

Safety Precautions

Warning Before Using

1. Before installation, be sure to cut down the power and make sure the battery system is turned off;
2. Wiring must be correct, do not mistake the positive and negative wires, and ensure no short circuit with the external device;
3. Prohibited to connect the battery and AC power directly;
4. The batteries must not be used in series;
5. Battery system must be landing and the resistance must be less than 1Ω;
6. It must be ensured that the electrical parameters of battery system are compatible to related equipment;
7. Keep the battery away from water and fire.

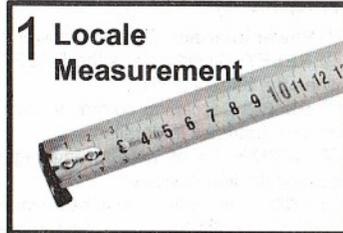
In Using

1. During the using of process, when the battery system needs to be moved or repaired, the power must be cut off and the battery is completely shutdown (note: slightly press the "RESET" to enable battery fast shutdown);
2. It is prohibited to put the batteries using together from different manufacturers, different description or different types;
3. When get fire, only dry powder fire extinguisher can be used, liquid fire extinguishers are prohibited;
4. Please do not open, repair or disassemble the battery except staffs from Pylontech or authorized by Pylontech. We do not undertake any consequences or related responsibility which because of violation of safety operation or violating of design, production and equipment safety standards.

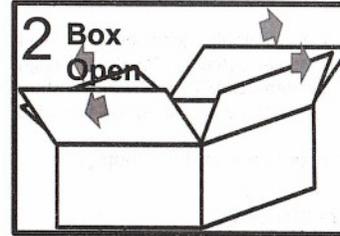
Reminded

1. The using and storage of battery must strictly comply with instructions (this manual and the label external chassis);
2. When batteries are stored for long, they required to be charged once every six months, and the quantity should exceed 80% of rated capacity;
3. When close to the end discharge, battery will start over-discharge protection, it need to be charged in 18 hours. The theoretical duration of battery backup power follows formula of $T=C/I$ (T: the duration of backup power, C: battery capacity, I: working current).

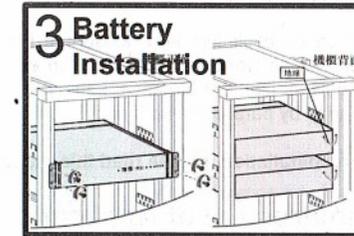
Installation and Using Steps



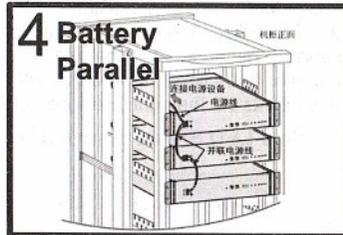
- ### 1 Locale Measurement
1. Calculate the required capacity according to the load power and backup duration;
 2. Measuring the scene space size and determine the location and manner of installation;



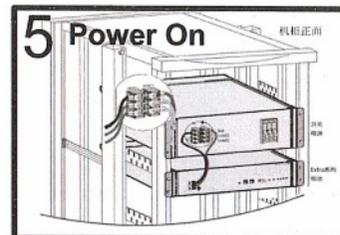
- ### 2 Box Open
1. Open and check box to verify that the device is intact;
 2. check the accessories according to the item list;



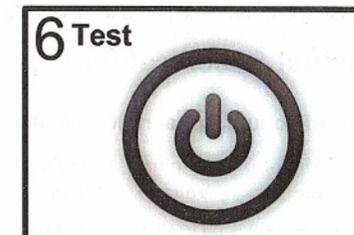
- ### 3 Battery Installation
1. Cut off the main power, install the battery and electrical grounding (the terminal is on the back of cabinet);



- ### 4 Battery Parallel
1. Single battery installation please proceed to step 5;
 2. When it need multiple batteries in parallel, post inserted into one of the two put the parallel cable terminals on the front panel of battery (as shown), similar for others;



- ### 5 Power On
1. Connect the power equipment: Plug one side of the power cable connected to red wire to "positive" and black wire to "negative", then insert the other side to the power interface to any idle connector of battery;



- ### 6 Test
1. Make sure that all cables are correctly connected, then power on;
 2. When connect power, the indicators will all light, and then the battery into the charging state; after all devices are completely started, set the charging voltage of the power supply to DC54V;
 3. After setting, confirm that the devices are working normally, cut off the main power and test the battery discharging state and the load must be normally working;
 4. If the battery and load are both work normally, restore main power. All installation work is completed.

Exception Handling

Problems	Reasons	Solutions
1 No feedback when power up	Problems in cable connection lead to external circuit fails;	Power outage, circuit continuity can be checked by multimeter, make sure all switches are normally connected, and then power on again; If switching power supply output voltage range is normal, replace the battery and power on, while the fault solution and battery maintenance please contact Pylontech;
	High external transient voltage or large current will destroy battery;	
2 When battery stops working, ALM lamp flashing (Alarm) or lighting (Protection);	The short-circuit protection will activate when external short circuit appeared;	Power off and check the connections, remove fault and power on;
	Reverse protection will activate when mistake positive and negative of power cable;	Power off and recheck positive and negative cables, then power on;
	Charging voltage is over 60V;	Power off and check the output of switching power supply;
3 Battery start working and ALM flash	Alarm: Battery temperature is too high or too low, or capacity is too low ;	When external environment becomes normal, alarm will stop automatically without manual working;

Note: with the normal external parameters, when battery works unusual, please do not repair and contact Pylontech.

Instructions of Extra Series from Pylontech (V1.0A)

Extra series of lithium iron phosphate battery system are suitable to provide reliable DC backup for all types of communication equipments, the power system is modular designed and built-in high-performance battery management system (BMS). The battery can be expanded by paralleling, so that different power backup power load can be easily achieved.

Before Installation, please read this manual carefully for better understanding.

1. Requirement of Application Environment

Operating Temperature: - 10℃ ~ +50℃;
Storage Temperature: - 40℃ ~ +80℃;
Relative Humidity: 5% ~ 93%;
Operating Environment: No conductive dust and corrosive gases.

2. Product Specification

Table 1 Product Appearance Parameters

Name	Model Number	Nominal Voltage	Nominal Capacity	Size(mm) (Width x Depth x Height)	Weight (kg)
Extra Series	Extra2000	DC48V	50Ah	436×370×132	25

Table 2 Product Electrical Parameters

Name	Model Number	Recommended Charging Voltage Range	Discharging Current Limit
Extra Series	Extra2000	DC52.5V~54V	50A

3. Interface & Indicator

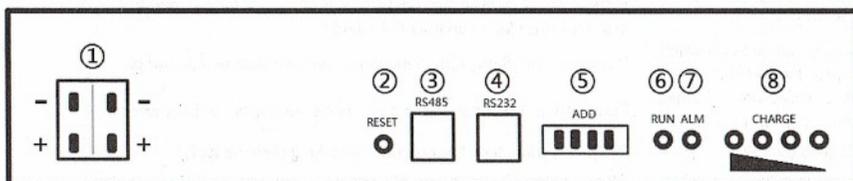


Figure 1 Front Interface of Extra Series

Interfaces and Functions of Extra Series Front Panel (Figure 1)

- ① **Power Interface:** Two-way power interfaces with the same functions, each can be used;
- ② **RESET:** Slightly press the RESET button can shut off battery, only for quickly shut down when the battery is idle;
- ③ **RS485:** Cascading communication interface, applied for cascade communication between multiple batteries in parallel;
- ④ **RS232:** Local network management interface, which can also be used to connect communication devices;
- ⑤ **ADD:** 4-bit address switches, when network cascade connect multiple batteries, for coding address of each battery module. If there is no network cascade requirement, please keep the default state from factory;
- ⑥ **RUN:** Green light, indicator of running status, it will be long bright when charging and flashing when discharging;
- ⑦ **ALM:** Red light, indicator alarm state, it will flash when alarming, long bright when equipment failure or protection;
- ⑧ **CHARGE:** 4 green lights, indicator of battery capacity, each light represents 25% of capacity. When it is full charged, 4 lights are all lighting; if it is 75 %, the left one light off and the right three lights; if 50%, the left two lights off, others lights; and when it is 25 %, the left three lights off, the right one lights. LED state instructions are shown in Table 3.

Table 3 LED Status Instructions

Battery Status	Protection/Alarm/Normal	RUN	ALM	CHARGE				Note
		●	●	●	●	●	●	
Shut		Off	Off	Off	Off	Off	Off	All off
Power on	Normal	On	On	On	On	On	On	All lighting for about 1s when power on
Standby	Normal	Flash1	Off	Off	Off	Off	Off	Indicated Standby Status
	Alarm	Off	Flash3	Off	Off	Off	Off	Low voltage indicator
Charge	Normal	On	Off	Based on Quantity of Electricity				The highest indicator flashes (Flash 2), others lighting
	Alarm	On	Flash3					
	Protection	Off	On	Off	Off	Off	Off	Stop charging, ALM lighting
Discharge	Normal	Flash3	Off	Based on Quantity of Electricity				Lighting based on Quantity of Electricity
	Alarm	Flash3	Flash3					
	Protection	Off	On	Off	Off	Off	Off	Stop charging, ALM lighting

Note: The flashing instructions, Flash 1: 0.25s light and 3.75s off; Flash 2: 0.5s light and 0.5s off; Flash 3: 0.5s light and 1.5s off.