

Galaxy VM

Battery Breaker Box

Installation

09/2016



Legal Information

The Schneider Electric brand and any registered trademarks of Schneider Electric Industries SAS referred to in this guide are the sole property of Schneider Electric SA and its subsidiaries. They may not be used for any purpose without the owner's permission, given in writing. This guide and its content are protected, within the meaning of the French intellectual property code (Code de la propriété intellectuelle français, referred to hereafter as "the Code"), under the laws of copyright covering texts, drawings and models, as well as by trademark law. You agree not to reproduce, other than for your own personal, noncommercial use as defined in the Code, all or part of this guide on any medium whatsoever without Schneider Electric's permission, given in writing. You also agree not to establish any hypertext links to this guide or its content. Schneider Electric does not grant any right or license for the personal and noncommercial use of the guide or its content, except for a non-exclusive license to consult it on an "as is" basis, at your own risk. All other rights are reserved.

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

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

Table of Contents

Important Safety Instructions — SAVE THESE	
INSTRUCTIONS	5
Safety Precautions	6
Electrical Safety	8
Battery Safety	9
Symbols Used	10
Specifications	11
Battery Breaker Box Specifications	11
Trip Settings for Breaker in Battery Breaker Box	11
Battery Breaker Box Weights and Dimensions	11
Recommended Cable Sizes	11
Torque Specifications	12
Introduction	13
Overview of Installation Kit 0H-1491	13
Installation Procedure	14
Mount the Battery Breaker Box to the Wall	15
Prepare the Battery Breaker Box for Cables	16
Connect Power and Signal Cables	19

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

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:

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

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

WARNING

HAZARD OF ARC FLASH

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

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

NOTICE

RISK OF OVERHEATING

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

Failure to follow these instructions can result in equipment damage.

NOTICE

RISK OF EQUIPMENT DAMAGE

Do not connect the UPS output to regenerative load systems including photovoltaic systems and speed drives.

Failure to follow these instructions can result in equipment damage.

Electrical Safety

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.
- 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 4th Edition – depending on which of the two standards apply to your local area) must be installed to prevent hazardous voltage or energy at the input terminals of the isolation device. The device must open within 15 seconds after the upstream power supply fails and must be rated according to the specifications.

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

Battery Safety

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

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

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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












NOTICE

RISK OF EQUIPMENT DAMAGE

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

Failure to follow these instructions can result in equipment damage.

Symbols Used

	Stand-by
	Hazardous voltage
	Attention or consult accompanying documents
	Output
	Input
	OFF (power disconnection from utility/mains) or output disabled
	ON (power connection to the utility/mains) or output enabled
	Alternating current
	Direct current
	Connection for the neutral conductor on permanently installed equipment
	Earth (ground)

Specifications

NOTICE

HAZARD OF EQUIPMENT DAMAGE

Refer to the UPS installation manual for detailed specifications of the UPS system.

Failure to follow these instructions can result in equipment damage.

Battery Breaker Box Specifications

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

The battery breaker box must only be used with the Galaxy VM UPS.

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

Circuit breaker	LV438279 (NSX600S TM-DC 3P). Frame rating: 600 A
Maximum configuration	1 hour runtime for a 200 kVA system
Battery type	Lead-acid
Minimum short-circuit current to trip circuit breaker (A)	1800
Maximum battery short-circuit level (kA)	36

Trip Settings for Breaker in Battery Breaker Box

	160 kVA	200 kVA
I _m (A)	Low setting (1500 A)	Low setting (1500 A)

Battery Breaker Box Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Battery breaker box 630 A (GVMBBB630EL)	40	810	511	291

Recommended Cable Sizes

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable conductor size is 120 mm².

Cable sizes in this manual are based on installation method “C” in table 52–C2 of IEC 60364–5–52 with the following conditions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of flexible copper cables

If the ambient temperature is greater than 30 °C, select larger conductors accordance with the correction factors of the IEC.



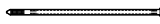




160 kVA	200 kVA
2 x 70 mm ²	2 x 95 mm ²

Torque Specifications

Bolt size	Torque
M4	1.7 Nm (1.25 lb-ft)
M5	2.5 Nm (1.84 lb-ft)
M6	5 Nm (3.69 lb-ft)
M8	17.5 Nm (12.91 lb-ft)
M10	30 Nm (22 lb-ft)
M12	50 Nm (36.87 lb-ft)
M14	75 Nm (55.31 lb-ft)

Introduction

Overview of Installation Kit 0H-1491

Part	Used in	Number of units
Top gland plate with knockouts	<i>Prepare the Battery Breaker Box for Cables, page 16</i>	1 
Bottom gland plate with knockouts		1 
Cable ties for signal cables	<i>Connect Power and Signal Cables, page 19</i>	5 
M10 x 30 torx with washer		15 
M6 x 16 torx with washer		7 
M10 nut with washer		15 
Cable tie		15 

Installation Procedure

For the installation procedure, the following symbols are used:



⚠ DANGER

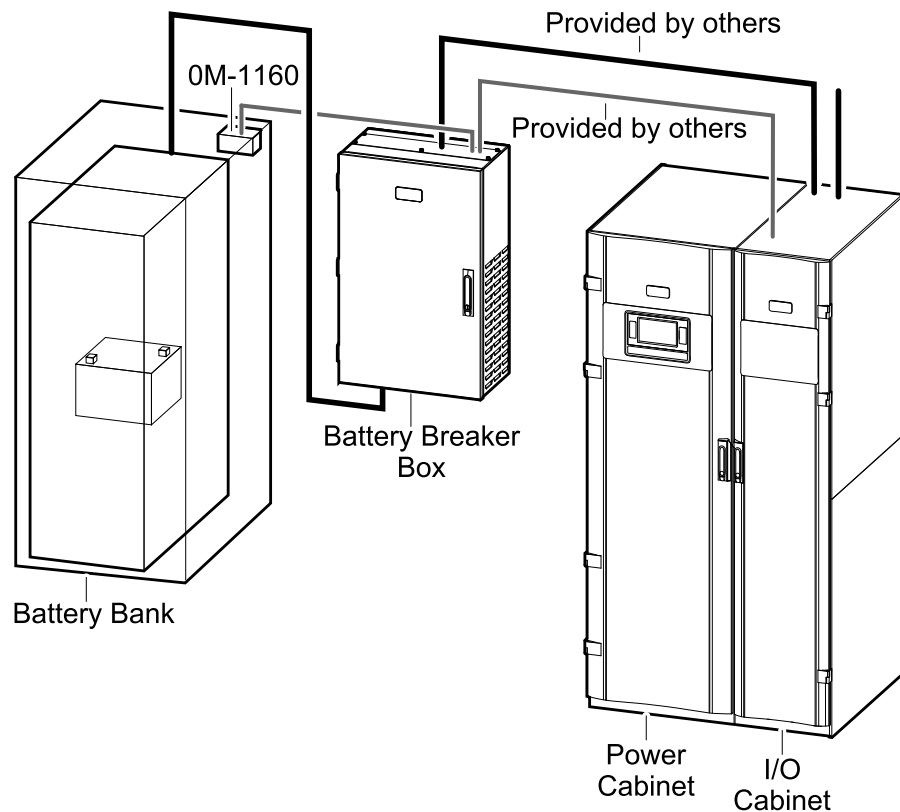
HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

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.

NOTE: The maximum distance between the temperature sensor and the battery breaker box is 2.4 m due to the length of the supplied cable.

Overview of Signal Cable and Power Cable Connections



1. *Mount the Battery Breaker Box to the Wall, page 15.*
2. *Prepare the Battery Breaker Box for Cables, page 16.*
3. *Connect Power and Signal Cables, page 19.*

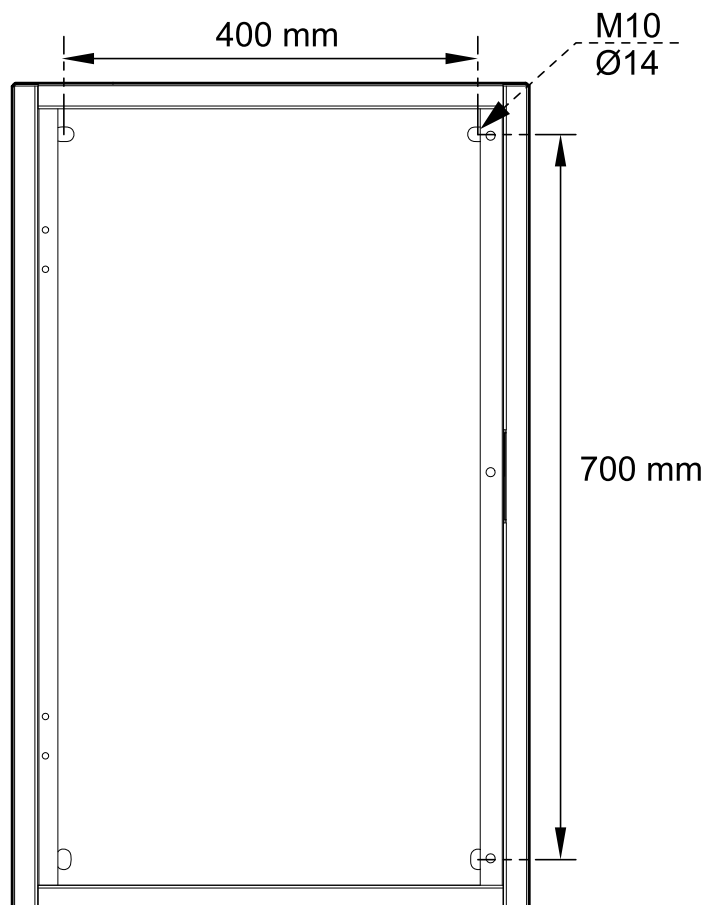
Mount the Battery Breaker Box to the Wall

⚠ 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. Lift the battery breaker box, position it against the wall and line it up with the four holes. Secure 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

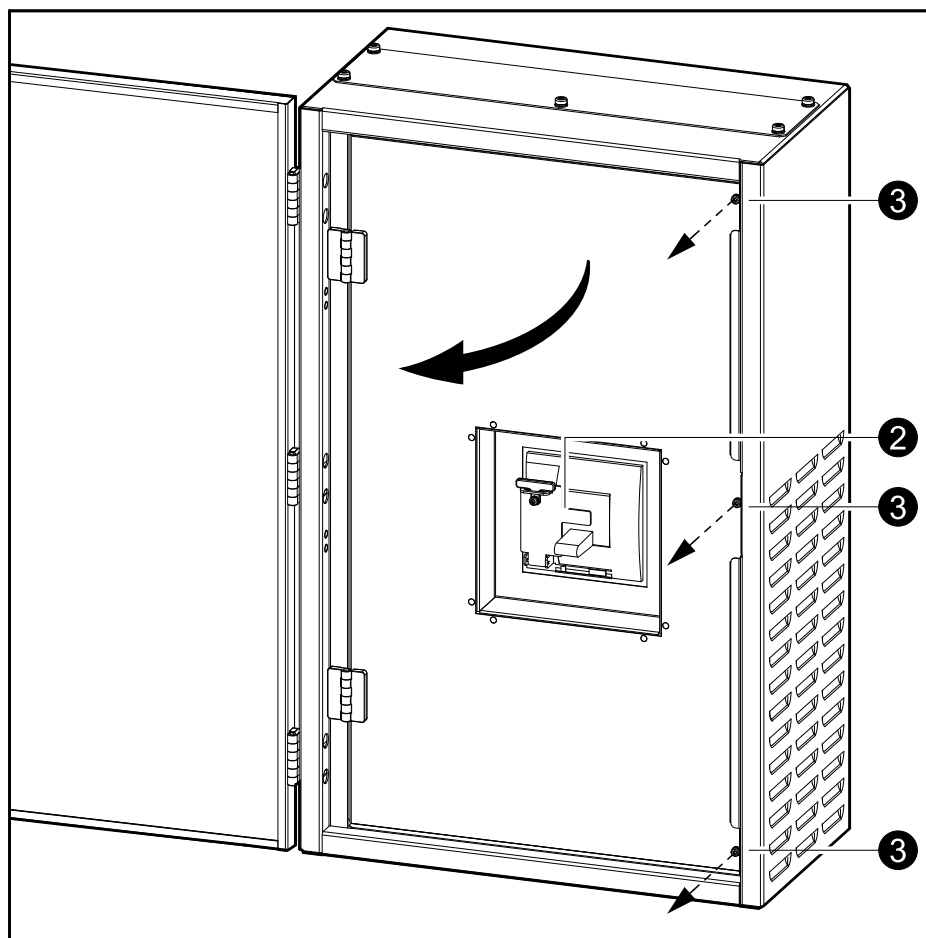
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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. Open the front door of the battery breaker box.
2. Lock out/tag out the battery breaker.

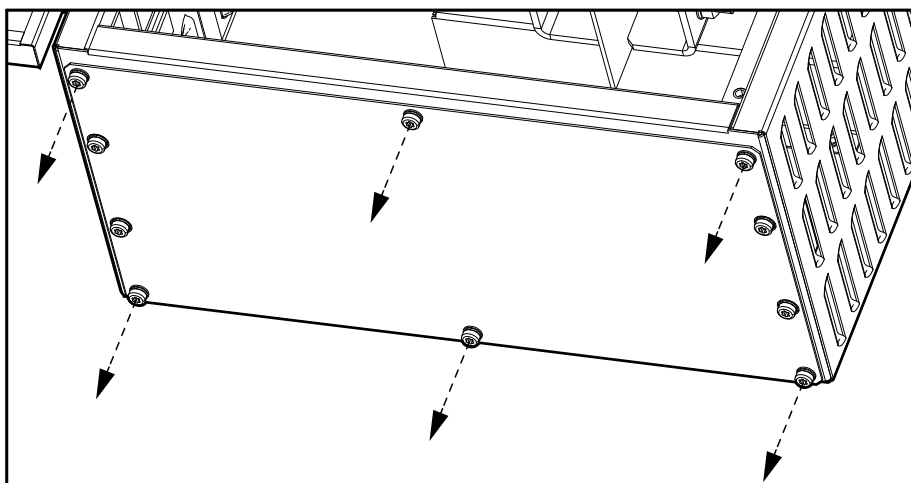
Front View of Battery Breaker Box



3. Loosen the three screws and open the dead front panel.

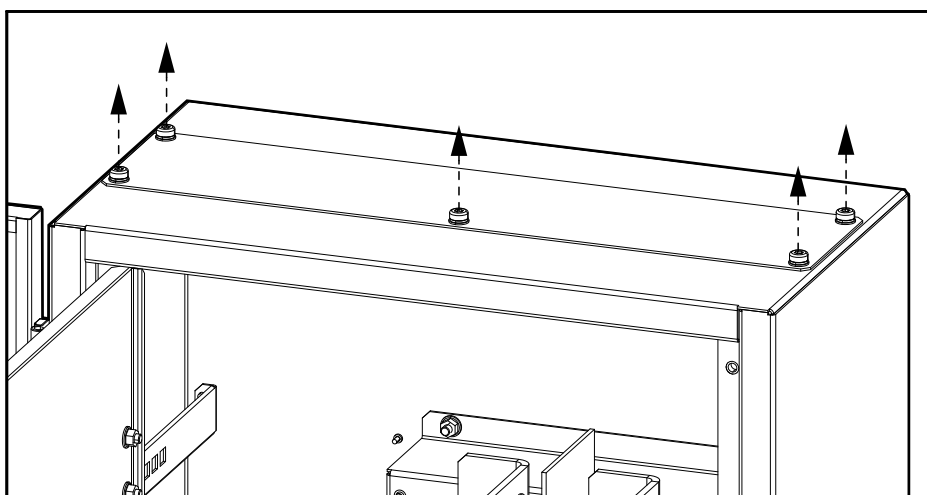
4. Loosen the six bolts from the bottom gland plate and remove the gland plate.

Front Bottom View of Battery Breaker Box



5. If the cables from the I/O cabinet should be routed through the top, loosen the five bolts from the top gland plate and remove the gland plate.

Front View of Battery Breaker Box



6. Drill or punch holes for cables or grommets in either the pre-installed gland plates or the optional gland plates with knockouts.

NOTE: Only remove the knockouts where cables are installed.

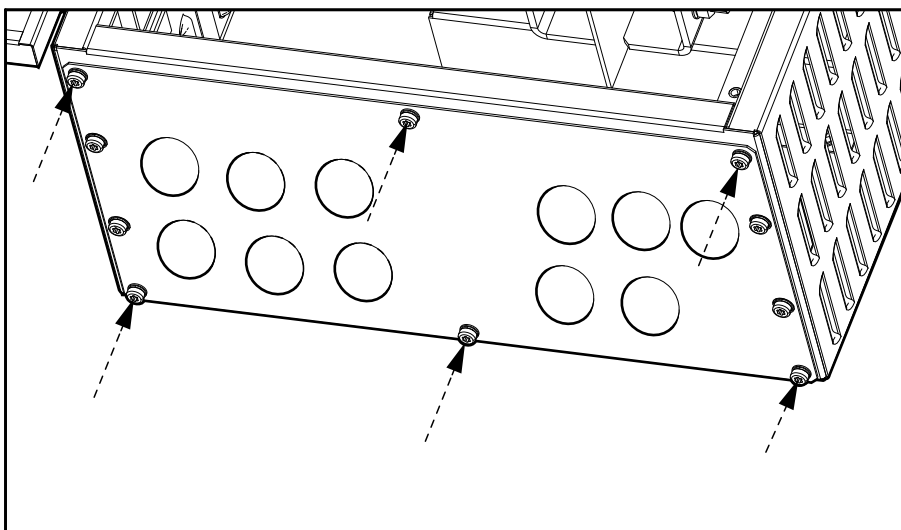
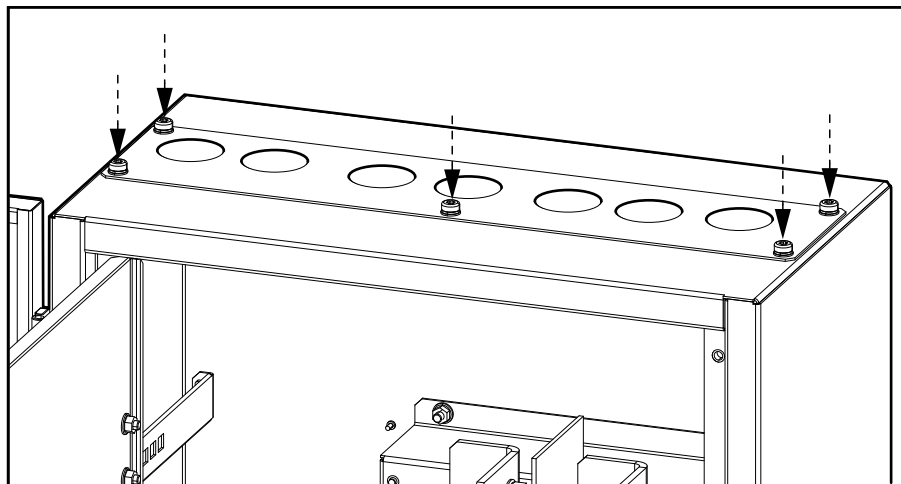
7. Install grommets (if applicable) and refit the gland plates.

⚠ 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.



Connect Power and Signal 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

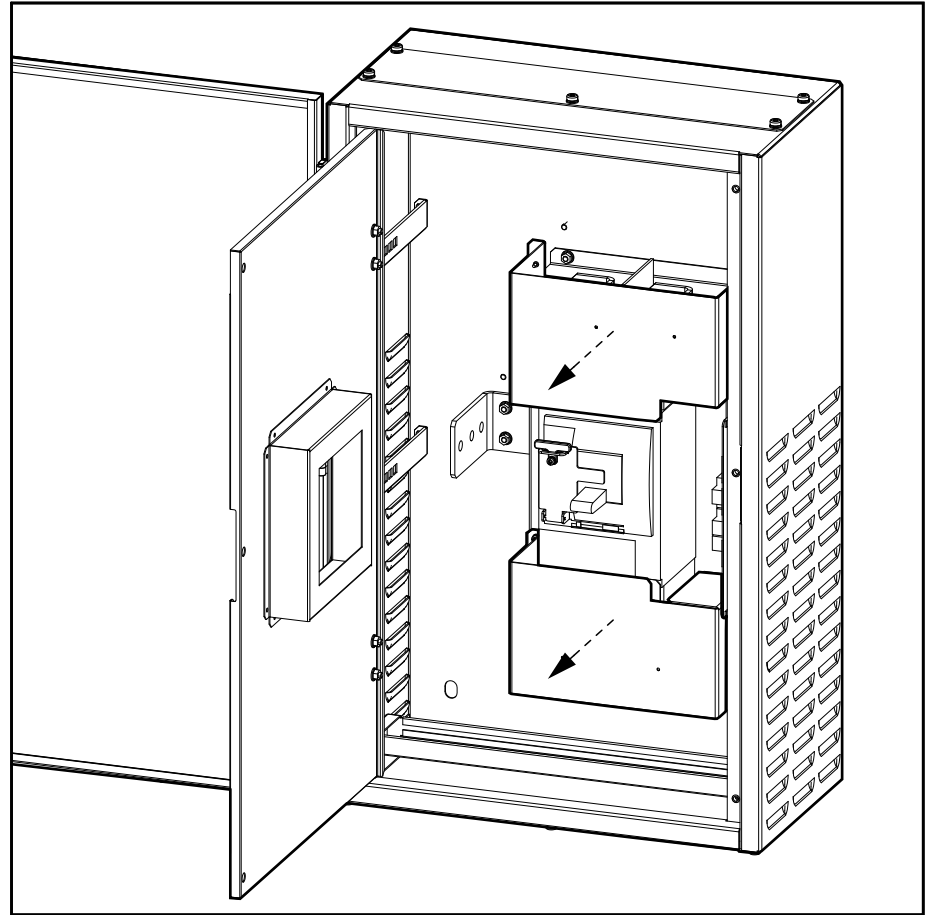
HAZARD OF ARC FLASH

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 Battery Breaker Box

1. Loosen the screw of each inner cover and lift the covers up and out of the battery breaker box.

Front View of Battery Breaker Box

- Route the battery cables from the I/O cabinet through either the top or bottom of the battery breaker box and connect.

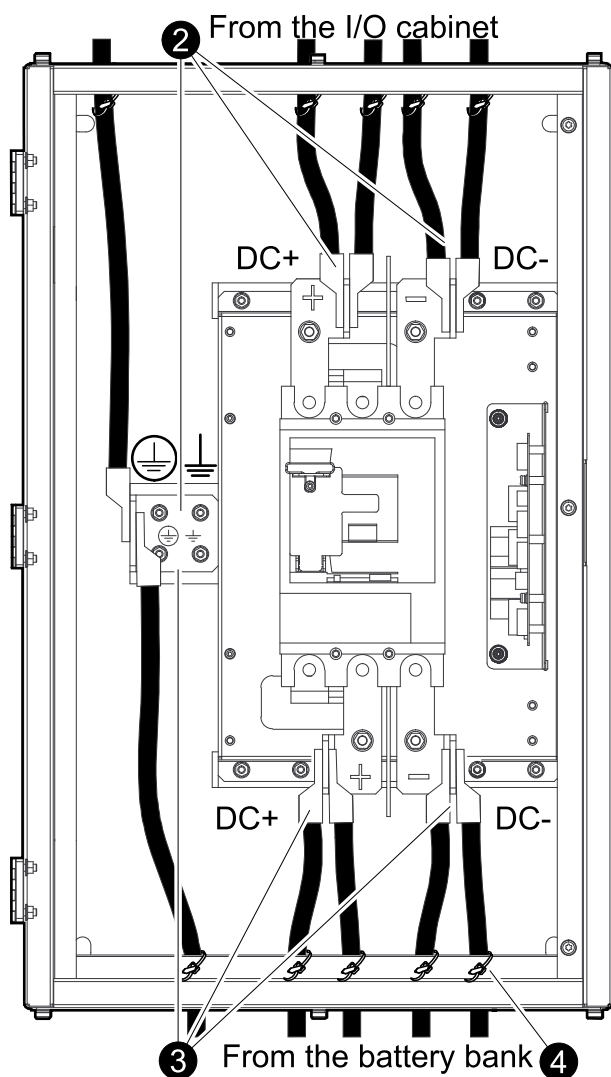
⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

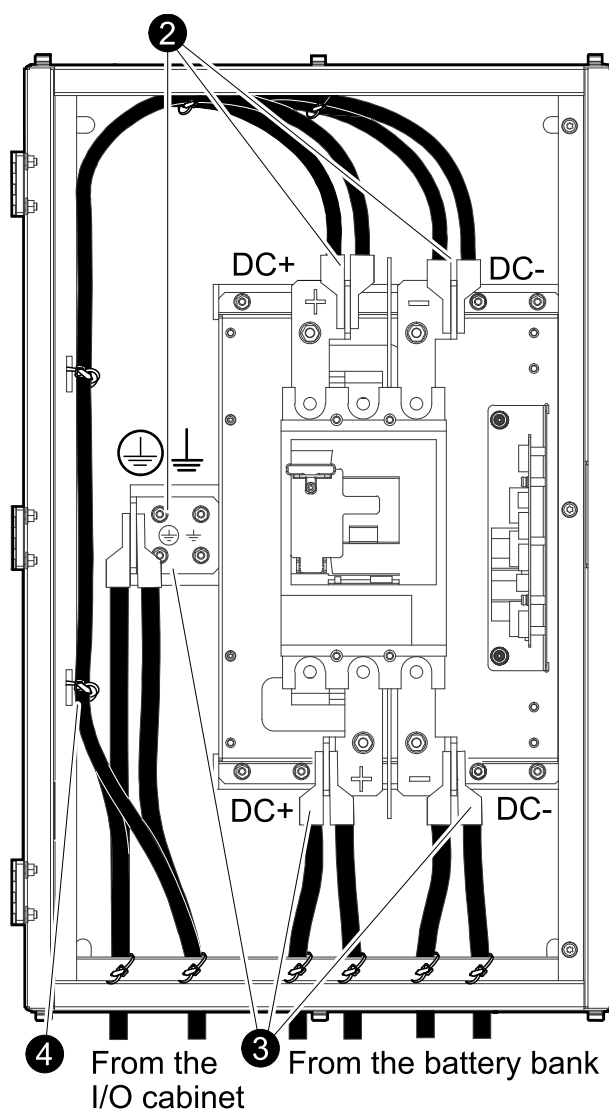
Reinstall the inner panel in the top of the battery breaker box before proceeding.

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

Cables from the I/O Cabinet routed through the top



Cables from the I/O Cabinet routed through the bottom



- Route the battery cables from the battery bank through the bottom of the battery breaker box and connect.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Reinstall the inner panel in the bottom of the battery breaker box before proceeding.
- Ensure correct polarity.

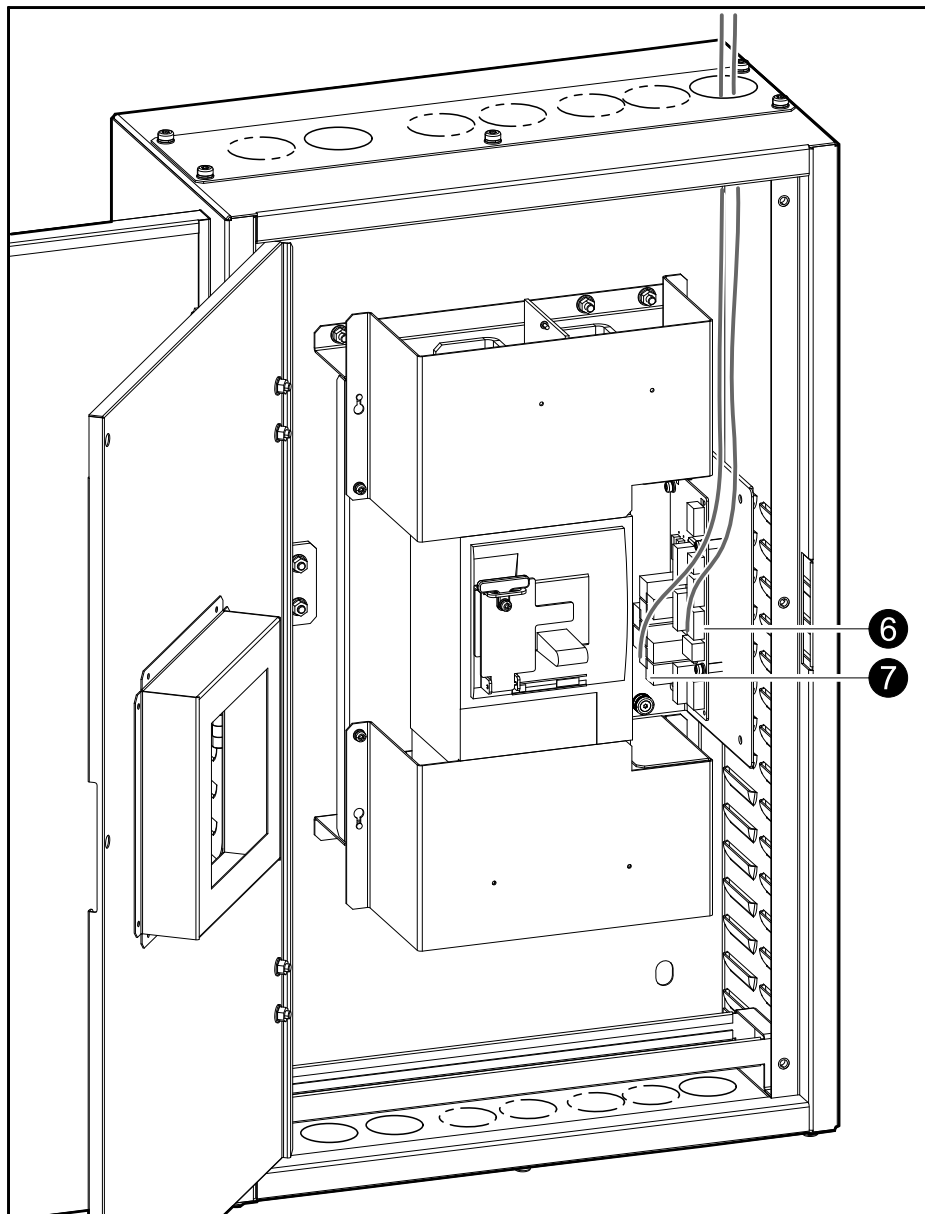
Failure to follow these instructions will result in death or serious injury.

4. Attach the cables to the cables reliefs in the left side, the top, and the bottom of the battery breaker box.
5. Install the supplied temperature sensor 0M-1160 in the battery room.

NOTE: The maximum distance between the temperature sensor and the battery breaker box is 2.4 m due to the length of the supplied cable.

6. Connect the temperature sensor to the terminals J3803-3 and J3803-4 in the battery breaker box.

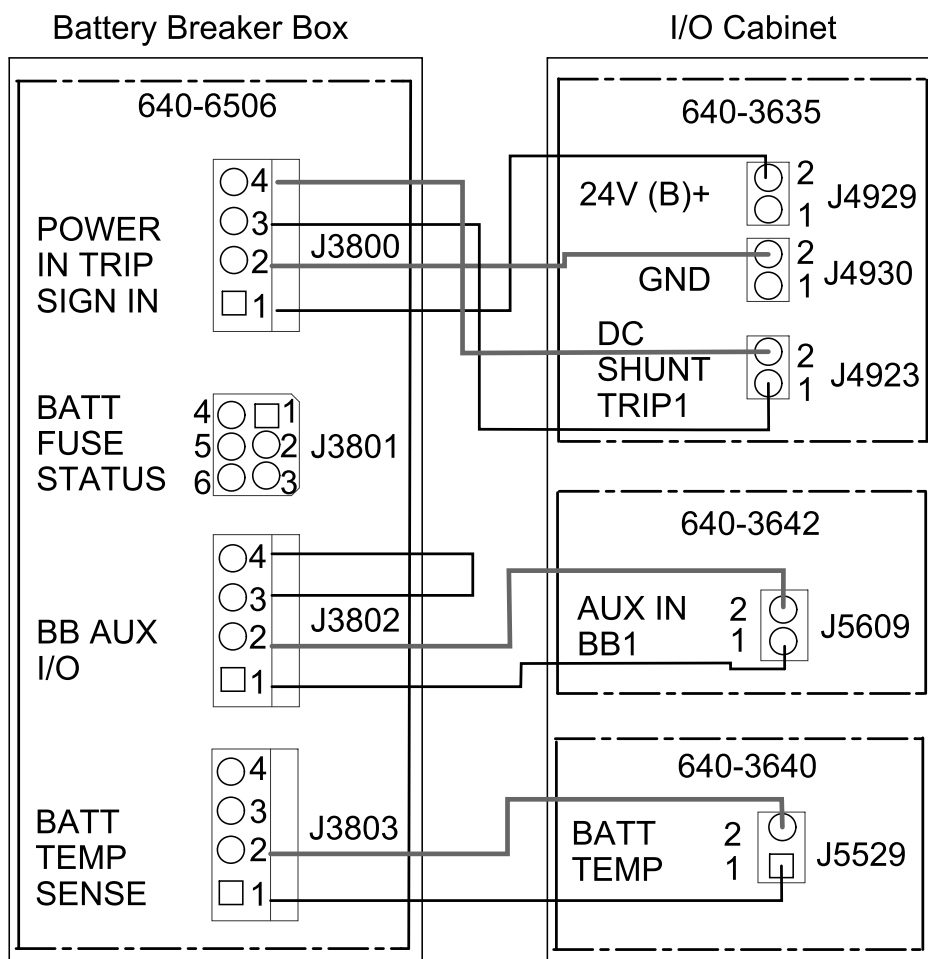
Front View of Battery Breaker Box



7. Connect the following signal cables between the I/O cabinet and the battery breaker box:

NOTE: All circuits connected must have the same 0 V reference. The signal cables must have a minimum rating of 600 V.

NOTE: Remove the jumper between J5609 pin 1 and 2 before connecting signal cables to J5609.



8. Close the dead front panel and secure with the three screws.
9. Close the front door of the battery breaker box.

Schneider Electric
35 rue Joseph Monier
92500 Rueil Malmaison
France

+ 33 (0) 1 41 29 70 00

www.schneider-electric.com

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

© 2014 – 2016 Schneider Electric. All rights reserved.

990–5440A–001