



Sanctuary™ Energy Storage System

Manual

12K Hybrid Inverter / Charger and 13.5K - 40.5K Lithium Iron Phosphate Battery





READ THIS MANUAL IN ITS ENTIRETY BEFORE OPERATING THE UNIT.

This unit provides safe, silent, and renewable electric power. It is very important to carefully read this user manual before using the product. Keep this manual for future reference.

Carefully read and strictly comply with all safety directives. Otherwise, personal bodily injury or death may result.

Follow these directives for safe use:

- **Caution: Only qualified personnel/technicians can install and service this device with or without a battery.**
- Before using the inverter, read the instructions and warning signs for the Lithium battery and all relevant sections in the instruction manual.
- Do not disassemble the inverter. If you need maintenance or repair, take it to a professional service center. Improper reassembly may result in electric shock or fire and will void the warranty.
- To reduce risk of electric shock, disconnect all wires before performing maintenance or cleaning. Turning off the unit alone does not reduce this risk.
- For optimum performance of the inverter, follow the specifications when selecting the appropriate cable size. It is very important to correctly operate the inverter.
- Be very cautious when using metal tools near the battery. Dropping a tool on or in the unit may cause a spark or short circuit in the battery or other electrical parts, and may even cause an explosion.
- Strictly follow the installation procedure when disconnecting the AC or DC terminals. Refer to the Installation section of this manual for details.
- **Grounding instructions:** Connect the inverter to a permanent, grounded wiring system. Be sure to comply with local requirements and regulations when installing the inverter.
- Do not connect to the mains when there is a short circuit in the DC input.
- This system includes heavy equipment. Use lifting assistance during installation.

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Sanctuary ESS Overview

The Sanctuary is a multi-functional Energy Storage System (ESS), which incorporates the functions of an inverter, solar charger, battery charger, generator (not included), and lithium iron phosphate battery. The Sanctuary is commissioned and monitored by way of app, available on smart phone and PC.

The Sanctuary ESS can be considered your own personal power plant. Whether you are covering essential loads or covering an entire home, the correct sizing of the Sanctuary is key for the system to function properly. Before sizing, you must review the Sanctuary technical specifications.

To size the system, consider the loads you would like the Sanctuary to cover. Typical essential loads are refrigeration, furnace, lights, Internet, and garage door.

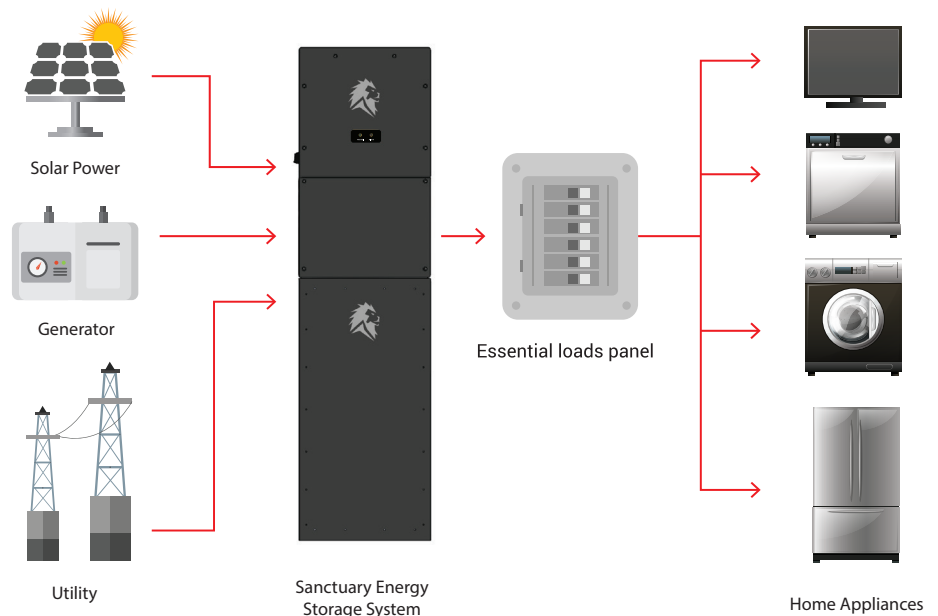
Review your existing load center and identify the breaker size for each of the loads you would like to cover. Note - any load larger than a 30 amp breaker will require multiple inverters to cover. Using the code compliant load calculation method for your jurisdiction, determine the number of continuous amps required to cover the desired loads. Each Sanctuary system can provide for 33.3AAC off-grid (stand alone), anything more than this will require additional Sanctuary system(s) to be placed in parallel (please contact Lion Energy for more details).

Note that the Sanctuary is only sold with both the inverter and battery as a system as both are required for full functionality of the unit. If paired with solar, we recommend a minimum of 3kW of PV input per 13.5Wh (per battery of energy storage).

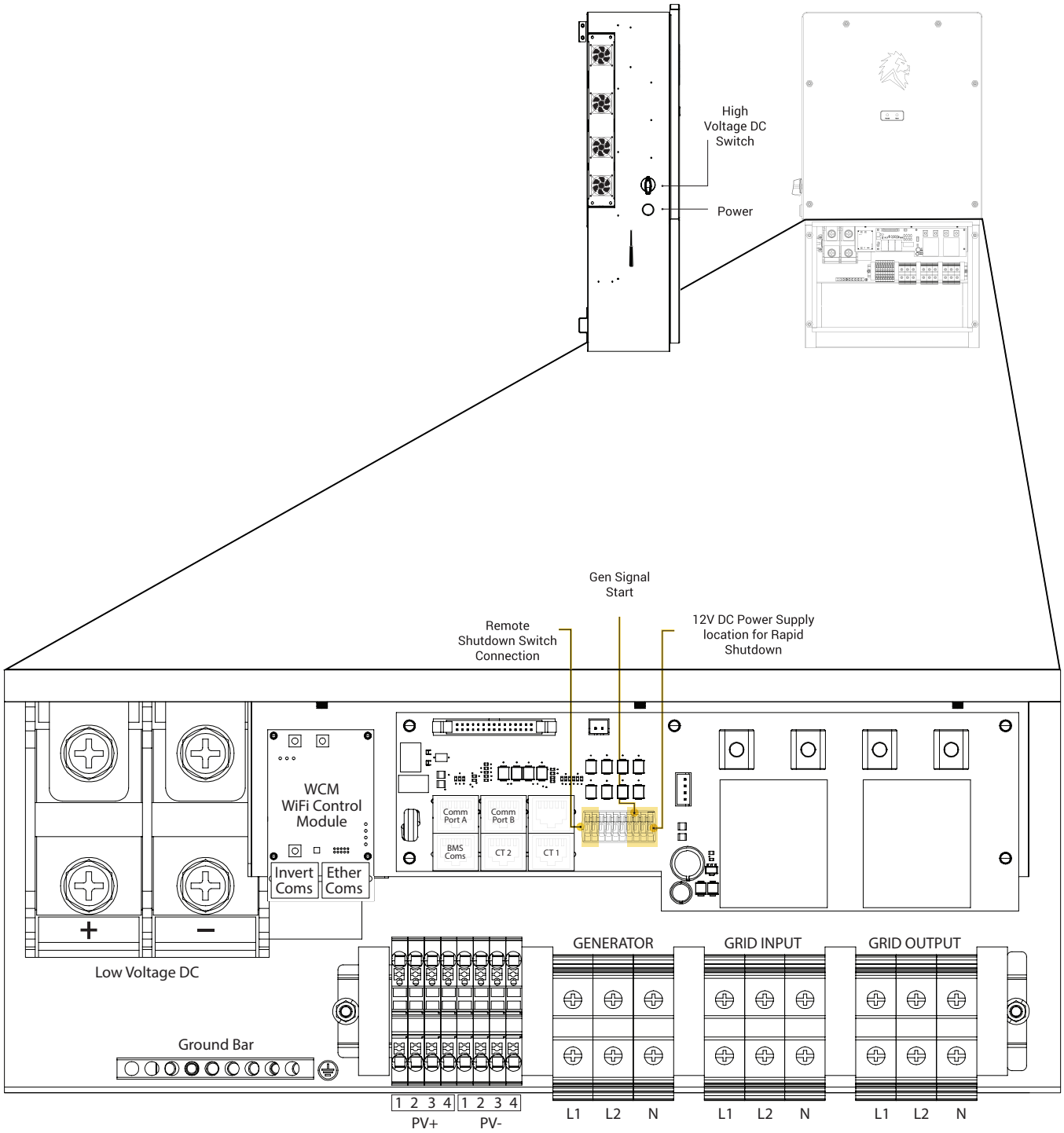
Basic System Architecture

This figure depicts the basic application of the Lion Sanctuary System. Power is fed into the system from the power grid, solar power array or generator to have a complete running system.

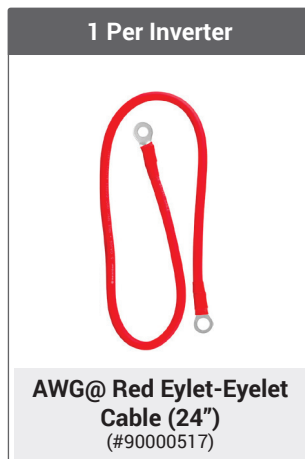
The Lion Sanctuary Energy Storage System can provide power for residences, including appliances, communication equipment, lights and other devices.



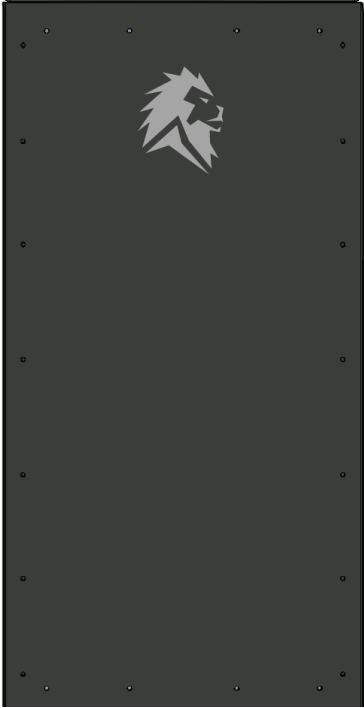
Inverter Overview



Inverter Parts and Components



Battery Parts and Components



13.5kW Battery
(#50170132)

A large, black, rectangular battery unit with a silver lion logo in the center. It has several small circular ports or indicators along its edges.

1 Per Battery



Battery Bracket

A black metal I-shaped bracket with pre-drilled holes for mounting.

1 Per Battery




Freestanding Wire Box
(#90000504)

A black metal U-shaped wire box for organizing cables.



Wire Box Cover
(#90000506)

A black rectangular cover for the wire box.



Sanctuary Housing Bolts
(#90000518)

Two black screws, one with a hex head and one with a Torx head.


1 Per Battery



AWG2 Battery Cable Red (55")
(#90000501)

A red battery cable with a metal connector on one end and a red plastic connector on the other.

1 Per Battery



AWG2 Battery Cable Black (55")
(#90000500)

A black battery cable with a metal connector on one end and a black plastic connector on the other.

1 Per Battery



Battery COM Cable
(#90000508)

A black cable with a metal connector on one end and a standard RJ45 Ethernet connector on the other.

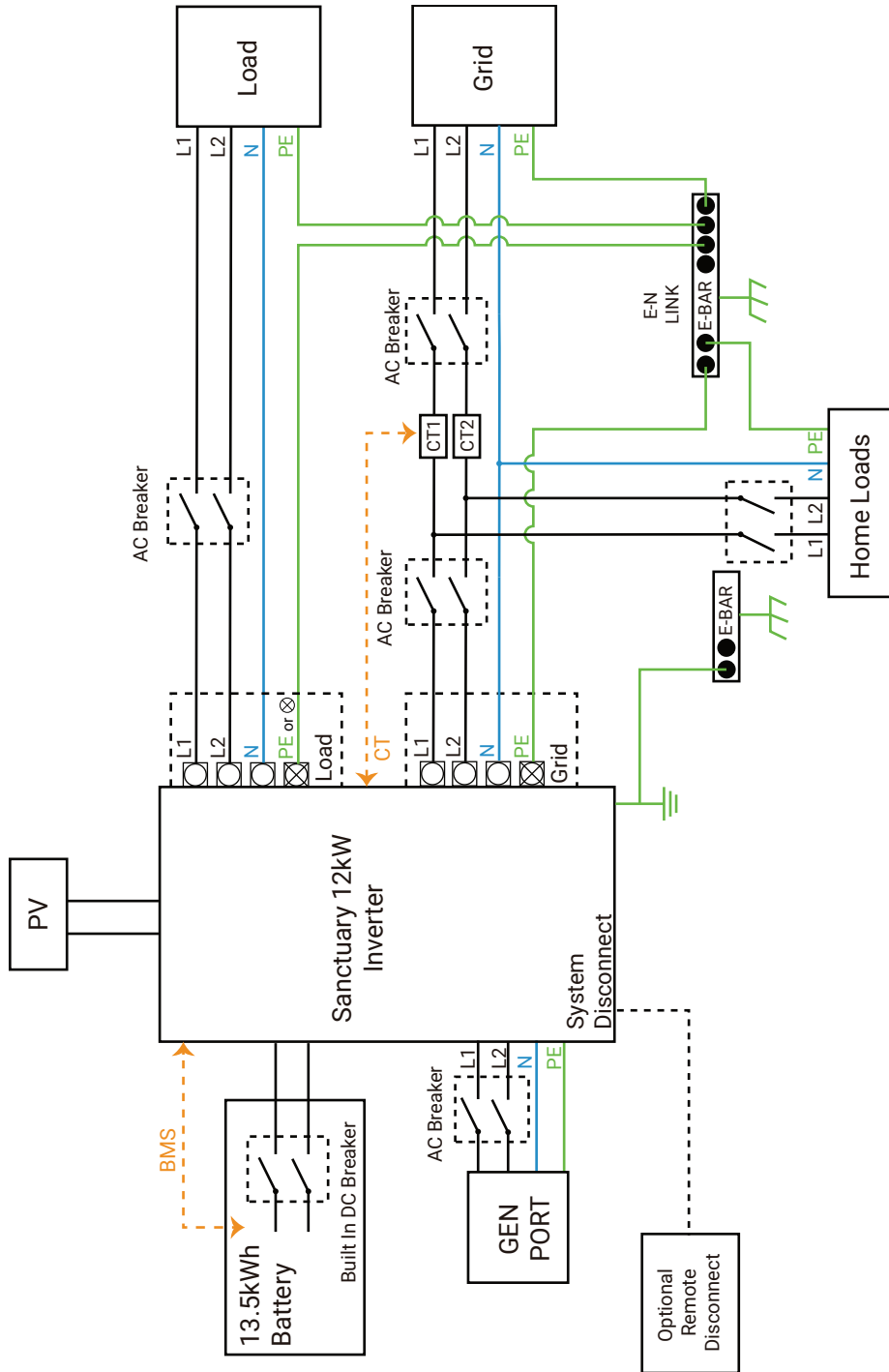
1 Per Battery



RJ45 Splitter
(#90000509)

A black RJ45 splitter with three ports on one side and a single RJ45 connector on the other.

Basic Wiring Diagram



Professional wiring installation

All wiring must be performed by a professional electrician. Installation must be done by a Lion-Certified Installer.

Technical Specifications

Lion Energy

Sanctuary Energy Storage System (ESS)

Model #99990814 – 12K Hybrid Solar Inverter with 13.5kWh Energy Storage

Model #99990815 – 12K Hybrid Solar Inverter with 27.0kWh Energy Storage

Model #99990816 – 12K Hybrid Solar Inverter with 40.5kWh Energy Storage

Major System Components

Model #50170132 – Sanctuary 13.5kWh Battery

Model #50170168 – Sanctuary 12K Hybrid Solar Inverter

Model #50170132 - Sanctuary 13.5kWh Battery

Battery Type	Lithium Iron Phosphate
Voltage Range	40 - 55.6VDC
Capacity	13,875.2Wh
Parallelable Capacity	41,625.6Wh Max
Quantity	3 Max
Charging Temperature Range / Current	32° to 86° F / 150A
Discharging Temperature Range / Current	-4° to 86° F / 160A
Weight	277lbs.
Dimensions	39.75" H x 18.5" W x 10" D
Compliance	UL1973, UL9540, UL9540A

Model #50170168 - Sanctuary 12K Hybrid Solar Inverter

Product Type	Hybrid Solar Inverter
Ambient Temperature	32° to 86° F
Weight	90.4lbs.
Dimensions	16.9" W x 27.9" H x 8.6" D
Compliance	UL9540, UL1741:2021, UL1741 SB:2021, UL1741 SA:2018, UL1699B:2018, IEEE Std 1547:2018, IEEE Std 1547a:2020, IEEE Std 1547.1:2020, CPUC Rule21:2017, FCC 15 class-B

Model #50170168 12K Hybrid Solar Grid Support Interactive Inverter

PV Input

Max PV Input	12kW
MPPT Input Voltage	120-500V
Max Input Current	12A*4
Max Short Circuit Current	15A

AC Output (On Grid)

Rated Output Power	8kVA
Rated Output Current	33.3A
Grid Voltage	120V/240V Split phase
Grid Frequency (Optional)	60Hz
Power Factor Range	-0.8~+0.8

Battery

Battery Voltage Range	40V~60V
Max Charging Current	190A
Max Discharging Current	190A

System

Ingress Protection	IP65
Dimensions	16.9" W x 27.9" H x 8.6" D
Weight	90.4lbs
Max Efficiency	97.8%

Install in a climate controlled environment to maintain a temperature between 32° and 86° F.





Lion Sanctuary Energy Storage System

The Lion Sanctuary warranty is for 10 years (can be upgraded to 25 years). The 10 year limited warranty (“Warranty”) is against manufacturing defects and workmanship; the battery is rated for 6,000 cycles to 90% depth of discharge. The warranty begins from the date the Sanctuary System is installed. System must be connected to the internet and lion energy must be granted monitoring access in order to qualify for warranty. System must be installed by a Lion Certified Installer in order to qualify for a warranty. Contact Lion Energy to understand how to become certified.

If the unit needs to be repaired or replaced, follow these steps:

1. Customer contacts the Installer to verify there is an issue with the unit.
2. Installer contacts Lion Energy to discuss the issues and Lion Energy will determine if the unit will be repaired or replaced.
3. Installer repairs the unit or if the unit is to be replaced, Lion Energy will ship the unit to the Installer.
4. Installer replaces the unit and ships the replaced unit to Lion Energy for proper recycling.

The warranty does not include:

- Damage during transportation of equipment.
- Damage caused by incorrect installation or commissioning.
- Damage caused by failure to comply with operation instructions, installation instructions, or maintenance instructions.
- Damage caused by attempts to modify, alter, or repair products.
- Damage caused by incorrect use or operation.
- Damage caused by insufficient ventilation of equipment.
- Damage caused by failure to comply with applicable safety standards or regulations.
- Damage caused by natural disasters or force majeure (such as floods, lightning, over voltage, storms, and fires).
- Any external scratches will not affect the basic operation of the product. Any external scratches, stains or natural mechanical wear does not represent a defect in the product.

Limitation of Liability

THIS LIMITED WARRANTY IS THE ENTIRE WARRANTY AND ANY OTHER EXPRESSED OR IMPLIED WARRANTIES ARE NOT APPLICABLE. THIS WARRANTY EXCLUDES ANY LIABILITY FOR PRODUCT NOT BEING AVAILABLE FOR USE OR LOST REVENUES OR PROFITS. Lion Energy only warrants the product, not the power service or external electrical equipment or any services provided by another party. This manual provides information, specification, and usage instructions. All statements, information, and suggestions within in this manual do not constitute any express or implied warranty.

Recycling

Return the Sanctuary System to Lion Energy for proper disposal.



LION ENERGY™



385.375.8191
Monday - Friday
9:00 AM - 5:00 PM MST



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