# Galaxy VS

## Maintenance Bypass Cabinet

## Installation

**Latest updates are available on the Schneider Electric website**
**7/2021**

www.schneider-electric.com

# Legal Information



Go to
*https://www.productinfo.schneider-electric.com/portals/ui/galaxyvs_ul/*
or scan the QR code above for digital experience and translated manuals.

# Table of Contents

# Important Safety Instructions — SAVE THESE INSTRUCTIONS

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

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

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

**⚠DANGER**

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

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

**⚠WARNING**

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

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

**⚠CAUTION**

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

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

***NOTICE***

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

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

## Please Note

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

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

# 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.

# Safety Precautions

**⚠⚠DANGER**

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

Read all instructions in the installation manual before installing or working on this product.

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

**⚠⚠DANGER**

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

Do not install the product until all construction work has been completed and the installation room has been cleaned.

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

**⚠⚠DANGER**

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

The product must be installed according to the specifications and requirements as defined by Schneider Electric. It concerns in particular the external and internal protections (upstream breakers, battery breakers, cabling, etc.) and environmental requirements. No responsibility is assumed by Schneider Electric if these requirements are not respected.

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

**⚠⚠DANGER**

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

The UPS system must be installed according to local and national regulations. Install the UPS according to:

- IEC 60364 (including 60364–4–41- protection against electric shock, 60364–4–42 - protection against thermal effect, and 60364–4–43 - protection against overcurrent), **or**
- NEC NFPA 70, **or**
- Canadian Electrical Code (C22.1, Part 1)

depending on which one of the standards apply in your local area.

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

## ⚠⚠DANGER

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

- Install the product in a temperature controlled indoor environment free of conductive contaminants and humidity.
- Install the product on a non-flammable, level and solid surface (e.g. concrete) that can support the weight of the system.

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

## ⚠⚠DANGER

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

The product is not designed for and must therefore not be installed in the following unusual operating environments:

- Damaging fumes
- Explosive mixtures of dust or gases, corrosive gases, or conductive or radiant heat from other sources
- Moisture, abrasive dust, steam or in an excessively damp environment
- Fungus, insects, vermin
- Salt-laden air or contaminated cooling refrigerant
- Pollution degree higher than 2 according to IEC 60664-1
- Exposure to abnormal vibrations, shocks, and tilting
- Exposure to direct sunlight, heat sources, or strong electromagnetic fields

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

## ⚠⚠DANGER

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

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

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

## ⚠⚠WARNING

**HAZARD OF ARC FLASH**

Do not make mechanical changes to the product (including removal of cabinet parts or drilling/cutting of holes) that are not described in the installation manual.

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

## *NOTICE*

**RISK OF OVERHEATING**

Respect the space requirements around the product and do not cover the ventilation openings when the product is in operation.

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

### Additional Safety Precautions After Installation

**⚠⚠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. If additional construction work is needed in the installation room after this product has been installed, turn off the product and cover the product with the protective packaging bag the product was delivered in.

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

## 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 leakage current, the earthing/grounding conductor must be connected first.

**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.**

# Battery Safety

**⚠⚠DANGER**

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

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

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

**⚠⚠DANGER**

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

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

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

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

**⚠⚠DANGER**

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

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

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

## ⚠ CAUTION

**RISK OF EQUIPMENT DAMAGE**

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

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

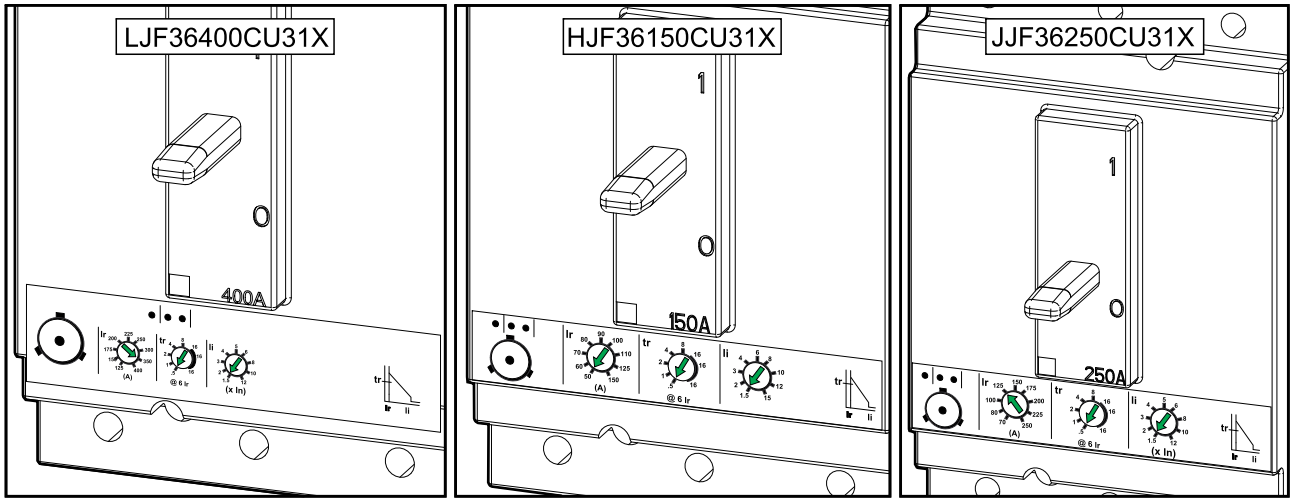
# Specifications

## Maximum Short Circuit Rating

The maximum short circuit rating for the maintenance bypass cabinet is 65 kA RMS symmetrical.

## Specifications for 480 V Systems

### Trip Settings for 480 V




| UPS rating | Breaker type | | Ir (A) | tr @ 6 Ir | Ii (x In) | tr @ 6 Ir | Ii (x In) |
|---|---|---|---|---|---|---|---|
| | UIB/SSIB | MBB/UOB | UIB/SSIB/ MBB/UOB | UIB/SSIB | | MBB/UOB | |
| 20 kW | HJF36150CU31X | HJF36150CU31X | 50 | 1 | 4 | 0.5 | 4 |
| 30 kW | HJF36150CU31X | HJF36150CU31X | 50 | 1 | 5 | 0.5 | 5 |
| 40 kW | HJF36150CU31X | HJF36150CU31X | 70 | 1 | 5 | 0.5 | 5 |
| 50 kW | HJF36150CU31X | HJF36150CU31X | 80 | 1 | 5 | 0.5 | 5 |
| 60 kW | HJF36150CU31X | HJF36150CU31X | 100 | 1 | 12 | 0.5 | 12 |
| 80 kW | HJF36150CU31X | HJF36150CU31X | 125 | 1 | 12 | 0.5 | 12 |
| 100 kW | LJF36400CU31X | JJF36250CU31X | 175 | 1 | 7 | 0.5 | 10 |
| 120 kW | LJF36400CU31X | JJF36250CU31X | 200 | 1 | 8 | 0.5 | 12 |
| 150 kW | LJF36400CU31X | JJF36250CU31X | 250 | 1 | 8 | 0.5 | 12 |

## Recommended Upstream Protection 480 V

| UPS rating | 20 kW | | 30 kW | | 40 kW | | 50 kW | |
|---|---|---|---|---|---|---|---|---|
| | Input | Bypass | Input | Bypass | Input | Bypass | Input | Bypass |
| Breaker type | HJF36100U31X | | | | | | | |
| Ir (A) | 40 | 35 | 60 | 50 | 80 | 70 | 100 | 80 |
| tr @ 6 Ir | 0.5 | | | | | | | |
| Ii (x In) | 1.5 | | | | | | | |

| UPS rating | 60 kW | | 80 kW | | 100 kW | | 120 kW | | 150 kW | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Input | Bypass | Input | Bypass | Input | Bypass | Input | Bypass | Input | Bypass |
| Breaker type | HJ-F36150-U31X | HJ-F36100-U31X | JJ-F36250-U31X | HJ-F36150-U31X | JJF36250U31X | | | | LJ-F36400-U31X | JJ-F36250-U31X |
| Ir (A) | 125 | 100 | 175 | 125 | 200 | 175 | 250 | 200 | 300 | 250 |
| tr @ 6 Ir | 0.5 | | | | | | | | | |
| Ii (x In) | 1.5 | | | | | | | | | |

## Recommended Cable Sizes 480 V

**⚠⚠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 4/0 AWG.

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

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

Cable sizes in this manual are based on Table 310.15 (B)(16) of the National Electrical Code (NEC) with the following assertions:

- 90 °C (194 °F) conductors (75 °C (167 °F) termination)
- An ambient temperature of 30 °C (86 °F)
- Use of copper conductors

If the ambient temperature is greater than 30 °C (86 °F), larger conductors are to be selected in accordance with the correction factors of the NEC.

Equipment grounding conductors (PE in this manual) are sized in accordance with NEC Article 250.122 and Table 250.122.

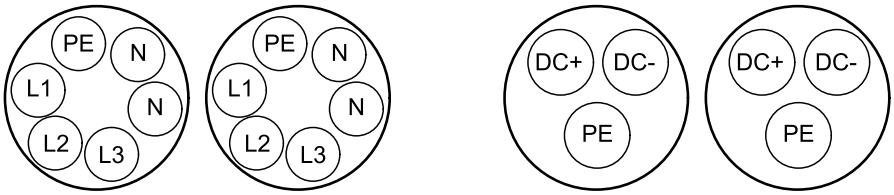
| UPS rating | 20 kW | 30 kW | 40 kW | 50 kW | 60 kW | 80 kW | 100 kW | 120 kW | 150 kW |
|---|---|---|---|---|---|---|---|---|---|
| Input phases (AWG/kcmil) | 8 | 6 | 4 | 3 | 1 | 2/0 | 2 x 1/0 | 2 x 1/0 | 2 x 1/0 |
| Input PE (AWG/kcmil) | 10 | 8 | 8 | 6 | 6 | 6 | 4 | 2 x 4 | 2 x 3 |
| Bypass/output phases (AWG/kcmil) | 10 | 8 | 6 | 4 | 3 | 1 | 2/0 | 2 x 1/0 | 2 x 1/0 |
| Bypass PE/output PE (AWG/kcmil) | 10 | 10 | 8 | 8 | 8 | 6 | 6 | 2 x 6 | 2 x 4 |
| Neutral (AWG/kcmil)[1] | 6 | 4 | 2 | 1/0 | 2/0 | 2 x 1/0 | 2 x 1/0 | 4 x 1/0 | 4 x 1/0 |
| DC +/- (AWG/kcmil) | 4[2] | 2[2] | 1/0[2] | 1/0[3] | 2/0[3] | 4/0[3] | 2 x 1/0[3] | 2 x 3/0[3] | 2 x 4/0[3] |
| DC PE (AWG/kcmil) | 8 | 6 | 6 | 6 | 6 | 4 | 4 | 3 | 2 x 2 |

**NOTE:** The DC cable sizes given here are recommendations – Always follow the specific instructions in the battery solution documentation for DC +/- and DC PE cable sizes.

**NOTE:** For 120 kW, use two separate conduits for each of the input, bypass, and output cable sets. Organize cables as illustrated in each conduit to avoid eddy currents (heating).

**NOTE:** For 150 kW, use two separate conduits for each of the input, bypass, output, and DC cable sets. Organize cables as illustrated in each conduit to avoid eddy currents (heating).

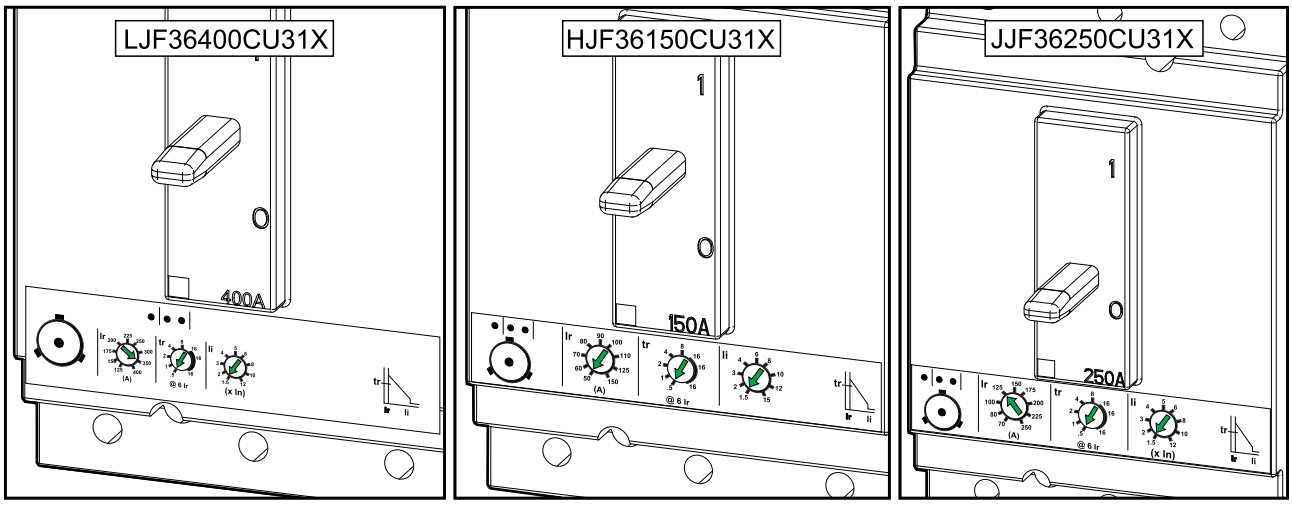
**Cable Organization in Separate Conduits for Input/Bypass/Output and DC**




1. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If low or no harmonic currents are expected, neutral conductor can be sized as phase conductor.
2. 20-40 kW: DC cables are sized according to 32 battery blocks.
3. 50 kW and higher: DC cables are sized according to 40 battery blocks.

# Specifications for 208 V Systems

## Trip Settings for 200/208/220 V




| UPS rating | Breaker type | | Ir (A) | | tr @ 6 Ir | Ii (x In) | tr @ 6 Ir | Ii (x In) |
|---|---|---|---|---|---|---|---|---|
| | UIB/SSIB | MBB/UOB | UIB | SSIB/ MBB/UOB | UIB/SSIB | | MBB/UOB | |
| 10 kW | HJF36150CU31X | HJF36150CU31X | 50 | 50 | 1 | 4 | 0.5 | 4 |
| 15 kW | HJF36150CU31X | HJF36150CU31X | 60 | 60 | 1 | 5 | 0.5 | 5 |
| 20 kW | HJF36150CU31X | HJF36150CU31X | 80 | 80 | 1 | 5 | 0.5 | 5 |
| 25 kW | HJF36150CU31X | HJF36150CU31X | 100 | 100 | 1 | 5 | 0.5 | 5 |
| 30 kW | HJF36150CU31X | HJF36150CU31X | 125 | 110 | 1 | 12 | 0.5 | 12 |
| 40 kW | HJF36150CU31X | HJF36150CU31X | 150 | 150 | 1 | 12 | 0.5 | 12 |
| 50 kW | LJF36400CU31X | JJF36250CU31X | 200 | 200 | 1 | 7 | 0.5 | 10 |
| 60 kW | LJF36400CU31X | JJF36250CU31X | 250 | 225 | 1 | 8 | 0.5 | 12 |
| 75 kW | LJF36400CU31X | JJF36250CU31X | 300 | 250 | 1 | 8 | 0.5 | 12 |

## Recommended Upstream Protection 200/208/220 V

| UPS rating | 10 kW | | 15 kW | | 20 kW | | 25 kW | |
|---|---|---|---|---|---|---|---|---|
| | Input | Bypass | Input | Bypass | Input | Bypass | Input | Bypass |
| Breaker type | HJF36100U31X | | | | | | HJF36150-U31X | HJF36100-U31X |
| Ir (A) | 50 | 40 | 80 | 60 | 100 | 80 | 125 | 100 |
| tr @ 6 Ir | 0.5 | | | | | | | |
| Ii (x In) | 1.5 | | | | | | | |

| UPS rating | 30 kW | | 40 kW | | 50 kW | | 60 kW | | 75 kW | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Input | Bypass | Input | Bypass | Input | Bypass | Input | Bypass | Input | Bypass |
| Breaker type | HJF36150U31X | | JJ-F36250-U31X | HJ-F36150-U31X | JJF36250U31X | | LJ-F36400-U31X | JJ-F36250-U31X | LJF36400U31X | |
| Ir (A) | 150 | 110 | 200 | 150 | 250 | 200 | 300 | 225 | 350 | 300 |
| tr @ 6 Ir | 0.5 | | | | | | | | | |
| Ii (x In) | 1.5 | | | | | | | | | |

## Recommended Cable Sizes 200/208/220 V

**⚠⚠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 4/0 AWG.

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

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

Cable sizes in this manual are based on Table 310.15 (B)(16) of the National Electrical Code (NEC) with the following assertions:

- 90 °C (194 °F) conductors (75 °C (167 °F) termination)
- An ambient temperature of 30 °C (86 °F)
- Use of copper conductors

If the ambient temperature is greater than 30 °C (86 °F), larger conductors are to be selected in accordance with the correction factors of the NEC.

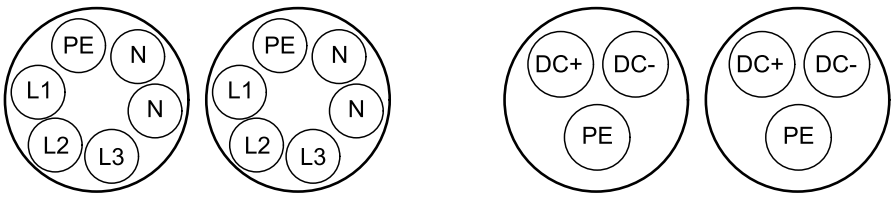
Equipment grounding conductors (PE in this manual) are sized in accordance with NEC Article 250.122 and Table 250.122.

| UPS rating | 10 kW | 15 kW | 20 kW | 25 kW | 30 kW | 40 kW | 50 kW | 60 kW | 75 kW |
|---|---|---|---|---|---|---|---|---|---|
| Input phases (AWG/kcmil) | 8 | 4 | 3 | 2 | 1/0 | 2 x 1/0 | 2 x 1/0 | 2 x 1/0 | 2 x 2/0 |
| Input PE (AWG/kcmil) | 10 | 8 | 8 | 6 | 6 | 6 | 2 x 4 | 2 x 4 | 2 x 3 |
| Bypass/output phases (AWG/kcmil) | 8 | 6 | 4 | 3 | 2 | 1/0 | 2 x 1/0 | 2 x 1/0 | 2 x 1/0 |
| Bypass PE/output PE (AWG/kcmil) | 10 | 10 | 8 | 8 | 6 | 6 | 2 x 6 | 2 x 4 | 2 x 4 |
| Neutral (AWG/kcmil)[4] | 6 | 3 | 1 | 2/0 | 2 x 1/0 | 2 x 1/0 | 2 x 2/0 | 4 x 1/0 | 4 x 1/0 |
| DC +/- (AWG/kcmil) | 10[5] | 6[5] | 4[5] | 4[5] | 2[5] | 1/0[5] | 2/0[5] | 4/0[5] | 2 x 1/0[5] |
| DC PE (AWG/kcmil) | 10 | 10 | 8 | 8 | 6 | 6 | 6 | 4 | 4 |

**NOTE:** The DC cable sizes given here are recommendations – Always follow the specific instructions in the battery solution documentation for DC +/- and DC PE cable sizes.

**NOTE:** For 50 kW, 60 kW, and 75 kW, use two separate conduits for each of the input, bypass, and output cable sets. Organize cables as illustrated in each conduit to avoid eddy currents (heating).

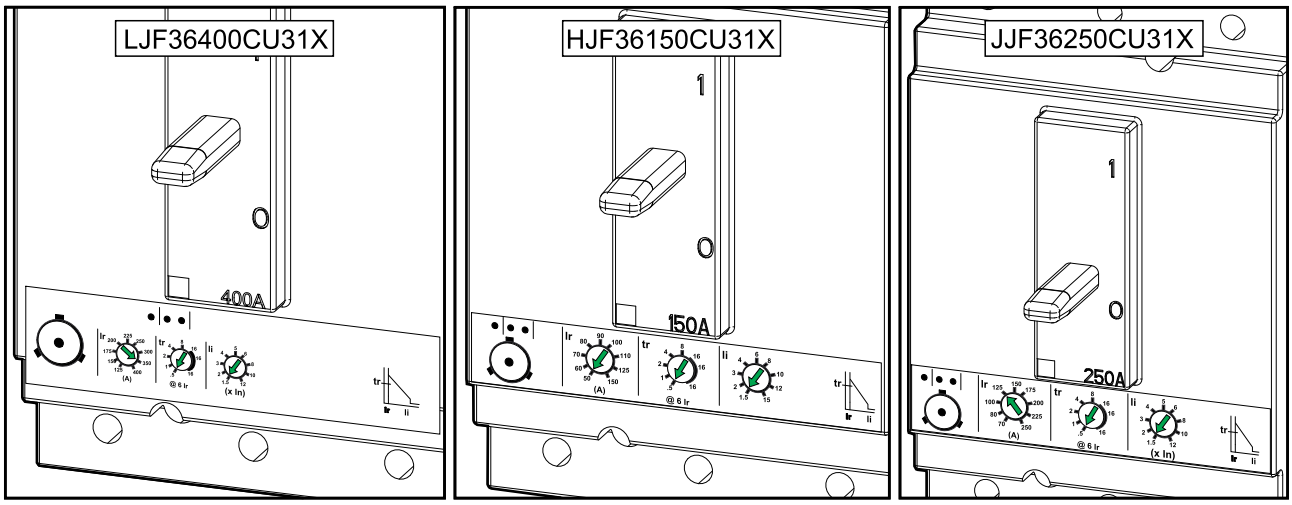
**Cable Organization in Separate Conduits for Input/Bypass/Output and DC**




4. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If low or no harmonic currents are expected, neutral conductor can be sized as phase conductor.
5. DC cables are sized according to 32 battery blocks.

# Specifications for 400 V Systems

## Trip Settings for 400/415 V




| UPS rating | Breaker type | | Ir (A) | | tr @ 6 Ir | Ii (x In) | tr @ 6 Ir | Ii (x In) |
|---|---|---|---|---|---|---|---|---|
| | UIB/SSIB | MBB/UOB | UIB | SSIB/ MBB/UOB | UIB/SSIB | | MBB/UOB | |
| 10 kW | HJF36150CU31X | HJF36150CU31X | 50 | 50 | 1 | 4 | 0.5 | 4 |
| 15 kW | HJF36150CU31X | HJF36150CU31X | 50 | 50 | 1 | 4 | 0.5 | 4 |
| 20 kW | HJF36150CU31X | HJF36150CU31X | 50 | 50 | 1 | 4 | 0.5 | 4 |
| 30 kW | HJF36150CU31X | HJF36150CU31X | 60 | 60 | 1 | 5 | 0.5 | 5 |
| 40 kW | HJF36150CU31X | HJF36150CU31X | 80 | 80 | 1 | 5 | 0.5 | 5 |
| 50 kW | HJF36150CU31X | HJF36150CU31X | 100 | 100 | 1 | 5 | 0.5 | 5 |
| 60 kW | HJF36150CU31X | HJF36150CU31X | 125 | 110 | 1 | 12 | 0.5 | 12 |
| 80 kW | HJF36150CU31X | HJF36150CU31X | 150 | 150 | 1 | 12 | 0.5 | 12 |
| 100 kW | LJF36400CU31X | JJF36250CU31X | 200 | 200 | 1 | 7 | 0.5 | 10 |
| 120 kW | LJF36400CU31X | JJF36250CU31X | 250 | 225 | 1 | 8 | 0.5 | 12 |
| 150 kW | LJF36400CU31X | JJF36250CU31X | 300 | 250 | 1 | 8 | 0.5 | 12 |

## Recommended Upstream Protection 400/415 V

| UPS rating | 10 kW | | 15 kW | | 20 kW | | 30 kW | | 40 kW | | 50 kW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Input | By-pass | Input | By-pass | Input | By-pass | Input | By-pass | Input | By-pass | Input | By-pass |
| Breaker type | HJF36060U31X | | | | HJF36100U31X | | | | | | HJ-F3615-0U31X | HJ-F3610-0U31X |
| Ir (A) | 25 | 20 | 35 | 30 | 50 | 40 | 80 | 60 | 100 | 80 | 125 | 100 |
| tr @ 6 Ir | 0.5 | | | | | | | | | | | |
| Ii (x In) | 1.5 | | | | | | | | | | | |

| UPS rating | 60 kW | | 80 kW | | 100 kW | | 120 kW | | 150 kW | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Input | Bypass | Input | Bypass | Input | Bypass | Input | Bypass | Input | Bypass |
| Breaker type | HJF36150U31X | | JJ-F36250-U31X | HJ-F36150-U31X | JJF36250U31X | | LJ-F36400-U31X | JJ-F36250-U31X | LJF36400U31X | |
| Ir (A) | 150 | 110 | 200 | 150 | 250 | 200 | 300 | 225 | 350 | 300 |
| tr @ 6 Ir | 0.5 | | | | | | | | | |
| Ii (x In) | 1.5 | | | | | | | | | |

## Recommended Cable Sizes 400/415 V

**⚠⚠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 4/0 AWG.

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

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

Cable sizes in this manual are based on Table 310.15 (B)(16) of the National Electrical Code (NEC) with the following assertions:

- 90 °C (194 °F) conductors (75 °C (167 °F) termination)
- An ambient temperature of 30 °C (86 °F)
- Use of copper conductors

If the ambient temperature is greater than 30 °C (86 °F), larger conductors are to be selected in accordance with the correction factors of the NEC.

Equipment grounding conductors (PE in this manual) are sized in accordance with NEC Article 250.122 and Table 250.122.

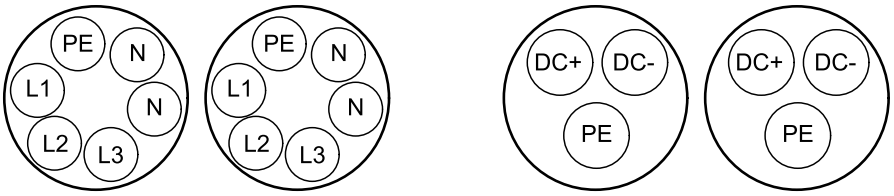
| UPS rating | 10 kW | 15 kW | 20 kW | 30 kW | 40 kW | 50 kW | 60 kW | 80 kW | 100 kW | 120 kW | 150 kW |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input phases (AWG/kcmil) | 8 | 8 | 8 | 4 | 3 | 2 | 1/0 | 2 x 1/0 | 2 x 1/0 | 2 x 1/0 | 2 x 2/0 |
| Input PE (AWG/kcmil) | 10 | 10 | 10 | 8 | 8 | 6 | 6 | 6 | 2 x 4 | 2 x 4 | 2 x 3 |
| Bypass/output phases (AWG/kcmil) | 8 | 8 | 8 | 6 | 4 | 3 | 2 | 1/0 | 2 x 1/0 | 2 x 1/0 | 2 x 1/0 |
| Bypass PE/output PE (AWG/kcmil) | 10 | 10 | 10 | 10 | 8 | 8 | 6 | 6 | 2 x 6 | 2 x 4 | 2 x 4 |
| Neutral (AWG/kcmil)[6] | 8 | 8 | 6 | 3 | 1 | 2/0 | 2 x 1/0 | 2 x 1/0 | 2 x 2/0 | 4 x 1/0 | 4 x 1/0 |
| DC +/- (AWG/kcmil) | 10[7] | 8[7] | 4[7] | 2[7] | 1/0[7] | 1/0[8] | 2/0[8] | 4/0[8] | 2 x 1/0[8] | 2 x 3/0[8] | 2 x 4/0[8] |
| DC PE (AWG/kcmil) | 10 | 10 | 8 | 6 | 6 | 6 | 6 | 4 | 4 | 3 | 2 x 2 |

**NOTE:** The DC cable sizes given here are recommendations – Always follow the specific instructions in the battery solution documentation for DC +/- and DC PE cable sizes.

**NOTE:** For 100 and 120 kW, use two separate conduits for each of the input, bypass, and output cable sets. Organize cables as illustrated in each conduit to avoid eddy currents (heating).

**NOTE:** For 150 kW, use two separate conduits for each of the input, bypass, output, and DC cable sets. Organize cables as illustrated in each conduit to avoid eddy currents (heating).

**Cable Organization in Separate Conduits for Input/Bypass/Output and DC**




6. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If low or no harmonic currents are expected, neutral conductor can be sized as phase conductor.
7. 20-40 kW: DC cables are sized according to 32 battery blocks.
8. 50 kW and higher: DC cables are sized according to 40 battery blocks.

# Recommended Bolt and Lug Sizes

| NOTICE |
| --- |
| **RISK OF EQUIPMENT DAMAGE**<br>Use only UL approved compression cable lugs.<br>**Failure to follow these instructions can result in equipment damage.** |

### Copper — One Hole Cable Lugs

| Cable size | Bolt size | Cable lug type | Crimping tool | Die |
| --- | --- | --- | --- | --- |
| 10 AWG | M8 x 35 mm | LCA10-56-L | NA | NA |
| 8 AWG | M8 x 35 mm | LCA8-56-L | CT-720 | CD-720-1 Red P21 |
| 6 AWG | M8 x 35 mm | LCA6-56-L | CT-720 | CD-720-1 Blue P24 |
| 4 AWG | M8 x 35 mm | LCA4-56-L | CT-720 | CD-720-1 Gray P29 |
| 3 AWG | M8 x 35 mm | LCA4-56-L | CT-720 | CD-720-1 Gray P29 |
| 2 AWG | M8 x 35 mm | LCA2-56-Q | CT-720 | CD-720-1 Brown P33 |
| 1 AWG | M8 x 35 mm | LCA1-56-E | CT-720 | CD-720-2 Green P37 |
| 1/0 AWG | M8 x 35 mm | LCA1/0-56-X | CT-720 | CD-720-2 Pink P42 |
| 2/0 AWG | M8 x 35 mm | LCA2/0-56-X | CT-720 | CD-720-2 Black P45 |
| 3/0 AWG | M8 x 35 mm | LCA3/0-56-X | CT-720 | CD-720-2 Orange P50 |
| 4/0 AWG | M8 x 35 mm | LCA4/0-56-X | CT-720 | CD-720-3 Purple P54 |

### Copper — Two Hole Cable Lugs

| Cable size | Bolt size | Cable lug type | Crimping tool | Die |
| --- | --- | --- | --- | --- |
| 6 AWG | M10 x 35 mm | LCC6-12-L | CT-930 | CD-920-6 Blue P24 |
| 4 AWG | M10 x 35 mm | LCC4-12-L | CT-930 | CD-920-4 Gray P29 |
| 3 AWG | M10 x 35 mm | | | |
| 2 AWG | M10 x 35 mm | LCC2-12-Q | CT-930 | CD-920-2 Brown P33 |
| 1 AWG | M10 x 35 mm | LCC1-12-E | CT-930 | CD-920-1 Green P37 |
| 1/0 AWG | M10 x 35 mm | LCC1/0-12-X | CT-930 | CD-920-1/0 Pink P42 |
| 2/0 AWG | M10 x 35 mm | LCC2/0-12-X | CT-930 | CD-920-2/0 Black P45 |
| 3/0 AWG | M10 x 35 mm | LCC3/0-12-X | CT-930 | CD-920-3/0 Orange P50 |
| 4/0 AWG | M10 x 35 mm | LCC4/0-12-X | CT-930 | CD-920-4/0 Purple P54 |

# Torque Specifications

| Bolt size | Torque |
| --- | --- |
| M4 | 1.7 Nm (1.25 lb-ft / 15 lb-in) |
| M5 | 2.2 Nm (1.62 lb-ft / 19.5 lb-in) |
| M6 | 5 Nm (3.69 lb-ft / 44.3 lb-in) |
| M8 | 17.5 Nm (12.91 lb-ft / 154.9 lb-in) |
| M10 | 30 Nm (22 lb-ft / 194.7 lb-in) |
| M12 | 50 Nm (36.87 lb-ft / 442.5 lb-in) |

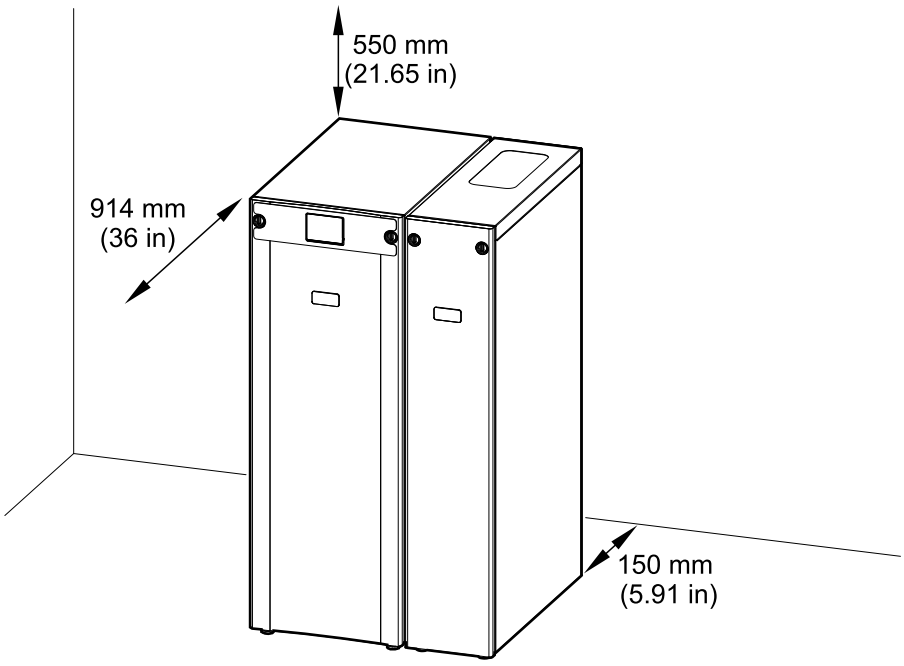
# Maintenance Bypass Cabinet Weights and Dimensions

| Commercial reference | Weight kg (lbs) | Height mm (in) | Width mm (in) | Depth mm (in) |
|---|---|---|---|---|
| GVSBPSU80G | 110 (242.51) | 1485 (58.46) | 318 (12.52) | 850 (33.46) |

# 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.

**Front View of the UPS and the Maintenance Bypass Cabinet**




# Environment

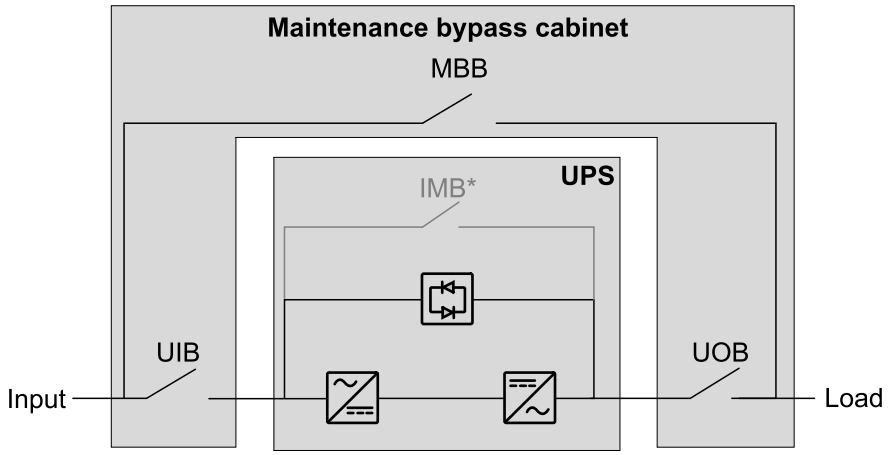
| | Operating | Storage |
|---|---|---|
| Temperature | 0 °C to 40 °C (32 °F to 104 °F ) | -25 °C to 55 °C (-13 °F to 131 °F) |
| Relative humidity | 0-95% non-condensing | 0-95% non-condensing |
| Elevation | 0-3000 m (0-10000 feet) | |
| Protection class | IP20 | |
| Color | RAL 9003, gloss level 85% | |

# Online Diagrams

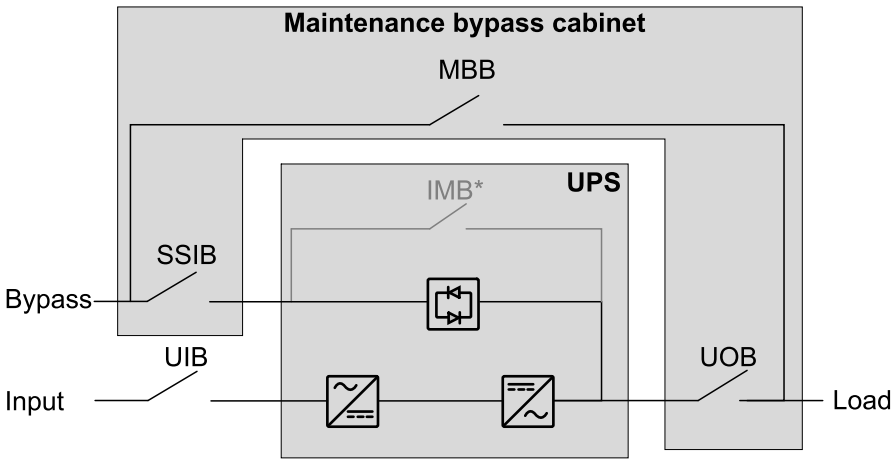
| | |
|---|---|
| UIB | Unit input breaker |
| SSIB | Static switch input breaker |
| MBB | Maintenance bypass breaker |
| IMB | Internal maintenance breaker |
| UOB | Unit output breaker |

**NOTE:** The internal maintenance breaker IMB* in the UPS cannot be used with a maintenance bypass cabinet and the internal maintenance breaker IMB* must be padlocked in the open position.

## Single Mains UPS System

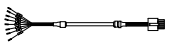
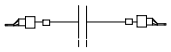
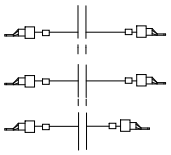
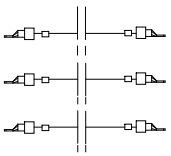
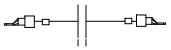



## Dual Mains UPS System



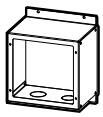
# Overview of Installation Kits

## Installation Kit 0M-100265 for 10-80 kW Maintenance Bypass Cabinet

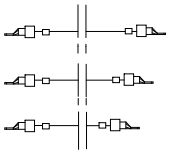
| Part | Used in | Number of units |
|---|---|---|
| 0W49284 signal cable | Connect the Signal Cables, page 51. | 1  |
| 0W49283 signal cable | | 1  |
| 0W99053 UPS PE cable | Connect the Power Cables in a 10-80 kW Top Cable Entry System, page 39 or Connect the Power Cables in a Bottom Cable Entry System, page 45. | 1  |
| 0W99055 UPS output cables | | 1  |
| 0W99056 UPS input/UPS bypass cables | | 1  |
| 0W99054 UPS neutral cable | | 1  |
| M8 nut with washer | | 10  |
| M8 x 25 mm bolt with washer | | 10  |
| Cable ties | | 10  |

# Installation Kit 0H-1717

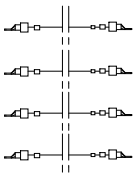
Only for installation with UPS for internal batteries.

| Part | Used in | Number of units |
|---|---|---|
| Conduit box | Install the Conduit Box, page 34 | 1  |
| Rear plate | | 1  |
| UPS input/UPS bypass cables 0W12758 | | 1  |
| UPS output cables 0W12761 | | 1  |
| M4 x 10 mm screw with washer | | 4  |
| M8 nut with washer | | 3  |
| M8 x 25 mm bolt with washer | | 3  |
| M6 x 16 mm screw with washer | | 9  |
| M6 nut with washer | | 9  |
| Support for side panel | Prepare the Maintenance Bypass Cabinet and the UPS for Cables, page 31 | 10  |

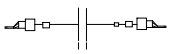
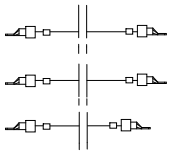
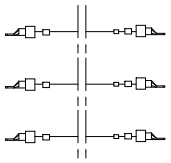
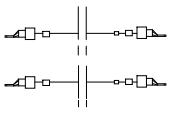
# Installation Kit 0M-100247 for 100-150 kW Maintenance Bypass Cabinet

| Part | Used in | Number of units |
|---|---|---|
| 0W49195 UPS input cables (for dual mains) | Connect the Power Cables in a 100-150 kW Top Cable Entry System, page 41. | 1  |
| M8 nut with washer | | 6  |
| M8 x 25 mm bolt with washer | | 6  |
| Cable ties | | 10  |

# Installation Kit 0M-100250 for 100-150 kW Maintenance Bypass Cabinet

| Part | Used in | Number of units |
|---|---|---|
| 0W49194 UPS DC cables | Connect the Power Cables in a 100-150 kW Top Cable Entry System, page 41 | 1  |
| M8 nut with washer | | 6  |
| M8 x 25 mm bolt with washer | | 6  |
| Cable ties | | 10  |

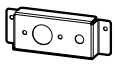
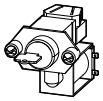
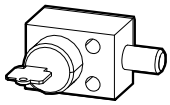
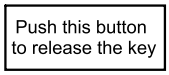
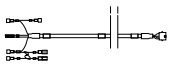
# Installation Kit 0M-100264 for 100-150 kW Maintenance Bypass Cabinet

| Part | Used in | Number of units |
|---|---|---|
| 0W49284 signal cable | Connect the Signal Cables, page 51. | 1  |
| 0W49283 signal cable | | 1  |
| 0W99057 UPS PE cable | Connect the Power Cables in a 100-150 kW Top Cable Entry System, page 41, or Connect the Power Cables in a Bottom Cable Entry System, page 45. | 1  |
| 0W12375 UPS output cables | | 1  |
| 0W99058 UPS input/UPS bypass cables | | 1  |
| 0W99052 UPS neutral cable | | 1  |
| M8 nut with washer | | 11  |
| M8 x 25 mm bolt with washer | | 11  |
| Cable ties | | 10  |

# Optional Seismic Kit GVSOPT003

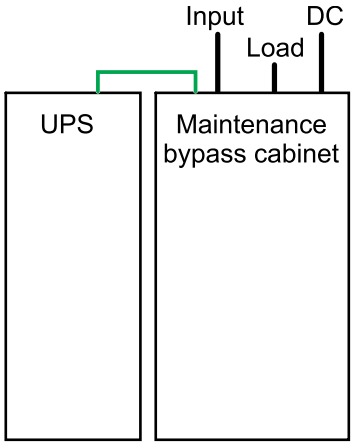
| Part | Used in | Number of units |
|---|---|---|
| Rear anchor | Install the Seismic Anchoring (Option), page 37 and Final Installation, page 54. | 1  |
| Front anchoring bracket | | 1  |
| Rear anchoring bracket | | 1  |
| M8 x 20 mm bolt | | 6  |

# Optional Kirk Key Kit GVSOPT004

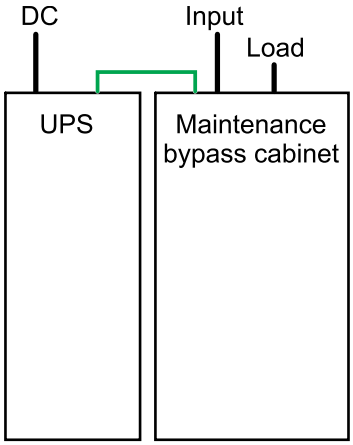
| Part | Used in | Number of units |
|---|---|---|
| Support plate | The optional kirk key kit must be installed by a Schneider Electric field service representative. Contact Schneider Electric. | 2  |
| Flathead screw | | 8  |
| Push-button | | 1  |
| Top support plate | | 1  |
| Electromechanical key interlock (SKRU) | | 1  |
| Mechanical key interlock | | 2  |
| Label | | 1   |
| M6 nut with washer | | 2  |
| 0W12675 signal cable | | 1  |
| 0W49239 signal cable | | 1  |

# Installation Procedure for Top Cable Entry

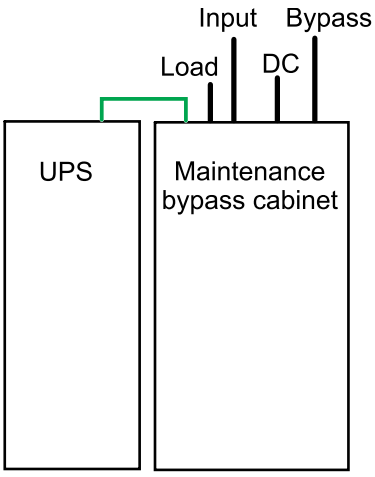
**Installation without Conduit Box – Single Mains**



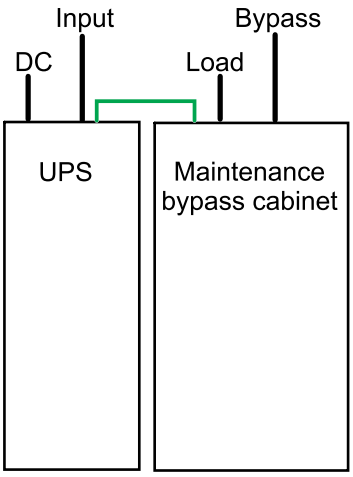

**Installation with Conduit Box – Single Mains**




**Installation without Conduit Box – Dual Mains**




**Installation with Conduit Box – Dual Mains**




Signal cable
Power cable

## ⚠CAUTION

**TIP HAZARD**

Do not remove the transportation brackets from the maintenance bypass cabinet until it is time to anchor it to the floor or interconnect it with the UPS.

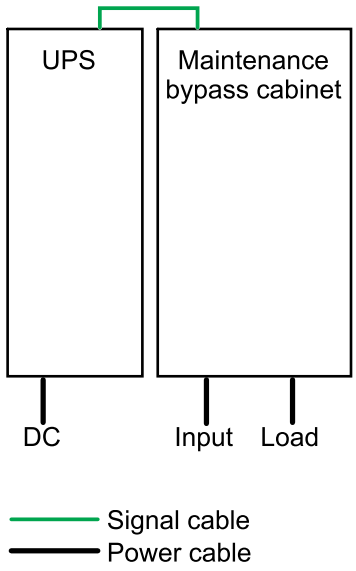
**Failure to follow these instructions can result in injury or equipment damage.**

1. Follow the UPS manual to prepare the UPS for installation.
2. Prepare the Maintenance Bypass Cabinet and the UPS for Cables, page 31.
3. For system with conduit box: Install the Conduit Box, page 34
4. Connect the Internal Power Cables, page 35.
5. Install the Seismic Anchoring (Option), page 37.

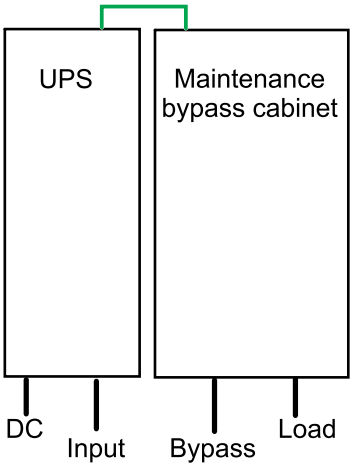
6. Perform one of the following:
   - Connect the Power Cables in a 10-80 kW Top Cable Entry System, page 39, or
   - Connect the Power Cables in a 100-150 kW Top Cable Entry System, page 41.
7. Interconnect the UPS and the Maintenance Bypass Cabinet, page 46.
8. Connect the Signal Cables, page 51.
9. Final Installation, page 54.
10. Follow the UPS installation manual to connect the power cables from the maintenance bypass cabinet in the UPS and to complete the rest of the UPS installation.

# Installation Procedure for Bottom Cable Entry

**Single Mains**




**Dual Mains**




**⚠CAUTION**

**TIP HAZARD**

Do not remove the transportation brackets from the maintenance bypass cabinet until it is time to anchor it to the floor or interconnect it with the UPS.

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

1. Follow the UPS manual to prepare the UPS for installation.
2. Prepare the Maintenance Bypass Cabinet and the UPS for Cables, page 31.
3. For system with conduit box: Install the Conduit Box, page 34
4. Connect the Internal Power Cables, page 35.
5. Install the Seismic Anchoring (Option), page 37.
6. Connect the Power Cables in a Bottom Cable Entry System, page 45.
7. Interconnect the UPS and the Maintenance Bypass Cabinet, page 46.
8. Connect the Signal Cables, page 51.
9. Final Installation, page 54.
10. Follow the UPS installation manual to connect the power cables from the maintenance bypass cabinet in the UPS and to complete the rest of the UPS installation.

# Prepare the Maintenance Bypass Cabinet and the UPS for Cables

**⚠ DANGER**

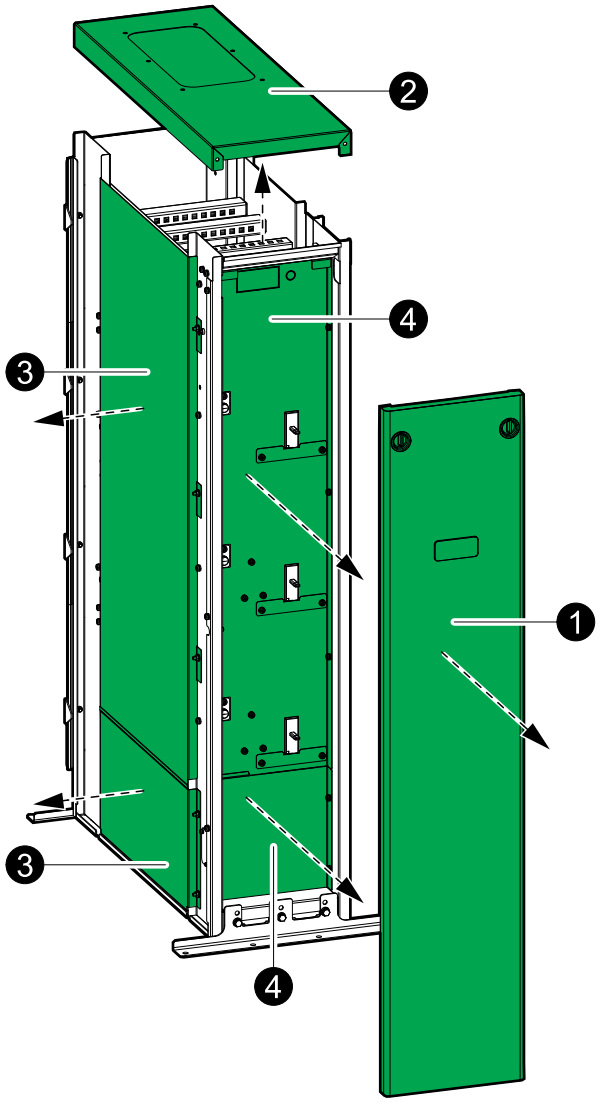
**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Do not drill or cut holes for power cables or conduits with the gland plate installed and do not drill or cut holes in close proximity to the maintenance bypass cabinet.

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

1. Remove the front panel from the maintenance bypass cabinet.

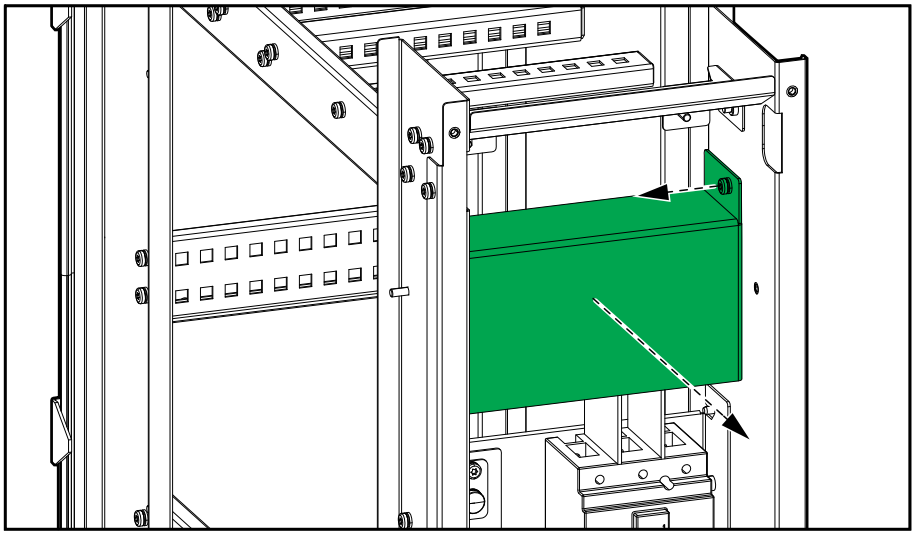
**Front View of the Maintenance Bypass Cabinet**




2. Remove the top cover from the maintenance bypass cabinet.
3. Remove the upper and lower left side plate from the maintenance bypass cabinet.
4. Remove the lower and upper front plate from the maintenance bypass cabinet.

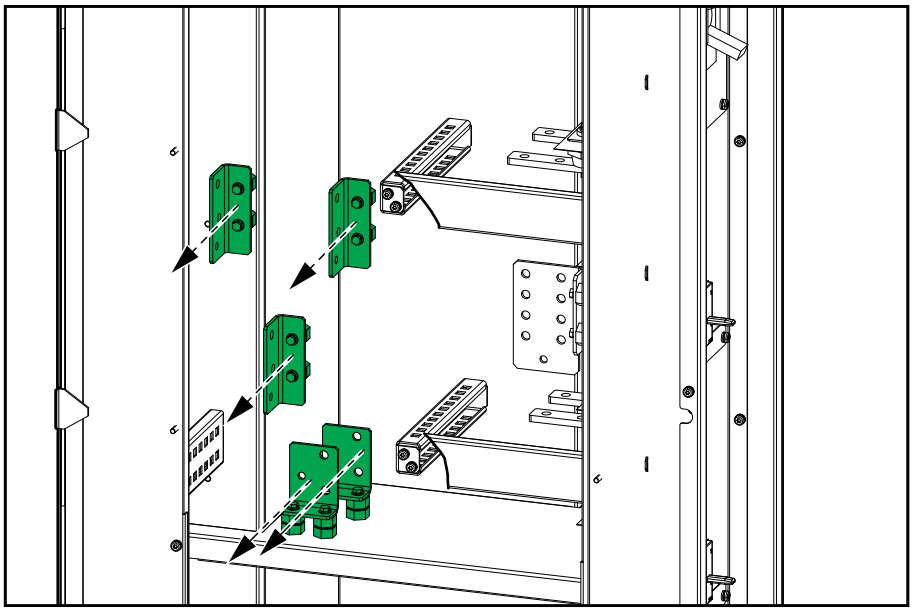
5. Remove the transparent plate above the top breaker.

**Front View of the Maintenance Bypass Cabinet**

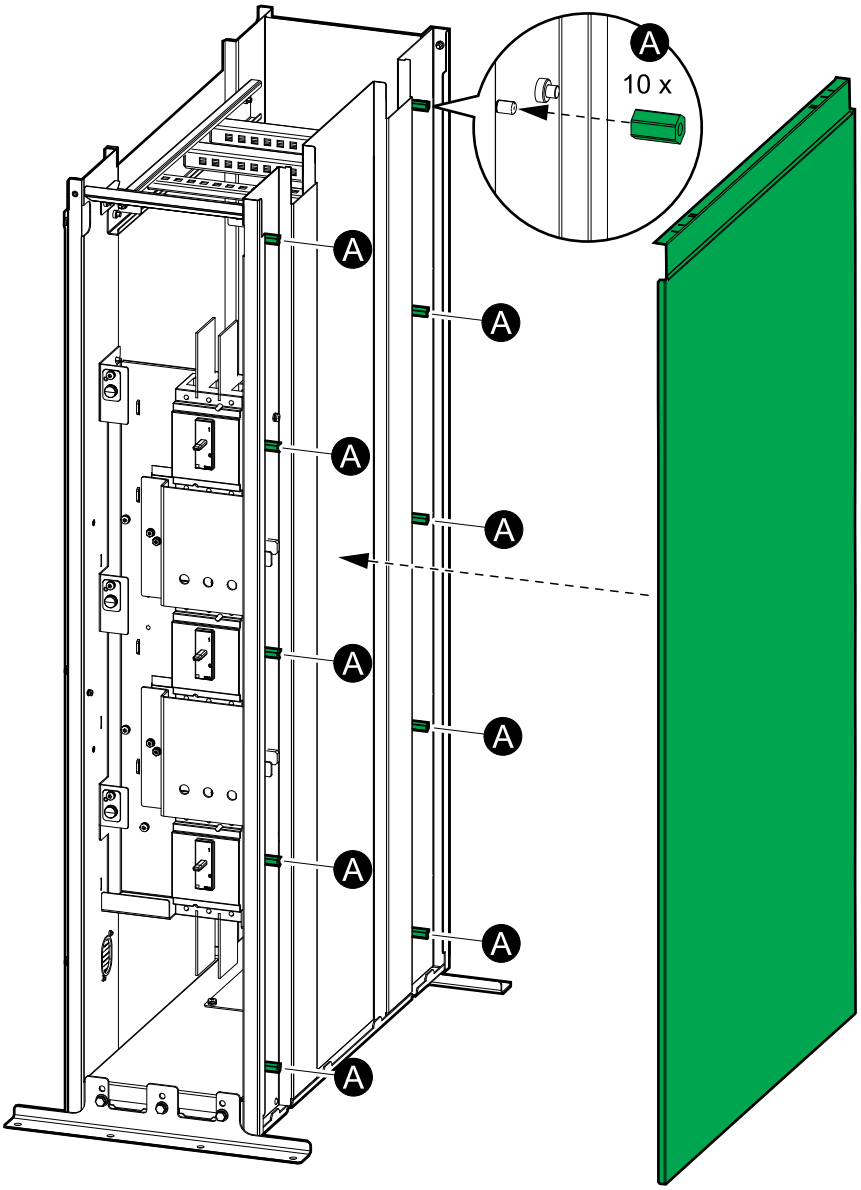


6. **Only for bottom cable entry in 100-150 kW maintenance bypass cabinet**: Remove the indicated busbars and insulators in the maintenance bypass cabinet for more cable routing space.

**Left Side View of the 100-150 kW Maintenance Bypass Cabinet**



7. Remove the right side panel from the UPS and reinstall the side panel on the right side of the maintenance bypass cabinet. For installation with a UPS for internal batteries, install the 10 supports (A) from installation kit 0H-1717. Reuse the screws from the UPS.

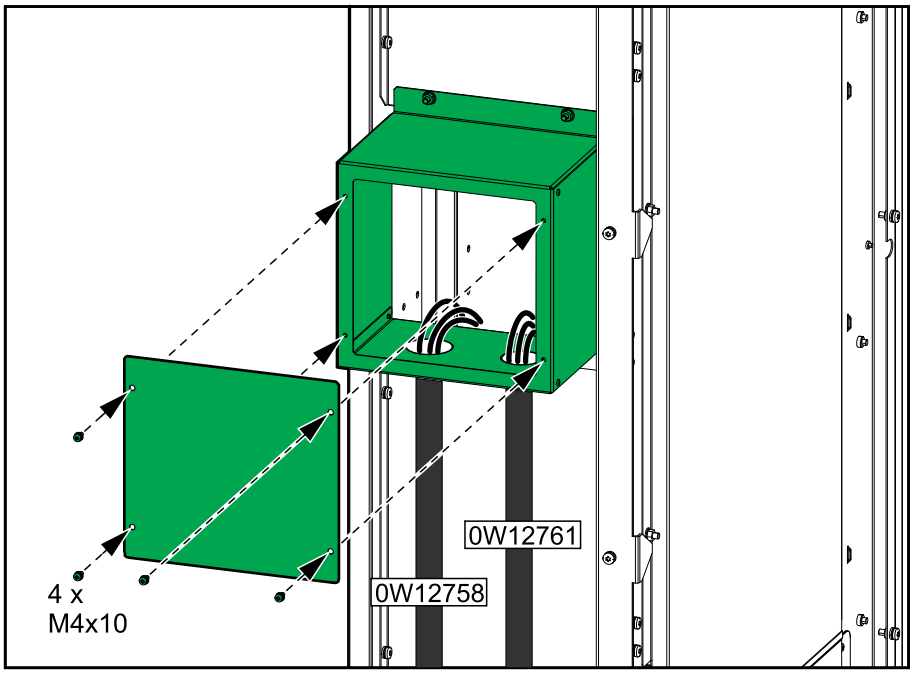



8. **Only for top cable entry system**:
   a. Remove the gland plate from the top cover of the maintenance bypass cabinet.
   b. Drill or punch holes for power cables or conduits in the gland plate. Conduits are not provided.
   c. Reinstall the gland plate in the top cover of the maintenance bypass cabinet.
9. **Only for bottom cable entry system**:
   a. Remove the gland plate from the bottom of the maintenance bypass cabinet.
   b. Drill or punch holes for power cables or conduits in the gland plate. Conduits are not provided.
   c. Reinstall the gland plate in the bottom of the maintenance bypass cabinet
10. Reinstall the top cover on the maintenance bypass cabinet with four screws.

# Install the Conduit Box

1. Remove the middle rear plate on the maintenance bypass cabinet. Save the nuts for installing the conduit box.
2. Remove the knockouts from the conduit box.
3. Install the conduit box on the maintenance bypass cabinet with the nuts from step 1.
4. Install the provided UPS input/UPS bypass cables 0W12758 and UPS output cables 0W12761 in the conduit box.
5. Install the rear plate on the conduit box

**Rear View of the Maintenance Bypass Cabinet**

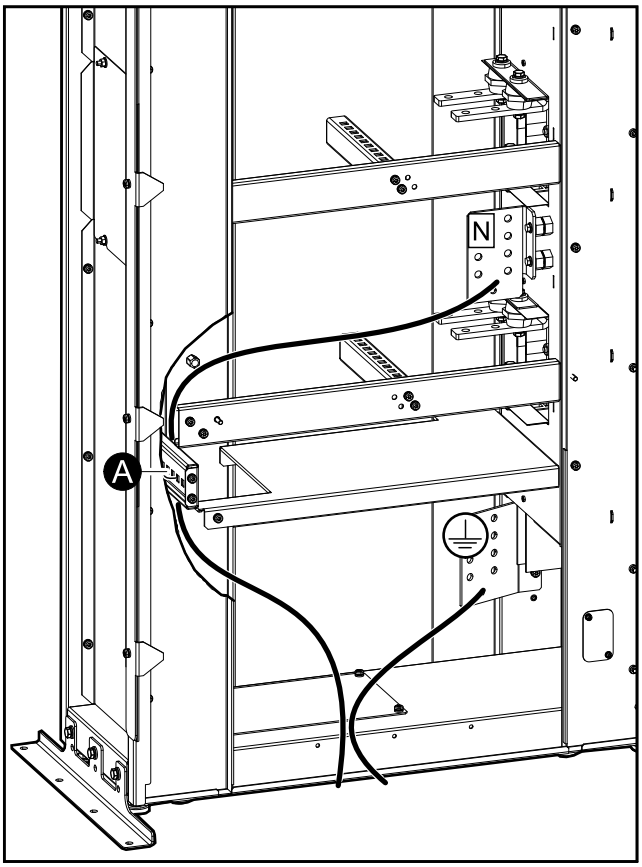


# Connect the Internal Power Cables

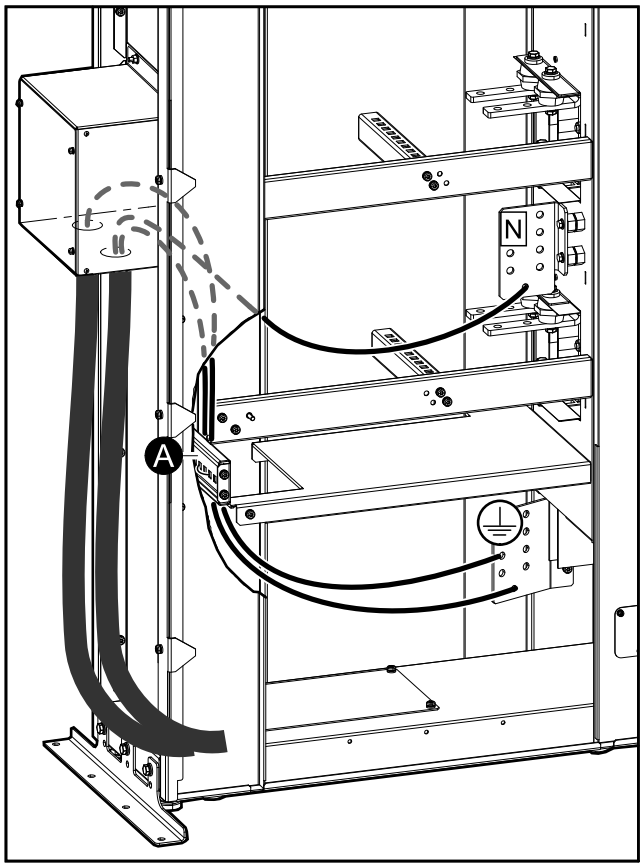
Fasten the cables to the beam with a cable tie where marked with an (A) in the illustrations.

1. Connect the provided UPS PE cable to the PE busbar and route the cable out through the left side or through the rear of the maintenance bypass cabinet.
2. Connect the provided UPS N cable to the N busbar and route the cable out through the left side or through the rear of the maintenance bypass cabinet.

**Left Side View of the Maintenance Bypass Cabinet without Conduit Box**

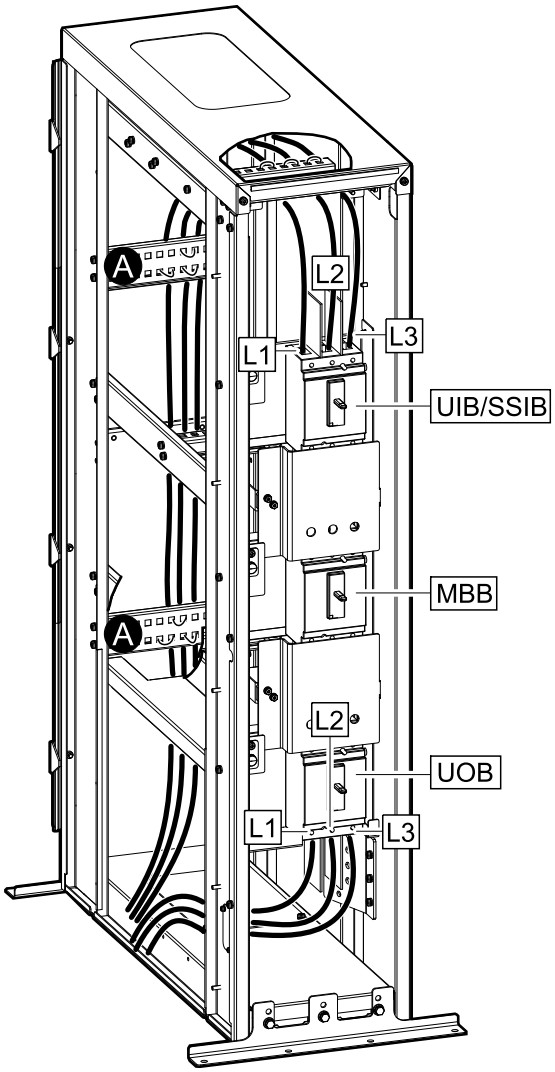



**Left Side View of the Maintenance Bypass Cabinet with Conduit Box**

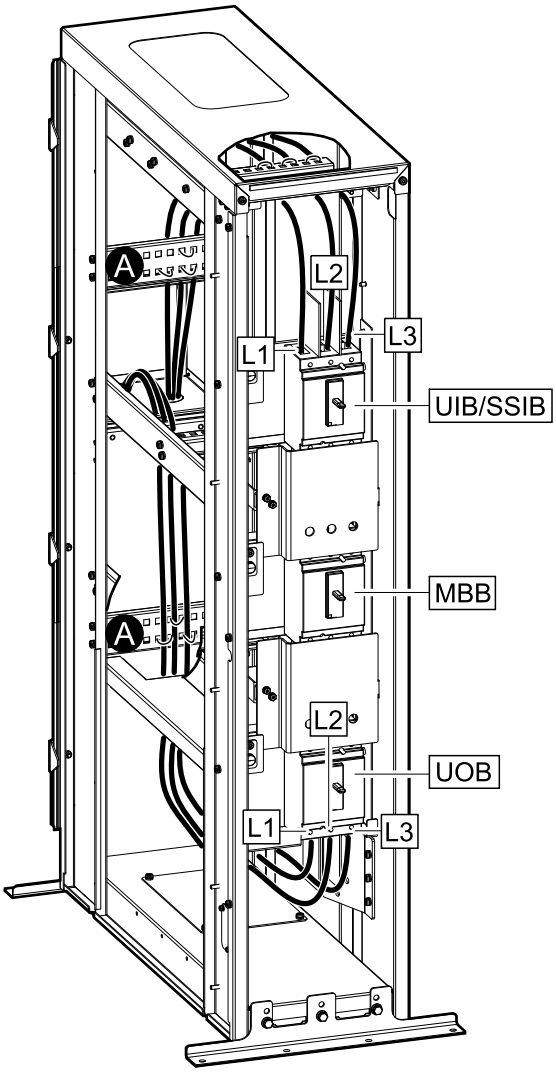


3. Perform one of the following:
   - **Only for single mains system**: Connect the provided UPS input cables to the unit input breaker UIB (L1, L2, L3) and route the cables out through the left side or through the rear of the maintenance bypass cabinet.
   - **Only for dual mains system**: Connect the provided UPS bypass cables to the static switch input breaker SSIB (L1, L2, L3) and route the cables out through the left side or through the rear of the maintenance bypass cabinet.

**Maintenance Bypass Cabinet without Conduit Box**




**Maintenance Bypass Cabinet with Conduit Box**

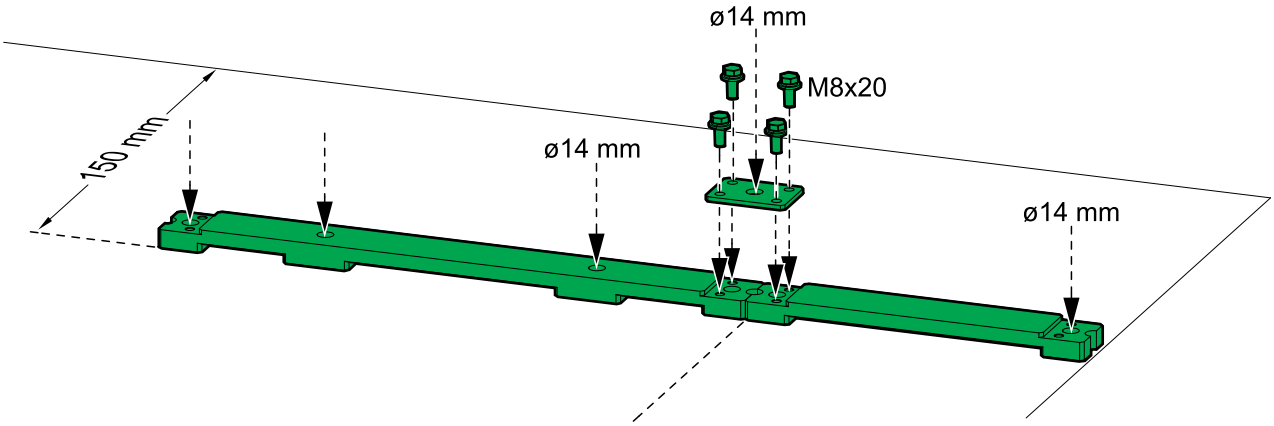



4. Connect the provided UPS output cables to the unit output breaker UOB (L1, L2, L3) and route the cables out through the left side or through the rear of the maintenance bypass cabinet.

# Install the Seismic Anchoring (Option)

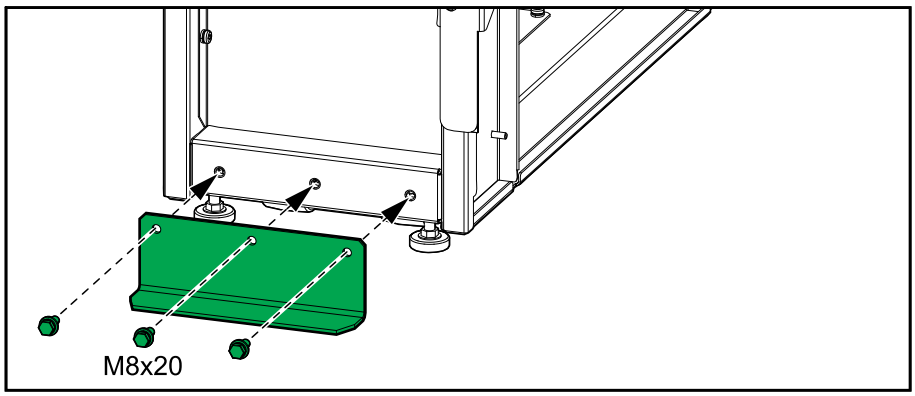
Use the optional installation kits GVSOPT002 (shipped with the UPS) and GVSOPT003 for this procedure.

1. Interconnect the rear anchors for the UPS (on the left) and the maintenance bypass cabinet (on the right) with the interconnection plate and four M8 bolts (provided).
2. Mount the rear anchor(s) to the floor. Use appropriate hardware for the floor type – the hole diameter in the rear anchor is ø14 mm.




3. Remove the transportation brackets from the maintenance bypass cabinet.
4. Install the rear anchoring brackets on the UPS and the maintenance bypass cabinet with the M8 bolts (provided).

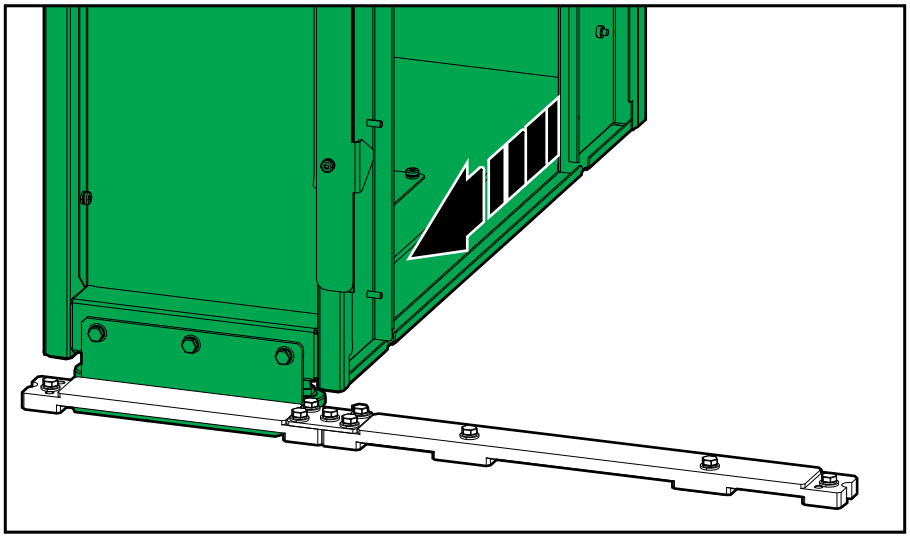
**Rear View of the Maintenance Bypass Cabinet**



5. Push the maintenance bypass cabinet into position so the rear anchoring bracket connects to the rear anchor. The front anchoring bracket is installed in the final installation steps.

   **NOTE:** Do not push the UPS into position yet.

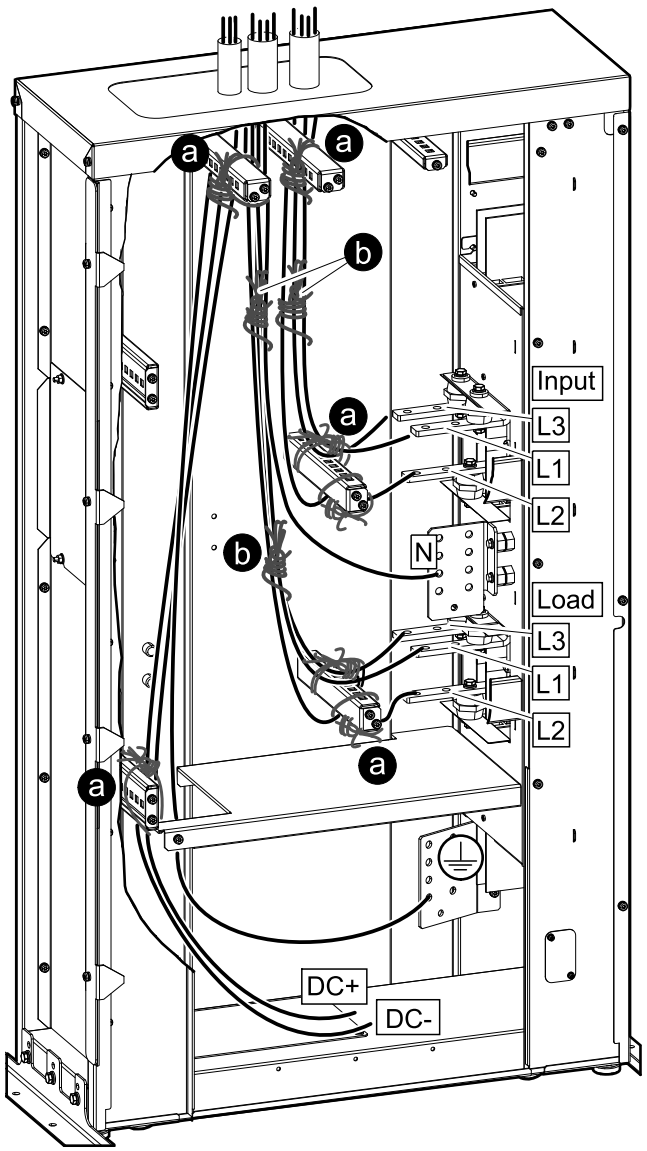
**Rear View of the Maintenance Bypass Cabinet**



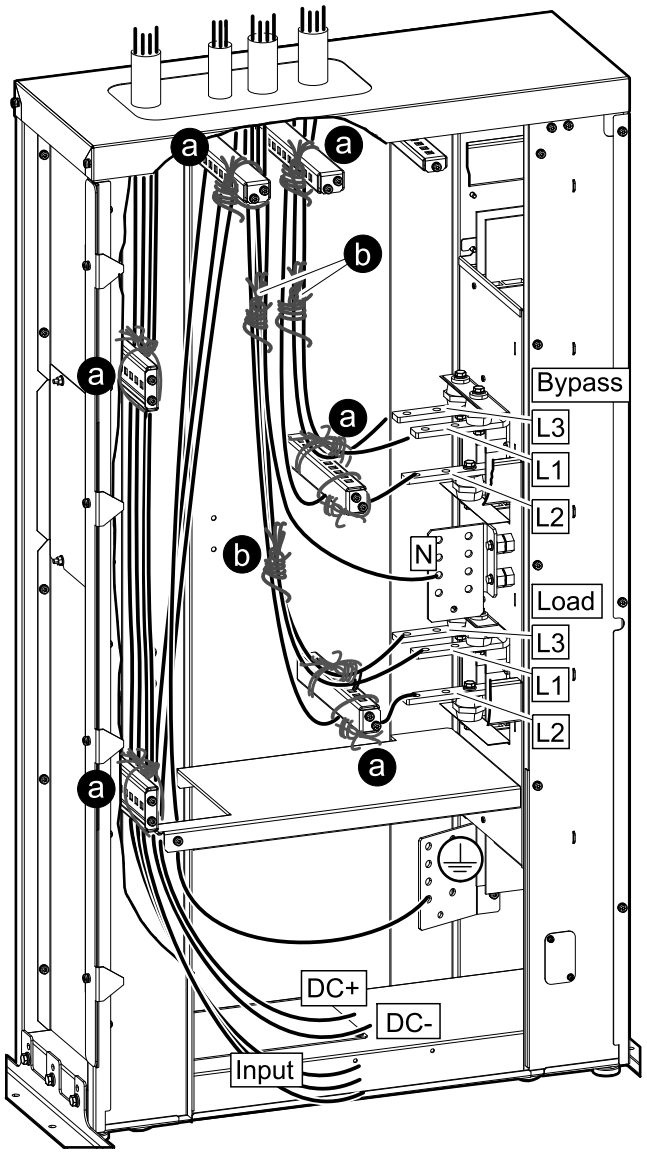
# Connect the Power Cables in a 10-80 kW Top Cable Entry System

1. The power cables must be restrained with 3/8 nylon rope:
   a. Tie the power cables to the beams with rope as illustrated. Make sure that the rope holds the cables tightly in place. Note that L2 is routed under the beam and L1 and L3 is routed over the beam in front of the busbars.
   b. Tie the power cables together with rope as illustrated halfway between the two beams. See Restrain the Cables, page 43 for restrain method.

**Left Side View of the Maintenance Bypass Cabinet – Single Mains**




**Left Side View of the Maintenance Bypass Cabinet – Dual Mains**

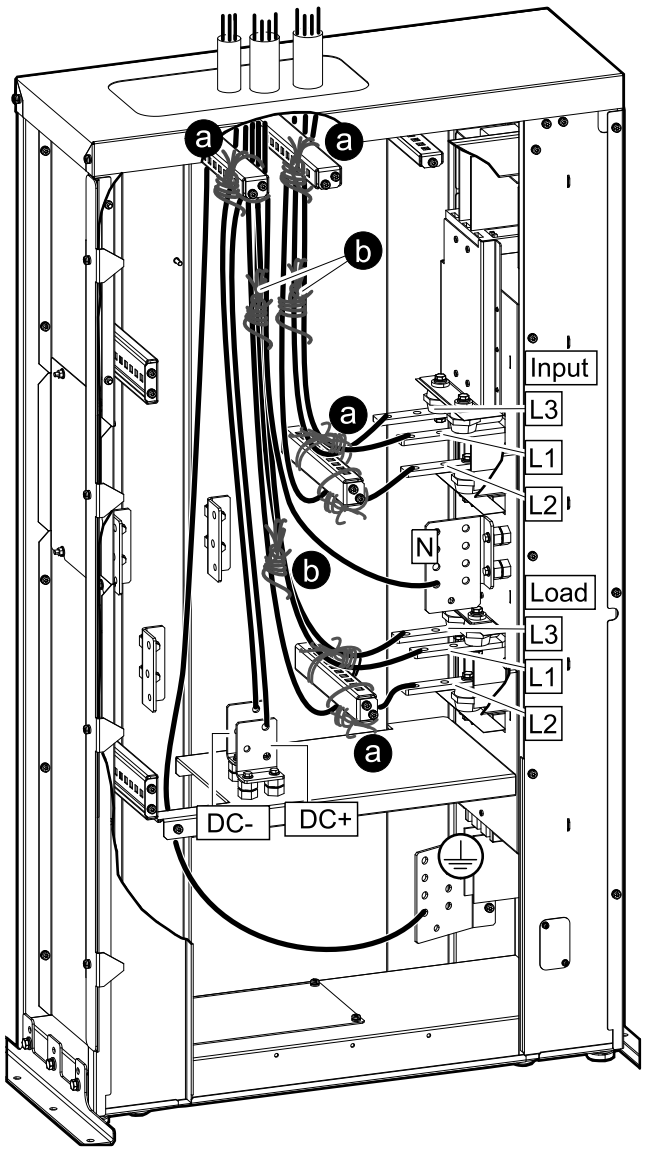


2. Perform one of the following:
   - **Only for single mains system**: Route the input cables and load cables through the top of the maintenance bypass cabinet and connect to the PE busbar, the input busbars, and the load busbars.
   - **Only for dual mains system**: Route the bypass cables and load cables through the top of the maintenance bypass cabinet and connect to the PE busbar, bypass busbars, and the load busbars.
3. **Only for dual mains system**:
   - **For top cable entry without conduit box**: Route the input cables through the top of the maintenance bypass cabinet and to the bottom of the maintenance bypass cabinet. When the UPS has been installed, route the input cables through the left side into the UPS. Follow the UPS installation manual to connect the input cables.
   - **For top cable entry with conduit box**: When the UPS has been installed, route the input cables through the conduit box of the UPS. Follow the UPS installation manual to connect the input cables.
4. Perform one of the following:
   - **For top cable entry without conduit box**: Route the DC cables through the top of the maintenance bypass cabinet and to the bottom of the maintenance bypass cabinet. When the UPS has been installed, route the DC cables through the left side into the UPS. Follow the UPS installation manual to connect the DC cables.
   - **For top cable entry with conduit box**: When the UPS has been installed, route the DC cables through the conduit box of the UPS. Follow the UPS installation manual to connect the DC cables.

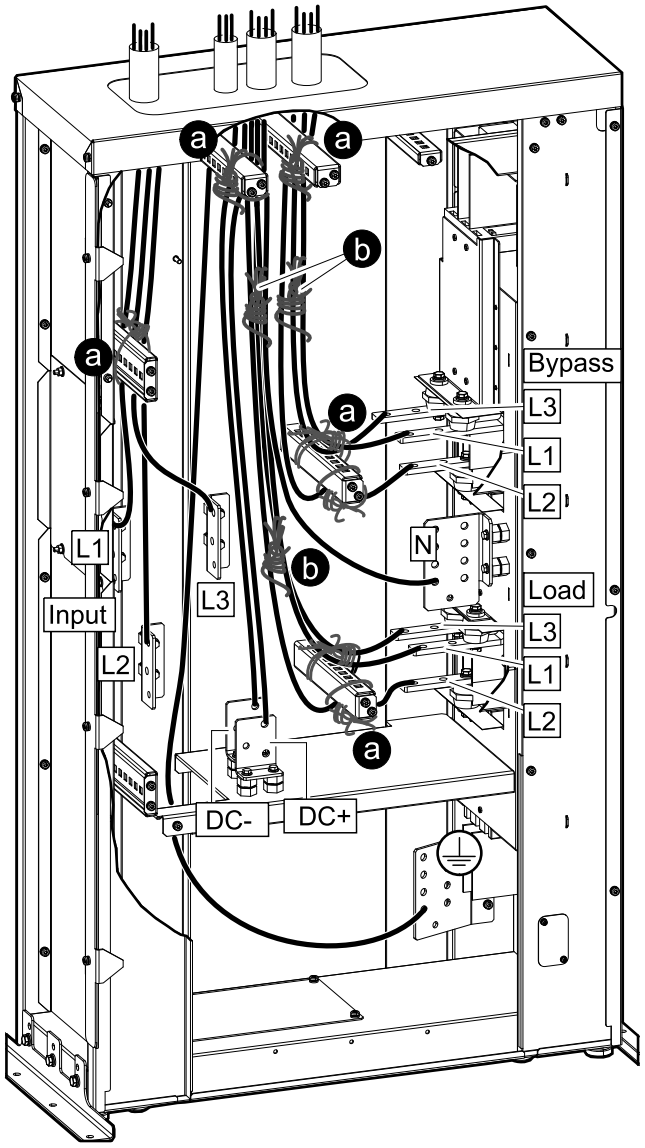
# Connect the Power Cables in a 100-150 kW Top Cable Entry System

1. The power cables must be restrained with 3/8 nylon rope:
   a. Tie the power cables to the beams with rope as illustrated. Make sure that the rope holds the cables tightly in place. Note that L2 is routed under the beam and L1 and L3 is routed over the beam in front of the busbars.
   b. Tie the power cables together with rope as illustrated halfway between the two beams. See Restrain the Cables, page 43 for restrain method.

**Left Side View of the Maintenance Bypass Cabinet – Single Mains**

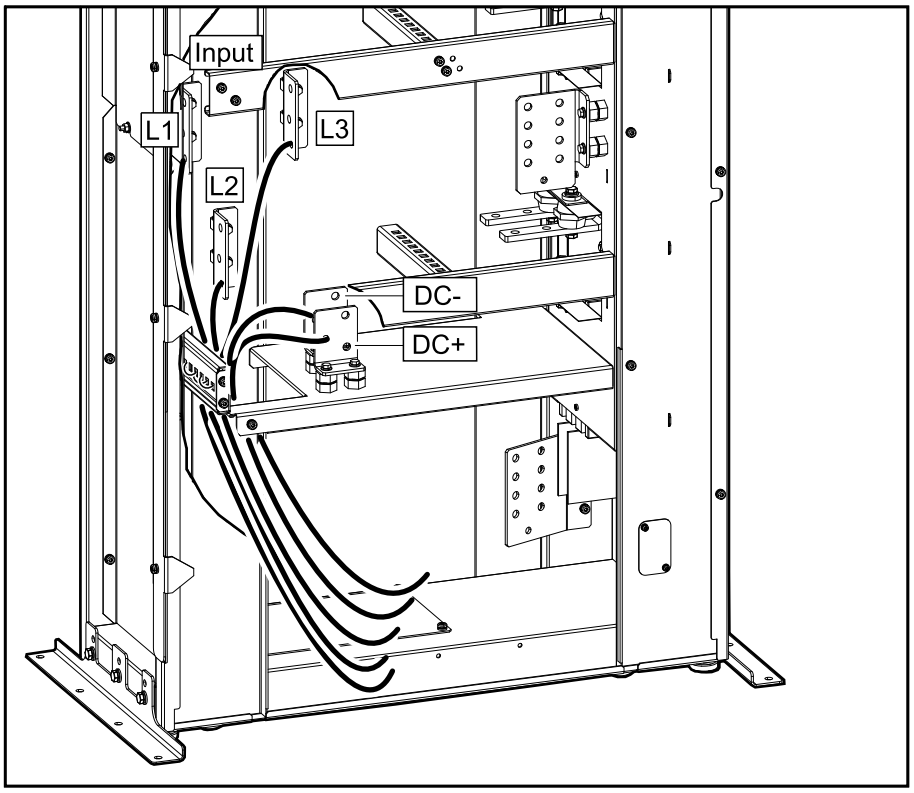



**Left Side View of the Maintenance Bypass Cabinet – Dual Mains**



2. Perform one of the following:
   - **Only for single mains system**: Route the input cables and the load cables through the top of the maintenance bypass cabinet and connect to the PE busbar, the input busbars and the load busbars.
   - **Only for dual mains system**: Route the input cables, the bypass cables and the load cables through the top of the maintenance bypass cabinet and connect to the PE busbar, the input busbars, the bypass busbars, and the load busbars.
3. Route the DC cables through the top of the maintenance bypass cabinet and connect to the PE busbar and the DC busbars (DC+, DC-).
4. Connect the provided UPS DC cables to the DC busbars (DC+, DC-) and route the cables out through the left side of the maintenance bypass cabinet. Fasten the cables to the beam with cable ties.
5. **Only for dual mains system**: Connect the provided UPS input cables to the input busbars and route the cables out through the left side of the maintenance bypass cabinet. Fasten the cables to the beam with cable ties.

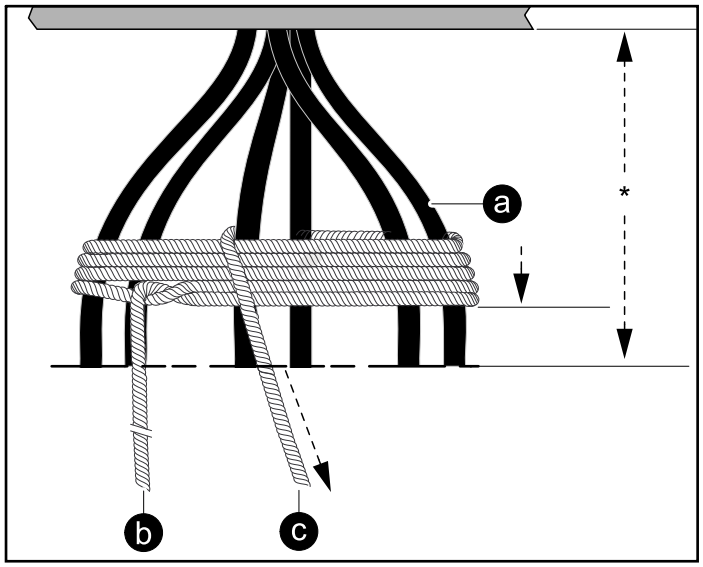
**Left Side View of the Maintenance Bypass Cabinet**



# Restrain the Cables

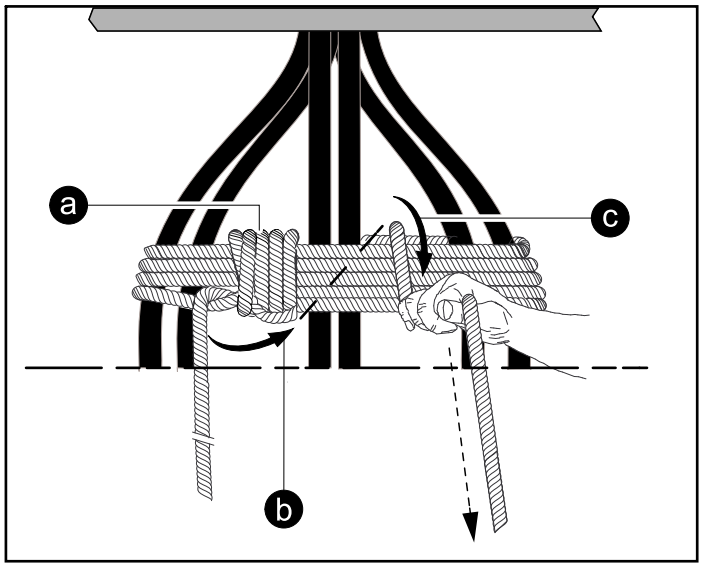
Use 3/8 in nylon rope to restrain the cables.

1. Wrap the rope around the cables (a). Wrap the cables four times leaving 1 m (3 ft) of excess rope at the first end (b). Pull rope (c) taut.

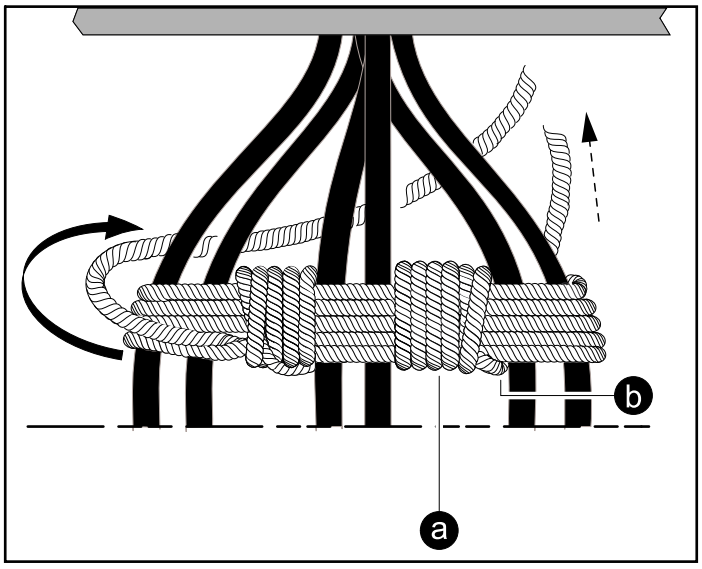



* Unsupported cable length.

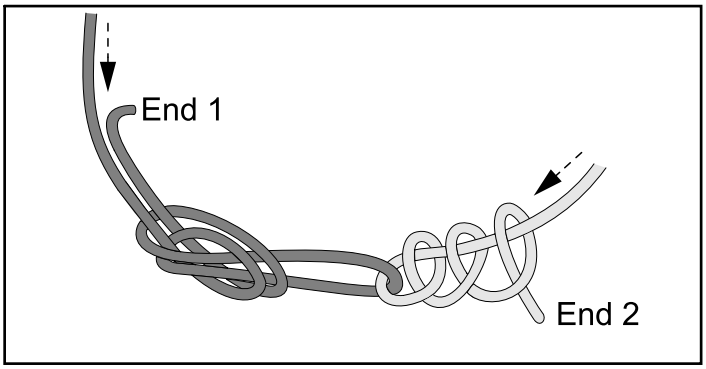
2. Wrap rope (a) several times until the space between the first two sets of cables is completely filled. Weave final rope loop underneath the previous loop (b). Bring rope (c) through the other open area and pull the rope taut.



3. Wrap rope (a) several times until the space between the second and the third set of cables is completely filled. Wave the final rope loop (b) underneath the previous loop as shown. Pull the rope taut.




4. Tie rope End 1 and End 2 together as shown. The rope must be taut. Cut off excess rope and tape ends to prevent fraying.




5. Repeat the procedure where needed.

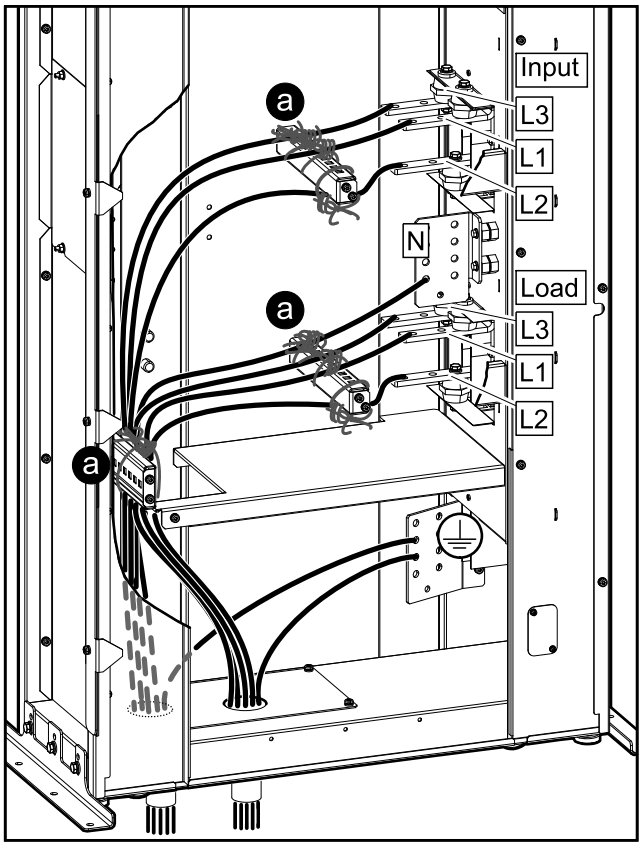
# Connect the Power Cables in a Bottom Cable Entry System

**NOTE:** DC cables are routed through the bottom or through the conduit box of the UPS. Follow the UPS installation manual to install the DC cables.

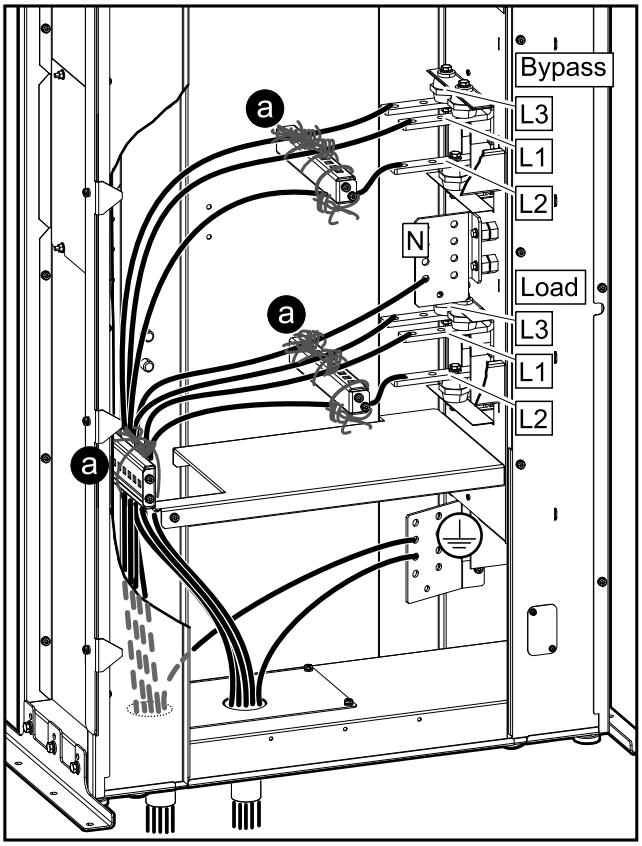
**NOTE:** Input cables in dual mains systems are routed through the bottom or through the conduit box of the UPS. Follow the UPS installation manual to install the input cables.

1. Perform one of the following:
   - **Only for single mains system**: Route the input cables and the load cables through the bottom of the maintenance bypass cabinet and connect to the PE busbar, the input busbars, and the load busbars.
   - **Only for dual mains system**: Route the bypass cables and the load cables through the bottom of the maintenance bypass cabinet and connect to the PE busbar, the bypass busbars, and the load busbars.
2. The power cables must be restrained with 3/8 nylon rope:
   a. Tie the power cables to the beams with rope as illustrated. Make sure that the rope holds the cables tightly in place. Note that L2 is routed under the beam and L1 and L3 is routed over the beam in front of the busbars.

**Left Side View of the Maintenance Bypass Cabinet – Single Mains**



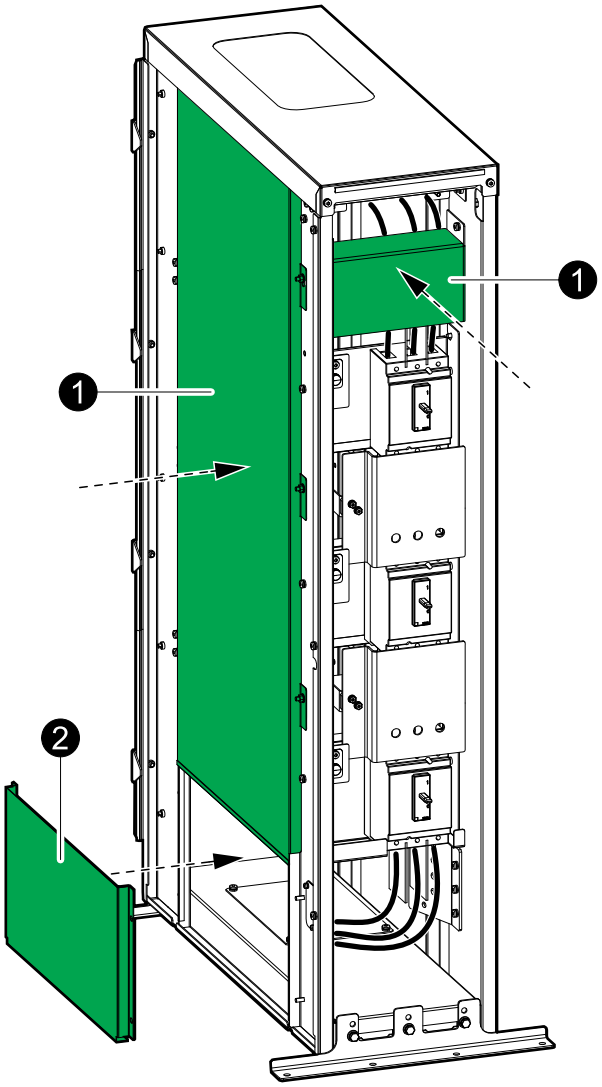

**Left Side View of the Maintenance Bypass Cabinet – Dual Mains**



# Interconnect the UPS and the Maintenance Bypass Cabinet

1. Reinstall the left upper side plate and the transparent plate on the maintenance bypass cabinet.

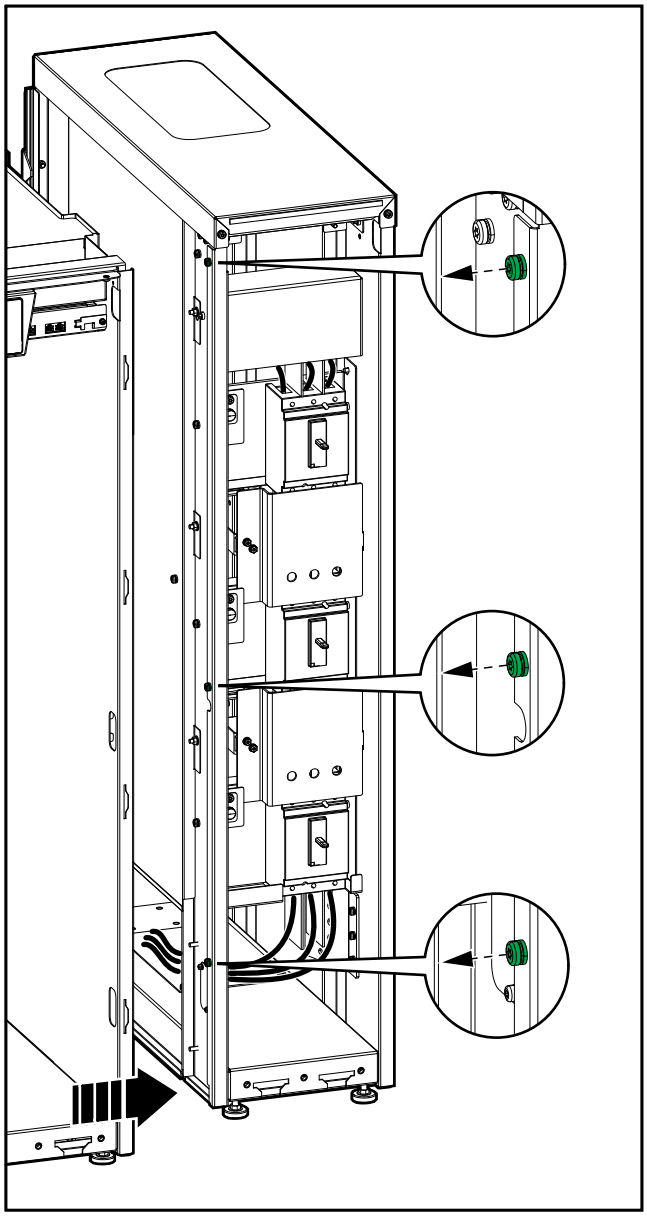
**Left Side View of the Maintenance Bypass Cabinet**




2. **Only with conduit box**: Reinstall the left lower side plate.
3. Remove the transportation brackets from the maintenance bypass cabinet, if not already removed for seismic anchoring.

4. Remove the three interconnection screws from the left side of the maintenance bypass cabinet. Save for interconnection.

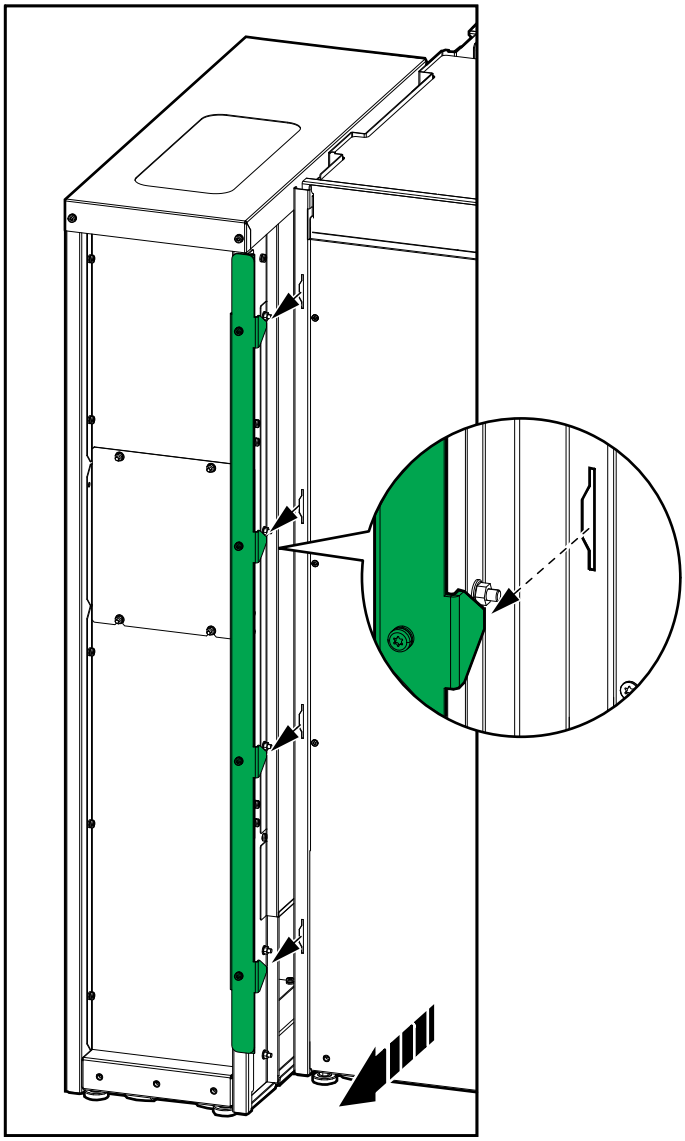
**Front View of the UPS and the Maintenance Bypass Cabinet**



5. Position the UPS close to the maintenance bypass cabinet with a little free space between the cabinets.

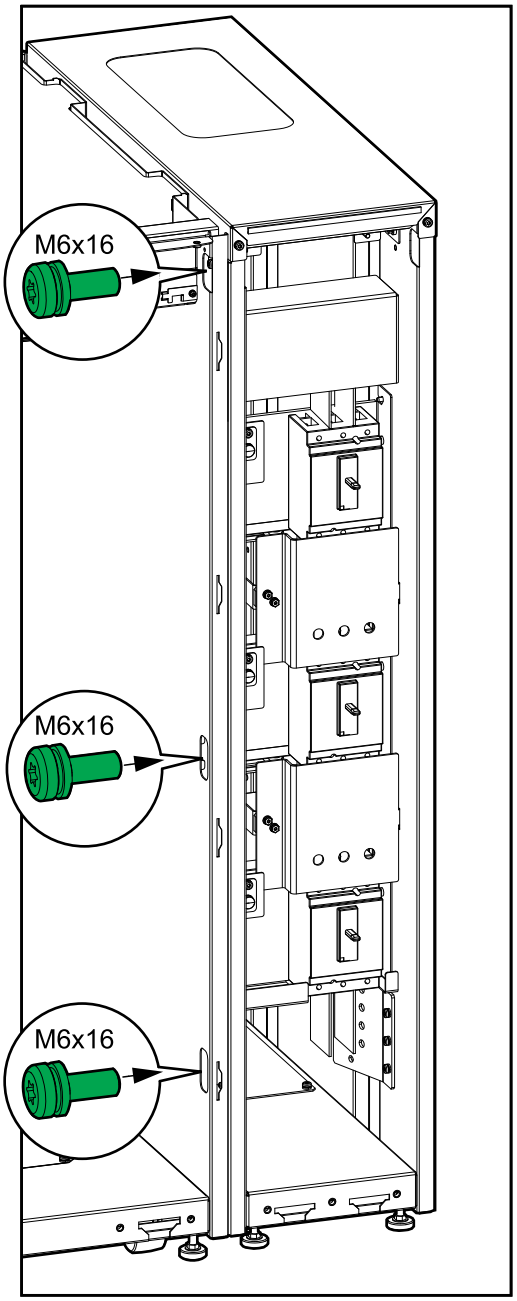
6. Push the UPS into place up against the maintenance bypass cabinet. The rear bracket on the maintenance bypass cabinet must connect to the UPS.

**Rear View of the Maintenance Bypass Cabinet and the UPS**



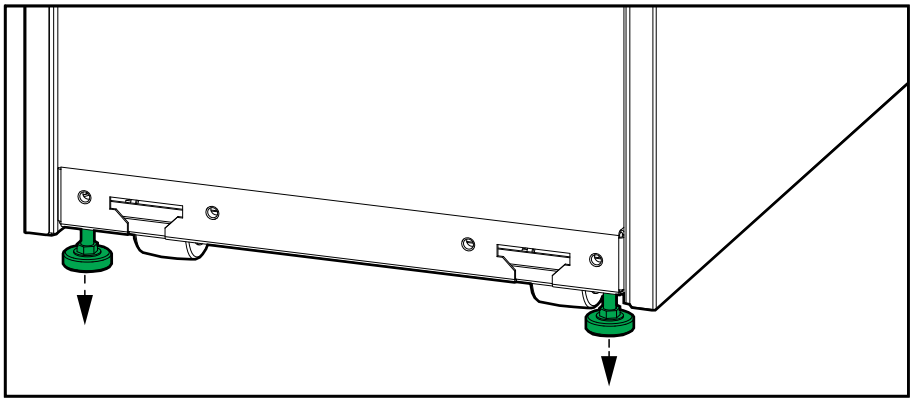
7. Install the three interconnection screws between the UPS and the maintenance bypass cabinet as shown.

**Front View of the UPS and the Maintenance Bypass Cabinet**



8. Lower the front and rear leveling feet on the UPS and the maintenance bypass cabinet with a wrench until they connect with the floor. Use a bubble-leveler to check that the UPS and maintenance bypass cabinet are level.

**Front View of the UPS**



**⚠CAUTION**

**RISK OF EQUIPMENT DAMAGE**

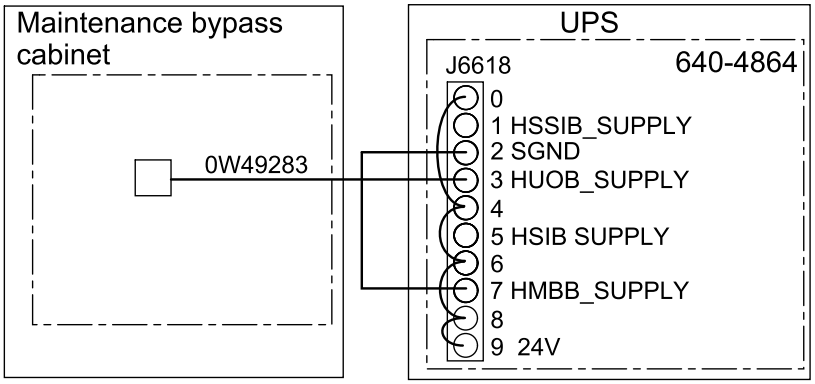
Do not move the cabinet after the leveling feet have been lowered.

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

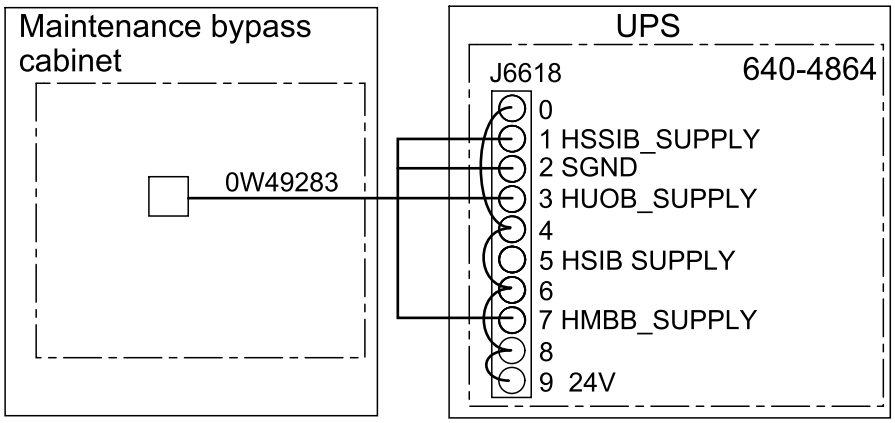
# Connect the Signal Cables

1. Connect the provided Class 2/SELV signal cable 0W49283 to board 640-4864 in the UPS as shown.

**Single Mains System**

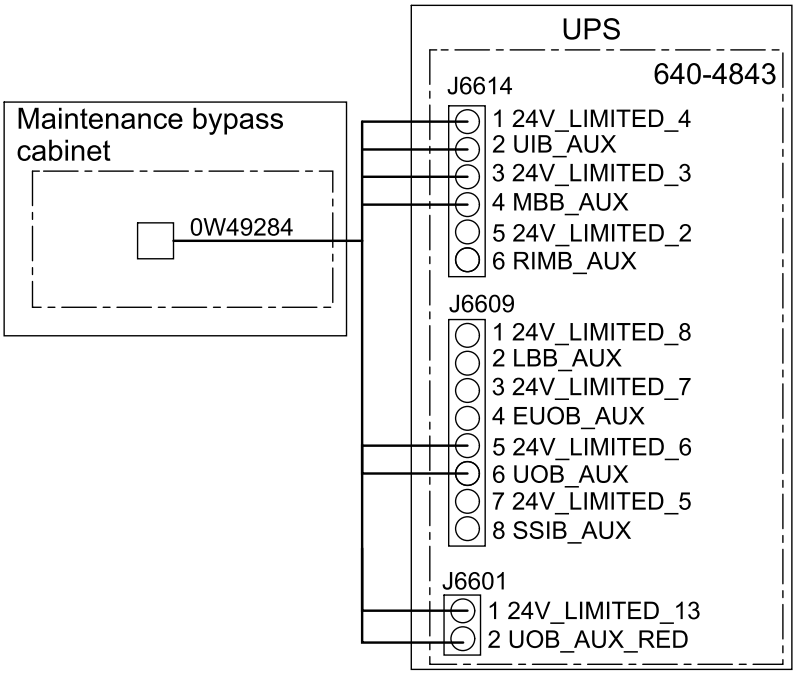



**Dual Mains System**

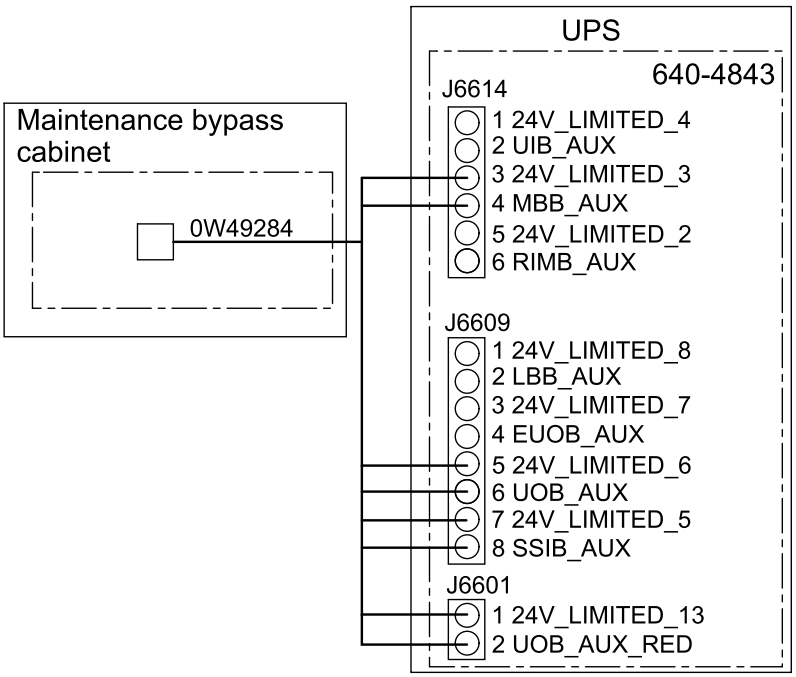


2. Connect the non-Class 2/non-SELV signal cable 0W49284 to board 640-4843 in the UPS as shown.

**Single Mains System**

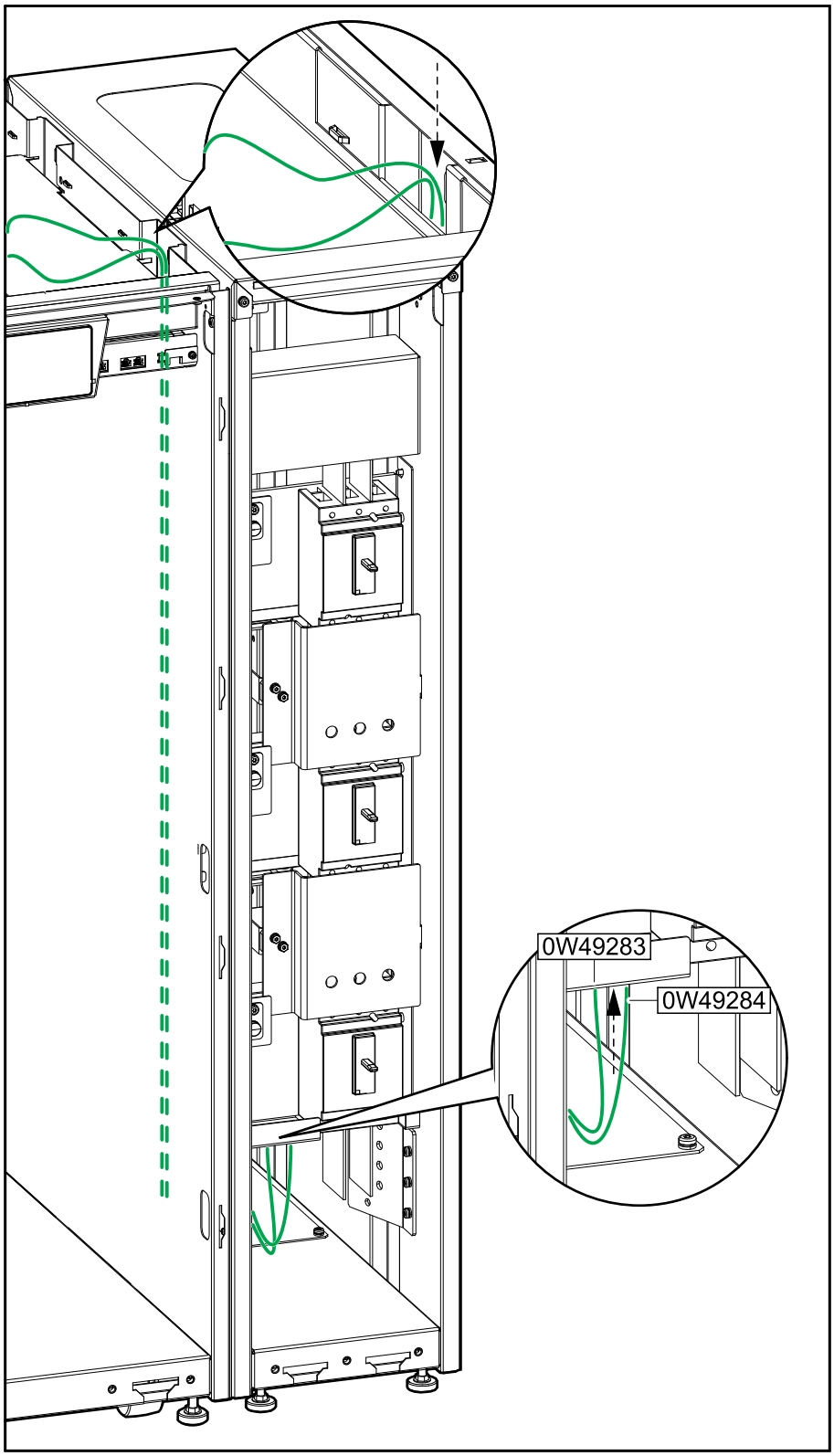



**Dual Mains System**




3. Route the signal cables down through the cable channel in the right side of the UPS and into the maintenance bypass cabinet through the cable entry opening.

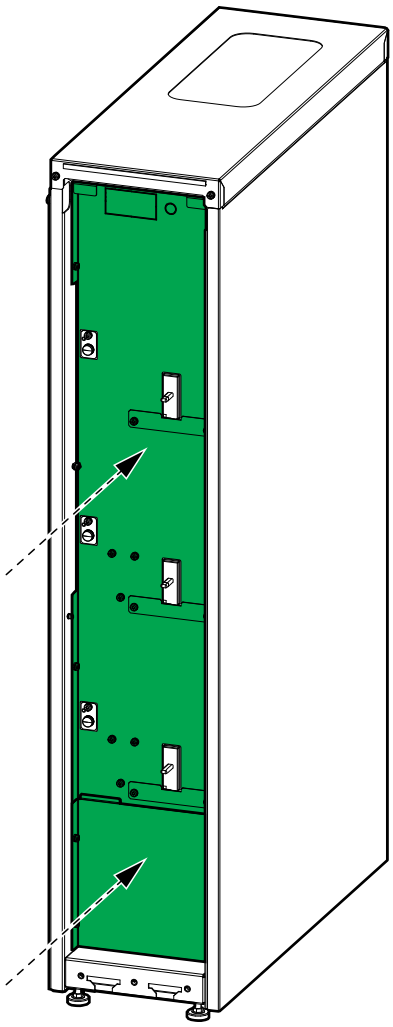
4. Connect the signal cables at the cable connection point in the maintenance bypass cabinet.



# Final Installation

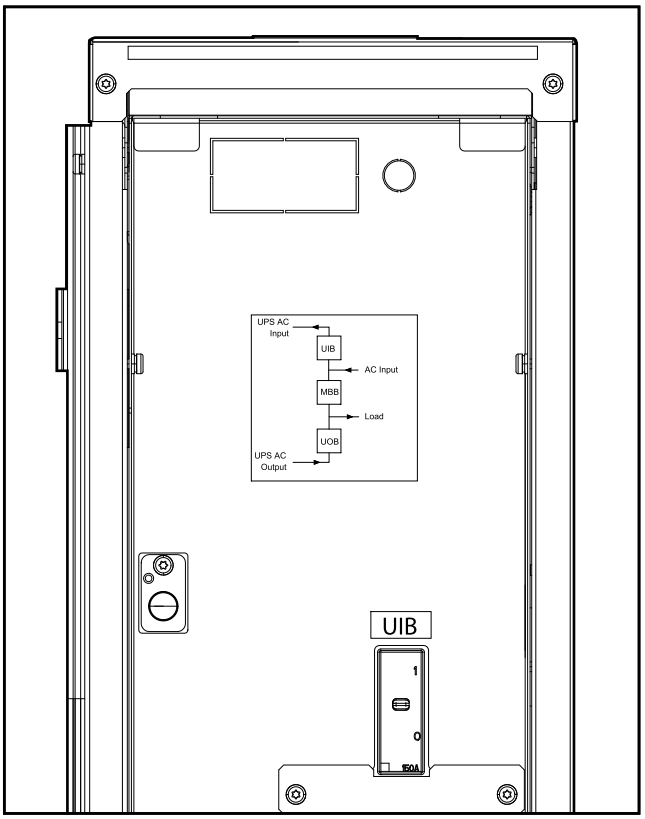
1. Reinstall the upper and lower front plate.

**Front View of the Maintenance Bypass Cabinet**

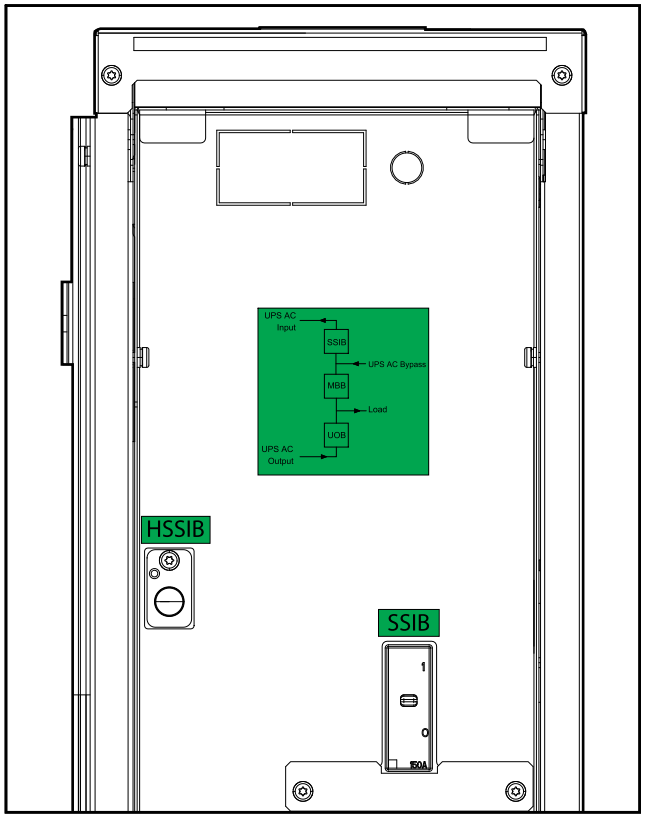


2. **Only for dual mains**: Add the labels SSIB, HSSIB, and the diagram label on the upper front plate. The labels are provided with this manual.

**Front View of the Maintenance Bypass Cabinet – Single Mains**




**Front View of the Maintenance Bypass Cabinet – Dual Mains**

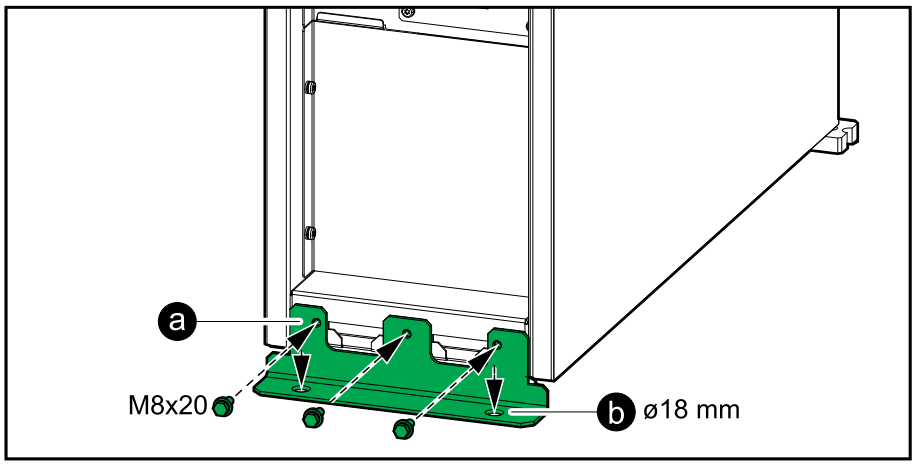



3. **Only for seismic anchoring**:

   a. Install the seismic front anchoring bracket on the maintenance bypass cabinet with the provided M8 bolts.

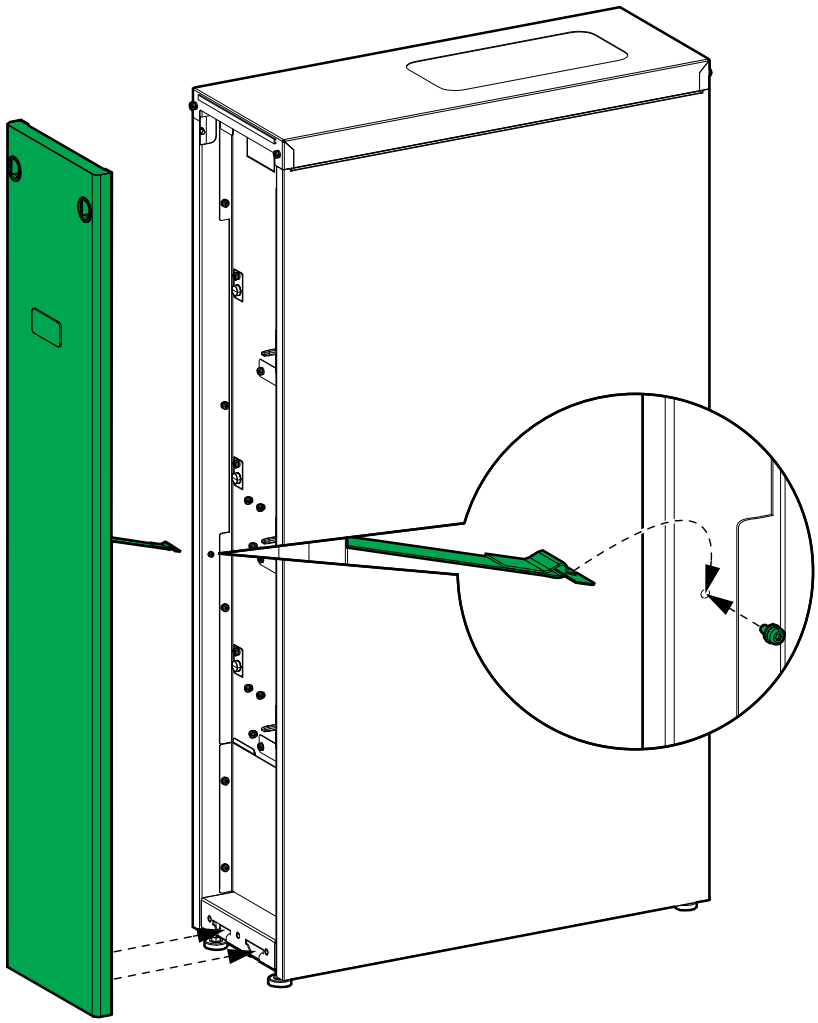
   b. Mount the seismic front anchoring bracket on the maintenance bypass cabinet to the floor. Use appropriate hardware for the floor type – the hole diameter in the front anchoring bracket is ø18 mm.

**Front View of the Maintenance Bypass Cabinet**



4. Reinstall the front panel on the maintenance bypass cabinet:
   a. Insert the two taps in the bottom of the front panel in the maintenance bypass cabinet at a tilted angle.
   b. Reconnect the front panel strap to the maintenance bypass cabinet.
   c. Close the front panel and lock with the two locking knobs.

**Front Right View of the Maintenance Bypass Cabinet**



5. Follow the UPS installation manual to connect the internal power cables in the UPS.

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*990-5909B-001*

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



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