OBE-3

Outdoor Series

Installation Guide

WARNING: Serious Personal Injury
- Securely mount the enclsoure to the ground to prevent tipping when the battery trays are used. Failure to do so could lead to serious injury or death.
- Wear appropriate protective equipment when working with batteries, including eye or face protection, acid-resistant gloves, an apron, and any other neccesary items.
- Keep plenty of fresh water and soap nearby in case battery acid contacts skin or clothing.
- If acid enters the eye, immediately rinse the eye with running cold water for at least 20 minutes and seek medical attention immediately.

WARNING: Explosion, Electrocution, or Fire Hazard
- Never smoke, or allow a spark or flame near the batteries.
- Ensure space between each battery is ½" (12.7mm) minimum for convection cooling.
- Keep the area around the enclosure well ventilated and free of debris.
- Always use insulated tools. Never rest tools on top of batteries or other electrical parts.

CAUTION: Personal Injury
- Wear gloves while assembling or moving the empty enclosure. Sheet metal edges are sharp and may lacerate unprotected skin.
- Use eye and ear protection when drilling.
- Always use proper lifting techniques. The empty enclosure or individual batteries are heavy.
- Use assistance to move the assembled empty enclosure into place.

CAUTION: Equipment Damage
- Do not pull out more than one battery tray at once, as the enclosure may tip.
- Follow all installation instructions in this document. Failure to complete the installation per these instructions may lead to product damage or risk of personal injury.
- Follow all manufacturer's instructions for battery installation. Overtightening or incorrectly connecting batteries can irreparably damage the batteries.
- Equipment connections must be in accordance with the National Electrical Code (NFPA 70), Current Edition. If installed in Canada, all wiring methods shall be in accordance with the Canadian Electrical Code, C22.1, Current Edition.

NOTE: Additional Equipment Information
- This document covers information for OBE-3 installation and use. Refer to the specific equipment documentation for other OutBack products used in conjunction with this equipment. For more information go to www.outbackpower.com.

Purpose

This document provides instructions for the initial assembly and installation of the Outdoor Battery Enclosure (OBE-3).

Scope

This document applies to the OBE-3 model. The Outdoor Battery Enclosure is designed to shelve Outback EnergyCell RE Top Terminal Batteries: 12Vdc VRLA. Alternative group 31 size top terminal batteries used with this enclosure should first be reviewed with the respective battery manufacturer for compatibility.

Tools Required

- Eye and ear protection
- Tape measure
- Hammer drill
- ½" masonry drill bit
- $^{9}/_{16}$" socket
- Torque wrench

Parts Included

- OBE
- OBE Installation Instructions (this document)
- Intercell Connects
- Battery Cable Kit

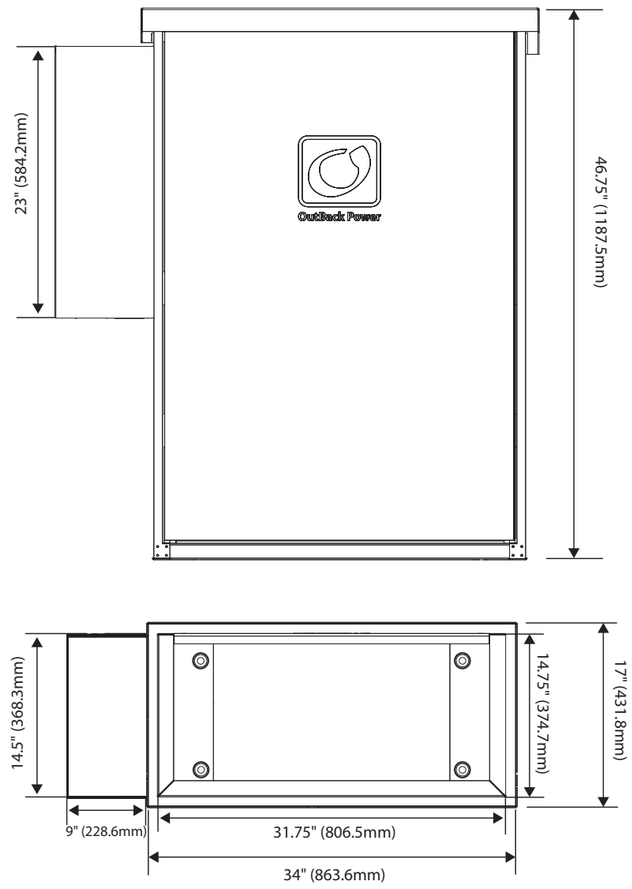


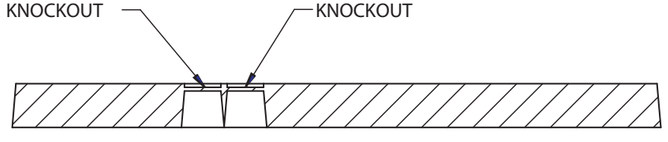
Figure 1, OBE-3 Dimensions

Pour-In-Place Concrete Pad Installation

Hardware Recommendations:
7/16" Nut
Lock Washer
Flat Washer
Concrete Pad with 7/16" Mounting Studs

Installation Instructions:

1. Consult local codes for concrete pad requirements.
2. The OBE-3 enclosure must be bolted down to a completely flat surface. If the concrete pad is uneven or has bumps, cracks, or other imperfections, the installer is responsible for correcting these defects prior to installing the enclosure. Outback is not responsible for damage to the enclosure caused by improper installation.
3. Proper soil compaction is required to prevent settling of the pad.
4. Additional pad clearance may be desirable to reduce debris build-up around the enclosure.
5. Steel reinforcement bars or mesh may be used to reduce cracking and resettling due to changes in humidity and temperature.



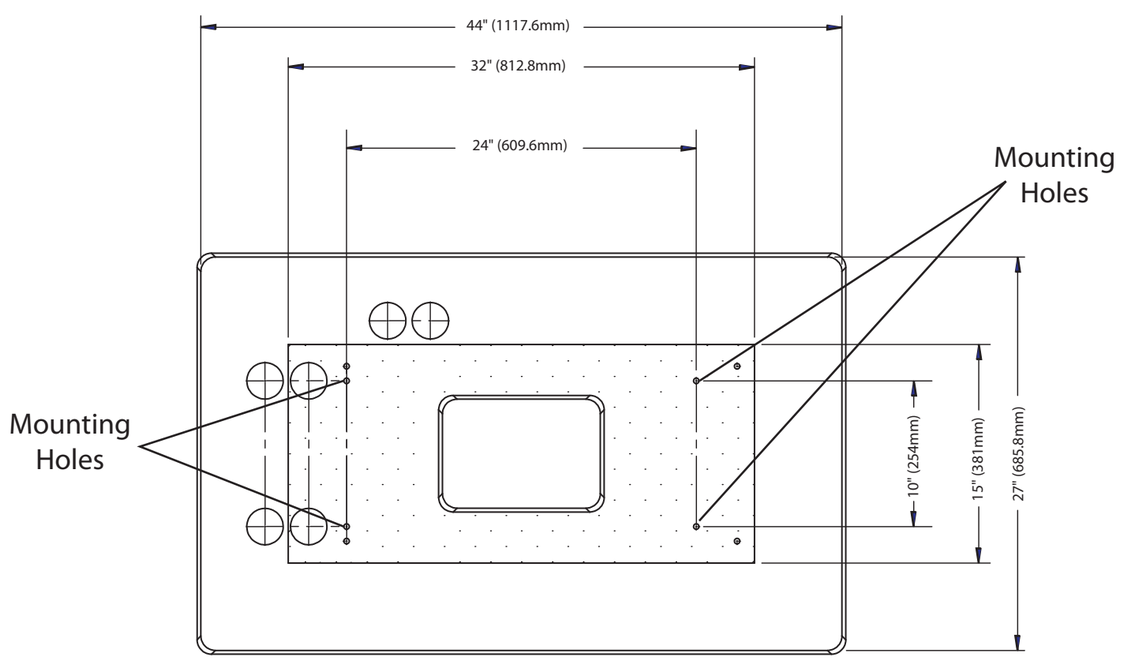


Figure 4, Layout for Precast Pad, Single-wide for OBE-3, P/N 641-112-10-002

Site Considerations

- The site must be planned so the enclosure receives good air flow. If possible, in areas of extreme heat, it is best to position the enclosure so that it will be shaded from the afternoon sun. If no shade is available, a factory installed fan kit is highly recommended. In areas of prevailing winds, it is best that the enclosure be located so that the sides of the cabinet face the winds instead of the doors. This will greatly reduce the buildup of sand or snow against the enclosure's air vents.
- In areas of potential flooding, the site must be located above the 100-year flood plain.
- The enclosure must be placed where it will be free of obstructions, allowing easy access to the doors for service or equipment access. For ventilation and maintenance near other solid structures, allow a minimum space of 36" (914.4mm) between the front and rear of the enclosure, as well as on the sides.
- Place the enclosure well away from sources of forced water, such as underground sprinkler systems and direct roadway splash.
- The concrete pad drawing provided in this manual contains all of the required mounting details, including electrical service and cable plant entrances.
- For ease of installation, lightweight polymer concrete pads are available from Outback for the OBE-3 enclosure.
- The vapor barrier material (such as 30 lb. felt, neoprene pond liner, or heavy grade tar paper) must initially extend at least 6" (152.4mm) in all directions around the perimeter of the enclosure and then be trimmed closer to the enclosure.
- Contact local utilities or cable/piping locator services to ensure that the installation does not interfere with existing cables or piping.

Transportation and Lifting

A safe means of transportation to the site and a safe procedure for unloading the enclosure is necessary. At least two installation personnel are required to place the enclosure on the pad. Installation team must assess the transport path for all obstructions. An obstruction free path should be selected for transport. Use safe lifting practices. Electronic modules, batteries or other components must not be installed until the enclosure is securely set in place at its permanent location.

CAUTION: Personal Injury

- Never transport the unit with batteries installed. Batteries must ONLY be installed after the unit is transported to the site and secured to the pad. Transporting the unit with batteries installed may cause a short circuit, fire, explosion, and/or damage to the battery pack, enclosure and installed equipment. Damage caused by improper shipping or transporting a unit with batteries installed is not covered by the warranty.
- Enclosure must always remain in the upright position during the shipping, storage and installation process. Damage may result from enclosure being shipped or stored on its side.
- DO NOT lift the enclosure by the cover, unless empty.

Installation Procedure

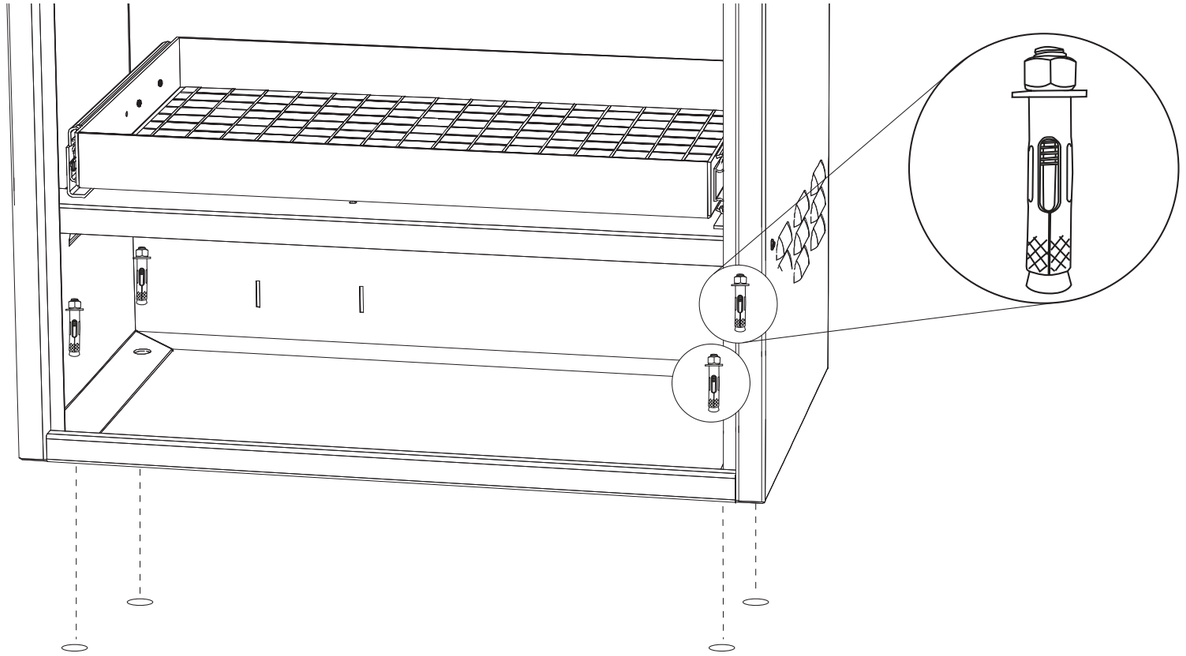


Figure 5, Mounting with Sleeve Anchors

Enclosure mounting procedure:

1. Measure and mark the mounting locations from the anchor holes on the bottom of the unit (see Fig. 1 and Fig. 2). Ensure that there are at least 4" between the wall and the nearest mounting hole.
2. Using a hammer drill and a ½" masonry bit, drill a hole 2 ½" deep.
3. Clean the hole using compressed air and/or a vacuum.
4. Place the enclosure so the mounting holes line up with the holes in the floor.
5. Insert the anchors into the holes (make sure the nuts are just below the top of the stud).
6. Finger tighten all of the nuts.
7. Once snug, use a wrench to finish tightening the anchors (approximately 2-4 full turns, or 50-60 ft/lb). Be careful not to over tighten.

Optional Assembly with Anti-tip Pad

CAUTION: Personal Injury

- The anti-tip plate is heavy. Use extreme caution when attaching the anti-tip plate to the enclosure.
- Wear gloves while assembling or moving the anti-tip plate. Sheet metal edges are sharp and may lacerate unprotected skin.
- Use proper lifting techniques.
- Use at least one other person for assistance when installing the anti-tip plate.

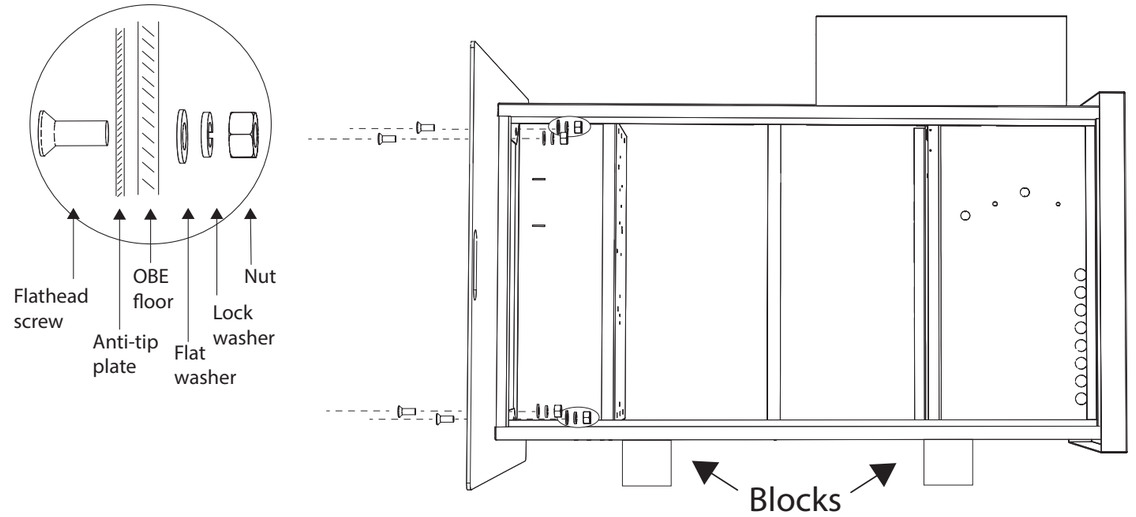


Figure 6, Mounting with Anti-tip Plate (P/N 746-055-20-001)

Anti-tip pad mounting procedure:

Use at least one other person for assistance with this procedure.

1. Place the enclosure on its right side.
2. Place blocks under the enclosure to raise the enclosure at least 3" off the ground. Ensure the enclosure is resting levelly.
3. Align the mounting holes in the anti-tip plate with the mounting holes on the bottom of the enclosure.
4. Insert the flathead screws through the bottom of the anti-tip plate.
5. From inside the enclosure, attach the flat washer, lock washer, and nut to each screw. Finger tighten all of the nuts.
6. Stand the enclosure upright.
7. Use a wrench to finish tightening the nuts.

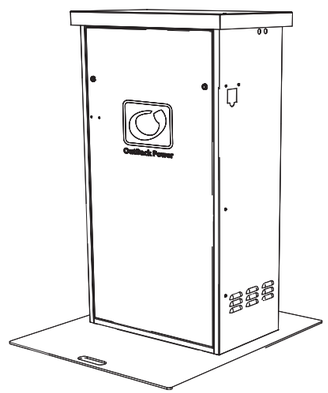


Figure 7, Enclosure Mounted with Anti-tip Plate

Enclosure Grounding

Outback recommends 5 ohm minimum ground resistance between enclosure and ground rods, in accordance with IEEE 1100-1999, Powering and Grounding Electronic Equipment.

Outback assumes no responsibility or liability for failure of the installer to comply with the requirements of applicable local and national codes. Where allowed, exothermic welding may be used as an alternative to Burndy clamps and connectors.

Grounding connections are located inside the breaker box and at the bottom of the enclosure.

IMPORTANT:

Outback recommends using the grounding method illustrated below. The grounding method for a particular site will be dependant upon soil type, available space, local codes, NEC (National Electric Code), and other site-specific characteristics.

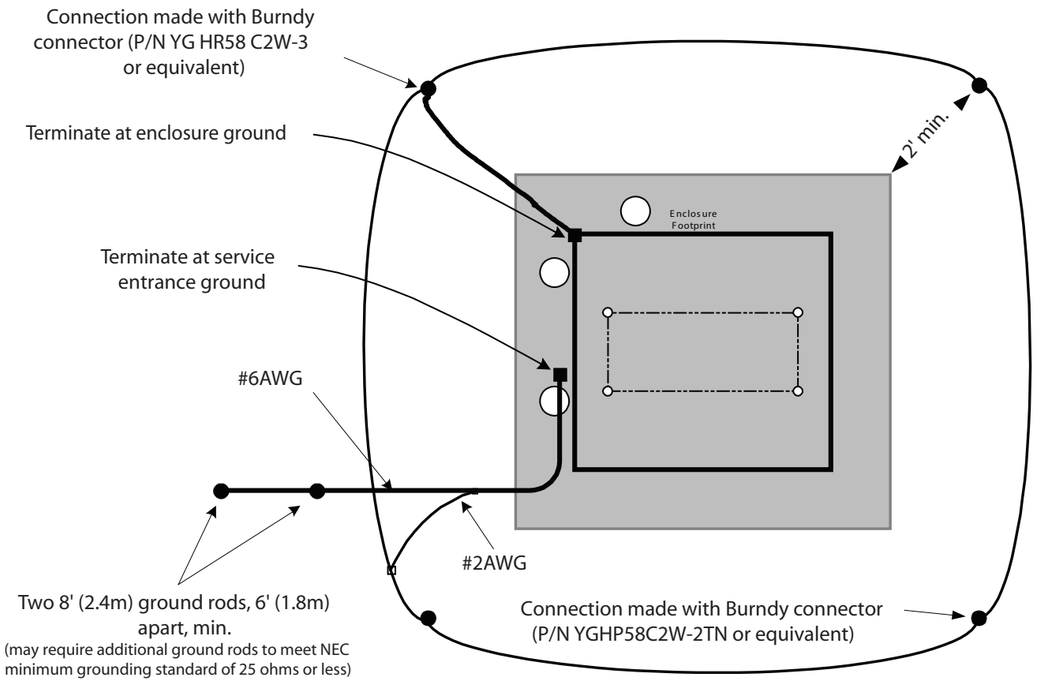


Figure 8, Enclosure Grounding

Service Grounding (required)

1. #6 bare copper wire from Service Neutral / Ground Bar with 2 ground rods located 6' (1.8m) apart.

Lightning Protection (optional)

2. 1/2" x 8' (13mm x 2.4m) copper ground rod, four places, driven about 2' (0.6m) (typical) from the corners of the pad.
3. #6 bare copper wire loop terminated to each ground rod and buried below grade 30" (.762m) (min) Corrosion-proof connections (25+ year life-span), and hardware suitable for direct burial MUST be used.
4. #6 bare copper wire from the loop to the enclosure.

Battery Installation

WARNING: Serious Personal Injury

Battery systems contain dangerous voltages. Observe the following precautions to reduce the risk of electrical shock when maintaining batteries:

- Ensure that all breakers are OFF.
- Remove all personal metal objects (watches, rings, etc.).
- Use insulated tools.
- Wear eye protection and rubber gloves.
- Observe circuit polarities.
- Do not make or break live circuits.
- Always use insulated tools. Never rest tools on top of batteries or other electrical parts.

NOTE: Additional Equipment Information

- Please review battery manual for best safety practices or consult your battery manufacturer specifications for further safety information before installing batteries.

Battery installation procedure:

1. Open the breaker box and remove the screws from the panel to access the bus bar and battery breakers. Ensure ALL battery breakers are OFF
2. Unscrew the two wingnuts located on the bottom of the lid of the enclosure and set the wingnuts aside.
3. Remove the lid of the enclosure by pulling back and lifting up to access the top shelf.
4. Position the batteries as shown in Figures 9 and 10.

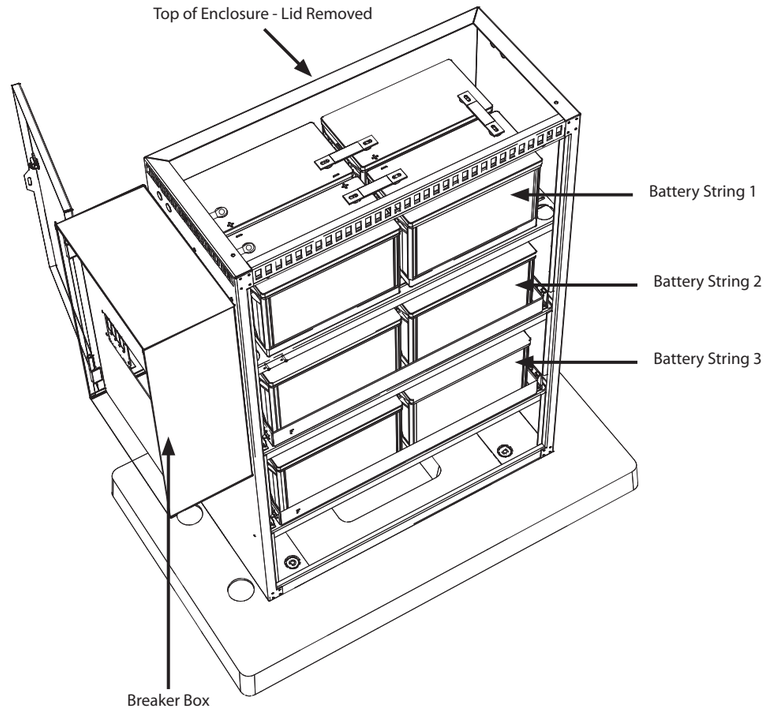


Figure 9, Battery Positioning and Wiring/ Shunt Connections

Battery Installation

5. Wire the batteries in accordance with Figures 10 and 11, torquing the connections to the battery manufacturer's recommendation.
6. Using the postive connection on the leftmost battery, feed the positive end of the battery cable through the hole at the left side of the enclosure into the breaker box. Connect the other end of the positive cable to the end of the first battery breaker lug. See Figure 12.
7. Then, feed the negative connection of the leftmost battery through the hole at the left side of the enclosure into the breaker box. Connect the other end of the negative cable to the end of the first bus bar lug. See Figure 12.
8. Apply corrosion inhibitor to the terminals and connections.
9. Replace the lid of the enclosure and screw the wingnuts back into place.
10. Unlatch and slide out the battery trays for the middle and bottom shelfs, repeating steps 3-7 to position and wire the batteries.
11. Connect the desired loads to the main breaker and bus bar.
12. Replace the panel in the breaker box.
13. Installation is complete. Activate the breakers per installation needs.

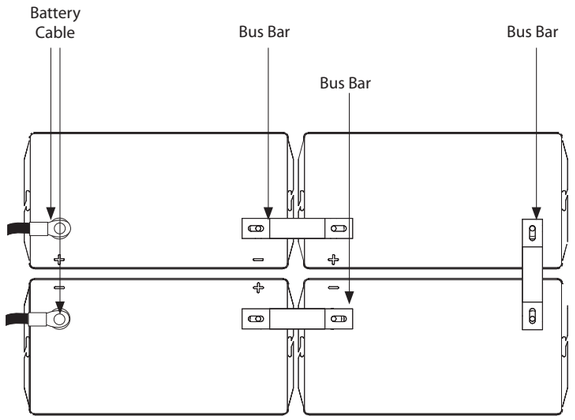


Figure 10, Battery Positive and Negative Positioning/Wiring

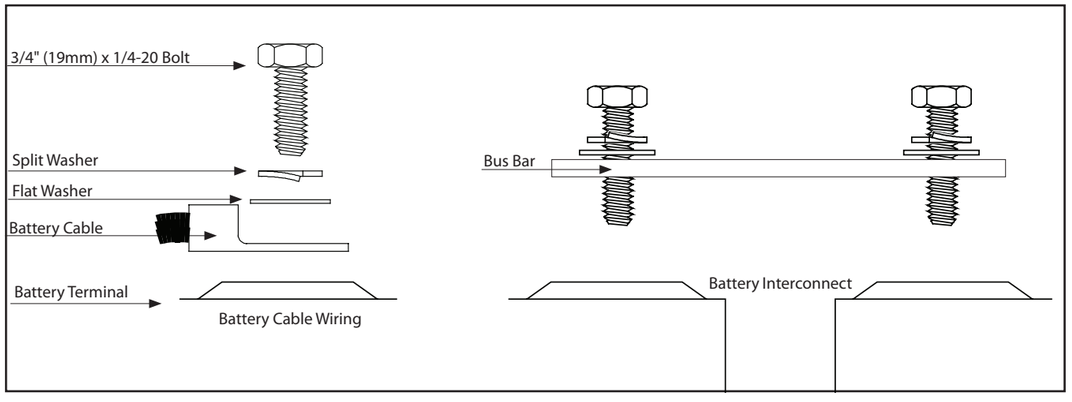


Figure 11, Battery Wiring/ Bus Connections Stackup

Battery Installation

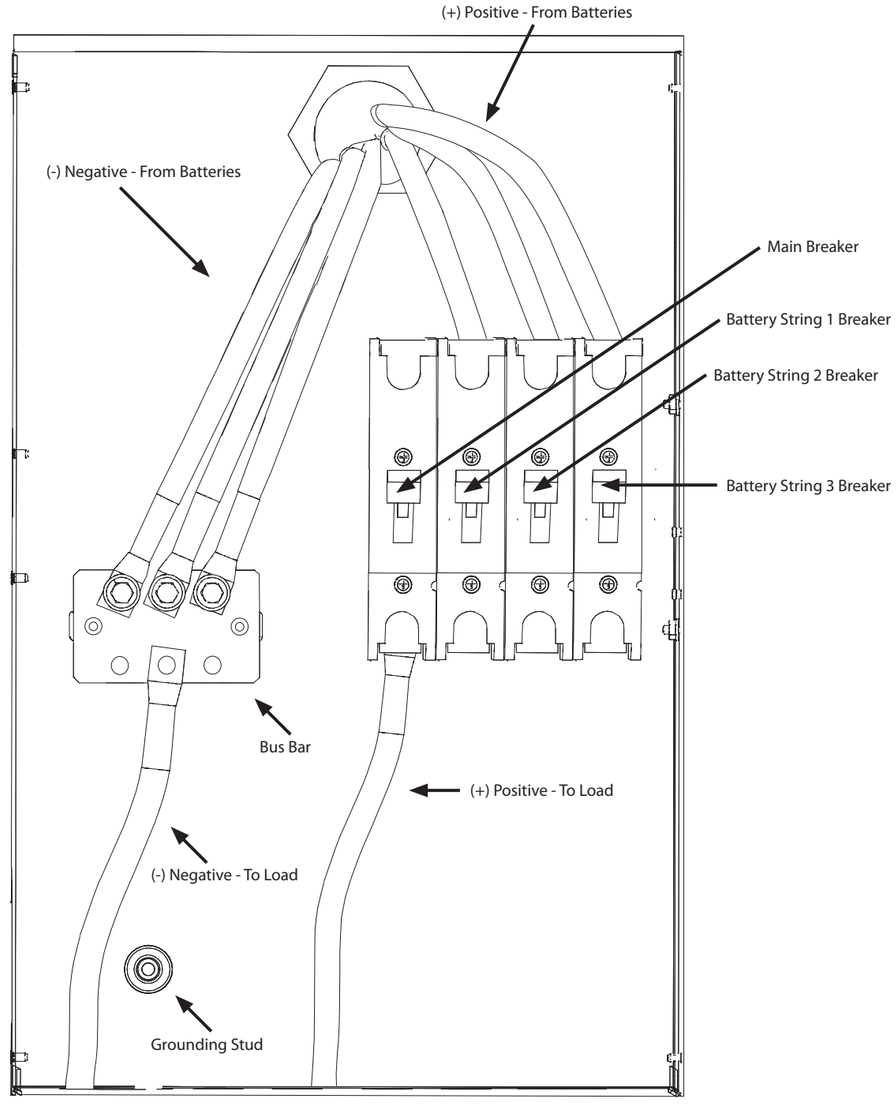


Figure 12, Breaker Box Battery Cable Connections

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