

Easy UPS 3S

Battery Breaker Box

Installation

E3SOPT007

03/2020



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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.

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.

Electrical Safety

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

In systems where backfeed protection is not part of the standard design, an automatic isolation device (backfeed protection option or other device meeting the requirements of IEC/EN 62040-1 or UL1778 5th Edition – depending on which of the two standards apply to your local area) must be installed to prevent hazardous voltage or energy at the input terminals of the isolation device. The device must open within 15 seconds after the upstream power supply fails and must be rated according to the specifications.

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

Battery Safety

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

When replacing batteries, always replace with the same type and number of batteries or battery packs. Refer to the label in the classic battery cabinet for information on batteries in your system.

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

▲ CAUTION**RISK OF EQUIPMENT DAMAGE**

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

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

Specifications

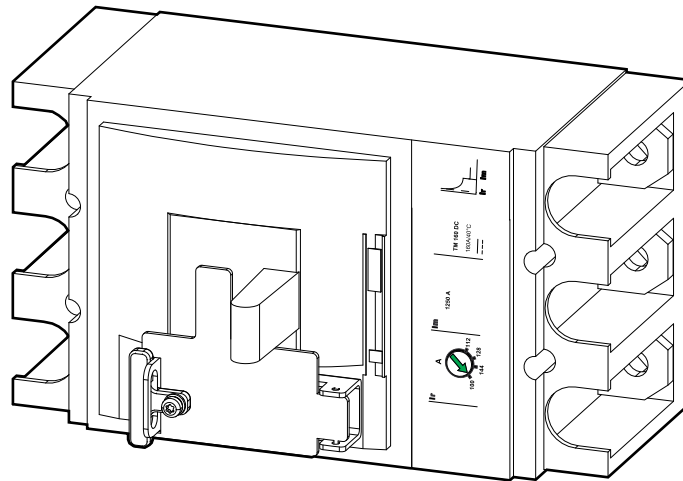
NOTICE
<p>HAZARD OF EQUIPMENT DAMAGE</p> <p>Refer to the UPS installation manual for detailed specifications for the UPS system.</p> <p>Failure to follow these instructions can result in equipment damage.</p>

Battery Breaker Box Specifications

⚠ DANGER
<p>HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH</p> <p>The battery breaker box must only be used with the Easy UPS 3S.</p> <p>Failure to follow these instructions will result in death or serious injury.</p>

	E3SOPT007
Battery breaker	LV438118+LV438135 or LV438880
Maximum configuration	4 hour runtime
Battery type	Lead-acid
Maximum battery short-circuit level (kA)	10

Trip Settings



	400 V Systems					208 V Systems		
	10 kW	15 kW	20 kW	30 kW	40 kW	10 kW	15 kW	20 kW
Ir setting	112	112	112	112	144	112	112	144
Im setting	1250					1250		

Recommended Cable Sizes for 400 V Systems

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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 B.52.5 of IEC 60364–5–52 with the following assertions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper or aluminum conductors
- Installation method C

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

NOTE: Cables are designed for connection to 70 °C rated equipment.

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Battery (mm ²)	8	8	25	25	35
PE (mm ²)	6	6	10	16	16

Recommended Cable Sizes for 208 V Systems

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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 B.52.5 of IEC 60364–5–52 with the following assertions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper or aluminum conductors
- Installation method C

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

NOTE: Cables are designed for connection to 70 °C rated equipment.

	10 kVA	15 kVA	20 kVA
Battery (mm ²)	25	25	35
PE (mm ²)	10	16	16

Torque Specifications

Bolt size	Torque
M6	5 Nm (3.69 lb-ft)
M10	30 Nm (22 lb-ft)

Battery Breaker Box Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Battery breaker box (E3SOPT007)	25	650	500	280

Environment

	Operation	Storage
Temperature	0 °C to 40 °C (32 °F to 104 °F)	-25 °C to 55 °C (-13 °F to 131 °F)

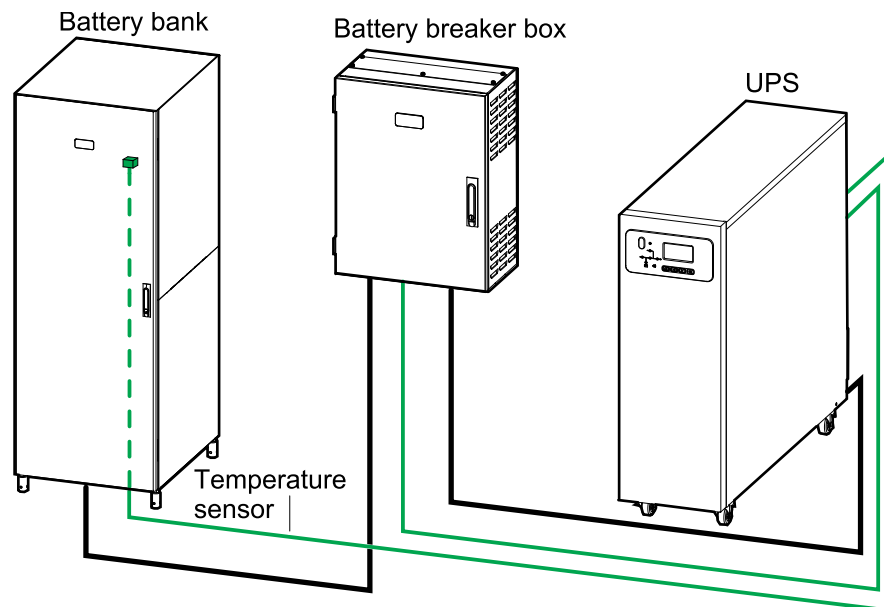
Installation Procedure

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Place the battery breaker box as close to the battery bank as possible to limit the length of unprotected battery cable.

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



— Signal cable
— Power cable

1. *Mount the Battery Breaker Box to the Wall, page 15.*
2. *Prepare the Battery Breaker Box for Cables, page 17.*
3. *Connect the Signal Cables, page 18.*
4. *Connect the Power Cables, page 20.*
5. *Final Installation Steps, page 22.*

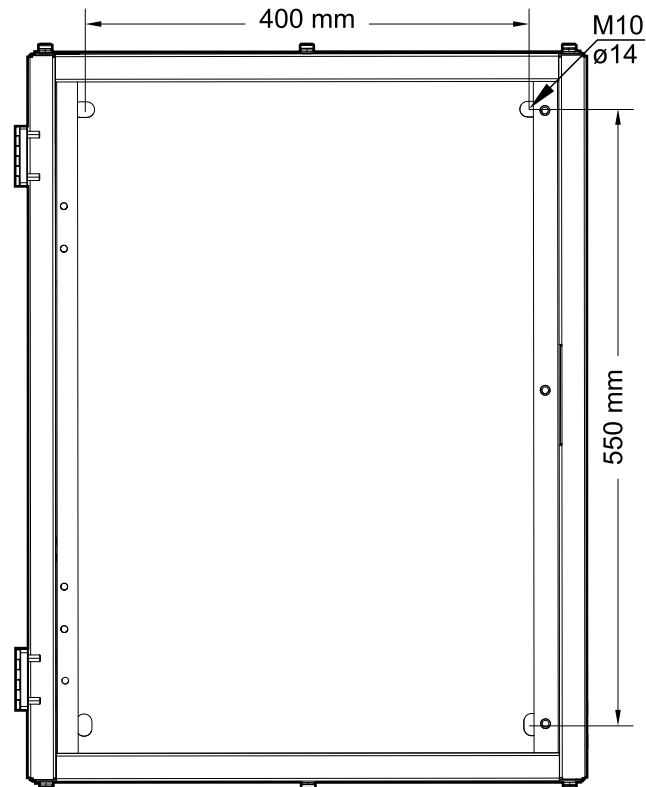
Mount the Battery Breaker Box to the Wall

⚠ CAUTION

RISK OF INJURY OR EQUIPMENT DAMAGE

- Mount the battery breaker box to a wall or a rack that is structurally sound and able to support the weight of the unit.
- Use appropriate hardware for the type of wall to mount the battery breaker box to the wall.

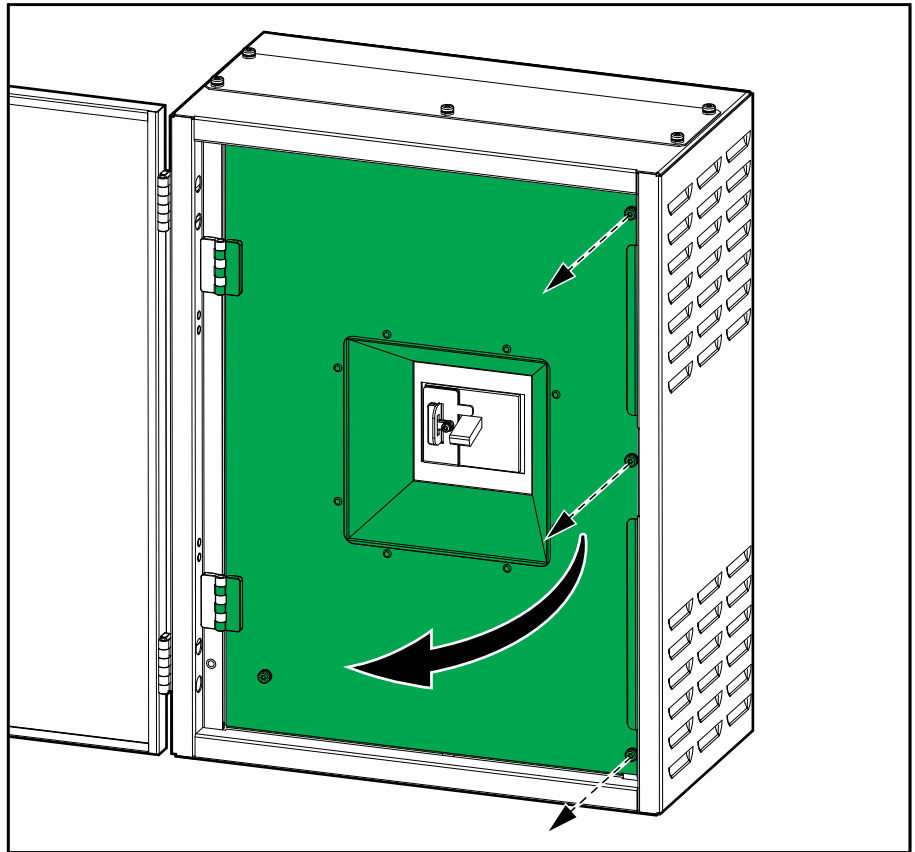
Failure to follow these instructions can result in injury or equipment damage.



1. Measure and mark the four mounting hole locations on the wall.
2. Drill holes in each of the four marked locations.

3. Loosen the three screws and open the inner door.

Front View of the Battery Breaker Box



4. Lift the battery breaker box, position it against the wall and line it up with the four holes. Fasten with four M10 screws.

NOTE: Four M10 x 30 torx and nuts are supplied for mounting the battery breaker box to a battery rack. If the battery breaker box is mounted to a wall, use suitable mounting equipment.

Prepare the Battery Breaker Box for Cables

⚠ DANGER

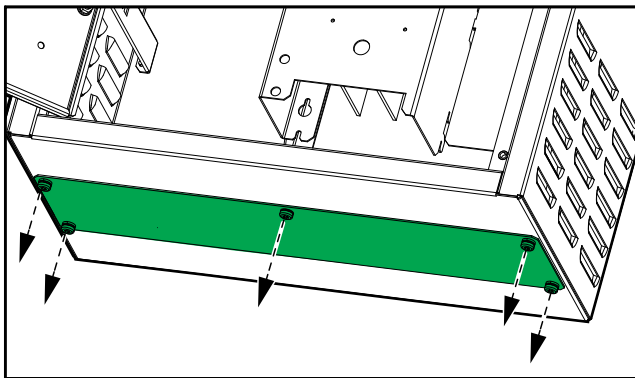
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

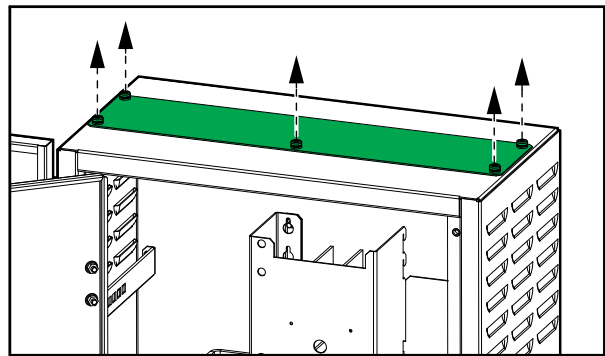
Failure to follow these instructions will result in death or serious injury.

1. Loosen the bolts from either the top or bottom gland plate and remove the gland plate.

Front Bottom View of the Battery Breaker Box



Front Top View of the Battery Breaker Box



2. Drill or punch holes for cables or grommets in the gland plate(s).
3. Install grommets (if applicable) and refit the gland plate(s).

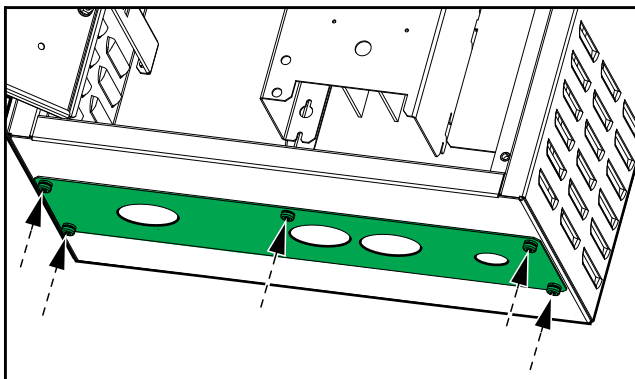
⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

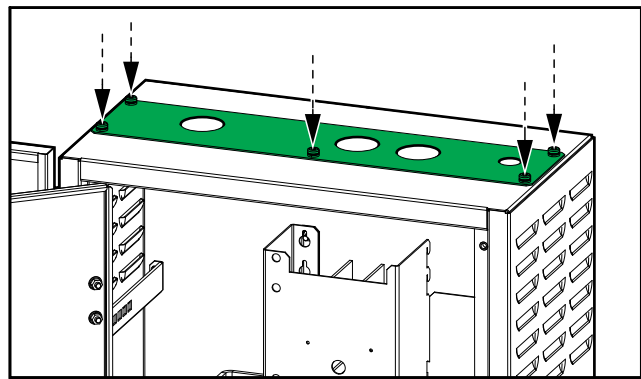
Ensure that there are no sharp edges that can damage the cables.

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

Front Bottom View of the Battery Breaker Box



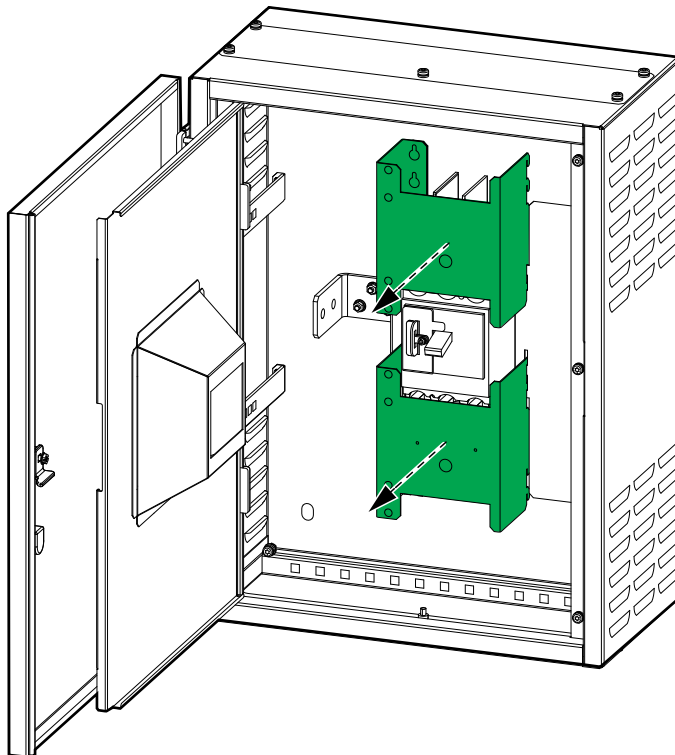
Front Top View of the Battery Breaker Box



Connect the Signal Cables

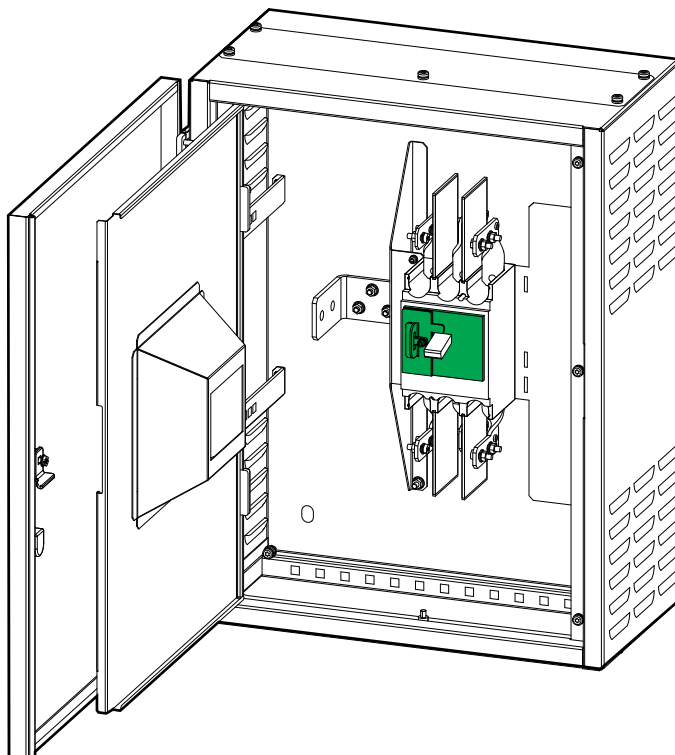
1. Loosen the screws of the inner covers and lift the inner covers up and out of the battery breaker box.

Front View of the Battery Breaker Box

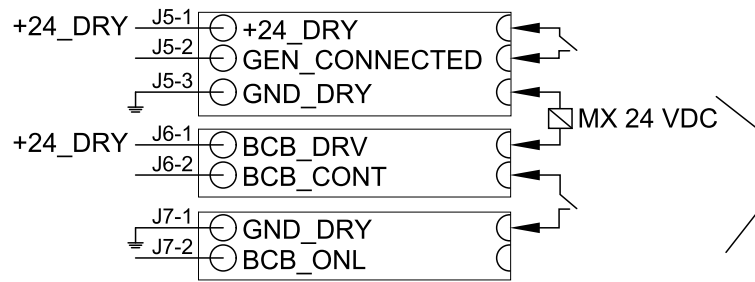


2. Route the signal cables through the top or bottom of the battery breaker box.
3. Remove the cover on the battery breaker.

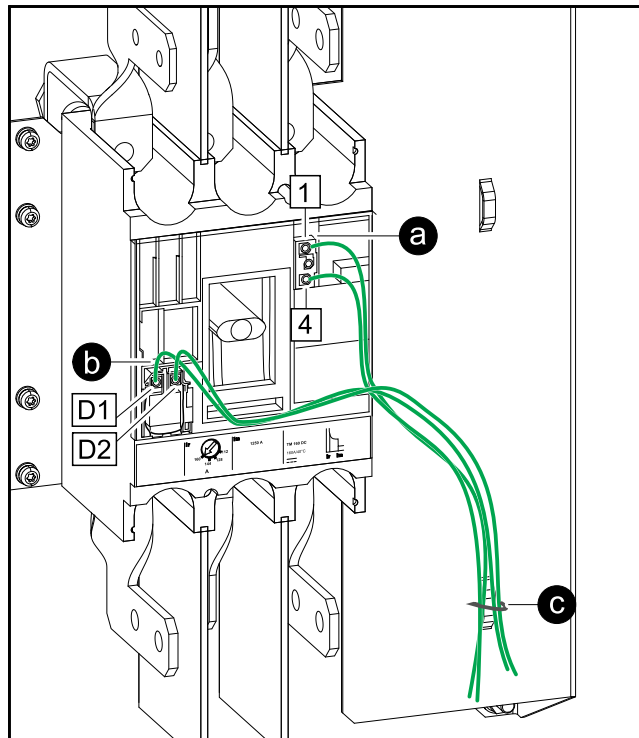
Front View of the Battery Breaker Box



4. Connect the signal cables:



Front View of the Battery Breaker Box



- a. Connect the aux switch signal cables from the empty classic battery cabinet to J6-2 and J7-1 in the UPS.
- b. Connect the shunt trip coil signal cables from the empty classic battery cabinet to J5-3 and J6-1 in the UPS.
- c. Fasten the signal cables with cable ties (provided) to the cable relief.

Connect the Power Cables

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Perform a total power off of the UPS system before connecting the battery cables to the battery breaker box.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

For TT and TN systems each stand alone cabinet of the system must be individually connected to the protective earthing terminal in the distribution board that supplies the system.

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

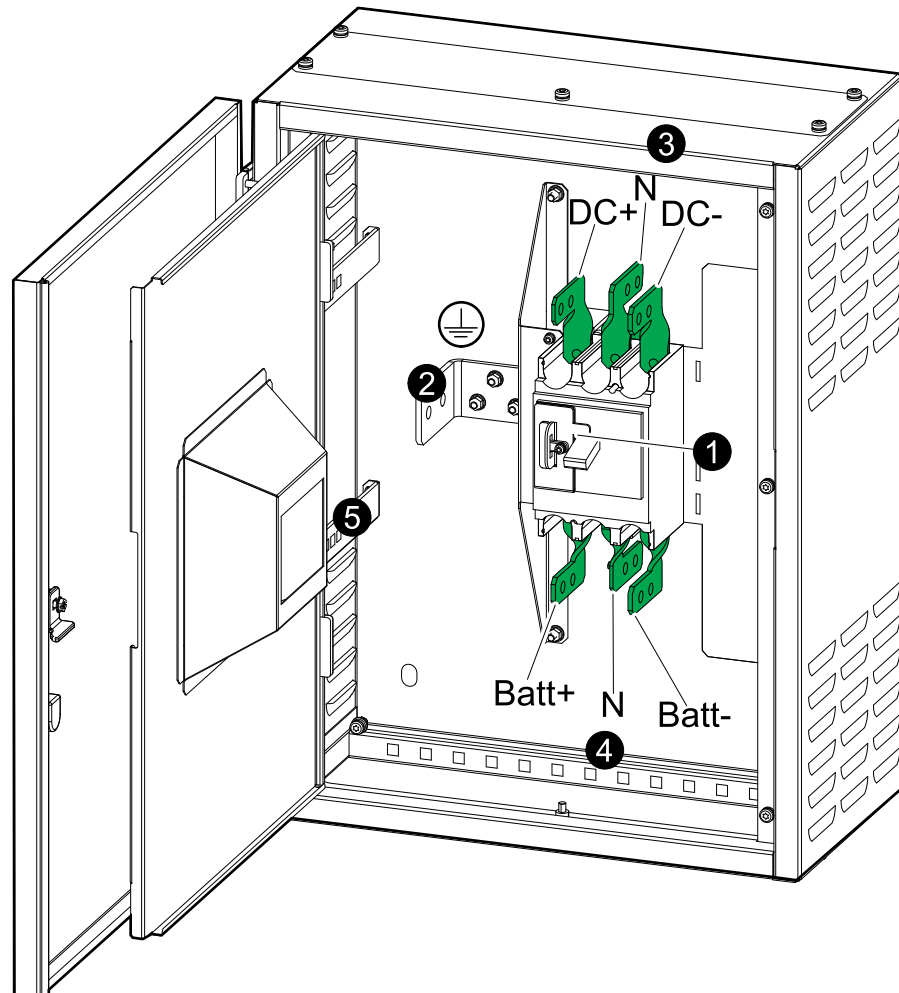
⚠ WARNING

HAZARD OF ARC FLASH

Use the provided M10 bolts and nuts to connect the power cables.

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

Front View of the Battery Breaker Box



1. Lockout/Tagout the battery breaker.
2. Route the PE cables from the UPS through either the top or bottom of the battery breaker box and connect.
3. Route the DC cables from the UPS through either the top or bottom of the battery breaker box and connect (DC+, N, DC-).

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

Reinstall the inner cover in the top of the battery breaker box before continuing with the installation.

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

4. Route the battery cables from the battery bank through the bottom of the battery breaker box and connect (Batt+, N, Batt-).

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

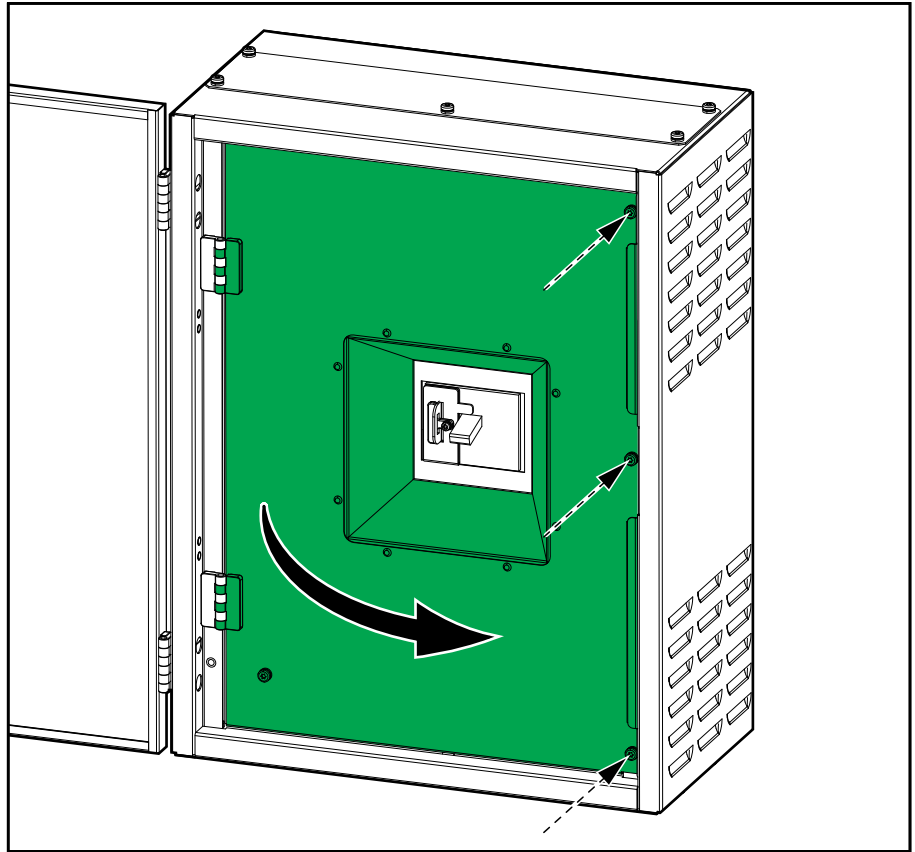
- Reinstall the inner cover in the bottom of the battery breaker box before continuing with the installation.
- Ensure correct polarity.

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

5. Attach the cables to the cables reliefs in the left side, the top, and the bottom of the battery breaker box.

Final Installation Steps

1. Close the inner and fasten with the three screws.



2. Close the front door of the battery breaker box.

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