



 **FLEXpower™ ONE**



System Overview

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WARNING: SHOCK HAZARD

- This information is for use by qualified personnel who meet all local and governmental code requirements for licensing and training for the installation of electrical power systems with AC and DC voltage up to 240 Vac and 150 Vdc.
- Consult the *FLEXpower ONE Installation Manual* for detailed information on **safety** and **installation** procedures.

System Overview



Major Components

OutBack Power Technologies

Products:

- Inverter/Charger (FX, VFX, GVFX or GTFX models)
- FW250-AC-120V-NA
- FW250-DC-125, FW250-DC-175, or FW250-DC-250
- System Display and Controller (MATE2 or MATE3)
- Charge Controller (FLEXmax 80 or FLEXmax 60)
- Remote Temperature Sensor (RTS)
- Communications Manager (HUB4 or HUB10)
- FLEXnet DC Monitor
- Surge Protector

Customer Supplied Components:

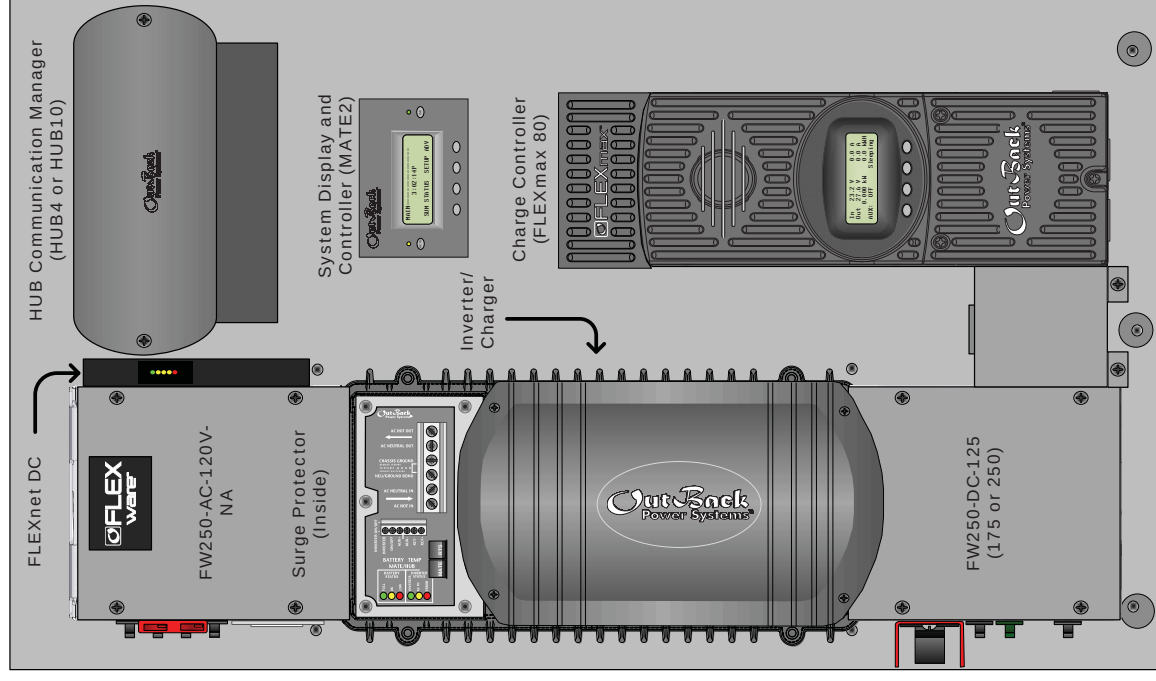
- AC Source:
 - ~ Utility Grid (if available) or
 - ~ AC Generator with circuit breaker or overcurrent device
- Main AC Distribution Panel
- AC Distribution Sub-Panel (Load Panel)
- Battery Bank (24 or 48 Vdc)
- Photovoltaic (PV) Array and PV Combiner Box

Reference Documentation:

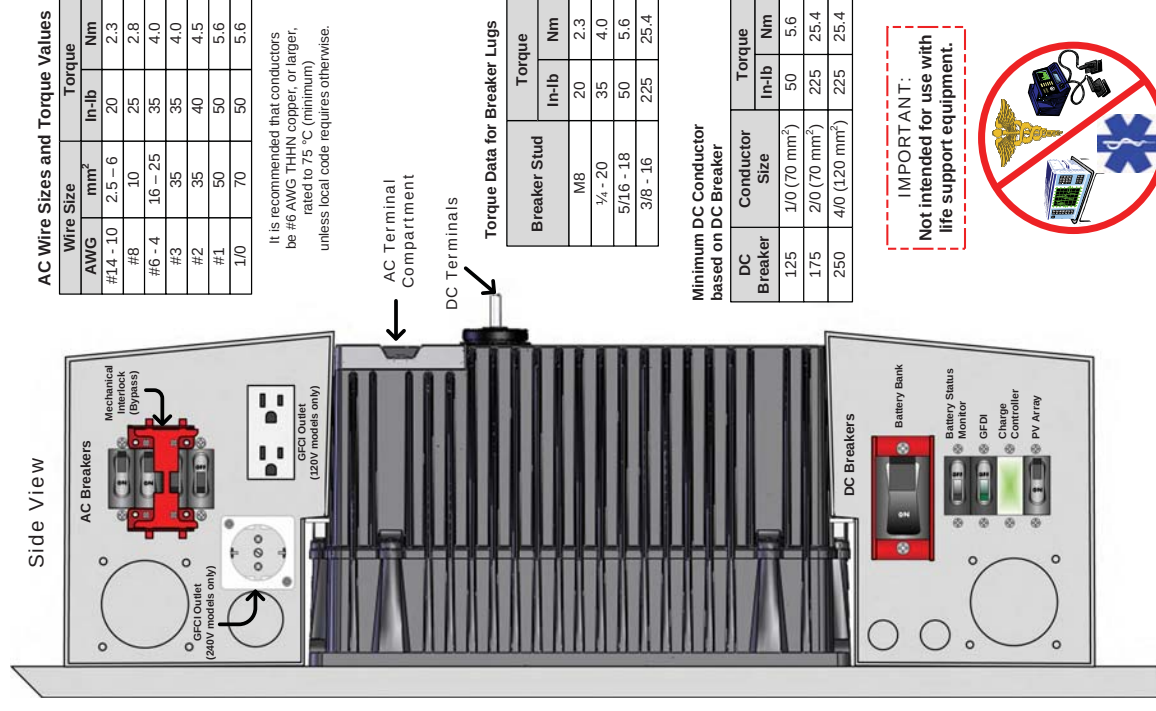
- FLEXpower ONE Installation Manual
- FX Inverter/Charger Installation Manuals
- FX Operator's Manuals
- MATE Series or MATE3 Owner's Manual
- HUB Owner's Manual
- FLEXmax Series Charge Controllers Owner's Manual
- FLEXnet DC Monitor Owner's Manual

IMPORTANT:

All configurations must comply with local and national electric codes. Consult your local electric authority to ensure compliance. **Actual wiring requirements may vary. Factory wiring is not shown.**



Side View



AC Wire Sizes and Torque Values

Wire Size	mm ²	In-lb	Nm
AWG #14 - 10	2.5 - 6	20	2.3
#8	10	25	2.8
#6 - 4	16 - 25	35	4.0
#3	35	35	4.0
#2	35	40	4.5
#1	50	50	5.6
1/0	70	50	5.6

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

Torque Data for Breaker Lugs

Breaker Stud	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

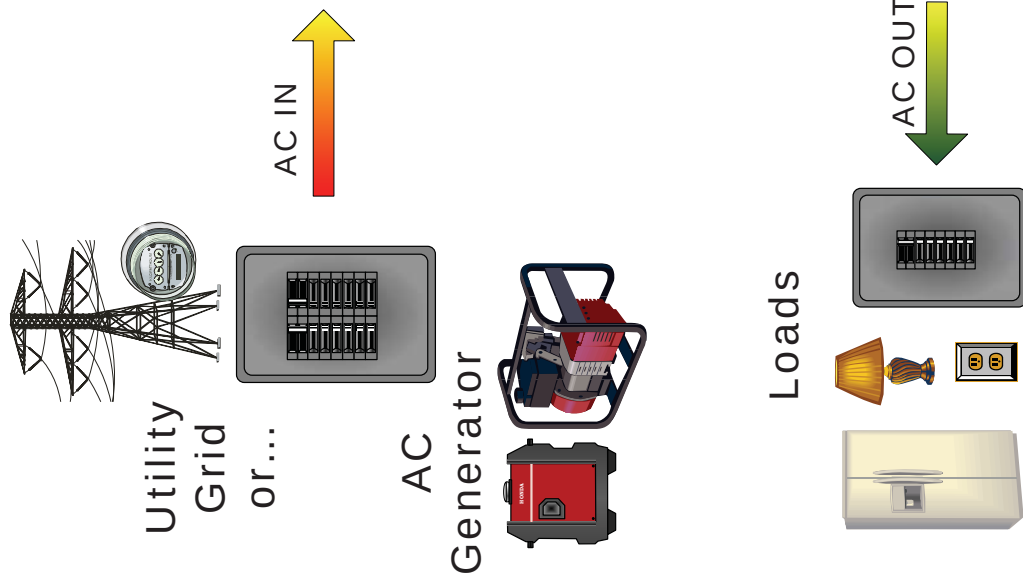
Minimum DC Conductor based on DC Breaker

DC Breaker	Conductor Size	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

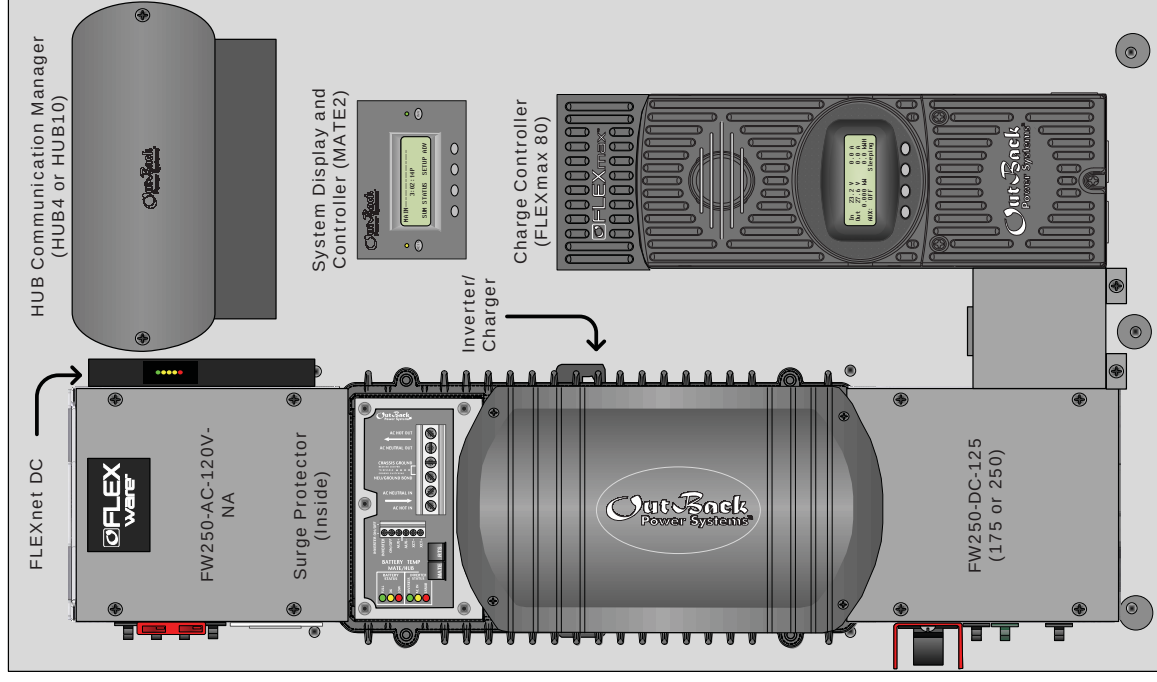
IMPORTANT:
Not intended for use with life support equipment.



Configuration Overview – On-Grid Applications



IMPORTANT: Example only. Actual configuration will vary depending on the specific installation requirements.



Major Components

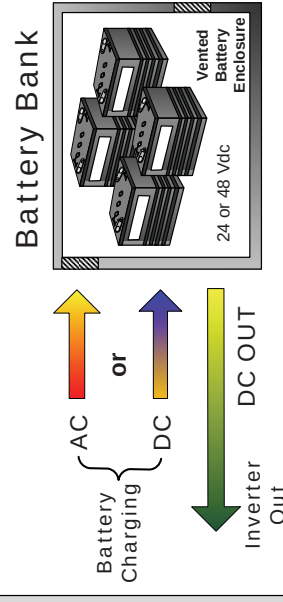
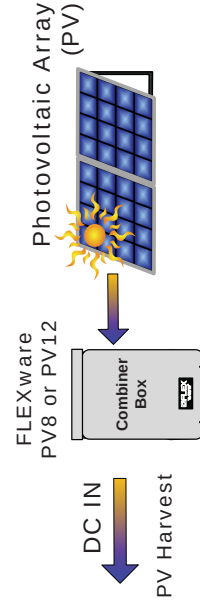
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Customer Supplied Components:

- AC Source:
 - ~ Utility Grid AC or
 - ~ AC Generator with circuit breaker or overcurrent device
- Main AC Distribution Panel
- AC Distribution Sub-Panel (Load Panel)
- Battery Bank (24 or 48 Vdc)
- Photovoltaic (PV) Array

Renewable Energy (RE)

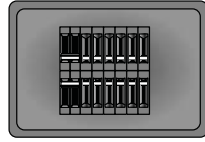


Configuration Overview – Grid-Interactive Applications



Utility Grid

AC IN

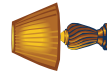


AC OUT 1
(Selling)

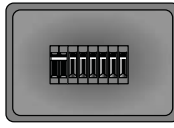


OPTIONAL: An AC Generator with a circuit breaker or overcurrent device can be used in this application for backup purposes. However, a specific kind of generator is required. See the inverter literature for additional details.

¹ Excess RE not being used by the AC Loads, it gets 1st priority over selling back to the grid.



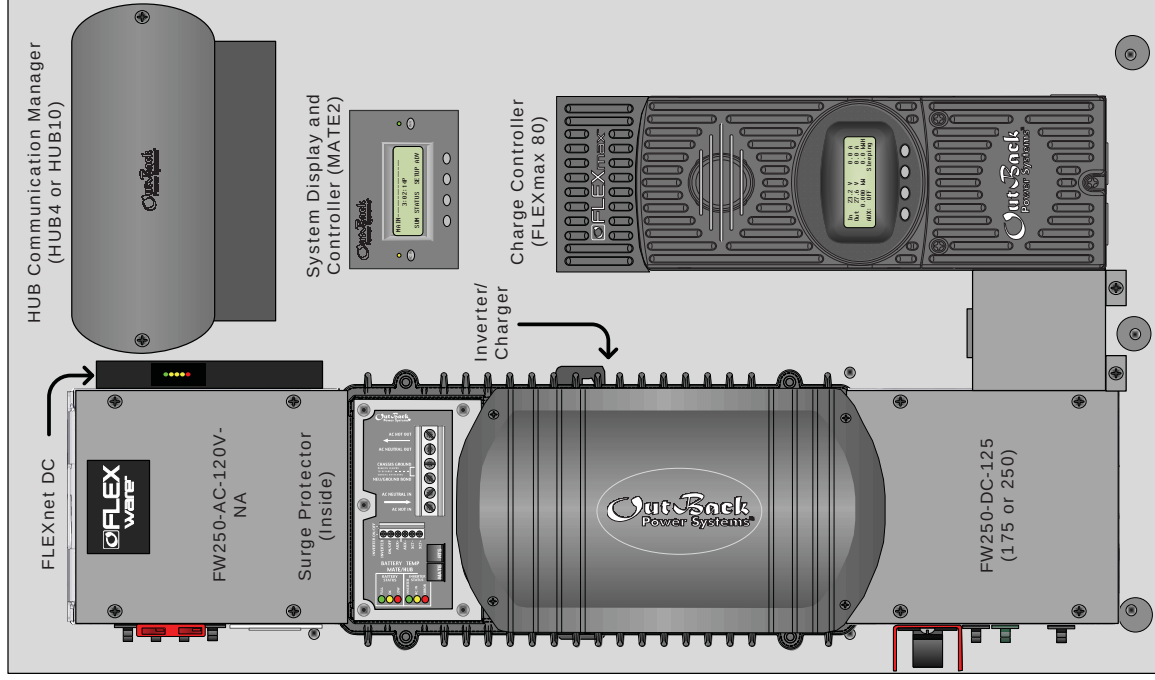
Loads



AC OUT 2

² from utility grid by default. IF RE is available, it gets 1st priority here. The remainder is sold. (See note 1 above).

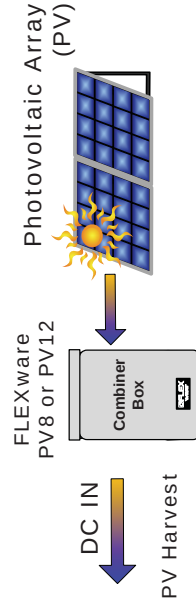
IMPORTANT: Example only. Actual configuration will vary depending on the specific installation requirements.



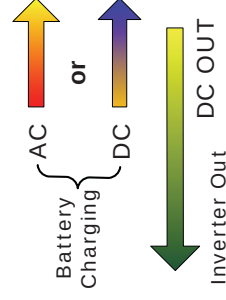
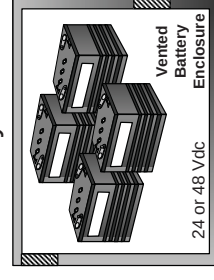
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 - Communications Manager (HUB4 or HUB10)
 - FLEXnet DC Monitor
 - Surge Protector
- Customer Supplied Components:**
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 - ~ Main AC Distribution Panel
 - ~ AC Distribution Sub-Panel (Load Panel)
 - Battery Bank (24 or 48 Vdc)
 - Photovoltaic (PV) Array

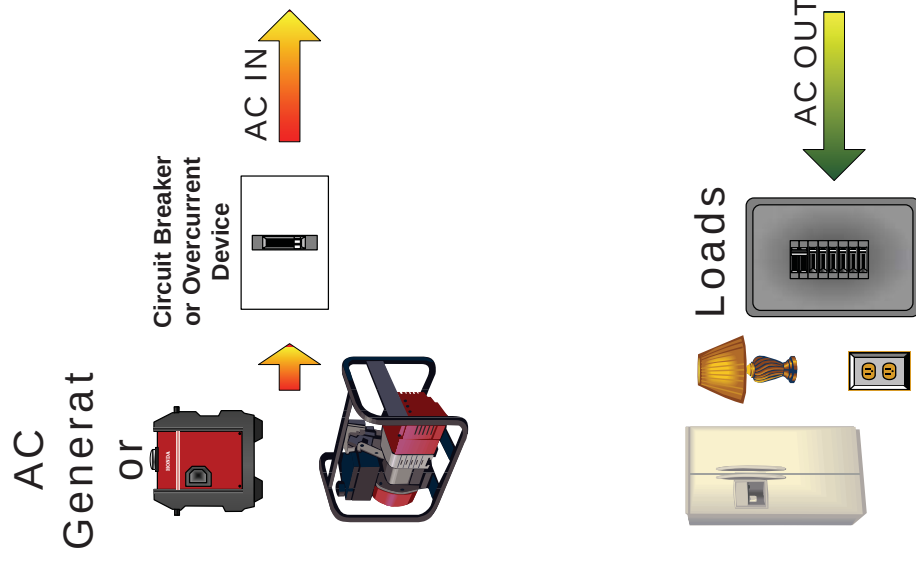
Renewable Energy (RE)



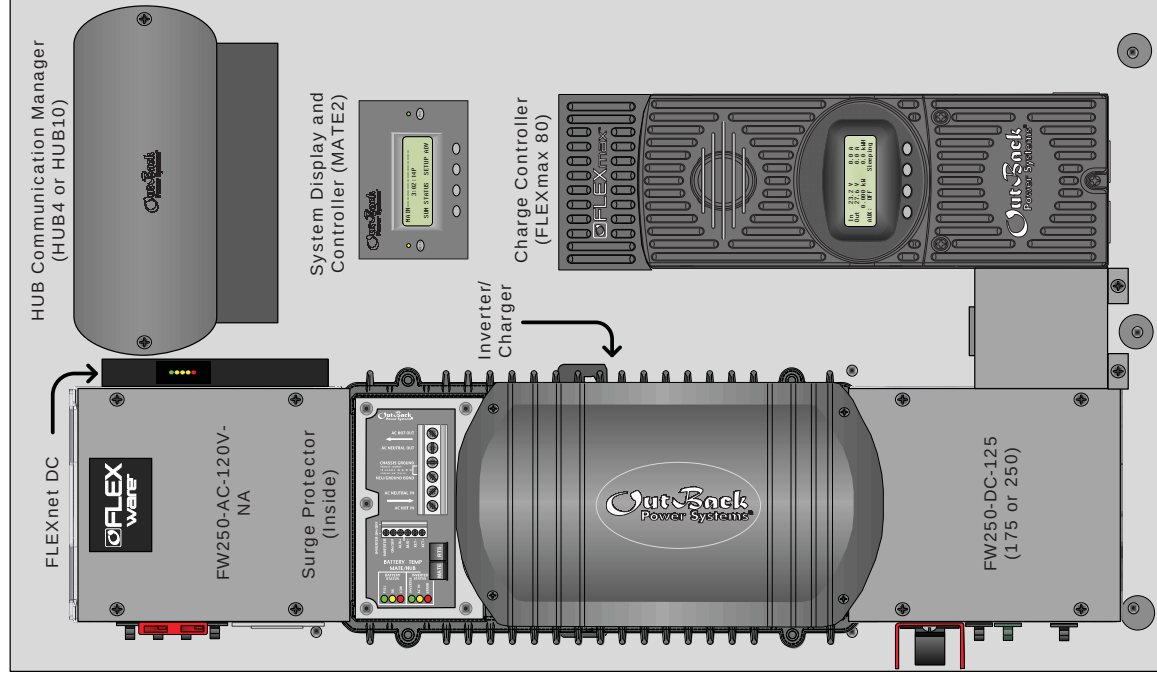
Battery Bank



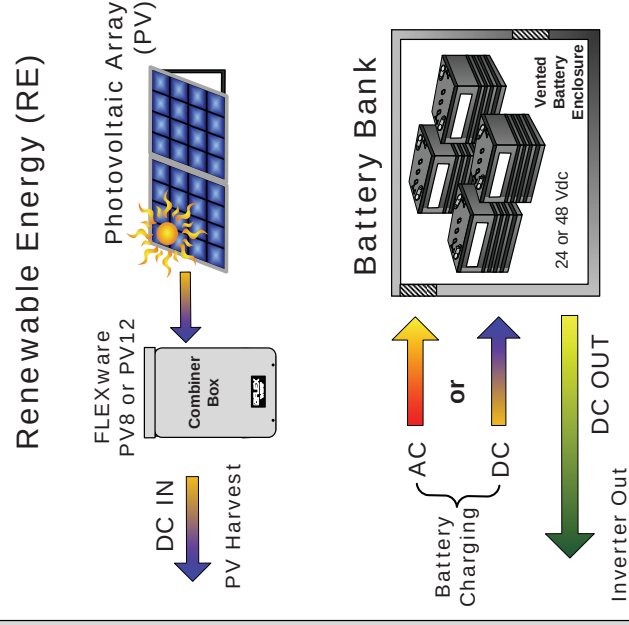
Configuration Overview – Off-Grid Applications



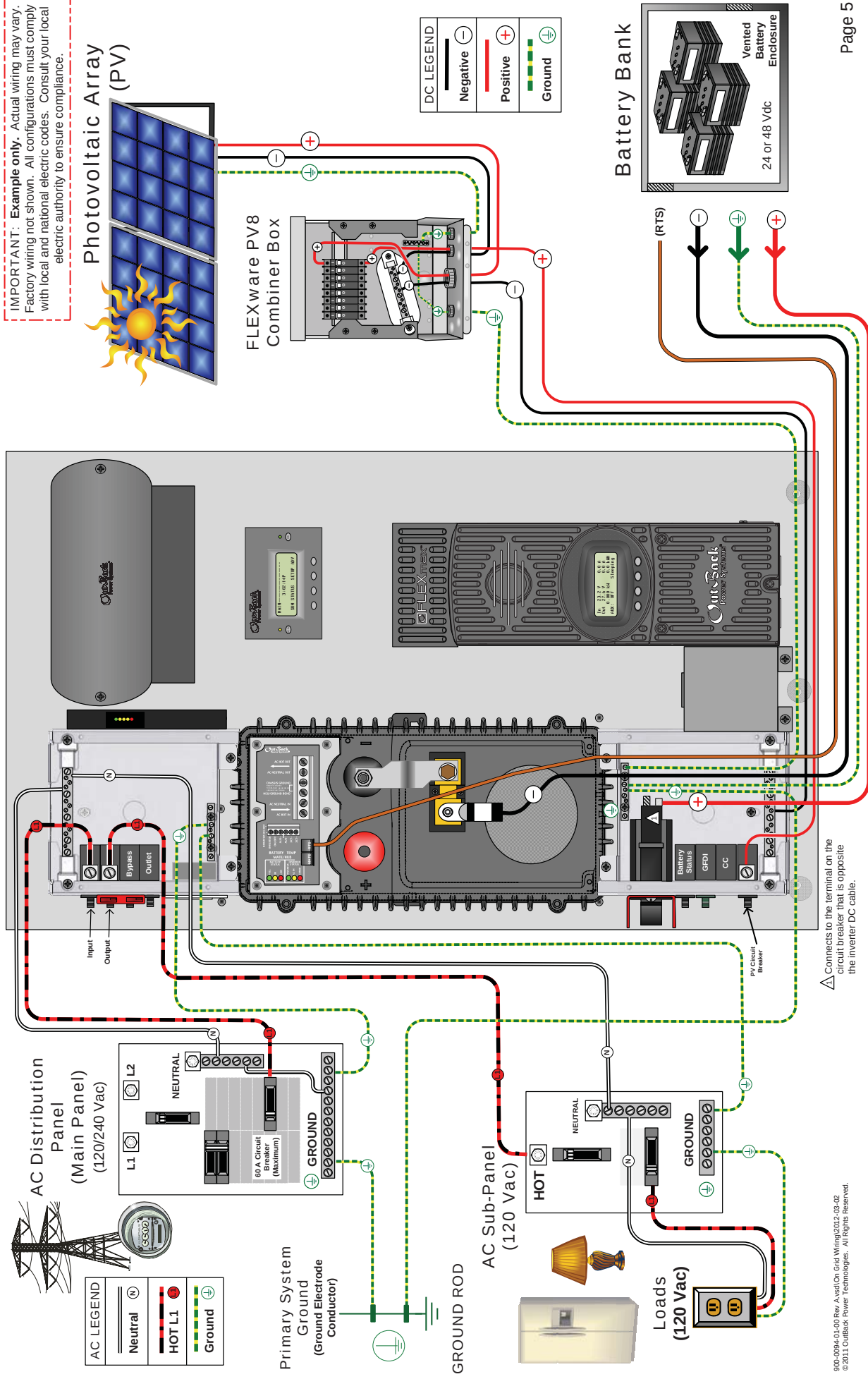
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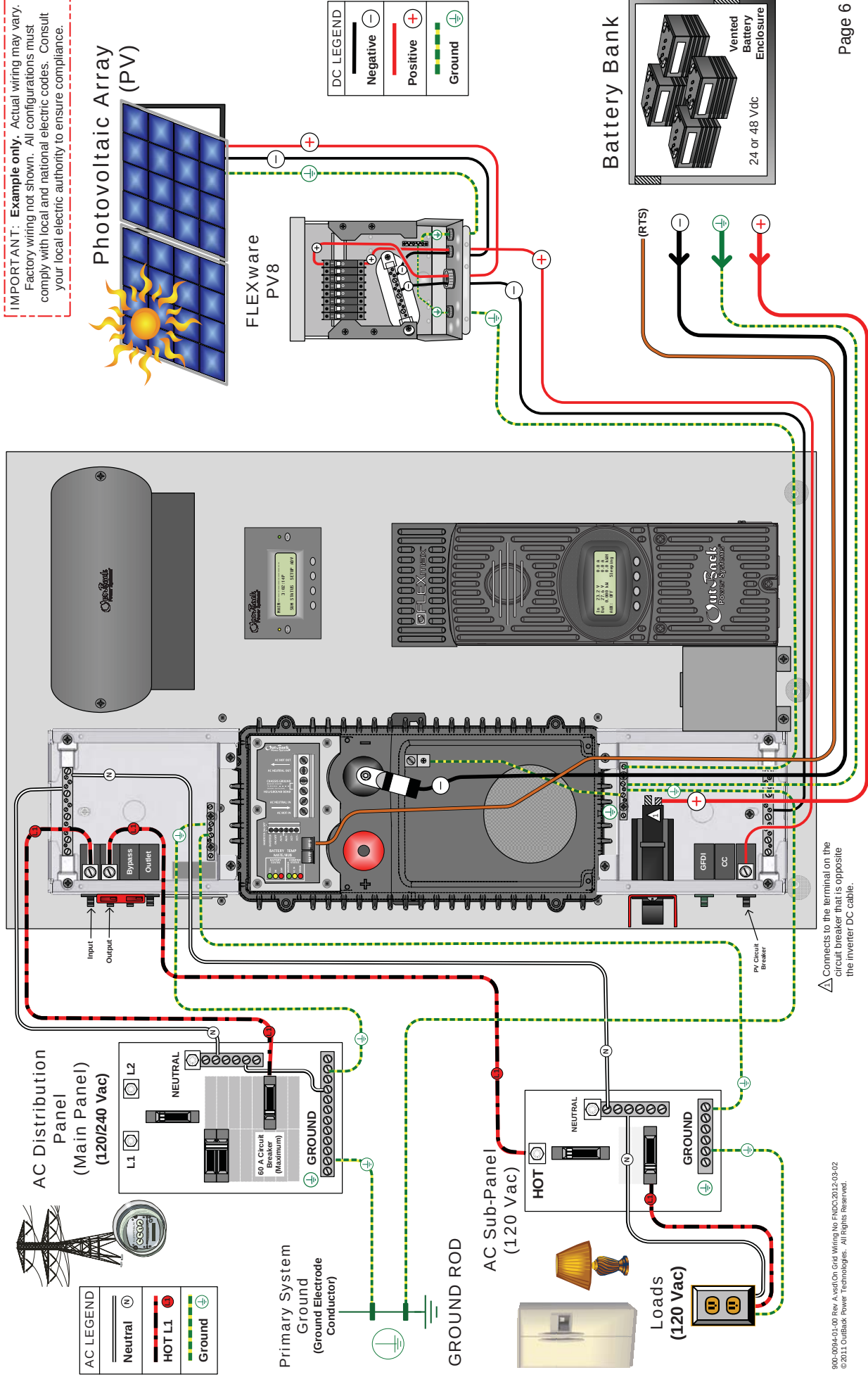
Wiring Overview – On-Grid Applications (with FLEXnet DC)



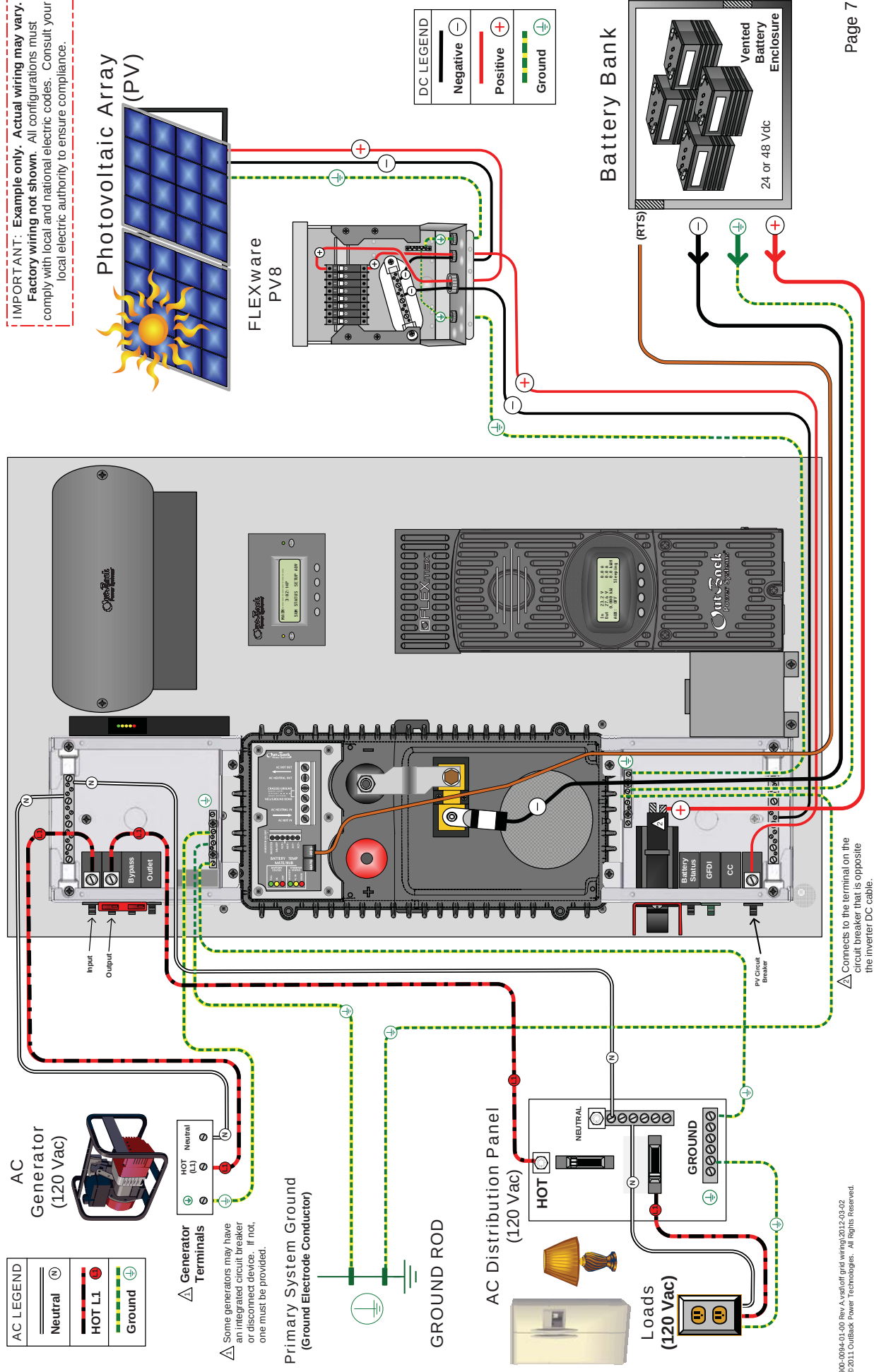
Wiring Overview – On-Grid Applications

FLEXpowerONE

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Wiring Overview – Off-Grid Applications (with FLEXnet DC)



FLEXpowerONE



About OutBack Power Technologies

OutBack Power Technologies is a leader in advanced energy conversion technology. Our products include true sine wave inverter/chargers, maximum power point tracking charge controllers, and system communication components, as well as circuit breakers, batteries, accessories, and assembled systems.

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Disclaimer

UNLESS SPECIFICALLY AGREED TO IN WRITING, OUTBACK POWER TECHNOLOGIES:

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(b) ASSUMES NO RESPONSIBILITY OR LIABILITY FOR LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL, WHICH MIGHT ARISE OUT OF THE USE OF SUCH INFORMATION. THE USE OF ANY SUCH INFORMATION WILL BE ENTIRELY AT THE USER'S RISK.

Warranty Summary

OutBack Power Technologies warrants that the products it manufactures will be free from defects in materials and workmanship for a period of five (5) years subject to the conditions set forth in the warranty detail, found in the product manual.

OutBack Power Technologies cannot be responsible for system failure, damages, or injury resulting from improper installation of their products.

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