



NetSure™ 211 SERIES

-48 VDC Battery Cabinet

Installation and User Manual (Section 6033), Revision M

Specification Number: 545534

Model Number: 211BC

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/en-us/support/> for additional assistance.

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ADMONISHMENTS USED IN THIS DOCUMENT



DANGER! Warns of a hazard the reader *will* be exposed to that will *likely* result in death or serious injury if not avoided. (ANSI, OSHA)



WARNING! Warns of a potential hazard the reader *may* be exposed to that *could* result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)



CAUTION! Warns of a potential hazard the reader *may* be exposed to that *could* result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)



ALERT! Alerts the reader to an action that *must be avoided* in order to protect equipment, software, data, or service. (ISO)



ALERT! Alerts the reader to an action that *must be performed* in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)



FIRE SAFETY! Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)



SAFETY! Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

IMPORTANT SAFETY INSTRUCTIONS

Safety Admonishments Definitions

Definitions of the safety admonishments used in this document are listed under “Admonishments Used in this Document” on page 4.

General Safety



DANGER! YOU MUST FOLLOW APPROVED SAFETY PROCEDURES.

Performing the following procedures may expose you to hazards. These procedures should be performed by qualified technicians familiar with the hazards associated with this type of equipment. These hazards may include shock, energy, and/or burns. To avoid these hazards:

- a) The tasks should be performed in the order indicated.
- b) Remove watches, rings, and other metal objects.
- c) Prior to contacting any uninsulated surface or termination, use a voltmeter to verify that no voltage or the expected voltage is present. Check for voltage with both AC and DC voltmeters prior to making contact.
- d) Wear eye protection.
- e) Use certified and well maintained insulated tools. Use double insulated tools appropriately rated for the work to be performed.

DC Voltages



DANGER! THIS SYSTEM CONTAINS BATTERIES

Although the DC voltage is not hazardously high, the battery can deliver large amounts of current. Exercise extreme caution not to inadvertently contact or have any tool inadvertently contact a battery terminal or exposed wire connected to a battery terminal. NEVER allow a metal object, such as a tool, to contact more than one termination or battery terminal at a time, or to simultaneously contact a termination or battery terminal and a grounded object. Even a momentary short circuit can cause sparking, explosion, and injury.

Battery

Refer to the battery manufacturer documentation for specific battery safety instructions. The following are general guidelines.



WARNING! Correct polarity must be observed when connecting battery leads.




WARNING! Special safety precautions are required for procedures involving handling, installing, and servicing batteries. Observe all battery safety precautions in this manual and in the battery instruction manual. These precautions should be followed implicitly at all times.




WARNING! A battery can present a risk of electrical shock and high short circuit current. Servicing of batteries should be performed or supervised only by properly trained and qualified personnel knowledgeable about batteries and the required precautions.


The following precautions should be observed when working on batteries:

- Follow the recommended PPE requirements per the SDS for the battery to be used.
- Batteries are an energy source that can produce high amounts of electrical current.
- Remove watches, rings, and other metal objects.
- Eye protection should be worn to prevent injury from accidental electrical arcs.
- Use certified and well maintained insulated tools. Use double insulated tools appropriately rated for the work to be performed. Ensure that wrenches with more than one working end have only one end exposed.
- Do not lay tools or metal parts on top of batteries.
- Verify that no current will flow when the battery is connected or disconnected by opening battery disconnects (if available) or adjusting the system to match battery voltage.
- Risk of explosion if battery is replaced with an incorrect type or if polarity is reversed. Recommended to replace batteries with the same manufacturer and type, or equivalent.
- Dispose of used batteries according to the instructions provided with the batteries. Do not dispose of batteries in a fire. They may explode.
- Batteries may generate explosive gases during normal operation. Systems containing batteries should never be installed in an airtight room or space. Only install in a ventilated environment.
- Batteries may contain sulfuric acid. If battery acid enters your eye, immediately flush your eye with running cold water for at least 15 minutes. Get medical attention immediately. If battery acid contacts skin or clothing, wash immediately with soap and water.
- Do not open or mutilate batteries.
- ALWAYS FOLLOW THE BATTERY MANUFACTURER'S RECOMMENDATIONS AND SAFETY INSTRUCTIONS.

 **ALERT!** Performing maintenance and/or troubleshooting procedures may interrupt power to the loads, if battery reserve is not sufficient.

Personal Protective Equipment (PPE)

 **DANGER!** ARC FLASH AND SHOCK HAZARD.
Appropriate PPE and tools required when working on this equipment. An appropriate flash protection boundary analysis should be done determine the “hazard/risk” category, and to select proper PPE.

 This product is intended only for installation in a Restricted Access Location.

Only authorized and properly trained personnel should be allowed to install, inspect, operate, or maintain the equipment.

Do not work on LIVE parts. If required to work or operate live parts, obtain appropriate Energized Work Permits as required by the local authority, per NFPA 70E “Standard for Electrical Safety in the Workplace”.

Hazardous Voltage

 **DANGER!** HAZARD OF ELECTRICAL SHOCK.
More than one disconnect may be required to de-energize the system before servicing.

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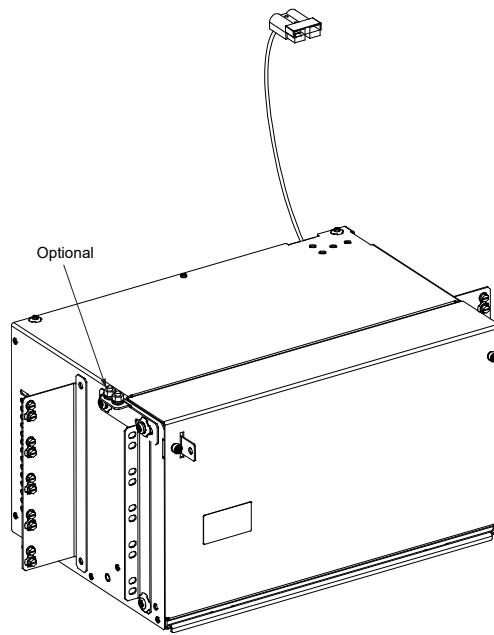
INTRODUCTION

Description

The NetSure™ 211 Series -48 VDC battery cabinet can be mounted in a 19" or 23" relay rack or mounted to a wall. The battery cabinet contains one (1) 40 A battery disconnect circuit breaker and provides alarm leads attached to the common contacts of the breaker.

Battery cabinets may be daisy chained as shown in **Figure 7** to increase the reserve time. However, a maximum system current of 30 A should be maintained regardless of the number of interconnected battery cabinets.

Figure 1: NetSure™ 211 Series -48 VDC Battery Cabinet



Batteries

The battery cabinet is designed to hold four (4) of the batteries listed in **Table 1**.

Table 1: Batteries

Battery Manufacturer	Manufacturer P/N	Vertiv P/N	Capacity Amp-Hours (8 Hr Rate)	Weight (lbs.) per Battery
Energys	SBSB10	140553	38.0	28.2
C&D / Dynasty	TEL12-30	140455	30.5	26.7
Energys	SBS30	--	26.0	20.9
Energys	SBS40	140581	38.0	28.0

Specifications

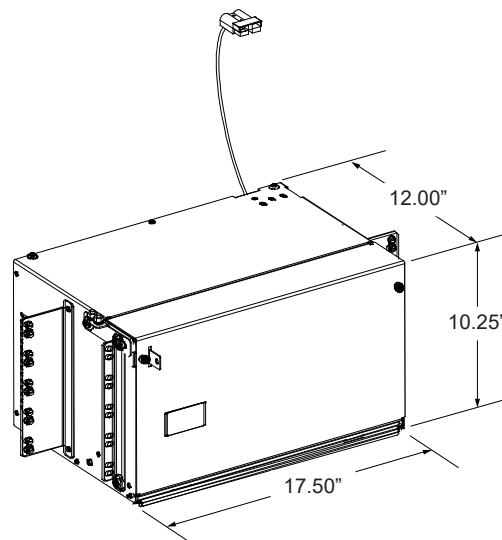
Environmental Ratings

- Operating Ambient Temperature Range: -40 °C to +65 °C.
- Storage Ambient Temperature Range: -40 °C to +85 °C.
- Humidity: This unit is capable of operating in an ambient relative humidity range of 0 % to 95 %, non-condensing.
- Altitude: The maximum operating ambient temperature should be derated by 10 °C at an elevation of 10,000 feet above sea level. For elevations between 3,000 feet and 10,000 feet, derate the maximum operating ambient temperature linearly.

Overall Dimensions

Battery cabinet dimensions are illustrated in **Figure 2**.

Figure 2: Battery Cabinet Dimensions



INSTALLATION

Important Safety Instructions



DANGER! Adhere to the “Important Safety Instructions” starting on page 5.

General Requirements

The installer should be familiar with the installation requirements and techniques to be used in securing the battery cabinet to a relay rack or wall.

Mounting the Battery Cabinet

The battery cabinet is designed to mount in a standard 19” or 23” wide relay rack or on a wall.

Relay Rack Mounting

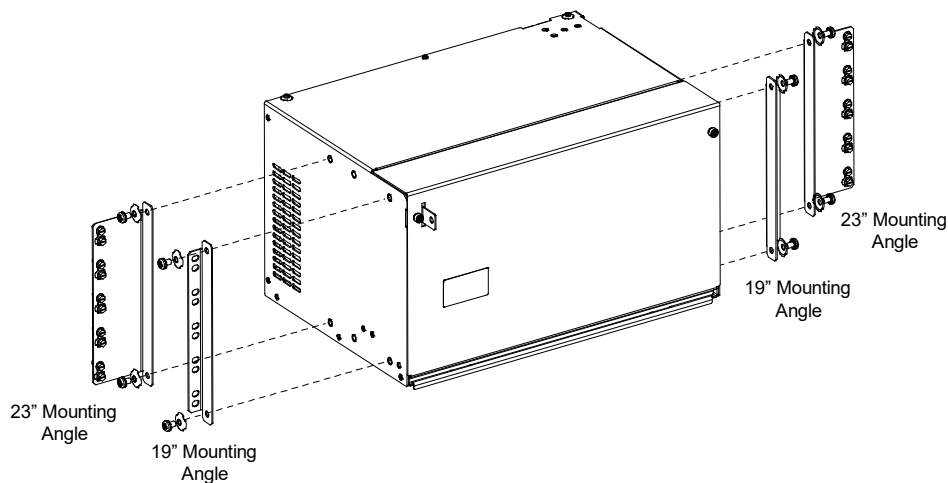
Procedure

1. Refer to **Figure 3** and install the 19" or 23" relay rack mounting angles to the battery cabinet. Mounting hardware is provided with the battery cabinet. Use a provided grounding washer at each mounting screw location. Torque these connections to 46 in-lbs.



NOTE! There are three mounting locations for the mounting angles providing different projections in front of the relay rack.

Figure 3: Installing Mounting Angles on the Battery Cabinet



2. Install battery retention strap through openings in rear of battery cabinet. Orient the buckle per **Figure 17**.
3. Secure the battery cabinet to the relay rack with the provided 12-24 x 1/2" hex head thread-forming screws (ten per side) (P/N 218710500) and #12 ground washers (five per side) (P/N 215640600). Torque these connections to 35 in-lbs.

Wall Mounting

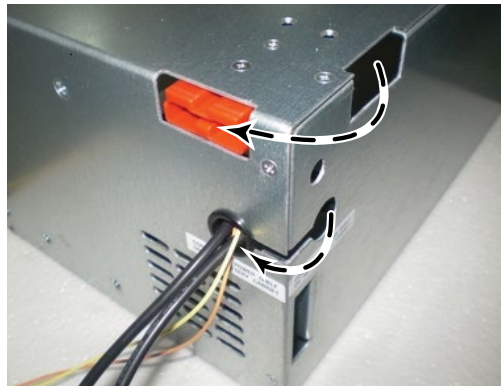


WARNING! Ensure the technique and hardware used in securing the battery cabinet can support the total weight of the battery cabinet and the four (4) batteries. Refer to "Batteries" on page 9 for a battery weight reference table. If being mounted to a stud wall, the cabinet **must** be fastened to the studs. Failure to mount the cabinet correctly may result in serious personal injury or equipment damage.

Procedure

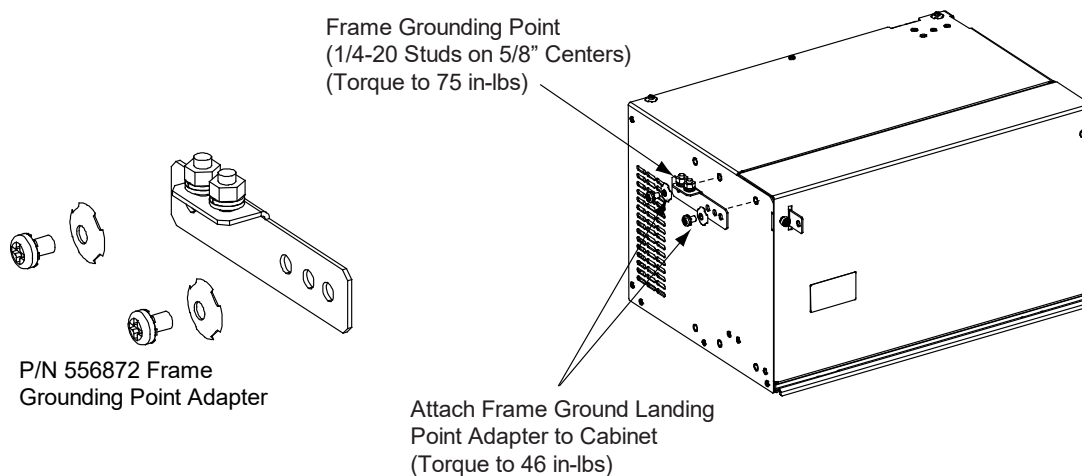
1. Ensure that the connector, wires and bushing located at the back of the battery cabinet are moved to the side before mounting the battery cabinet. Refer to **Figure 4**.
2. Install battery retention strap through openings in rear of battery cabinet. Orient the buckle per **Figure 17**.

Figure 4: Connectors and Wires Moved to the Side



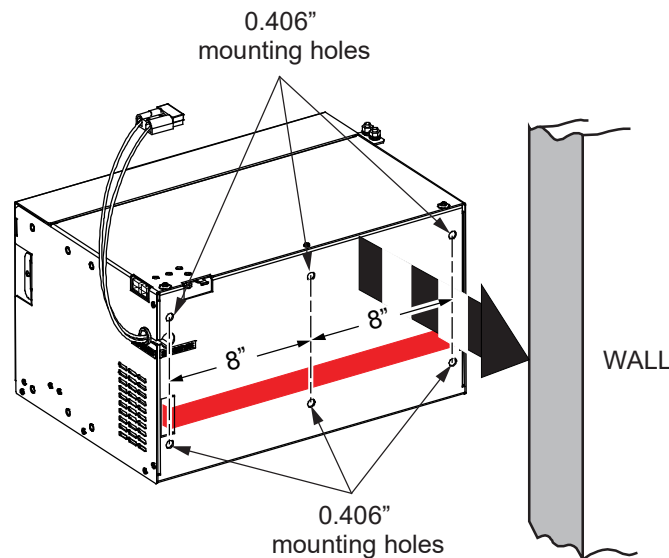
3. Install the separately ordered frame ground landing point adapter P/N 556872 to the left or right side of the battery cabinet. Refer to **Figure 5**.

Figure 5: Installing P/N 556872 Frame Ground Landing Point Adapter



4. Mount the battery cabinet to a wall through the six (6) 0.406" diameter holes on the back of the battery cabinet. Refer to **Figure 6**. If mounting to a stud wall, secure the battery cabinet to the studs.
5. Ensure the technique and hardware used in securing the cabinet can support the total weight of the cabinet and the batteries. Refer to "Batteries" on page 9 for a battery weight reference table.

Figure 6: Mounting the Battery Cabinet to a Wall



Connecting Battery Cabinet(s) to the Associated Power System

Battery Leads

Cables with connectors are provided on the associated power system and the battery cabinet to allow simple interconnections between a battery cabinet and the associated power system and between battery cabinets. The battery cabinet is designed to be daisy-chained together with additional battery cabinets. There is no limit to the number of battery cabinets that can be connected together. However, a maximum system current of 30 A should be maintained regardless of the number of interconnected battery cabinets.

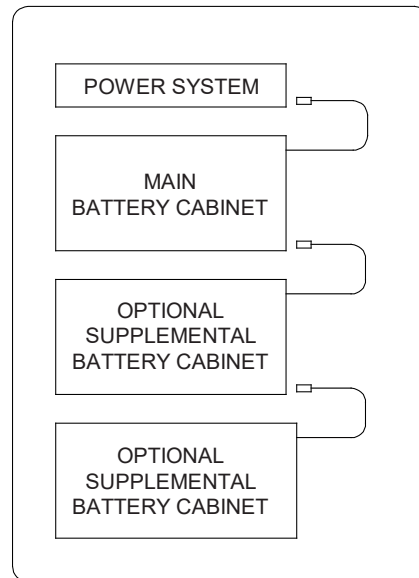
Procedure



NOTE! Refer to **Figure 7** as this procedure is performed.

1. Connect the power system's battery cable terminated in an Anderson connector to the first battery cabinet's battery cable terminated in a mating Anderson connector.
2. Connect the second battery cabinet's battery cable terminated in an Anderson connector to the fixed mating Anderson connector located on the first battery cabinet.
3. Repeat the above step if there are additional battery cabinets.

Figure 7: Connecting Multiple Battery Cabinets



Battery Disconnect Circuit Breaker Alarm Leads

Procedure

1. Furnished with the battery cabinet are battery disconnect circuit breaker alarm lead assemblies. Refer to the power system installation manual to use these alarm leads to connect the battery cabinet battery disconnect circuit breaker alarm into the power system alarm circuits.



NOTE! Supplied with the battery cabinet is a yellow alarm lead assembly P/N 545696 and an orange alarm lead assembly P/N 565513. P/N 545696 is always used. P/N 565513 is used only with power systems containing a 1M831ANA Mini Controller (may be discarded if battery cabinet is used with other systems).

Installing EnerSys SBSB10 Batteries

Procedure



NOTE! Refer to **Figure 8**, **Figure 9**, and **Figure 10** as this procedure is performed.

1. Remove the front cover from the battery cabinet by loosening the top two captive fasteners and lifting the cover up and out of the battery cabinet.
2. Slide the battery tray out of the battery cabinet until it stops.
3. Place the batteries inside the battery tray oriented as shown in **Figure 8**. Place the provided spacers between the batteries.



NOTE! Two spacers (P/N 545511) are provided for use with EnerSys SBSB10 batteries. Each one can be broken into two pieces to make a total of four. Three of these are used in this installation.

4. Interconnect all four batteries using the supplied interconnect cables (P/N 545529). These cables are crimped with a 12-10 AWG ring lug on each end. Refer to **Figure 9**.
5. Connect the battery cabinet cables to the open positive (+) and negative (-) battery terminals. Refer to **Figure 10**.
6. Slide the battery tray back into the cabinet ensuring none of the cables get crimped.
7. Refer to “Securing the Batteries Using the Battery Retention Strap” on page 21 for instructions on securing the batteries using the buckle strap provided with the battery cabinet.

Figure 8: Installing EnerSys SBSB10 Batteries

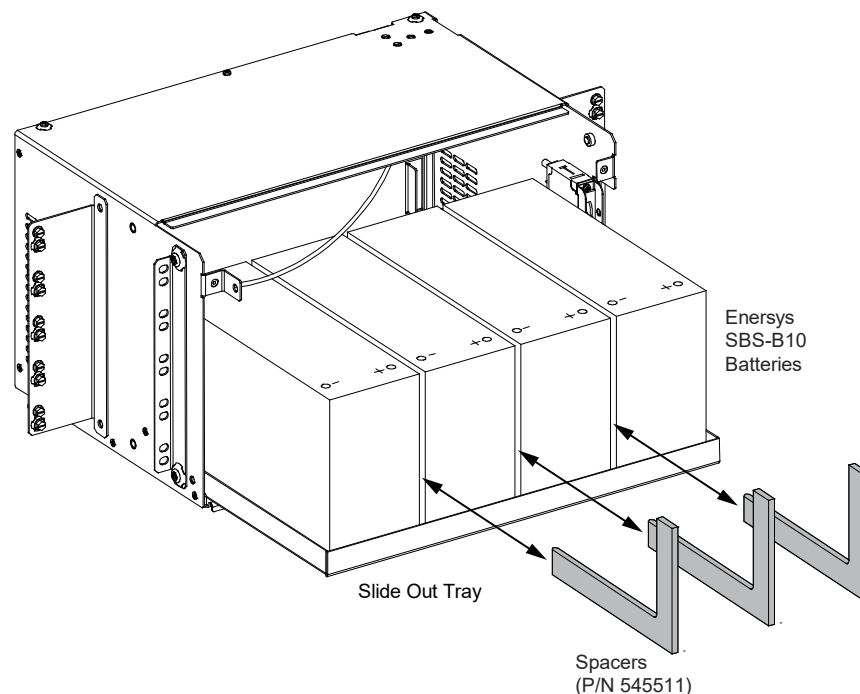


Figure 9: Interconnecting Energys SBSB10 Batteries

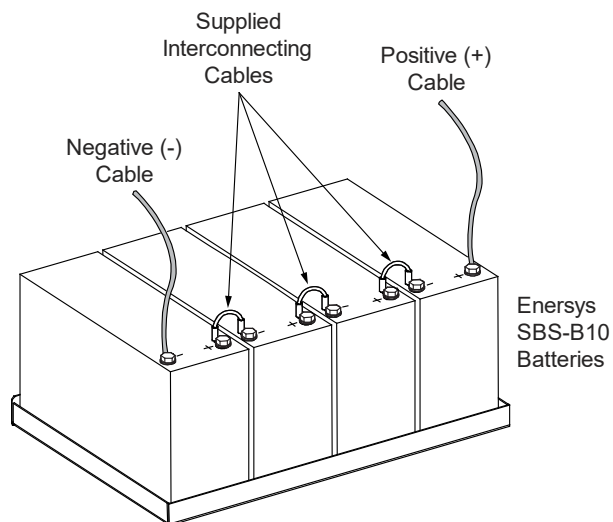
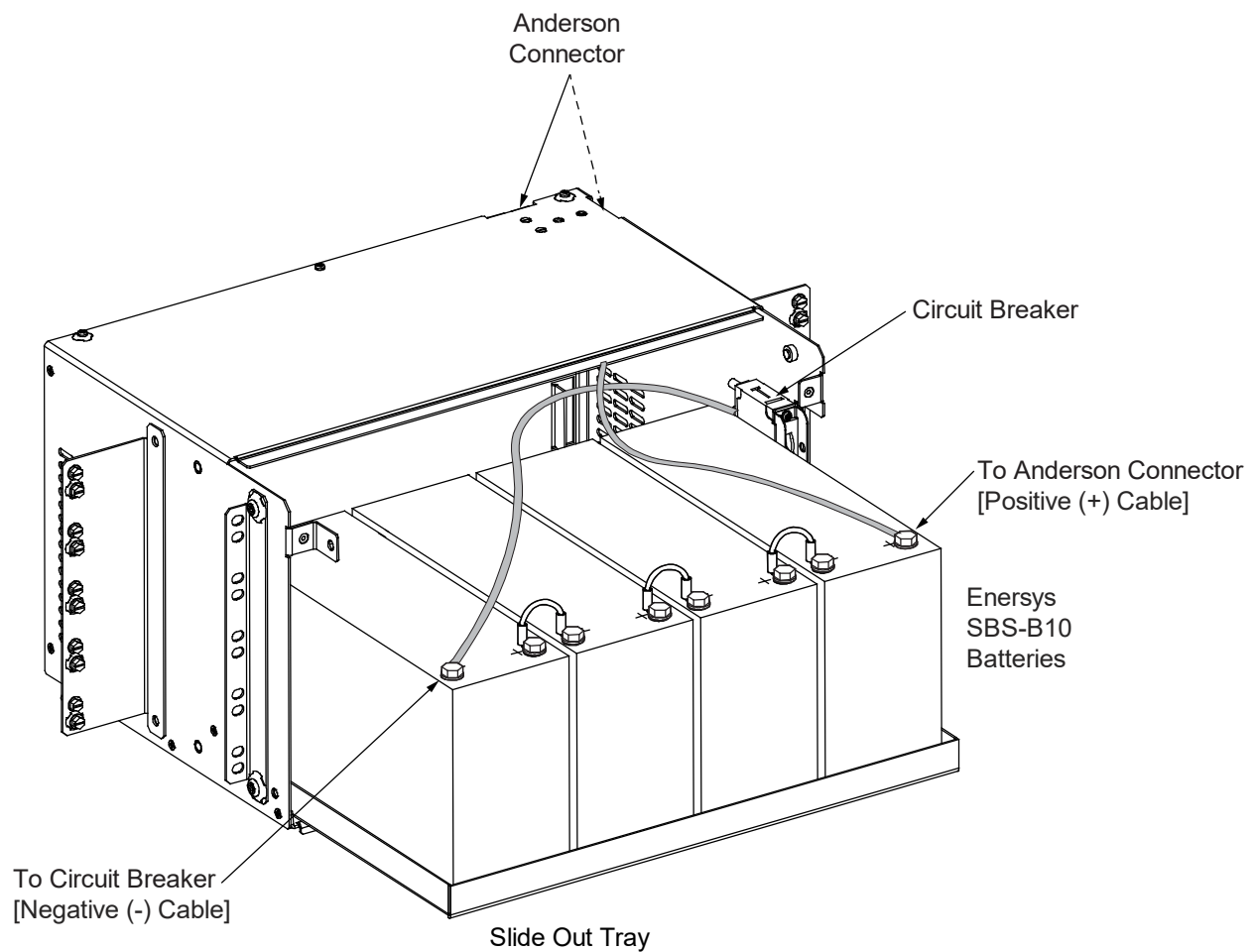


Figure 10: Connecting Energys SBSB10 Batteries to (+) and (-) Terminals



Installing EnerSys SBS-30 or SBS-40 Batteries

Procedure

NOTE! Refer to **Figure 11**, **Figure 12**, and **Figure 13** as this procedure is performed.

1. Remove the front cover from the battery cabinet by loosening the top two captive fasteners and lifting the cover up and out of the battery cabinet.
2. Slide the battery tray out of the battery cabinet until it stops.
3. Place the batteries inside the battery tray oriented as shown in **Figure 11**. Place the provided spacers between the batteries.

NOTE! Two spacers (P/N 545511) are provided for use with EnerSys SBS-30 or SBS-40 batteries. Each one can be broken into two pieces to make a total of four. Three of these are used in this installation.

4. Interconnect all four batteries using the interconnect cables provided with the batteries. Refer to **Figure 12**.
5. Connect the battery cabinet cables to the open positive (+) and negative (-) battery terminals. Refer to **Figure 13**.
6. Slide the battery tray back into the cabinet ensuring none of the cables get crimped.
7. Refer to “Securing the Batteries Using the Battery Retention Strap” on page 21 for instructions on securing the batteries using the buckle strap provided with the battery cabinet.

Figure 11: Installing EnerSys SBS-30 or SBS-40 Batteries

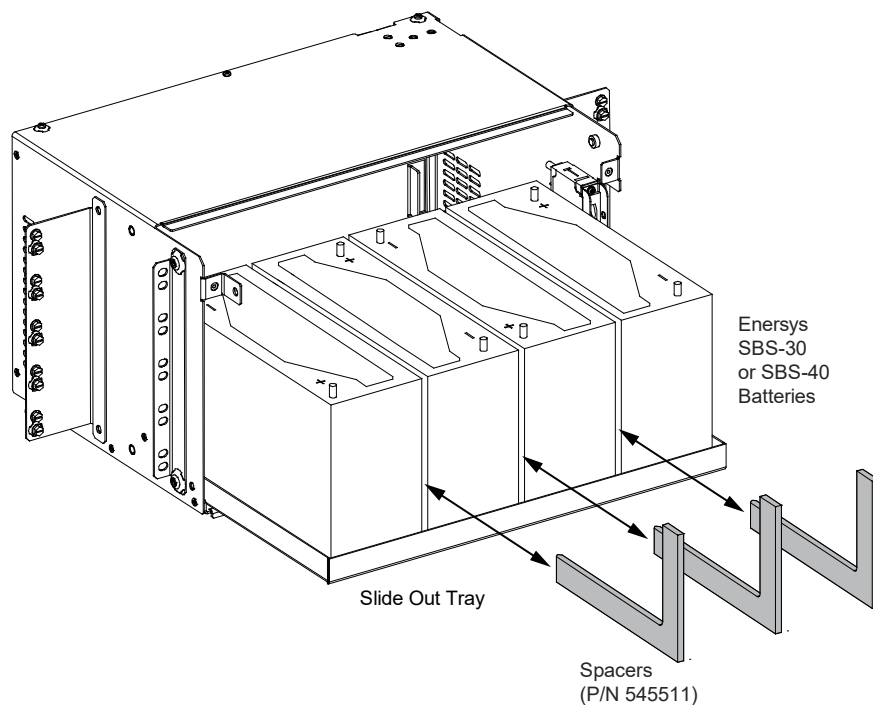


Figure 12: Interconnecting Energys SBS-30 or SBS-40 Batteries

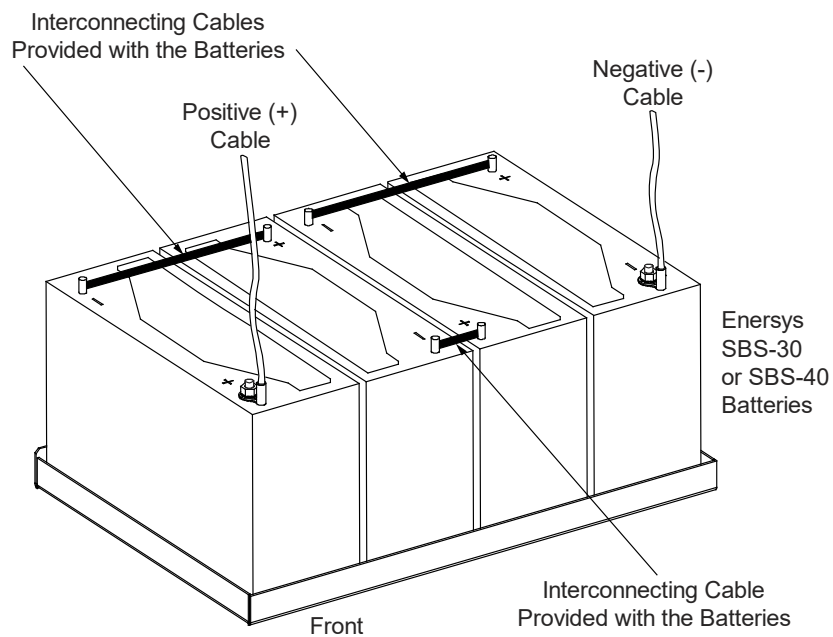
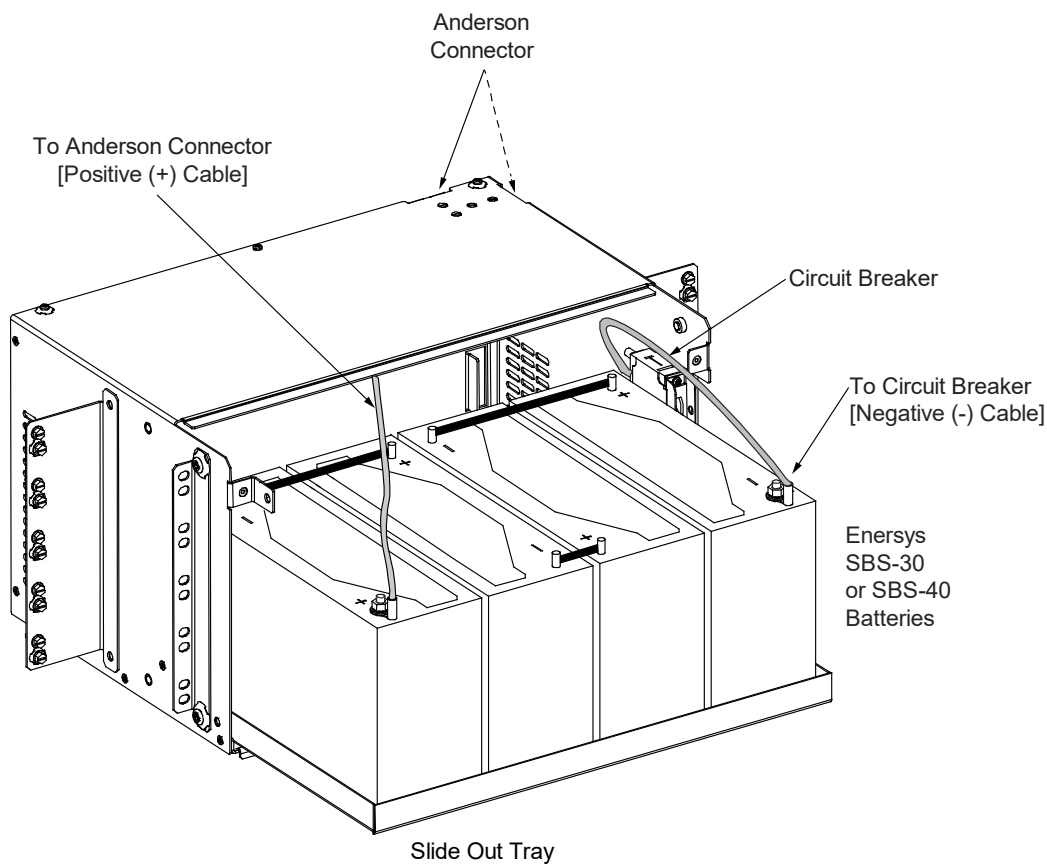


Figure 13: Connecting Energys SBS-30 or SBS-40 Batteries to (+) and (-) Terminals



Installing Dynasty TEL12-30 Batteries



NOTE! Refer to **Figure 14**, **Figure 15**, and **Figure 16** as this procedure is performed.

Procedure

1. Remove the front cover from the battery cabinet by loosening the top two captive fasteners and lifting the cover up and out of the battery cabinet.
2. Slide the battery tray out of the battery cabinet until it stops.
3. Place the batteries inside the battery tray oriented as shown in **Figure 14**. Place the provided spacers between the batteries.



NOTE! Place the two P/N 545511 spacers first as shown in **Figure 14**. Next place the P/N 545538 spacer so the cutout goes between the P/N 545511 spacers.

4. Interconnect all four batteries using the supplied interconnect cables (P/N 545529). These cables crimped with a 12-10 AWG ring lug on each end. Refer to **Figure 15**.
5. Connect the battery cabinet cables to the open positive (+) and negative (-) battery terminals. Refer to **Figure 16**.
6. Slide the battery tray back into the cabinet ensuring none of the cables get crimped.
7. Refer to “Securing the Batteries Using the Battery Retention Strap” on page 21 for instructions on securing the batteries using the buckle strap provided with the battery cabinet.

Figure 14: Installing Dynasty TEL12-30 Batteries

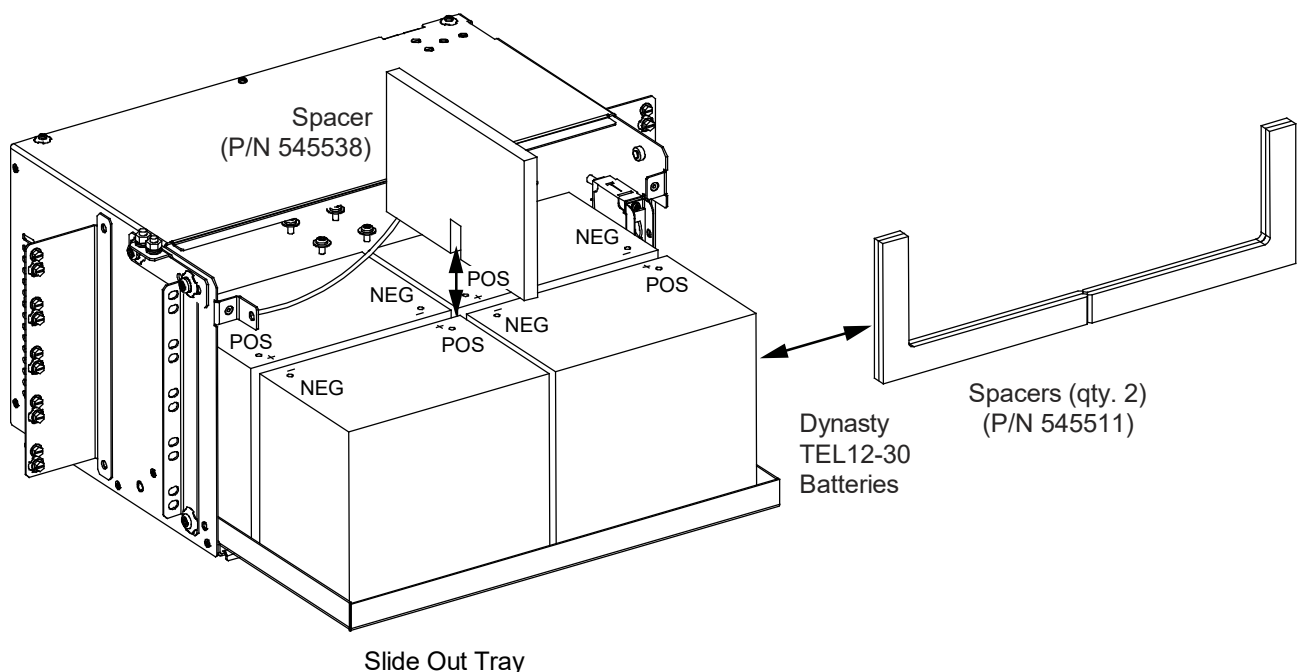


Figure 15: Interconnecting Dynasty TEL12-30 Batteries

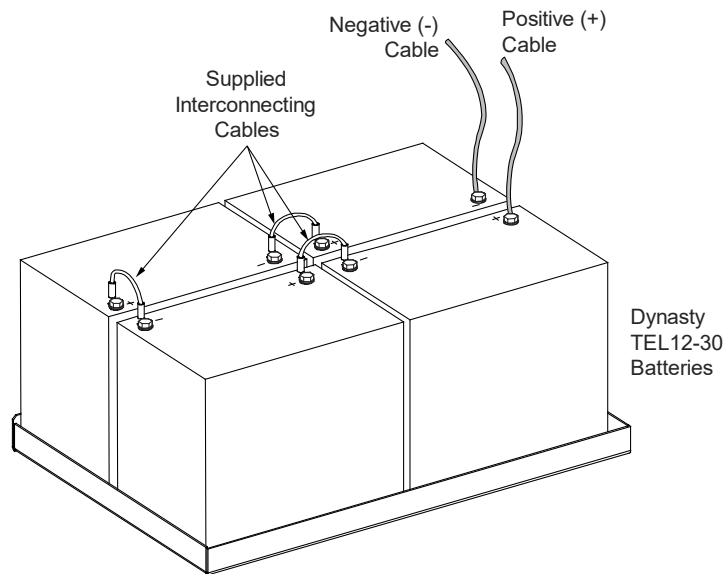
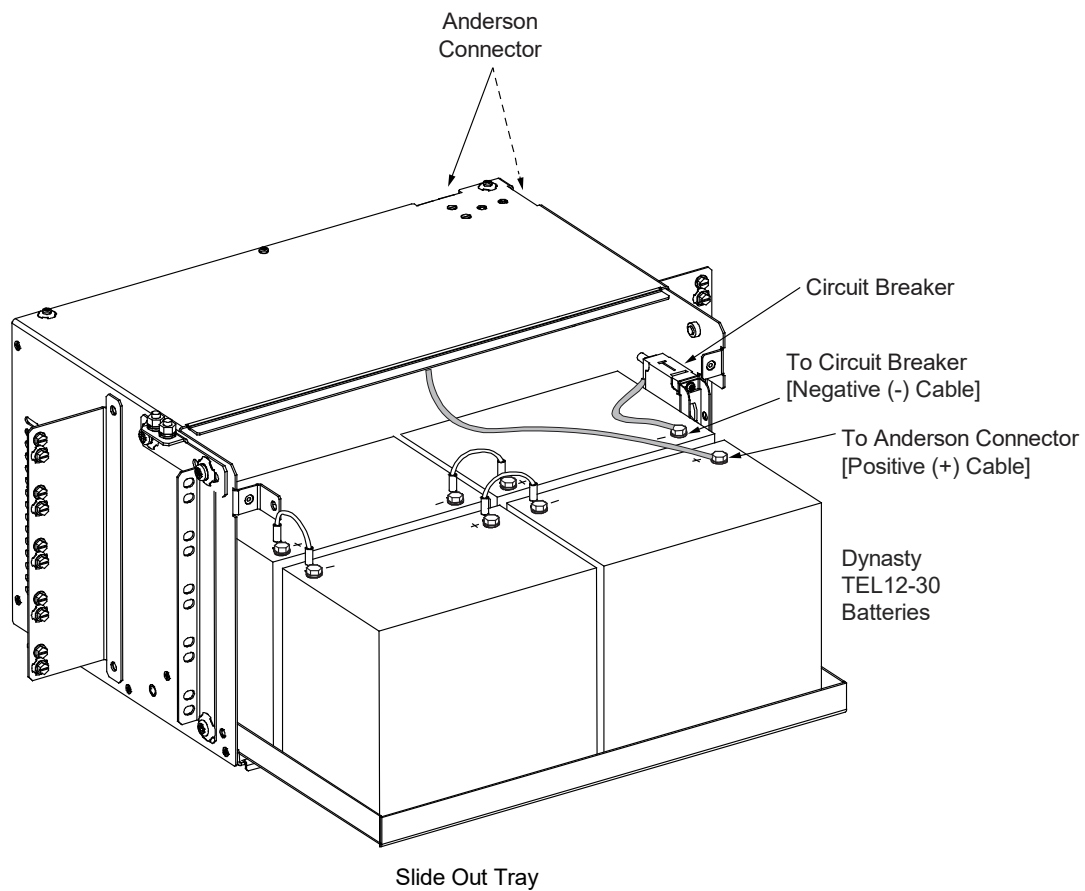


Figure 16: Connecting Dynasty TEL12-30 Batteries to (+) and (-) Terminals



Securing the Batteries Using the Battery Retention Strap

Procedure

1. Pull strap such that enough length is provided to secure the batteries.
2. Hold the buckle such that the strap can slip into inner slot of the buckle. See **Figure 17** for reference.

Figure 17: Slipping the Strap into the Buckle



3. Then loop the strap into the outer slot of the buckle. Refer to **Figure 18**.

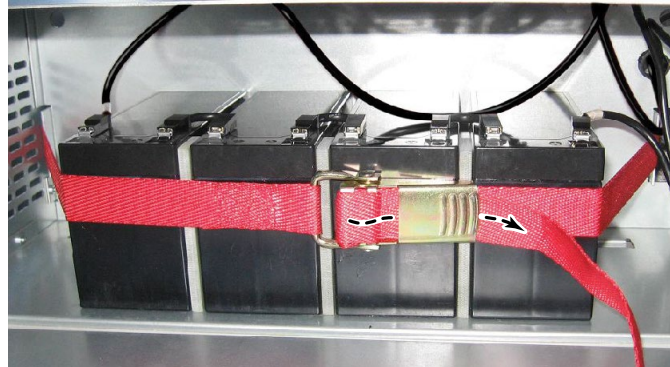
Figure 18: Looping the Strap into the Buckle



4. Pull again the strap to tighten.
5. Rotate buckle cover to closed position to apply and lock in tension. See **Figure 19**.

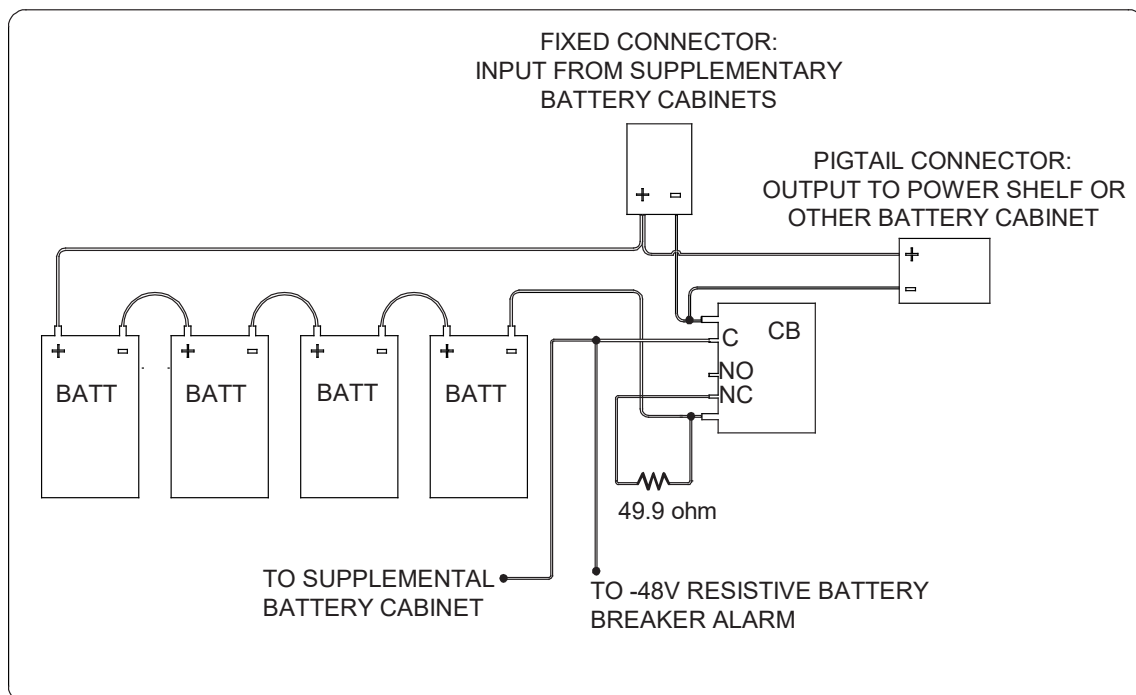
6. There should be a gap of 1/4" to 1/2" between the strap and the batteries when the buckle assembly is pulled with light finger pressure. This will ensure the proper tension is applied to the strap.
7. To release buckle, pull outward on free strap end.

Figure 19: Securing the Batteries in the Cabinet



Typical Internal Wiring Layout

Figure 20: Typical Internal Wiring Layout

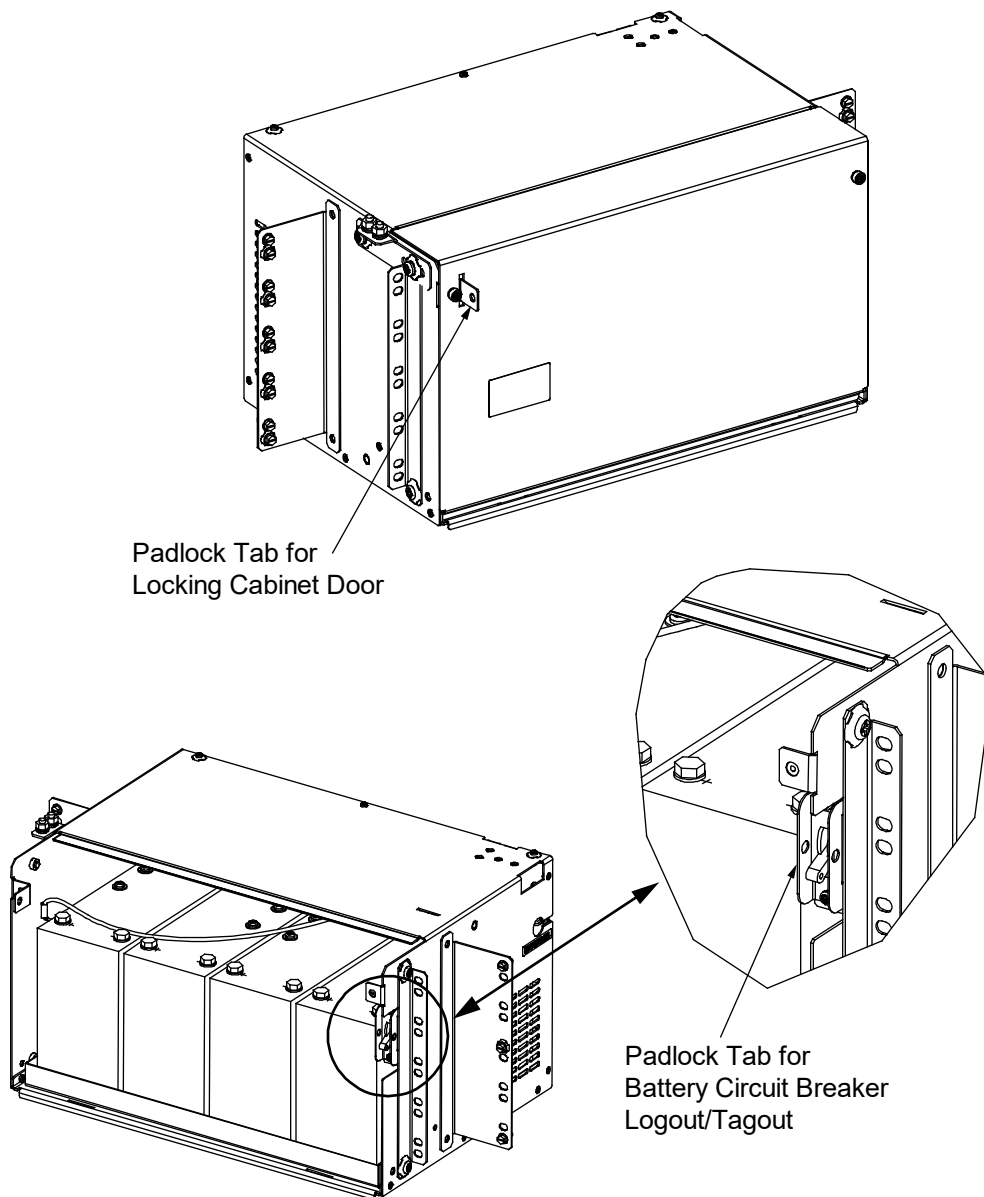


OPERATION

The outside of the battery cabinet contains a tab that a padlock can be attached to allowing the battery cabinet door to be locked closed. See **Figure 21**.

The internal battery breaker contains tabs that a padlock can be attached to allowing the breaker to be locked in the off (open) position (lockout/tagout). See **Figure 21**.

Figure 21: Lockout/Tagout





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