

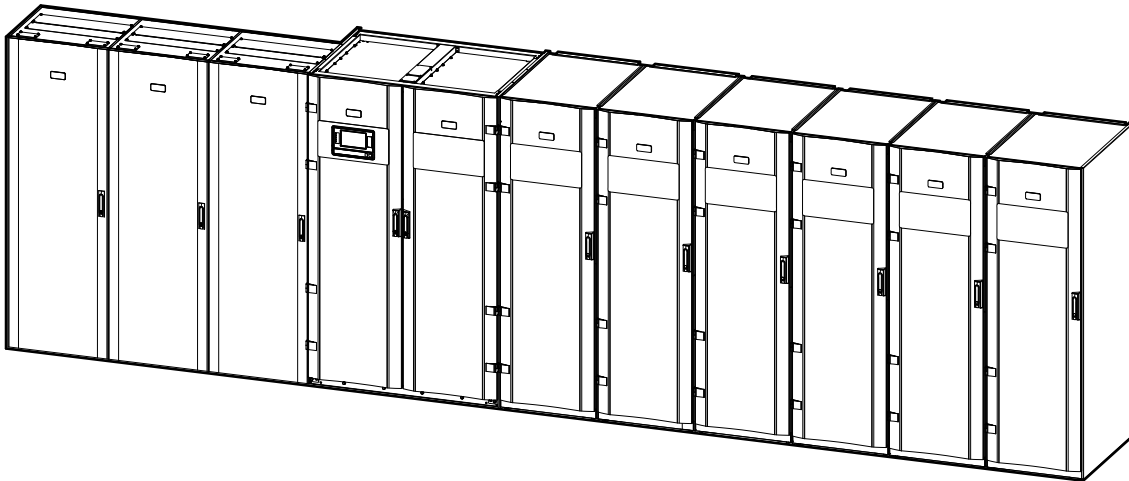
# ESS Energy Storage System for UL9540

## Galaxy VX UPS (1250 kW I/O Cabinet) and Galaxy Lithium-ion Battery Cabinets

### Installation

**NOTE:** This is a Solution Manual and replaces individual installation manuals for these products.

Latest updates are available on the Schneider Electric website  
9/2024



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### Find the ESS Energy Storage System Manuals Here:

Scan the QR code to go to the online manual portal:



[https://www.productinfo.schneider-electric.com/galaxyvx\\_ul/](https://www.productinfo.schneider-electric.com/galaxyvx_ul/)

Here you can find your ESS Energy Storage System manuals, Galaxy VX UPS manuals, and 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 Galaxy VX Here:

Go to <https://www.se.com/ww/en/product-range/63732> to learn more about this product.

### Learn More About the Galaxy Lithium-ion Battery Cabinet Here:

Go to <https://www.se.com/ww/en/product-range/66102> to learn more about this product.



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# Important Safety Instructions — SAVE THESE INSTRUCTIONS

Read these instructions carefully and look at the equipment to become familiar with it before trying to install, operate, service or maintain it. The following safety messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety message indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.

## DANGER

**DANGER** indicates a hazardous situation which, if not avoided, **will result in death or serious injury.**

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

## WARNING

**WARNING** indicates a hazardous situation which, if not avoided, **could result in death or serious injury.**

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

## CAUTION

**CAUTION** indicates a hazardous situation which, if not avoided, **could result in minor or moderate injury.**

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

## NOTICE

**NOTICE** is used to address practices not related to physical injury. The safety alert symbol shall not be used with this type of safety message.

**Failure to follow these instructions can result in equipment damage.**

## Please Note

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

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

## FCC Statement

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

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

## Electromagnetic Compatibility

### **NOTICE**

#### **RISK OF ELECTROMAGNETIC DISTURBANCE**

Galaxy VX UPS 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.**

### **NOTICE**

#### **RISK OF ELECTROMAGNETIC DISTURBANCE**

Galaxy Lithium-ion Battery Cabinet is a product category C2 UPS product. In a residential environment, this product may cause radio inference, in which case the user may be required to take additional measures.

**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:

- 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.**

## **⚠ DANGER**

### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR 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 will result in death or serious injury.**

## **⚠ WARNING**

### **CHEMICAL HAZARD**

This product can expose you to chemicals including Tetrabromobisphenol A, which is known to the State of California to cause cancer. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**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

This manual contains important safety instructions that should be followed during the installation and maintenance of the UPS system.

### **DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Disconnection devices for AC and DC must be provided by others, be readily accessible, and the function of the disconnect device marked for its function.
- Turn off all power supplying the UPS system before working on or inside the equipment.
- Before working on the UPS system, check for hazardous voltage between all terminals including the protective earth.
- The UPS contains an internal energy source. Hazardous voltage can be present even when disconnected from the mains supply. Before installing or servicing the UPS system, ensure that the units are OFF and that mains and batteries are disconnected. Wait five minutes before opening the UPS to allow the capacitors to discharge.
- The UPS must be properly earthed/grounded and due to a high touch current/leakage current, the earthing/grounding conductor must be connected first.
- 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.

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

The label below must be added if:

1. The UPS input is connected through external isolators that, when opened, isolate the neutral, OR
2. The UPS input is connected via an IT power system.

The label must be placed adjacent to all upstream power disconnection devices that isolate the neutral.

The label below must be also added if backfeed protection is provided external to the equipment. See *Backfeed Protection*, page 113 for more details. The label must be placed adjacent to all upstream power disconnection devices.

### **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.**

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Always perform correct Lockout/Tagout before working on the UPS.
- A UPS with autostart enabled will automatically restart when the mains supply returns.
- If autostart is enabled on the UPS, a label must be added on the UPS to warn about this functionality.

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

Add the label below on the UPS if autostart has been enabled:

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Autostart is enabled. The UPS will automatically restart when the mains supply returns.

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

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

This product can cause a DC current in the PE conductor. If 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 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.

**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 battery module type.

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

## **NOTICE**

### **RISK OF EQUIPMENT DAMAGE**

- Lithium-ion batteries should not be stored beyond 15 months from the date of production. If they are stored for longer the calendar degradation will cause the batteries to be irreversible degraded beyond what is expected – a reduced runtime will be the consequence. Performance guarantee will be measured from the time of deployment or from production date +15 months, whichever comes first. For storage beyond 15 months, contact Schneider Electric.
- If the UPS system remains de-energized for a long period, Schneider Electric recommends to shut down the battery cabinet completely.

**Failure to follow these instructions can result in equipment damage.**

# Specifications

## Specifications for ESS Energy Storage System at 480 V

Arc flash related calculation of the battery system is estimated with the Direct-Current Incident Energy Calculations referenced in Informative Annex D of NFPA 70E Standard for Electrical Safety in the Workplace. The ESS system is assumed to estimate the worst-case scenario of 17 LIBSESMG17UL battery cabinets in parallel. Estimated arc flash: < 0.97 cal/cm<sup>2</sup>.

| ESS Model Name                  | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|---------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX500K500NGS-3LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K500NGS-4LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K500NGS-5LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX500K500NGS-6LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K500NGS-7LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K500NGS-8LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K500NGS-9LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX500K500NGS-10LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX500K500NGS-11LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K500NGS-12LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX500K500NGS-13LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K500NGS-14LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K500NGS-15LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K500NGS-16LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX500K500NGS-17LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX500K500NGS-JC4-3LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K500NGS-JC4-4LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K500NGS-JC4-5LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX500K500NGS-JC4-6LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K500NGS-JC4-7LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K500NGS-JC4-8LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K500NGS-JC4-9LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |

## Specifications

| ESS Model Name                   | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX500K500NGS-JC4-10LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX500K500NGS-JC4-11LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K500NGS-JC4-12LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX500K500NGS-JC4-13LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K500NGS-JC4-14LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K500NGS-JC4-15LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K500NGS-JC4-16LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX500K500NGS-JC4-17LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX500K750NGS-3LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K750NGS-4LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K750NGS-5LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX500K750NGS-6LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K750NGS-7LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K750NGS-8LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K750NGS-9LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX500K750NGS-10LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX500K750NGS-11LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K750NGS-12LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX500K750NGS-13LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K750NGS-14LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K750NGS-15LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K750NGS-16LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX500K750NGS-17LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX500K750NGS-JC4-3LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K750NGS-JC4-4LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K750NGS-JC4-5LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |

| ESS Model Name                   | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX500K750NGS-JC4-6LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K750NGS-JC4-7LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K750NGS-JC4-8LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K750NGS-JC4-9LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX500K750NGS-JC4-10LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX500K750NGS-JC4-11LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K750NGS-JC4-12LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX500K750NGS-JC4-13LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K750NGS-JC4-14LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K750NGS-JC4-15LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K750NGS-JC4-16LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX500K750NGS-JC4-17LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX500K1000NGS-3LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K1000NGS-4LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K1000NGS-5LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX500K1000NGS-6LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K1000NGS-7LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K1000NGS-8LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K1000NGS-9LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX500K1000NGS-10LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX500K1000NGS-11LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K1000NGS-12LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX500K1000NGS-13LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K1000NGS-14LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K1000NGS-15LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K1000NGS-16LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |



| ESS Model Name                    | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|-----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX500K1000NGS-17LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX500K1000NGS-JC4-3LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K1000NGS-JC4-4LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K1000NGS-JC4-5LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX500K1000NGS-JC4-6LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K1000NGS-JC4-7LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K1000NGS-JC4-8LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K1000NGS-JC4-9LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX500K1000NGS-JC4-10LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX500K1000NGS-JC4-11LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K1000NGS-JC4-12LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX500K1000NGS-JC4-13LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K1000NGS-JC4-14LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K1000NGS-JC4-15LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K1000NGS-JC4-16LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX500K1000NGS-JC4-17LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX500K1250GS-3LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K1250GS-4LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K1250GS-5LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX500K1250GS-6LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K1250GS-7LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K1250GS-8LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K1250GS-9LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX500K1250GS-10LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX500K1250GS-11LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K1250GS-12LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |

| ESS Model Name                   | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX500K1250GS-13LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K1250GS-14LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K1250GS-15LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K1250GS-16LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX500K1250GS-17LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX500K1250GS-JC4-3LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K1250GS-JC4-4LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K1250GS-JC4-5LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX500K1250GS-JC4-6LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K1250GS-JC4-7LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K1250GS-JC4-8LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K1250GS-JC4-9LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX500K1250GS-JC4-10LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX500K1250GS-JC4-11LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K1250GS-JC4-12LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX500K1250GS-JC4-13LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K1250GS-JC4-14LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K1250GS-JC4-15LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K1250GS-JC4-16LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX500K1250GS-JC4-17LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX500K1250NGS-3LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K1250NGS-4LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K1250NGS-5LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX500K1250NGS-6LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K1250NGS-7LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K1250NGS-8LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K1250NGS-9LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX500K1250NGS-10LIBSESMG17UL    | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |

| ESS Model Name                    | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|-----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX500K1250NGS-11LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K1250NGS-12LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX500K1250NGS-13LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K1250NGS-14LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K1250NGS-15LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K1250NGS-16LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX500K1250NGS-17LIBSESMG17UL     | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX500K1250NGS-JC4-3LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX500K1250NGS-JC4-4LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX500K1250NGS-JC4-5LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX500K1250NGS-JC4-6LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX500K1250NGS-JC4-7LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX500K1250NGS-JC4-8LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX500K1250NGS-JC4-9LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX500K1250NGS-JC4-10LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX500K1250NGS-JC4-11LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX500K1250NGS-JC4-12LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX500K1250NGS-JC4-13LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX500K1250NGS-JC4-14LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX500K1250NGS-JC4-15LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX500K1250NGS-JC4-16LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX500K1250NGS-JC4-17LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX625K625NGS-3LIBSESMG17UL       | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 552                | 103.8                        |
| GVX625K625NGS-4LIBSESMG17UL       | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 138.4                        |
| GVX625K625NGS-5LIBSESMG17UL       | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 173                          |
| GVX625K625NGS-6LIBSESMG17UL       | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 207.6                        |

| ESS Model Name                   | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX625K625NGS-7LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 242.2                        |
| GVX625K625NGS-8LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 276.8                        |
| GVX625K625NGS-9LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 311.4                        |
| GVX625K625NGS-10LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 346                          |
| GVX625K625NGS-11LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 380.6                        |
| GVX625K625NGS-12LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 415.2                        |
| GVX625K625NGS-13LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 449.8                        |
| GVX625K625NGS-14LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 484.4                        |
| GVX625K625NGS-15LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 519                          |
| GVX625K625NGS-16LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 553.6                        |
| GVX625K625NGS-17LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 588.2                        |
| GVX625K625NGS-JC4-3LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 552                | 103.8                        |
| GVX625K625NGS-JC4-4LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 138.4                        |
| GVX625K625NGS-JC4-5LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 173                          |
| GVX625K625NGS-JC4-6LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 207.6                        |
| GVX625K625NGS-JC4-7LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 242.2                        |
| GVX625K625NGS-JC4-8LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 276.8                        |
| GVX625K625NGS-JC4-9LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 311.4                        |
| GVX625K625NGS-JC4-10LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 346                          |
| GVX625K625NGS-JC4-11LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 380.6                        |
| GVX625K625NGS-JC4-12LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 415.2                        |
| GVX625K625NGS-JC4-13LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 449.8                        |
| GVX625K625NGS-JC4-14LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 484.4                        |
| GVX625K625NGS-JC4-15LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 519                          |
| GVX625K625NGS-JC4-16LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 553.6                        |
| GVX625K625NGS-JC4-17LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 588.2                        |

## Specifications

| ESS Model Name                    | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|-----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX625K1000NGS-3LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 552                | 103.8                        |
| GVX625K1000NGS-4LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 138.4                        |
| GVX625K1000NGS-5LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 173                          |
| GVX625K1000NGS-6LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 207.6                        |
| GVX625K1000NGS-7LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 242.2                        |
| GVX625K1000NGS-8LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 276.8                        |
| GVX625K1000NGS-9LIBSESMG17UL      | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 311.4                        |
| GVX625K1000NGS-10LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 346                          |
| GVX625K1000NGS-11LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 380.6                        |
| GVX625K1000NGS-12LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 415.2                        |
| GVX625K1000NGS-13LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 449.8                        |
| GVX625K1000NGS-14LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 484.4                        |
| GVX625K1000NGS-15LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 519                          |
| GVX625K1000NGS-16LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 553.6                        |
| GVX625K1000NGS-17LIBSESMG17UL     | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 588.2                        |
| GVX625K1000NGS-JC4-3LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 552                | 103.8                        |
| GVX625K1000NGS-JC4-4LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 138.4                        |
| GVX625K1000NGS-JC4-5LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 173                          |
| GVX625K1000NGS-JC4-6LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 207.6                        |
| GVX625K1000NGS-JC4-7LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 242.2                        |
| GVX625K1000NGS-JC4-8LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 276.8                        |
| GVX625K1000NGS-JC4-9LIBSESMG17UL  | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 311.4                        |
| GVX625K1000NGS-JC4-10LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 346                          |
| GVX625K1000NGS-JC4-11LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 380.6                        |
| GVX625K1000NGS-JC4-12LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 415.2                        |
| GVX625K1000NGS-JC4-13LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 449.8                        |
| GVX625K1000NGS-JC4-14LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 484.4                        |

| ESS Model Name                    | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|-----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX625K1000NGS-JC4-15LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 519                          |
| GVX625K1000NGS-JC4-16LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 553.6                        |
| GVX625K1000NGS-JC4-17LIBSESMG17UL | 946                               | 946                                 | 802                                | 802                                  | 752                        | -                            | 625                | 588.2                        |
| GVX750K500NGS-3LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX750K500NGS-4LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX750K500NGS-5LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX750K500NGS-6LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX750K500NGS-7LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX750K500NGS-8LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX750K500NGS-9LIBSESMG17UL       | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX750K500NGS-10LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX750K500NGS-11LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |
| GVX750K500NGS-12LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX750K500NGS-13LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX750K500NGS-14LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX750K500NGS-15LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX750K500NGS-16LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX750K500NGS-17LIBSESMG17UL      | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX750K500NGS-JC4-3LIBSESMG17UL   | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 103.8                        |
| GVX750K500NGS-JC4-4LIBSESMG17UL   | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 138.4                        |
| GVX750K500NGS-JC4-5LIBSESMG17UL   | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 173                          |
| GVX750K500NGS-JC4-6LIBSESMG17UL   | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 207.6                        |
| GVX750K500NGS-JC4-7LIBSESMG17UL   | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 242.2                        |
| GVX750K500NGS-JC4-8LIBSESMG17UL   | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 276.8                        |
| GVX750K500NGS-JC4-9LIBSESMG17UL   | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 311.4                        |
| GVX750K500NGS-JC4-10LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 346                          |
| GVX750K500NGS-JC4-11LIBSESMG17UL  | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 380.6                        |

## Specifications

| ESS Model Name                   | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX750K500NGS-JC4-12LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 415.2                        |
| GVX750K500NGS-JC4-13LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 449.8                        |
| GVX750K500NGS-JC4-14LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 484.4                        |
| GVX750K500NGS-JC4-15LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 519                          |
| GVX750K500NGS-JC4-16LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 553.6                        |
| GVX750K500NGS-JC4-17LIBSESMG17UL | 757                               | 757                                 | 642                                | 642                                  | 601                        | -                            | 500                | 588.2                        |
| GVX750K750NGS-4LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX750K750NGS-5LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |
| GVX750K750NGS-6LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX750K750NGS-7LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |
| GVX750K750NGS-8LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX750K750NGS-9LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |
| GVX750K750NGS-10LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX750K750NGS-11LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX750K750NGS-12LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |
| GVX750K750NGS-13LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX750K750NGS-14LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX750K750NGS-15LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX750K750NGS-16LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX750K750NGS-17LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX750K750NGS-JC4-4LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX750K750NGS-JC4-5LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |
| GVX750K750NGS-JC4-6LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX750K750NGS-JC4-7LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |
| GVX750K750NGS-JC4-8LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX750K750NGS-JC4-9LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |

| ESS Model Name                   | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX750K750NGS-JC4-10LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX750K750NGS-JC4-11LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX750K750NGS-JC4-12LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |
| GVX750K750NGS-JC4-13LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX750K750NGS-JC4-14LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX750K750NGS-JC4-15LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX750K750NGS-JC4-16LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX750K750NGS-JC4-17LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX750K1000NGS-4LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX750K1000NGS-5LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |
| GVX750K1000NGS-6LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX750K1000NGS-7LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |
| GVX750K1000NGS-8LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX750K1000NGS-9LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |
| GVX750K1000NGS-10LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX750K1000NGS-11LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX750K1000NGS-12LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |
| GVX750K1000NGS-13LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX750K1000NGS-14LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX750K1000NGS-15LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX750K1000NGS-16LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX750K1000NGS-17LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX750K1000NGS-JC4-4LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX750K1000NGS-JC4-5LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |
| GVX750K1000NGS-JC4-6LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX750K1000NGS-JC4-7LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |



| ESS Model Name                    | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|-----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX750K1000NGS-JC4-8LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX750K1000NGS-JC4-9LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |
| GVX750K1000NGS-JC4-10LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX750K1000NGS-JC4-11LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX750K1000NGS-JC4-12LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |
| GVX750K1000NGS-JC4-13LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX750K1000NGS-JC4-14LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX750K1000NGS-JC4-15LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX750K1000NGS-JC4-16LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX750K1000NGS-JC4-17LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX750K1250GS-4LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX750K1250GS-5LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |
| GVX750K1250GS-6LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX750K1250GS-7LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |
| GVX750K1250GS-8LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX750K1250GS-9LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |
| GVX750K1250GS-10LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX750K1250GS-11LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX750K1250GS-12LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |
| GVX750K1250GS-13LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX750K1250GS-14LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX750K1250GS-15LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX750K1250GS-16LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX750K1250GS-17LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX750K1250GS-JC4-4LIBSESMG17UL   | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX750K1250GS-JC4-5LIBSESMG17UL   | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |

| ESS Model Name                   | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX750K1250GS-JC4-6LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX750K1250GS-JC4-7LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |
| GVX750K1250GS-JC4-8LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX750K1250GS-JC4-9LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |
| GVX750K1250GS-JC4-10LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX750K1250GS-JC4-11LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX750K1250GS-JC4-12LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |
| GVX750K1250GS-JC4-13LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX750K1250GS-JC4-14LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX750K1250GS-JC4-15LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX750K1250GS-JC4-16LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX750K1250GS-JC4-17LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX750K1250NGS-4LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX750K1250NGS-5LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |
| GVX750K1250NGS-6LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX750K1250NGS-7LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |
| GVX750K1250NGS-8LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX750K1250NGS-9LIBSESMG17UL     | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |
| GVX750K1250NGS-10LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX750K1250NGS-11LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX750K1250NGS-12LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |
| GVX750K1250NGS-13LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX750K1250NGS-14LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX750K1250NGS-15LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX750K1250NGS-16LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX750K1250NGS-17LIBSESMG17UL    | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX750K1250NGS-JC4-4LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX750K1250NGS-JC4-5LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |

## Specifications

| ESS Model Name                    | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|-----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX750K1250NGS-JC4-6LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX750K1250NGS-JC4-7LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |
| GVX750K1250NGS-JC4-8LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX750K1250NGS-JC4-9LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |
| GVX750K1250NGS-JC4-10LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX750K1250NGS-JC4-11LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX750K1250NGS-JC4-12LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |
| GVX750K1250NGS-JC4-13LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX750K1250NGS-JC4-14LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX750K1250NGS-JC4-15LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX750K1250NGS-JC4-16LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX750K1250NGS-JC4-17LIBSESMG17UL | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX800K800NGS-4LIBSESMG17UL       | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 736                | 138.4                        |
| GVX800K800NGS-5LIBSESMG17UL       | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 173                          |
| GVX800K800NGS-6LIBSESMG17UL       | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 207.6                        |
| GVX800K800NGS-7LIBSESMG17UL       | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 242.2                        |
| GVX800K800NGS-8LIBSESMG17UL       | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 276.8                        |
| GVX800K800NGS-9LIBSESMG17UL       | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 311.4                        |
| GVX800K800NGS-10LIBSESMG17UL      | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 346                          |
| GVX800K800NGS-11LIBSESMG17UL      | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 380.6                        |
| GVX800K800NGS-12LIBSESMG17UL      | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 415.2                        |
| GVX800K800NGS-13LIBSESMG17UL      | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 449.8                        |
| GVX800K800NGS-14LIBSESMG17UL      | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 484.4                        |
| GVX800K800NGS-15LIBSESMG17UL      | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 519                          |
| GVX800K800NGS-16LIBSESMG17UL      | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 553.6                        |
| GVX800K800NGS-17LIBSESMG17UL      | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 588.2                        |

| ESS Model Name                   | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX800K800NGS-JC4-4LIBSESMG17UL  | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 736                | 138.4                        |
| GVX800K800NGS-JC4-5LIBSESMG17UL  | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 173                          |
| GVX800K800NGS-JC4-6LIBSESMG17UL  | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 207.6                        |
| GVX800K800NGS-JC4-7LIBSESMG17UL  | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 242.2                        |
| GVX800K800NGS-JC4-8LIBSESMG17UL  | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 276.8                        |
| GVX800K800NGS-JC4-9LIBSESMG17UL  | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 311.4                        |
| GVX800K800NGS-JC4-10LIBSESMG17UL | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 346                          |
| GVX800K800NGS-JC4-11LIBSESMG17UL | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 380.6                        |
| GVX800K800NGS-JC4-12LIBSESMG17UL | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 415.2                        |
| GVX800K800NGS-JC4-13LIBSESMG17UL | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 449.8                        |
| GVX800K800NGS-JC4-14LIBSESMG17UL | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 484.4                        |
| GVX800K800NGS-JC4-15LIBSESMG17UL | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 519                          |
| GVX800K800NGS-JC4-16LIBSESMG17UL | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 553.6                        |
| GVX800K800NGS-JC4-17LIBSESMG17UL | 1212                              | 1212                                | 1027                               | 1027                                 | 962                        | -                            | 800                | 588.2                        |
| GVX1000K1000NGS-3LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 103.8                        |
| GVX1000K1000NGS-4LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 138.4                        |
| GVX1000K1000NGS-5LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 173                          |
| GVX1000K1000NGS-6LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 207.6                        |
| GVX1000K1000NGS-7LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 242.2                        |
| GVX1000K1000NGS-8LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 276.8                        |
| GVX1000K1000NGS-9LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 311.4                        |
| GVX1000K1000NGS-10LIBSESMG17UL   | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 346                          |
| GVX1000K1000NGS-11LIBSESMG17UL   | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 380.6                        |
| GVX1000K1000NGS-12LIBSESMG17UL   | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 415.2                        |
| GVX1000K1000NGS-13LIBSESMG17UL   | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 449.8                        |
| GVX1000K1000NGS-14LIBSESMG17UL   | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 484.4                        |

| ESS Model Name                    | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|-----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1000K1000NGS-15LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 519                          |
| GVX1000K1000NGS-16LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 553.6                        |
| GVX1000K1000NGS-17LIBSESMG17UL    | 1514                              | 1514                                | 1211                               | 1211                                 | 1203                       | -                            | 1000               | 588.2                        |
| GVX1000K1250GS-5LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 920                | 173                          |
| GVX1000K1250GS-6LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 207.6                        |
| GVX1000K1250GS-7LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 242.2                        |
| GVX1000K1250GS-8LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 276.8                        |
| GVX1000K1250GS-9LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 311.4                        |
| GVX1000K1250GS-10LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 346                          |
| GVX1000K1250GS-11LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 380.6                        |
| GVX1000K1250GS-12LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 415.2                        |
| GVX1000K1250GS-13LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 449.8                        |
| GVX1000K1250GS-14LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 484.4                        |
| GVX1000K1250GS-15LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 519                          |
| GVX1000K1250GS-16LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 553.6                        |
| GVX1000K1250GS-17LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 588.2                        |
| GVX1000K1250GS-JC4-5LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 920                | 173                          |
| GVX1000K1250GS-JC4-6LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 207.6                        |
| GVX1000K1250GS-JC4-7LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 242.2                        |
| GVX1000K1250GS-JC4-8LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 276.8                        |
| GVX1000K1250GS-JC4-9LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 311.4                        |
| GVX1000K1250GS-JC4-10LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 346                          |
| GVX1000K1250GS-JC4-11LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 380.6                        |
| GVX1000K1250GS-JC4-12LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 415.2                        |
| GVX1000K1250GS-JC4-13LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 449.8                        |
| GVX1000K1250GS-JC4-14LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 484.4                        |

| ESS Model Name                     | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1000K1250GS-JC4-15LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 519                          |
| GVX1000K1250GS-JC4-16LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 553.6                        |
| GVX1000K1250GS-JC4-17LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 588.2                        |
| GVX1000K1250NGS-5LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 920                | 173                          |
| GVX1000K1250NGS-6LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 207.6                        |
| GVX1000K1250NGS-7LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 242.2                        |
| GVX1000K1250NGS-8LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 276.8                        |
| GVX1000K1250NGS-9LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 311.4                        |
| GVX1000K1250NGS-10LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 346                          |
| GVX1000K1250NGS-11LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 380.6                        |
| GVX1000K1250NGS-12LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 415.2                        |
| GVX1000K1250NGS-13LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 449.8                        |
| GVX1000K1250NGS-14LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 484.4                        |
| GVX1000K1250NGS-15LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 519                          |
| GVX1000K1250NGS-16LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 553.6                        |
| GVX1000K1250NGS-17LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 588.2                        |
| GVX1000K1250NGS-JC4-5LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 920                | 173                          |
| GVX1000K1250NGS-JC4-6LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 207.6                        |
| GVX1000K1250NGS-JC4-7LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 242.2                        |
| GVX1000K1250NGS-JC4-8LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 276.8                        |
| GVX1000K1250NGS-JC4-9LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 311.4                        |
| GVX1000K1250NGS-JC4-10LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 346                          |
| GVX1000K1250NGS-JC4-11LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 380.6                        |
| GVX1000K1250NGS-JC4-12LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 415.2                        |
| GVX1000K1250NGS-JC4-13LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 449.8                        |
| GVX1000K1250NGS-JC4-14LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 484.4                        |

| ESS Model Name                     | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1000K1250NGS-JC4-15LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 519                          |
| GVX1000K1250NGS-JC4-16LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 553.6                        |
| GVX1000K1250NGS-JC4-17LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 588.2                        |
| GVX1000K750NGS-4LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX1000K750NGS-5LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |
| GVX1000K750NGS-6LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX1000K750NGS-7LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |
| GVX1000K750NGS-8LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX1000K750NGS-9LIBSESMG17UL       | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |
| GVX1000K750NGS-10LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX1000K750NGS-11LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX1000K750NGS-12LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |
| GVX1000K750NGS-13LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX1000K750NGS-14LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX1000K750NGS-15LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX1000K750NGS-16LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX1000K750NGS-17LIBSESMG17UL      | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX1000K750NGS-JC4-4LIBSESMG17UL   | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 736                | 138.4                        |
| GVX1000K750NGS-JC4-5LIBSESMG17UL   | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 173                          |
| GVX1000K750NGS-JC4-6LIBSESMG17UL   | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 207.6                        |
| GVX1000K750NGS-JC4-7LIBSESMG17UL   | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 242.2                        |
| GVX1000K750NGS-JC4-8LIBSESMG17UL   | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 276.8                        |
| GVX1000K750NGS-JC4-9LIBSESMG17UL   | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 311.4                        |
| GVX1000K750NGS-JC4-10LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 346                          |
| GVX1000K750NGS-JC4-11LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 380.6                        |
| GVX1000K750NGS-JC4-12LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 415.2                        |

| ESS Model Name                     | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1000K750NGS-JC4-13LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 449.8                        |
| GVX1000K750NGS-JC4-14LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 484.4                        |
| GVX1000K750NGS-JC4-15LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 519                          |
| GVX1000K750NGS-JC4-16LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 553.6                        |
| GVX1000K750NGS-JC4-17LIBSESMG17UL  | 1136                              | 1136                                | 964                                | 964                                  | 902                        | -                            | 750                | 588.2                        |
| GVX1100K1100NGS-5LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 920                | 173                          |
| GVX1100K1100NGS-6LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 207.6                        |
| GVX1100K1100NGS-7LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 242.2                        |
| GVX1100K1100NGS-8LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 276.8                        |
| GVX1100K1100NGS-9LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 311.4                        |
| GVX1100K1100NGS-10LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 346                          |
| GVX1100K1100NGS-11LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 380.6                        |
| GVX1100K1100NGS-12LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 415.2                        |
| GVX1100K1100NGS-13LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 449.8                        |
| GVX1100K1100NGS-14LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 484.4                        |
| GVX1100K1100NGS-15LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 519                          |
| GVX1100K1100NGS-16LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 553.6                        |
| GVX1100K1100NGS-17LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 588.2                        |
| GVX1100K1100NGS-JC4-5LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 920                | 173                          |
| GVX1100K1100NGS-JC4-6LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 207.6                        |
| GVX1100K1100NGS-JC4-7LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 242.2                        |
| GVX1100K1100NGS-JC4-8LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 276.8                        |
| GVX1100K1100NGS-JC4-9LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 311.4                        |
| GVX1100K1100NGS-JC4-10LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 346                          |
| GVX1100K1100NGS-JC4-11LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 380.6                        |
| GVX1100K1100NGS-JC4-12LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 415.2                        |



## Specifications

| ESS Model Name                     | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1100K1100NGS-JC4-13LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 449.8                        |
| GVX1100K1100NGS-JC4-14LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 484.4                        |
| GVX1100K1100NGS-JC4-15LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 519                          |
| GVX1100K1100NGS-JC4-16LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 553.6                        |
| GVX1100K1100NGS-JC4-17LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 588.2                        |
| GVX1250K1000NGS-5LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 920                | 173                          |
| GVX1250K1000NGS-6LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 207.6                        |
| GVX1250K1000NGS-7LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 242.2                        |
| GVX1250K1000NGS-8LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 276.8                        |
| GVX1250K1000NGS-9LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 311.4                        |
| GVX1250K1000NGS-10LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 346                          |
| GVX1250K1000NGS-11LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 380.6                        |
| GVX1250K1000NGS-12LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 415.2                        |
| GVX1250K1000NGS-13LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 449.8                        |
| GVX1250K1000NGS-14LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 484.4                        |
| GVX1250K1000NGS-15LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 519                          |
| GVX1250K1000NGS-16LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 553.6                        |
| GVX1250K1000NGS-17LIBSESMG17UL     | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 588.2                        |
| GVX1250K1000NGS-JC4-5LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 920                | 173                          |
| GVX1250K1000NGS-JC4-6LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 207.6                        |
| GVX1250K1000NGS-JC4-7LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 242.2                        |
| GVX1250K1000NGS-JC4-8LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 276.8                        |
| GVX1250K1000NGS-JC4-9LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 311.4                        |
| GVX1250K1000NGS-JC4-10LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 346                          |
| GVX1250K1000NGS-JC4-11LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 380.6                        |
| GVX1250K1000NGS-JC4-12LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 415.2                        |

| ESS Model Name                     | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1250K1000NGS-JC4-13LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 449.8                        |
| GVX1250K1000NGS-JC4-14LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 484.4                        |
| GVX1250K1000NGS-JC4-15LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 519                          |
| GVX1250K1000NGS-JC4-16LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 553.6                        |
| GVX1250K1000NGS-JC4-17LIBSESMG17UL | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 588.2                        |
| GVX1250K1250GS-6LIBSESMG17UL       | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 207.6                        |
| GVX1250K1250GS-7LIBSESMG17UL       | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 242.2                        |
| GVX1250K1250GS-8LIBSESMG17UL       | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 276.8                        |
| GVX1250K1250GS-9LIBSESMG17UL       | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 311.4                        |
| GVX1250K1250GS-10LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 346                          |
| GVX1250K1250GS-11LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 380.6                        |
| GVX1250K1250GS-12LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 415.2                        |
| GVX1250K1250GS-13LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 449.8                        |
| GVX1250K1250GS-14LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 484.4                        |
| GVX1250K1250GS-15LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 519                          |
| GVX1250K1250GS-16LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 553.6                        |
| GVX1250K1250GS-17LIBSESMG17UL      | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 588.2                        |
| GVX1250K1250GS-JC4-6LIBSESMG17UL   | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 207.6                        |
| GVX1250K1250GS-JC4-7LIBSESMG17UL   | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 242.2                        |
| GVX1250K1250GS-JC4-8LIBSESMG17UL   | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 276.8                        |
| GVX1250K1250GS-JC4-9LIBSESMG17UL   | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 311.4                        |
| GVX1250K1250GS-JC4-10LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 346                          |
| GVX1250K1250GS-JC4-11LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 380.6                        |
| GVX1250K1250GS-JC4-12LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 415.2                        |
| GVX1250K1250GS-JC4-13LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 449.8                        |

## Specifications

| ESS Model Name                     | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1250K1250GS-JC4-14LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 484.4                        |
| GVX1250K1250GS-JC4-15LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 519                          |
| GVX1250K1250GS-JC4-16LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 553.6                        |
| GVX1250K1250GS-JC4-17LIBSESMG17UL  | 1514                              | 1514                                | 1284                               | 1284                                 | 1203                       | -                            | 1000               | 588.2                        |
| GVX1250K1250NGS-3LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 103.8                        |
| GVX1250K1250NGS-4LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 138.4                        |
| GVX1250K1250NGS-5LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 173                          |
| GVX1250K1250NGS-6LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 207.6                        |
| GVX1250K1250NGS-7LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 242.2                        |
| GVX1250K1250NGS-8LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 276.8                        |
| GVX1250K1250NGS-9LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 311.4                        |
| GVX1250K1250NGS-10LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 346                          |
| GVX1250K1250NGS-11LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 380.6                        |
| GVX1250K1250NGS-12LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 415.2                        |
| GVX1250K1250NGS-13LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 449.8                        |
| GVX1250K1250NGS-14LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 484.4                        |
| GVX1250K1250NGS-15LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 519                          |
| GVX1250K1250NGS-16LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 553.6                        |
| GVX1250K1250NGS-17LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 588.2                        |
| GVX1250K1250NGS-JC4-3LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 103.8                        |
| GVX1250K1250NGS-JC4-4LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 138.4                        |
| GVX1250K1250NGS-JC4-5LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 173                          |
| GVX1250K1250NGS-JC4-6LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 207.6                        |
| GVX1250K1250NGS-JC4-7LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 242.2                        |
| GVX1250K1250NGS-JC4-8LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 276.8                        |
| GVX1250K1250NGS-JC4-9LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 311.4                        |
| GVX1250K1250NGS-JC4-10LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 346                          |

| ESS Model Name                     | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1250K1250NGS-JC4-11LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 380.6                        |
| GVX1250K1250NGS-JC4-12LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 415.2                        |
| GVX1250K1250NGS-JC4-13LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 449.8                        |
| GVX1250K1250NGS-JC4-14LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 484.4                        |
| GVX1250K1250NGS-JC4-15LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 519                          |
| GVX1250K1250NGS-JC4-16LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 553.6                        |
| GVX1250K1250NGS-JC4-17LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 588.2                        |
| GVX1500K1100NGS-5LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 920                | 173                          |
| GVX1500K1100NGS-6LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 207.6                        |
| GVX1500K1100NGS-7LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 242.2                        |
| GVX1500K1100NGS-8LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 276.8                        |
| GVX1500K1100NGS-9LIBSESMG17UL      | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 311.4                        |
| GVX1500K1100NGS-10LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 346                          |
| GVX1500K1100NGS-11LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 380.6                        |
| GVX1500K1100NGS-12LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 415.2                        |
| GVX1500K1100NGS-13LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 449.8                        |
| GVX1500K1100NGS-14LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 484.4                        |
| GVX1500K1100NGS-15LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 519                          |
| GVX1500K1100NGS-16LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 553.6                        |
| GVX1500K1100NGS-17LIBSESMG17UL     | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 588.2                        |
| GVX1500K1100NGS-JC4-5LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 920                | 173                          |
| GVX1500K1100NGS-JC4-6LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 207.6                        |
| GVX1500K1100NGS-JC4-7LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 242.2                        |
| GVX1500K1100NGS-JC4-8LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 276.8                        |
| GVX1500K1100NGS-JC4-9LIBSESMG17UL  | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 311.4                        |
| GVX1500K1100NGS-JC4-10LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 346                          |

## Specifications

| ESS Model Name                     | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1500K1100NGS-JC4-11LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 380.6                        |
| GVX1500K1100NGS-JC4-12LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 415.2                        |
| GVX1500K1100NGS-JC4-13LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 449.8                        |
| GVX1500K1100NGS-JC4-14LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 484.4                        |
| GVX1500K1100NGS-JC4-15LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 519                          |
| GVX1500K1100NGS-JC4-16LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 553.6                        |
| GVX1500K1100NGS-JC4-17LIBSESMG17UL | 1666                              | 1666                                | 1412                               | 1412                                 | 1323                       | -                            | 1100               | 588.2                        |
| GVX1500K1250GS-6LIBSESMG17UL       | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1104               | 207.6                        |
| GVX1500K1250GS-7LIBSESMG17UL       | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 242.2                        |
| GVX1500K1250GS-8LIBSESMG17UL       | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 276.8                        |
| GVX1500K1250GS-9LIBSESMG17UL       | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 311.4                        |
| GVX1500K1250GS-10LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 346                          |
| GVX1500K1250GS-11LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 380.6                        |
| GVX1500K1250GS-12LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 415.2                        |
| GVX1500K1250GS-13LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 449.8                        |
| GVX1500K1250GS-14LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 484.4                        |
| GVX1500K1250GS-15LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 519                          |
| GVX1500K1250GS-16LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 553.6                        |
| GVX1500K1250GS-17LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 588.2                        |
| GVX1500K1250GS-JC4-6LIBSESMG17UL   | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1104               | 207.6                        |
| GVX1500K1250GS-JC4-7LIBSESMG17UL   | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 242.2                        |
| GVX1500K1250GS-JC4-8LIBSESMG17UL   | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 276.8                        |
| GVX1500K1250GS-JC4-9LIBSESMG17UL   | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 311.4                        |
| GVX1500K1250GS-JC4-10LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 346                          |
| GVX1500K1250GS-JC4-11LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 380.6                        |

| ESS Model Name                     | Maximum Input Current (A) – Phase | Maximum Input Current (A) – Neutral | Maximum Bypass Current (A) – Phase | Maximum Bypass Current (A) – Neutral | Output Current (A) – Phase | Output Current (A) – Neutral | Output Power (kVA) | Battery Nominal Energy (kWh) |
|------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------|------------------------------|--------------------|------------------------------|
| GVX1500K1250GS-JC4-12LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 415.2                        |
| GVX1500K1250GS-JC4-13LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 449.8                        |
| GVX1500K1250GS-JC4-14LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 484.4                        |
| GVX1500K1250GS-JC4-15LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 519                          |
| GVX1500K1250GS-JC4-16LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 553.6                        |
| GVX1500K1250GS-JC4-17LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 588.2                        |
| GVX1500K1250NGS-6LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1104               | 207.6                        |
| GVX1500K1250NGS-7LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 242.2                        |
| GVX1500K1250NGS-8LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 276.8                        |
| GVX1500K1250NGS-9LIBSESMG17UL      | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 311.4                        |
| GVX1500K1250NGS-10LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 346                          |
| GVX1500K1250NGS-11LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 380.6                        |
| GVX1500K1250NGS-12LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 415.2                        |
| GVX1500K1250NGS-13LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 449.8                        |
| GVX1500K1250NGS-14LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 484.4                        |
| GVX1500K1250NGS-15LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 519                          |
| GVX1500K1250NGS-16LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 553.6                        |
| GVX1500K1250NGS-17LIBSESMG17UL     | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 588.2                        |
| GVX1500K1250NGS-JC4-6LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1104               | 207.6                        |
| GVX1500K1250NGS-JC4-7LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 242.2                        |
| GVX1500K1250NGS-JC4-8LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 276.8                        |
| GVX1500K1250NGS-JC4-9LIBSESMG17UL  | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 311.4                        |
| GVX1500K1250NGS-JC4-10LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 346                          |
| GVX1500K1250NGS-JC4-11LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 380.6                        |
| GVX1500K1250NGS-JC4-12LIBSESMG17UL | 1893                              | 1893                                | 1605                               | 1605                                 | 1504                       | -                            | 1250               | 415.2                        |

## Specifications

| <b>ESS Model Name</b>              | <b>Maximum Input Current (A) – Phase</b> | <b>Maximum Input Current (A) – Neutral</b> | <b>Maximum Bypass Current (A) – Phase</b> | <b>Maximum Bypass Current (A) – Neutral</b> | <b>Output Current (A) – Phase</b> | <b>Output Current (A) – Neutral</b> | <b>Output Power (kVA)</b> | <b>Battery Nominal Energy (kWh)</b> |
|------------------------------------|--|--|---|---|-----------------------------------|-------------------------------------|---------------------------|-------------------------------------|
| GVX1500K1250NGS-JC4-13LIBSESMG17UL | 1893                                     | 1893                                       | 1605                                      | 1605  | 1504                              | -                                   | 1250                      | 449.8                               |
| GVX1500K1250NGS-JC4-14LIBSESMG17UL | 1893                                     | 1893                                       | 1605                                      | 1605  | 1504                              | -                                   | 1250                      | 484.4                               |
| GVX1500K1250NGS-JC4-15LIBSESMG17UL | 1893                                     | 1893                                       | 1605                                      | 1605  | 1504                              | -                                   | 1250                      | 519                                 |
| GVX1500K1250NGS-JC4-16LIBSESMG17UL | 1893                                     | 1893                                       | 1605                                      | 1605  | 1504                              | -                                   | 1250                      | 553.6                               |
| GVX1500K1250NGS-JC4-17LIBSESMG17UL | 1893                                     | 1893                                       | 1605                                      | 1605  | 1504                              | -                                   | 1250                      | 588.2                               |

# Specifications for UPS

|               | UPS rating                                      | 500 kW  | 625 kW             | 750 kW  | 800 kW             | 1000 kW   | 1100 kW            | 1250 kW   |
|---------------|---|---|--------------------|---|--------------------|---|--------------------|---|
| <b>Input</b>  | Connections                                     | L1, L2, L3 + G <sup>1</sup>   |                    |   |                    |   |                    |   |
|               | Input voltage range (V) <sup>2</sup>            | 408-576   |                    |   |                    |   |                    |   |
|               | Frequency (Hz)                                  | 40-70   |                    |   |                    |   |                    |   |
|               | Nominal input current (A)                       | 646   | 807                | 969   | 1033               | 1291  | 1421               | 1615  |
|               | Maximum input current (A) <sup>3</sup>          | 757   | 946                | 1136  | 1212               | 1514  | 1666               | 1893  |
|               | Input current limitation (A)                    | 760   | 950                | 1140  | 1216               | 1520  | 1672               | 1900  |
|               | Maximum short circuit rating                    | 100 kA RMS  |                    |   |                    |   |                    |   |
|               | Total harmonic distortion (THDI)                | <3% at 100% load, <4% at 50% load, <9% at 25% load  |                    |   |                    |   |                    |   |
|               | Input power factor                              | 0.99 at >40% load, 0.98 at >20% load, 0.97 at >10% load   |                    |   |                    |   |                    |   |
|               | Protection                                      | Contactors  |                    |   |                    |   |                    |   |
|               | Ramp-in   | Adaptive 1-300 seconds  |                    |   |                    |   |                    |   |
| <b>Bypass</b> | Connections                                     | 1250 kW I/O: L1, L2, L3, G <b>or</b> L1, L2, L3, N, G<br>1500 kW I/O <sup>4</sup> : L1, L2, L3, G   |                    |   |                    |   |                    |   |
|               | Bypass voltage range (V)                        | 432-528   |                    |   |                    |   |                    |   |
|               | Frequency (Hz)                                  | 50 or 60  |                    |   |                    |   |                    |   |
|               | Frequency range (Hz)                            | Programmable: ±0.1, ±3, ±10. Default is ±3  |                    |   |                    |   |                    |   |
|               | Nominal bypass current (A)                      | 642   | 802                | 964   | 1027               | 1284  | 1412               | 1605  |
|               | Maximum short circuit rating                    | 1250 kW I/O: 100 kA Icw<br>1500 kW I/O: 100 kA RMS (conditioned by an internal molded switch with 90 kA peak magnetic trip)   |                    |   |                    |   |                    |   |
|               | Thyristor I <sup>2</sup> t (kA*s <sup>2</sup> ) | 1250 kW I/O: 9165 (1250 kW I/O)<br>1500 kW I/O: 16245   | 9165 (1250 kW I/O) | 1250 kW I/O: 9165 (1250 kW I/O)<br>1500 kW I/O: 16245 | 9165 (1250 kW I/O) | 1250 kW I/O: 9165 (1250 kW I/O)<br>1500 kW I/O: 16245 | 9165 (1250 kW I/O) | 1250 kW I/O: 9165 (1250 kW I/O)<br>1500 kW I/O: 16245 |
|               | BF2 magnetic trip                               | 1250 kW I/O: 39 kA<br>1500 kW I/O: 39 kA  |                    |   |                    |   |                    |   |
|               | Protection                                      | 1250 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection<br>1250 kW I/O with GVXOPT001 installed: Molded switch with trip for backfeed protection<br>1500 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection |                    |   |                    |   |                    |   |

1. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.
2. The system can operate at 600 V for 1 minute.
3. At nominal input voltage and full charge.
4. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.



|                   | UPS rating                                  | 500 kW   | 625 kW | 750 kW | 800 kW | 1000 kW | 1100 kW | 1250 kW |
|-------------------|---|--|--------|--------|--------|---------|---------|---------|
| Output            | Connections                                 | 1250 kW I/O: L1, L2, L3, G, GEC <sup>5</sup> or L1, L2, L3, N, G<br>1500 kW I/O <sup>6</sup> : L1, L2, L3, G, GEC <sup>5</sup>   |        |        |        |         |         |         |
|                   | Overload capacity                           | Normal operation: 150% for 1 minute, 125% for 10 minutes<br>Battery operation: 128% for 10 seconds, 115% for 1 minute<br>Bypass operation: 110% <sup>7</sup> continuous, 1000% for 60 milliseconds for systems with 1250 kW I/O cabinet, and 1000% for 100 milliseconds for systems with 1500 kW I/O cabinet |        |        |        |         |         |         |
|                   | Output voltage tolerance                    | Balanced load: $\pm 1\%$ , Unbalanced load: $\pm 3\%$  |        |        |        |         |         |         |
|                   | Dynamic load response                       | $\pm 5\%$ after 2 ms, $\pm 1\%$ after 50 ms  |        |        |        |         |         |         |
|                   | Output power factor                         | 1  |        |        |        |         |         |         |
|                   | Nominal output current (A)                  | 601  | 752    | 902    | 962    | 1203    | 1323    | 1504    |
|                   | Maximum short circuit rating <sup>8</sup>   | 100 kA RMS   |        |        |        |         |         |         |
|                   | Inverter output short circuit capabilities  | Varies with time. See graph and table values in Inverter Short-Circuit Capabilities (Bypass not Available), page 49.   |        |        |        |         |         |         |
|                   | Total harmonic distortion (THDU)            | <2% at 100% linear load, <3% at 100% non-linear load   |        |        |        |         |         |         |
|                   | Output frequency (Hz)                       | 50/60 (synchronized to bypass), 50/60 Hz $\pm 0.1\%$ (free-running)  |        |        |        |         |         |         |
|                   | Slew rate (Hz/sec)                          | Programmable: 0.25, 0.5, 1, 2, 4, 6  |        |        |        |         |         |         |
|                   | Load crest factor                           | Up to 3 (THDU < 5%)  |        |        |        |         |         |         |
| Load power factor | 0.7 leading to 0.5 lagging without derating |  |        |        |        |         |         |         |

5. Per NEC 250.30.

6. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.

7. 125% for 480 V.

8. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

## Specifications for Lithium-ion Battery Cabinets

|   |   |
|---|---|
| Charging power in % of output power   | 40% at $\leq 80\%$ load, 15% at 100% load |
| Nominal battery voltage (VDC) at 3.8 V per cell                                 | 517                                       |
| Peak current at voltage (A)   | 450                                       |
| Charge current default rate (CA rate)   | 0.7                                       |
| Maximum continuous charge current rate (CA rate)                                | 1.0                                       |
| Float charge voltage (VDC) at 4.2 V per cell                                    | 571                                       |
| End of discharge voltage (VDC) at 3.0 V per cell                                | 408                                       |
| Nominal float voltage (VDC)   | 571                                       |
| Maximum continuous 100% depth of discharge power (kW)                           | 184                                       |
| Maximum partial depth of discharge power (kW)                                   | 231                                       |
| Short circuit rating value (kA) - I <sub>sc</sub> , RMS (I <sub>sc</sub> , MAX) | 2.9 (9.0)                                 |

**NOTE:** If the battery temperature is higher than the threshold after a full discharge at maximum continuous discharge power, the UPS may have to reduce the charge current to zero to protect the battery.

**NOTE:** The battery temperature must return to room temperature  $\pm 3$  °C (5 °F) before a new discharge at maximum continuous discharge power. If not, the battery breaker may be tripped due to overtemperature protection.

**NOTE:** The working temperature for the busbars should be no more than 100 °C (212 °F).

## Overview of Configurations

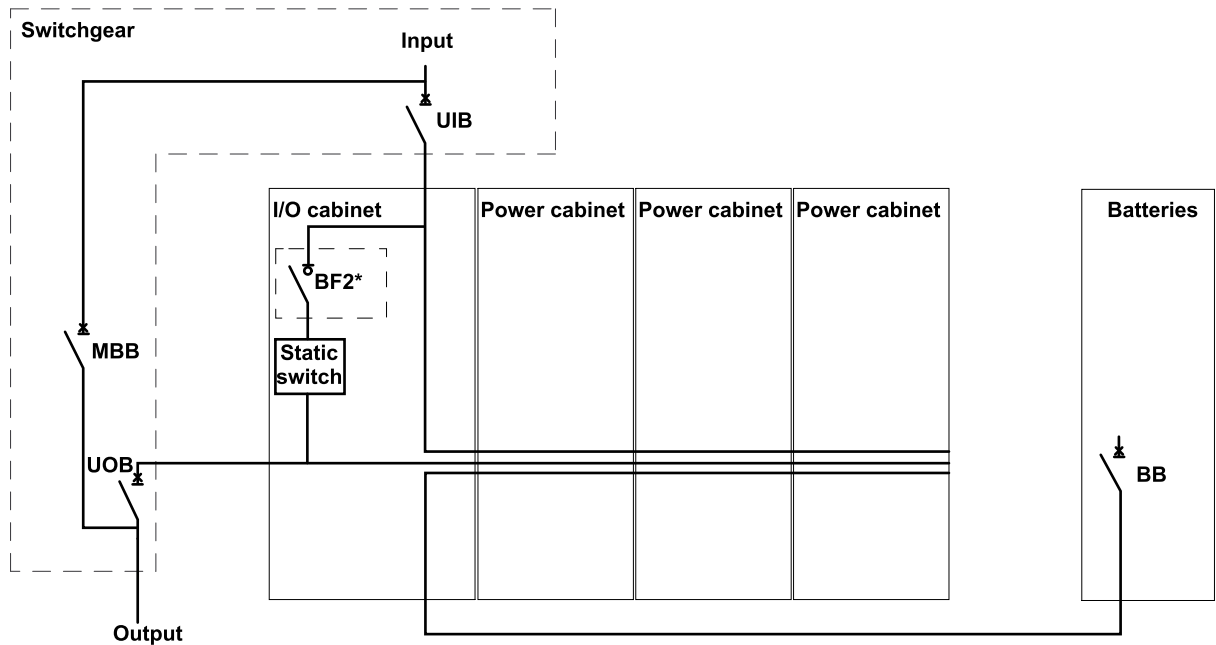
### Breakers in the System

|      |                             |
|------|-----------------------------|
| UIB  | Unit input breaker          |
| SSIB | Static switch input breaker |
| BB   | Battery breaker             |
| MBB  | Maintenance bypass breaker  |
| UOB  | Unit output breaker         |
| BF2  | Backfeed protection switch  |

## Overview of UPSs with 1250 kW I/O Cabinet - Single Utility/Mains

**NOTE:** Depending on your chosen configuration, the backfeed breaker BF2 (marked with \* in the illustration) can be preinstalled in the UPS, delivered as an optional backfeed kit GVXOPT001 to be installed in the UPS, or installed upstream of the UPS in the switchgear.

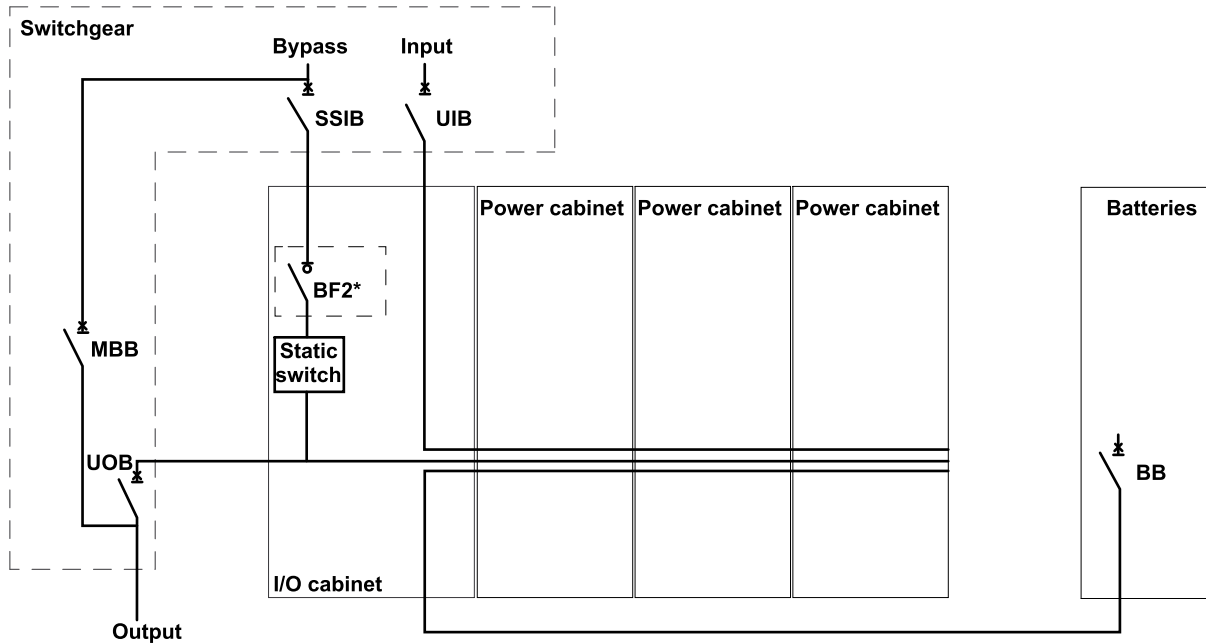
The illustration shows a 750 kW UPS. The principle is the same for the other UPSs with the 1250 kW I/O cabinet.



## Overview of UPSs with 1250 kW I/O Cabinet - Dual Utility/Mains

**NOTE:** Depending on your chosen configuration, the backfeed breaker BF2 (marked with \* in the illustration) can be preinstalled in the UPS, delivered as an optional backfeed kit GVXOPT001 to be installed in the UPS, or installed upstream of the UPS in the switchgear.

The illustration shows a 750 kW UPS. The principle is the same for the other UPSs with the 1250 kW I/O cabinet.



## Recommended Upstream Protection and Cable Sizes

### ⚠ CAUTION

#### HAZARD OF FIRE

- Connect only to a circuit with the below specifications.
- Connect only to a circuit provided with maximum a 1600 A branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA70, and the Canadian Electrical Code, Part I, C22.1.

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

**NOTE:** Overcurrent protection is to be provided by others.

**NOTE:** All wiring must comply with all applicable national and/or electrical code (National Electrical Code, ANSI/NFPA 70).

Cable sizes in this manual are based on Table 310.15 of the National Electrical Code 2014 (NEC) with the following assertions:

- 90 °C (194 °F) conductors (THHN) for 75 °C (167 °F) termination
- Not more than 3 current carrying conductors in each conduit
- An ambient temperature of max. 30 °C (86 °F)
- Use of copper or aluminum conductors for the UPS.
- Use of copper conductors for the Lithium-ion cabinet.
- 100% rated breakers
- Nominal operating conditions

If the ambient room temperature is greater than 30 °C (86 °F), use larger or additional parallel conductors in accordance with the correction factors of the NEC. The maximum allowable conductor size is 600 kcmil.

Equipment Grounding Conductors (EGC) are sized in accordance with NEC Article 250.122 and Table 250.122 Minimum size equipment conductor for grounding equipment.

**NOTE:** Always consider the EGC size according to the complete electrical installation.

| <b>NOTICE</b>   |
|---|
| <p><b>RISK OF EQUIPMENT DAMAGE</b></p> <p>To ensure correct load sharing in bypass operation in a parallel system, the following recommendations apply:</p> <ul style="list-style-type: none"> <li>The bypass cables must be of the same length for all UPSs.</li> <li>The output cables must be of the same length for all UPSs.</li> <li>The input cables must be of the same length for all UPSs in a single mains system.</li> <li>Cable formation recommendations must be followed.</li> <li>The reactance of busbar layout in the bypass/input and output switchgear must be the same for all UPSs.</li> </ul> <p>If the above recommendations are not followed the result can be uneven load sharing in bypass and overload of individual UPSs.</p> <p><b>Failure to follow these instructions can result in equipment damage.</b></p> |

## Recommended Upstream Protection and Cable Sizes for 500 kW UPS

|        | Maximum OCPD (A)           | Cable size per phase (AWG/kcmil)<br>Copper / Aluminum | EGC cable size (AWG/kcmil) <sup>9</sup><br>Copper / Aluminum |
|--------|----------------------------|---|--|
| Input  | 800 (I <sub>r</sub> = 1.0) | 2x500 / 3x400   | 1x1/0 / 1x3/0  |
| Bypass | 700 (I <sub>r</sub> = 1.0) | 2x350 / 2x500   | 1x1/0 / 1x3/0  |
| Output | 700 (I <sub>r</sub> = 1.0) | 2x350 / 2x500   | 1x1/0 / 1x3/0  |

## Recommended Upstream Protection and Cable Sizes for 625 kW UPS

|        | Maximum OCPD (A)            | Cable size per phase (AWG/kcmil)<br>Copper / Aluminum | EGC cable size (AWG/kcmil) <sup>9</sup><br>Copper / Aluminum |
|--------|-----------------------------|---|--|
| Input  | 1000 (I <sub>r</sub> = 1.0) | 3x400 / 3x600   | 1x2/0 / 1x4/0  |
| Bypass | 800 (I <sub>r</sub> = 1.0)  | 2x600 / 3x400   | 1x1/0 / 1x3/0  |
| Output | 800 (I <sub>r</sub> = 1.0)  | 2x600 / 3x400   | 1x1/0 / 1x3/0  |

9. If the conductors are run in conduits, there must be one conductor in each conduit.

## Recommended Upstream Protection and Cable Sizes for 750 kW UPS

|        | Maximum OCPD (A)     | Cable size per phase (AWG/kcmil)<br>Copper / Aluminum | EGC cable size (AWG/kcmil) <sup>10</sup><br>Copper / Aluminum |
|--------|----------------------|---|---|
| Input  | 1200 ( $I_r = 1.0$ ) | 3x600 / 4x500   | 1x3/0 / 1x250   |
| Bypass | 1000 ( $I_r = 1.0$ ) | 3x400 / 3x600   | 1x2/0 / 1x4/0   |
| Output | 1000 ( $I_r = 1.0$ ) | 3x400 / 3x600   | 1x2/0 / 1x4/0   |

## Recommended Upstream Protection and Cable Sizes for 800 kW UPS

|        | Maximum OCPD (A)     | Cable size per phase (AWG/kcmil)<br>Copper / Aluminum | EGC cable size (AWG/kcmil) <sup>10</sup><br>Copper / Aluminum |
|--------|----------------------|---|---|
| Input  | 1600 ( $I_r = 0.8$ ) | 4x400 / 4x600   | 1x4/0 / 1x350   |
| Bypass | 1000                 | 3x400 / 3x600   | 1x2/0 / 1x4/0   |
| Output | 1000                 | 3x400 / 3x600   | 1x2/0 / 1x4/0   |

## Recommended Upstream Protection and Cable Sizes for 1000 kW UPS

|        | Maximum OCPD (A)     | Cable size per phase (AWG/kcmil)<br>Copper / Aluminum | EGC cable size (AWG/kcmil) <sup>10</sup><br>Copper / Aluminum |
|--------|----------------------|---|---|
| Input  | 1600 ( $I_r = 1.0$ ) | 4x600 / 5x600   | 1x4/0 / 1x350   |
| Bypass | 1600 ( $I_r = 0.8$ ) | 4x400 / 4x600   | 1x4/0 / 1x350   |
| Output | 1600 ( $I_r = 0.8$ ) | 4x400 / 4x600   | 1x4/0 / 1x350   |

## Recommended Upstream Protection and Cable Sizes for 1100 kW UPS

**NOTE:** For a 1250 I/O cabinet, it is preferred to use flexible copper power cables with as small a diameter as possible. The number of power cables needed for this kW rating will make large and inflexible power cables more difficult to install.

|        | Maximum OCPD (A)     | Cable size per phase (AWG/kcmil)<br>Copper / Aluminum | EGC cable size (AWG/kcmil) <sup>10</sup><br>Copper / Aluminum |
|--------|----------------------|---|---|
| Input  | 2000 ( $I_r = 0.9$ ) | 5x500 / 6x500   | 1x250 / 1x400   |
| Bypass | 1600 ( $I_r = 0.9$ ) | 4x500 / 5x500   | 1x4/0 / 1x350   |
| Output | 1600 ( $I_r = 0.9$ ) | 4x500 / 5x500   | 1x4/0 / 1x350   |

10. If the conductors are run in conduits, there must be one conductor in each conduit.

## Recommended Upstream Protection and Cable Sizes for 1250 kW UPS

**NOTE:** For a 1250 I/O cabinet, it is preferred to use flexible copper power cables with as small a diameter as possible. The number of power cables needed for this kW rating will make large and inflexible power cables more difficult to install.

|        | Maximum OCPD (A)            | Cable size per phase (AWG/kcmil)<br>Copper / Aluminum | EGC cable size (AWG/kcmil) <sup>11</sup><br>Copper / Aluminum |
|--------|-----------------------------|---|---|
| Input  | 2000 (I <sub>r</sub> = 1.0) | 5x600 / 6x600   | 1x250 / 1x400   |
| Bypass | 1600 (I <sub>r</sub> = 1.0) | 4x600 / 5x600   | 1x4/0 / 1x350   |
| Output | 1600 (I <sub>r</sub> = 1.0) | 4x600 / 5x600   | 1x4/0 / 1x350   |

## Recommended Cable Sizes for Battery Cabinets

** 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 350 kcmil.

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

11. If the conductors are run in conduits, there must be one conductor in each conduit.

## Recommended Bolt and Lug Sizes

### Recommended Bolt and Lug Sizes for Copper Cables for UPS

| Cable Size | Terminal Bolt Diameter | Cable Lug Type | Crimping Tool    | Die                   |
|------------|------------------------|----------------|------------------|-----------------------|
| 1/0 AWG    | M12 x 35 mm            | LCCF1/0-12-X   | CT930            | CD-920-2/0 Black P45  |
| 2/0 AWG    | M12 x 35 mm            | LCCF2/0-12-X   | CT930            | CD-920-3/0 Orange P50 |
| 3/0 AWG    | M12 x 35 mm            | LCCF3/0-12-X   | CT930            | CD-920-4/0 Purple P54 |
| 250 kcmil  | M12 x 35 mm            | LCCF250-12-X   | CT-940CH/CT-2940 | CD-920-300 White P66  |
| 300 kcmil  | M12 x 35 mm            | LCCF300-12-6   | CT-940CH/CT-2940 | CD-920-350 Red P71    |
| 400 kcmil  | M12 x 35 mm            | LCCF400-12-6   | CT-940CH/CT-2940 | CD-920-500 Brown P87  |
| 500 kcmil  | M12 x 35 mm            | LCCF500-12-6   | CT-940CH/CT-2940 | CD-920-500A Pink P99  |
| 600 kcmil  | M12 x 40 mm            | LCCF600-12-6   | CT-940CH/CT-2940 | CD-920-750 Black P106 |

### Recommended Bolt and Lug Sizes for Aluminum Cables for UPS

| Cable Size | Terminal Bolt Diameter | Cable Lug Type | Crimping Tool | Die        |
|------------|------------------------|----------------|---------------|------------|
| 2/0 AWG    | M12 x 40 mm            | LAB2/0-12-5    | CT930         | Olive P54  |
| 3/0 AWG    | M12 x 40 mm            | LAB3/0-12-5    | CT930         | Ruby P60   |
| 250 kcmil  | M12 x 40 mm            | LAB250-12-5    | CT930         | Red P71    |
| 300 kcmil  | M12 x 40 mm            | LAB300-12-2    | CT930         | Blue P76   |
| 400 kcmil  | M12 x 40 mm            | LAB400-12-2    | CT930         | Green P94  |
| 500 kcmil  | M12 x 40 mm            | LAB500-12-2    | CT930         | Pink P99   |
| 600 kcmil  | M12 x 40 mm            | LAB600-12-2    | CT930         | Black P106 |

### Recommended Bolt and Lug Sizes for Copper Cables for Battery Cabinets

#### One Hole Cable Lug

| Cable size    | Bolt size | Cable lug type | Crimp tool | Die                   |
|---------------|-----------|----------------|------------|-----------------------|
| 250 kcmil x 2 | M10x30    | LCB250-12-X    | CT-930     | CD-920-250 Yellow P62 |
| 350 kcmil     | M10x30    | LCB350-12-X    | CT-930     | CD-920-350 Red P71    |

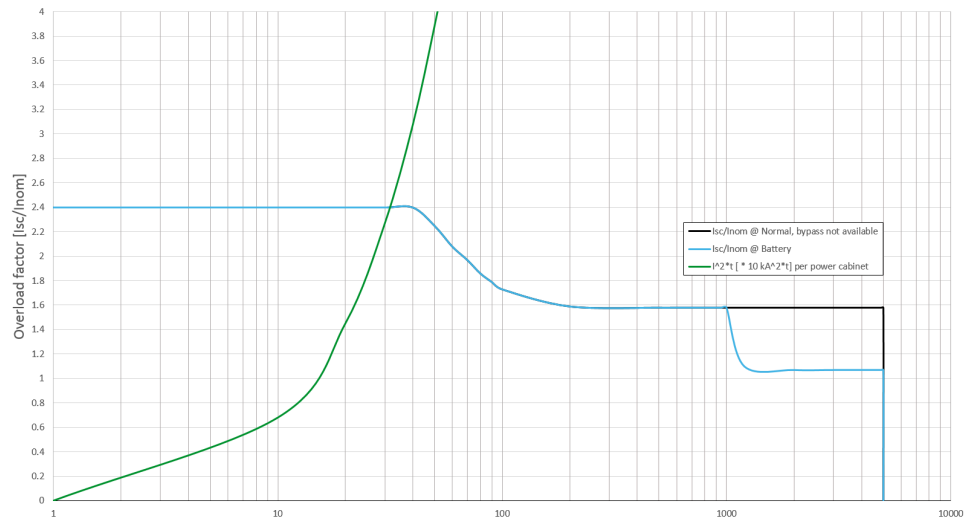
#### Two Hole Cable Lug

| Cable size    | Bolt size | Cable lug type | Crimp tool | Die                   |
|---------------|-----------|----------------|------------|-----------------------|
| 250 kcmil x 2 | M10x30    | LCC250-12-X    | CT-930     | CD-920-250 Yellow P62 |
| 350 kcmil     | M10x30    | LCC350-12-X    | CT-930     | CD-920-350 Red P71    |



# Inverter Short-Circuit Capabilities (Bypass not Available)

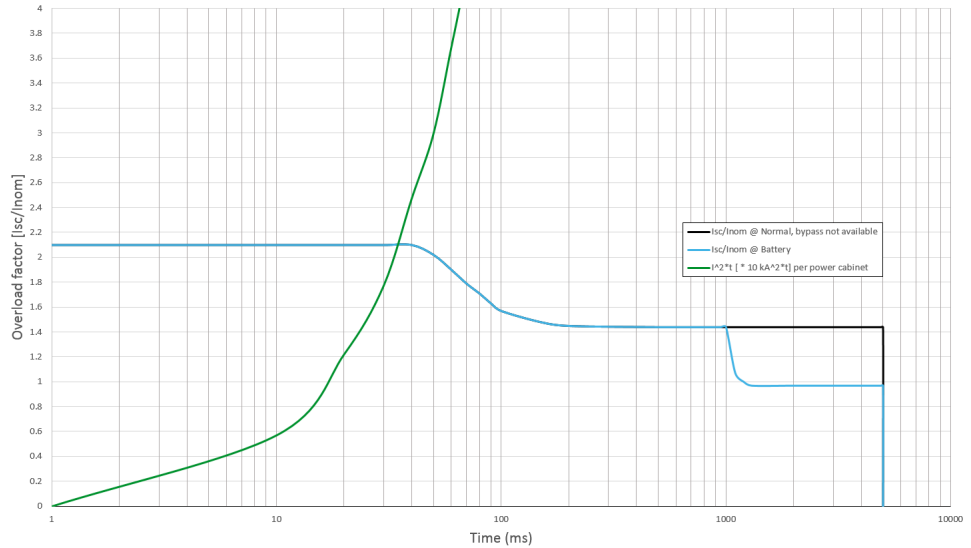
## IK1 – Short-Circuit between a Phase and Neutral



### 480 V IK1

| S [kVA] | Ik10ms [A]<br>Normal operation<br>/Battery operation | Ik30ms [A]<br>Normal operation<br>/Battery operation | Ik100ms [A]<br>Normal operation<br>/Battery operation | Ik500ms [A]<br>Normal operation<br>/Battery operation | Ik1s [A]<br>Normal operation<br>/Battery operation | Ik5s [A]<br>Normal operation<br>/Battery operation | I <sup>2</sup> t total [A <sup>2</sup> s]<br>Normal operation<br>/Battery operation |
|---------|--|--|---|---|--|--|---|
| 250     | –<br>/810  | –<br>/810  | –<br>/570   | –<br>/290   | –<br>/290  | –<br>/290  | –<br>/493600  |
| 500     | –<br>/1620   | –<br>/1620   | –<br>/1140  | –<br>/580   | –<br>/580  | –<br>/580  | –<br>/1974400   |
| 750     | –<br>/2430   | –<br>/2430   | –<br>/1710  | –<br>/870   | –<br>/870  | –<br>/870  | –<br>/4442400   |
| 1000    | –<br>/3240   | –<br>/3240   | –<br>/2280  | –<br>/1160  | –<br>/1160   | –<br>/1160   | –<br>/7897600   |
| 1250    | –<br>/4050   | –<br>/4050   | –<br>/2850  | –<br>/1450  | –<br>/1450   | –<br>/1450   | –<br>/12340000  |
| 1500    | –<br>/4860   | –<br>/4860   | –<br>/3420  | –<br>/1740  | –<br>/1740   | –<br>/1740   | –<br>/17769600  |

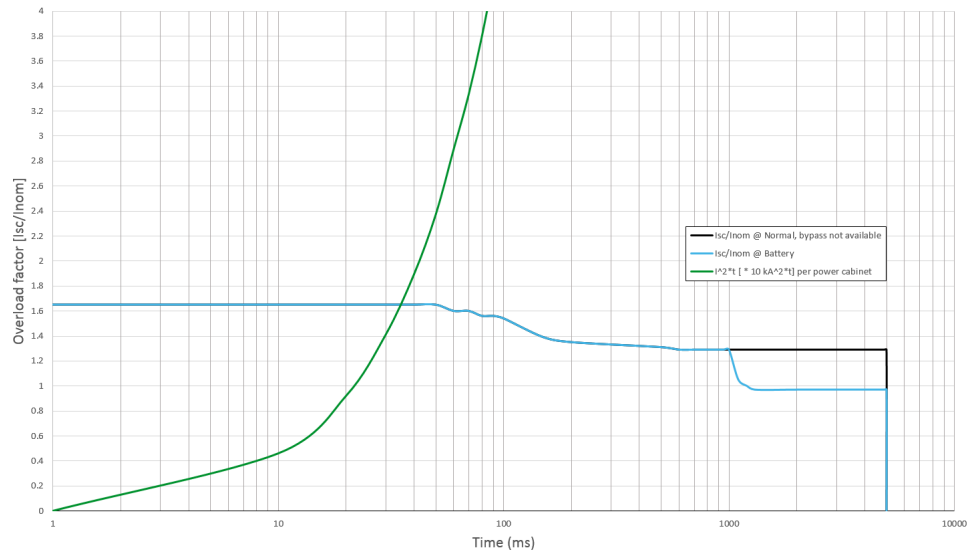
## IK2 – Short-Circuit between Two Phases



### 480 V IK2

| S [kVA]     | Ik10ms [A]<br>Normal operation<br>/Battery operation | Ik30ms [A]<br>Normal operation<br>/Battery operation | Ik100ms [A]<br>Normal operation<br>/Battery operation | Ik500ms [A]<br>Normal operation<br>/Battery operation | Ik1s [A]<br>Normal operation<br>/Battery operation | Ik5s [A]<br>Normal operation<br>/Battery operation | I² t total [A²s]<br>Normal operation<br>/Battery operation |
|-------------|--|--|---|---|--|--|--|
| <b>250</b>  | 790<br>/790  | 770<br>/770  | 550<br>/550   | 430<br>/280   | 430<br>/280  | 280<br>/280  | 606450<br>/460820  |
| <b>500</b>  | 1580 /1580   | 1540 /1540   | 1100 /1100  | 860<br>/560   | 860<br>/560  | 560<br>/560  | 2425800<br>/1843280  |
| <b>750</b>  | 2370 /2370   | 2310 /2310   | 1650 /1650  | 1290<br>/840  | 1290<br>/840                                       | 840<br>/840  | 5458050<br>/4147380  |
| <b>1000</b> | 3160 /3160   | 3080 /3080   | 2200 /2200  | 1720 /1120  | 1720 /1120   | 1120 /1120   | 9703200<br>/7373120  |
| <b>1250</b> | 3950 /3950   | 3850 /3850   | 2750 /2750  | 2150 /1400  | 2150 /1400   | 1400 /1400   | 15161250<br>/11520500                                      |
| <b>1500</b> | 4740 /4740   | 4620 /4620   | 3300 /3300  | 2580 /1680  | 2580 /1680   | 1680 /1680   | 21832200<br>/16589520                                      |

## IK3 – Short-Circuit between All Three Phases



### 480 V IK3

| S [kVA] | Ik10ms [A]<br>Normal operation<br>/Battery operation | Ik30ms [A]<br>Normal operation<br>/Battery operation | Ik100ms [A]<br>Normal operation<br>/Battery operation | Ik500ms [A]<br>Normal operation<br>/Battery operation | Ik1s [A]<br>Normal operation<br>/Battery operation | Ik5s [A]<br>Normal operation<br>/Battery operation | I <sup>2</sup> t total [A <sup>2</sup> s]<br>Normal operation<br>/Battery operation |
|---------|--|--|---|---|--|--|---|
| 250     | 670<br>/660  | 670<br>/660  | 610<br>/610   | 440<br>/440   | 360<br>/440  | 300<br>/300  | 580600<br>/589380   |
| 500     | 1340 /1320   | 1340 /1320   | 1220 /1220  | 880<br>/880   | 720<br>/880  | 600<br>/600  | 2322400<br>/2357520   |
| 650     | 1742 /1716   | 1742 /1716   | 1586 /1586  | 1144 /1144  | 936<br>/1144                                       | 780<br>/780  | 3924856<br>/3984209   |
| 1000    | 2680 /2640   | 2680 /2640   | 2440 /2440  | 1760 /1760  | 1440 /1760   | 1200 /1200   | 9289600<br>/9430080   |
| 1250    | 3350 /3300   | 3350 /3300   | 3050 /3050  | 2200 /2200  | 1800 /2200   | 1500 /1500   | 14515000<br>/14734500   |
| 1500    | 4020 /3960   | 4020 /3960   | 3660 /3660  | 2640 /2640  | 2160 /2640   | 1800 /1800   | 20901600<br>/21217680   |

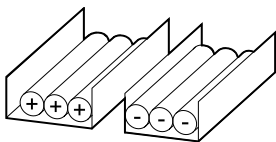
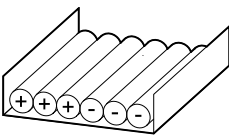
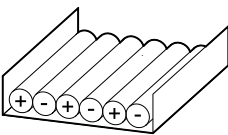
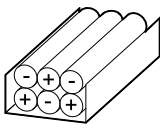
## Compliance

|                      | UPS  | Battery Cabinet  |
|----------------------|--|--|
| Safety               | UL 1778 5th edition  | IEC 62619:2017 Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for secondary lithium cells and batteries, for use in industrial applications<br><br>IEC 62477-1:2012+A11:2014 Safety requirements for power electronic converter systems and equipment Part 1: General<br><br>UL 1973:2022 Batteries for Use in Stationary, Vehicle Auxiliary and Light Electric Rail Applications<br><br>UL 9540A:2019 Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems |
| EMC/EMI/RFI          | IEC 62040-2: 2016, 3rd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C2<br><br>FCC 15B, class A | IEC 62040-2:2016 Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C2<br><br>FCC Part 15, Radio Frequency Devices, class A  |
| Performance          | IEC 62040-3: 2011-03, 2nd edition Uninterruptible Power Systems (UPS) - Part 3: Method of specifying the performance and test requirements               | -  |
| Environmental        | IEC 62040-4: 2013-04, 1st edition Uninterruptible Power Systems (UPS) - Part 4: Environmental aspects – Requirements and reporting                       | IEC 60068-2-1:2007 Environmental testing – Part 2-1: Tests – Test A: Cold<br><br>IEC 60068-2-2:2007 Environmental testing – Part 2-2: Tests – Test B: Dry heat<br><br>IEC 60068-2-78:2012 Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state   |
| Markings             | CE, C-Tick<br><br>UL1778 Listing and CSA C22.2 NO.107.3  | CE, C-Tick<br><br>ANSI/CAN/UL 1973 Listing   |
| Transportation       | ISTA 2B<br><br>IEC 60721-4-2 Level 2M2   | IEC60068-2-27:2008 Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock<br><br>IEC60068-2-31:2008 Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens<br><br>IEC60068-2-64:2008 Environmental testing – Part 2-64: Tests – Test Fh: Vibration, broadband random and guidance   |
| Seismic              | OSHPD, IBC2012 and CBC2013 to $S_{DS} = 1.83 g$  | OSHPD, CBC 2019, $S_{DS}=2.0g (z/h = 1); 2.5g (z/h = 0)$   |
| Overvoltage category | III  | II   |
| Earthing system      | TN, TT, IT   |  |
| Protective class     | I  |  |
| Pollution degree     | 2  |  |

## Guidance for Organizing Battery Cables

**NOTE:** When the battery bank is placed remotely, the organizing of the cables is important to reduce voltage drop and inductance. The distance between the battery bank and the UPS must not exceed 200 m (656 ft). Contact Schneider Electric for installations with a longer distance.

**NOTE:** To minimize the risk of electromagnetic radiation, it is highly recommended to follow the below guidance and to use grounded metallic tray supports.

| Cable Length |  |  |  |  |
|--------------|---|---|---|---|
| <30 m        | Not recommended   | Acceptable  | Recommended   | Recommended   |
| 31–75 m      | Not recommended   | Not recommended   | Acceptable  | Recommended   |
| 76–150 m     | Not recommended   | Not recommended   | Acceptable  | Recommended   |
| 151–200 m    | Not recommended   | Not recommended   | Not recommended   | Recommended   |

## Torque Specifications

|  |
|--|
| ⚠ ⚠ <b>WARNING</b>   |
| HAZARD OF ELECTRIC SHOCK   |
| All electrical connections must be torqued according to this table.                            |
| Failure to follow these instructions can result in death, serious injury, or equipment damage. |

| Bolt size | Torque                |                             |
|-----------|-----------------------|-----------------------------|
|           | UPS                   | Lithium-ion battery cabinet |
| M4        | —                     | 1.7 Nm (1.25 lb-ft)         |
| M6        | 5 Nm (3.69 lb-ft)     | 5 Nm (3.69 lb-ft)           |
| M8        | 17.5 Nm (12.91 lb-ft) | 14 Nm (10.33 lb-ft)         |
| M10       | 30 Nm (22 lb-ft)      | 30 Nm (22.13 lb-ft)         |
| M12       | 50 Nm (36.87 lb-ft)   | 46 Nm (33.93 lb-ft)         |

## ESS Energy Storage System Weights and Dimensions

### UPS Weights and Dimensions

| Commercial reference  |  | Weight kg (lbs)                                 | Height mm (in) | Width mm (in)                                     | Depth mm (in) |
|---|--|---|----------------|---|---------------|
| <ul style="list-style-type: none"> <li>• GVX500K500NGS</li> <li>• GVX500K750NGS</li> <li>• GVX500K1000NGS</li> <li>• GVX500K1250NGS</li> </ul>  | Total<br>– Power cabinets<br>– I/O cabinet | 1700 (3748)<br>2 x 540 (2 x 1190)<br>620 (1367) | 1970 (77.6)    | 2400 (94.5)<br>2 x 600 (2 x 23.6)<br>1200 (47.2)  | 900 (35.4)    |
| <ul style="list-style-type: none"> <li>• GVX625K625NGS</li> <li>• GVX625K1000NGS</li> <li>• GVX750K500NGS</li> <li>• GVX750K750NGS</li> <li>• GVX750K1000NGS</li> <li>• GVX750K1250NGS</li> </ul> | Total<br>– Power cabinets<br>– I/O cabinet | 2240 (4938)<br>3 x 540 (3 x 1190)<br>620 (1367) | 1970 (77.6)    | 3000 (118.1)<br>3 x 600 (3 x 23.6)<br>1200 (47.2) | 900 (35.4)    |
| <ul style="list-style-type: none"> <li>• GVX800K800NGS</li> <li>• GVX1000K750NGS</li> <li>• GVX1000K1000NGS</li> <li>• GVX1000K1250NGS</li> </ul>   | Total<br>– Power cabinets<br>– I/O cabinet | 2780 (6129)<br>4 x 540 (4 x 1190)<br>620 (1367) | 1970 (77.6)    | 3600 (141.7)<br>4 x 600 (4 x 23.6)<br>1200 (47.2) | 900 (35.4)    |
| <ul style="list-style-type: none"> <li>• GVX1100K1100NGS</li> <li>• GVX1250K1000NGS</li> <li>• GVX1250K1250NGS</li> </ul>   | Total<br>– Power cabinets<br>– I/O cabinet | 3320 (7319)<br>5 x 540 (5 x 1190)<br>620 (1367) | 1970 (77.6)    | 4200 (165.4)<br>5 x 600 (5 x 23.6)<br>1200 (47.2) | 900 (35.4)    |
| <ul style="list-style-type: none"> <li>• GVX1500K1100NGS</li> <li>• GVX1500K1250NGS</li> </ul>  | Total<br>– Power cabinets<br>– I/O cabinet | 3860 (8510)<br>6 x 540 (6 x 1190)<br>620 (1367) | 1970 (77.6)    | 4800 (189.0)<br>6 x 600 (6 x 23.6)<br>1200 (47.2) | 900 (35.4)    |

### Battery Cabinet Weights and Dimensions

| Commercial reference | Weight kg (lbs) | Height mm (in) | Width mm (in) | Depth mm (in) |
|----------------------|-----------------|----------------|---------------|---------------|
| LIBSESMG17UL         | 490 (1080)      | 1970 (77.56)   | 650 (25.59)   | 587 (23.11)   |

### Junction Cabinet Weights and Dimensions

| Commercial reference | Weight kg (lbs) | Height mm (in) | Width mm (in) | Depth mm (in) |
|----------------------|-----------------|----------------|---------------|---------------|
| JC4                  | 136 (300)       | 1970 (77.56)   | 622 (24.49)   | 587 (23.11)   |

## Environment

|  | Operating  | Storage  |
|--|--|--|
| Temperature                                    | UPS (I/O cabinet and power cabinets):<br>0 °C to 40 °C (32 °F to 104 °F)<br>0 °C to 50 °C (32 °F to 122 °F) when derated to 75% power <sup>12</sup><br><br>Lithium-ion battery cabinet: Recommended operating temperature is 18 °C to 28 °C (64 °F to 82 °F) | UPS (I/O cabinet and power cabinets): -25 °C to 55 °C (-13 °F to 131 °F)<br><br>Lithium-ion battery cabinet: 0 °C to 40 °C (32 °F to 104 °F)<br><br>Battery modules: Recommended storage for battery modules is 20 °C (68 °F) or cooler (non-freezing) |
| Relative humidity                              | UPS (I/O cabinet and power cabinets): 5-95% non-condensing<br><br>Lithium-ion battery cabinet: 0-95% non-condensing  | UPS (I/O cabinet and power cabinets): 10-80% non-condensing<br><br>Lithium-ion battery cabinet: 0-90% non-condensing<br><br>Lithium-ion battery modules: Recommended storage for battery modules is 40-80% non-condensing                              |
| Elevation                                      | UPS (I/O cabinet and power cabinets): 1000 m (3300 ft): 1.000<br>1500 m (5000 ft): 0.975<br>2000 m (6600 ft): 0.950<br>2500 m (8300 ft): 0.925<br>3000 m (10000 ft): 0.900<br><br>Lithium-ion battery cabinet: 0-3000 m (0-10000 feet)                       | UPS (I/O cabinet and power cabinets): 0-15000 m (0-50000 ft)<br><br>Lithium-ion battery cabinet: ?   |
| Audible noise one meter (three feet) from unit | UPS (I/O cabinet and power cabinets): 62 dB at 70% load<br>69.5 dB at 100% load for 400 V systems<br>68 dB at 100% load for 480 V systems  |  |
| Protection class                               | IP20   |  |
| Color  | RAL 9003, gloss level 85%  |  |

## Clearance

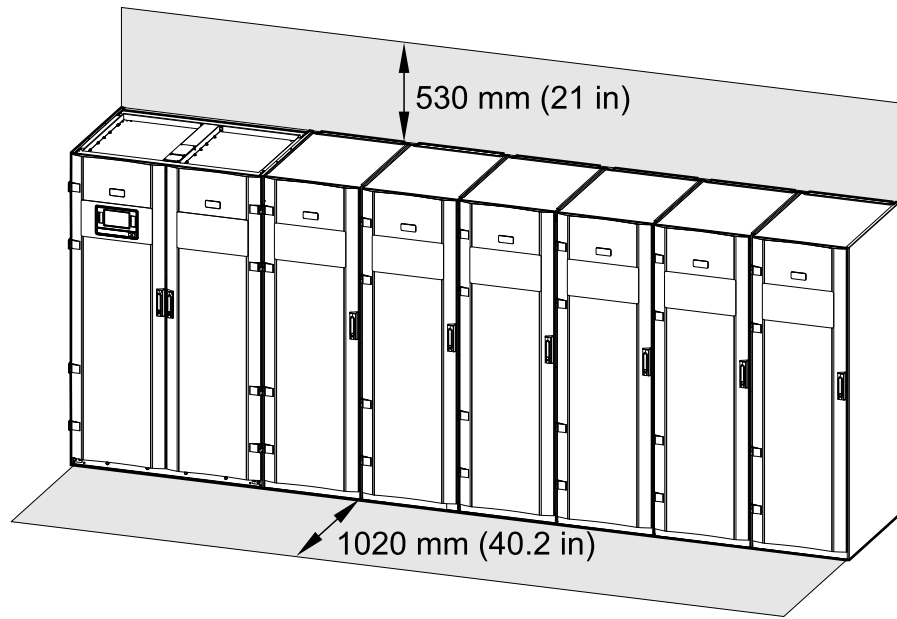
**NOTE:** Clearance dimensions are published for airflow and service access only. Consult with the local safety codes and standards for additional requirements in your local area.

**NOTE:** The UPS (I/O cabinet and power cabinets) can be placed up against a wall and there is no requirement for rear or side access.

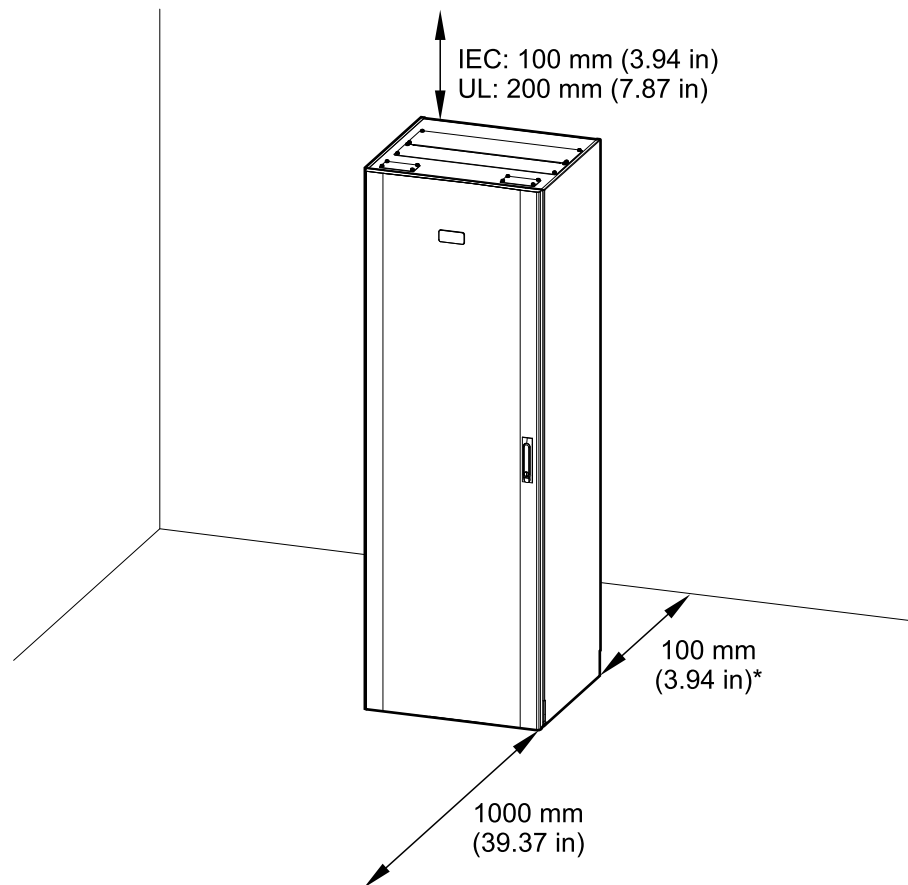
**NOTE:** Clearance dimensions of Lithium-ion Battery Cabinet have been verified by UL 9540A 4th edition (project No. 4789548397, issued by UL on 2021-05-21).

12. For temperatures between 40 °C (104 °F) and 50 °C (122 °F), the load power rating must be derated with 2.5% per °C of rated output power. Above 40 °C (104 °F) the minimum input voltage is 340 V, and from 380 V to 340 V, the charge power must be linearly derated from 12% to 1%.

**UPS with 1250 kW I/O Cabinet**



**Lithium-ion Battery Cabinet**



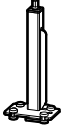

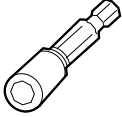
\* Rear clearance is only required for Lithium-ion battery cabinet with seismic anchoring.






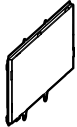




# Overview of Supplied Installation Kits

## Installation Kits Shipped with the I/O Cabinet


### Installation Kit 0M-816661

| Part                                  | Used in                                      | Number of units  |
|---------------------------------------|--|--|
| Jack                                  | Remove the Cabinets from the Pallet, page 65 | 1<br> |
| Floor protection plate                |  | 1<br> |
| Hexagonal socket for drilling machine |  | 1<br> |


## Installation Kit 0H-9385




| Part   | Used in   | Number of Units   |
|--|---|---|
| Angle for right side of the rear anchoring bracket 870-30412 | Install the Rear Seismic Anchoring for the UPS and the Battery Cabinet(s), page 72  | 1<br>    |
| M8 x 20 hexagonal torx with washer                           |   | 2<br>    |
| 1 mm leveling shims  |   | 30<br>   |
| EMC cover right 0M-98993                                     | Position the Cabinets, page 75  | 1<br>    |
| M6 nut with washer   |   | 8<br>    |
| M10 x 45 hexagonal torx with washer                          | Save for the field service representative. They will be used for fastening the busbars and will be installed by Schneider Electric during assembly service. | 16<br> |
| M8 x 35 hexagonal torx with washer                           |   | 2<br>  |
| M10 x 35 bolt with washer                                    |   | 4   |
| Terminator for modbus  | Modbus Connections (Board 0P6502), page 107   | 2<br>  |

## Installation Kit 0H-9384

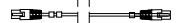
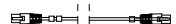
| Part                                    | Used in                                     | Number of Units  |
|---|---|--|
| Front anchoring bracket for I/O cabinet | Mount the Front Anchoring Brackets, page 91 | 1<br> |

## Installation Kit 0H-1789

| Part                        | Used in   | Number of Units  |
|-----------------------------|---|--|
| Optical fiber cable 0W13010 | Route the Signal Cables between the I/O Cabinet and the Power Cabinets, page 92 | 1<br> |
| Optical fiber cable 0W13022 |   | 1  |

| Part                         | Used in  | Number of Units   |
|------------------------------|--|---|
|                              |  |        |
| Cable ties for signal cables | Signal Cables, page 92   | 40<br> |
| Temperature sensor 0M-1160   | Signal Cable Connections to Classic Battery Cabinets (Boards 0P6547, 0P6549, 0P6552), page 105 | 2<br>  |

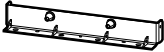


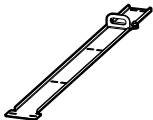








## Installation Kit 0H-0889





| Part                | Used in   | Number of Units  |
|---------------------|---|--|
| PBUS 1 cable 0W7995 | PBUS Cable Connections (Board 0P3643), page 106 | 1<br> |
| PBUS 2 cable 0W7996 |   | 1<br> |

## Installation Kits Shipped with the Power Cabinet

### Installation Kit 0H-9102

**NOTE:** These installation kit parts are shipped in the packaging of the power cabinet.

| Part   | Used in  | Number of Units   |  |
|--|--|---|--|
| Rear anchoring bracket for power cabinet 0M-818242   | Install the Rear Seismic Anchoring for the UPS and the Battery Cabinet(s), page 72         | 1<br>                                |  |
| M8 x 20 hexagonal torx with washer   |  | 2<br>                                |  |
| Front anchoring bracket for power cabinet 0M-816684  | Mount the Front Anchoring Brackets, page 91  | 1<br>                                |  |
| Long top baying bracket 0M-821220  | Position the Cabinets, page 75   | 1<br>                                |  |
| M6 x 16 torx screw with washer   |  | 15<br>                             |  |
| M10 nut with washer  |  | 24<br>                             |  |
| M10 x 35 hexagonal torx with washer  |  | 12<br>                             |  |
| 1 mm leveling shims  |  | 10<br>                             |  |
| Ground interconnection busbar 880-99027  |  | Save for the field service representative. The busbars will be installed by Schneider Electric during assembly service. | 1<br> |
| M8 nut with washer   |  |   | 4<br> |
| M8 x 35 mm hexagonal torx with washer  | 4<br> |   |  |
| Interconnection busbar 880-10146 <b>and</b> 880-9720 from power cabinet to power cabinet (neutral) | 1<br> |   |  |
| Interconnection busbar 0M-140035 power cabinet to power cabinet (battery +)                        | 1  |   |  |

| Part  | Used in | Number of Units  |
|---|---------|--|
|   |         |       |
| Interconnection busbar 0M-97886 power cabinet to power cabinet (output)     |         | 3<br> |
| Interconnection busbar 0M-819336 power cabinet to power cabinet (battery -) |         | 1<br> |
| Interconnection busbar 0M-97885 power cabinet to power cabinet (input)      |         | 3<br> |

## Installation Kits Shipped with the Battery Cabinet

### Accessory Kit 0M-95318: Busbar Kit

**NOTE:** Save this accessory kit for the field service representative. The busbars will be installed by Schneider Electric during the start-up service.

### Accessory Kit 0M-95319: Cover Kit

**NOTE:** Save this accessory kit for the field service representative. The covers will be installed by Schneider Electric during the start-up service.

### Accessory Kit 0M-95320: Cable Kit

| Part Number | Description   | Quantity | Used in   |
|-------------|---|----------|---|
| 0W76926     | Signal cable from battery module to battery module – standard         | 15       | Note: Save these signal cables for the field service representative. These signal cables will be installed by Schneider Electric during the start-up service. |
| 0W76936     | Signal cable from battery module to battery module – long             | 1        |   |
| 0W76933     | Signal cable from battery module to RBMS                              | 1        |   |
| 0W76928     | Signal cable from RBMS CAN 2 to RBMS CAN 1 in next battery cabinet    | 1        | Route the Signal Cables to the Switchgear, Rack BMS, and System BMS Ports, page 126   |
| 0W76929     | Signal cable from MCCB AUX 1 to UPS                                   | 1        |   |
| 0W76934     | Signal cable from MCCB AUX 2 to MCCB AUX 1 in next battery cabinet    | 1        |   |
| 0W13444     | Signal cable from SGB I/O 1 to the UPS                                | 1        |   |
| 0W13442     | Signal cable from SGB I/O 2 to the UPS                                | 1        |   |
| 0W76972     | Signal cable from SGB I/O 1 to SGB I/O 1 between the battery cabinets | 1        |   |

## Accessory Kit 0M-95331: Seismic Anchoring and Fuse Kit

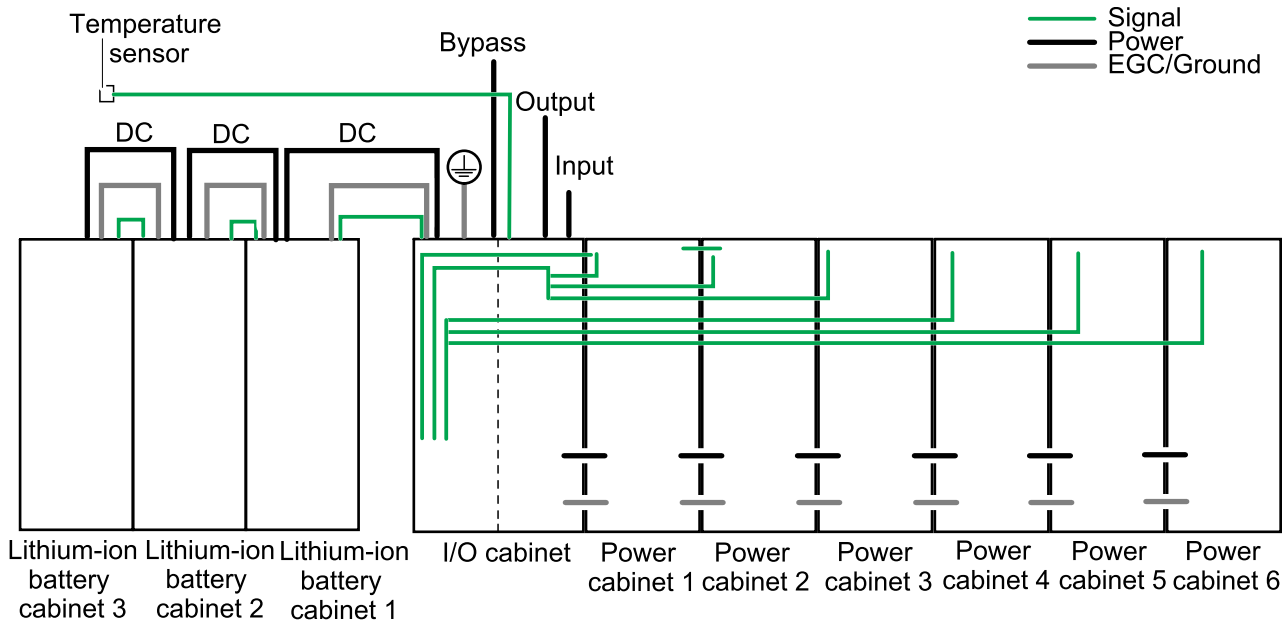
| Part Number | Description                                    | Quantity | Used in  |
|-------------|--|----------|--|
| 870-50102   | Anchor parts                                   | 4        | Install the Rear Seismic Anchoring for the UPS and the Battery Cabinet(s), page 72   |
| 870-51172   | Interconnection plate between seismic brackets | 1        |  |
| 803-0684    | M6 x 12 torx screw with washer                 | 4        |  |
| 803-0686    | M6 x 16 torx with washer                       | 18       | Install the Rear Seismic Anchoring for the UPS and the Battery Cabinet(s), page 72 <b>and</b> Position and Interconnect the Battery Cabinets, page 80. |
| TME00409    | 500 A fast acting fuse                         | 3        | <b>Note:</b> Save for the field service representative. The fuses will be installed by Schneider Electric during the start-up service.                 |
| HUA29593    | Washer   | 6        |  |
| HUA13751    | M12 x 16 hexagonal screw                       | 6        |  |
| HUA41574    | 3 A rated fuse                                 | 2        |  |

## Optional Kit

| Part Number  | Description                             | Quantity        | Used in  |
|--------------|---|-----------------|--|
| LIBSEOPT002  | Galaxy LIB cabinet SMPS AC/DC converter | 1 <sup>13</sup> | <b>Note:</b> Scan the QR code on the SMPS AC/DC converter to find the installation manual.   |
| LIBSEFUSEKIT | Galaxy 10-module LIB cabinet fuse kit   | 1               | <b>Note:</b> Save for the field service representative. The busbars will be installed by Schneider Electric during the start-up service. |

13. One AC/DC converter box can supply up to 10 battery cabinets. For 11+ battery cabinets, at least two AC/DC converter boxes are required.

# Installation Procedure



- UPS: Remove the Cabinets from the Pallet, page 65.
- Lithium-ion battery cabinet: Prepare for Installation, page 70.
- UPS and Lithium-ion battery cabinets: Install the Rear Seismic Anchoring for the UPS and the Battery Cabinet(s), page 72.
- UPS: Position the Cabinets, page 75.
- Lithium-ion battery cabinet: Position and Interconnect the Battery Cabinets, page 80.
- Lithium-ion battery cabinet: Install the Front Seismic Anchoring, page 82.
- UPS: Prepare the I/O cabinet for power cables. Follow one of the procedures:
  - Prepare the I/O Cabinet for Power Cables in Top Cable Entry Systems, page 83, OR
  - Prepare the I/O Cabinet for Power Cables in Bottom Cable Entry Systems, page 84.
- UPS: For dual mains systems only: Remove the Single Mains Busbars, page 86.
- UPS: Connect the Power Cables in a 480 V System, page 87.
- UPS: Connect Cables to the External Supply for Lithium-ion Battery Solution (Optional), page 89.
- UPS: Mount the Front Anchoring Brackets, page 91.
- UPS: Route the Signal Cables between the I/O Cabinet and the Power Cabinets, page 92.
- UPS: Route External Signal Cables to the Boards, page 98.
- UPS: Final Mechanical Assembly of the I/O Cabinet, page 116.
- UPS: Final Mechanical Assembly of the Power Cabinets, page 119.
- Lithium-ion battery cabinet: Install the Battery Modules in the Battery Cabinet, page 120.
- Lithium-ion battery cabinet: Connect the Power Cables, page 122.
- Lithium-ion battery cabinet: Route the Signal Cables to the Switchgear, Rack BMS, and System BMS Ports, page 126.

 **DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Startup must only be performed by Schneider Electric.

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

For moving or decommissioning the UPS or the Lithium-ion battery cabinets after installation has been completed, see *Decommission or Move the UPS to a New Location*, page 134 or *Decommission or Move the Battery Cabinet to a New Location*, page 139.



## Remove the Cabinets from the Pallet

### ⚠ WARNING

#### HAZARD OF TILTING

Do not use a jack in the front and rear transport bracket at the same time.

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

### ⚠ WARNING

#### HAZARD OF SERIOUS INJURY

Do not put your hands or feet under the cabinet while removing the pallet parts.

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

### NOTICE

#### RISK OF EQUIPMENT DAMAGE

Ensure that you have sufficient free space around the cabinets for the removal of the middle pallet part. The I/O cabinet requires 1.5 m (59 in) free space on the right or left side of the cabinet.

**Failure to follow these instructions can result in equipment damage.**

### NOTICE

#### RISK OF EQUIPMENT DAMAGE

Ensure that the floor is level and can support the weight of the jack when it carries the cabinet.

**Failure to follow these instructions can result in equipment damage.**

### NOTICE

#### RISK OF EQUIPMENT DAMAGE

Be careful not to damage the cabinets when using the jack.

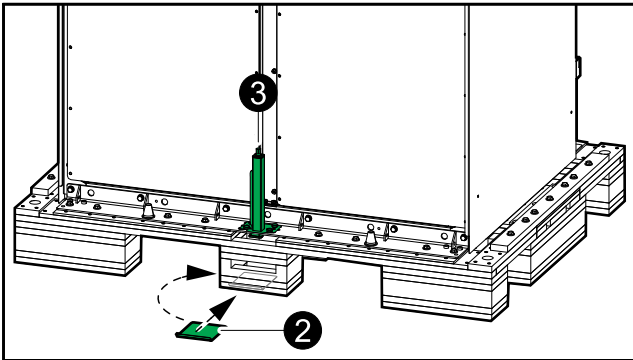
**Failure to follow these instructions can result in equipment damage.**

**NOTE:** The illustrations show the removal of the power cabinet when the procedures are identical.

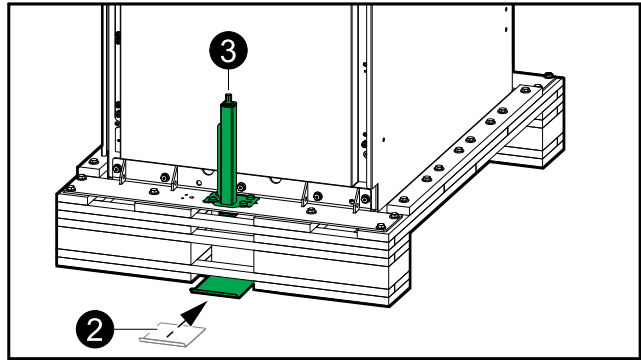
1. Use the installation kit 0M-816661 shipped with the I/O cabinet. Use the jack and the floor protection plate in the kit for all cabinets in this procedure.

- Place the floor protection plate under the pallet on the rear of the cabinet.

Rear View of the I/O Cabinet

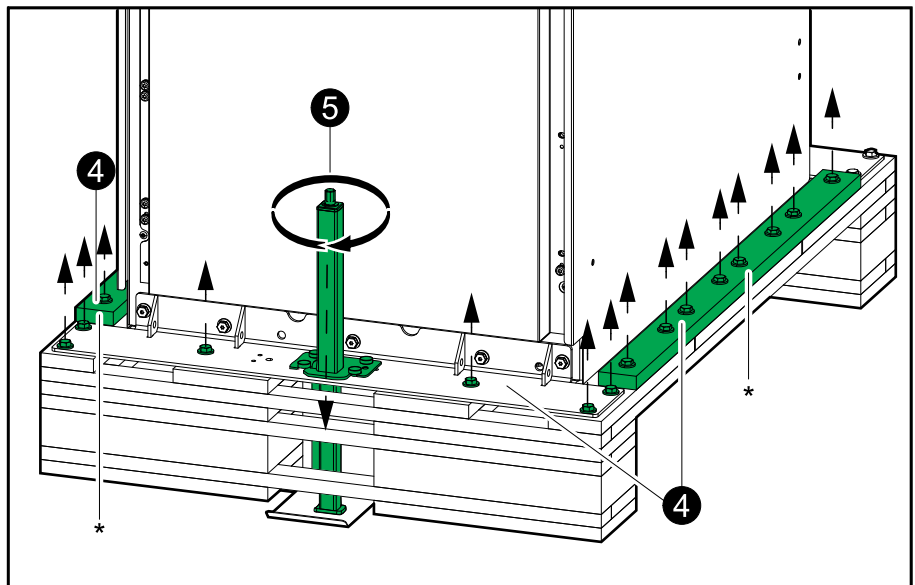


Rear View of the Power Cabinet



- Place the jack from the installation kit in the hole in the transport bracket on the rear of the cabinet.
- Remove the bolts from the rear transport bracket and from the middle pallet part. Remove the pallet parts marked with \* and save for step 8.

Rear View of the Power Cabinet



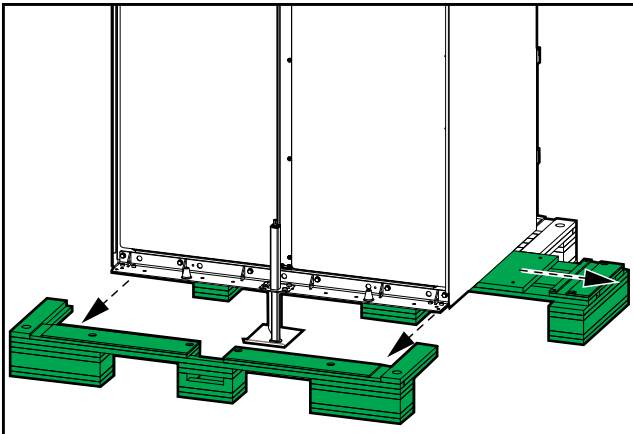
- Use a drilling machine with the provided hexagonal socket to activate the jack, slide it into position in the bracket, and to make contact with the floor protection plate.

**NOTE:** Reduce the drill torque to minimum to prevent kickback.

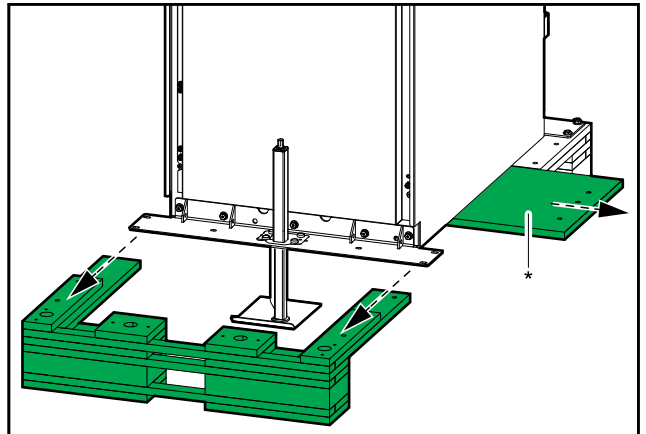
- Use the jack to lift the pallet to the top position.

7. Remove the rear and middle pallet parts and save the part marked with \* for step 8.

Rear View of the I/O Cabinet



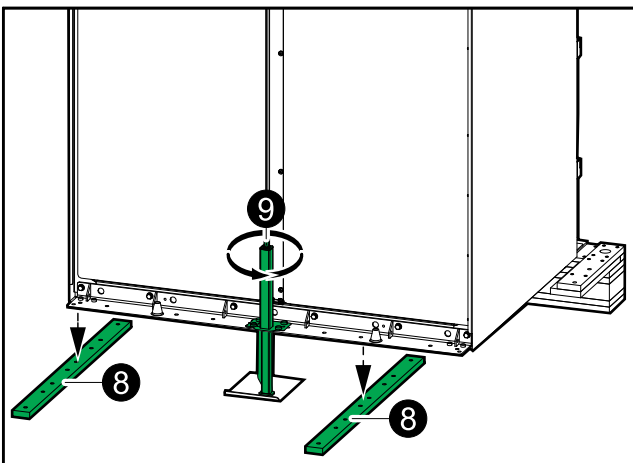
Rear View of the Power Cabinet



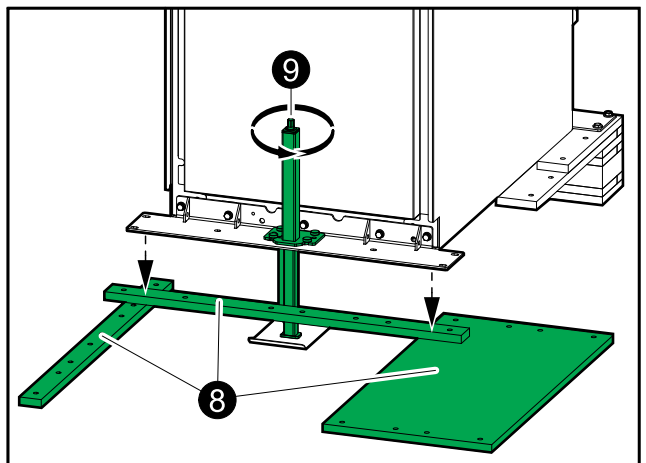
8. Place supports under the metal bracket:

- For the power cabinets, place the pallet parts from step 4 and 7 under the transportation bracket.
- For the I/O cabinet, place the pallet parts from step 4 under the transportation bracket.

Rear View of the I/O Cabinet

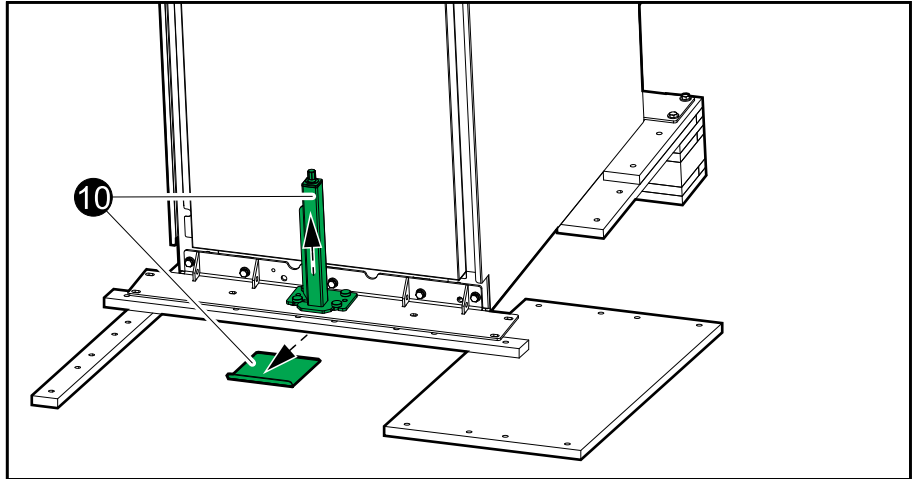


Rear View of the Power Cabinet



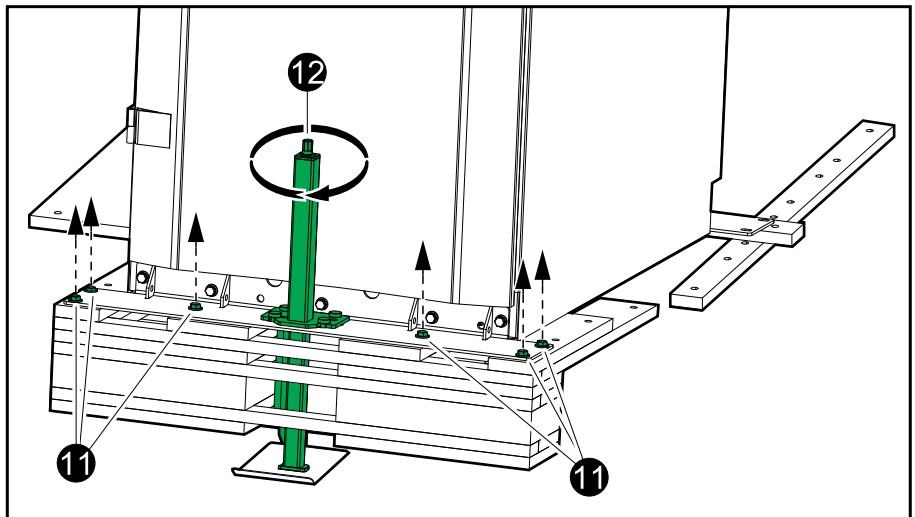
9. Use the drilling machine on the jack to lower the cabinet down onto the support.

10. Move the floor protection plate and the jack to the transport bracket on the front of the cabinet.

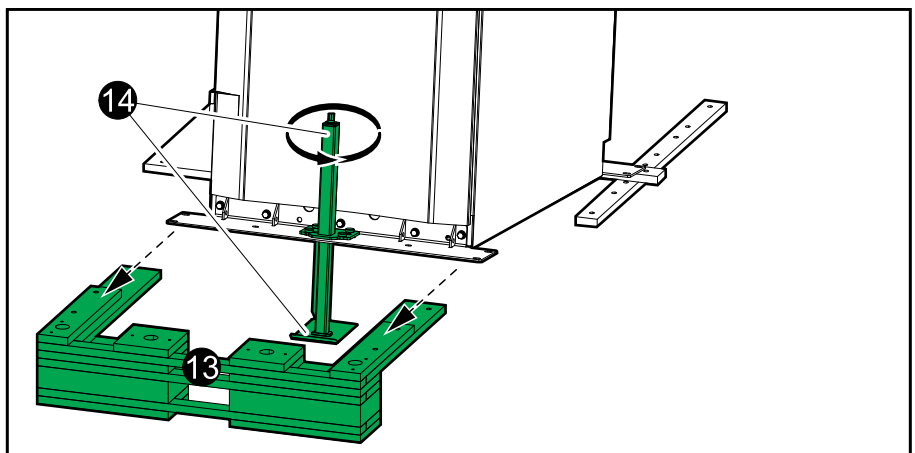


11. Remove the bolts from the front transport bracket.

### Front View of the Power Cabinet

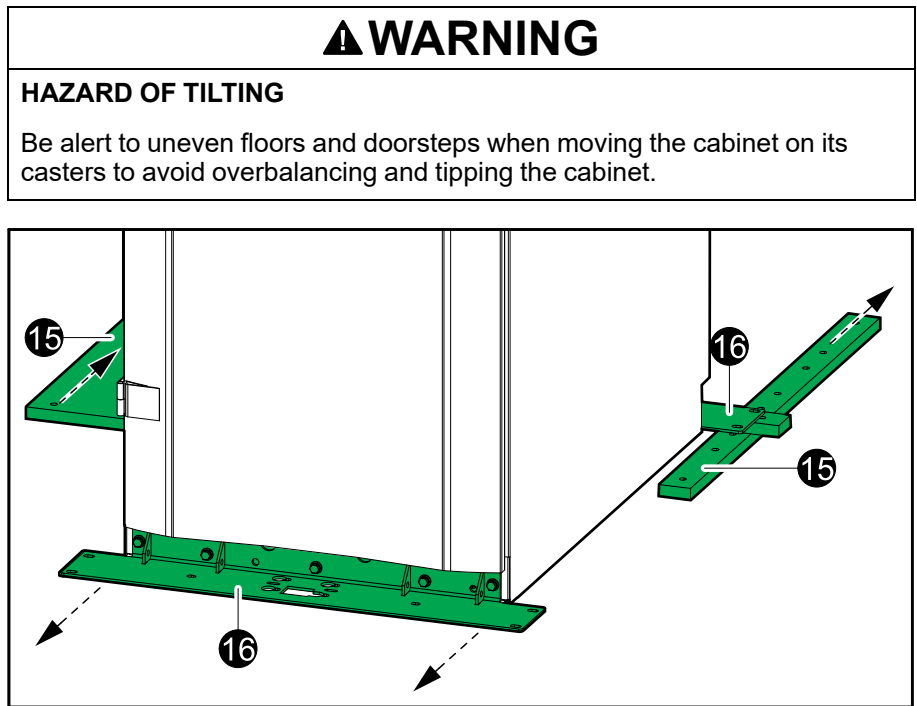


12. Use the jack to lift the pallet to the top position.
13. Remove the front pallet parts.



14. Use the jack to lower the cabinet onto the floor until the casters connect with the floor. Remove the jack and the floor protection plate.

15. Wheel the cabinet away and remove the remaining pallet parts.



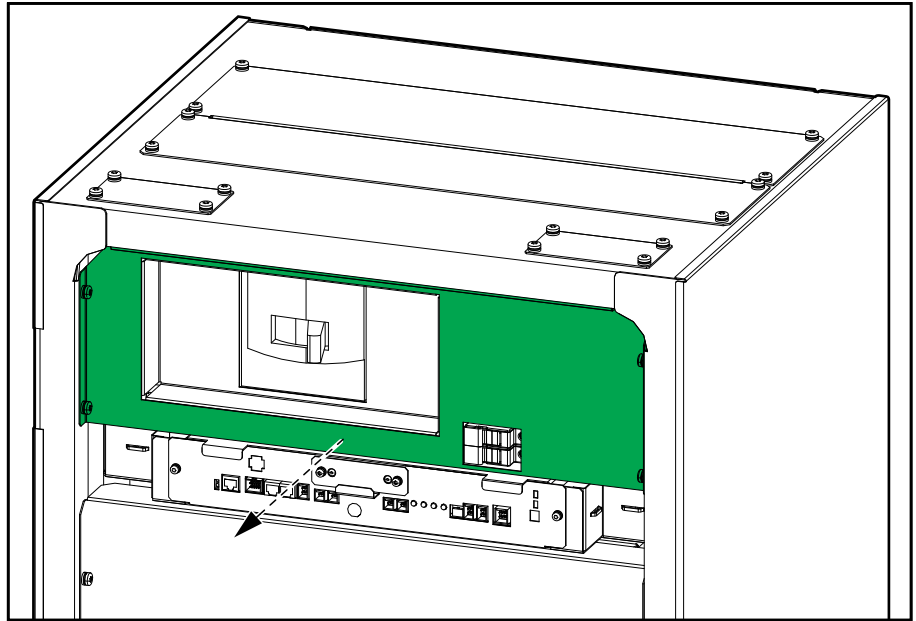
16. Remove the front and rear transportation brackets.

The cabinet can now be moved on the built-in casters to the installation area.

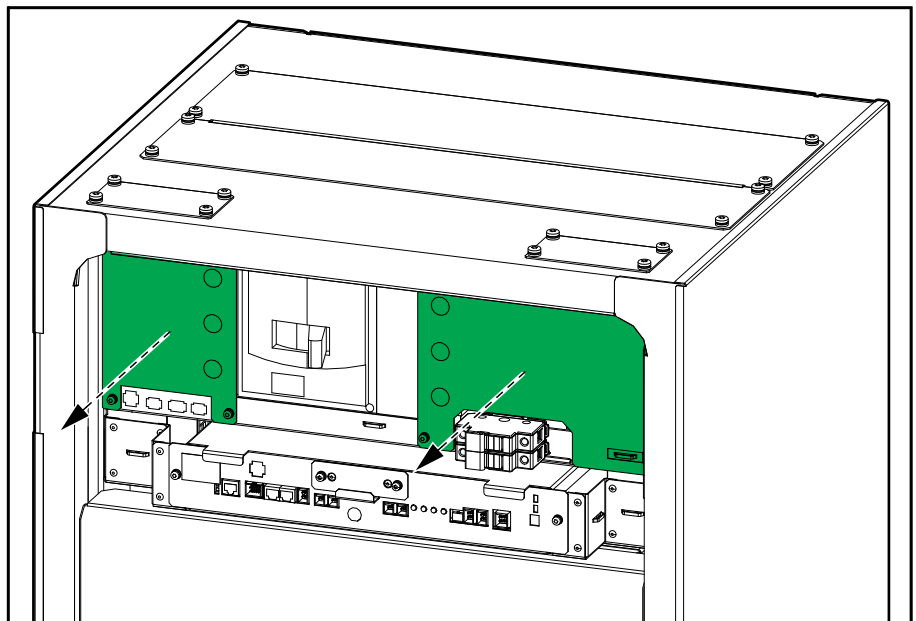
**NOTE:** Save the transportation brackets and bolts for later. The transportation bracket is reused as front anchoring bracket.

## Prepare for Installation

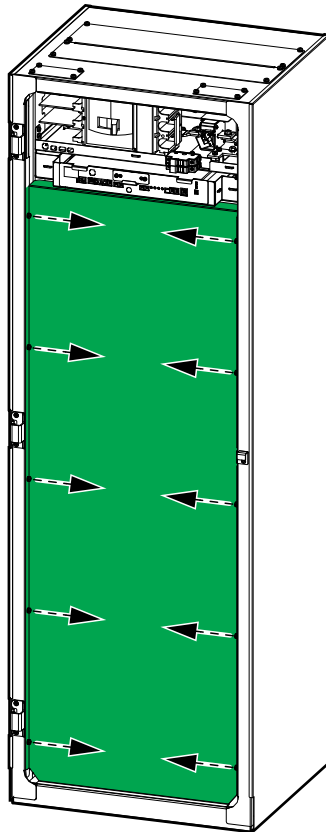
1. Remove the indicated cover.



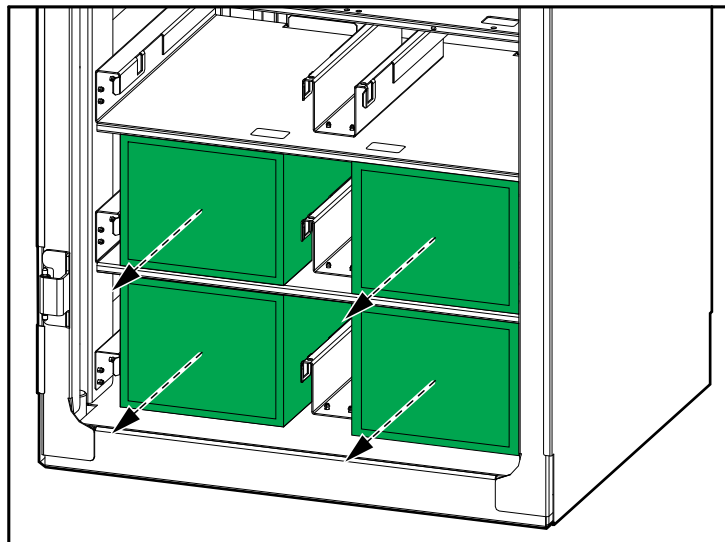
2. Remove the two transparent covers.



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



4. Remove the four boxes with accessory kits from the bottom of the cabinet. Refer to for more information on the accessory kits.



# Install the Rear Seismic Anchoring for the UPS and the Battery Cabinet(s)

## ⚠ DANGER

### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Leave the UPS system and battery cabinets covered while making anchoring holes to prevent dust or other conductive particles from entering the system.

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

## ⚠ WARNING

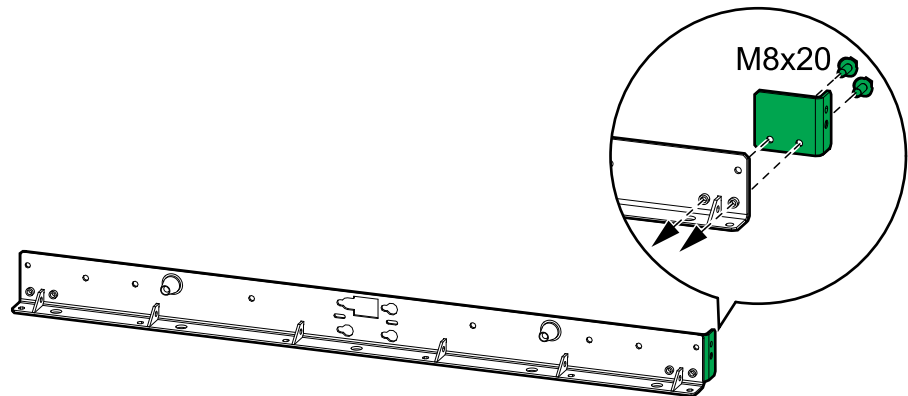
### HAZARD OF TILTING

All rear and front anchoring brackets must be installed.

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

1. UPS: Use the rear anchoring bracket that was attached to the rear of the I/O cabinet. Fasten the plate from the installation kit 0H-9385 to the right side of the rear anchoring bracket of the I/O cabinet. Note the direction of the plate.

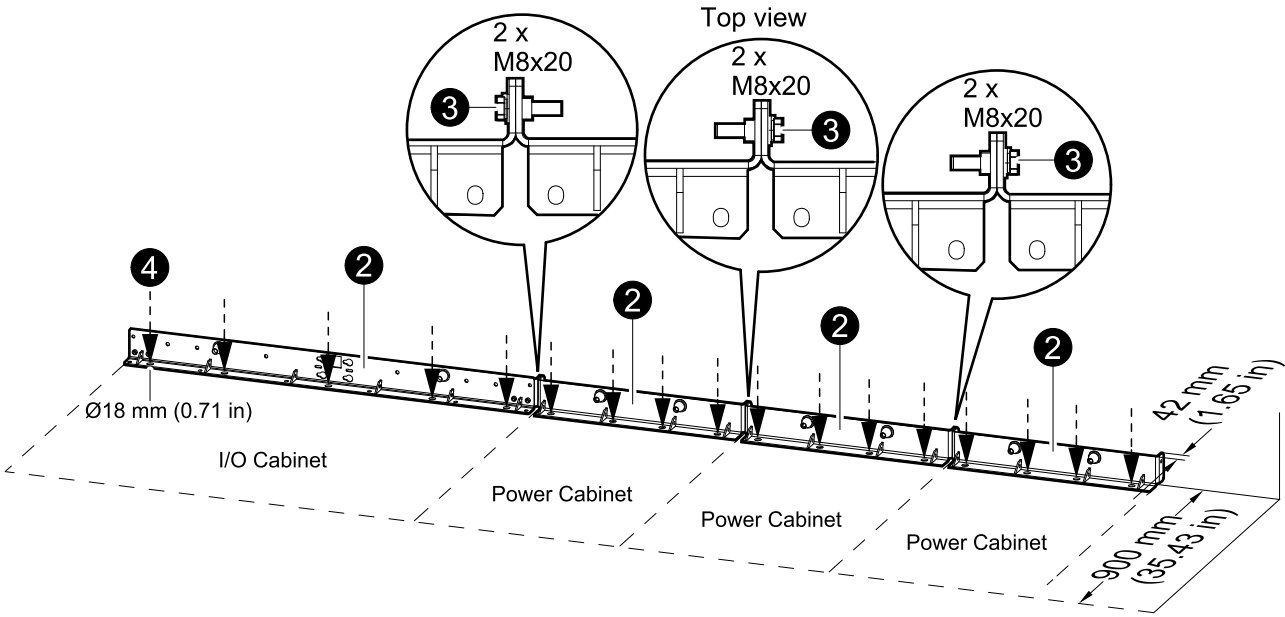
### Front View of the Seismic Anchoring for the I/O Cabinet





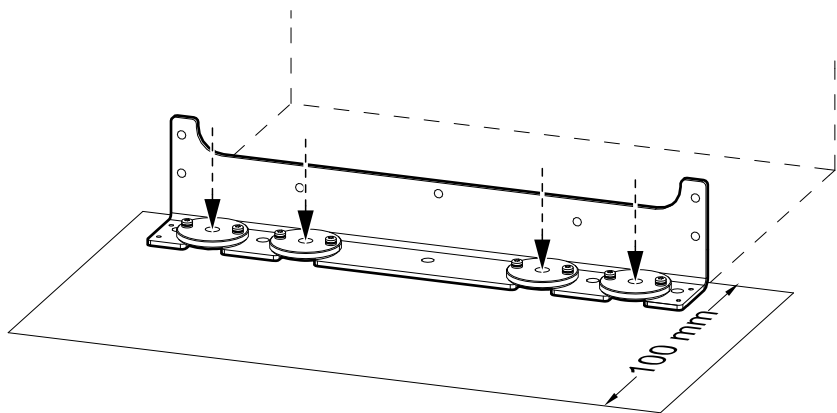
- UPS: Place the rear anchoring brackets for the I/O cabinet and the power cabinets in the final installation area.

**Front View of the Seismic Anchoring for the UPS (I/O Cabinet and Power Cabinets)**



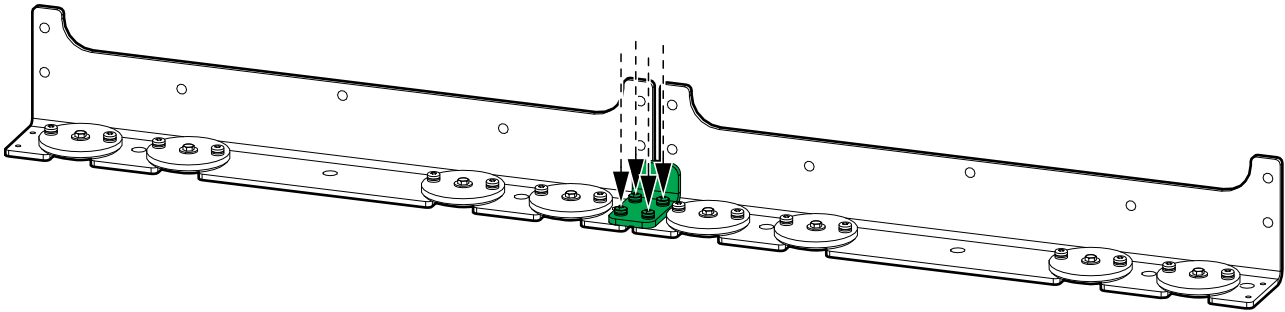
- UPS: Interconnect the rear anchoring brackets using the provided screws and bolts.
- UPS: Mark the hole locations.
- UPS: Drill anchoring holes according to the national and local requirements.
- UPS: Mount the rear anchoring brackets to the floor. Bolts are not supplied.
- UPS: Use a bubble-leveler to ensure that the rear anchoring brackets are level. Use the provided leveling shims if necessary.
- Lithium-ion battery cabinet: Mount the rear seismic assembly (4 x 870-50102 and M6 x 16 torx screws from accessory kit 0M-95331 and the rear shipping bracket from the battery cabinet) to the floor. Use appropriate hardware for the floor type – the hole diameter in the rear seismic bracket is  $\varnothing 14$  mm. The minimum requirement is M12 strength grade 8.8 hardware.

**Rear View of Seismic Anchoring for Lithium-ion Battery Cabinet**



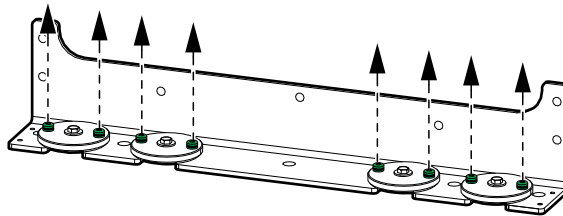
9. Lithium-ion battery cabinet: In systems with more battery cabinets, interconnect the seismic assemblies with the interconnection plate 870-51172 from the accessory kit 0M-95331.

### Rear View of Seismic Anchoring for Lithium-ion Battery Cabinets



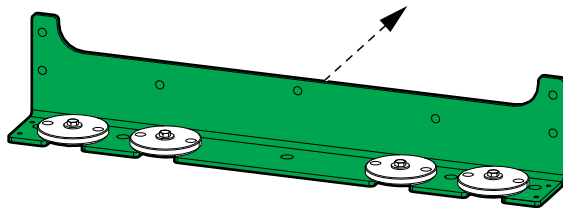
10. Lithium-ion battery cabinet: Remove the indicated screws.

### Rear View of Seismic Anchoring for Lithium-ion Battery Cabinet



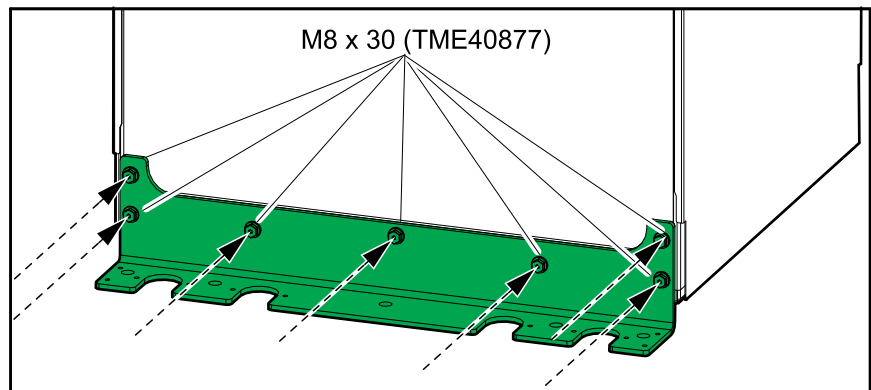
11. Lithium-ion battery cabinet: Remove the rear seismic bracket.

### Rear View of Seismic Anchoring for Lithium-ion Battery Cabinet



12. Lithium-ion battery cabinet: Install the rear seismic bracket on the battery cabinet(s).

### Rear View of the Lithium-ion Battery Cabinet



## Position the Cabinets

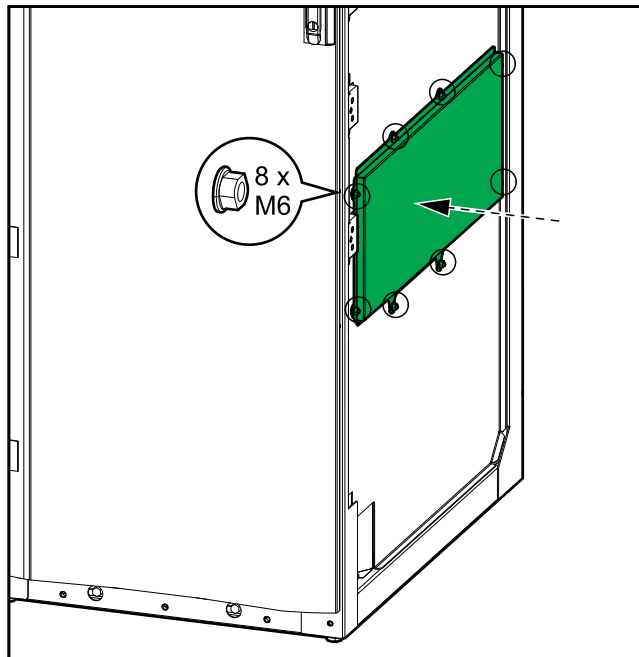
### ⚠ DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

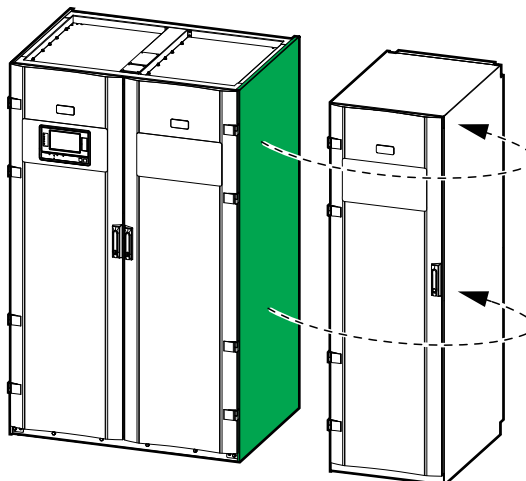
Do not step/walk on top of the cabinets.

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

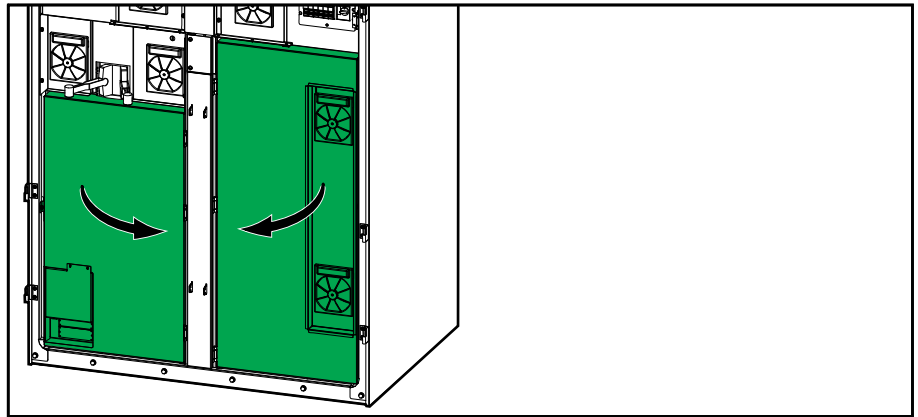
1. Install the cover from installation kit 0M-98993 on the right-most power cabinet.



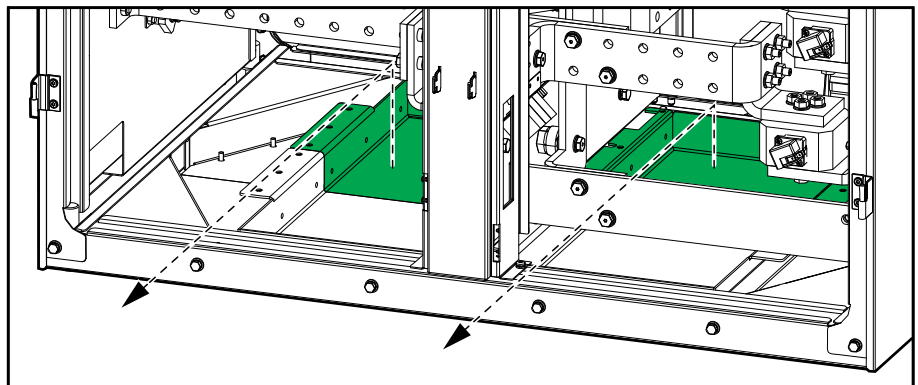
2. Move the side panel from the right side of the I/O cabinet and install it on the right-most power cabinet.



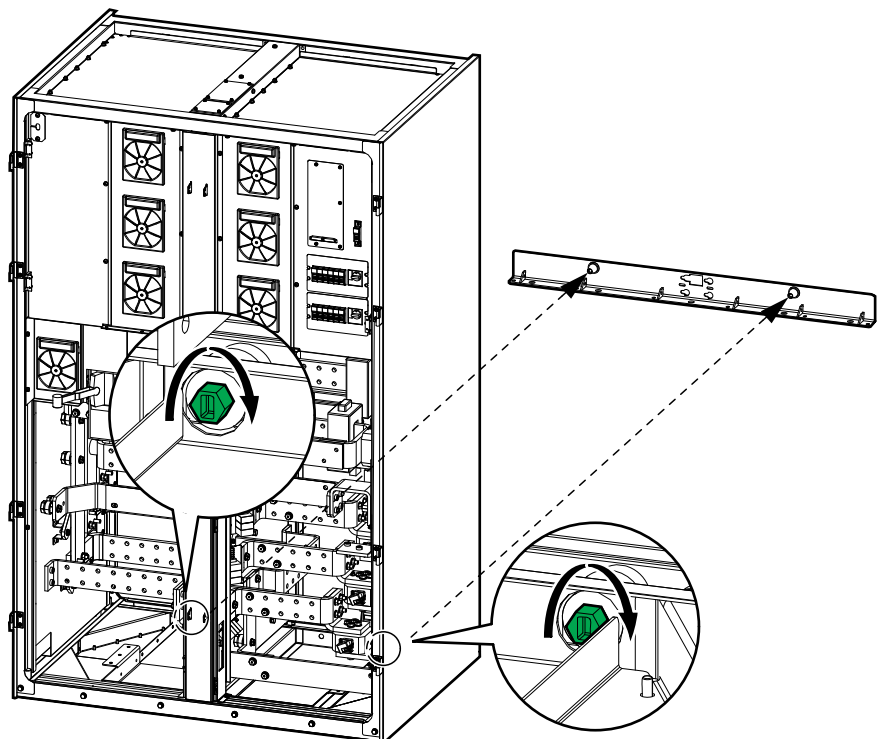
3. Open the two inner doors of the I/O cabinet.



4. Remove the two rear bottom plates.



5. Push the I/O cabinet into position against the rear anchoring bracket - the I/O cabinet will connect to the conic outcroppings on the rear anchoring bracket.



6. Fasten the cabinet to the rear anchoring bracket by tightening the bolts. Torque to 50 Nm (36.87 lb-ft).
7. Reinstall the two rear bottom plates.

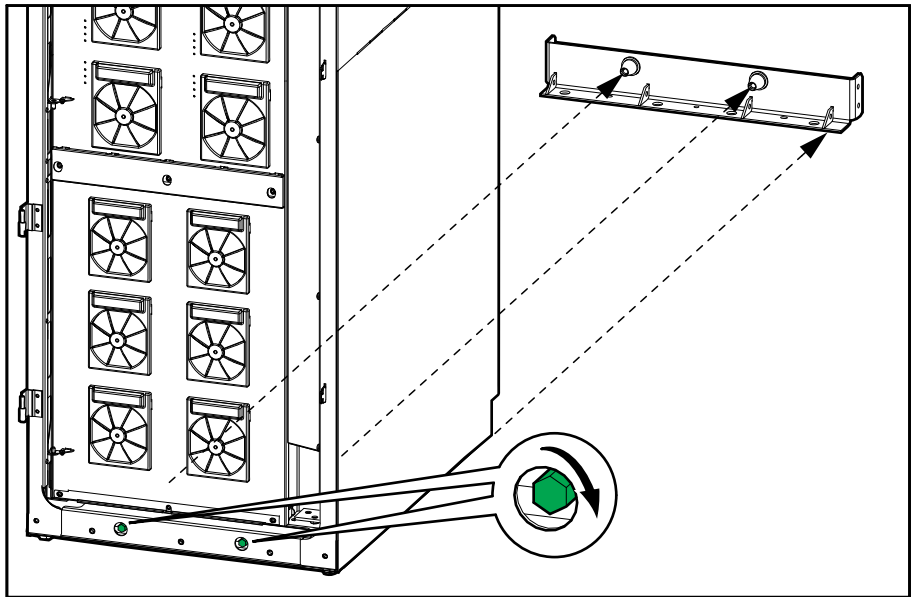
8. Push the power cabinets one by one into position against the rear anchoring brackets – the cabinets will connect to the conic outcroppings on the brackets.

## ⚠ CAUTION

### RISK OF EQUIPMENT DAMAGE

When pushing the power cabinet into position, push on the frame to avoid damaging the signal cables.

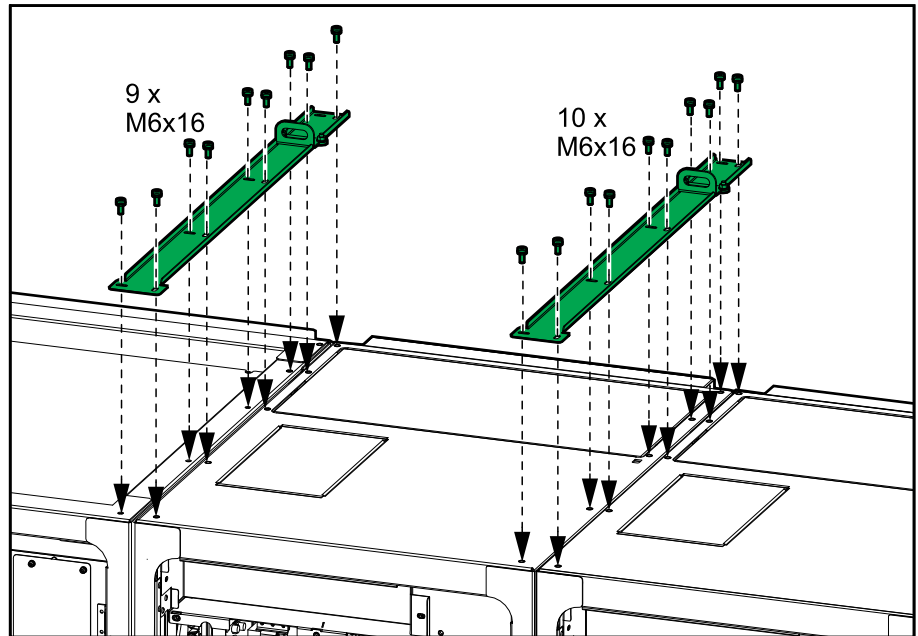
**Failure to follow these instructions can result in injury or equipment damage.**



9. Fasten the power cabinets to the rear anchoring brackets by tightening the bolts on the front of the power cabinet. Torque to 50 Nm (36.87 lb-ft).
10. Lower the two front feet on all cabinets until they connect with the floor – use a bubble-leveler to ensure that the cabinets are level. Use the provided levelling shims if necessary.

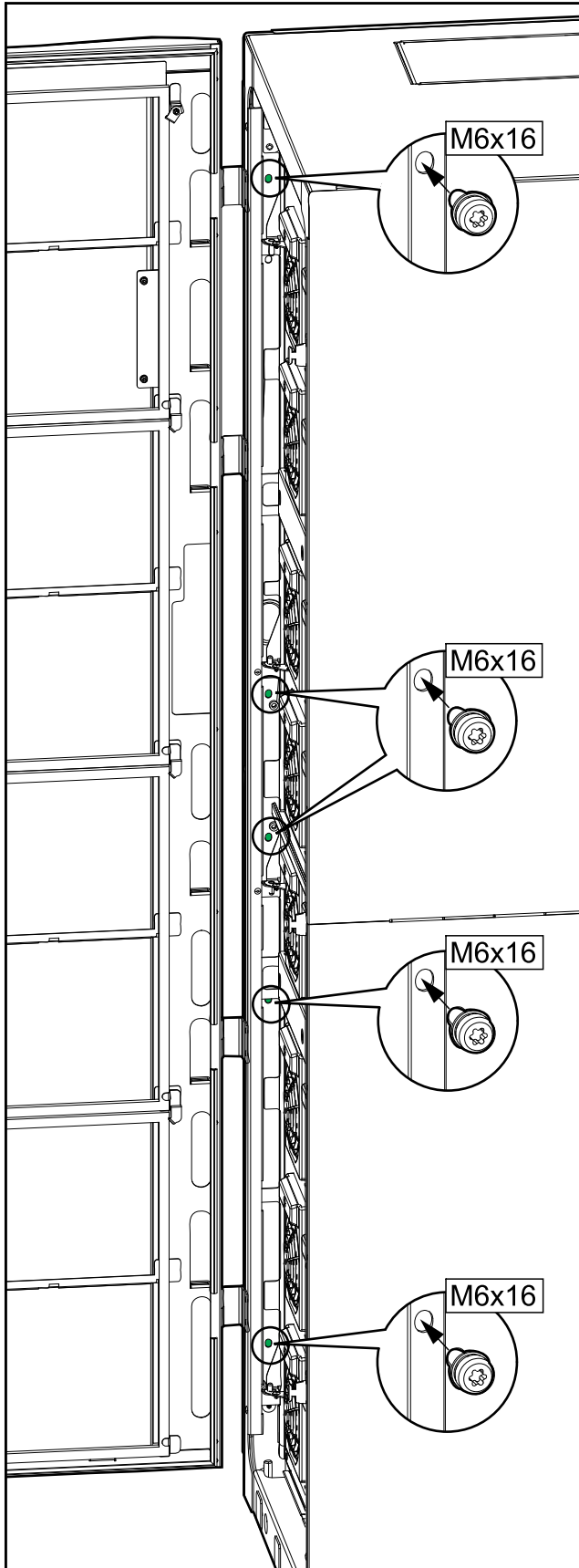
11. Install the top baying bracket on the top of the cabinets and fasten with the provided screws.

### I/O Cabinet and Two Power Cabinets

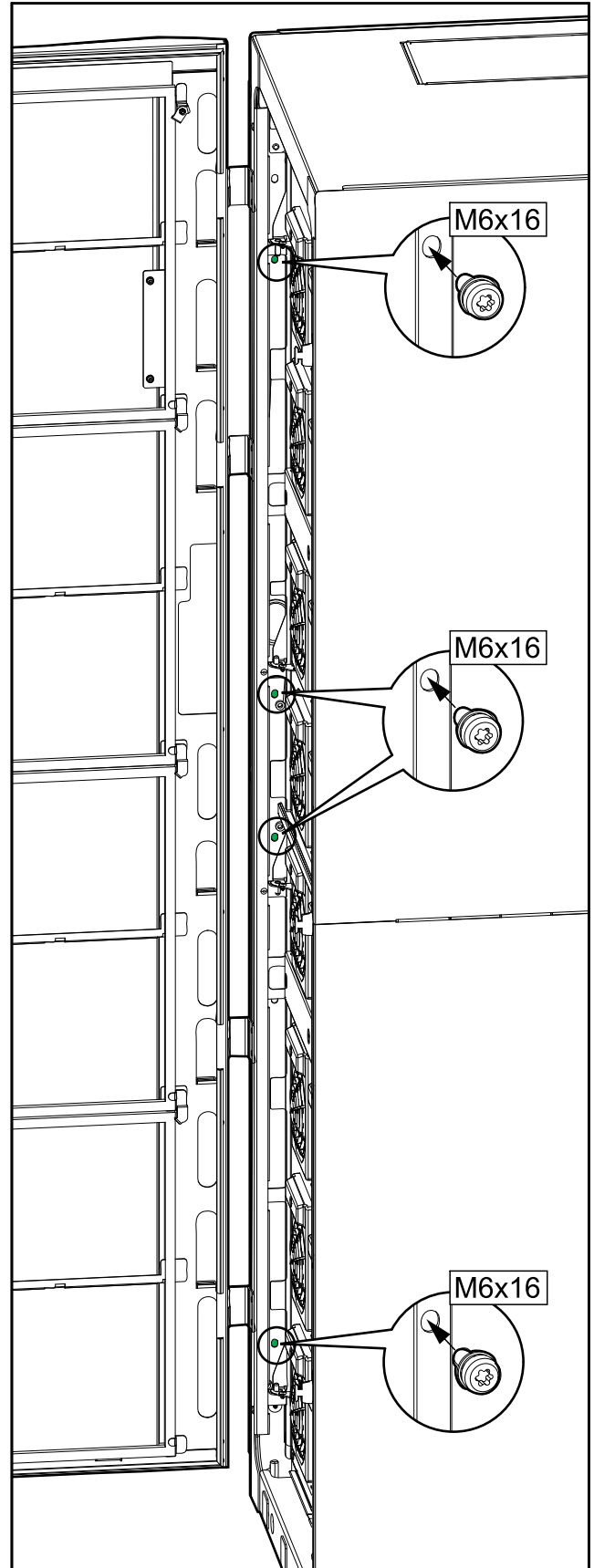


12. Mount the M6 screws from the installation kit from right to left in the five marked positions between the power cabinets and in the four marked positions between the power cabinet and the I/O cabinet to interconnect the cabinets.

**From Power to Power Cabinet**



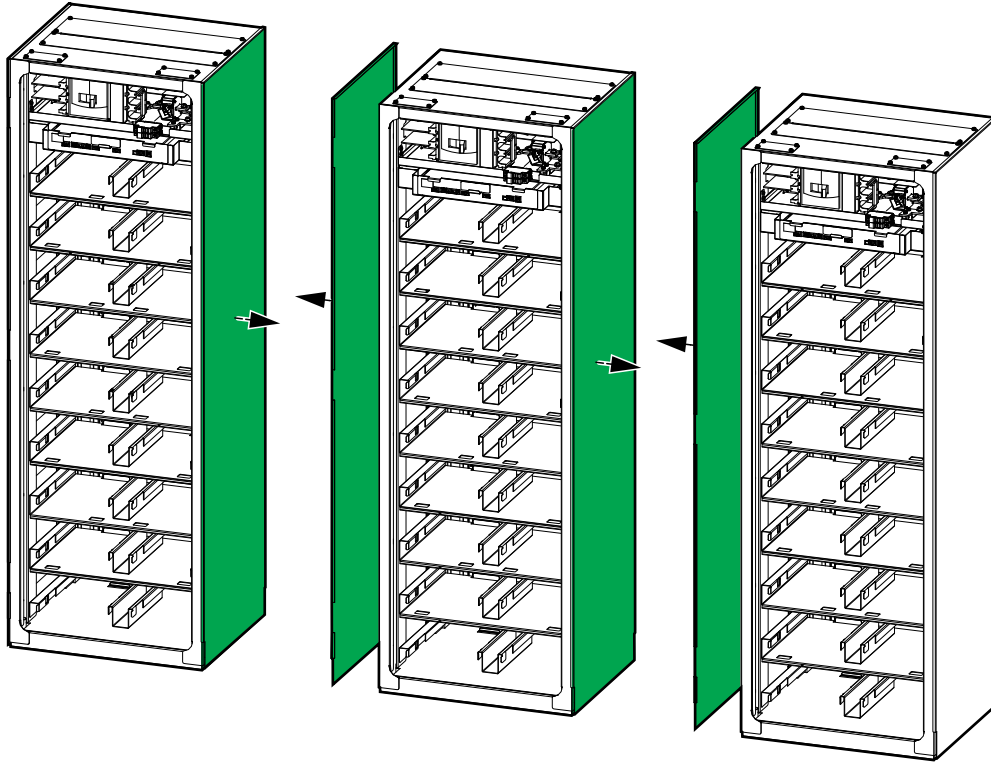
**From Power to I/O Cabinet**



# Position and Interconnect the Battery Cabinets

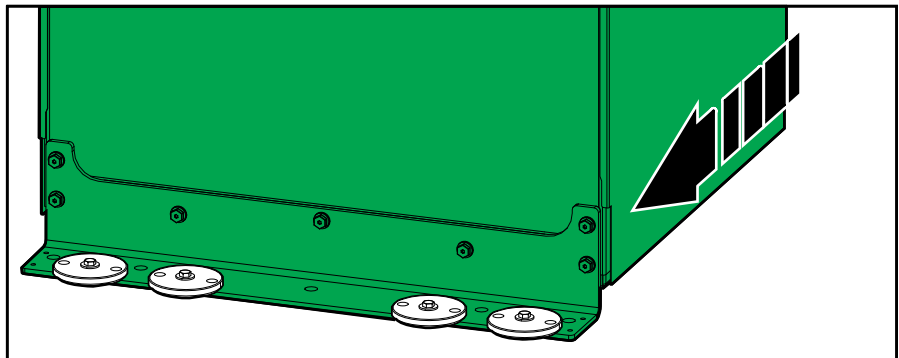
**NOTE:** This procedure describes how to position and interconnect several battery cabinets. If your system only has one battery cabinet, you only need to follow step 2 and step 3.

1. Remove the side panels that are adjacent to the other battery cabinets.



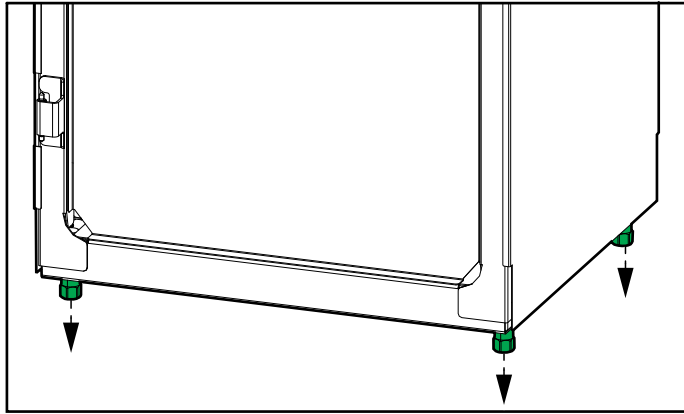
2. Push the right-most battery cabinet into position. For seismic anchoring, ensure that the rear seismic bracket connects to the rear anchors.

## Rear View



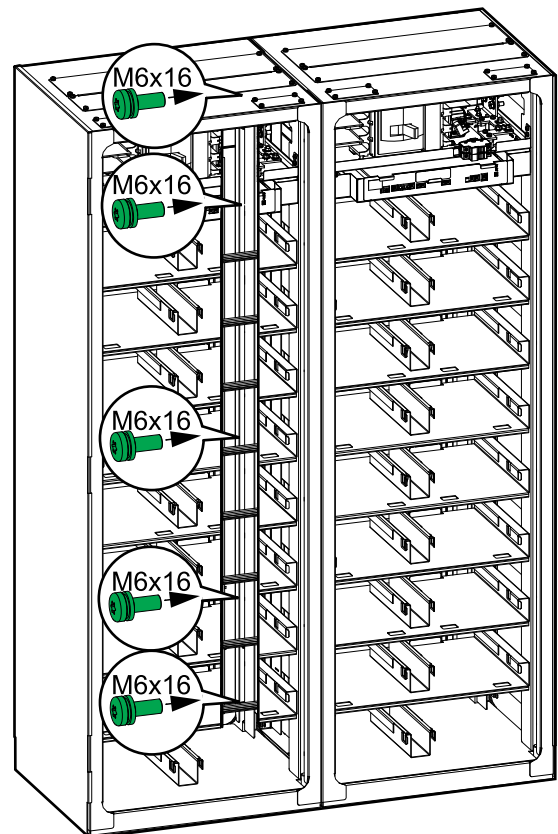
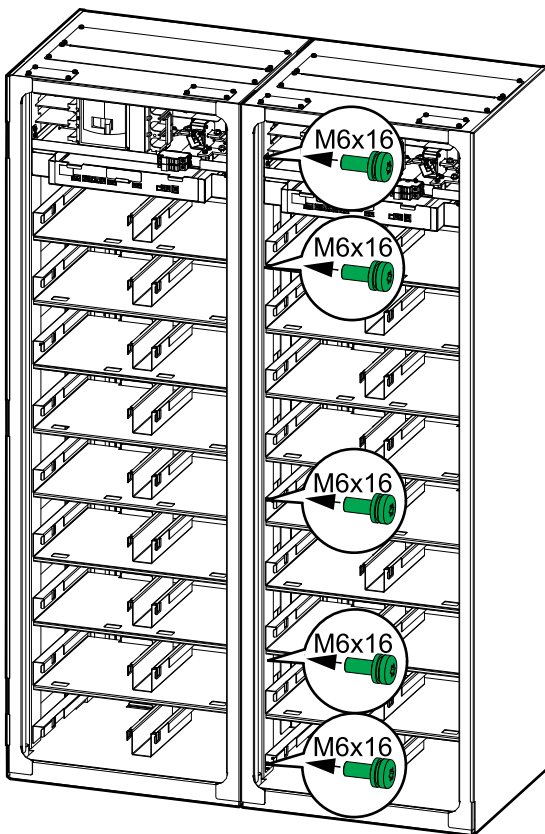


- Lower the levelling feet until they connect with the floor - use a bubble-leveler to ensure that the cabinet is level.



- Push the second right-most battery cabinet into position, align with the seismic anchoring (if any), and level the battery cabinet as described in step 2 and step 3.
- Install the ten interconnection screws (five in the front and five in the rear) between the two battery cabinets.

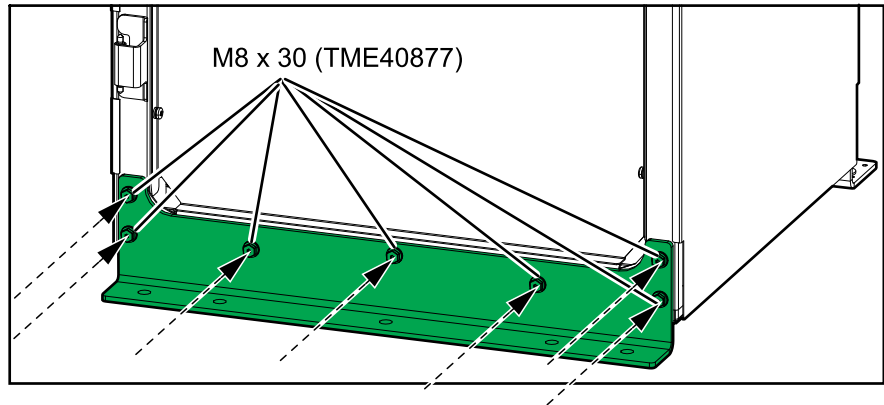
**NOTE:** To reach the five interconnection screws in the rear of the left-most battery cabinet, the left side panel can be removed. Reinstall the left side panel on the left-most battery cabinet after interconnection.



- Push the third battery cabinet into position, align with the seismic anchoring (if any), level the battery cabinet, and interconnect with the other battery cabinets as described in step 2, step 3, and step 5. Continue until all the battery cabinets are in place, levelled, and interconnected.

## Install the Front Seismic Anchoring

1. Install the front seismic bracket (front shipping bracket) on the battery cabinet.



2. Anchor the front seismic bracket to the floor using appropriate hardware for the floor type – the hole diameter in the front seismic bracket is  $\varnothing 14$  mm. The minimum requirement is M12 strength grade 8.8 hardware.

**NOTE:** Floor anchoring bolts are not supplied.

# Prepare the I/O Cabinet for Power Cables in Top Cable Entry Systems

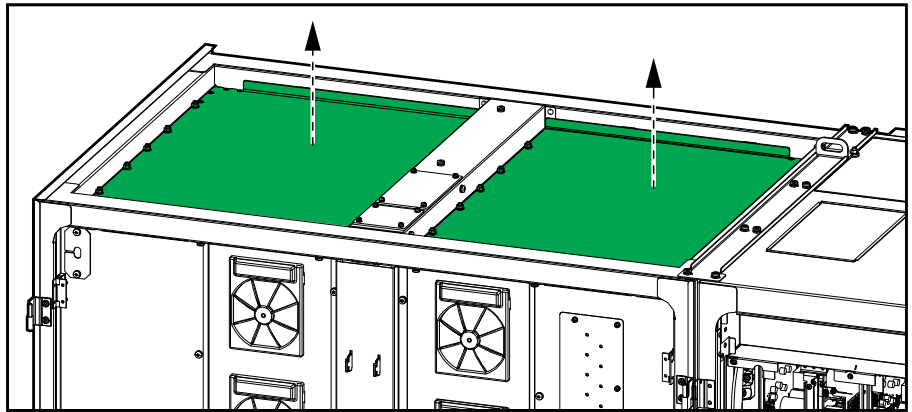
## ⚠ DANGER

### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

1. Loosen the bolts and remove the gland plates from the top of the I/O cabinet.



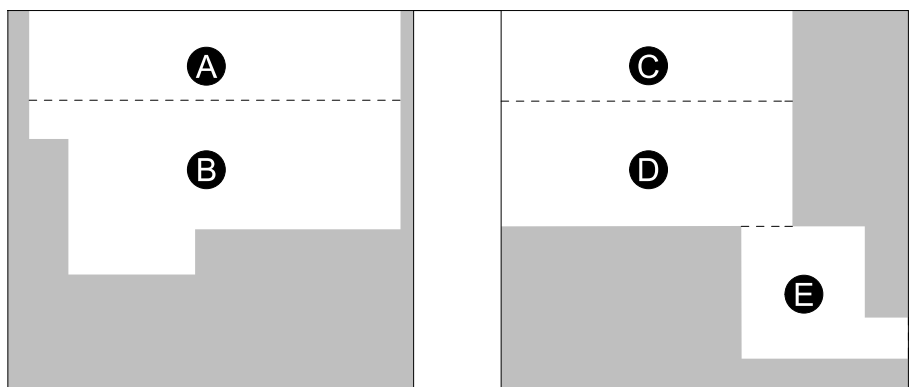
2. Drill or cut holes for cables/conduits in the top gland plate.

## ⚠ DANGER

### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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



- A. For bypass cables
- B. For DC cables
- C. For output cables
- D. For input cables
- E. For cables to the external supply for Li-Ion

3. Install conduits and reinstall the top gland plate.

# Prepare the I/O Cabinet for Power Cables in Bottom Cable Entry Systems

## ⚠ DANGER

### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

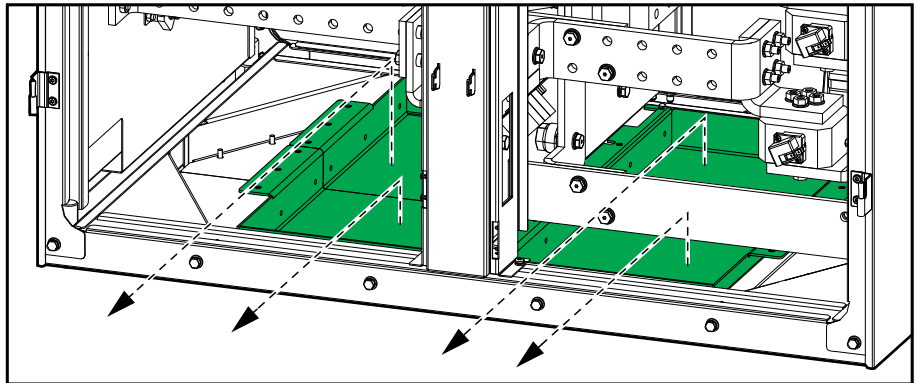
Do not drill/punch holes for cables or conduits with the gland plates installed and do not drill/punch holes in close proximity to the UPS.

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

**NOTE:** Cables to the external supply for Lithium-ion battery solution must be routed through the top of the I/O cabinet. Follow the procedure *Prepare the I/O Cabinet for Power Cables in Top Cable Entry Systems*, page 83 to prepare for cables to the external supply.

**NOTE:** You may need to elevate the cabinet by lowering the cabinet feet or reduce the floor height directly beneath the bottom gland plates to get correct wire bending range for the power cables.

1. Loosen the bolts and remove the gland plates in the bottom of the I/O cabinet.



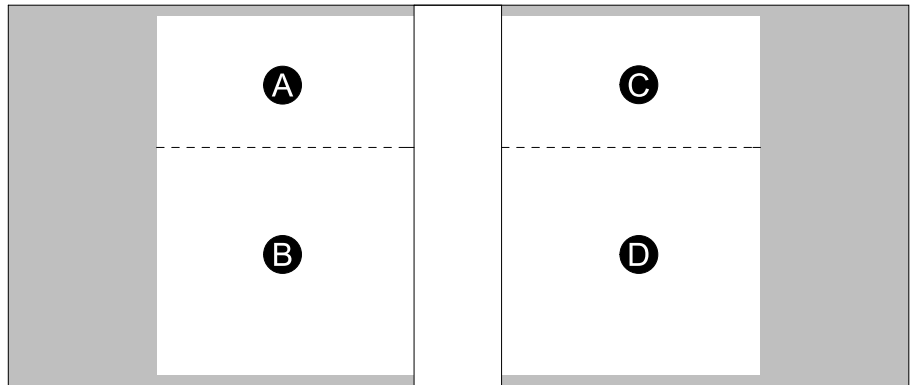
2. Drill or cut holes for cables/conduits in the bottom gland plate.

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

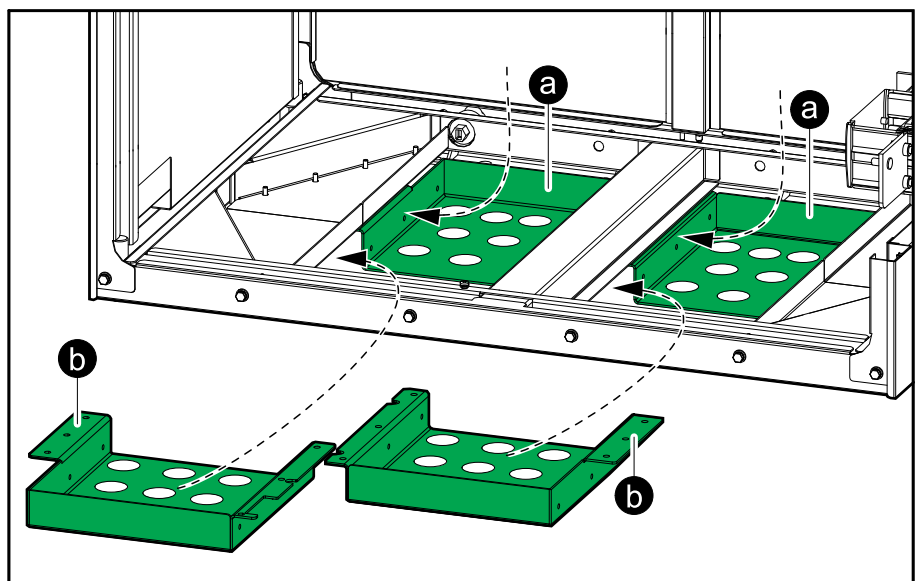
Ensure that there are no sharp edges that can damage the cables.

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



- A. For bypass cables
- B. For DC cables
- C. For output cables
- D. For input cables

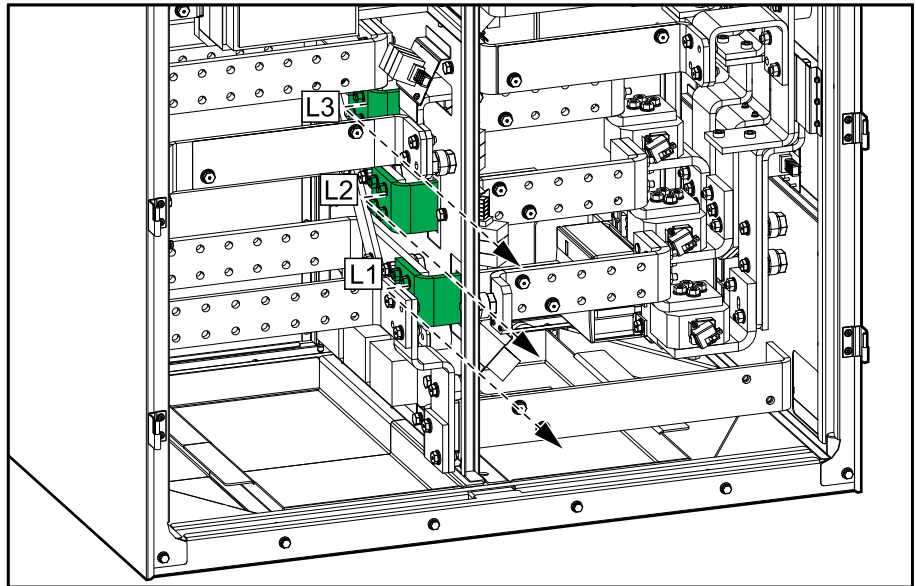
3. Install conduits and install the bottom gland plates in the indicated order below the frame.



## Remove the Single Mains Busbars

**NOTE:** This procedure is only applicable to dual mains systems.

1. Remove the three single mains busbars.



# Connect the Power Cables in a 480 V System

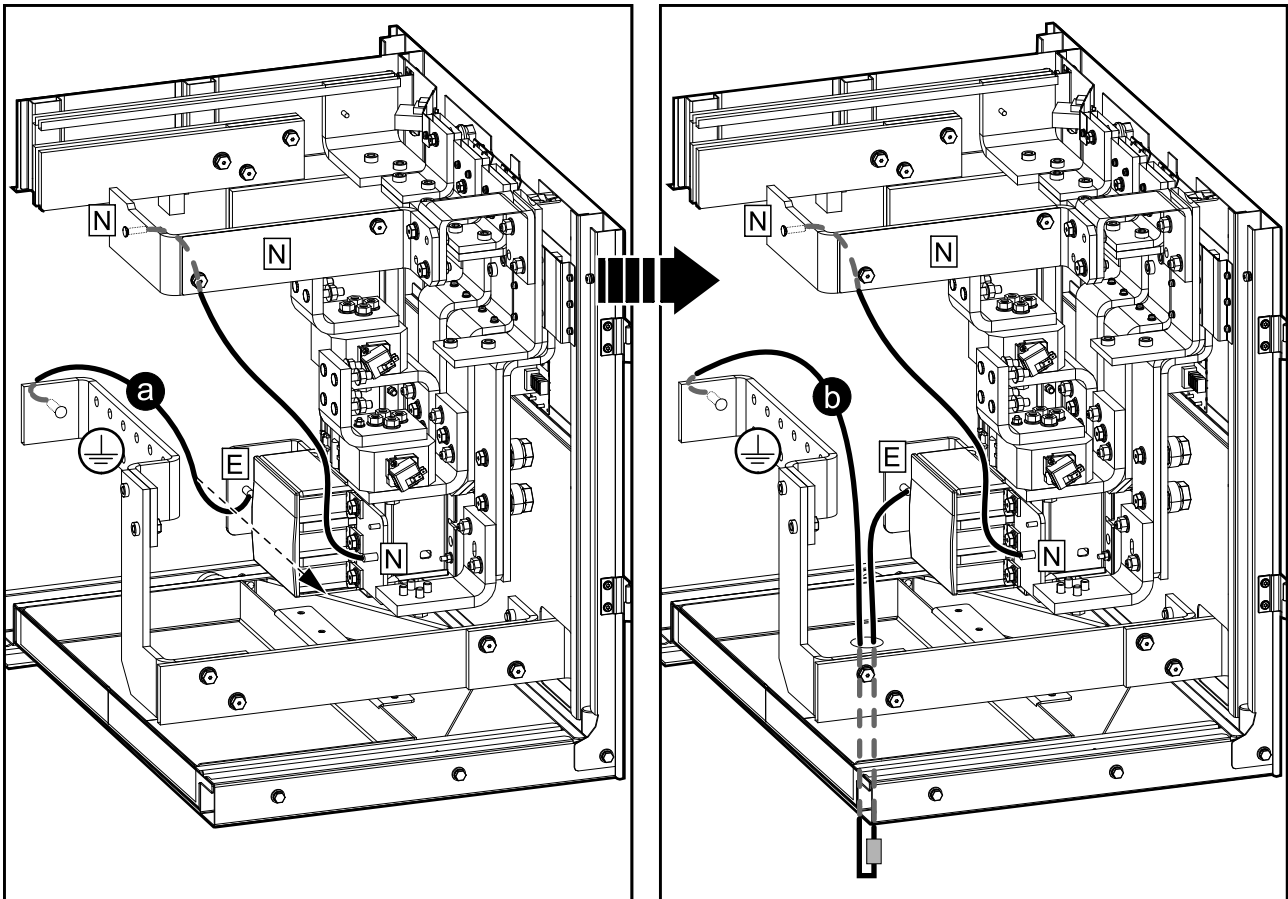
For 4-wire systems:

- Bonding jumper: Not connected
- Technical/system earth: No local grounding electrode connected

For 3-wire systems:

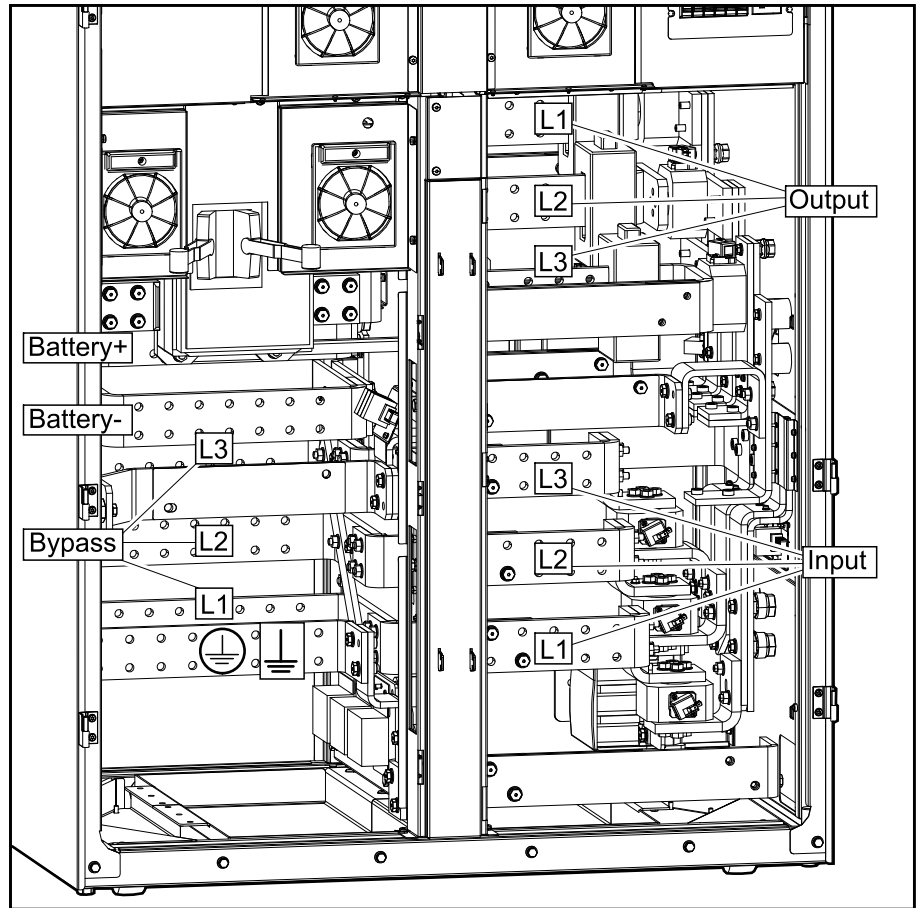
- Bonding jumper: Must be connected
- Technical/system earth: A grounding electrode must be connected via the grounding electrode conductor.

1. Only applicable to high impedance grounding systems:

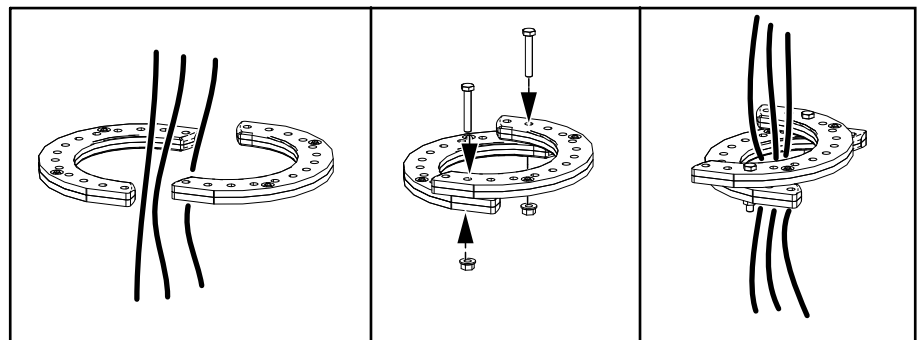


- a. Remove the jumper cable between the PE busbar and the E terminal.
- b. Connect an external impedance between the PE busbar and E terminal according to NEC 2014 article 250.36.

2. Connect the equipment grounding conductor/PE to the PE busbar.



3. Connect the input cables.
4. Only applicable to dual mains systems: Connect the bypass cables.
5. Connect the output cables.
6. Connect the DC cables to the battery+ and battery- busbars.
7. **For systems without internal backfeed breaker BF2:** Fasten the provided plastic fasteners on the bypass cables in four places at 30 cm intervals. Adjust the fasteners to the bypass cables so they are fitted tightly together.
8. **For systems without internal backfeed breaker BF2:** Fasten the provided plastic fasteners on the output cables in two places at 30 cm intervals. Adjust the fasteners to the output cables so they are fitted tightly together.





# Connect Cables to the External Supply for Lithium-ion Battery Solution (Optional)

Depending on your chosen configuration, the 1250 kW I/O cabinet may not have the battery control breakers preinstalled. If needed, the Galaxy VX Lithium-ion BMS Power Supply Kit (GVXOPT002) can be ordered and installed on site.

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

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

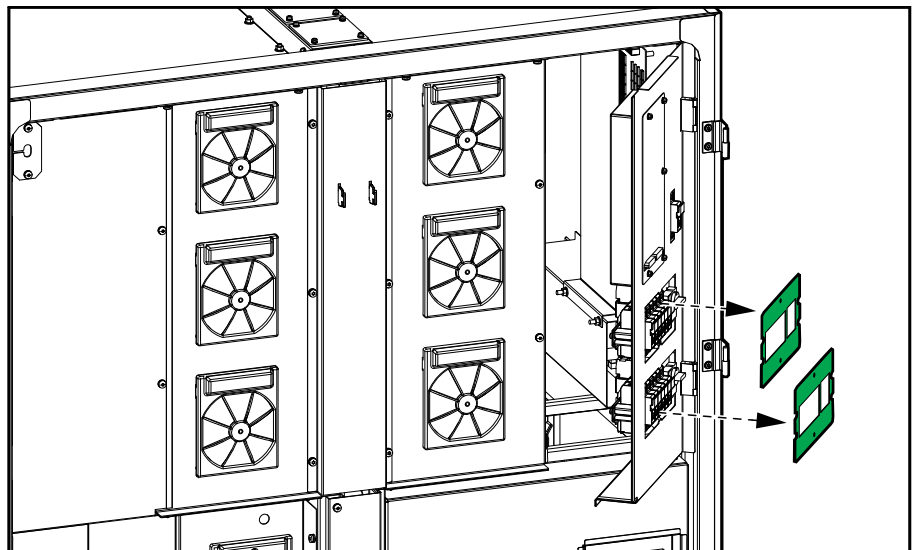
**Failure to follow these instructions will result in death or serious injury.**

The rating of the external supply breaker is 6.3 A.

## Cable Sizes for External Supply

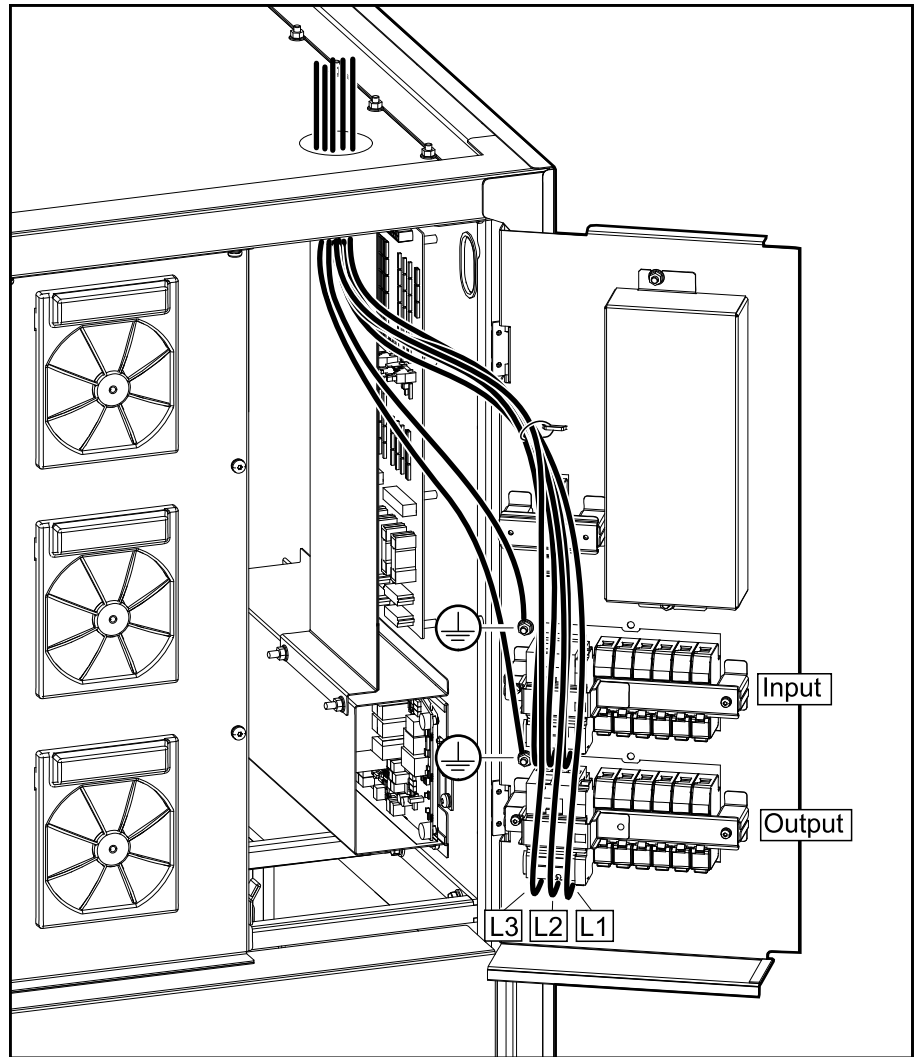
|   | Conductors per Phase | PE Conductor/Equipment Grounding Conductor | Conduit |
|---|----------------------|--|---------|
| Cable sizes for 400 V systems               | 1.5 mm <sup>2</sup>  | 1.5 mm <sup>2</sup>                        | NA      |
| Cable sizes for 480 V systems <sup>14</sup> | 1x12-18 AWG          | 1x18 AWG                                   | 0.5 in  |

1. Follow the procedure Prepare the I/O Cabinet for Power Cables in Top Cable Entry Systems, page 83 to prepare the top gland plate for cables.
2. Open the indicated door and remove the covers in front of the battery control breakers.



14. An external branch circuitry protection in accordance with the National Electric code NFPA 70 shall be provided externally if required by local regulations.

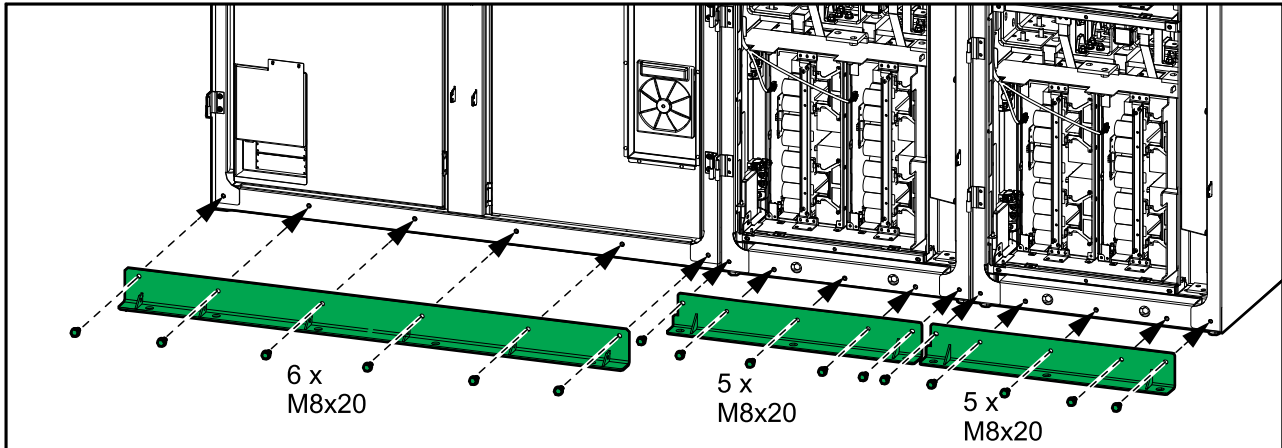
3. Connect the cables from the equipment to be supplied by the UPS.



4. Reinstall the covers in front of the battery control breakers.
5. Close the door.

# Mount the Front Anchoring Brackets

1. Fasten the front anchoring brackets to the front of the cabinets using the provided bolts.



2. Anchor the front anchoring brackets to the floor.  
**NOTE:** Floor anchoring bolts are not supplied.

# Signal Cables

**⚠ CAUTION**

**RISK OF EQUIPMENT DAMAGE**

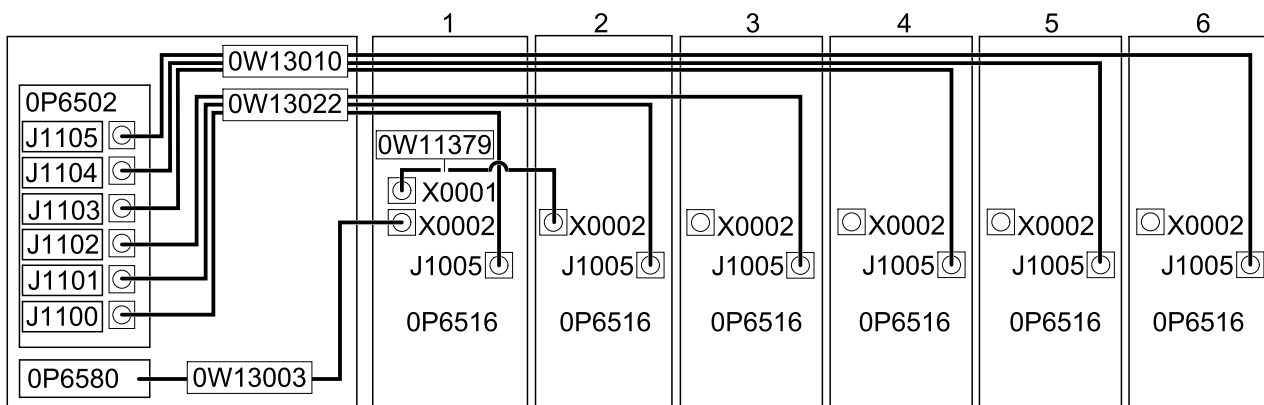
- All Class 2/SELV signal cables shall be double insulated/jacket cable and minimum rated for 30 VDC. All non-Class 2/non-SELV signal cables shall be double insulated/jacket cable and minimum rated for 600 VAC.
- The cable supplying the shunt trip shall be a jacket cable and rated for 600 VAC. The cables shall be sized taking the cable voltage drop and the recommendation of the shunt trip manufacturer into consideration.

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

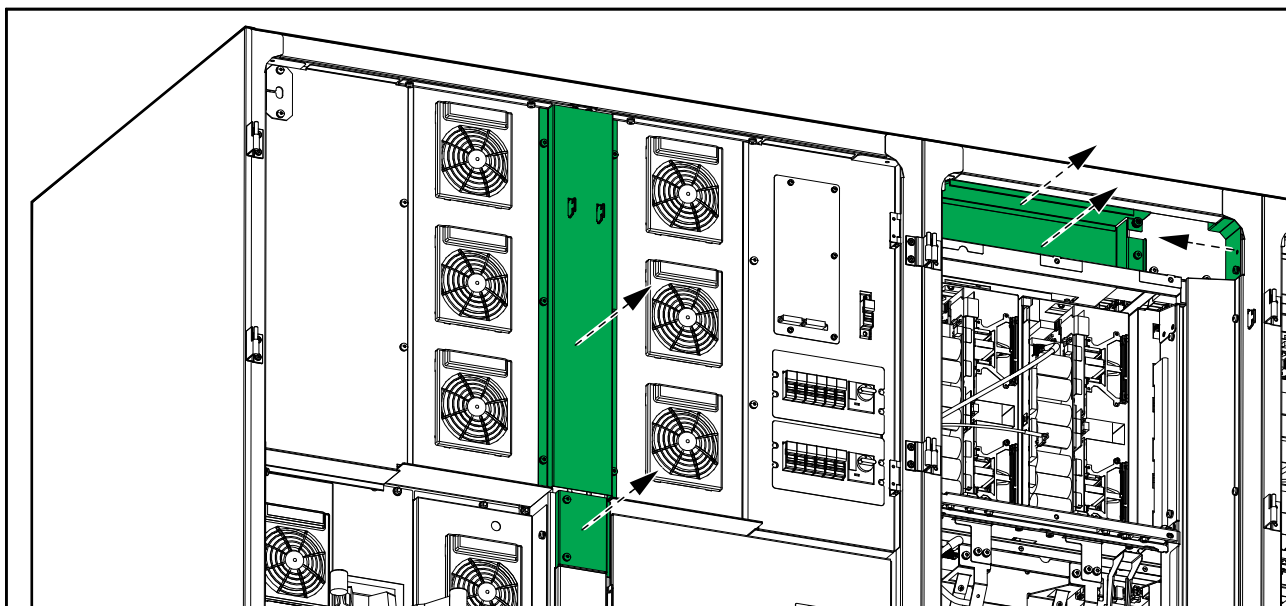
## Route the Signal Cables between the I/O Cabinet and the Power Cabinets

**NOTE:** Do not connect the signal cables. Signal cables will be connected by Schneider Electric during the assembly service.

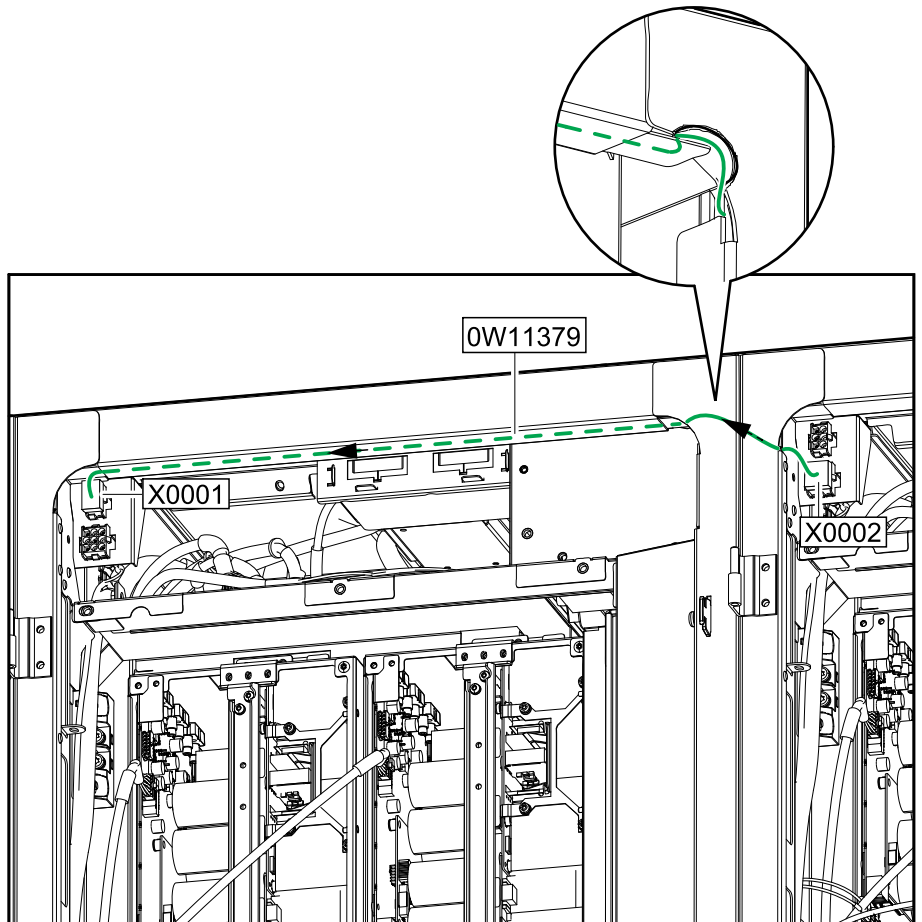
### Overview of Signal Cables between the I/O Cabinet and the Power Cabinets



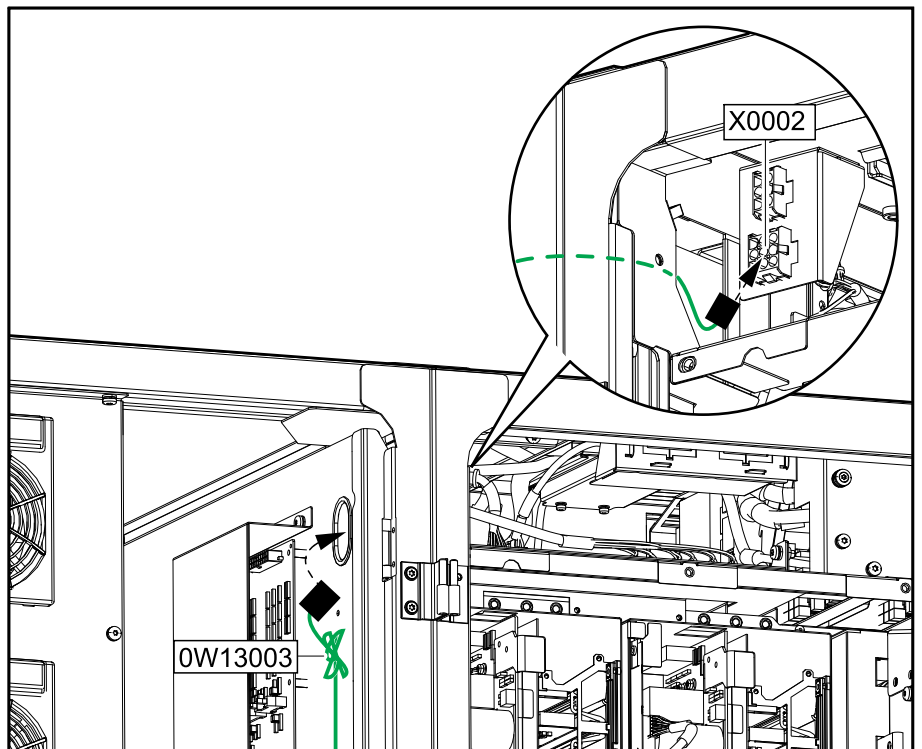
1. Remove the indicated plates from the I/O cabinet and all the power cabinets.



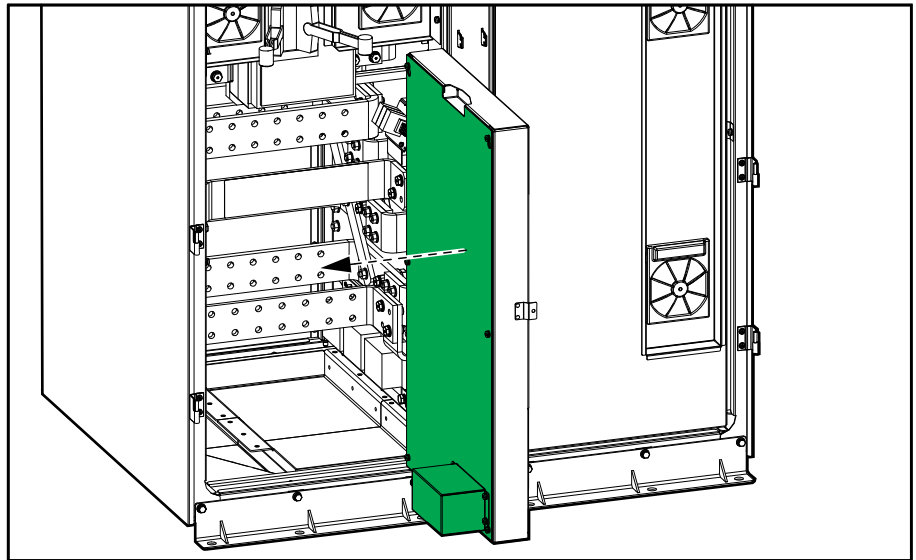
2. Route signal cable 0W11379 from X0002 in the power cabinet 2 to X0001 in power cabinet 1.



3. Route the signal cable 0W13003 preconnected in the right side of the I/O cabinet to X0002 in power cabinet 1.

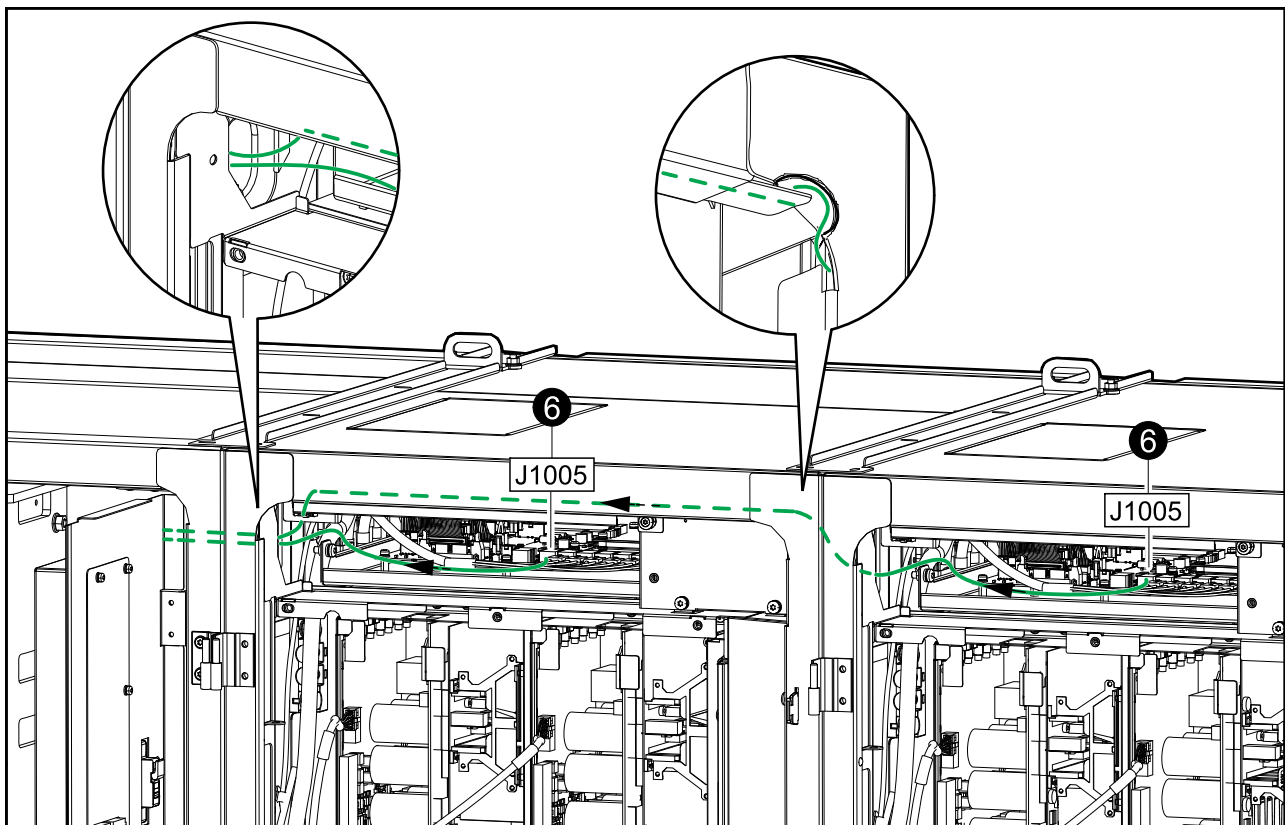


4. Open the left inner door and remove the indicated plate from the door.

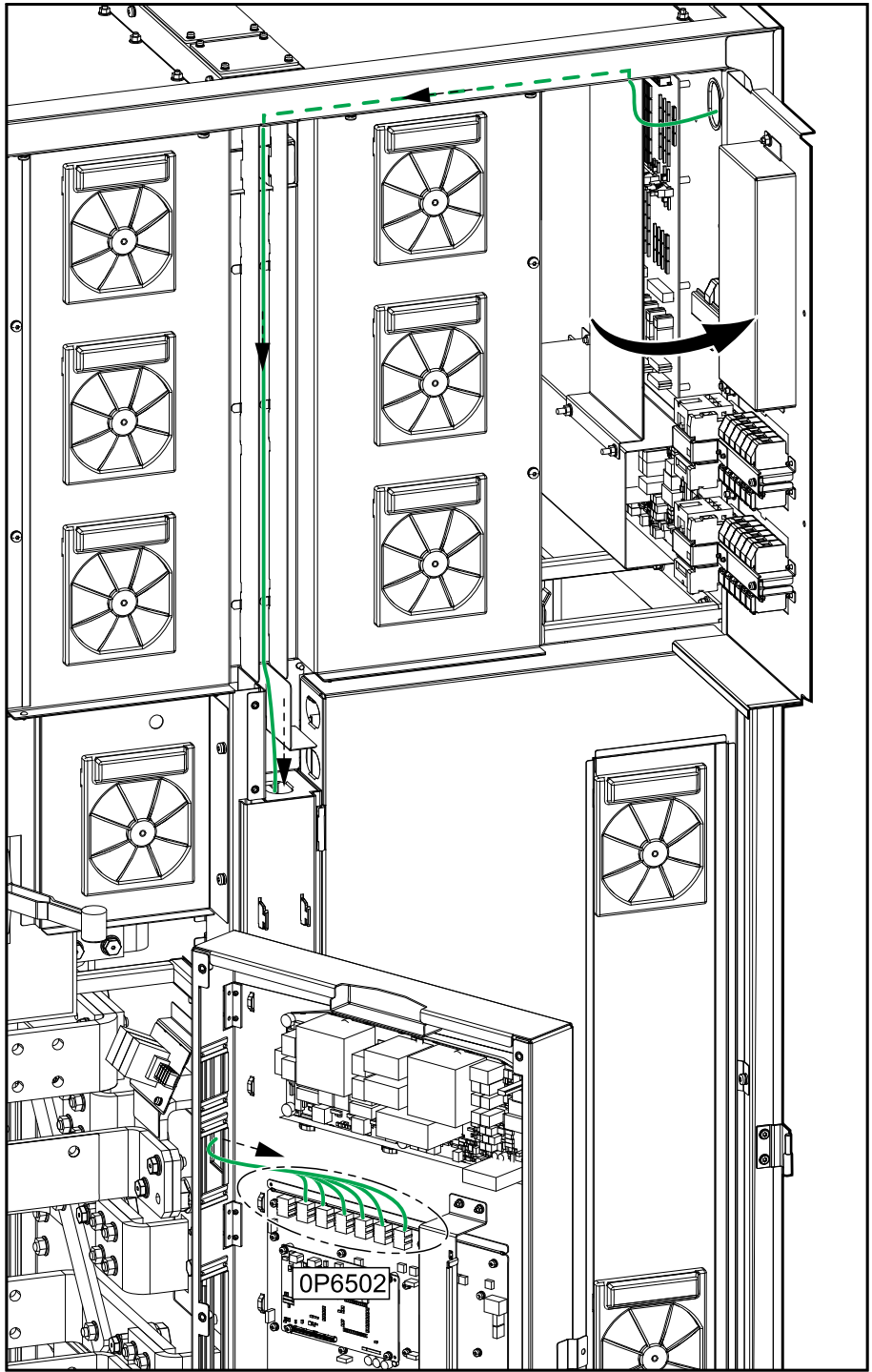


5. Route the signal cables 0W13022 (power cabinets 1-3) and 0W13010 (power cabinets 4-6) from the J1005 terminals in the power cabinets to the I/O cabinet.

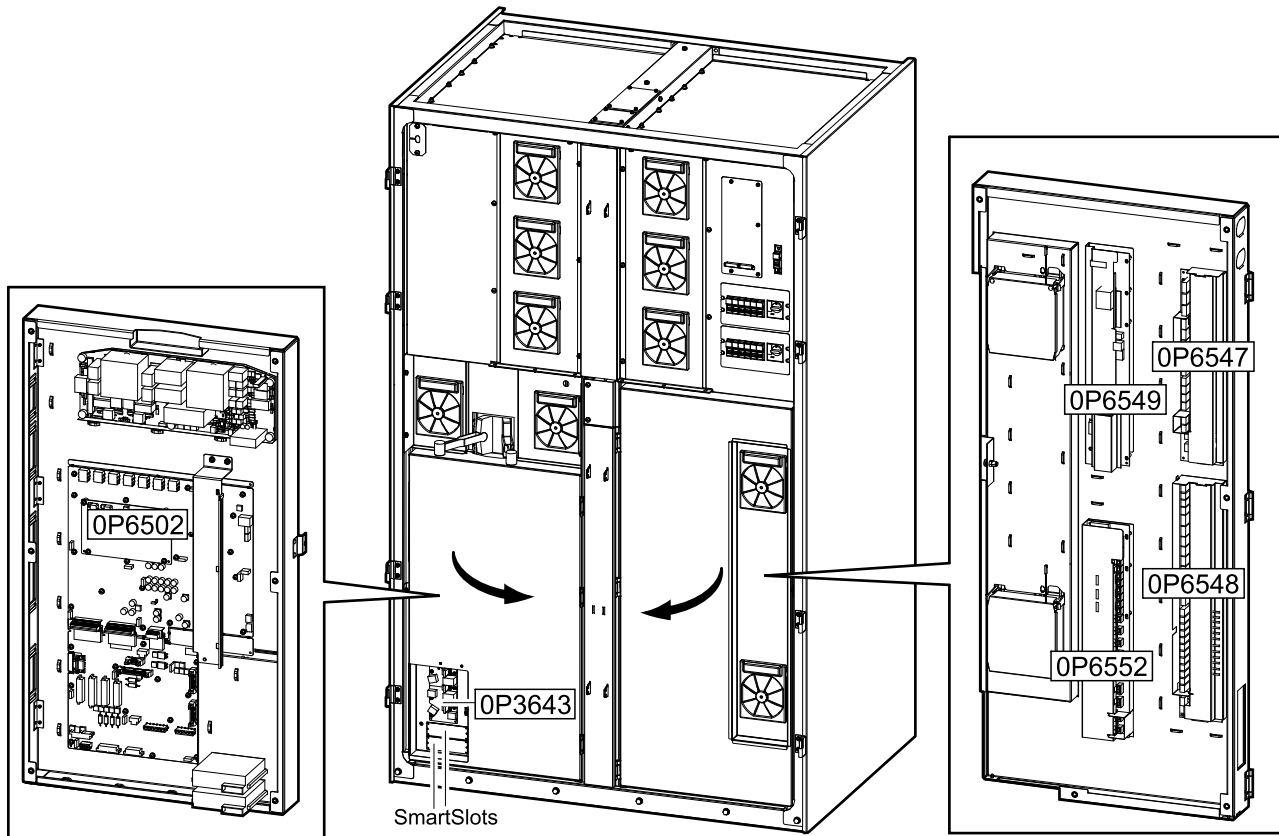
**NOTE:** Minimum bending radius is 50 mm.



6. Route the signal cables 0W13022 and 0W13010 to the board 0P6502 in the left door.



## Overview of Board Locations for External Signal Cables



Follow the procedure [Route External Signal Cables to the Boards](#), page 98 to route the external signal cables to the boards.

### Class 2/SELV

| Board  | Terminal           | Description             | See  |
|--------|--------------------|-------------------------|--|
| 0P6547 | J4931, J4932       | +24V SELV               | Connect the Emergency Power Off (EPO), page 109                                      |
|        | J4936-J4938        | EPO connections         |  |
| 0P6548 | J5502-J5505, J5510 | Input contacts IN1-IN5  | Overview of Input Contacts and Output Relays, page 102                               |
|        | J5506              | Input contact IN9       |  |
|        | J5520-J5525, J5528 | Output relays OUT8,9,10 |  |
|        | J5527              | Kirk key control        | Signal Cable Connections to the Switchgear (Boards 0P6547, 0P6548, 0P6549), page 104 |
|        | J5514              | UOB lamp control        |  |
|        | J5515              | MBB lamp control        |  |
|        | J5516              | SIB lamp control        |  |
|        | J5517              | SSIB lamp control       |  |
| J5509  | Redundant UOB AUX  |                         |  |
| 0P3643 | PBUS1, PBUS2       | PBUS                    | PBUS Cable Connections (Board 0P3643), page 106                                      |
| 0P6502 |                    | Modbus                  | Modbus Connections (Board 0P6502), page 107  |



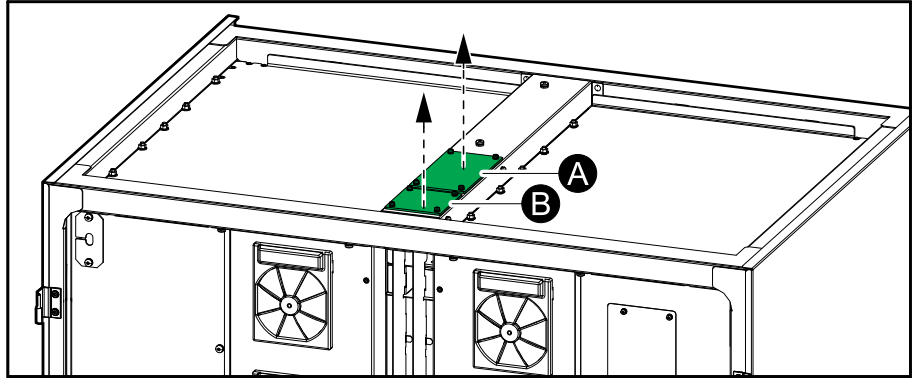
**Non-Class 2/Non-SELV**

| Board  | Terminal                  | Description                                 | See  |
|--------|---------------------------|---|--|
| 0P6547 | J4939-J4941 <sup>15</sup> | Configurable output relays OUT1, OUT2, OUT3 | Overview of Input Contacts and Output Relays, page 102   |
| 0P6549 | J5607                     | MBB   | Signal Cable Connections to the Switchgear (Boards 0P6547, 0P6548, 0P6549), page 104   |
|        | J5608                     | SIB   |  |
|        | J5620                     | SSIB  |  |
|        | J5621                     | UOB   |  |
|        | J5622                     | UIB   |  |
|        | J5611, J5612, J5613       | External sync - L1, L2, L3                  | Signal Cables for External Synchronization, page 109   |
|        | J5609                     | Battery breaker 1                           | Signal Cable Connections to Classic Battery Cabinets (Boards 0P6547, 0P6549, 0P6552), page 105 and Signal Cable Connections to Battery Breaker Cabinet (Boards 0P6547, 0P6548, 0P6549), page 106 |
| J5610  | Battery breaker 2         |   |  |
| 0P6548 | J5529                     | Battery temperature sensor 1                |  |
| 0P6547 | J4942, J4943              | 24V supply 1                                |  |
|        | J4929, J4930              | 24V supply 2                                |  |
|        | J4923                     | DC shunt trip 1                             |  |
|        | J4924                     | DC shunt Trip 2                             |  |
| 0P6552 | J9019                     | Battery breaker 3                           |  |
|        | J9020                     | Battery breaker 4                           |  |
|        | J9021                     | Battery temperature sensor 2                |  |
|        | J9022, J9023              | 24V supply 3                                |  |
|        | J9024, J9025              | 24V supply 4                                |  |

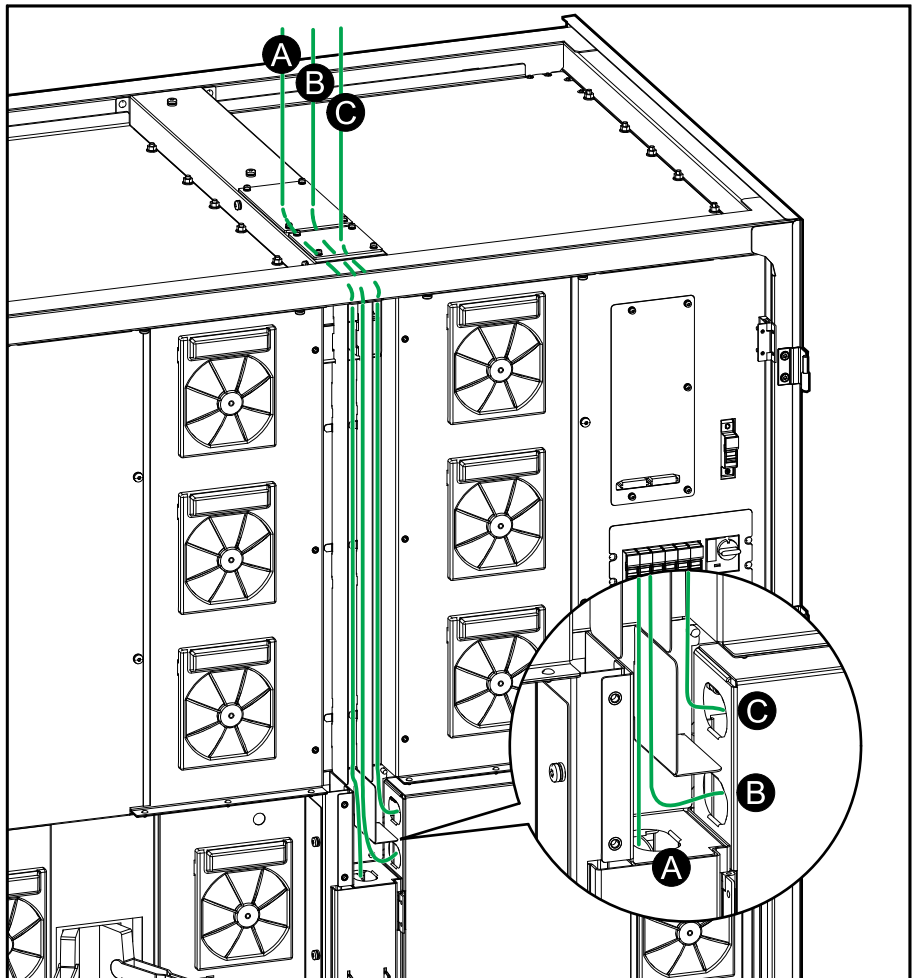
15. These output relays can also be Class 2/SELV but the three output relays must have identical reference.

## Route External Signal Cables to the Boards

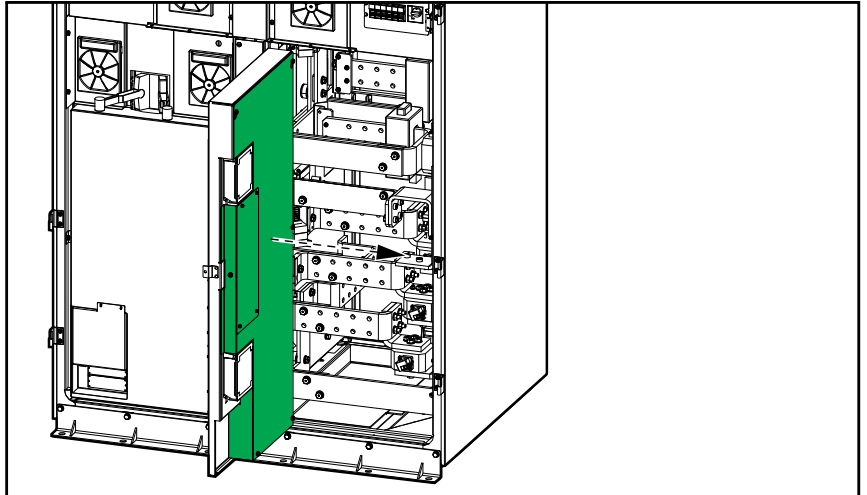
1. Remove the two gland plates from the top of the I/O cabinet and drill holes for the applicable Class 2/SELV (A) and non-Class 2/non-SELV (B) signal cables. Install conduits and reinstall the plates.



2. Route the external signal cables through the cable channel and through the correct openings:
  - A. Class2/SELV cables to the boards in the left door.
  - B. Class2/SELV cables to the boards in the right door.
  - C. Non-class 2/Non-SELV cables to the boards in the right door.

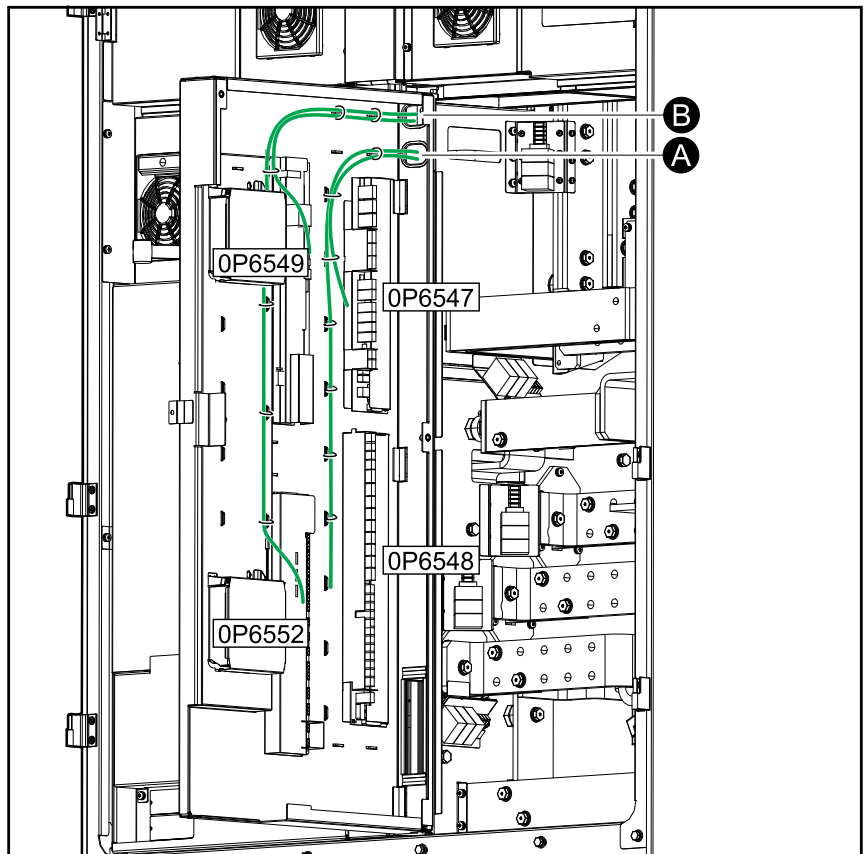


3. Route the external signal cables to the boards in the right door:
  - a. Open the right door and remove the plate from the inner door.

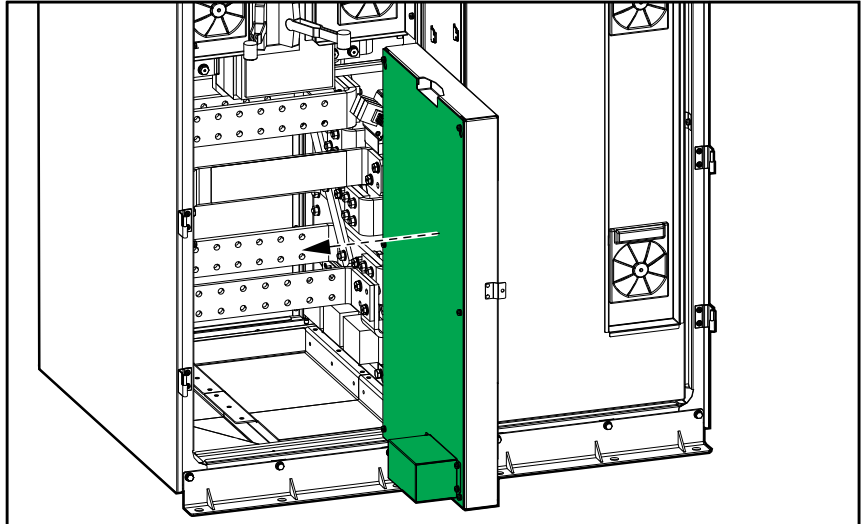


- b. Route the cables to the board terminals and fasten with the provided cable ties. Class 2/SELV cables (A) must be routed separated from non-Class 2/non-SELV cables (B) as shown on the illustration.

**NOTE:** The external signal cables must be long enough for the door to fully open.



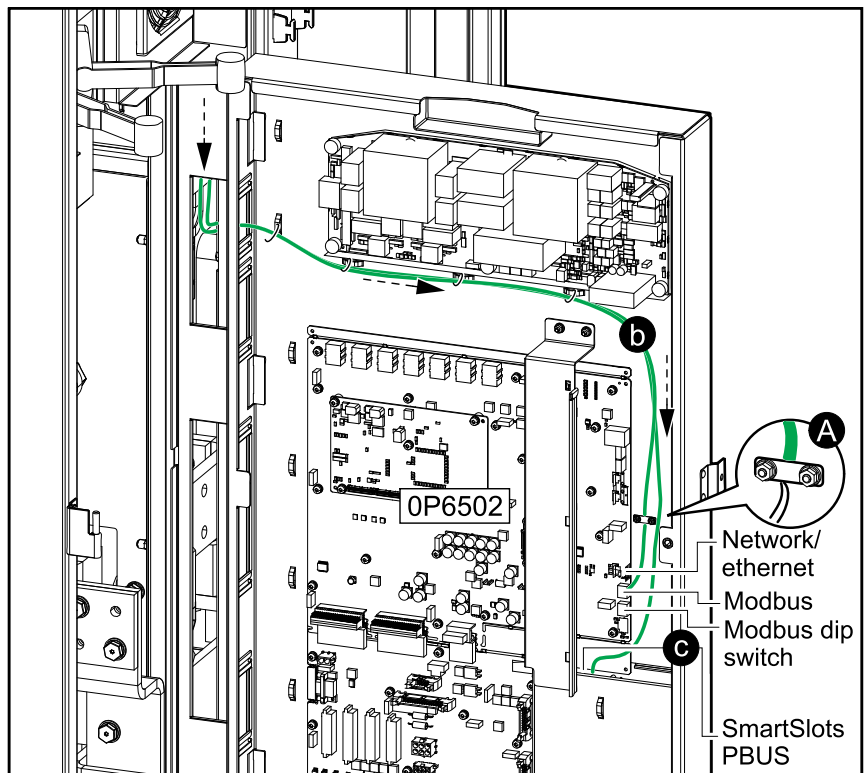
4. Route the external signal cables to the boards in the left door:
  - a. Open the left door and remove the plate from the inner door.



- b. Route the external signal cables to the terminals and fasten with the provided cable ties.

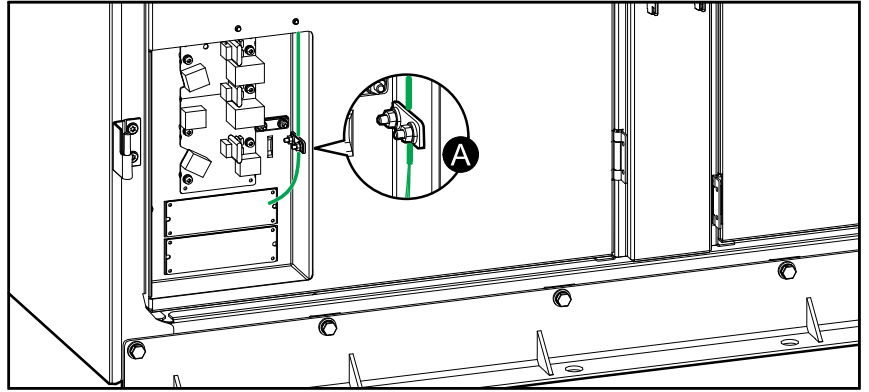
**NOTE:** The external signal cables must be long enough for the doors to fully open.

**NOTE:** Use the plate (A) for shielding of the Modbus cable.



- c. Close the door and route the PBUS cables and cables for the network management cards to the front.

**NOTE:** If the input dry contact AP9810 is connected to AP9631 or AP9635CH, the total length of cables for connected equipment must not exceed 30 m (98 ft). Use the plate for shielding (A).



# Overview of Input Contacts and Output Relays

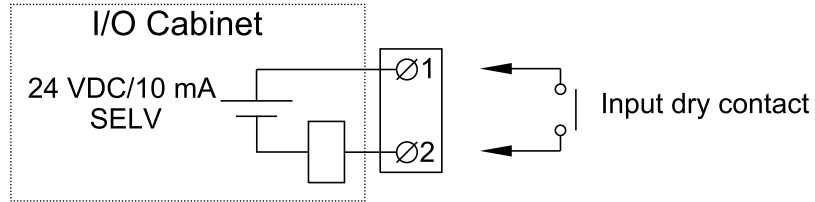
## Input Contacts

Do not connect any circuit to the input contacts unless it can be confirmed that the circuit is Class 2/SELV.

All circuits connected must have the same 0 V reference.

The input contacts support 24 VDC 10 mA.

The switch SW5500 on 0P6548 is used to select between internal SELV supply for inputs (standard setting) and external supply<sup>16</sup>. If external supply is selected, the supply must be connected to J5530.

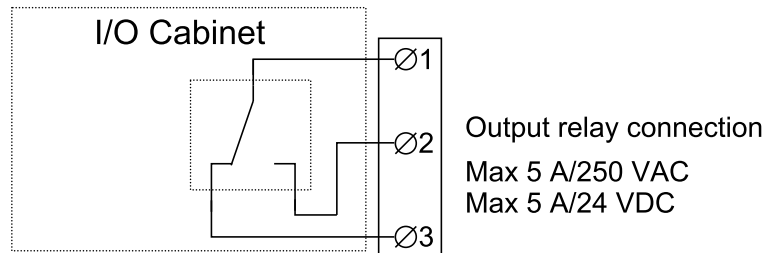


| Name             | Description                           | Location                            |
|------------------|---------------------------------------|-------------------------------------|
| IN 1 (Contact 1) | Configurable input contact            | 0P6548 terminal J5502 <sup>17</sup> |
| IN 2 (Contact 2) | Configurable input contact            | 0P6548 terminal J5503 <sup>17</sup> |
| IN 3 (Contact 3) | Configurable input contact            | 0P6548 terminal J5504 <sup>17</sup> |
| IN 4 (Contact 4) | Configurable input contact            | 0P6548 terminal J5505 <sup>17</sup> |
| IN 5 (Contact 5) | Configurable input contact            | 0P6548 terminal J5510 <sup>17</sup> |
| IN 6             | UOB redundant AUX contact             | 0P6548 terminal J5509 <sup>17</sup> |
| IN 7             | Transformer temperature switch        | 0P6548 terminal J5508 <sup>17</sup> |
| IN 8             | External bonding contact              | 0P6548 terminal J5507 <sup>17</sup> |
| IN 9             | Forced external synchronization input | 0P6548 terminal J5506 <sup>17</sup> |
| IN 10            | External synchronization requested    | 0P6548 terminal J5511 <sup>17</sup> |
| IN 11            | Use static bypass standby             | 0P6548 terminal J5512 <sup>17</sup> |
| IN 14            | MegaTie                               | 0P6552 terminal J9027 <sup>17</sup> |

## Output Relays

**NOTE:** Maximum 250 VAC 5 A must be connected to the output relays.

All external circuitry must be fused with maximum 5 A fast acting fuses.



16. An external supply is useful in parallel systems where inputs are connected between different UPSs. This is to have a common reference and to avoid cross currents.

17. Class 2/SELV wiring

| Name             | Description                               | Location                            |
|------------------|---|-------------------------------------|
| OUT 1 (Relay 1)  | Configurable output relay                 | 0P6547 terminal J4939               |
| OUT 2 (Relay 2)  | Configurable output relay                 | 0P6547 terminal J4940               |
| OUT 3 (Relay 3)  | Configurable output relay                 | 0P6547 terminal J4941               |
| OUT 4            | Forced external synchronization output    | 0P6548 terminal J5520 <sup>18</sup> |
| OUT 5            | MegaTie                                   | 0P6548 terminal J5521 <sup>18</sup> |
| OUT 6            | External synchronization requested output | 0P6548 terminal J5522 <sup>18</sup> |
| OUT 7            | UPS in inverter ON                        | 0P6548 terminal J5523 <sup>18</sup> |
| OUT 8 (Relay 4)  | Configurable output relay                 | 0P6548 terminal J5524 <sup>18</sup> |
| OUT 9 (Relay 5)  | Configurable output relay                 | 0P6548 terminal J5525 <sup>18</sup> |
| OUT 10 (Relay 6) | Configurable output relay                 | 0P6548 terminal J5528 <sup>18</sup> |
| OUT 14           | Bonding contactor                         | 0P6552 terminal J9029 <sup>18</sup> |

**NOTE:** Refer to the operation manual for configuration options.

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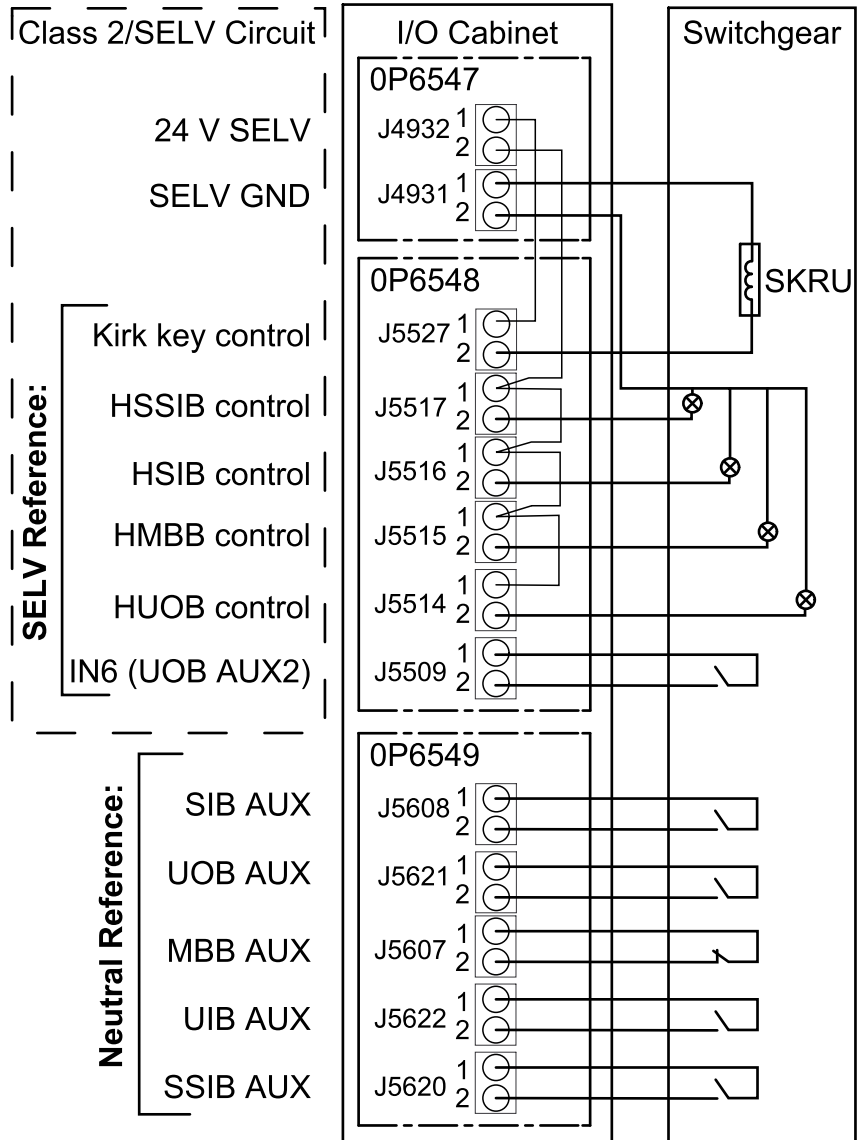
18. Class 2/SELV wiring

## Signal Cable Connections to the Switchgear (Boards 0P6547, 0P6548, 0P6549)

**NOTE:** The unit output breaker UOB must include two separated AUX switches.

**NOTE:** The solenoid key release unit (SKRU) is only applicable to 480 V systems.

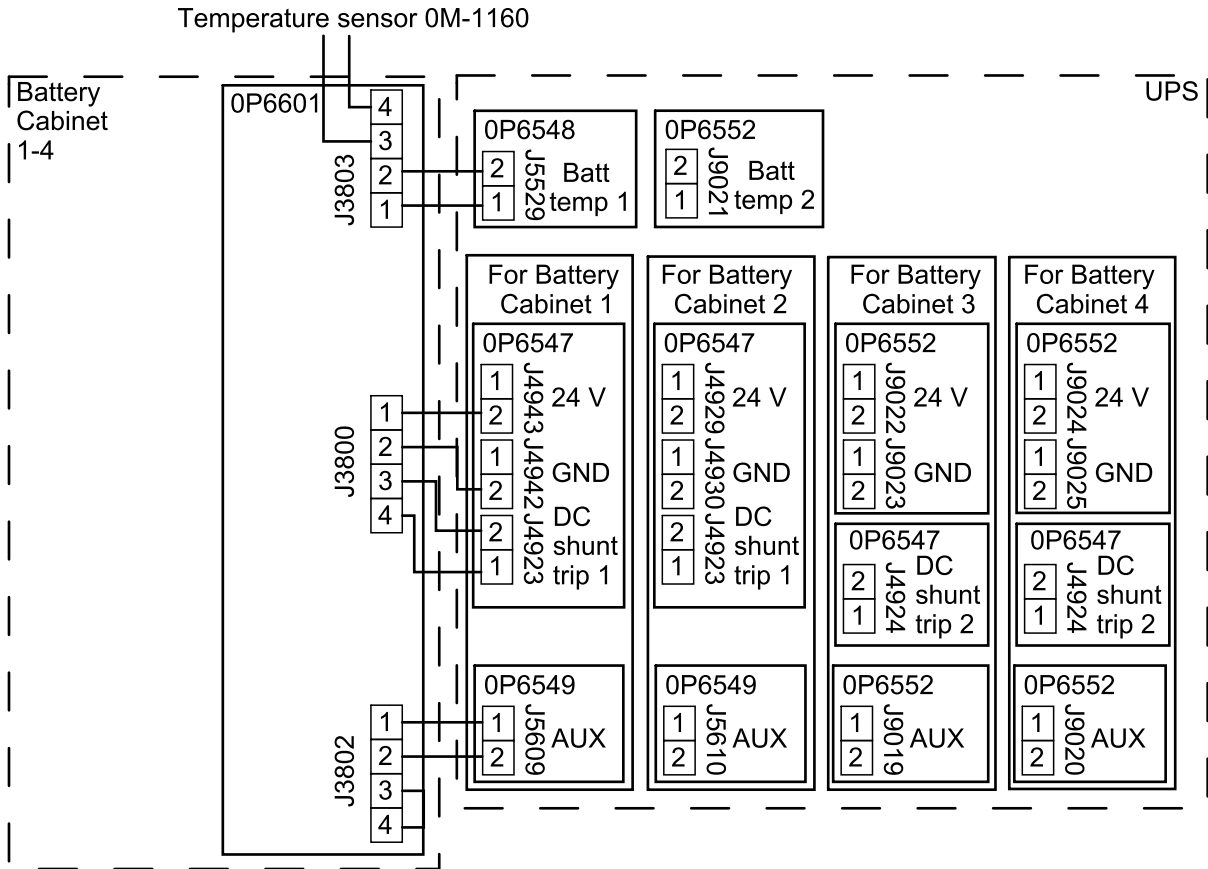
All circuits connected must have the same 0 V reference.





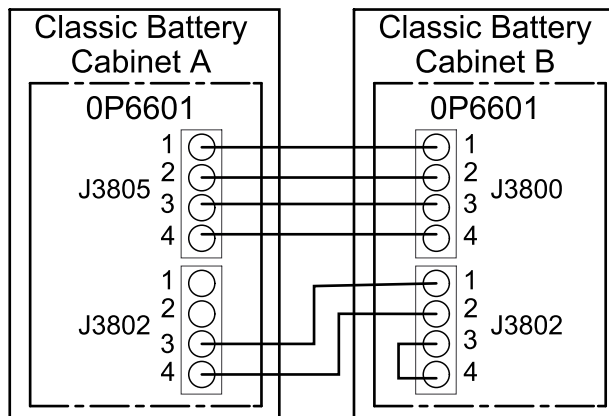
# Signal Cable Connections to Classic Battery Cabinets (Boards 0P6547, 0P6549, 0P6552)

**NOTE:** The illustration below shows a system with four battery banks, each consisting of one classic battery cabinet. Connect signal cables according to the number of classic battery cabinets in your installation.

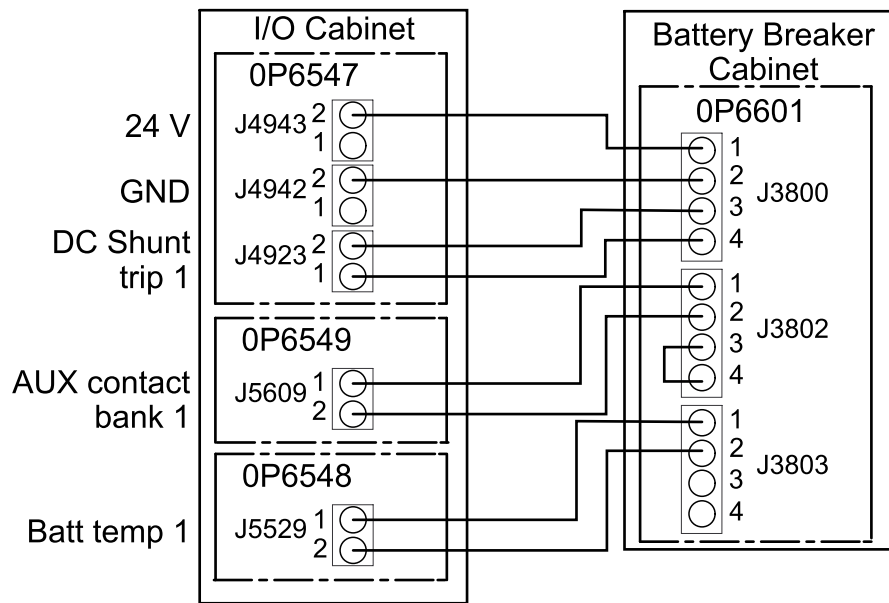


If the battery bank is consisting of two classic battery cabinets, connect signal cables between the two classic battery cabinets in one battery bank as shown.

### Battery Bank



## Signal Cable Connections to Battery Breaker Cabinet (Boards 0P6547, 0P6548, 0P6549)

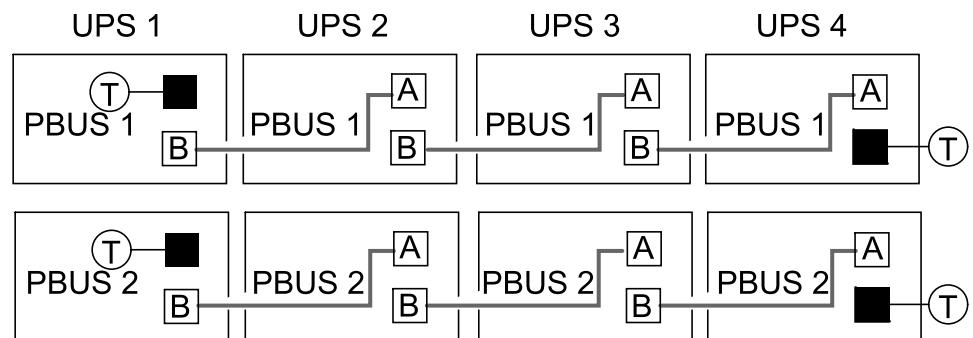


## PBUS Cable Connections (Board 0P3643)

**NOTE:** The PBUS 1 cables are white and the PBUS 2 cables are red.

**NOTE:** The total length of the PBUS cables must not exceed 60 m (197 ft).

### Example of System with Four UPSs in Parallel

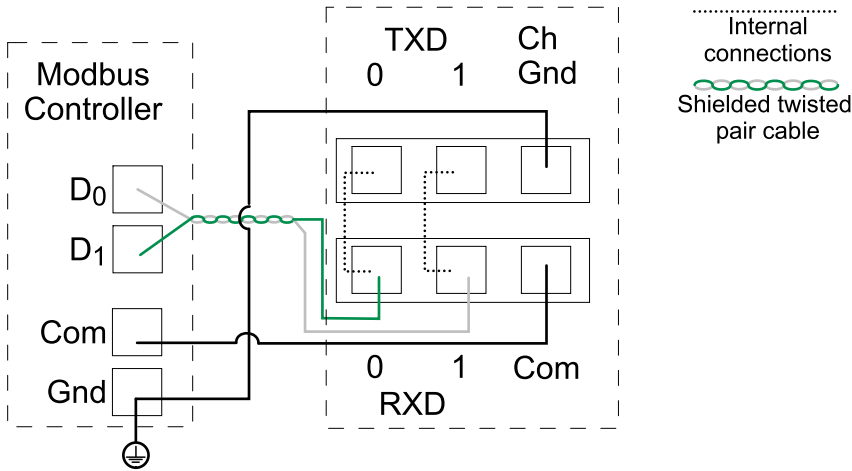


## Modbus Connections (Board 0P6502)

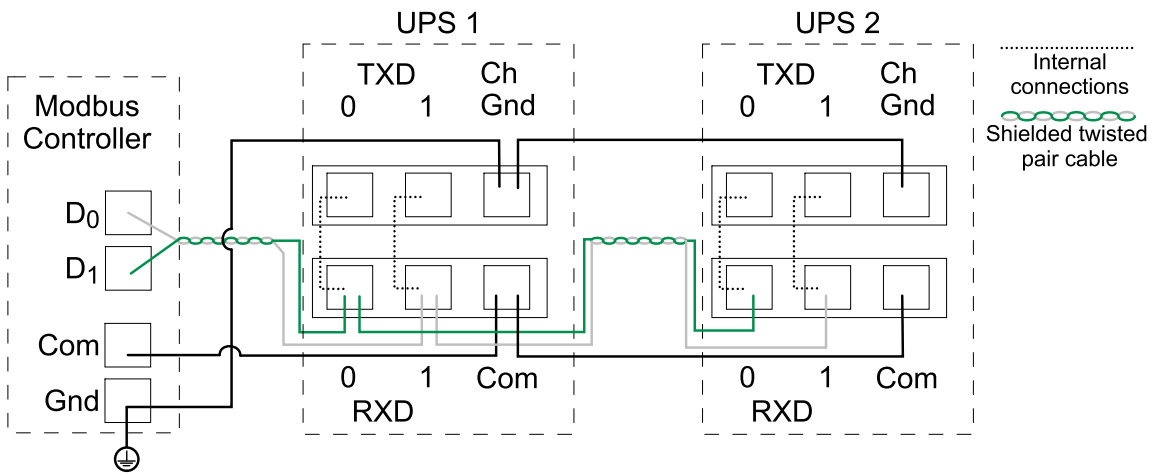
**NOTE:** Terminators for Modbus connection is provided in installation kit 0H-9385.

**NOTE:** Shielded cables must be used for Modbus connections. The shield connection to the ground must be as short as possible (ideally below 1 cm). All Modbus signal cables shall be double insulated/jacket cable and minimum rated for 30 VDC.

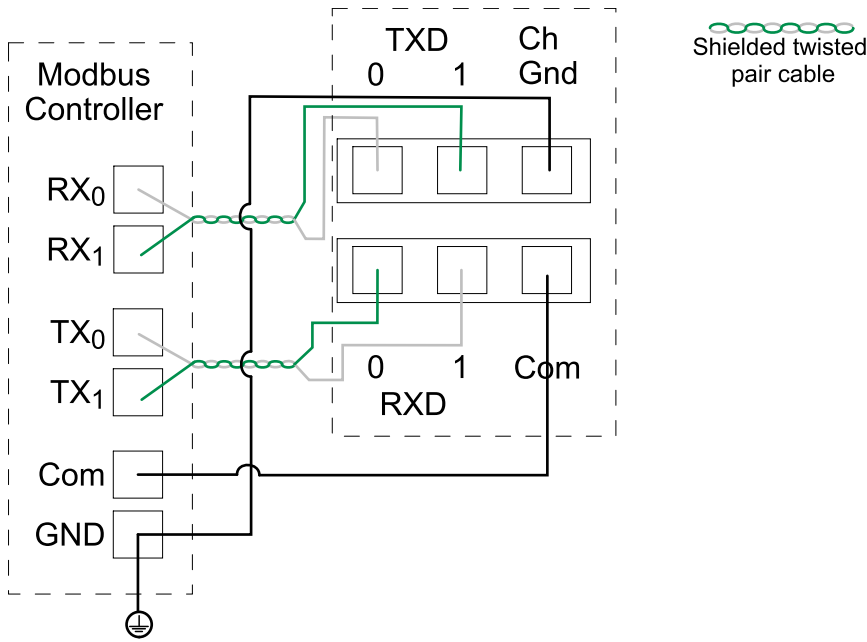
### 2-Wire Connection with One UPS



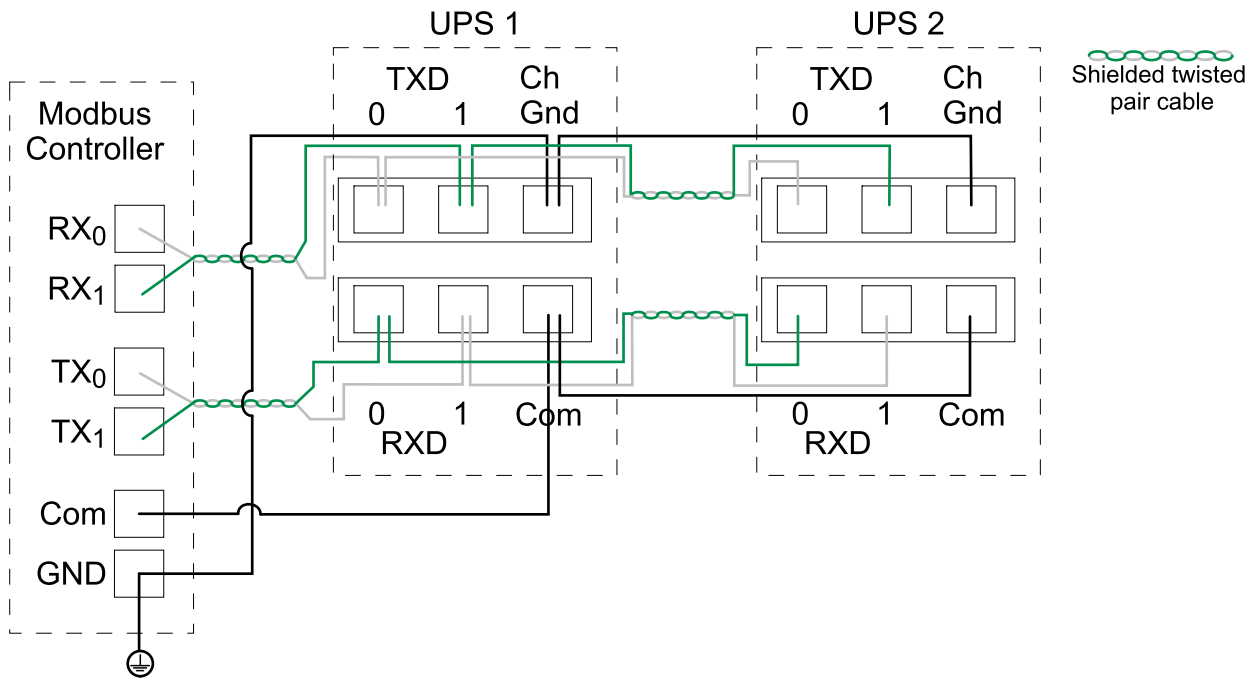
### Example: 2-Wire Connection with Two UPSs



**Example: 4-Wire Connection with One UPS**

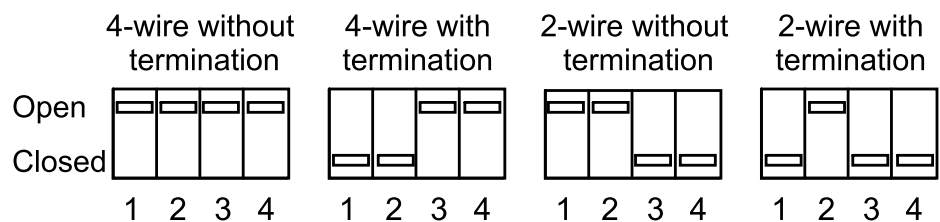


**Example: 4-Wire Connection with Two UPSs**



**Modbus Dip Switch Settings**

The Modbus dip switches must be set to match your installation:



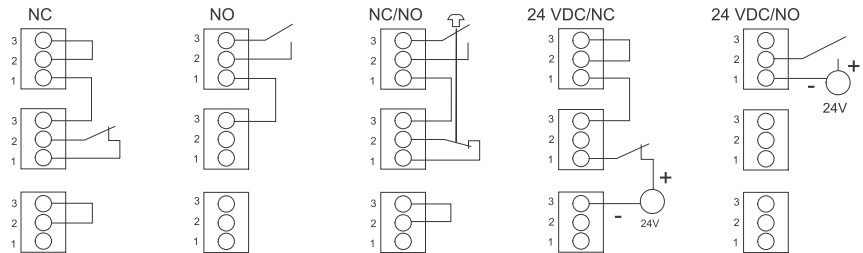
## Connect the Emergency Power Off (EPO)

Do not connect any circuit to the EPO terminal block unless it can be confirmed that the circuit is Class 2/SELV.

All circuits connected must have the same 0 V reference.

The EPO input supports 24 VDC.

1. Route the cables from your EPO through the top of the I/O cabinet and to the EPO terminals J4936-J4938 on 0P6547 as shown in Route External Signal Cables to the Boards, page 98.
2. Connect the building EPO to the terminal block according to one of the options below.



**NOTE:** Do not connect the terminal block to the board. Signal cables will be connected by Schneider Electric during the assembly service.

## Signal Cables for External Synchronization

The maximum voltage for external synchronization is equal to the input voltage range given in the specifications. The non-Class 2/non-SELV cables for external synchronization shall be a jacket cable and rated for 600 VAC.

1. Route the external synchronization cables through the top of the I/O cabinet to 0P6549 as shown in Route the Signal Cables between the I/O Cabinet and the Power Cabinets, page 92.

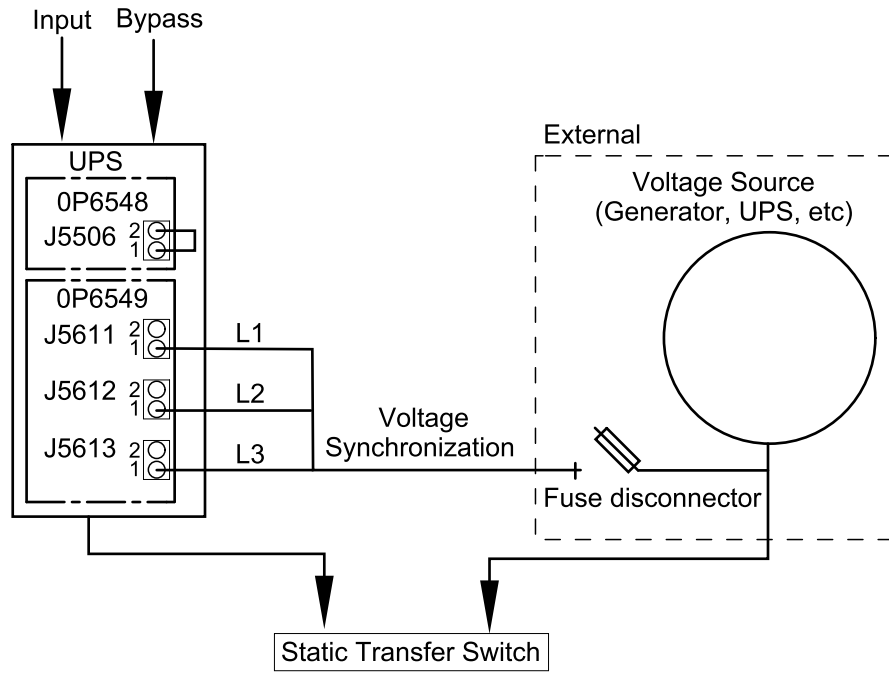
2. Connect the three phases to the terminal block:

**NOTE:** The phases from the synchronization source must be protected by a fuse of maximum 0.5 A.

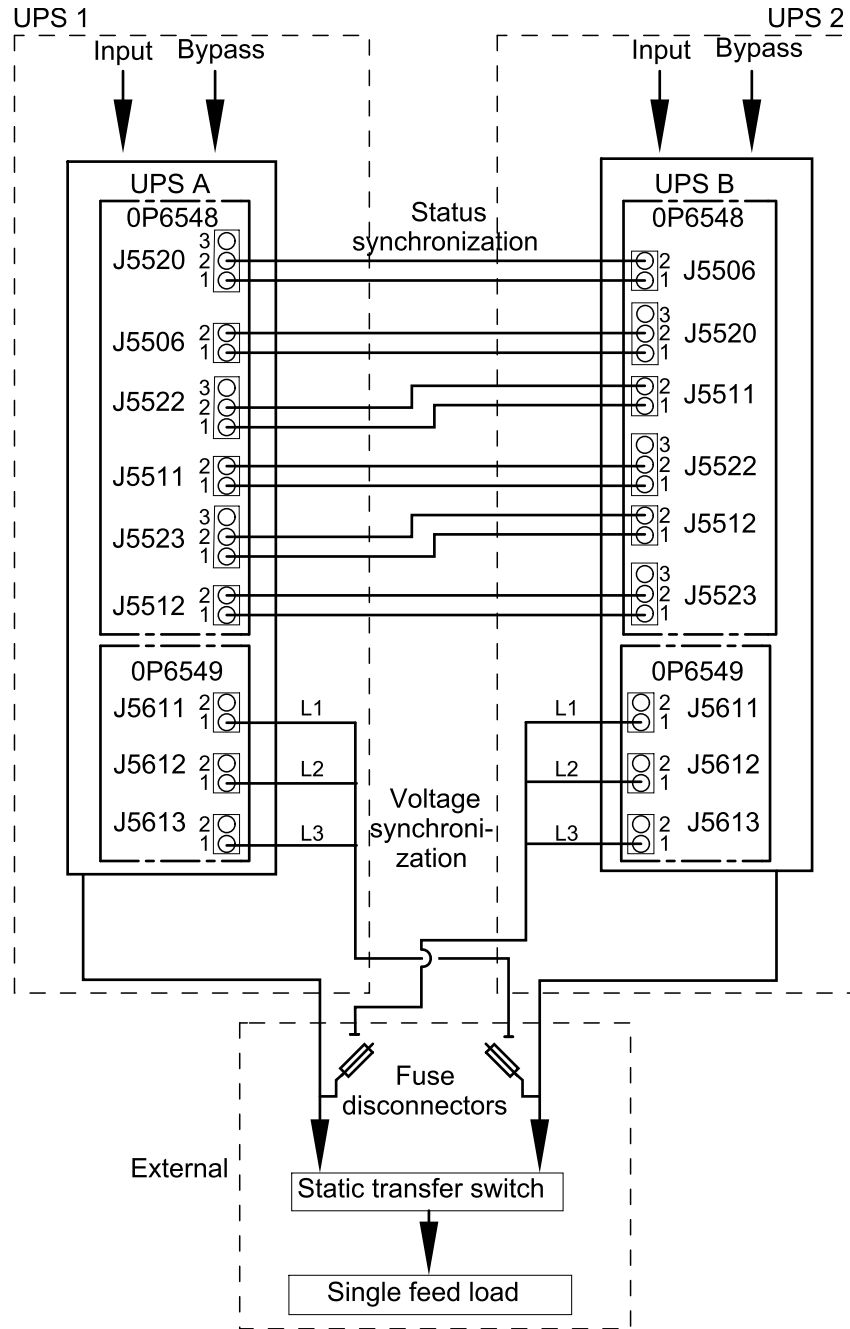
**NOTE:** Do not connect the terminal block to the board. Signal cables will be connected by Schneider Electric during the assembly service.

- a. Connect L1 to J5611 on 0P6549.
- b. Connect L2 to J5612 on 0P6549.
- c. Connect L3 to J5613 on 0P6549.

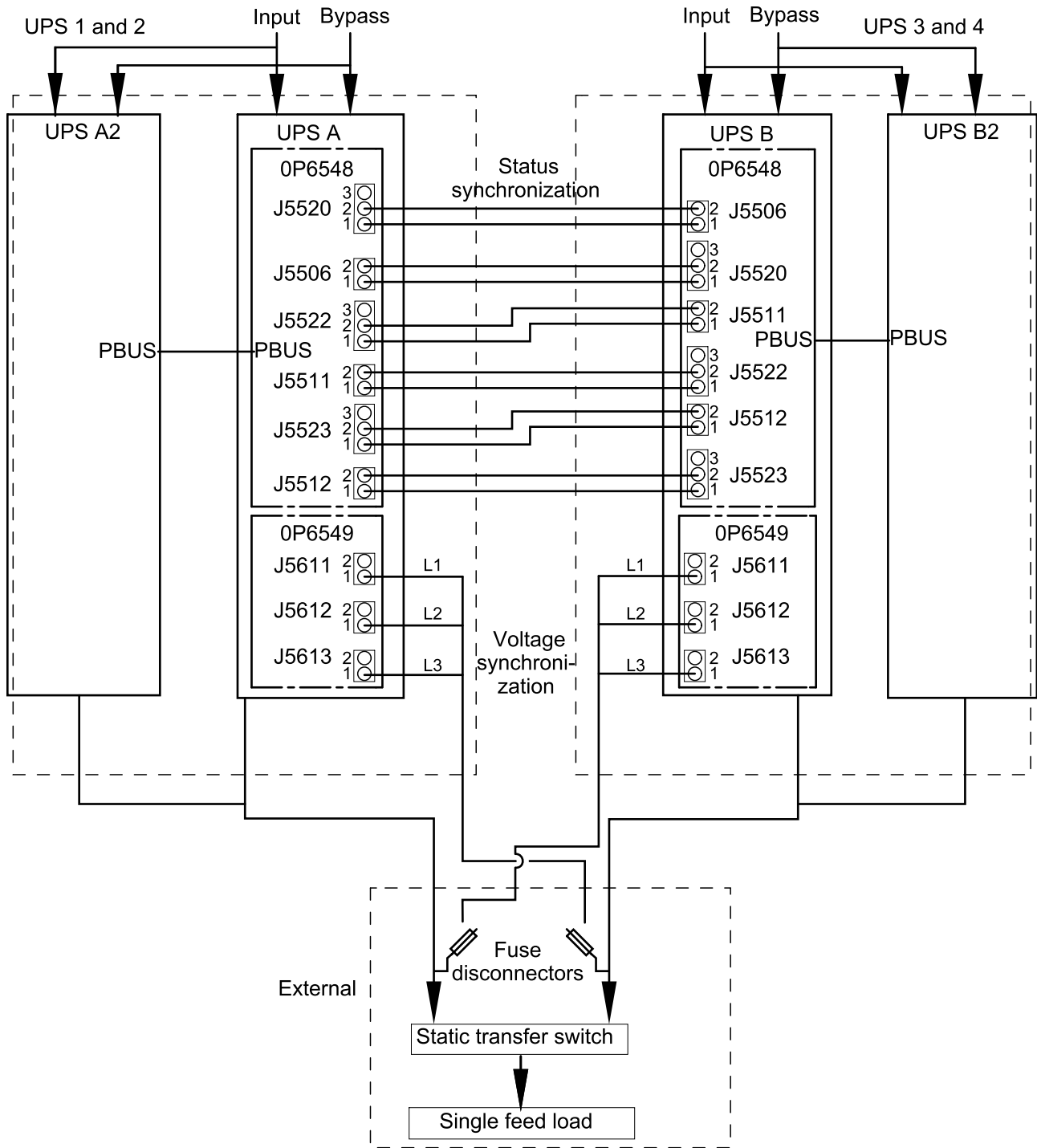
### Signal Cable Connections for Basic UPS Synchronization to a Fixed Voltage Source (Boards 0P6548, 0P6549)



### Signal Cable Connections for Dual UPS Synchronization with a Floating Synchronization Master (Boards OP6548, OP6549)



**Signal Cable Connections for Fixed Parallel Synchronization Master (Boards 0P6548, 0P6549)**





## Backfeed Protection

### **⚠️⚠️ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Mandatory backfeed protection on bypass must be implemented by one of the following methods:

- Preinstalled backfeed breaker BF2 in the UPS.
- Installation of internal backfeed kit (GVXOPT001) in the UPS. Follow the installation manual provided with the internal backfeed kit.
- Installation of upstream breaker with shunt trip connected to the UPS. See diagrams and instructions in *Installation of Third Party Backfeed Protection*, page 113.

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

## Installation of Third Party Backfeed Protection

Connect the breaker shunt trip and AUX switch to the UPS as shown below. Use double insulated cables. Breaker shunt trip must be rated for 24 VDC nominal, inrush max 100 W. The cable supplying the shunt trip shall be a jacket cable and rated for 600 VAC. The cables shall be sized taking the cable voltage drop and the recommendation of the shunt trip manufacturer into consideration.

Label 885-91965 (provided with the UPS) must be placed visible at the bypass upstream breaker.

### **⚠️ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

In systems where backfeed protection is not a part of the standard design, an automatic isolation device (Schneider Electric backfeed protection option or other device, such as a breaker, switch, or contactor with trip function, meeting the requirements of IEC62040-1 or UL1778 5th edition – depending on which standard apply to your local area), is required to be installed to prevent hazardous voltage or energy at the input terminals of the isolation device. The device must be rated and controlled according to the specifications in this manual.

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

When the UPS input is connected through external isolators that, when opened, isolate the neutral or when the automatic backfeed isolation is provided external to the equipment or is connected to an IT power distribution system, a label must be fitted at the UPS input terminals, and on all primary power isolators installed remotely from the UPS area and on external access points between such isolators and the UPS, by the user, displaying the following text (or equivalent in a language which is acceptable in the country in which the UPS system is installed):

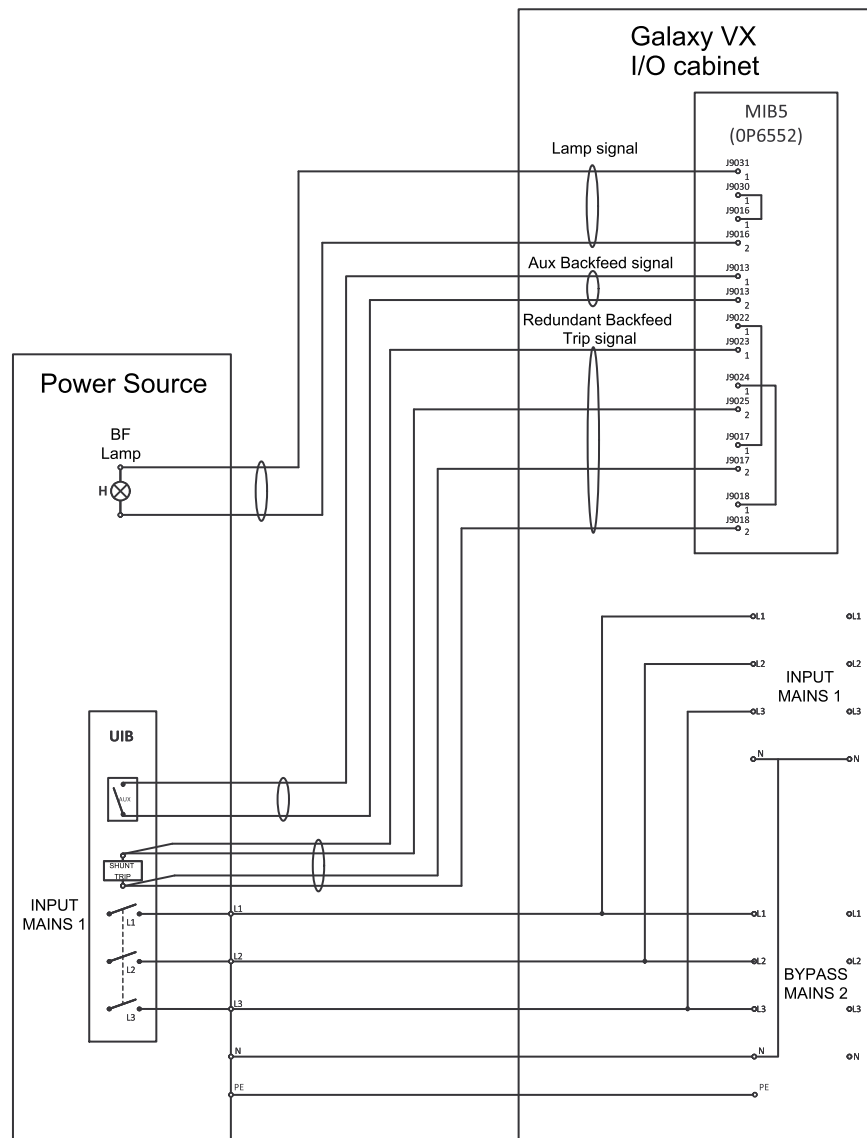
### **⚠️⚠️ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

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

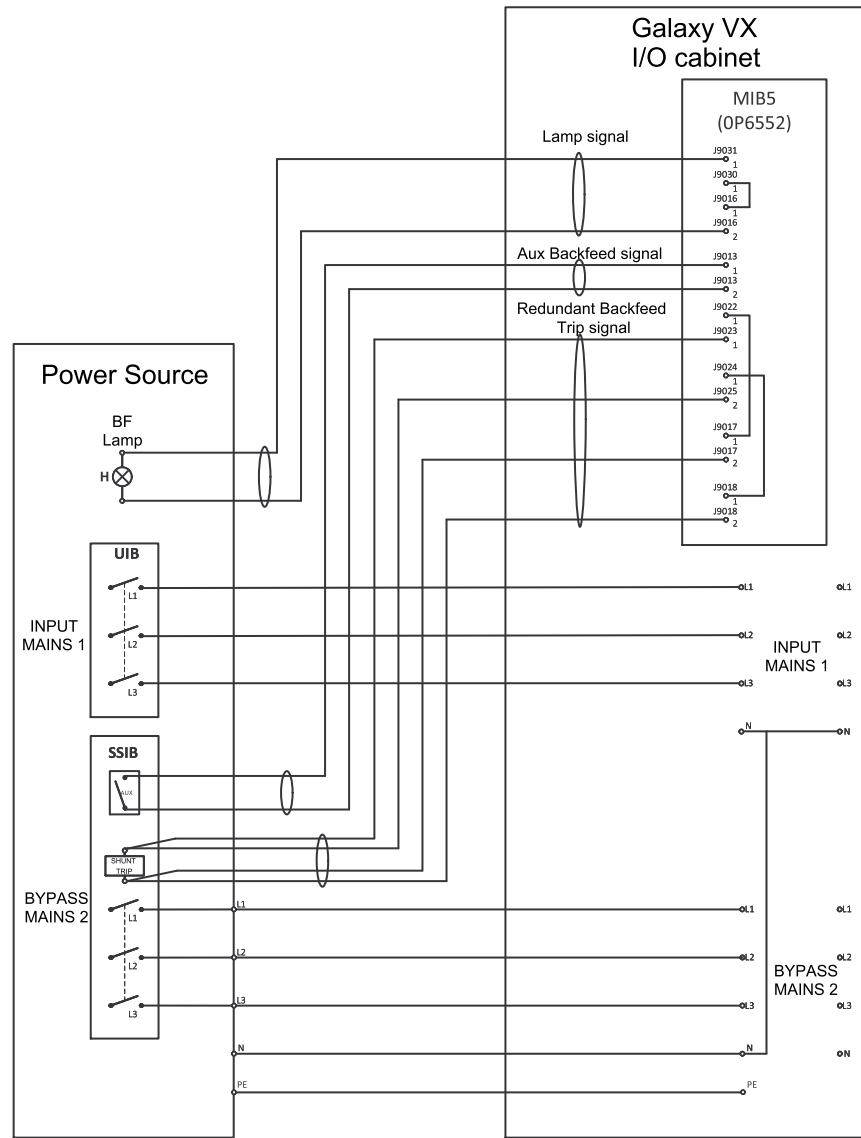
**Failure to follow these instructions will result in death or serious injury.**

**UPS and Third Party Backfeed Protection – Single Mains**



**NOTE:** One extra AUX switch is needed in UIB for backfeed signalling.

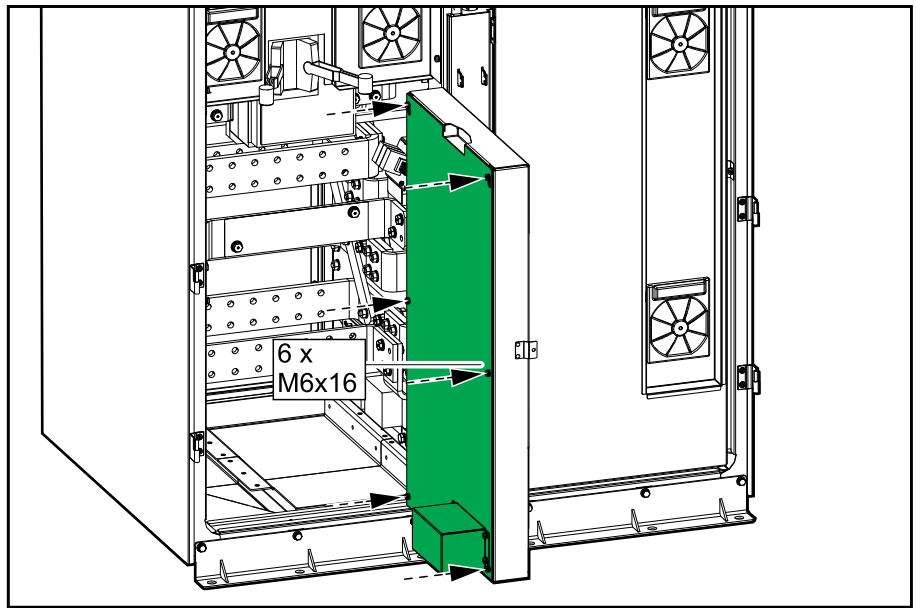
**UPS and Third Party Backfeed Protection – Dual Mains**



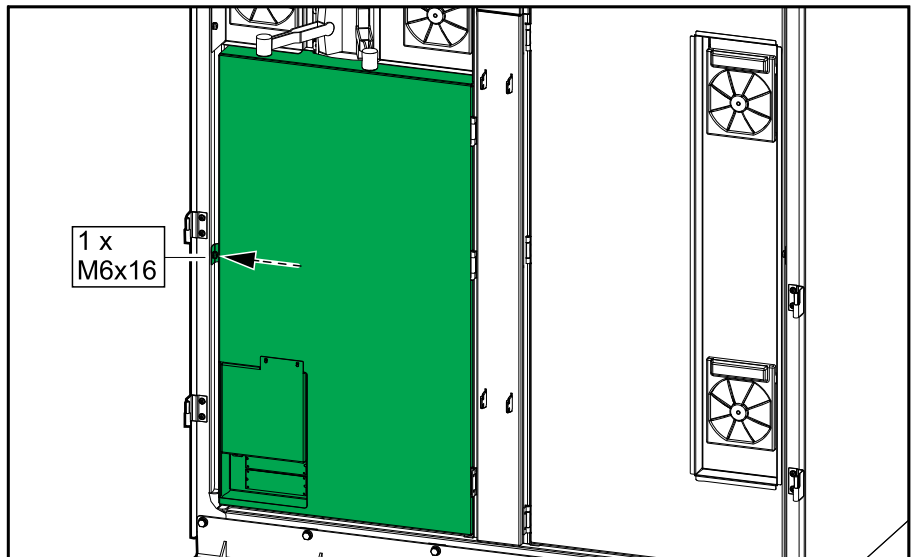
**NOTE:** One extra AUX switch is needed in SSIB for backfeed signalling.

# Final Mechanical Assembly of the I/O Cabinet

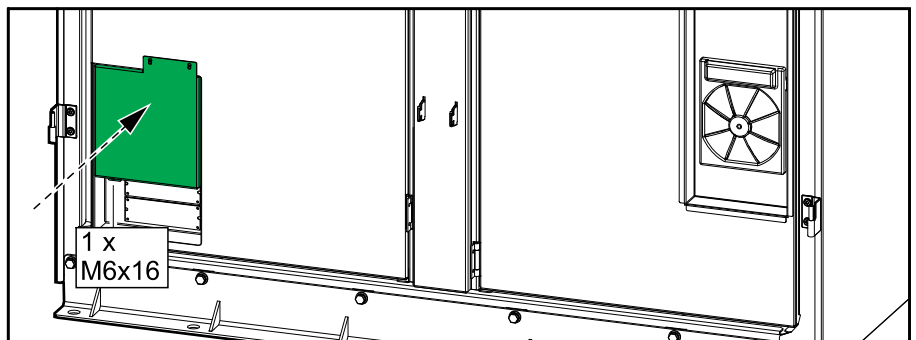
1. Reinstall the cover on the door in the left side and fasten with the screws.



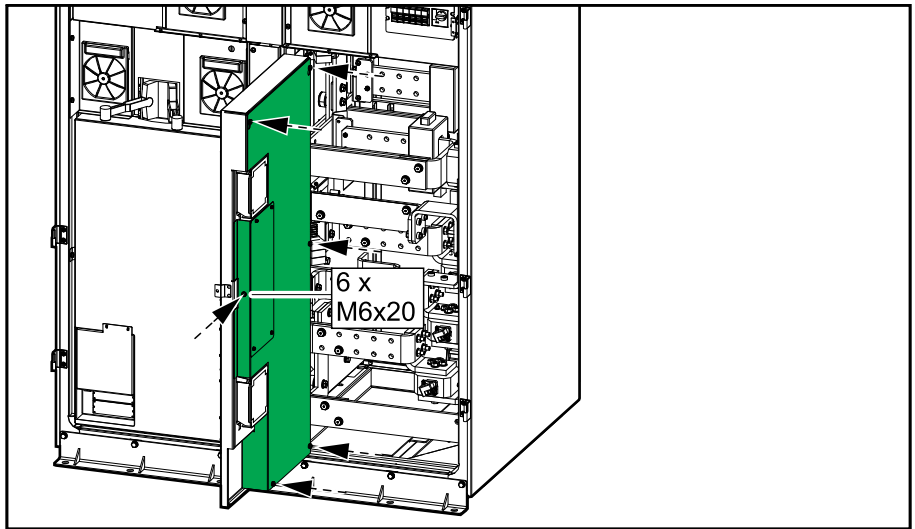
2. Close the door and fasten with the screw.



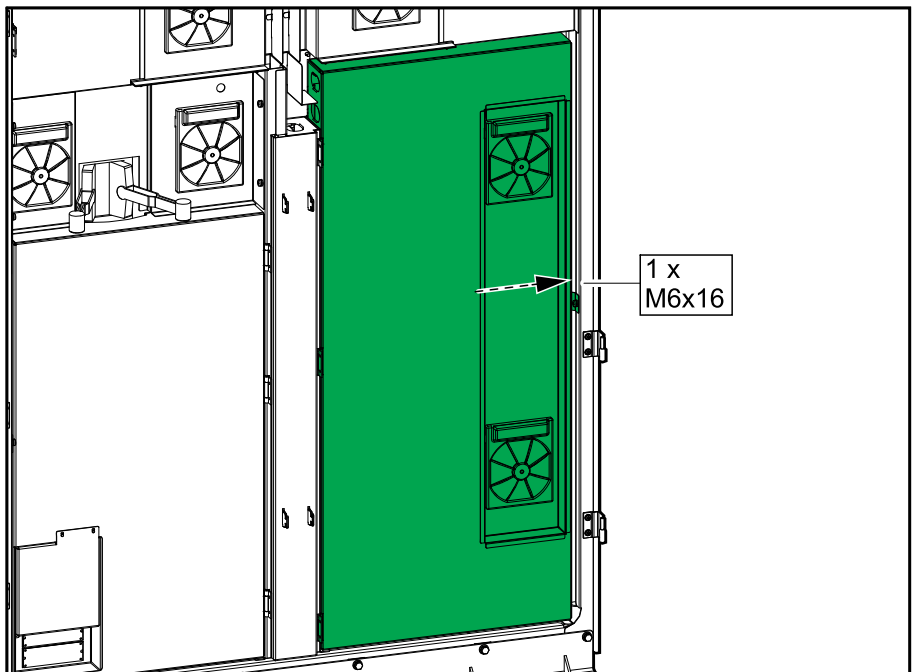
3. Reinstall the indicated cover if removed and fasten with the screws.



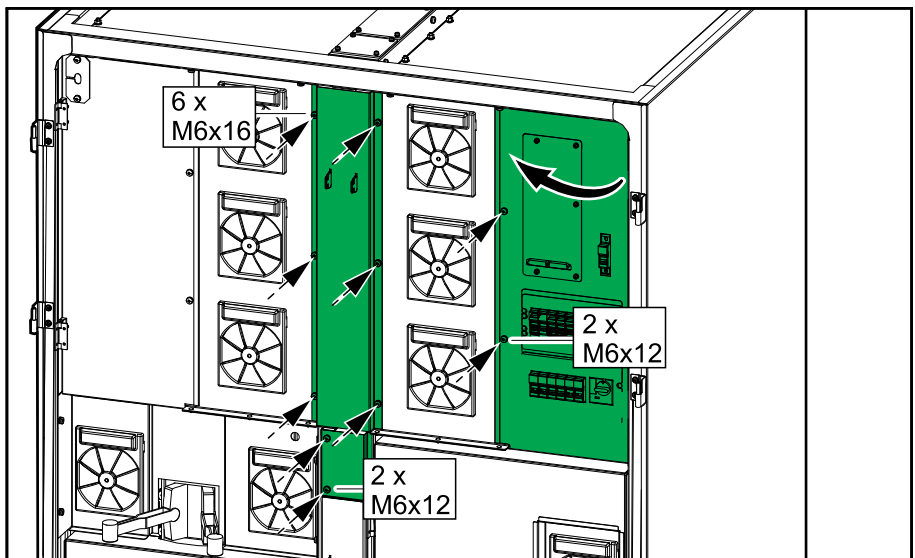
4. Reinstall the cover on the door in the right side and fasten with the screws.



5. Close the door and fasten with the screw.



6. Reinstall the two indicated covers and close the door in the top right corner. Fasten with screws.

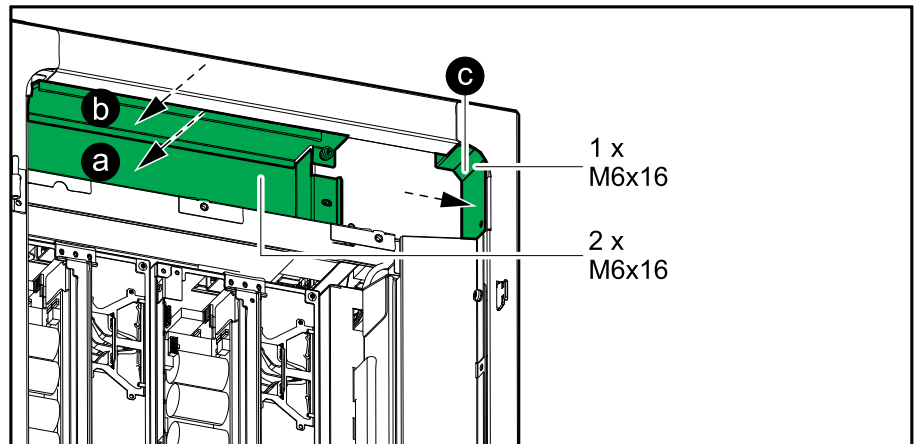


7. Close the front doors.

# Final Mechanical Assembly of the Power Cabinets

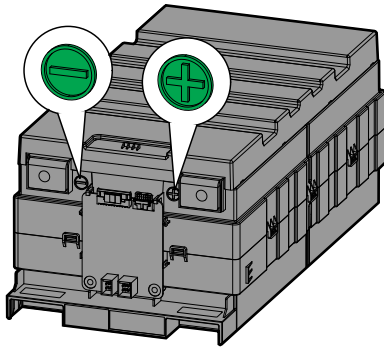
**NOTE:** Perform the below steps on all the power cabinets.

1. Reinstall the three plates in the given order (a-c).

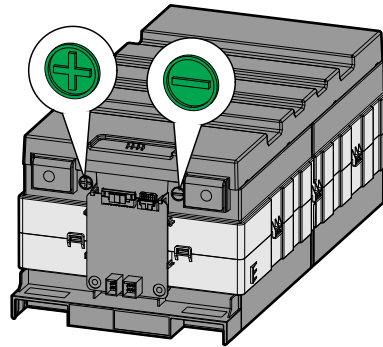


# Install the Battery Modules in the Battery Cabinet

Type A Battery Module



Type B Battery Module



## ⚠️ ⚠️ WARNING

### HAZARD OF INJURY AND ELECTRIC SHOCK

- Be careful when installing and removing the battery modules (>17 kg).

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

1. Install the battery modules on the shelves from top to bottom.

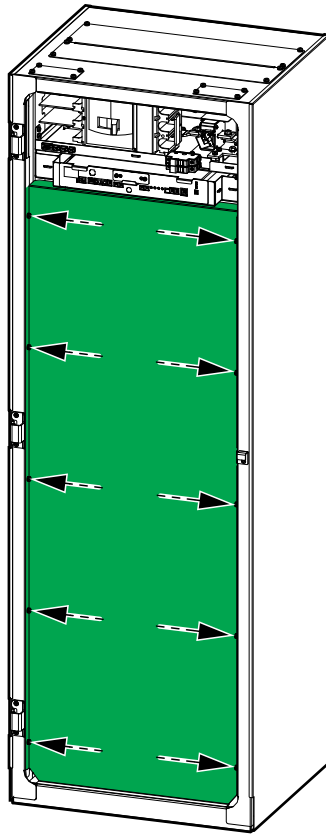
**NOTE:** Pay special attention to the location of type A and type B battery modules.

### Battery Configurations for Battery Cabinets with 17, 16, 13, and 10 Battery Modules





2. Reinstall the plate in front of the battery shelves.



## Connect the Power Cables

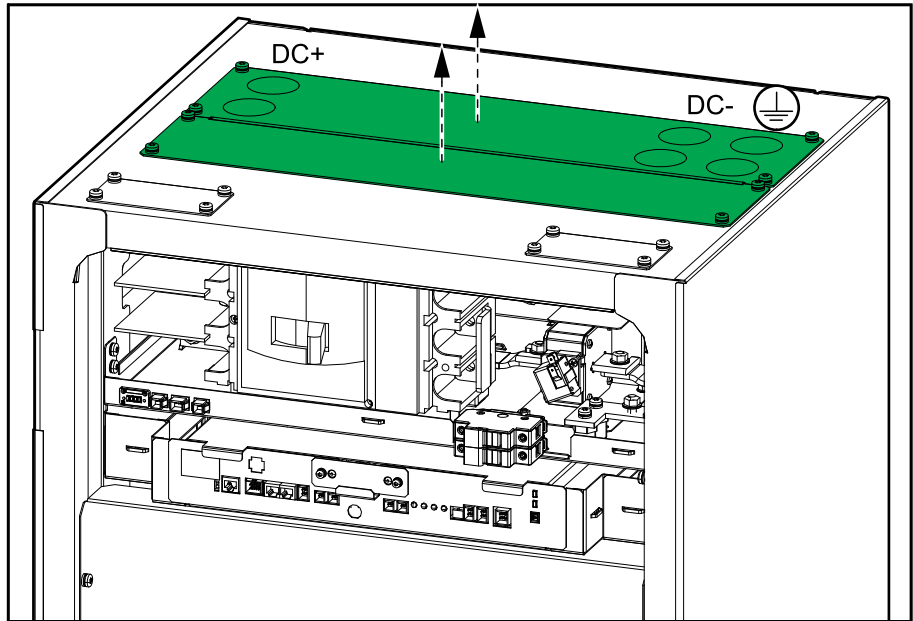
### **⚡⚠ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Do not drill or punch holes with the gland plates installed and do not drill or punch holes in close proximity to the battery cabinet.

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

1. Remove the gland plates.



2. Drill or punch holes for cables/conduits in the rear gland plate according to the label on the gland plate.

### **⚡⚠ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

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

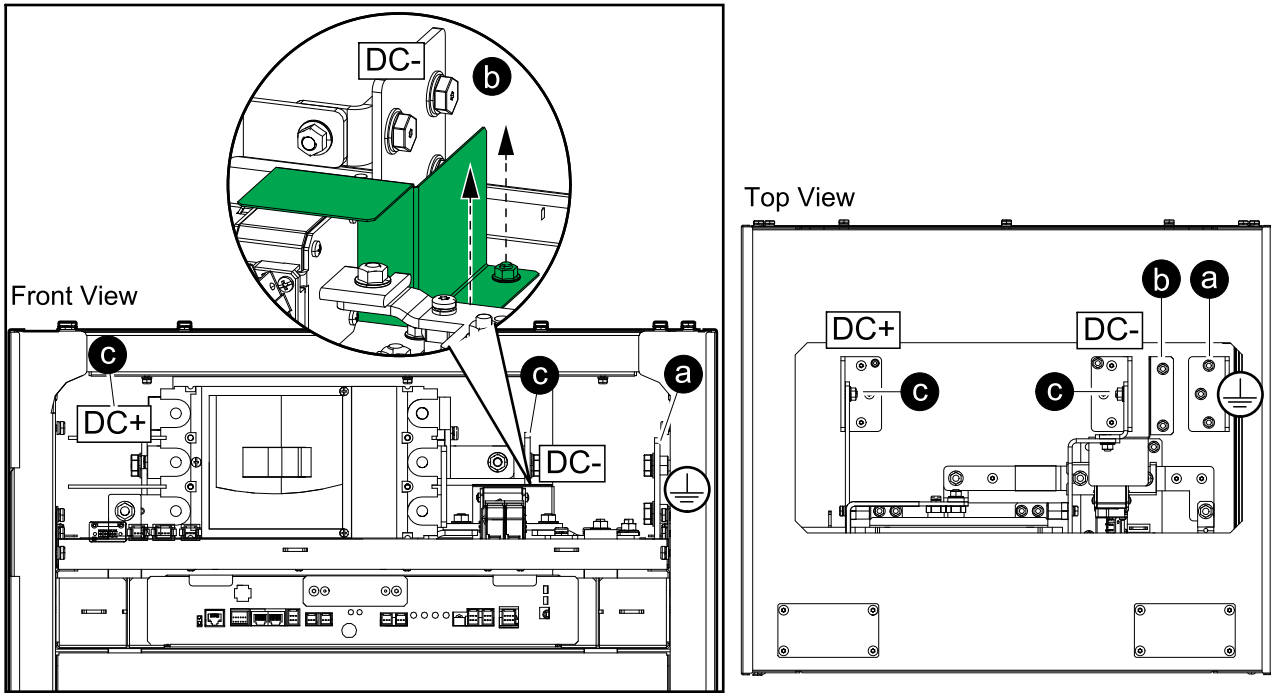
**Failure to follow these instructions will result in death or serious injury.**

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

4. Route the power cables through the gland plate and connect to the terminals:
  - a. Connect the PE cable to the PE terminal/Connect the EGC cable to the grounding terminal.
  - b. For installations with two hole cable lugs only, temporarily remove the protection cover.

**NOTE:** The protection cover must be reinstalled when the DC- cable has been connected.

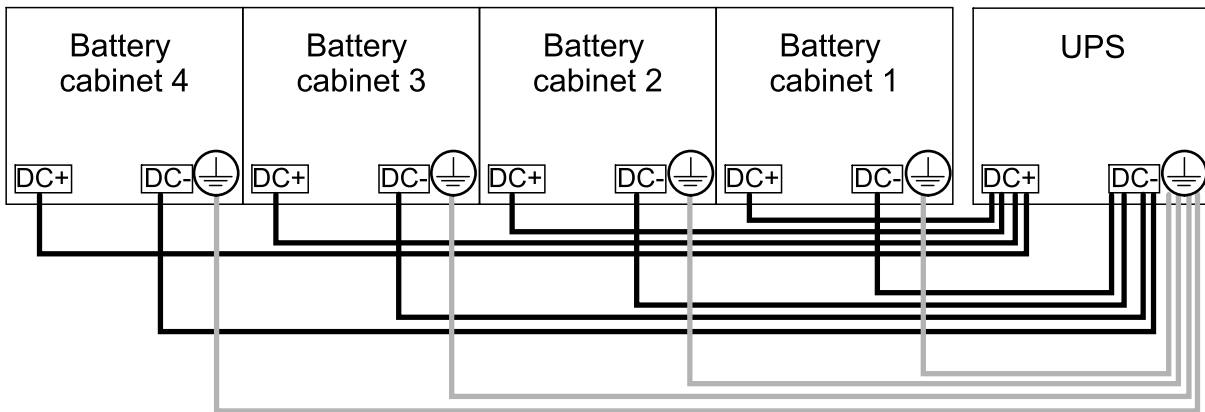
- c. Connect the DC+ and DC- cables to the DC+ and DC- terminals.



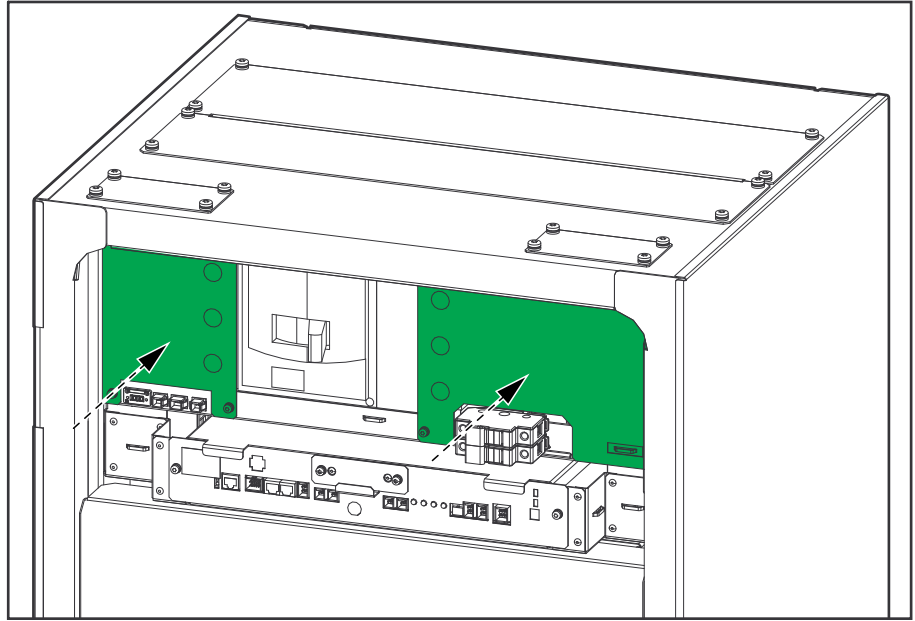
5. Connect the power cables in the UPS. If more battery cabinets are part of the solution, connect all battery cabinets to the UPS according to the diagram below.

**NOTE:** If the combined short circuit current of the battery cabinets exceeds the short circuit rating of the UPS, a pull box with fuses or an external box with a battery breaker must be installed. Please contact Schneider Electric for more information and refer to the submittal drawings for your specific UPS.

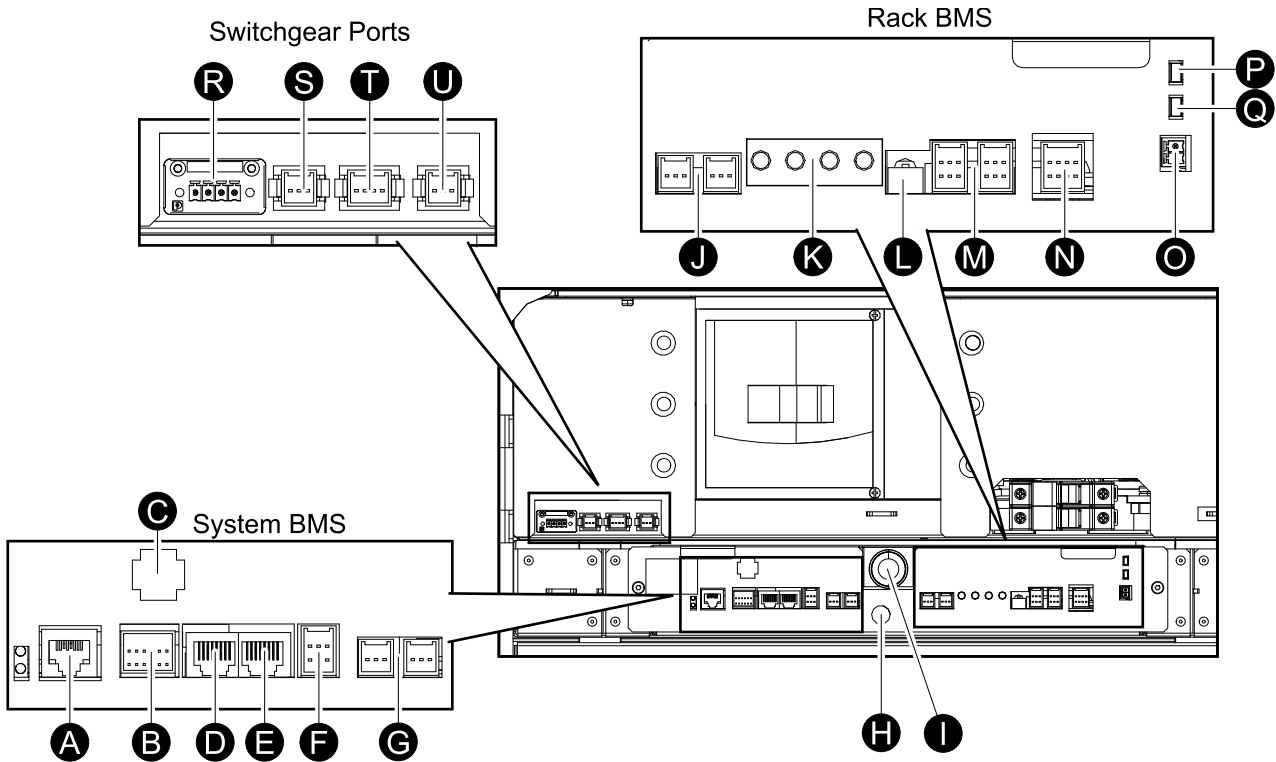
**2-Wire Connection**



6. Reinstall the two transparent covers.



# Overview of Communication Interface



- A. TCP/IP
- B. DRY CONTACT ports
- C. SMPS I/O
- D. CAN I/O
- E. RS485
- F. System BMS CAN I/O
- G. DC OUT 1 and DC OUT 2
- H. Reset switch
- I. Start-up button
- J. DC IN 1 and DC IN 2
- K. Status LEDs
- L. CAN bus loop termination resistor switch
- M. CAN 1 port, CAN 2 port
- N. Module
- O. EPO
- P. PSU 1 LED
- Q. PSU 2 LED
- R. SG IO 1
- S. SG IO 2
- T. MCCB AUX 1
- U. MCCB AUX 2

## Route the Signal Cables to the Switchgear, Rack BMS, and System BMS Ports

### **⚡⚠ DANGER**

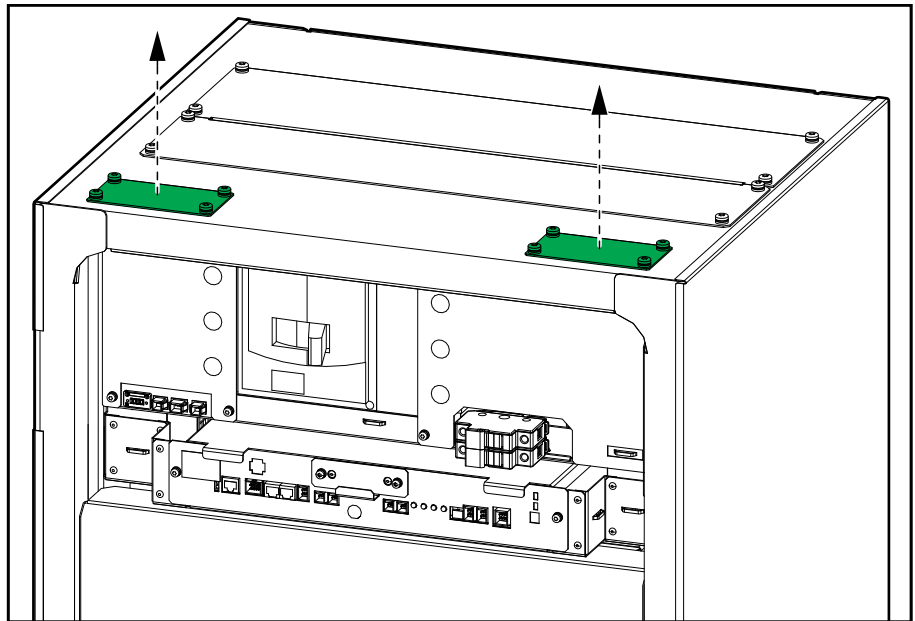
#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Do not drill or punch holes with the gland plates installed and do not drill or punch holes in close proximity to the battery cabinet.

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

**NOTE:** Please refer to the UPS submittal drawings to get a complete overview of the connections before preparing for and routing the signal cables.

1. Remove the gland plates for signal cables.



2. Drill or punch holes for cables/conduits and install conduits (if applicable).

### **⚡⚠ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

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

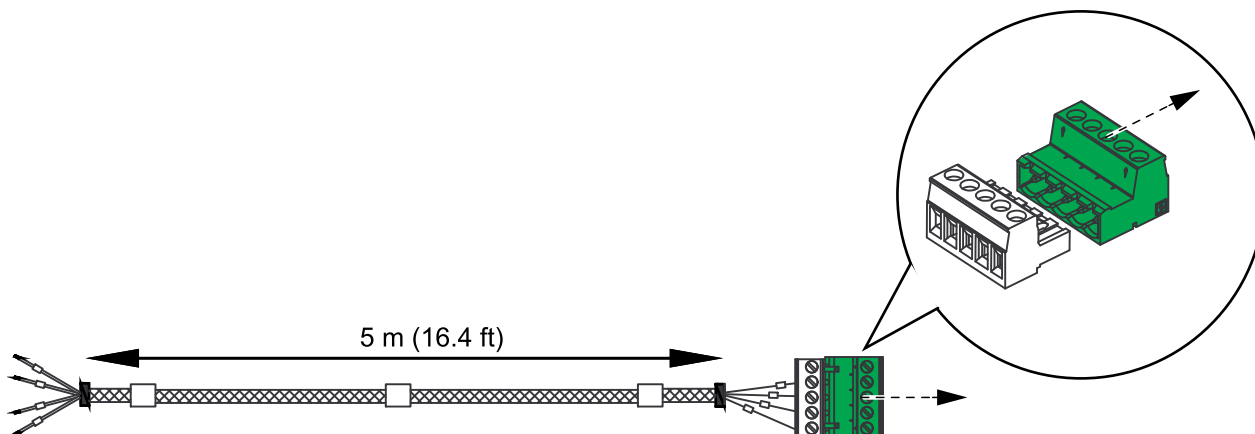
**Failure to follow these instructions will result in death or serious injury.**

- The provided SELV signal cable 0W13444 and the ELV signal cables 0W76929 and 0W13442 are 5 m (16.4 ft) long. You can extend the length of the three signal cables if the distance to the UPS is more than the expected 5 m (16.4 ft). Follow one of the instructions below:

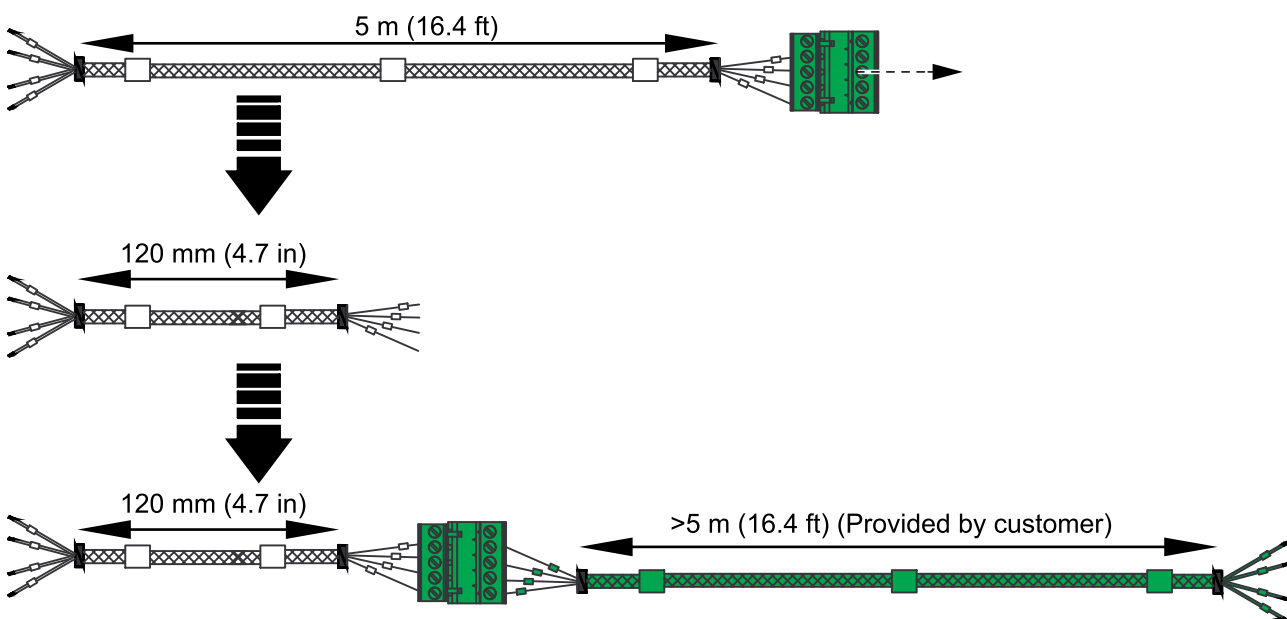
**Signal cable specifications**

|         |  |
|---------|--|
| 0W13444 | 4 conductors, 22 AWG, 600 V ETFE UL10086, strand, 90 °C                    |
| 0W76929 | 2 conductors, 24 AWG, 600 V ETFE UL10086, double insulation, strand, 90 °C |
| 0W13442 | 2 conductors, 22 AWG, 600 V ETFE UL10086, double insulation, strand, 90°C  |

- The provided signal cable is long enough to reach between the battery cabinet and the UPS:** Remove the male adapter connector from the end of the signal cables and continue to the next step. OR



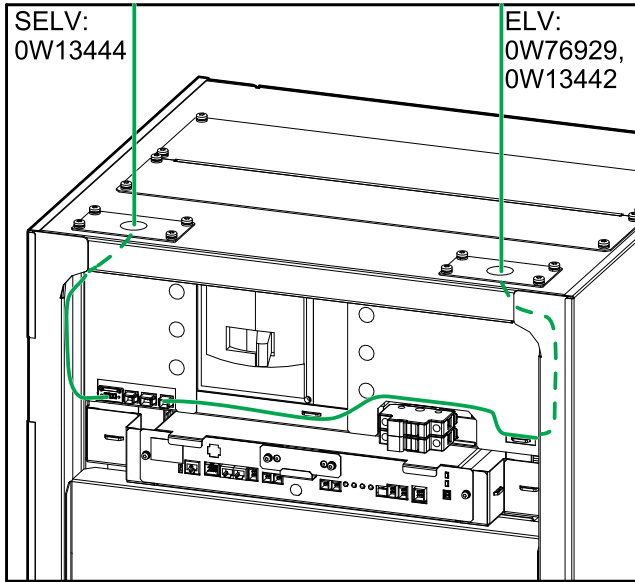
- The provided signal cable is NOT long enough to reach between the battery cabinet and the UPS:** Remove the female connector and the male adapter connector from the end of the signal cable, shorten the signal cable to 120 mm (4.7 in) length, and reattach the labels and the female connector and male adapter connector to the signal cable. Attach a signal cable<sup>19</sup> (not provided) to the male adapter connector in the correct length to reach from the battery cabinet to the UPS. As an alternative, you can also crimp the signal cable extensions. Ensure that the crimp point is inside the battery cabinet, not in conduits or cable trays outside the battery cabinet.



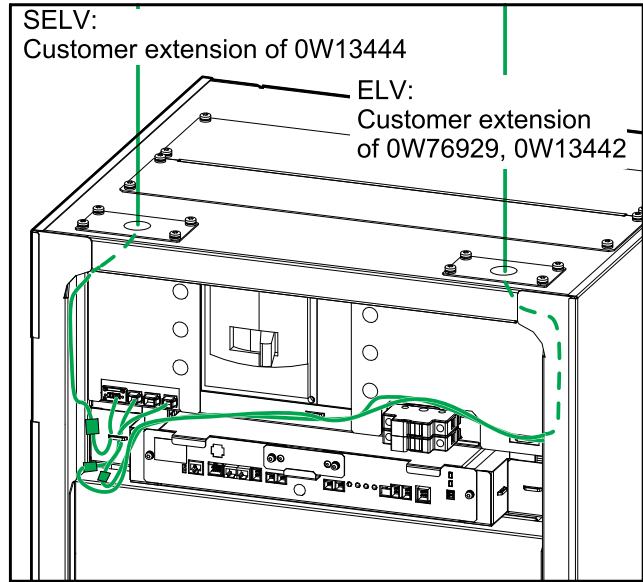
19. Select the extension signal cables according to the *Signal cable specifications*.

- Route the SELV signal cable 0W13444 and the ELV signal cables 0W76929 and 0W13442 into the battery cabinet and to the switchgear ports. Do not connect the signal cables, Schneider Electric service will complete the connections during start-up.

**With Provided Signal Cables**

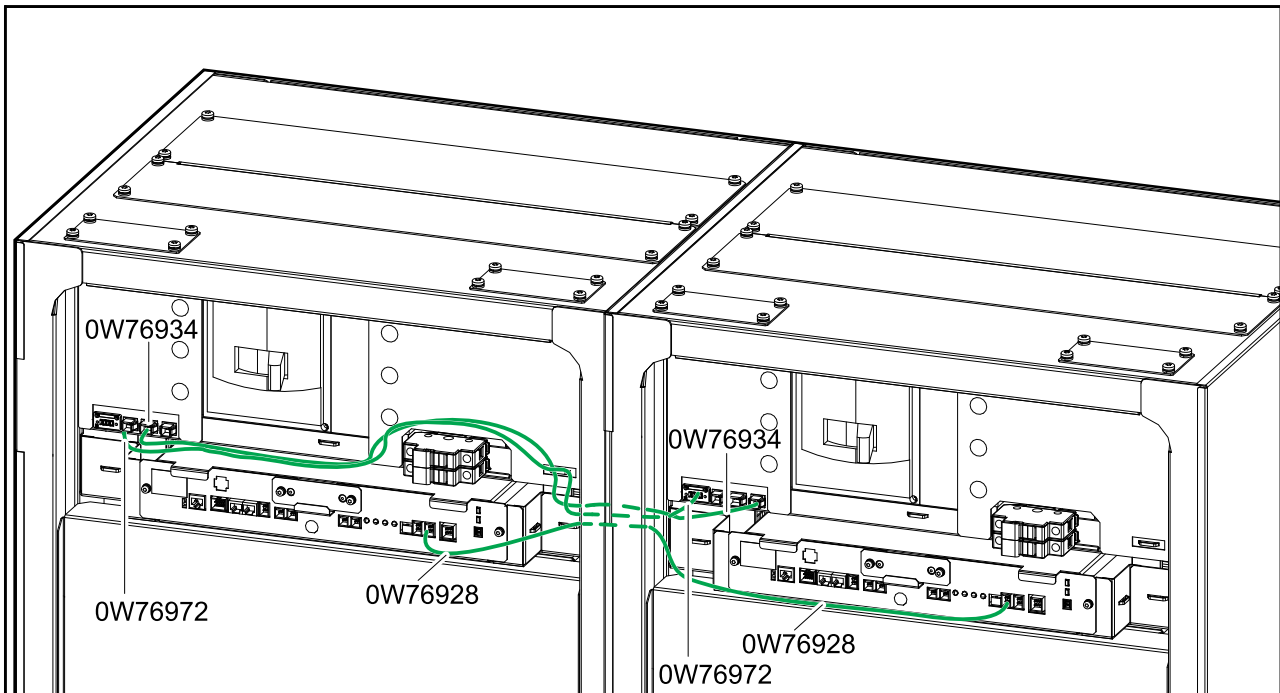


**With Extended Signal Cables**



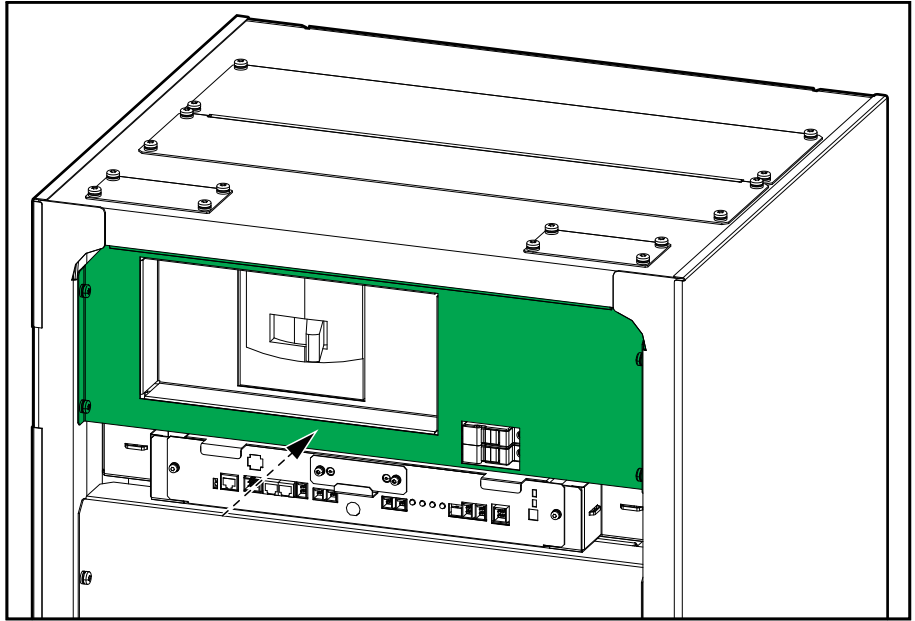
- Route the signal cable 0W76928, 0W76934, and 0W76972 through the openings in the sides of the battery cabinets and to the ports in the rack BMS and the switchgear ports. Do not connect the signal cables, Schneider Electric service will complete the connections during start-up.

**NOTE:** All cables between rack BMS and rack BMS as well as between system BMS and rack BMS are considered Class 2/SELV.

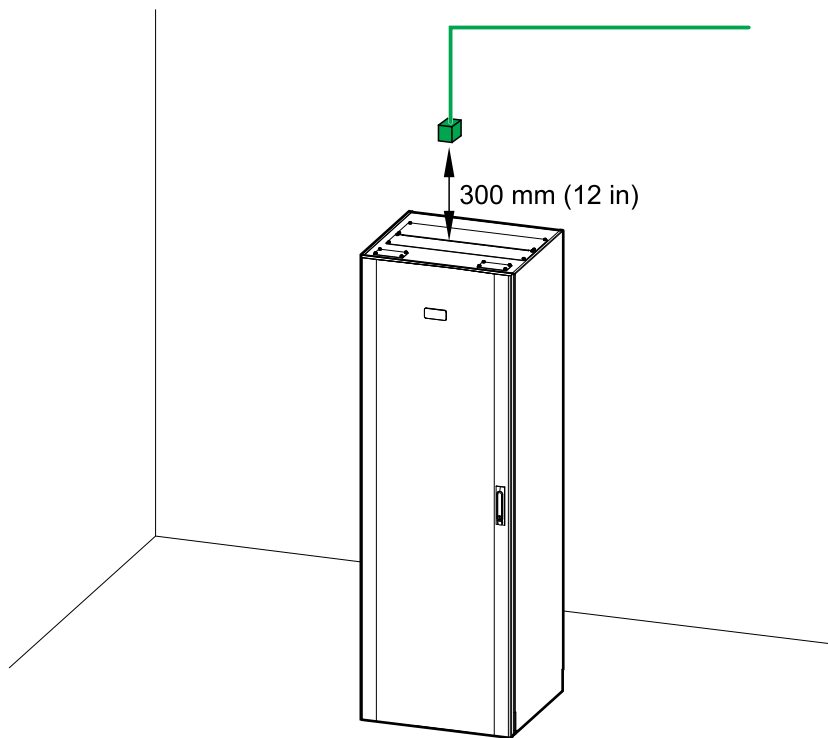




6. Reinstall the plate in front of the battery breaker.



7. Reinstall the front door of the battery cabinet.
8. Install the temperature sensor provided with the UPS above the battery cabinet, approximately 300 mm (12 in) from the top. Route the signal cable to the UPS and connect according to the instructions in the UPS installation manual.



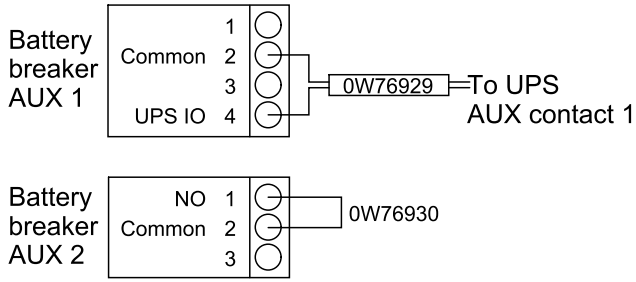
**NOTE:** The temperature sensor measures the ambient temperature. Do not place the temperature sensor close to external heating or cooling equipment which may give an incorrect measurement of the ambient temperature.

## Overview of Signal Cables between the Battery Cabinets and the Auxiliary Contacts in the UPS

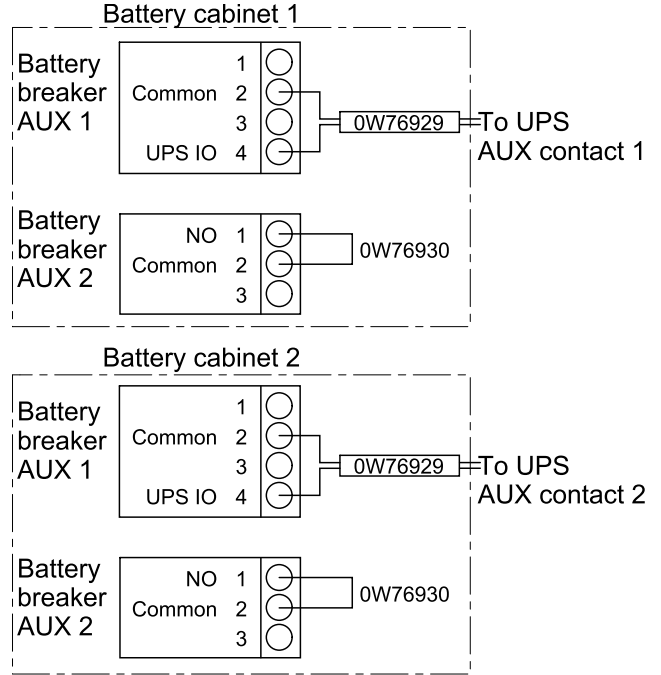
The connection of auxiliary contacts is dependent on the number of battery breakers supported by the UPS. In the examples below two banks of battery breakers are supported.

**NOTE:** If the combined short circuit current of the battery cabinets exceeds the short circuit rating of the UPS, a pull box with fuses or an external box with a battery breaker must be installed. Please contact Schneider Electric for more information.

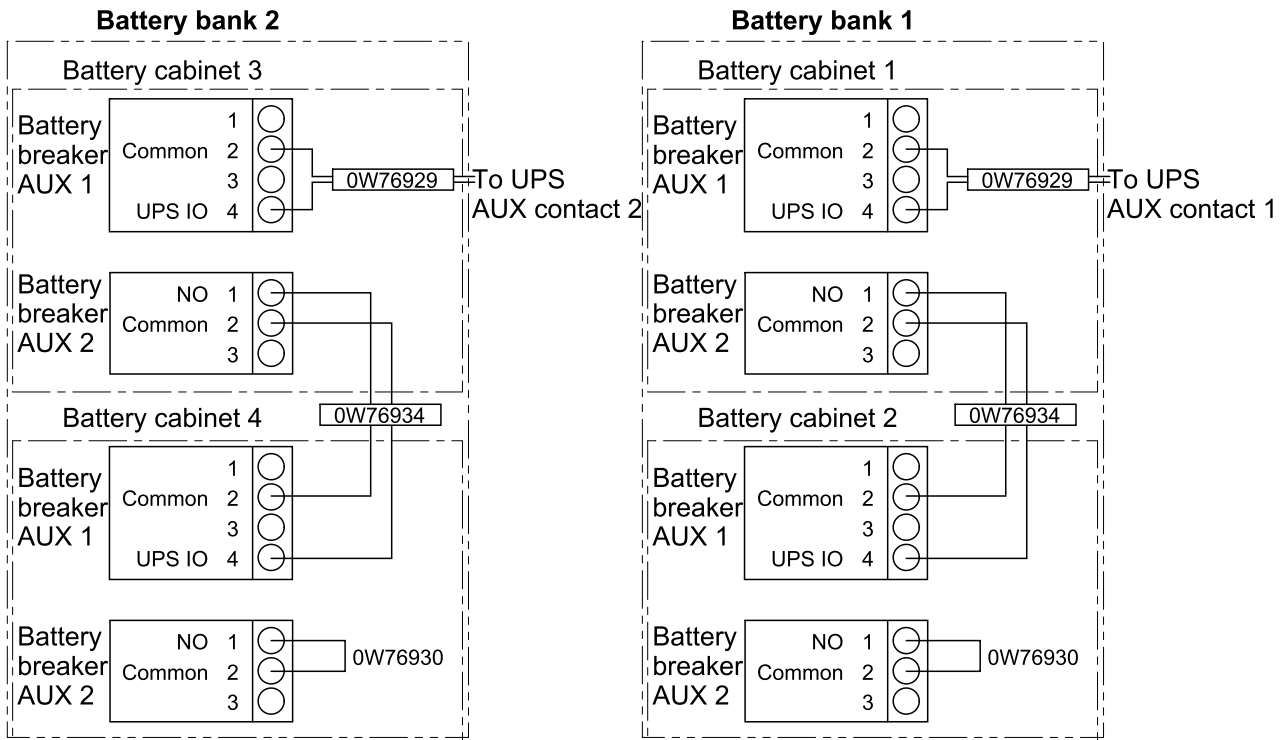
**System with One Battery Cabinet**



**System with Two Battery Cabinets**



**System with Four Battery Cabinets in Two Battery Banks**

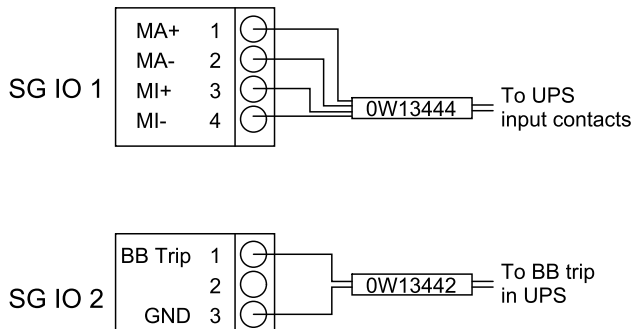


# Overview of Signal Cables for Alarms and Battery Breaker Trip

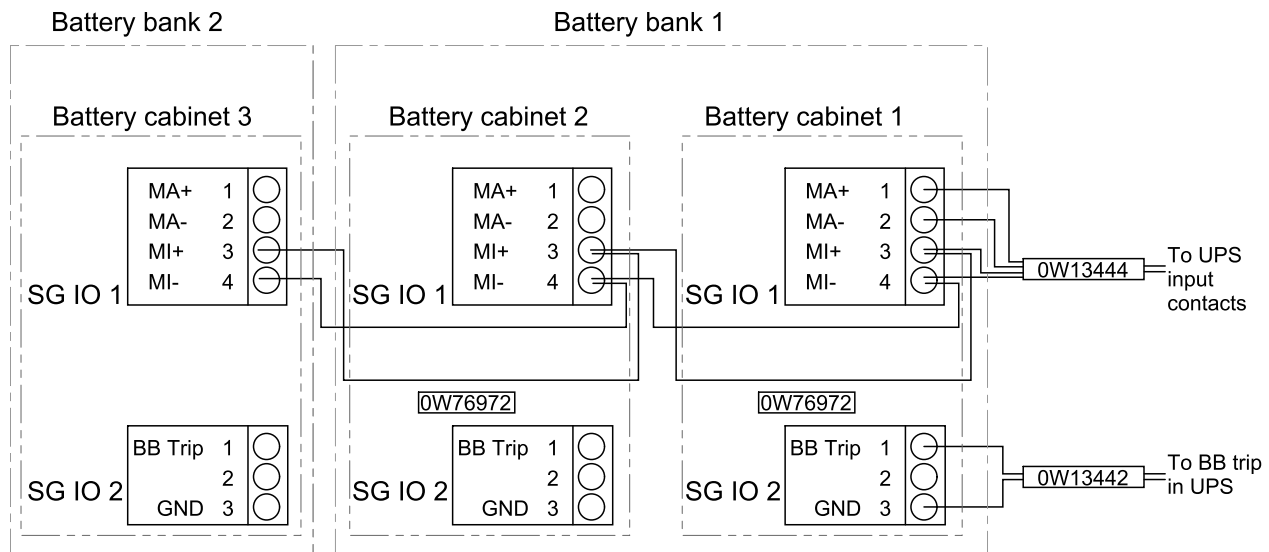
In systems with more battery cabinets, only the system BMS of battery cabinet 1 (the battery cabinet closest to the UPS) is connected to the UPS. Remove signal cable 0W13441 between the SMPS I/O port and the DRY CONTACT ports on battery cabinet 2 and battery cabinet 3.

- SG IO 1: Used for sending signals for minor and major alarms to the UPS.
- SG IO 2: Used for receiving trip signal from the UPS.

## System with One Battery Cabinet



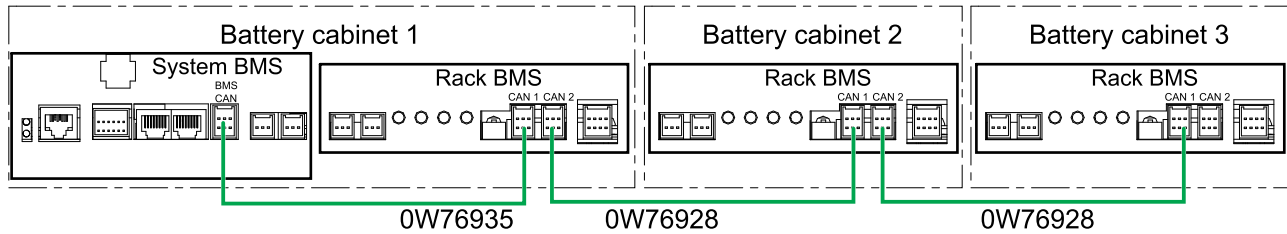
## System with Three Battery Cabinets in Two Battery Banks



## Overview of CAN Bus Cables between the Battery Cabinets

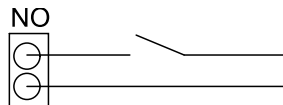
**NOTE:** In systems with more battery cabinets, remove the cables 0W76935 from CAN 1 in the rack BMS to the System BMS CAN I/O in battery cabinet 2 and battery cabinet 3.

1. Route signal cable 0W76928 from CAN 2 port of battery cabinet 1 to the CAN 1 port of battery cabinet 2. Repeat for the remaining battery cabinets. Do not connect the CAN cables, Schneider Electric service will complete the connections during start-up.



## Overview of EPO Signal Cables

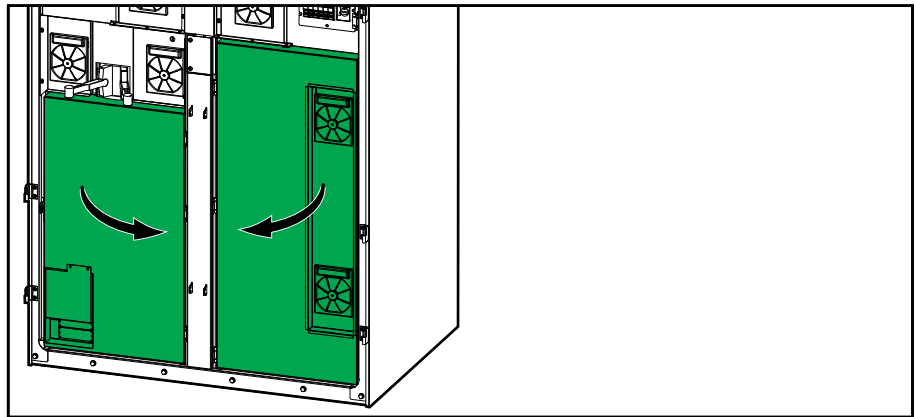
Connect the Class 2/SELV signal cables from the building EPO to the rack BMS. Class 2/SELV circuits must be isolated from the primary circuitry. Do not connect any circuit to the EPO terminal block unless it can be confirmed that the circuit is Class 2/SELV.



## Decommission or Move the UPS to a New Location

**NOTE:** Contact Schneider Electric for removal of the interconnection busbars between the cabinets.

1. Shut down the UPS completely – follow the instructions in the UPS operation manual.
2. Lockout/Tagout all breakers in the switchgear in the OFF (open) position.
3. Lockout/Tagout all battery breakers in the switchgear/battery solution in the OFF (open) position.
4. Open the front door of the UPS.
5. If present, Lockout/Tagout the backfeed breaker BF2 in the OFF (open) position.
6. Open the front door of the I/O cabinet and the power cabinets.
7. Open the two inner doors of the I/O cabinet.



8. Measure for and verify ABSENCE of voltage on each input/bypass/output/DC busbar before continuing.

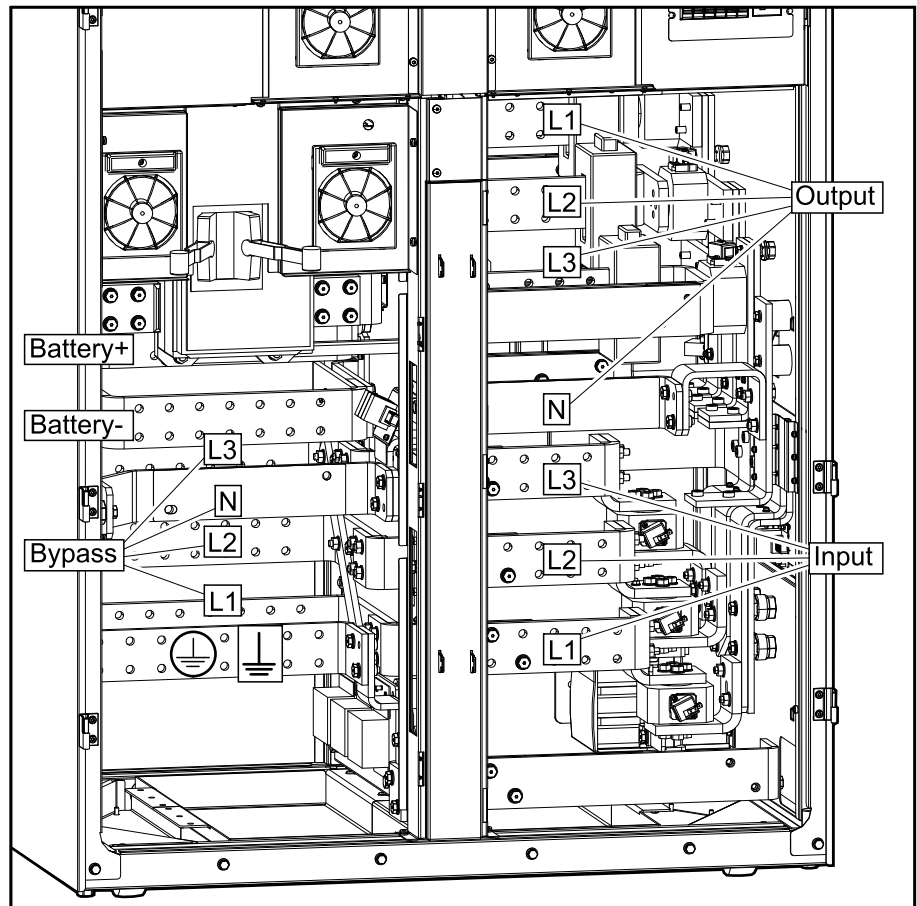
**⚠️ ⚠️ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Measure for and verify ABSENCE of voltage on each input/bypass/output/DC busbar before continuing.

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

#### Front View of the I/O Cabinet



9. Disconnect and remove all power cables from the I/O cabinet. See *Connect the Power Cables in a 480 V System*, page 87 for details.
10. If present, disconnect and remove the external supply cables from the Lithium-ion battery solution. See *Connect Cables to the External Supply for Lithium-ion Battery Solution (Optional)*, page 89 for details.
11. Disconnect and remove all signal cables from the I/O cabinet. See *Signal Cables*, page 92 for details.
12. Contact Schneider Electric for removal of the interconnection busbars between the cabinets. The interconnections busbars must only be removed by a Schneider Electric-certified field service representative or service partner.
13. Remove the seismic front anchoring brackets from the cabinets. Save for reinstallation. See *Mount the Front Anchoring Brackets*, page 91 for details.
14. Remove the top baying brackets and interconnection screws from the cabinets. Release the cabinets from the rear anchoring brackets by loosening the bolts on the front of the cabinets. See *Position the Cabinets*, page 75 for details.

15. Reinstall all removed plates and covers in the cabinets. See Final Mechanical Assembly of the I/O Cabinet, page 116 and Final Mechanical Assembly of the Power Cabinets, page 119 for details.
16. Close and lock the front door of the cabinets.
17. Raise the feet of the cabinets until the casters have full contact with the floor.
18. You can now move each cabinet individually by rolling it over the floor on the casters.

## **▲ WARNING**

### **TIPPING HAZARD**

- The casters of the cabinet are exclusively for transport on flat, even, hard, and horizontal surfaces.
- The casters of the cabinet are intended for transport over short distances (i.e. inside the same building).
- Move at a slow pace and pay close attention on the floor conditions and the balance of the cabinet.

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

19. Remove the rear anchoring brackets from the floor. Save for reinstallation. See Install the Rear Seismic Anchoring for the UPS and the Battery Cabinet (s), page 72 for details.



20. **For transport over longer distances or in conditions that are not suitable for the casters of the cabinet:**

| <b>⚠ WARNING</b>  |
|---|
| <p><b>TIPPING HAZARD</b></p> <p>For transport over longer distances or in conditions that are not suitable for the casters of the UPS, ensure:</p> <ul style="list-style-type: none"> <li>• that personnel performing the transport have necessary skills and have received adequate training;</li> <li>• to use appropriate tools to safely lift and transport the cabinet;</li> <li>• to protect the product against damage by using appropriate protection (like wrapping or packaging).</li> </ul> <p><b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b></p> |

| <b>⚠ WARNING</b>   |
|--|
| <p><b>TOP-HEAVY CABINET</b></p> <p>The power cabinet is top-heavy. Take appropriate precautions during handling and preparation for transport/shipment.</p> <p><b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b></p> |

Transportation requirements:

- Mount the cabinet in a vertical position in the center of a suitable pallet. The pallet must be suitable for the weight of the cabinet. The I/O cabinet weighs 620 kg (1367 lbs). The power cabinet weighs 540 kg (1190 lbs).
- Use appropriate means of fixation to mount the cabinet to the pallet.

| <b>⚠ DANGER</b>   |
|---|
| <p><b>TIPPING HAZARD</b></p> <ul style="list-style-type: none"> <li>• The cabinet must be appropriately fixed to the pallet immediately after being placed on the pallet.</li> <li>• The fixation hardware must be strong enough to withstand vibrations and shocks during loading, transport, and unloading.</li> </ul> <p><b>Failure to follow these instructions will result in death or serious injury.</b></p> |

| <b>⚠ WARNING</b>   |
|--|
| <p><b>UNEXPECTED EQUIPMENT BEHAVIOR</b></p> <p>Do not lift the cabinet with a forklift/pallet truck directly on the frame as it may bend or damage the frame.</p> <p><b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b></p> |

21. Perform one of the following:

- Decommission the cabinets, OR
- Move the the I/O cabinet/power cabinet to a new location to install it.

22. **Only for installing the UPS in a new location:** Follow the installation manual to install the I/O cabinet and power cabinets in the new location. See section for installation procedure for installation overview. Startup must only be performed by Schneider Electric.

 **DANGER**

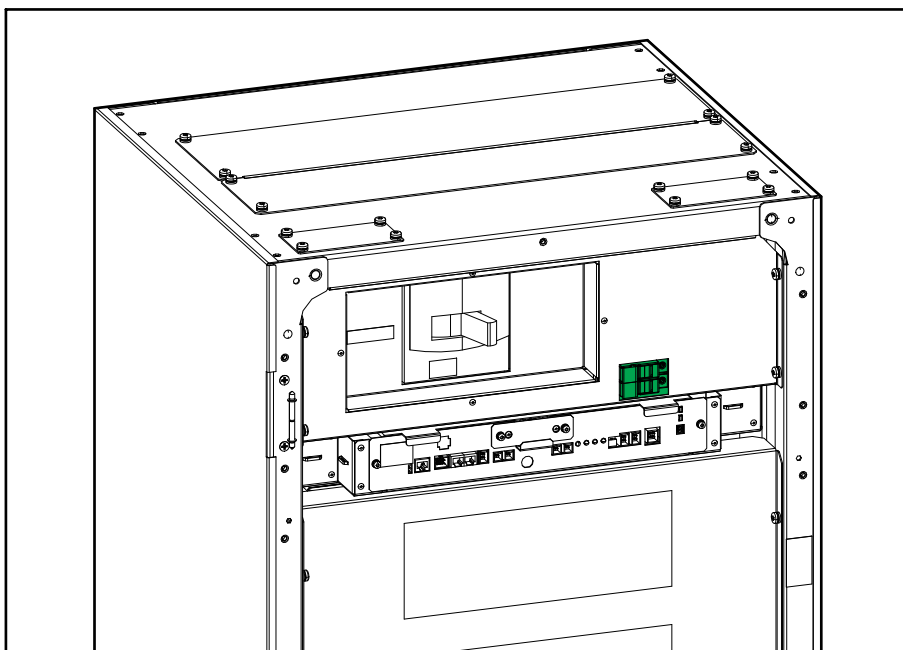
**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Startup must only be performed by Schneider Electric.

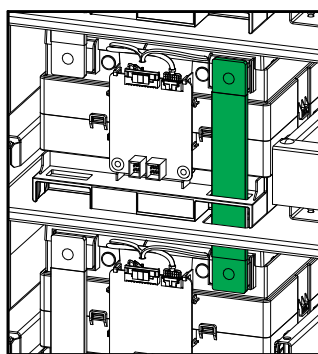
**Failure to follow these instructions will result in death or serious injury.**

# Decommission or Move the Battery Cabinet to a New Location

1. Lockout/Tagout the battery breaker in the OFF (open) position and open the two fuse holders in the battery cabinet.



2. Lockout/Tagout the power to the SMPS AC/DC converter upstream (if applicable).
3. Disconnect and remove all power cables from the battery cabinet. See *Connect the Power Cables*, page 122 for details.



4. Disconnect and remove all signal cables from the battery cabinet. See *Route the Signal Cables to the Switchgear, Rack BMS, and System BMS Ports*, page 126 for details.
5. Disconnect and remove power cables to the SMPS AC/DC converter (if applicable). Refer to the SMPS AC/DC converter installation manual for details.
6. Contact Schneider Electric for removal of the battery busbars and fuse kits. The battery busbars and fuse kits must only be removed by a Schneider Electric-certified field service representative or service partner.

7. Remove the batteries from the shelves. Recycle or reuse the batteries as appropriate.

|  |
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| <p style="text-align: center;"><b>⚡⚠ DANGER</b></p> <p><b>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH</b></p> <p>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.</p> <ul style="list-style-type: none"><li>• Recycle lead-acid batteries correctly. Batteries contain lead and dilute sulfuric acid.</li><li>• Dispose of the batteries in accordance with country and local regulations.</li></ul> <p><b>Failure to follow these instructions will result in death or serious injury.</b></p> |
|--|

8. Contact Schneider Electric for removal of the interconnection busbars between the cabinets. The interconnections busbars must only be removed by a Schneider Electric-certified field service representative or service partner.
9. Remove the seismic front and rear anchoring brackets from the cabinets. Save for reinstallation. See *Install the Front Seismic Anchoring*, page 82 and *Install the Rear Seismic Anchoring for the UPS and the Battery Cabinet(s)*, page 72 for details.
10. Close and lock the front door of the cabinets.
11. Raise the feet of the cabinets until the casters have full contact with the floor.
12. You can now move each cabinet individually by rolling it over the floor on the casters.

|  |
|--|
| <p style="text-align: center;"><b>⚠ WARNING</b></p> <p><b>TIPPING HAZARD</b></p> <ul style="list-style-type: none"><li>• The casters of the cabinet are exclusively for transport on flat, even, hard, and horizontal surfaces.</li><li>• The casters of the cabinet are intended for transport over short distances (i.e. inside the same building).</li><li>• Move at a slow pace and pay close attention on the floor conditions and the balance of the cabinet.</li></ul> <p><b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b></p> |
|--|

13. For transport over longer distances or in conditions that are not suitable for the casters of the cabinet:

### **⚠ WARNING**

#### **TIPPING HAZARD**

For transport over longer distances or in conditions that are not suitable for the casters of the battery cabinet, ensure:

- that personnel performing the transport have necessary skills and have received adequate training;
- to use appropriate tools to safely lift and transport the cabinet;
- to protect the product against damage by using appropriate protection (like wrapping or packaging).

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

### **⚠ WARNING**

#### **TOP-HEAVY CABINET**

The battery cabinet is top-heavy. Take appropriate precautions during handling and preparation for transport/shipment.

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

Transportation requirements:

- Mount the cabinet in a vertical position in the center of a suitable pallet. The pallet must be suitable for the weight of the cabinet.
- Use appropriate means of fixation to mount the cabinet to the pallet.

### **⚠ DANGER**

#### **TIPPING HAZARD**

- The cabinet must be appropriately fixed to the pallet immediately after being placed on the pallet.
- The fixation hardware must be strong enough to withstand vibrations and shocks during loading, transport, and unloading.

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

### **⚠ WARNING**

#### **UNEXPECTED EQUIPMENT BEHAVIOR**

Do not lift the cabinet with a forklift/pallet truck directly on the frame as it may bend or damage the frame.

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

14. Perform one of the following:

- Decommission the battery cabinet, OR
- Move the battery cabinet to a new location to install it.

15. **Only for installing the battery cabinet in a new location:** Follow the installation manual to install the battery cabinet in the new location. See section of installation procedure for installation overview. Startup must only be performed by Schneider Electric.

 **DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Startup must only be performed by Schneider Electric.

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



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