



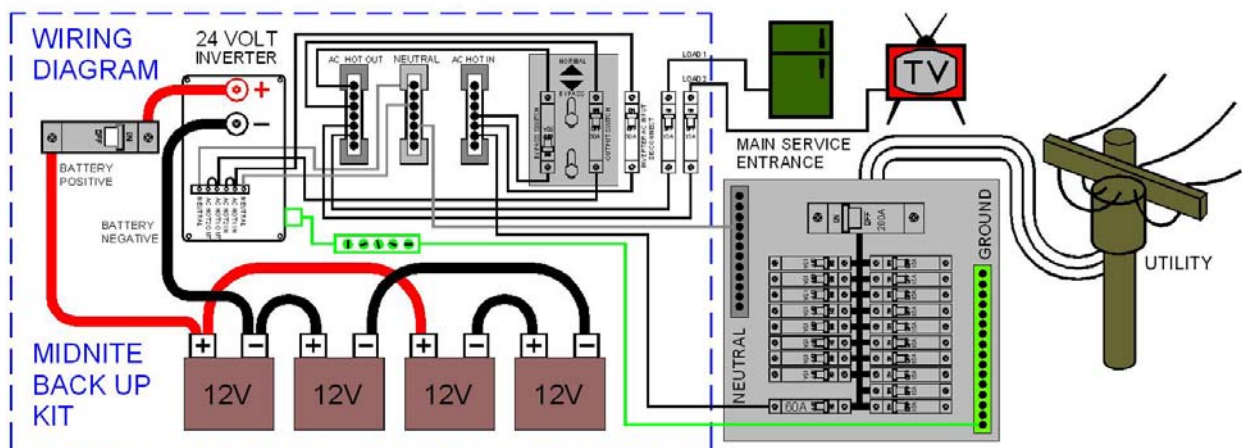
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Back Up Kit Instructions



Back up Kit for MNBE-B and MNBE-C enclosures.

This kit allows the transformation of a MidNite Solar battery enclosure into a complete power back up system. The wiring diagram below shows an entire 24 volt system. Components within the blue dashed lines are located inside the power back up enclosure. The batteries and inverter may be configured for 12V, 24V or 48V operation. Battery type and inverter selection will dictate the DC operating voltage.



Back Up Kit Instructions (continued)

Step 1. Assemble the battery enclosure per the instructions supplied with the enclosure. Leave the top off for now to allow room for wiring.

Step 2. Parts: Insure that your kit has all the parts listed here.

Qty	Part No.	Description
1	3-110-1	Din Rail
1	3-109-1	Breaker Cover
1	3-002-3	Slider Plate
2	6-001-1	Spacer, Nylon .5" Dia x .312 long
2	6-009-1	Nylock nut 8-32 Stainless Steel
1	10-002-1	Label set, modified
1	10-017-1	Instructions
3	9-002-1	Circuit Breaker, 50 amp QZD
2	9-050-1	Circuit Breaker, 15 amp QL
1	10-015-1	PBU Wiring Label
4	6-006-1	Screw, 10-32 x 3/8" PHP MS Stainless Steel
2	6-045-1	Screw, 10-32 x 1/2" PHP MS Stainless Steel
3	9-096-1	Bus Bar, 2.3" long
6	6-055-1	Screw, #10 x 5/8" PHP SMS Stainless Steel
4	5-015-1	Insulator, Black Plastic
2	5-015-2	Insulator, White Plastic
1	9-097-1	Bus Bar, Ground
2	6-053-1	Screw, #8 x 1.0" PHP SMS Stainless Steel
1	3-060-1	Breaker Protector, Red

Step 3. Remove both hole covers that may have been installed on the sides of the battery enclosure. Install the Din Rail using two 10-32 x 3/8" screws as shown. Note you may need to drill out the 4 holes in each side plate to 7/32" Install the three din rail mount breakers as how. Make sure you hear the "click" of the plastic retaining tab. If you do not hear the click, then push down on the din rail while manipulating the retaining tab. Take care to orient the circuit breakers as shown. The left 50 amp breaker is mounted upside down. All the remainder breakers are mounted right reading.



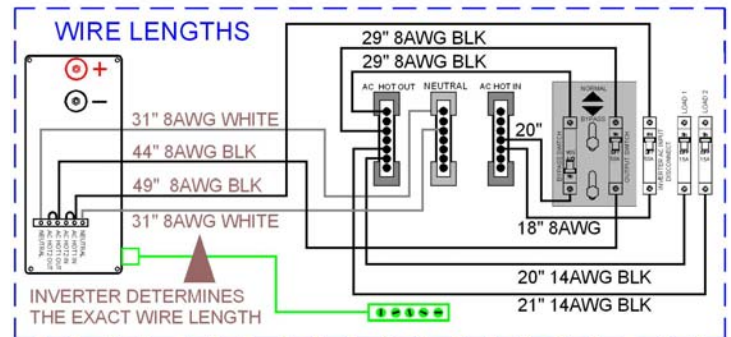
Step 4. Mount the 4 black and two white insulators using #10 x 1/2" Pan Head Philips Sheet metal screws. Make sure the insulators are in line with each other. Clip the short bus bars into position taking care not to break the retaining clips. Next install the ground bus bar in front of the AC terminals using two #8 x 1" Pan Head Philips stainless steel sheet metal screws.



Apply labels as shown.

Back Up Kit Instructions (continued)

Step 5.



The diagram above shows wires that need to be cut, stripped and installed. Length, gauge and color is noted. Strip 3/8" for the end inserted into the din rail mount breakers. Strip 1/2" for the end inserted into the bus bars. The AC wire lengths going to the inverter are only a guideline. The length indicated will suffice for a Magnum Energy or OutBack inverter. Note that two white neutral wires are indicated to the inverter AC terminal strip. Magnum Energy 120VAC

inverters require two, while OutBack requires only either the neutral in or neutral out. However it does not hurt to install both. When finished with the AC wiring, it should look something like the photo above left.

Torque of the circuit breaker wires is critical. If you have access to a torque screwdriver, set it to 20 inch pounds. Use a straight bladed 1/4" wide slotted bit to tighten up the circuit breaker screws. After tightening the circuit breaker wires, wait one hour and then re-tighten. Some times they will loosen up after the initial tightening. The AC bus bars should be torqued to 30 inch pounds.

The two knockouts on the back panel may be used to connect to the main service entrance and to run the backed up circuits out of the enclosure.



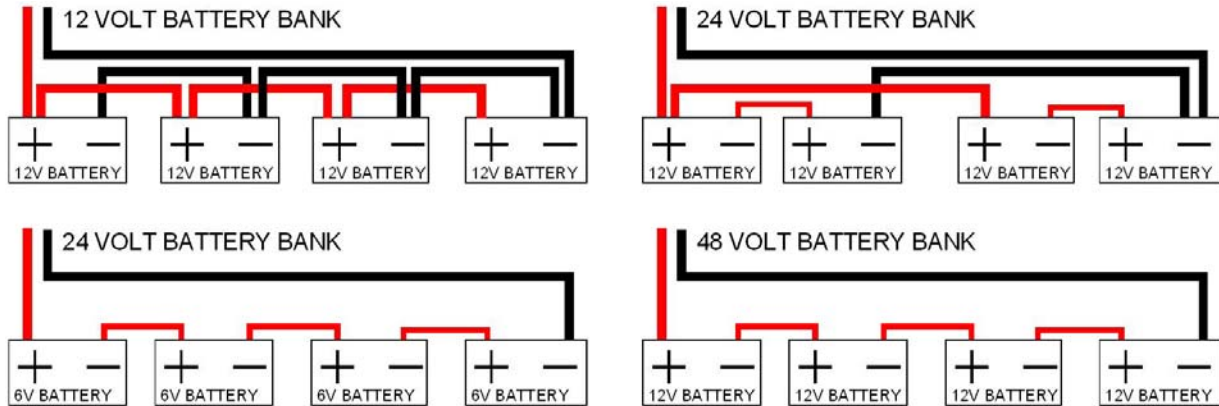
Step 6. Install the battery breaker and guard as shown using two 10-32 x 1/2" screws.

Back Up Kit Instructions (continued)

Install the inverter. The Magnum Energy MS4024 shown here uses a 20" long 2/0 cable with lugs attached to each end. Heat shrink is added over the crimped joint to minimize corrosion. Mounting holes are provided for the Magnum MS and RD series as well as the OutBack FX, VFX and grid tie inverters. Other inverter/chargers may be used, but will require some drilling to accommodate mounting hardware.

The MidNite MNBE-B & C enclosure is designed for sealed AGM or Gel batteries. It is not allowed in the NEC to place flooded batteries in the same cabinet as an inverter. Flooded batteries produce hydrogen gas while under charge and inverters can arc and spark under normal operation.

The diagrams below show four different battery bank configurations that are possible with the "B" enclosure. The "C" enclosure holds twice this amount of batteries.



MidNite Enclosure closed up.

One handy option to consider is a remote display. Not only will it allow adjustability of several important features, but it also gives a visual indication of utility status and battery voltage. Some adjustable features include:

1. Low AC voltage limit
2. Low battery cut out
3. Main service entrance feed breaker size
4. battery bank size
5. charge parameters