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Pylontech US5000

Pylontech US5000 LiFePO4 Battery 4.8 kWh User Manual

Model: US5000 | Brand: Pylontech

1. Introduction

The Pylontech US5000 is a state-of-the-art LiFePO4 lithium battery storage system designed for solar applications. It offers high safety and long lifespan, even with regular deep discharges, thanks to its advanced technology and integrated Battery Management System (BMS). Each module monitors and balances individual cells, protecting against overvoltage, overtemperature, and deep discharge. The modular design allows for flexible capacity configuration, making it an optimal storage solution for both grid-tied and off-grid photovoltaic systems.

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your Pylontech US5000 battery module.

2. Safety Information

Important Safety Instructions: Read all instructions carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Due to its classification as dangerous goods, this product is shipped via freight carrier. Handle with care.
- Installation and maintenance should only be performed by qualified personnel.
- Do not disassemble, crush, puncture, or short-circuit the battery.
- Keep the battery away from fire, heat sources, and direct sunlight.
- Ensure proper ventilation during operation.
- Use only specified charging equipment and connection cables.
- In case of fire, use a Class D fire extinguisher. Water can be dangerous.

3. Product Features

- Extremely cycle resistant: over 6000 cycles at 95% Depth of Discharge (DoD).
- Long service life: over 10 years.
- Inherently safe lithium technology (LiFePO4).
- Compatible with many available inverters.

- Automatic address setting for multi-group connections.
- High charge and discharge capacity.
- Integrated Battery Management System (BMS).
- High energy density: reduced weight and compact design.
- Simple installation due to modular design.
- Absolutely maintenance-free and long-lasting.
- Built-in soft start function to reduce current peaks when the inverter starts from the battery.
- Dual active protection at the BMS level.
- Supports WakeUp via 5-12V signal from the RJ45 port.
- Pre-charge function to protect the ESS system from overvoltage.

4. Package Contents

The package typically includes the following components:

- 1x Pylontech US5000 LiFePO4 Battery (4.8 kWh per battery)
- Optional: Battery cabinet (0-1x)
- Optional: Pylontech battery to inverter connection cable set (0-1x)



Image: Pylontech US5000 connection cables, including orange and black power cables and two data cables.

5. Setup and Installation

The Pylontech US5000 battery module is designed for simple and modular installation. Ensure all safety precautions are followed before beginning installation.

1. **Unpacking:** Carefully unpack the battery module and inspect for any shipping damage.
2. **Placement:** Install the battery in a well-ventilated area, away from direct sunlight, heat, and moisture. Ensure the ambient temperature is within the specified operating range.
3. **Mounting:** The modular design allows for flexible mounting options, including rack mounting in a battery cabinet (if applicable).
4. **Connection:**
    - Connect the power cables from the battery to the inverter using the provided connection cable set. Ensure correct

polarity (+ to + and - to -).
    - Connect the communication cables (RS485, CAN) between the battery and the inverter, and between multiple battery modules if applicable. The system supports automatic address setting for multi-group connections.
5. **Initial Power-Up:** Follow the inverter manufacturer's instructions for initial system power-up. The battery features a pre-charge function to protect the ESS system from overvoltage during startup.



Image: Front panel of the Pylontech US5000 LiFePO4 battery, showing power switch, communication ports (CAN, RS485), and power terminals.

6. Operating Instructions

The Pylontech US5000 is designed for seamless integration with compatible inverters. Its integrated BMS manages the battery's operation to ensure optimal performance and longevity.

- **BMS Functionality:** The integrated BMS continuously monitors and balances individual cells, protecting against overvoltage, overtemperature, and deep discharge. This ensures safe and reliable operation.

- **Charging and Discharging:** The battery automatically manages charging and discharging cycles in conjunction with the connected inverter. Adhere to the recommended charge/discharge currents and voltage ranges specified in the technical details.
- **Soft Start Function:** A built-in soft start function helps to reduce current peaks when the inverter initiates operation from the battery, protecting both the battery and the inverter.
- **WakeUp Function:** The battery supports a WakeUp function via a 5-12V signal from the RJ45 port, allowing for remote activation or system restart.
- **Status Indicators:** Monitor the LED indicators on the front panel for operational status (RUN, ALM) and charge level.

7. Maintenance

The Pylontech US5000 LiFePO4 battery is designed to be absolutely maintenance-free throughout its long service life. No regular user intervention is required for cell balancing or electrolyte checks.

- **Cleaning:** Keep the battery module clean and free from dust. Use a dry, soft cloth for cleaning. Do not use liquid cleaners.
- **Environmental Conditions:** Ensure the battery operates and is stored within the specified temperature ranges to maximize lifespan and performance.
- **Periodic Inspection:** Periodically check all cable connections for tightness and signs of wear.

8. Troubleshooting

If you encounter issues with your Pylontech US5000 battery, consider the following general troubleshooting steps:

- **No Power/System Not Starting:**
  - Check all power cable connections for secure contact and correct polarity.
  - Verify the battery's power switch is in the 'ON' position.
  - Check the inverter's status and error codes.
- **Abnormal LED Indicators:**
  - Refer to the battery's specific LED indicator guide (usually found in the full product manual) to interpret warning or error signals (ALM LED).
  - An alarm LED might indicate overtemperature, undervoltage, or other internal issues managed by the BMS.
- **Communication Issues:**
  - Ensure communication cables (RS485, CAN) are correctly connected and not damaged.
  - Verify the communication settings on the inverter are compatible with the Pylontech US5000.

If the problem persists after performing these checks, please contact Pylontech customer support or your authorized dealer for assistance.

9. Specifications

Parameter	Value
Battery Type	Lithium Iron Phosphate (LiFePO4)
Nominal Voltage	48 V

Parameter	Value
Nominal Capacity	4800 Wh
Usable Capacity (95% DoD)	4560 Wh
Discharge Voltage Range	44.5 – 53.5 V
Charge Voltage Range	52.5 – 53.5 V
Max. Peak Current (charge/discharge)	200 A (15 sec)
Max. Continuous Current (discharge/charge)	120 A (15 min)
Recommended Charge/Discharge Current	75 A
Communication Interfaces	RS485, CAN
Weight	38 kg
Dimensions (L x W x H)	442 x 420 x 161 mm
Protection Index	IP20
Charge Temperature Range	0°C - +55°C
Discharge Temperature Range	-10°C - +55°C
Storage Temperature Range	-20°C - +60°C
Lifespan	Over 15 years
Cycle Life	Over 6000 cycles at 95% DoD
BMS / Monitoring	Integrated in each module
Certifications	TÜV, CE, UN38.10
Model Number	015655-002

10. Warranty

The Pylontech US5000 LiFePO4 battery comes with a**10-year manufacturer's warranty**. This warranty covers defects in materials and workmanship under normal use and service conditions. Please retain your proof of purchase for warranty claims.

For detailed warranty terms and conditions, please refer to the official Pylontech warranty document or contact Pylontech customer support.

11. Support

For technical support, service, or further inquiries regarding your Pylontech US5000 battery, please contact your authorized Pylontech dealer or visit the official Pylontech website for contact information.

When contacting support, please have your product model (US5000) and serial number readily available.

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