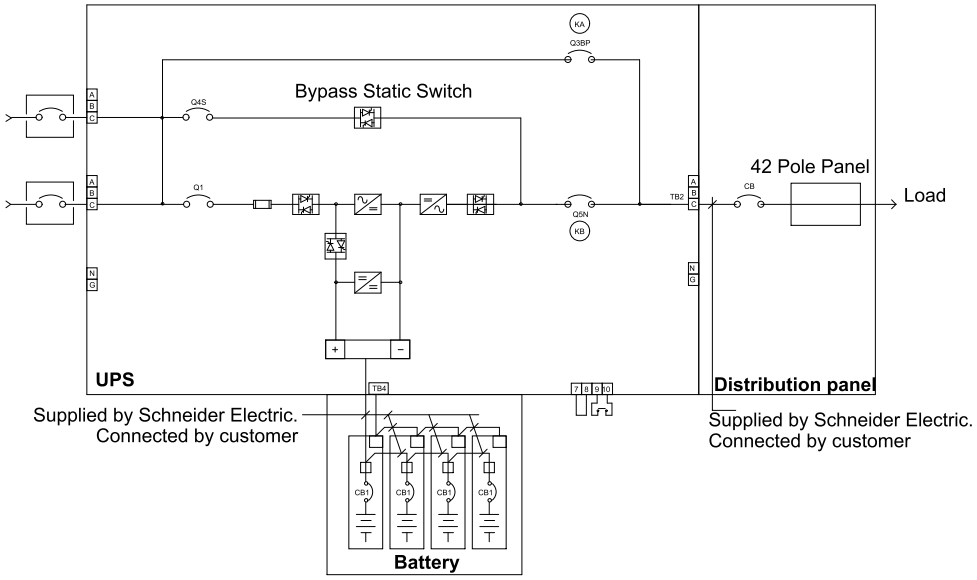
1. Remove screws from the top gland plate(s) on the UPS cabinet, the PDU cabinet, and the battery cabinet(s).
2. Remove the top gland plate(s).

3. Drill or punch holes for conduits in the top gland plate(s) .
4. Install the conduits.
5. Reinstall the top gland plate(s).
6. Secure with the screws.



Connect The Power Cables

One Line Diagram



Electrical connections and cabinet interconnection will vary depending upon the configuration and selected options.

Connect the Power Cables for Single Utility/Mains System

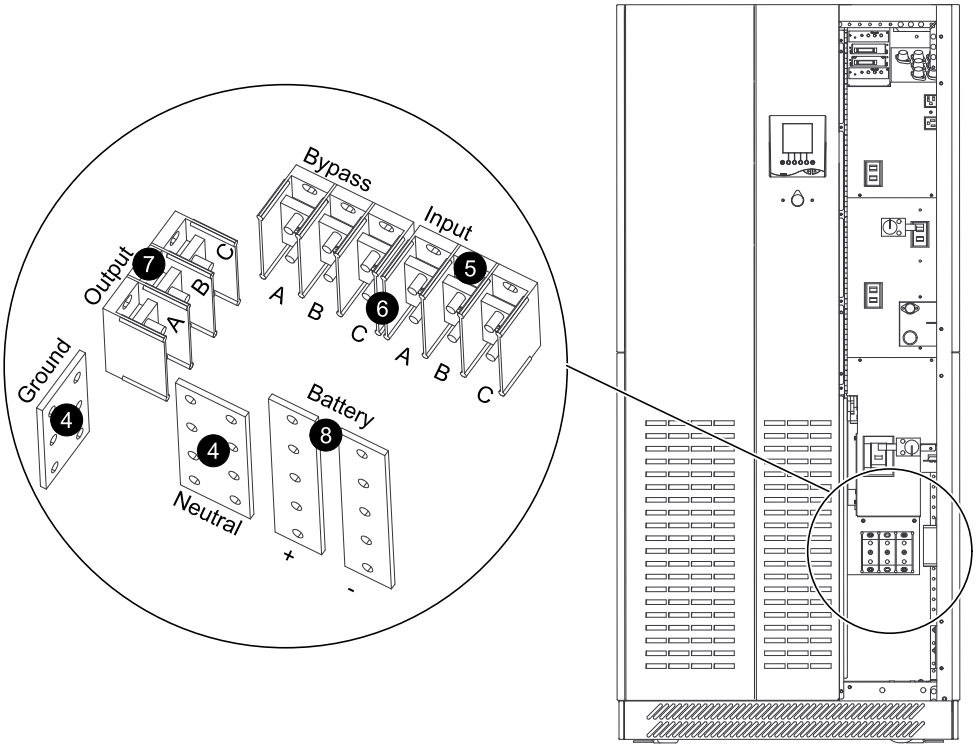
⚠DANGER

HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH

Before making any electrical connections, verify that all battery disconnect circuit breakers (QF1) are in the "OFF" position. All upstream protective devices and distribution circuits must be OFF.

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

1. Open the right door on the UPS cabinet.
2. Remove the screws from the safety panel in the bottom right section (not shown in the picture).
3. Remove the safety panel.
4. Connect the ground cable and neutral cables for input and output to the ground and neutral busbars.
5. Connect the input cables (A,B,C) to the input terminal block TB1.
6. Verify that the jumper cables between the input terminal block TB1 and the bypass terminal block TB3 are in place.
7. Connect the output cables (A,B,C) from the load to the output terminal block TB2.
8. Connect the battery cables to the positive and negative battery busbars.
9. Secure all cables with cable ties.
10. Reinstall all panels and covers.



Connect the Power Cables for Dual Utility/Mains System

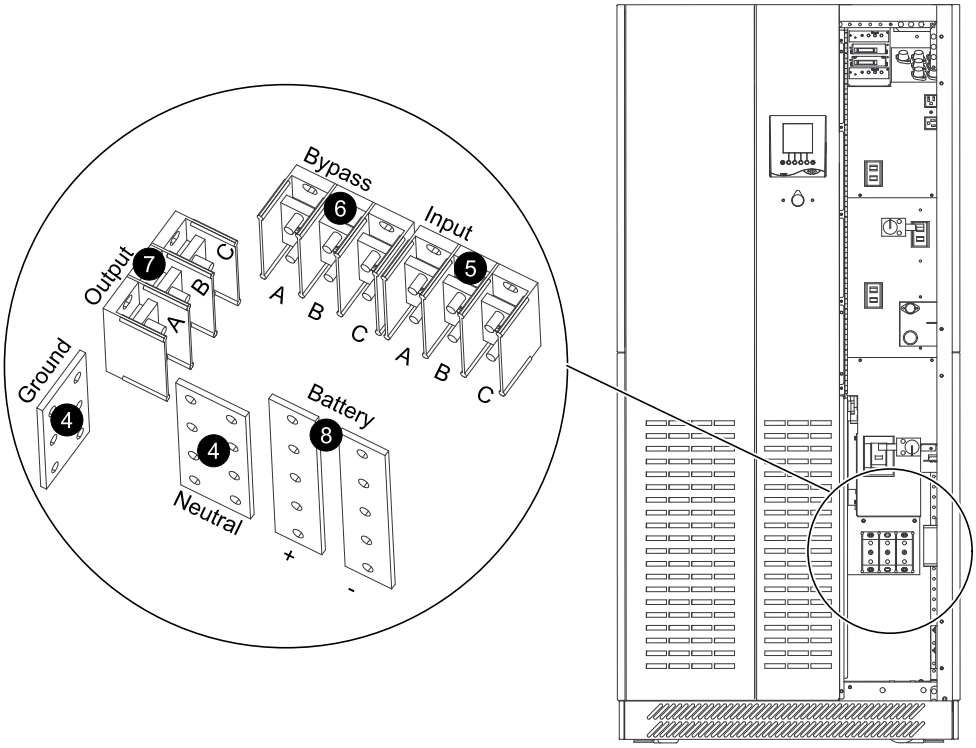
⚠ DANGER

HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH

Before making any electrical connections, verify that all battery disconnect circuit breakers (QF1) are in the "OFF" position. All upstream protective devices and distribution circuits must be OFF.

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

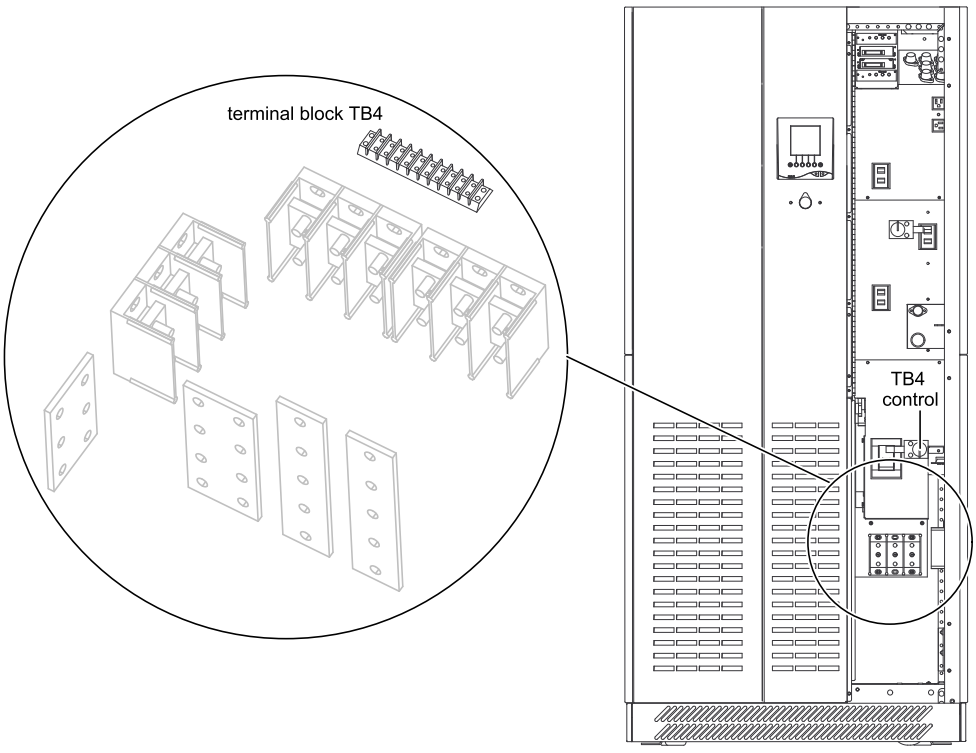
1. Open the right door on the UPS cabinet.
2. Remove the screws from the safety panel in the bottom right section (not shown in the picture).
3. Remove the safety panel.
4. Connect the ground cable and neutral cables for input and output to the ground and neutral busbars.
5. Connect the input cables (A,B,C) to the input terminal block TB1.
6. Connect the bypass cables (A,B,C) to the bypass terminal block TB3.
7. Connect the output cables (A,B,C) from the load to the output terminal block TB2.
8. Connect the battery cables to the positive and negative battery busbars.
9. Secure all cables with cable ties.
10. Reinstall all panels and covers.



Connect The Remote Emergency Power Off

The control connections are available for REPO (remote emergency power off) through a normally closed pushbutton (not provided). If the REPO is connected, the jumper on the REPO terminal blocks must be removed.

1. Remove the jumper from terminal block TB4 located across terminals 7 and 8.
2. Connect the remote emergency power off NC contact to terminals 7 and 8 on terminal block TB4.



NOTE: The UPS is also equipped with a local EPO (emergency power off) button on the front of the UPS cabinet.

Relay Communication Card Contacts

⚠ DANGER

HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH

Isolate and lockout/tagout all power sources for this card before making connections. Never connect SELV (Safety Extra Low Voltage) and non-SELV circuits to the different outputs of the same card.

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

The relay communication card contains six programmable output dry contacts and two programmable input dry contacts.

The output contact numbers for a second relay communication card installed will be 2.1 to 2.6.

Input Contacts

⚠ CAUTION

RISK OF EQUIPMENT DAMAGE

Input contacts are designed for remote UPS operation. UPS operation must be done by qualified personnel only.

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

Relay type	Normally open
Switched voltage	5 VDC
Consumption	10 mA
Cable	4 x 0.34 mm, 5 ±0.5 mm

Inputs	Default settings	Optional settings
1.A	UPS ON	• Room temperature out of tolerance • Transfer to bypass disabled • Transfer to bypass disabled if bypass AC source out of tolerance • Desynchronize UPS from bypass AC source
1.B	UPS OFF	

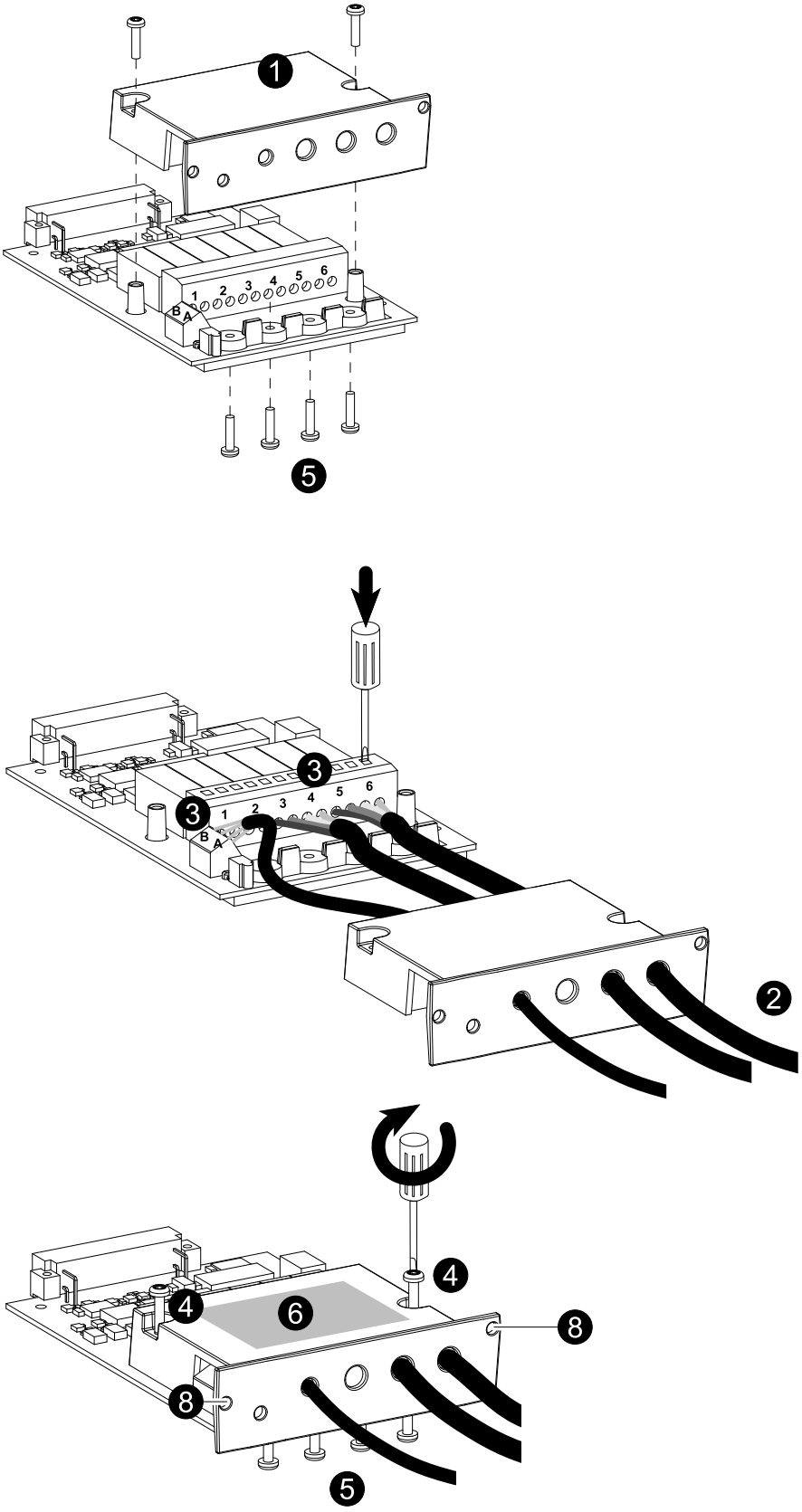
Output Contacts

Relay Type	Normally Open
Maximum voltage	250 V, 30 VDC
Maximum current	2 A
Cable	4 x 0.93 mm, 6.6 ±0.3 mm

Output alarms are always activated on the conditions stated unless requested to operate on other conditions.

Outputs	Default settings	Optional settings
1.1	General alarm	• Overload • PFC loss • Inverter loss • Charger loss • Automatic bypass loss • Bypass AC source out of tolerance • Battery-temperature out of tolerance • Emergency power off activated • Battery circuit breaker(s) open • Phase-sequence loss on normal or bypass • AC source • Blown fuse(s) • Transfer to bypass AC source disabled • Operation in ECO mode • UPS on bypass AC source
1.2	Battery inoperable	
1.3	Load on UPS	
1.4	Load on automatic bypass	
1.5	Load on battery power	
1.6	Low battery warning	

Connect Cables to the Relay Communication Card



1. Remove the cover secured by the two screws on the relay communication card.
2. Run the communication cables through the cable entry holes.
3. Connect the cables to the input and output terminal blocks.
4. Reinstall the cover and secure it with the two screws.
5. Tighten the four screws to clamp the cables.

6. Indicate the locations of the power sources on the labels.
7. Insert the card in its slot.
8. Secure the card with two screws.

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

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