

Configuration Wizard

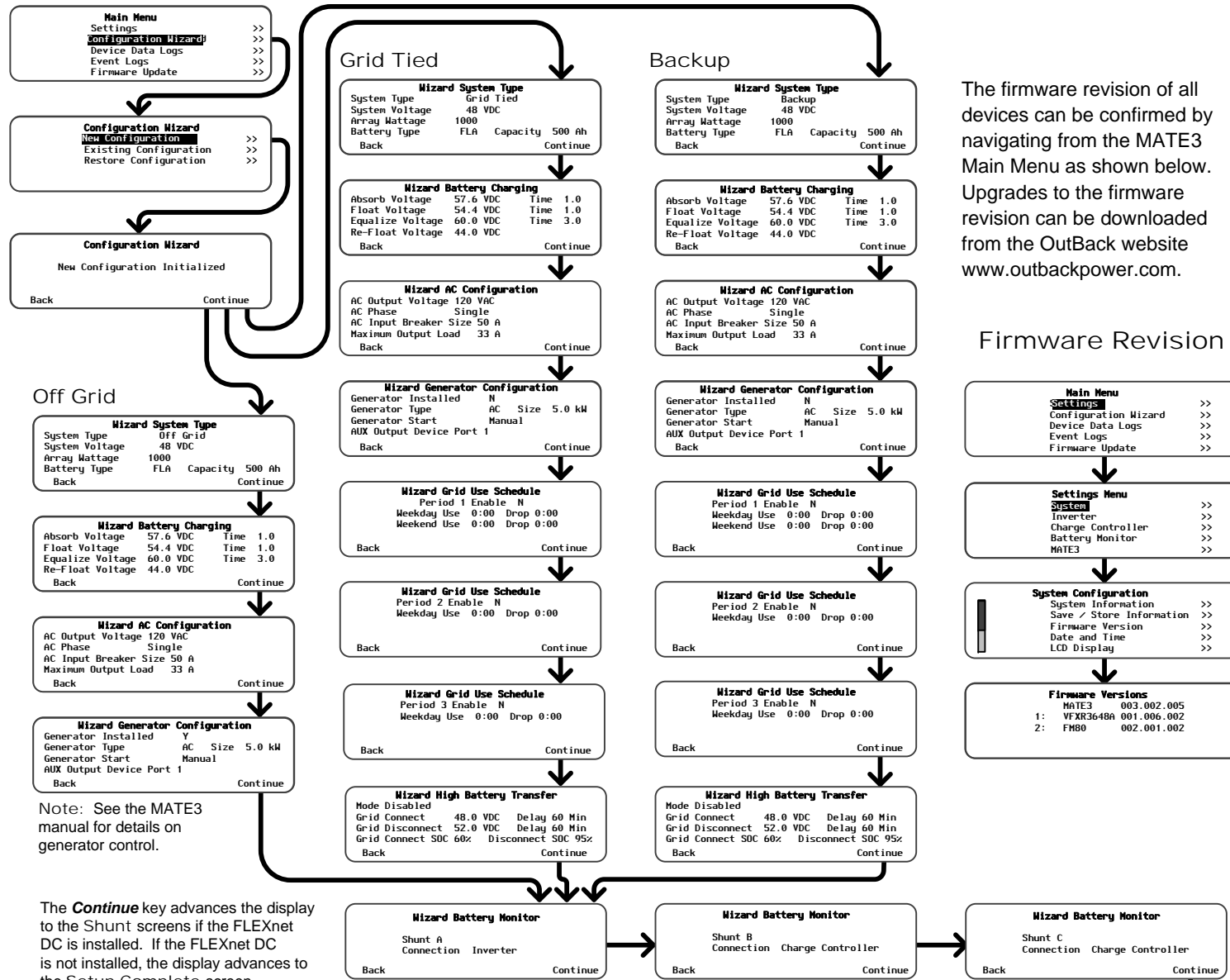
The MATE3 Configuration Wizard allows quick setup of parameters that apply to all systems. The Configuration Wizard is reached from the MATE3 Main Menu as shown below.

CAUTION: Equipment Damage

These procedures should be done by a qualified installer who is trained on programming inverter power systems. Failure to set accurate parameters for the system could potentially cause equipment damage. Damage caused by inaccurate programming is not covered by the limited warranty for the system.

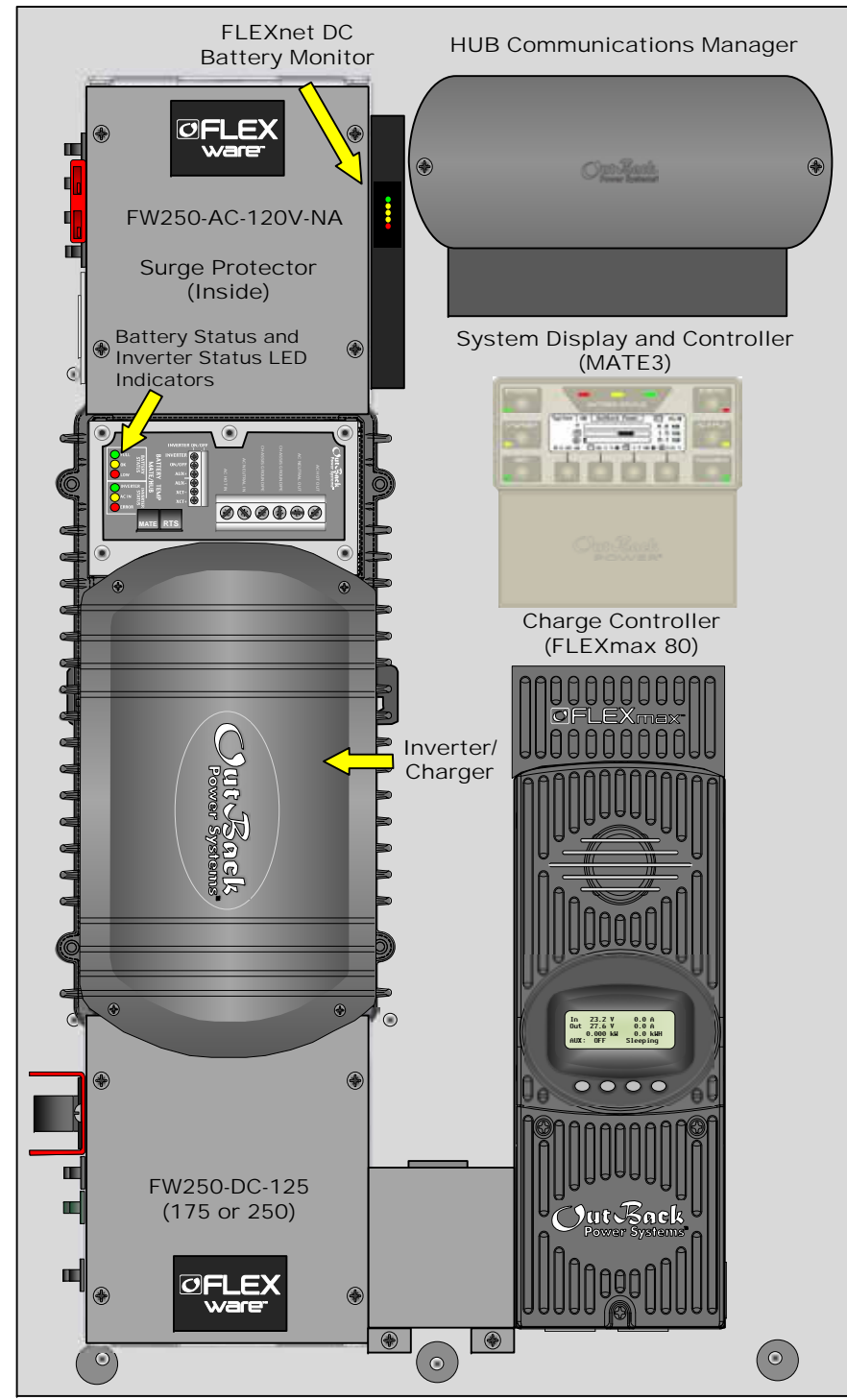
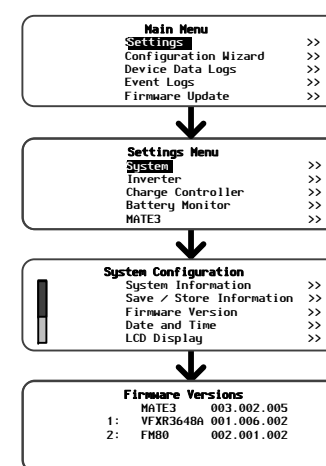
IMPORTANT

Check the firmware revision of all OutBack devices before use. The MATE3 system display must be revision 003.002.xxx or higher. If the revision is lower, the MATE3 and inverter may not communicate or operate correctly.



The firmware revision of all devices can be confirmed by navigating from the MATE3 Main Menu as shown below. Upgrades to the firmware revision can be downloaded from the OutBack website www.outbackpower.com.

Firmware Revision



Major Components	
FLEXpower System Products	
Inverter/Charger	
AC Conduit Box (with Bypass Assembly)	
DC Conduit Box (with Inverter Disconnect)	
System Display and Controller	
PV Charge Controller	
Communications Manager	
FLEXnet DC Monitor (FN-DC)	
Remote Temperature Sensor (RTS)	
Surge Protector	
Customer-Supplied Components	
AC Source	
Utility Grid, or AC Generator	
Main Electrical Panel (or overcurrent device for AC source)	
Electrical Distribution Subpanel (Load Panel)	
Battery Bank	
Photovoltaic (PV) Array (with PV Combiner Box)	

FN-DC LED Indicators	
Color	Battery State-of-Charge
Green	> 90% (blinks if charge parameters are met)
Yellow	≥ 80%
Yellow	≥ 70%
Yellow	≥ 60%
Red	≥ 60% off, < 60% solid, < 50% blinks

Surge Protector LEDs		
Active	Error	Phase
Yellow	Red	DC
Yellow	Red	AC IN
Yellow	Red	AC OUT

LED Indicators on the Inverter			
Battery Status LED Indicators			
Color	12 V Inverter	24 V Inverter	48 V Inverter
Green	12.5 Vdc or higher	25.0 Vdc or higher	50.0 Vdc or higher
Yellow	11.5 to 12.4 Vdc	23.0 to 24.8 Vdc	46.0 to 49.6 Vdc
Red	11.4 Vdc or lower	22.8 Vdc or lower	45.6 Vdc or lower
Inverter Status LED Indicators			
Green	Inverter on (solid) or standing by (flash)		
Yellow	AC source in use (solid) or standing by (flash)		
Red	Inverter error or warning (see manual)		

IMPORTANT:
Not intended for use with life support equipment.



OPTICS RE Compatible

Contact Technical Support:
Telephone: +1.360.618.4363
Email: Support@outbackpower.com
Website: www.outbackpower.com



⚡ WARNING: Fire/Explosion Hazard
Do not place combustible or flammable materials within 12 feet (3.7 m) of the equipment. This unit employs mechanical relays and is not ignition-protected. Fumes or spills from flammable materials could be ignited by sparks.

⚡ WARNING: Personal Injury
Use safe lifting techniques and standard safety equipment when working with this equipment.

⚠ IMPORTANT:
Clearance and access requirements may vary by location. Maintaining a 36" (91.4 cm) clear space in front of the system for access is recommended. Consult local electric code to confirm clearance and access requirements for the specific location.

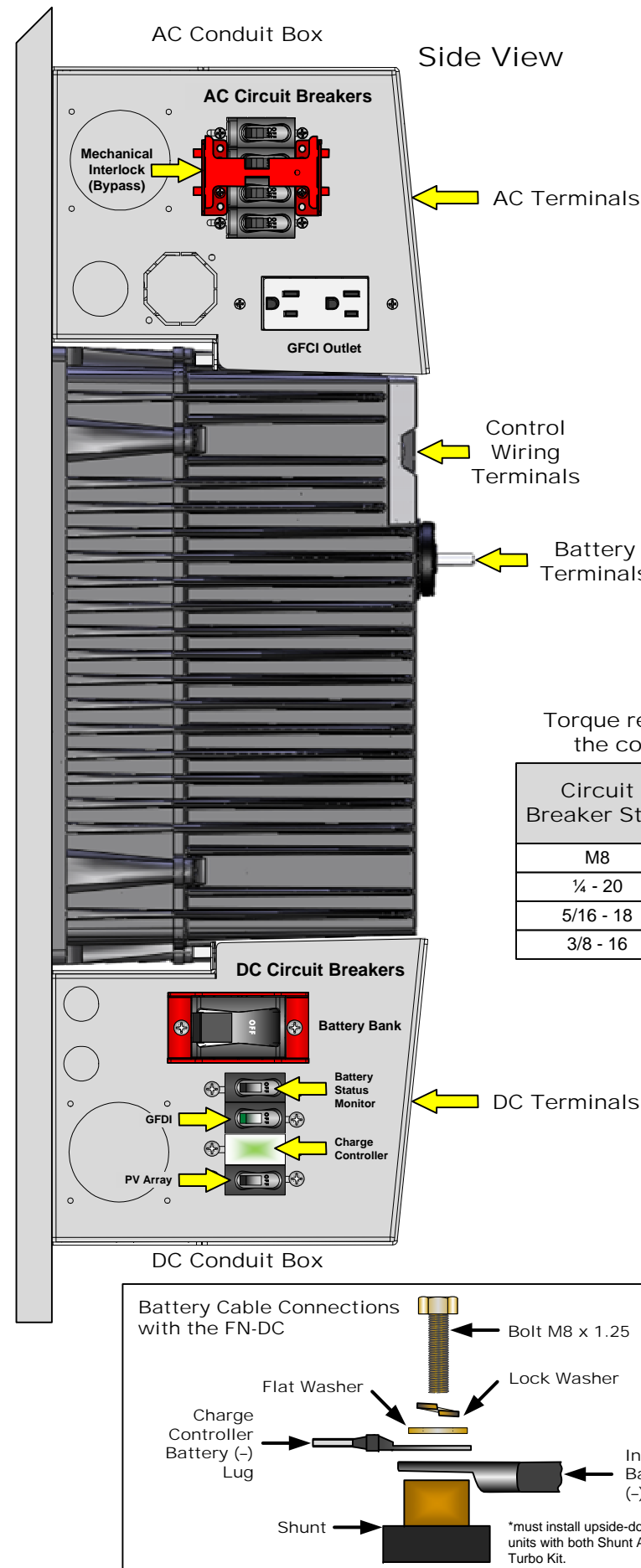
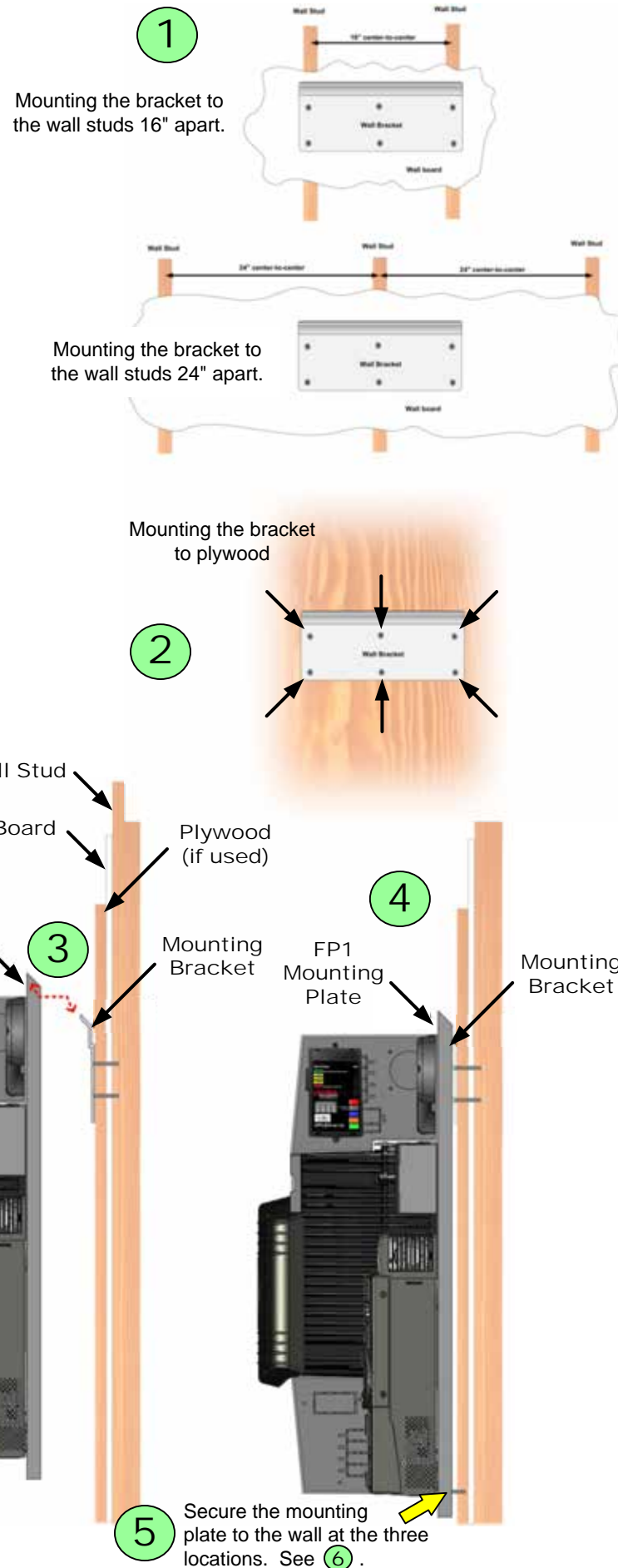
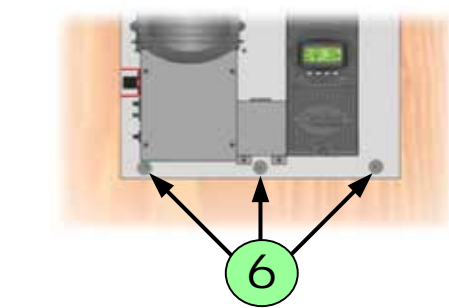
FP1 Dimensions:
33.5" (85 cm) tall X 19.75" (50 cm) wide

To install the mounting bracket:

- 1 Place the mounting bracket at the desired height for the panel.
- 2 Secure the mounting bracket to the surface. Use all six mounting slots provided on the bracket.

To mount the FP1 panel on the bracket:

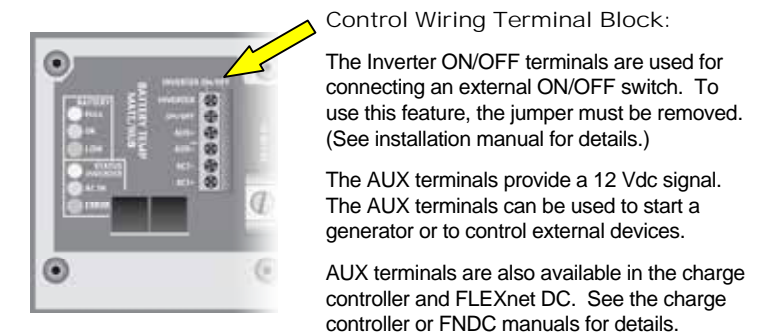
- 3 Lift the mounting plate above the wall bracket.
- 4 Slip the top of the mounting plate over the angled lip of the wall bracket.
- 5 Secure the lower back flange of the mounting plate to the wall (with appropriate hardware).
- 6 Insert all three 1-inch nylon hole plugs into the rear slot access holes.



AC Wire Sizes and Torque Values

Wire Size	Torque	
	In-lb	Nm
#14 - 10	20	2.3
#8	25	2.8
#6 - 4	35	4.0
#3	35	4.0
#2	40	4.5
#1	50	5.6
1/0	50	5.6

OutBack recommends that conductors be #6 AWG THHN copper, or larger, rated to 75°C (minimum) unless local code requires otherwise.



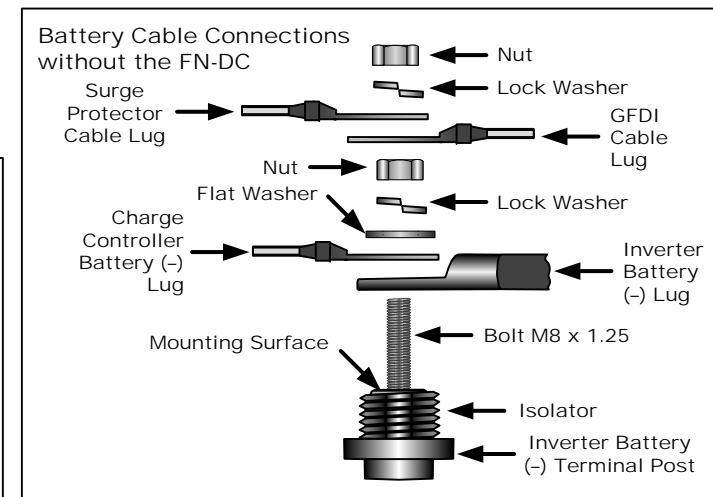
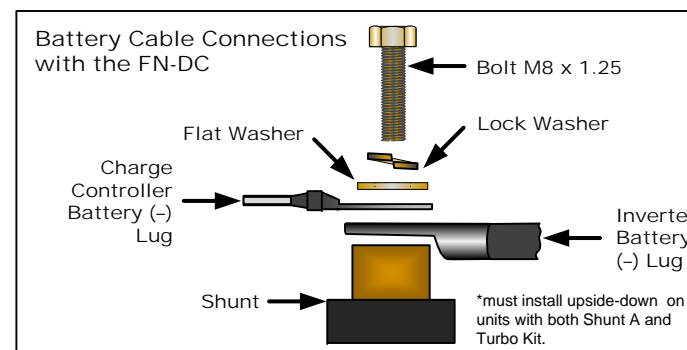
Torque requirements for the conductor lugs

Circuit Breaker Stud	Torque	
	In-lb	Nm
M8	20	2.3
1/4 - 20	35	4.0
5/16 - 18	50	5.6
3/8 - 16	225	25.4

Minimum DC Cable based on the DC Circuit Breaker

DC Circuit Breaker	Cable Size	Torque	
		In-lb	Nm
125	1/0 (70 mm ²)	50	5.6
175	2/0 (70 mm ²)	225	25.4
250	4/0 (120 mm ²)	225	25.4

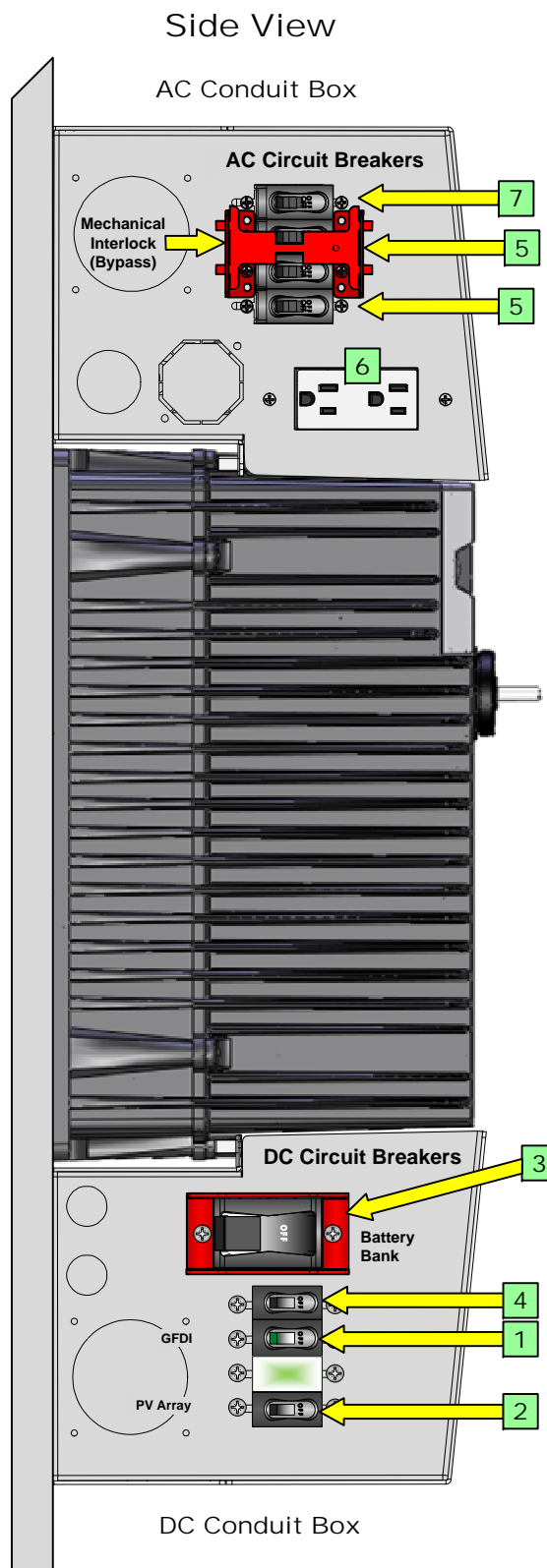
⚠ CAUTION: Equipment Damage
When connecting cables from the inverter to the battery terminals, ensure the proper polarity is observed. Connecting the cables incorrectly can damage or destroy the equipment and void the product warranty.



Pre-startup Procedures

After opening the AC and DC enclosures:

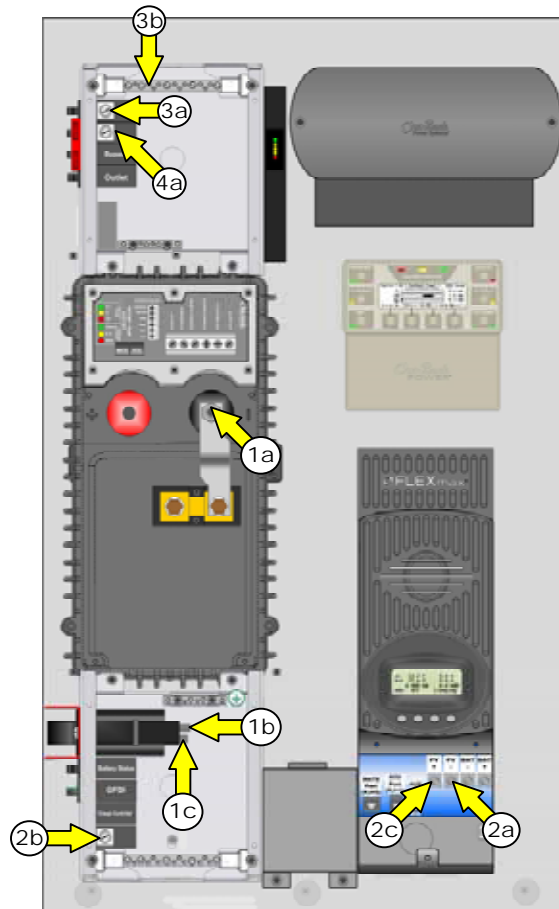
1. Double-check all wiring connections.
2. Inspect the enclosure to ensure no tools or debris has been left inside.



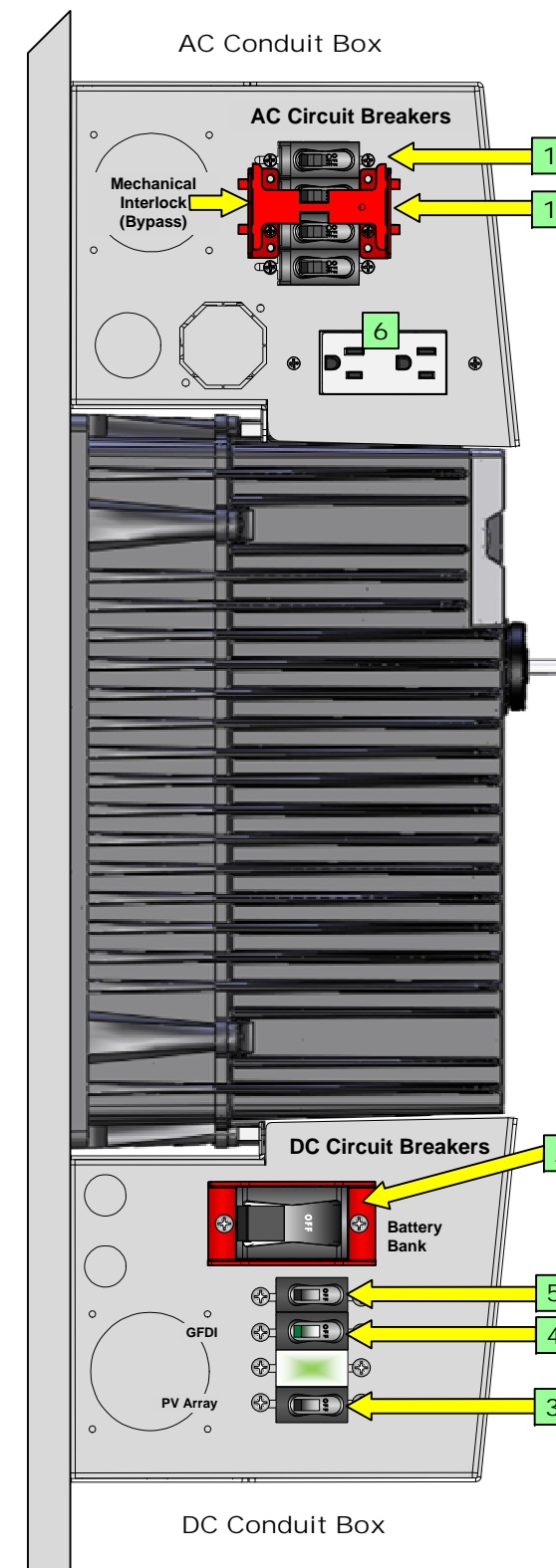
3. Disconnect all AC loads at the backup (or critical) load panel.
 4. Disconnect the AC input feed to the FLEXpower ONE at the source.
 5. Place the mechanical interlock in the normal (non-bypass) position.
- To energize or start up the OutBack devices:
1. Using a digital voltmeter (DVM), verify 12, 24, or 48 Vdc on the DC input terminals by placing the DVM leads on (1a) and (1b). Confirm that the voltage is correct for the inverter and charge controller models. **Confirm the polarity.**
- CAUTION: Equipment Damage**
Incorrect battery polarity will damage the equipment.
2. Verify the voltage on the PV terminal is in the correct range of open-circuit voltage by placing the DVM leads on (2a) and (2b). **Confirm the polarity.**
 3. Connect the AC source. Verify 120 Vac on the AC input circuit breakers by placing the DVM leads on (3a) and (3b).
 4. Replace the covers on the AC and DC enclosures.
 5. Turn on (close) the GFDI circuit breaker. **1**
 6. Turn on (close) the PV input circuit breakers. **2**
 7. Turn on (close) the DC circuit breaker from the battery bank to the inverter. **3**
 8. Turn on (close) the FN-DC circuit breaker. **4**
 9. Check the system display or LED indicators. Ensure the inverter is in the ON state. The factory default state for FXR inverters is OFF.
 10. Turn on (close) the AC output and AC outlet circuit breakers. **5**
 11. Verify 120 Vac on the AC output by placing the DVM leads in the slots of the electrical outlet. **6**
 12. Turn on (close) the AC input circuit breakers. **7**
 13. Turn on the AC disconnects at the load panel and test the loads.

Functional Test Points

Battery Voltage Test Points	
(1a)	Battery Negative (-) Terminal on the Inverter
(1b)	Circuit Breaker Terminal connected to the Battery Positive (+) Cable
(1c)	Circuit Breaker Terminal connected to the Inverter DC Positive (+) Cable
PV Voltage Test Points	
(2a)	PV Negative (-) Terminal on the Charge Controller
(2b)	Circuit Breaker terminal for the PV
(2c)	PV Positive (+) Terminal on the Charge Controller
AC IN Voltage Test Points	
(3a)	(3b)
AC OUT Voltage Test Points	
(4a)	(3b)



Side View



- ⚡ WARNING: Lethal Voltage**
Review the system configuration to identify all possible sources of energy. Ensure ALL sources of power are disconnected before performing any installation or maintenance on this equipment. Confirm that the terminals are de-energized using a validated voltmeter (rated for a minimum 1000 Vac and 1000 Vdc) to verify the de-energized condition.

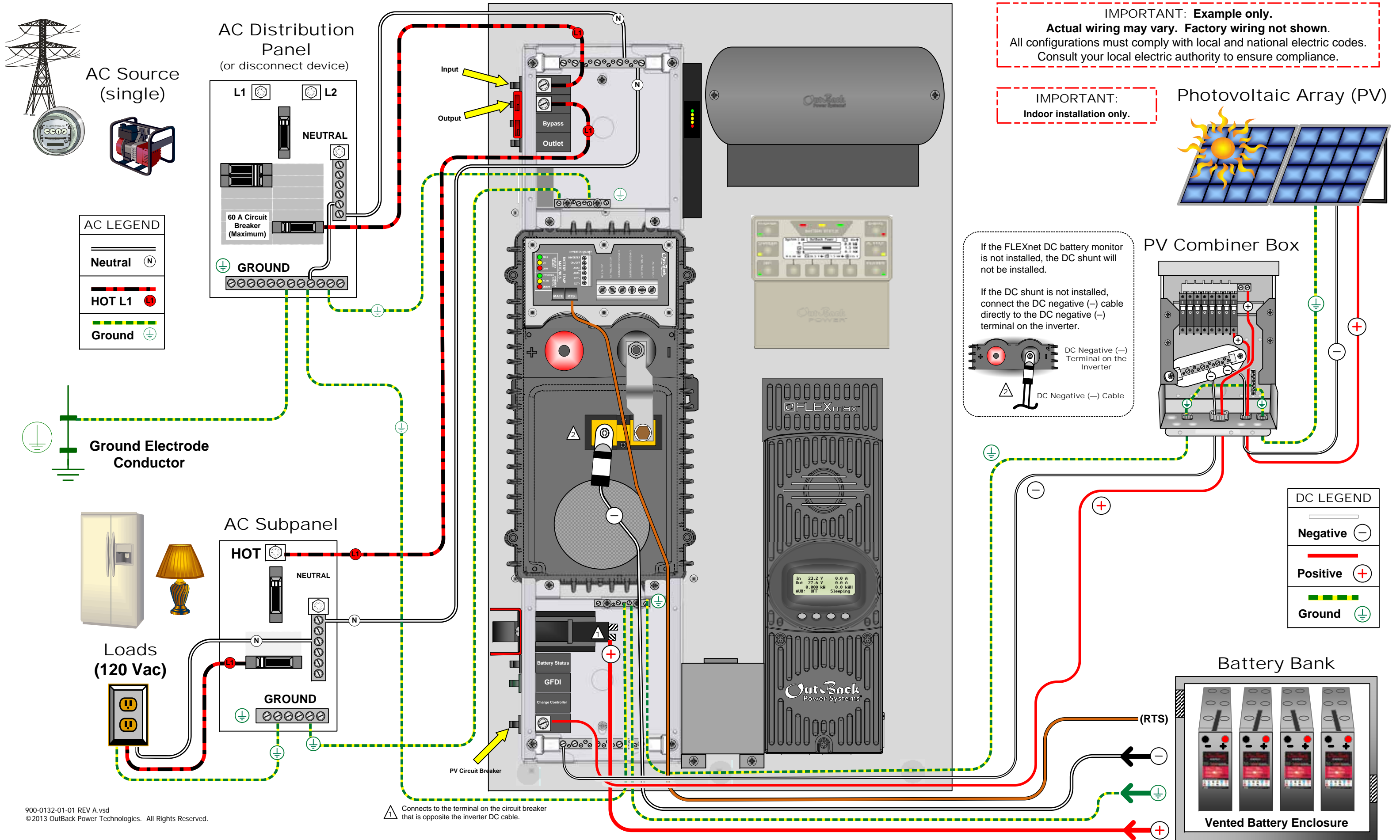
⚡ WARNING: Lethal Voltage
The numbered steps will remove power from the inverter and charge controller. However, sources of energy may still be present inside the GSLC and other locations. To ensure absolute safety, disconnect ALL power connections at the source.

⚡ WARNING: Burn Hazard
Internal parts can become hot during operation. Do not remove the cover during operation or touch any internal parts. Be sure to allow them sufficient time to cool down before attempting to perform any maintenance.

To de-energize or shut down the OutBack devices:

1. Turn off (open) the AC circuit breakers. **1**
2. Turn off (open) the DC circuit breaker for the battery. **2**
3. Turn off (open) the PV circuit breaker. **3**
4. Turn off (open) the GFDI circuit breaker. **4**
5. Turn off (open) the FN-DC circuit breaker. **5**
6. *Verify 0 Vdc on the DC input terminals of the inverter by placing the voltmeter leads on (1a) and (1c).
7. *Verify 0 Vdc on the PV terminal by placing the voltmeter leads on (2a) and (2c).
8. *Verify 0 Vac on the AC output circuit breakers by placing the voltmeter leads in the slots of the AC outlet. **6**
This can also be tested by placing the leads on (4a) and (4b).

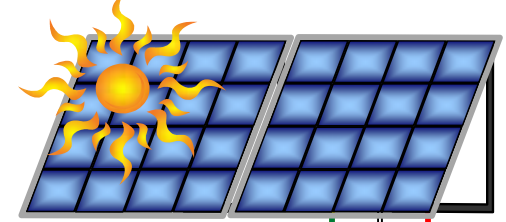
*See the Functional Test Points key that is included with the Startup Procedures.



IMPORTANT: Example only.
Actual wiring may vary. Factory wiring not shown.
 All configurations must comply with local and national electric codes.
 Consult your local electric authority to ensure compliance.

IMPORTANT:
Indoor installation only.

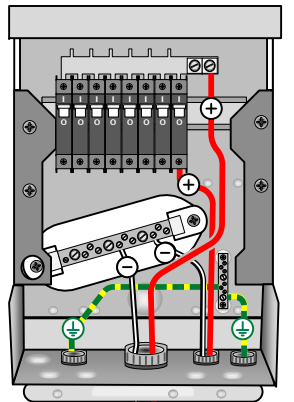
Photovoltaic Array (PV)



If the FLEXnet DC battery monitor is not installed, the DC shunt will not be installed.

If the DC shunt is not installed, connect the DC negative (-) cable directly to the DC negative (-) terminal on the inverter.

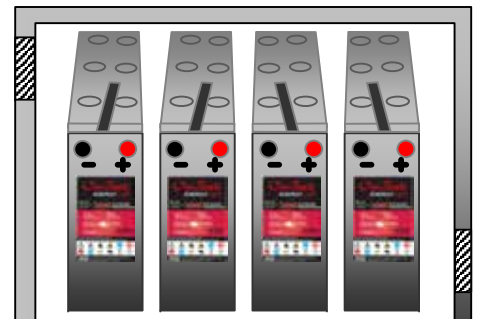
PV Combiner Box



DC LEGEND

- Negative (-)
- Positive (+)
- Ground (⊕)

Battery Bank



Vented Battery Enclosure

AC LEGEND

- Neutral (N)
- HOT L1 (L1)
- Ground (⊕)

⚠ Connects to the terminal on the circuit breaker that is opposite the inverter DC cable.