

Integrated Battery Rack

Installation Instructions

Purpose

This document provides instructions for initial assembly and installation of the OutBack Integrated Battery Rack.

Scope

This document applies to all models of OutBack Integrated Battery Rack. Although other batteries can be used, this document depicts OutBack EnergyCell RE VRLA batteries. The rack is designed for their use.

Parts Included

- Rack assembly
- Front protective shields
- Side protective shields
- Hardware for protective shields
- EnergyCell RE Battery Manual
- Integrated Battery Rack Manual (this manual)

Assembly



Figure 1 Rack and Batteries

To assemble the integrated battery rack:

1. Install four ½" studs into the mounting surface (concrete or a similarly reinforced material). From the front to the back, the stud centers should be spaced 19" (48.3 cm) apart, as shown in Figure 2. Spacing from left to right should be 25" (63.5 cm) apart.
2. Lower the battery rack over the four studs as shown in Figure 2 and settle the rack in place.
Alternately, ½" bolts can be inserted through the mounting holes into prepared openings.

IMPORTANT: The battery rack **must** be mounted on a level surface.

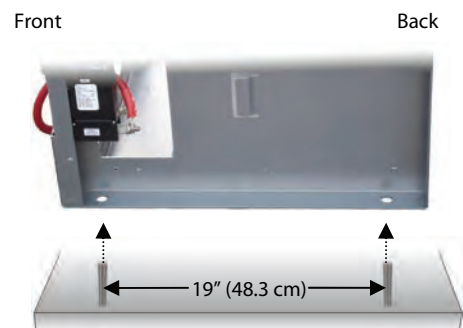


Figure 2 Mounting on Floor Studs

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2. Secure the studs or bolts with nuts or appropriate hardware. Anchor the rack according to local building codes.
3. Load the batteries into the rack. Load the bottom shelf first to prevent balancing issues. Proceed to the next shelf.

NOTE: Slots are present under the front edge of each shelf for strapping the batteries down if necessary.



Figure 3 Inserting Batteries

4. Attach the interconnect bars to place the batteries in series. Batteries should be connected in series as appropriate to meet the voltage requirements of the system. Follow all instructions in the battery manual and use the recommended torque values. Install hardware in the order shown in Figure 4. Do not install hardware in a different order than shown unless specified by the battery manual or instructions.

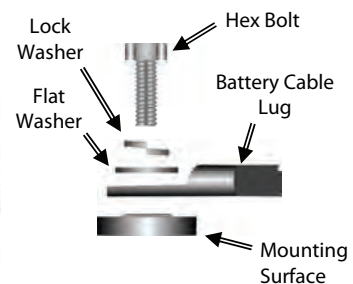


Figure 4 Battery Interconnect Bars and Hardware

5. The rack is equipped with cables for each shelf (positive on the right, negative on the left). Connect each cable to the appropriate side of each battery string. The cables lead to separate buses on each side of the rack that place each string in parallel. (See Figure 6.)

Each positive (red) cable is connected to a 175-amp circuit breaker which protects the batteries on that shelf.



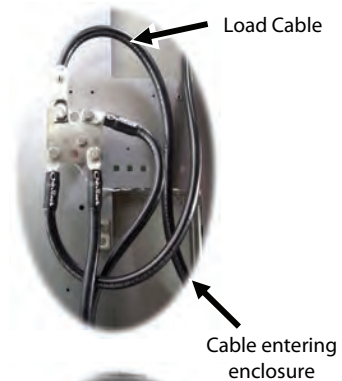
Negative Cable

Positive Cable

Figure 5 Battery Connections



6. The positive and negative bus bars have multiple attachment points. The battery cables inside the rack are already attached (see left). The user should attach a fourth cable for battery loads (see right). This load cable should be sized appropriately. As shown to the right, the load cable must be routed inside the enclosure using one of the side openings. To complete the circuit, the return load cable should be connected to the bus bar on the other side of the rack and also routed inside the enclosure.



7. After load cables have been routed inside the enclosure, they should exit using one of the conduit openings on the side. Six knockouts sized for 2" conduit are available on each side of the rack. The conduit openings on the right side of the rack are shown to the right, with a conduit leading from one of them.

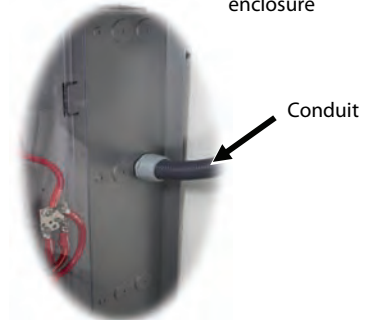


Figure 6 Bus and Load Cabling

8. Install the protective shields on the left and right sides of the battery rack. Each shield has an edge which is designed to slide into a metal tab on the rack. (See below.) Once the edge of the shield is secured, the other side can be attached using M6 screws. (See the illustration to the right.)
9. Install the protective shields on the front of each battery shelf. Make certain to orient the shield correctly. The shield has an opening to allow access to the circuit breaker for each set of batteries. (See the illustration to the right.) If the shield is oriented incorrectly, it will block access to the circuit breaker.

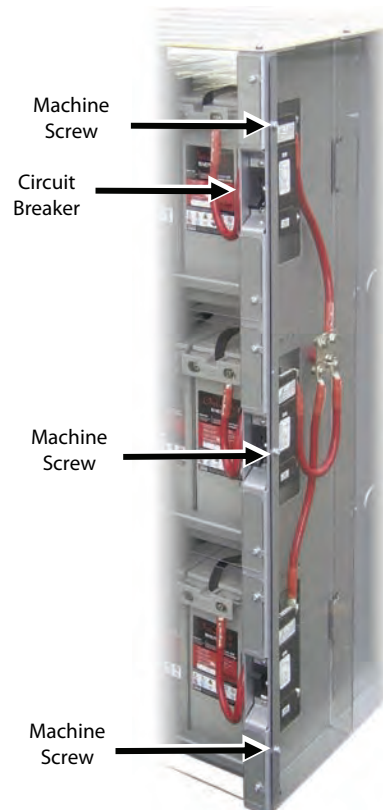


Figure 7 Protective Shields (sides and front)

Installing Shunts

To Install a Shunt or Shunts:

Up to three shunts may be installed for the use of a battery monitor such as the FLEXnet DC. Perform the following steps before step 5 on page 2.

1. Remove the negative bus bar and cables from the left side of the rack (see right). Unbolt the individual cables from the bus bar.
2. Three pairs of holes are located in the area where the bus bar is mounted (below, left). A shunt can be placed over each set of holes. Each shunt has twin screws (below, center) which can be used for mounting.
3. Reinstall the negative bus bar so that it mounts across the inner terminal of each shunt (below, right). Each negative battery cable must not be bolted to the bus bar, but should connect to the outer terminal of each shunt. However, the load cable must connect to the negative bus bar.
4. The battery monitor's voltage sensing wires must connect to the bus bars (positive and negative), not the batteries.

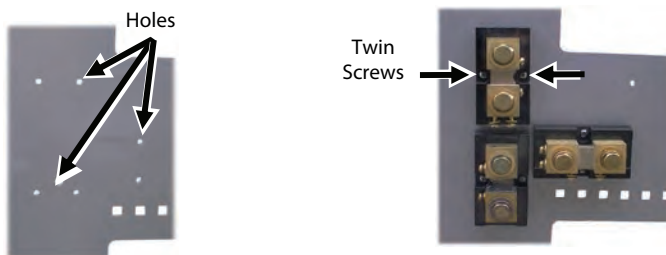


Figure 8 Installing Shunts

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