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PowMr POW-RELAB 5KU-SPLIT

PowMr 5000W Solar Inverter User Manual

Model: POW-RELAB 5KU-SPLIT

Brand: PowMr

1. Product Overview

The PowMr 5000W Solar Inverter is a hybrid off-grid inverter designed for 48V DC systems, providing 110V/220V AC output. It features a built-in 120A MPPT charge controller and delivers pure sine wave output. This inverter is engineered to handle peak power up to 15000W, making it suitable for various residential and commercial applications. Its robust design includes multiple protection features and supports a wide range of 48V battery types.

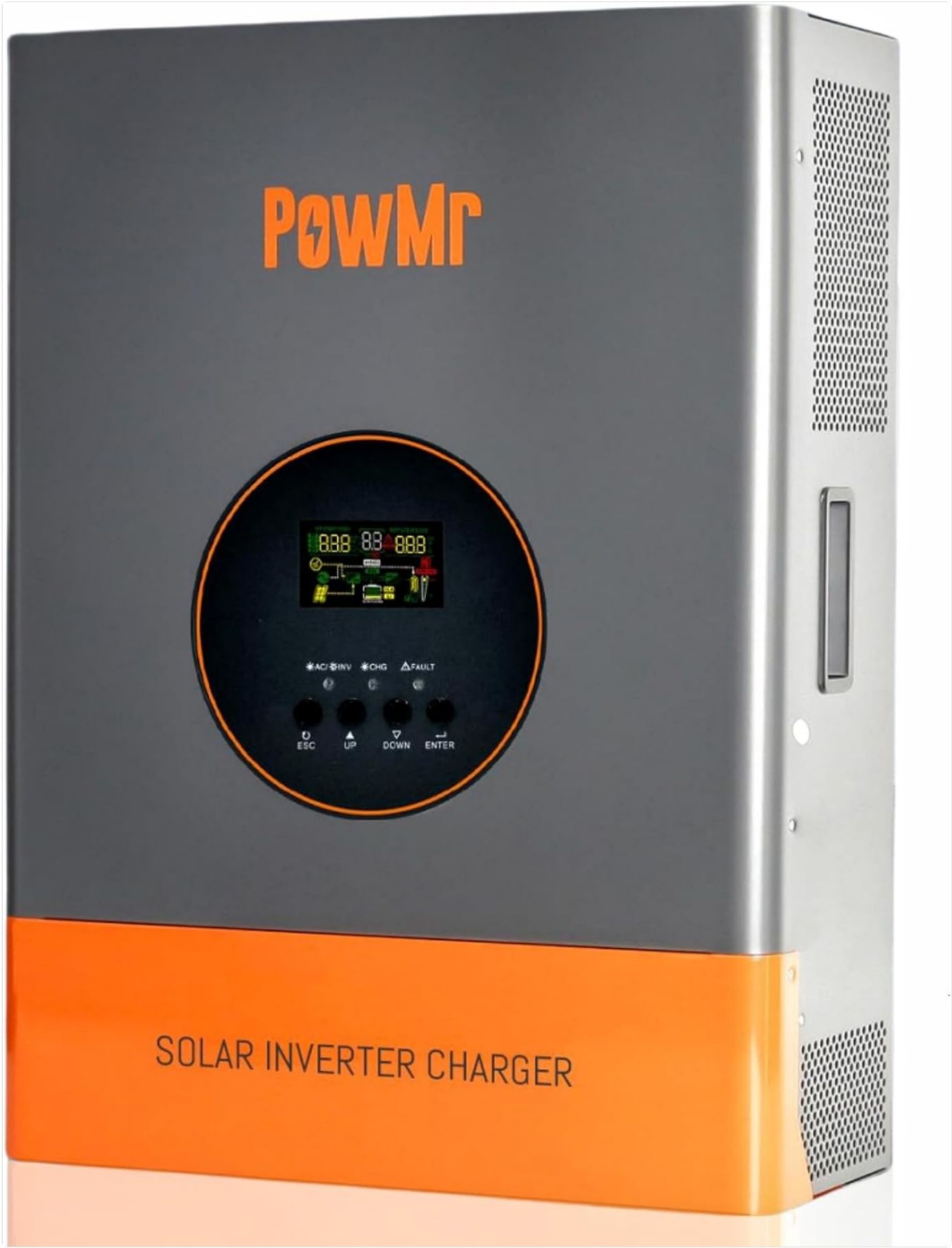


Figure 1: Front view of the PowMr 5000W Solar Inverter.



Figure 2: Key features and dimensions of the 5000W Hybrid Inverter, highlighting 5000W pure sine wave, 120A MPPT, 48VDC input, 110V/220VAC output, and 15000W peak power.

2. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your PowMr solar inverter. Ensure all connections are secure and follow local electrical codes.

2.1. Connection Ports Identification



Figure 3: Identification of key connection ports on the inverter, including toggle switch, AC input, AC output, communication port, PV input, and battery input.

2.2. Wiring Diagram

The inverter supports connections for solar panels (PV array), batteries, and AC input/output. Refer to the diagram below for typical wiring configurations.

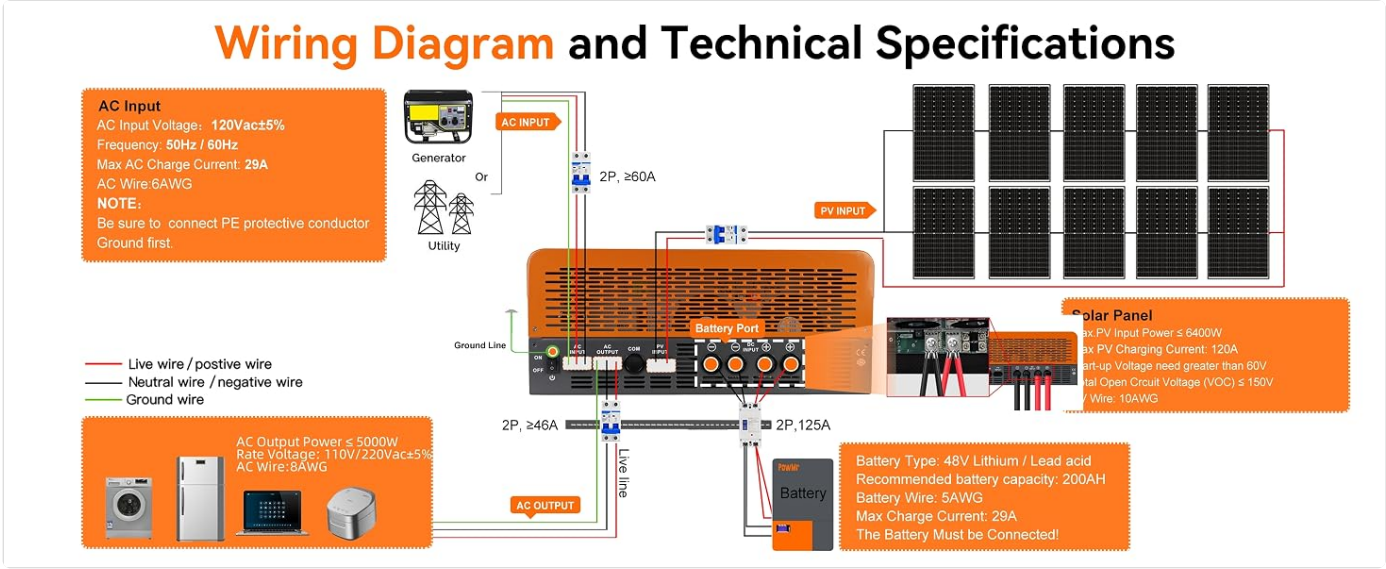


Figure 4: Comprehensive wiring diagram illustrating connections for AC input (utility/generator), PV array, battery, and AC output to loads. Note: Ensure PE protective conductor is grounded first.

2.3. Battery Connection

The inverter is compatible with various 48V battery types, including Flooded, LiCoMnNiO2, LiFePO4, AGM, Gel, and user-defined settings. Ensure correct polarity when connecting batteries.



Figure 5: Illustration showing the inverter connected to 48V batteries, compatible with GEL, FLD (Flooded), LI (Lithium), and USER-defined battery types.

2.4. Output Voltage Configuration

This inverter supports both 110V and 220V AC output configurations. The output voltage can be configured based on your specific load requirements. The video below demonstrates the output voltage test for the POW-RELAB series.

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Video 1: Output voltage test for the POW-RELAB series inverter. This video demonstrates how to test the 110V and 220V output from the AC output port, specifically showing measurements across L1-L2, N-L2, and N-L1 terminals.

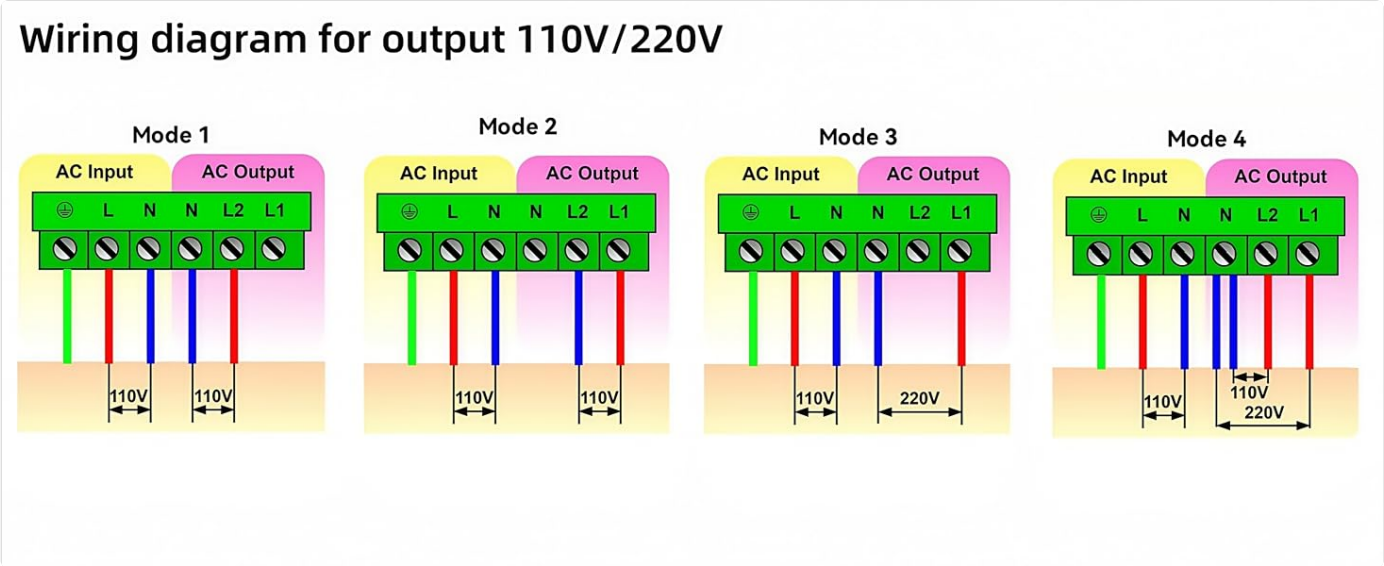


Figure 6: Various wiring configurations for achieving 110V and 220V output, showing connections for L, N, L1, and L2 terminals.

3. Operating Modes

The PowMr inverter offers flexible operating modes to optimize power usage based on your preferences and available energy sources.

3.1. Charging Modes

The inverter supports three distinct charging modes:

- **Solar-Only:** Prioritizes solar power for battery charging.
- **Utility Priority:** Prioritizes grid power for battery charging, using solar as a supplement.
- **Solar Priority:** Prioritizes solar power for battery charging, using grid power only when solar is insufficient.

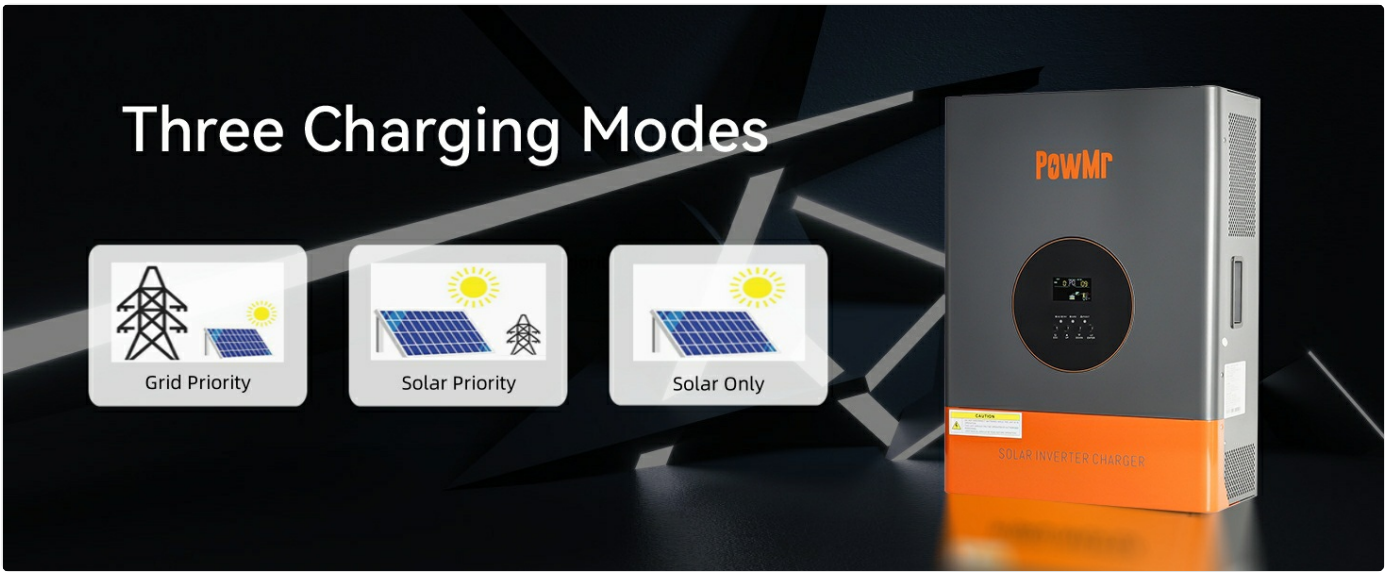


Figure 7: Visual representation of the three charging modes: Grid Priority, Solar Priority, and Solar Only.

3.2. Discharge Modes

The inverter also provides three discharge modes for power output:

- **PV Priority:** Prioritizes solar power for loads, then battery, then utility.
- **Utility Priority:** Prioritizes grid power for loads, then solar, then battery.
- **SBU First:** Prioritizes solar for loads, then battery, then utility.



Figure 8: Visual representation of the three output modes: Utility first, Solar first, and SBU first.

3.3. Load Handling Capability

The inverter is designed to manage a wide range of high-load electrical devices, with a peak power handling capacity of up to 15000W. This ensures stable and reliable power delivery for most household and office appliances.



Figure 9: The inverter's compatibility with various household and office appliances, emphasizing its 15000W peak power capability.

4. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your inverter.

- **Cooling System:** The inverter features a dual cooling fan design for efficient heat dissipation. Ensure the fans are not obstructed and are kept clean.
- **Dust Prevention:** The durable finish and dust-proof design help prevent dust from entering the inverter. Periodically clean the exterior to prevent dust buildup.
- **Connections:** Periodically check all electrical connections for tightness and signs of corrosion.
- **Environment:** Ensure the inverter is installed in a well-ventilated area, away from direct sunlight, moisture, and flammable materials.

5. Troubleshooting and Protection Features

The PowMr inverter is equipped with multiple protection functions to ensure safe operation and prevent damage to the unit and

connected devices. The LCD screen and 3 LED indicators provide dynamic display of system data and operating status, which can assist in identifying issues.

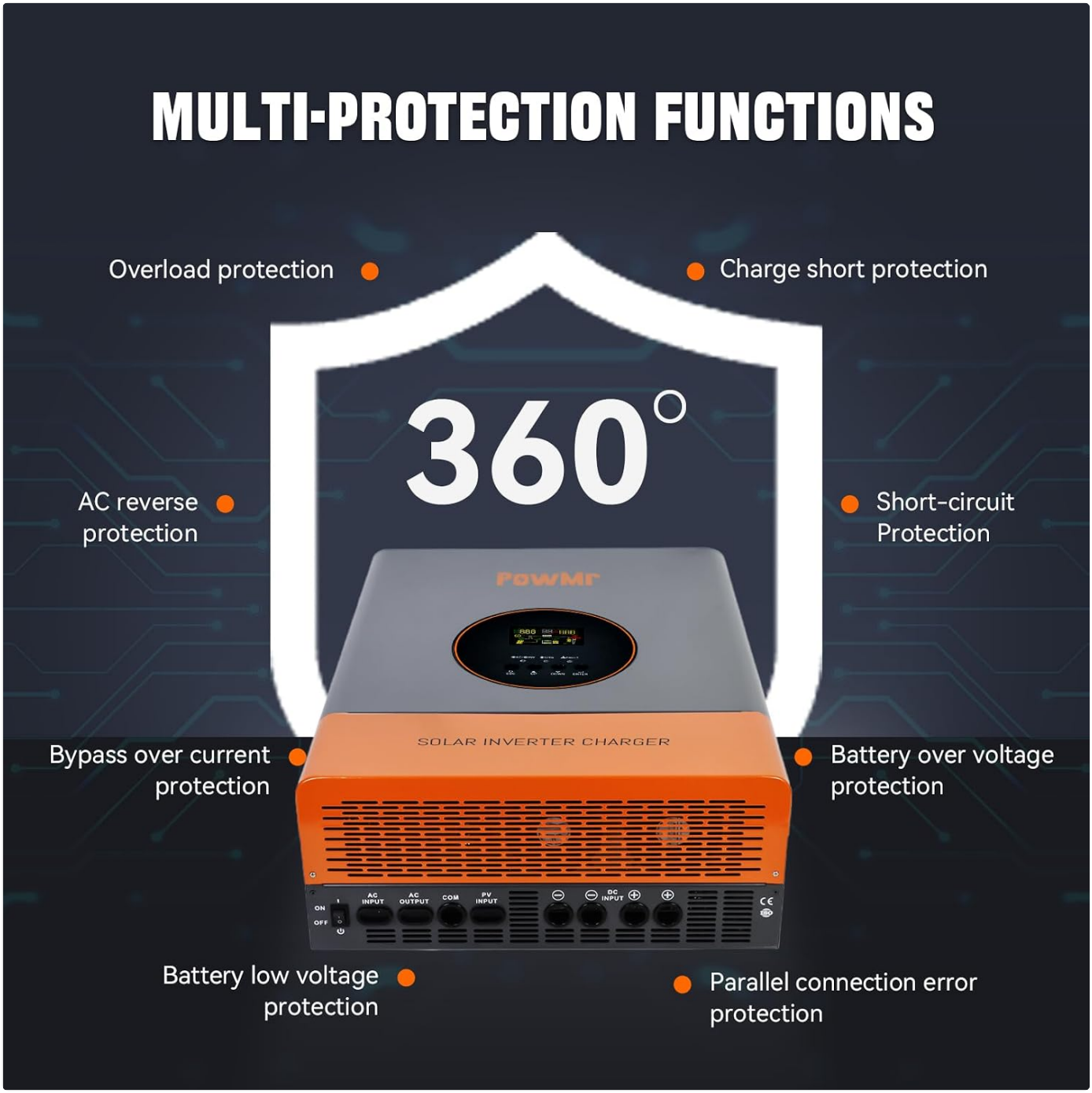


Figure 10: Overview of the inverter's multi-protection functions, including overload protection, charge short protection, AC reverse protection, short-circuit protection, bypass over current protection, battery over voltage protection, battery low voltage protection, and parallel connection error protection.

Common protection features include:

- **Short Circuit Protection:** Automatically shuts down in case of a short circuit.
- **Over Voltage and Under Voltage Protection:** Protects against input voltage fluctuations.
- **Overload Protection:** Prevents damage from excessive load.
- **Reverse Protection:** Guards against incorrect battery polarity.
- **Over-Temperature Protection:** Shuts down if internal temperature exceeds safe limits.
- **Over Charge Protection:** Prevents battery overcharging.

If an error occurs, consult the inverter's display for error codes or indicators and refer to the full product manual for specific troubleshooting steps.

6. Technical Specifications

Parameter	Value
Product Dimensions	15.7 x 7.9 x 21.4 inches
Item Weight	60 pounds
Item Model Number	POW-RELAB 5KU-SPLIT
Brand	PowMr
Recommended Uses	Vehicle, Office, Home
Power Source	Solar and Battery Powered
Rated Wattage	5000 watts
Peak Power	15000W
Max PV Input Power	6400W
Maximum PV Input Current	120A
MPPT Input Voltage Range	60-150VDC
Maximum AC Input Current	29A
Output Frequency	50Hz/60Hz
Output Voltage	110Vac ±10% (also supports 220V)

7. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the official PowMr website or contact their customer service directly. Keep your purchase receipt as proof of purchase for warranty claims.
You can visit the PowMr Store on Amazon for more product information and support resources.

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