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› ExpertPower 15KWH 5400W 48V Solar Power System Kit User Manual

ExpertPower CLBX48VK2

ExpertPower 15KWH 5400W 48V Solar Power System Kit User Manual

Model: CLBX48VK2

Brand: ExpertPower

1. INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of your ExpertPower 15KWH 5400W 48V Solar Power System Kit. This comprehensive off-grid solar system is designed to provide energy independence for residential, home, cabin, or backup power applications. It features reliable LiFePO4 battery technology, high-efficiency solar panels, and a versatile hybrid solar inverter.

Key Features:

- **Reliable LiFePO4 Technology:** 16-cell LiFePO4 battery with 2500 to 7000 cycles over 10 years, equipped with an advanced Battery Management System (BMS) for protection against overcharging, deep discharges, overloads, overheating, short circuits, and low temperature cut-off.
- **Complete Off-Grid Solar System:** Includes three 48V 100Ah LiFePO4 batteries, ten 540W Solar Panels, and a 6500W Hybrid Solar Inverter with a 120A MPPT Solar Charge Controller.
- **Flexible Inverter Scalability:** Accommodates up to 6 units for 120V single-phase, 120V/240V split phase, or 208V 3-phase configurations.
- **Smart Connectivity:** WiFi-enabled inverter for remote monitoring via a dedicated iOS or Android app.
- **Smart Inverter Functionality:** Can operate effectively with BMS-less batteries and can invert power directly from solar panels without a battery.



Figure 1: ExpertPower 15KWH 5400W 48V Solar Power System Kit.

2. COMPONENTS INCLUDED

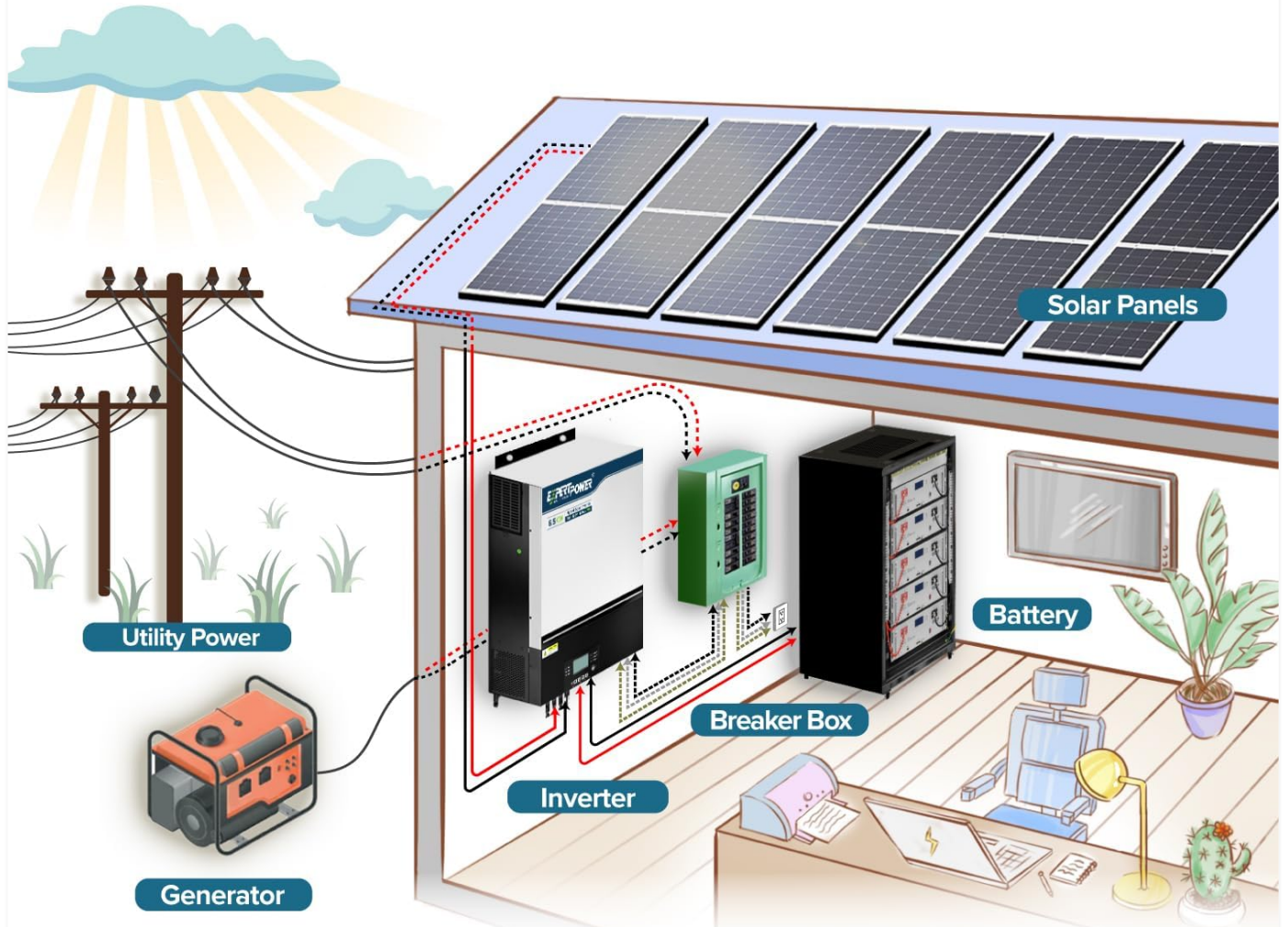
Your ExpertPower 15KWH 5400W 48V Solar Power System Kit includes the following main components:

- Three (3) 48V 100Ah LiFePO4 Batteries
- Ten (10) 540W Solar Panels
- One (1) 6500W Hybrid Solar Inverter equipped with a 120A MPPT Solar Charge Controller

Please note: Wiring cables, fuses, breakers, and connectors are not included and must be sourced separately according to your installation requirements and local electrical codes.

COMPLETE SYSTEM

This versatile inverter seamlessly integrates with your power sources, offering **Grid Power** (no feedback) and **Generator (AC)** passthrough capabilities. It also excels at inverting **Solar** and **Battery Bank (DC)** current, serving as your primary power source when AC Power is unavailable or when you're looking to optimize your electric bill expenses.



** Illustration for demonstration purposes only. Does not reflect final product installation.*

Figure 2: Overview of the complete solar power system setup. This illustration demonstrates the integration of solar panels, battery bank, inverter, and connections to external power sources and household loads.

3. SETUP AND INSTALLATION

Important Safety Notice: Installation of this solar kit requires a comprehensive understanding of electrical principles and strict adherence to applicable National Electrical Code (NEC), standards, and regulations. It is highly recommended to employ a certified professional for proper and secure installation to ensure safety and system integrity. Doing it yourself could cause serious injury or death and may void your solar kit's warranty and home insurance.

3.1. Charger Source Priority

The inverter allows you to configure how your battery bank is charged from different power sources. This setting is crucial for optimizing energy usage and battery longevity.

- **Solar First:** The inverter prioritizes solar power for charging the battery bank. AC input will only charge the battery

bank if solar power is not available.

- **Solar and AC Input:** Solar energy and utility power will charge the battery bank simultaneously.
- **Solar Only:** Solar energy will be the exclusive charging source, regardless of AC input availability.

Inverter Wi-Fi Monitoring

Pair with Wi-Fi APP, built in Wi-Fi transmitters allows you to monitor your hybrid inverter from anywhere via Wi-Fi. (Registration required)



Figure 3: Charger Source Priority settings for the inverter, showing how the battery bank can be charged from solar, AC input, or both.

3.2. Output Source Priority (Load Priority)

This setting controls how your inverter sources power for your appliances, ensuring 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:** The inverter will primarily use grid power. It will only use solar and batteries when AC input is not available.
- **DC Priority:** Prioritizes inverting from solar 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.

Enjoy Power Independence

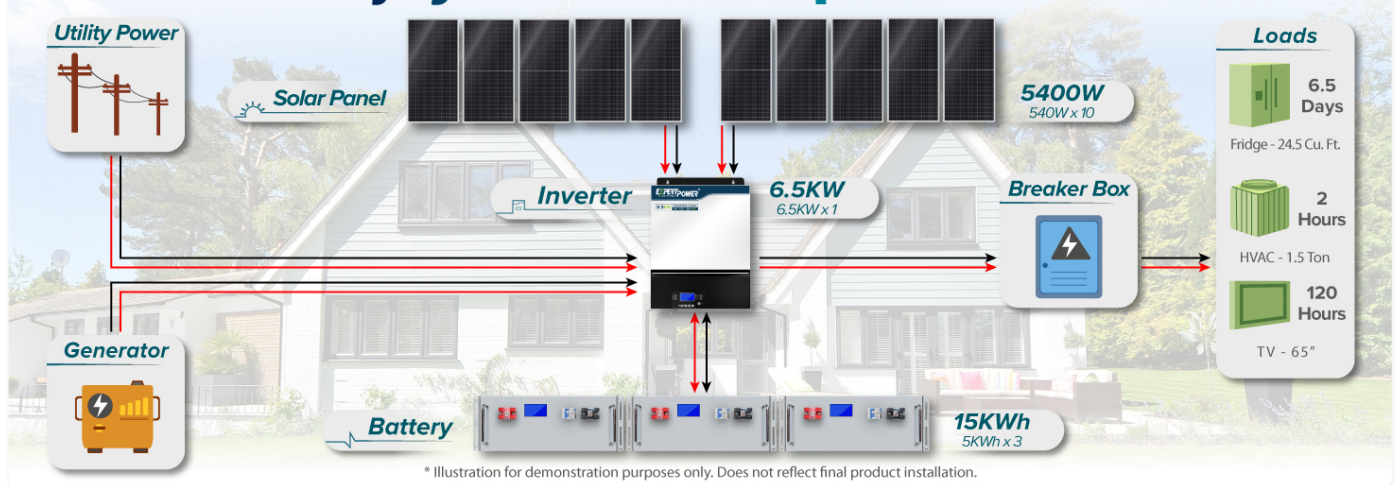


Figure 4: Output Source Priority settings for the inverter, showing how power is supplied to loads from solar, AC input, or battery.

3.3. Scalability and Parallel Connection

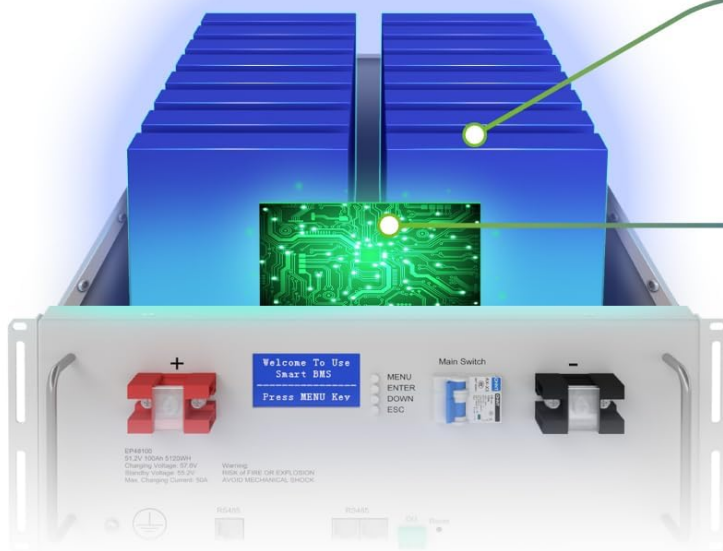
The ExpertPower system offers flexible scalability for both batteries and inverters to meet diverse energy demands.

- **Battery Parallel Connection:** You can connect up to 10 units of 48V 100Ah LiFePO4 batteries in parallel for a total

of 51.2 kWh of energy storage.

- **Inverter Parallel Connection:** Up to 6 inverters can be connected in parallel for a maximum power delivery of 39KW. This supports various configurations:
 - 120V Single-Phase operation (1-6 units)
 - 120V/240V Split Phase capability (2/4/6 units)
 - 208V 3-Phase (3/4/5/6 units)

INTELLIGENT BATTERY DESIGN



A+ Grade Prismatic Cells

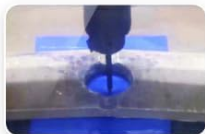
- Best Cell Design in The Industry
- Longest Lifespan of Any Cell Type
- Resistant to High Temperatures

Industry Leading BMS

- Over 20 Protection Parameters
- Resistant Against High Currents
- Accurate Battery Monitoring
- Over Charge & Discharge
- High & Low Temperature
- Auto Cell Balance
- Short Circuit

Safety 1st Design

All of our cells are rigorously tested and have proven well against a variety of damage* like:



Puncture



Short Circuit



Incendiary



Impact



Liquid

* For complete testing, please visit our website: expertpower.us

Figure 5: Battery and Inverter Parallel Connection options for expanding system capacity.

3-Phase: 3 & 4 Series-Parallel connection

For commercial applications needing 240V or 208V systems.

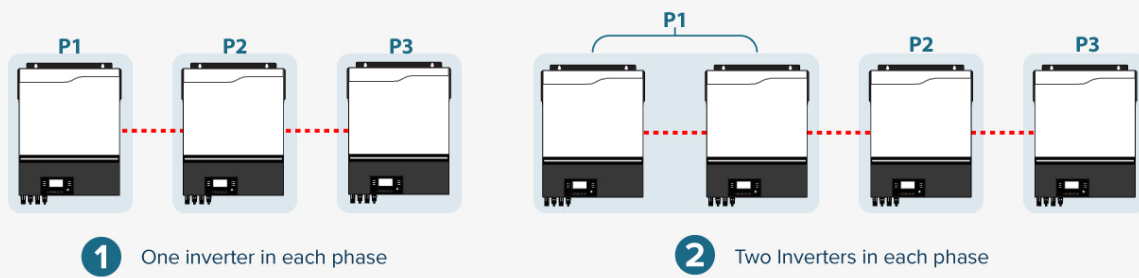


Figure 6: Advanced inverter configurations for 3-phase systems, allowing for flexible power distribution.

4. OPERATING YOUR SYSTEM

Once properly installed, your ExpertPower solar system is designed for efficient and reliable operation. The hybrid inverter manages power flow between solar panels, batteries, and connected loads based on your configured priority settings.

4.1. Wi-Fi Monitoring

The system's WiFi-enabled inverter allows for convenient remote monitoring of your solar power system. You can access real-time data and historical information through a dedicated mobile application.

- Download the "WatchPower Wi-Fi" app from your respective app store (iOS or Android).
- Pair your inverter with the app (registration may be required).
- Monitor battery parameters, cell health, temperature, and current flow.
- View inverter data such as grid frequency, PV input voltage, AC output voltage, and battery charging current.

ADVANTAGES OF BIFACIAL SOLAR PANELS

Capturing solar power from both sides can provide up to 30% more energy when compared to traditional solar panels.

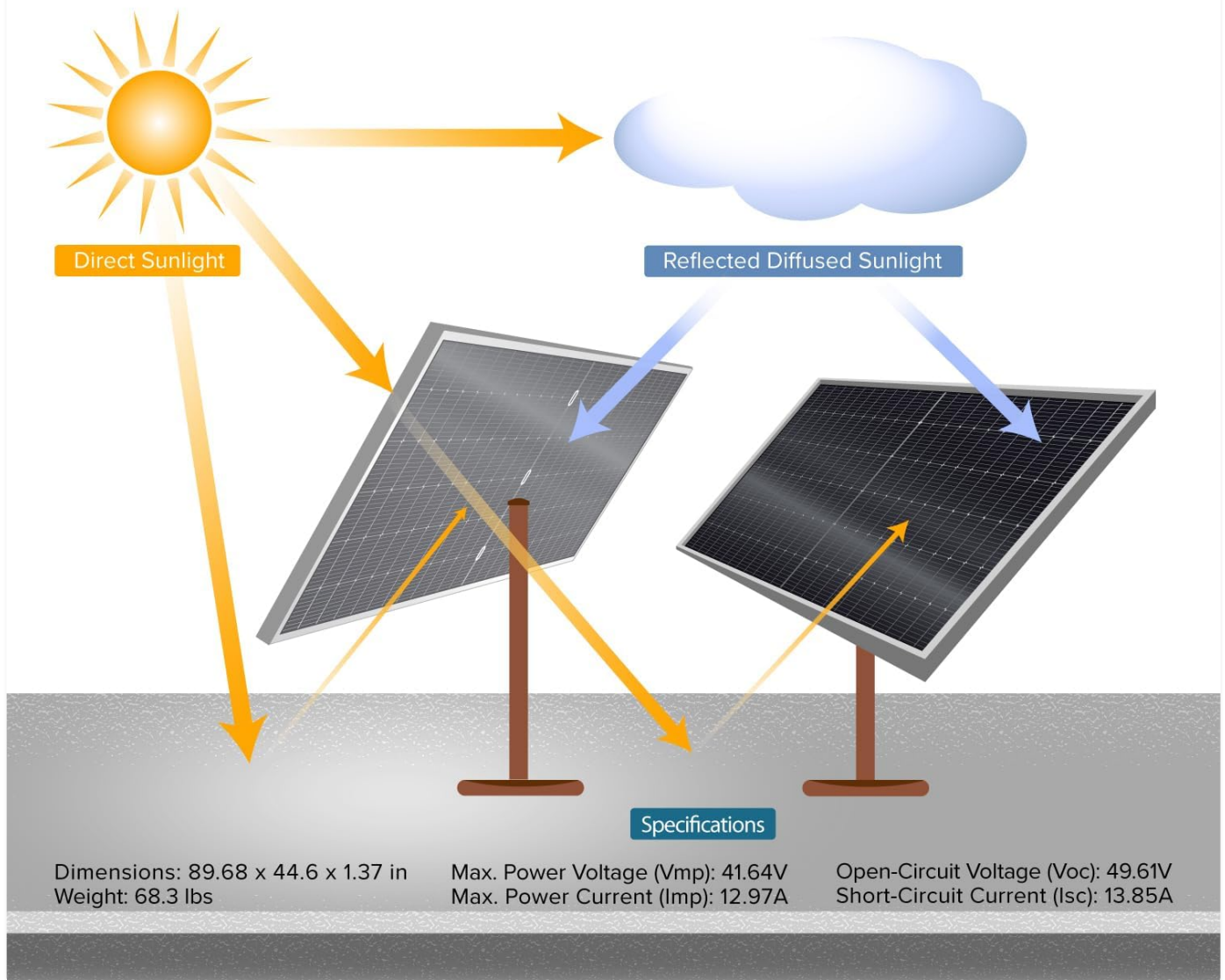


Figure 7: Battery Monitoring Display and Inverter Wi-Fi Monitoring via the mobile application.

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Video 1: Overview of the ExpertPower 15KWH 5400W 48V Solar Power System Kit, demonstrating its components and basic operational principles, including charging and load priorities.

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Video 2: Detailed look at the ExpertPower 48V 100Ah LiFePO4 Lithium Battery, highlighting its internal components, advanced BMS protection features, and scalability for larger systems.

5. MAINTENANCE

The ExpertPower solar power system, particularly the LiFePO4 batteries, is designed for low maintenance. However, regular checks can help ensure optimal performance and longevity.

- **Visual Inspection:** Periodically inspect all components (solar panels, inverter, batteries, wiring) for any visible damage, corrosion, or loose connections.
- **Panel Cleaning:** Keep solar panels clean from dust, dirt, and debris to maximize energy capture. Use a soft cloth and water.
- **Ventilation:** Ensure the inverter and battery areas have adequate ventilation to prevent overheating.
- **Software Updates:** Check the mobile app for any available firmware updates for the inverter to ensure it runs with the latest features and optimizations.

For any complex maintenance or repairs, always consult with a qualified technician.

6. TROUBLESHOOTING

If you encounter issues with your ExpertPower solar power system, consider the following general troubleshooting steps. For detailed diagnostics and complex problems, it is strongly advised to contact ExpertPower customer support or a certified electrician.

- **No Power Output:**
 - Check all circuit breakers and fuses to ensure they are not tripped or blown.
 - Verify all connections are secure and properly seated.
 - Ensure sufficient solar input (during daylight hours) or adequate battery charge.
 - Check inverter display for error codes and consult the inverter's specific manual for their meaning.
- **Battery Not Charging:**
 - Confirm solar panels are receiving adequate sunlight and are clean.
 - Check solar panel connections to the MPPT controller.
 - Verify charger source priority settings in the inverter.
 - Inspect battery connections for looseness or corrosion.
- **Inverter Alarms/Errors:**
 - Note the specific error code displayed on the inverter or in the mobile app.
 - Refer to the inverter's detailed manual for troubleshooting steps related to specific error codes.
 - Ensure proper ventilation around the inverter to prevent overheating.
- **Reduced System Performance:**
 - Check for shading on solar panels.
 - Ensure panels are clean.
 - Verify battery health and capacity via the monitoring app.

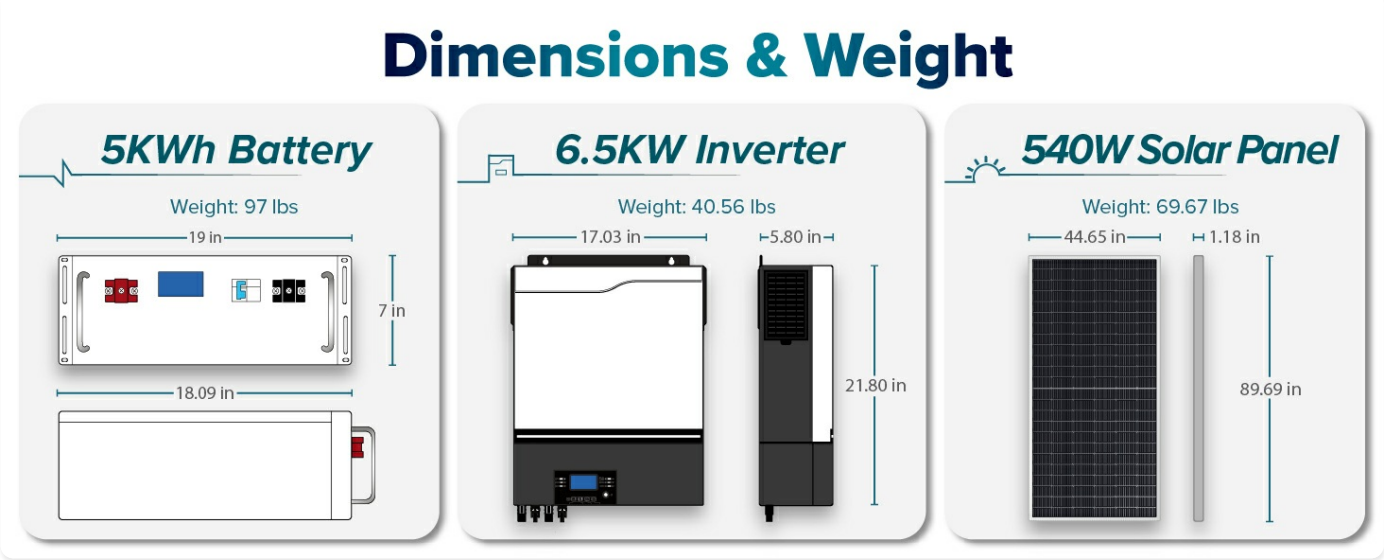
Always prioritize safety. Do not attempt repairs if you are not qualified. Contact ExpertPower support for assistance.

7. SPECIFICATIONS

ExpertPower 15KWH 5400W 48V Solar Power System Kit Specifications

Feature	Description
Brand	ExpertPower
Model Number	CLBX48VK2
Material	Lithium (LiFePO4)
Efficiency	High Efficiency
Connector Type	MC4
Included Components	Three 48V 100Ah LiFePO4 batteries, ten 540W Solar Panels, one 6500W Hybrid Solar Inverter equipped with a 120A MPPT Solar Charge Controller
AC Adapter Current	120 Amps
Maximum Voltage	48 Volts
Upper Temperature Rating	140 Degrees Fahrenheit (60°C)
Maximum Power	6.5 Kilowatts (Inverter)
Battery Capacity	15KWH (3 x 5KWH batteries)
Solar Panel Wattage	5400W (10 x 540W panels)

7.1. Dimensions & Weight



- Weight: 97 lbs
- Dimensions: 19 in (W) x 18.09 in (D) x 7 in (H)

- **6.5KW Inverter:**

- Weight: 40.56 lbs
- Dimensions: 17.03 in (W) x 5.80 in (D) x 21.80 in (H)

- **540W Solar Panel:**

- Weight: 69.67 lbs
- Dimensions: 44.65 in (W) x 1.18 in (D) x 89.69 in (H)

8. WARRANTY AND SUPPORT

ExpertPower stands behind the quality of its products. For specific warranty details, please refer to the warranty information provided with your purchase documentation or visit the official ExpertPower website.

For technical support, troubleshooting assistance, or any questions regarding your solar power system, please contact ExpertPower customer service. You can also refer to the comprehensive User Guide (PDF) available for download, which contains more detailed information.

User Guide (PDF): [Download Here](#)

9. IMPORTANT SAFETY INFORMATION AND DISCLAIMER

Working with electricity is inherently dangerous. The installation of this solar power system should only be performed by a qualified technician or electrician. Attempting to install the system yourself without proper qualifications could result in serious injury, death, or damage to property, and may void your solar kit's warranty and home insurance.

This manual and any diagrams provided are general guides meant to educate on the construction and operation of a typical solar array and should not be taken as direct instruction for installation. ExpertPower accepts no liability for any damages, injuries, or losses that may arise from the use of this information or the installation of the solar array. The responsibility for proper and safe installation lies solely with the qualified technician or electrician.

Stay safe and ensure a reliable solar installation by entrusting this task to a certified professional.

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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.

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