

ExpertPower CLB48VK4

ExpertPower 30KWH 8640W 48V Solar Power System Kit User Manual

Model: CLB48VK4 | Brand: ExpertPower

1. INTRODUCTION

This user manual provides essential information for the safe and efficient operation of your ExpertPower 30KWH 8640W 48V Solar Power System Kit. This comprehensive off-grid solution is designed to provide reliable power for residential homes, cabins, and backup power needs, integrating LiFePO4 batteries, solar panels, and a hybrid solar inverter.

Please read this manual thoroughly before installation and operation. Proper installation by a qualified professional is crucial for safety and system performance.

2. SYSTEM COMPONENTS OVERVIEW

The ExpertPower 30KWH 8640W 48V Solar Power System Kit includes the following primary components:

- **Six 48V 100Ah LiFePO4 Batteries:** These batteries utilize advanced LiFePO4 technology for an extended lifespan (2500 to 7000 cycles over 10 years) and are equipped with a Battery Management System (BMS) for protection against various electrical issues.
- **Sixteen 540W Bifacial Solar Panels:** High-efficiency monocrystalline silicon panels capable of capturing solar power from both sides, potentially increasing energy yield by up to 30% compared to traditional panels.
- **Two 6500W Hybrid Solar Inverters with 120A MPPT Solar Charge Controllers:** These inverters manage power flow from solar panels, batteries, and the grid, converting DC power to AC for household use. They offer flexible scalability and smart Wi-Fi monitoring capabilities.



Figure 2.1: Overview of the ExpertPower 30KWH 8640W 48V Solar Power System Kit, showing solar panels, hybrid inverters, and LiFePO4 batteries.

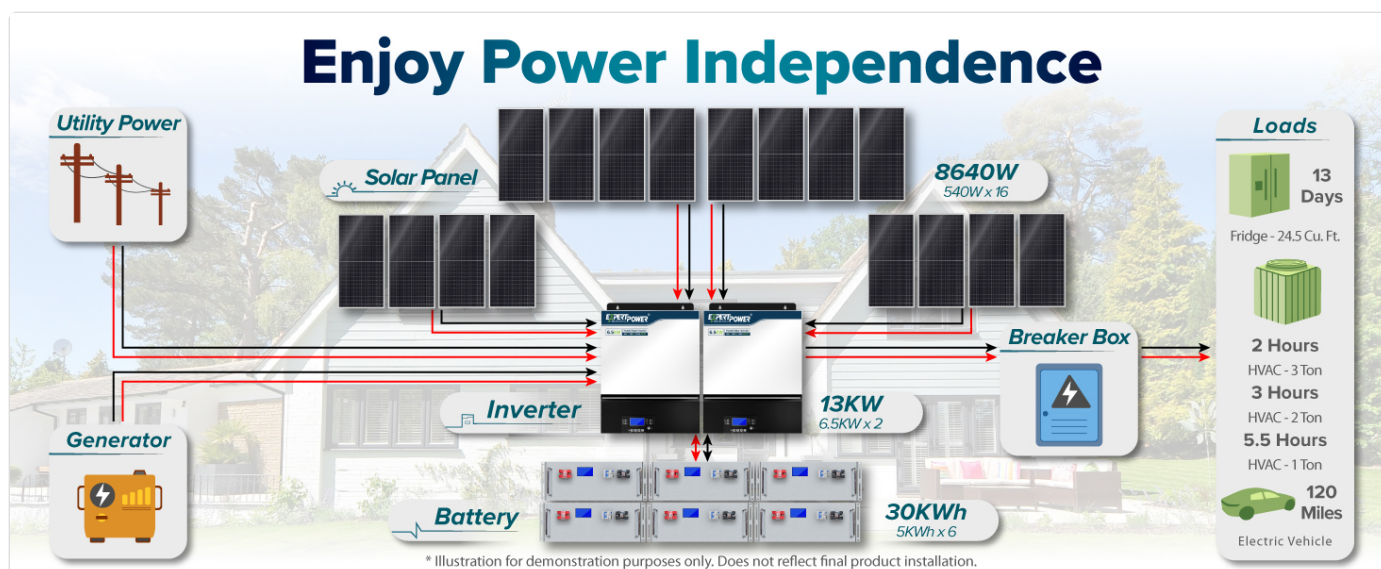


Figure 2.2: Diagram illustrating the complete system setup, including utility power, generator, solar panels, inverter, battery bank, and breaker box connected to household loads.

3. SETUP AND INSTALLATION

Installation of the ExpertPower solar kit requires a comprehensive understanding of electrical principles and strict adherence to applicable National Electrical Code (NEC) standards, regulations, and appropriate installation techniques. **It is strongly recommended that installation be performed by a certified professional electrician to ensure proper and secure setup, and to maintain warranty validity.**

3.1 Battery and Inverter Parallel Connection

The system allows for flexible expansion. Up to 10 battery units can be connected in parallel for increased energy storage. The inverters support parallel connection for various voltage configurations (120V single-phase, 120V/240V split-phase, and 208V 3-phase) to meet diverse energy demands.

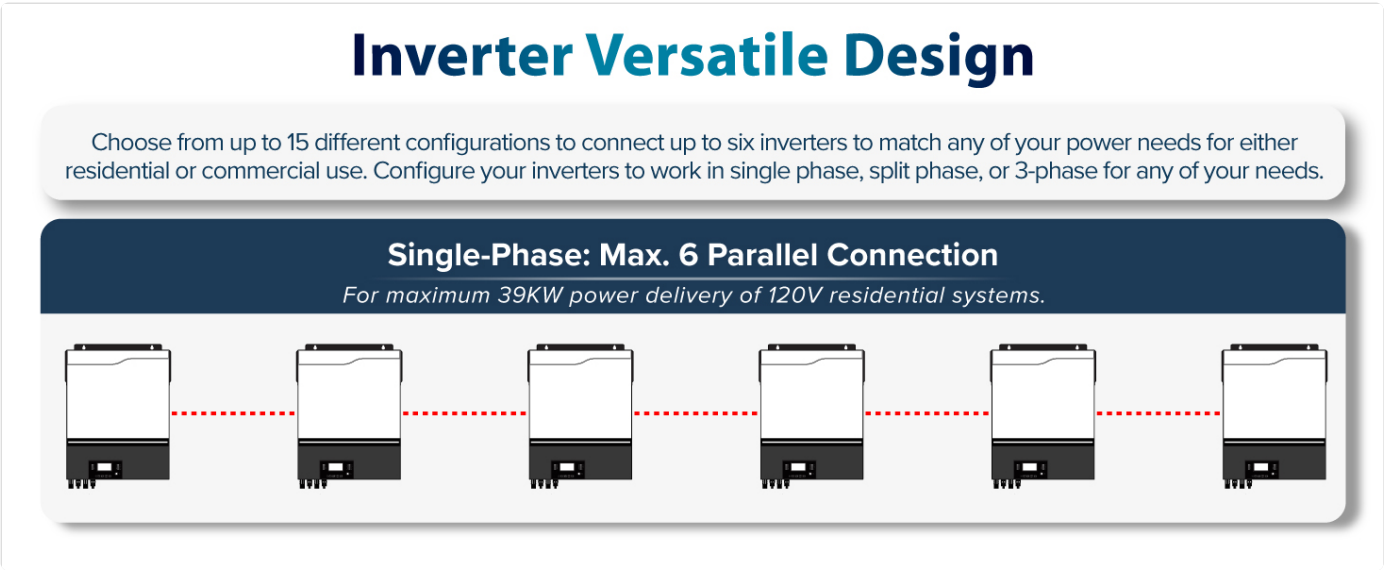


Figure 3.1: Single-Phase Parallel Connection: Up to 6 inverters can be connected for a maximum of 39KW power delivery in 120V residential systems.

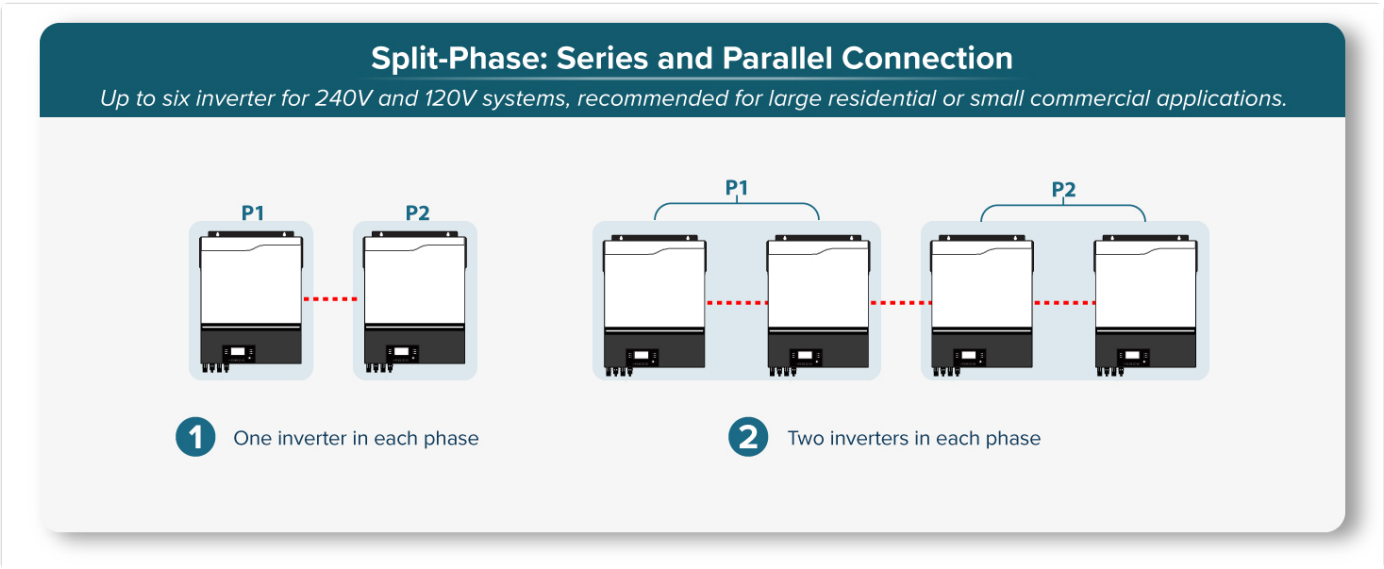


Figure 3.2: Split-Phase Series and Parallel Connection: Examples for 240V and 120V systems, suitable for large residential or small commercial applications.

3-Phase: 3 & 4 Series-Parallel connection

For commercial applications needing 240V or 208V systems.

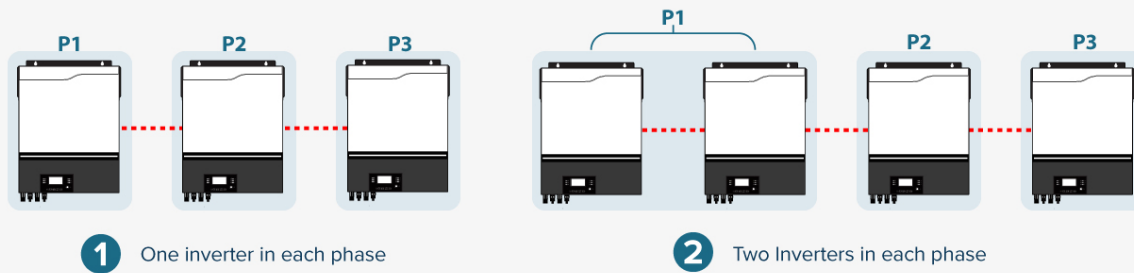


Figure 3.3: 3-Phase Series-Parallel Connection: Configurations for commercial applications requiring 240V or 208V systems.

4. OPERATING INSTRUCTIONS

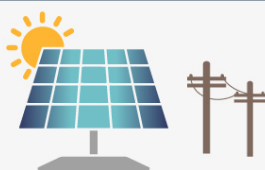
4.1 Inverter Charging Priority

The inverter allows you to control how the battery bank is charged from different power sources. Select the mode that best suits your energy needs:

- **Solar First:** Solar panels will charge your battery bank first. AC input will not charge the battery bank unless solar power is unavailable.
- **Solar and AC Input Simultaneously:** Solar energy and utility power will charge your battery bank at the same time.
- **Solar Only:** Solar energy will be the only charging source, regardless of AC input availability.

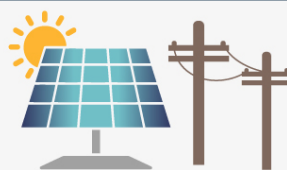
Charger Source Priority

Choose where your battery bank gets charged from.



Solar First

Solar panels will charge your battery bank first. Your AC Input will not charge the battery bank unless solar power is not available.



Solar and AC Input Simultaneously

Solar energy and utility will charge your battery bank at the same time.



Solar Only

Solar energy will be the only charging source no matter if an AC Input is available or not.

Figure 4.1: Charger Source Priority options for the inverter.

4.2 Load Priority (Output Source Priority)

Control how your appliances receive power to ensure continuous operation:

- **Solar First:** Power your appliances from solar power first. If solar power is insufficient, the AC input will supply power simultaneously.
- **AC Priority:** Redirects AC input to power all appliances and only uses solar and batteries when AC input is not available.

- **DC Priority:** Prioritizes solar power first. If solar is not enough, the battery bank will supply power simultaneously. AC input will power on only when the voltage drops to a programmable value.

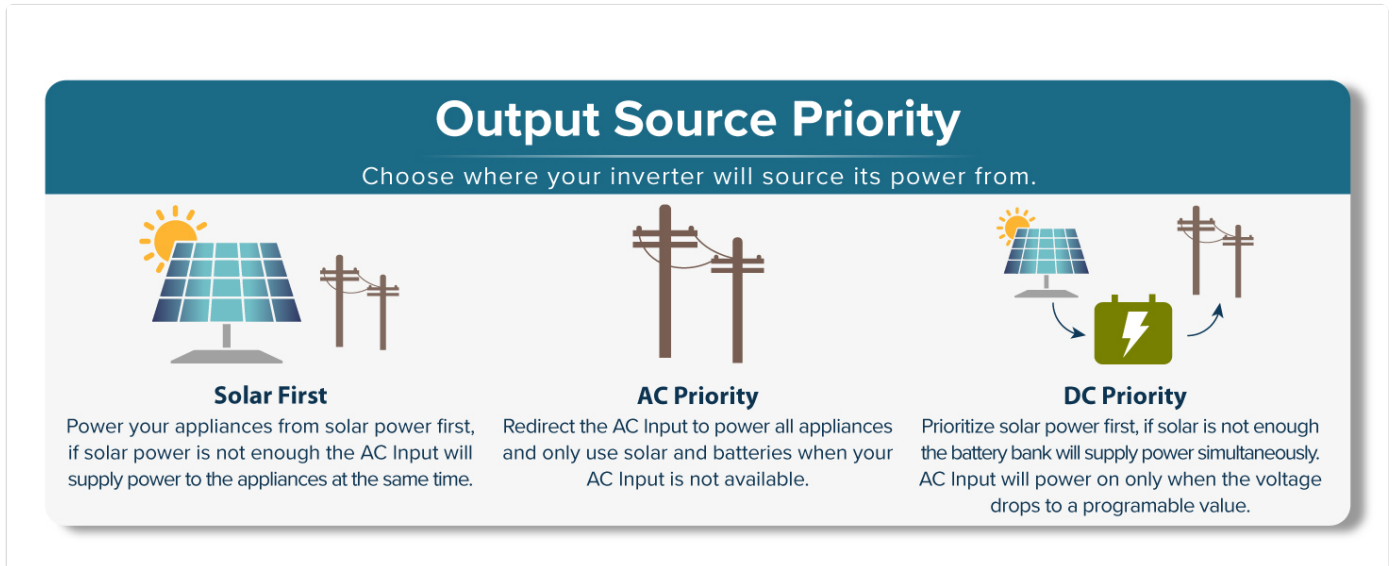


Figure 4.2: Output Source Priority options for the inverter.

4.3 Inverter Wi-Fi Monitoring

The hybrid inverter features built-in Wi-Fi transmitters, allowing you to monitor your system from anywhere via a dedicated mobile application. Registration is required to utilize this feature.



Figure 4.3: Inverter Wi-Fi Monitoring: Monitor your hybrid inverter's performance and status via the mobile app.

Video 4.1: An overview of the ExpertPower 30KWH 8640W 48V Solar Power System Kit, demonstrating its components and functionality.

Video 4.2: Detailed information about the ExpertPower 48V 100Ah LiFePO4 Lithium Battery, a key component of the solar kit.

5. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your solar power system. While specific maintenance schedules may vary based on environmental conditions and usage, general guidelines include:

- **Solar Panels:** Periodically clean solar panels to remove dust, dirt, and debris that can reduce efficiency. Inspect for any physical damage or loose connections.
- **Batteries:** Monitor battery health via the inverter's display or mobile app. Ensure proper ventilation around the battery bank.

While LiFePO4 batteries are low-maintenance, regular checks for unusual odors or swelling are advisable.

- **Inverter:** Keep the inverter's ventilation openings clear of obstructions. Regularly check for any error codes or warning indicators on the display.
- **Wiring and Connections:** Annually inspect all wiring and connections for signs of wear, corrosion, or looseness. This should ideally be done by a qualified technician.

6. TROUBLESHOOTING

This section provides general guidance for common issues. For complex problems or issues requiring electrical work, always consult a qualified professional.

Problem	Possible Cause	Solution
No Power Output	Inverter off, circuit breaker tripped, low battery voltage, solar input issue.	Check inverter status, reset breakers, verify battery charge, inspect solar panel connections.
Low Power Production	Dirty solar panels, shading, faulty panel/inverter, incorrect settings.	Clean panels, remove obstructions, check monitoring app for errors, verify settings.
Battery Not Charging	Incorrect charging priority, faulty charge controller, battery connection issue.	Adjust charging priority, check battery cables, consult professional if issue persists.
Inverter Error Code	System fault, overload, internal issue.	Refer to the inverter's specific error code manual (usually available digitally) or contact support.

7. SPECIFICATIONS

Detailed specifications for the main components of the ExpertPower 30KWH 8640W 48V Solar Power System Kit:

Component	Parameter	Value
5KWh LiFePO4 Battery	Battery Type	LiFePO4 / Lithium
	Nominal Voltage	51.2V
	Rated Capacity	100Ah
	Normal Energy	5120Wh (0.2C, 77°F)
	Max. Cont'd Discharge Current	100A
	Max. Cont'd Charge Current	100A
	Cycle Life (68°F 0.2C 50%DOD)	>7500 Cycles
6.5KW Hybrid Inverter	Rated Power	6500W
	Input AC Voltage	120VAC (90-140 VAC)
	Input DC Voltage	48VDC
	Output AC Voltage	120VAC ± 5%

Component	Parameter	Value
	Efficiency	90% - 93%
	Max. PV Array Power	8000W (4000W X 2)
	Max. PV Input Current	18A x 2
540W Solar Panel	Maximum Power (Pmax)	540W
	Open-Circuit Voltage (Voc)	49.60V
	Maximum Power Voltage (Vmp)	41.64V
	Short-Circuit Current (Isc)	13.86A
	Module Efficiency	21.00%

5KWh Battery

Battery Type	LiFePO4 / Lithium
Nominal Voltage	51.2V
Rated Capacity	100Ah (0.2C, 77°F)
Normal Energy	5120Wh (0.2C, 77°F)
Charge Voltage	56V
Float Voltage	55.2V
Max. Cont'd Discharge Current	100A
Max. Cont'd Charge Current	100A
Recommended Charge Current	50A
Cycle Life (68°F 0.2C 50%DOD)	>7500 Cycles
Safety Standard	UL1642 at Cell-Level

6.5KW Inverter

Rated Power	6500W
Input AC Voltage	120VAC (90-140 VAC)
Input DC Voltage	48VDC
Output AC Voltage	120VAC ± 5%
Output Surge Power	13000VA
Efficiency	90% - 93%
No Load Power Consumption	<70W
Max. PV Array Power	8000W (4000W X 2)
Max. PV Open Circuit Voltage	500VDC
PV Start-Up Voltage	80VDC
Max. PV Input Current	18A x 2

540W Solar Panel

Cell Type	Mono PERC 182 mm
Maximum Power (Pmax)	540W
Open-Circuit Voltage (Voc)	49.60V
Maximum Power Voltage (Vmp)	41.64V
Short-Circuit Current (Isc)	13.86A
Maximum Power Current (Imp)	12.97A
Module Efficiency	21.00%
Maximum System Voltage	1500V DC(IEC)
Maximum Series Fuse Rating	30A
Mechanical Load Front Rear	5400Pa
Mechanical Load Back Rear	2400Pa

Figure 7.1: Comprehensive specifications for the 5KWh Battery, 6.5KW Inverter, and 540W Solar Panel.

8. DIMENSIONS AND WEIGHT

Approximate dimensions and weights for the primary components:

Component	Dimensions (L x W x H)	Weight
5KWh LiFePO4 Battery	Approx. 19 in x 18.09 in x 7 in	97 lbs
6.5KW Hybrid Inverter	Approx. 17.03 in x 5.80 in x 21.80 in	40.56 lbs
540W Solar Panel	Approx. 89.69 in x 44.65 in x 1.18 in	69.67 lbs

Dimensions & Weight



Figure 8.1: Visual representation of dimensions and weights for the 5KWh Battery, 6.5KW Inverter, and 540W Solar Panel.

9. WARRANTY AND SUPPORT

ExpertPower is committed to providing innovative energy solutions and customer support. For detailed warranty information, please refer to the official warranty documentation provided with your product or visit the ExpertPower website. Additional resources, including a comprehensive User Guide and User Manual in PDF format, are available for download:

- [User Guide \(PDF\)](#)
- [User Manual \(PDF\)](#)

For technical assistance or inquiries, please contact ExpertPower customer support through their official channels.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question