



MTUL-A04

MTUL-S04

Lead Acid replacement Battery

User Manual

CONTENTS

- 1 Scope of application3
- 2 Product Functions 3
- 3 Product Parameters 3
- 4 Operational instructions5
- 5 Battery care and maintenance10
- 6 Battery Use Precautions11
- 7 Pre-harvest..... 13
- 8 Product Liability 13

1 Scope of application

In order for you to properly use, store and maintain our series of Lead Acid replacement Battery please read this manual carefully before use.

2 Product Functions

2.1 With online charging function

2.2 Battery with BMS function

Battery over-voltage protection, cell over-voltage protection, charging over-current protection, battery under-voltage protection, cell under-voltage protection, discharge over-current protection, temperature protection, short-circuit protection, reverse connection protection.

2.3 Battery with Bluetooth communication function

2.4 LCD displays

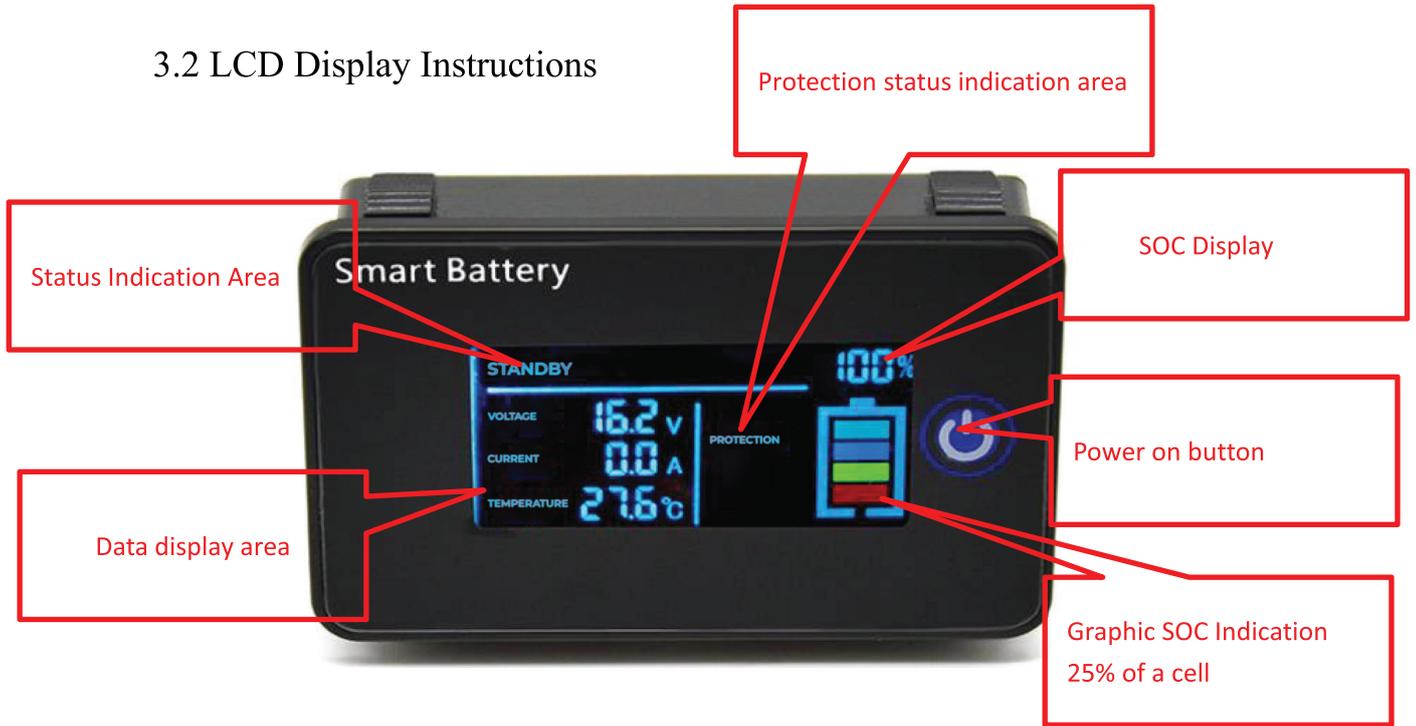
3 Product Parameters

3.1 Basic Product Parameters

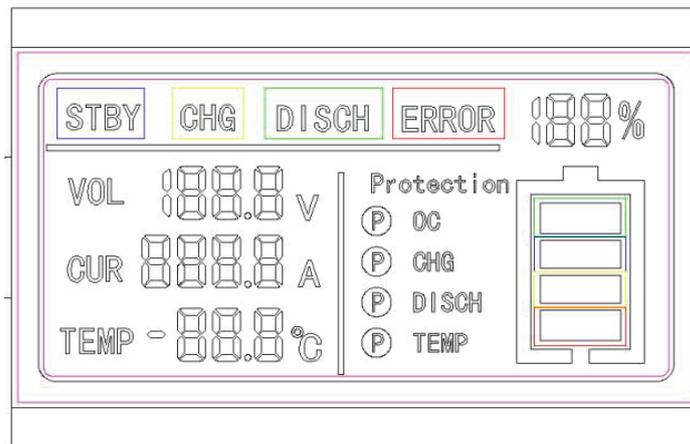
| Items | 12.8V150Ah | 12.8V280Ah | 25.6V150Ah | 25.6V280Ah |
|--------------------------------|----------------|----------------|----------------|----------------|
| Rated Voltage (V) | 12.8 | 12.8 | 25.6 | 25.6 |
| equalization voltage (V) | 14.4 ± 0.2 | 14.4 ± 0.2 | 28.6 ± 0.2 | 28.6 ± 0.2 |
| Standard charge current (A) | 50 | 100 | 50 | 100 |
| Maximum charging current (A) | 100 | 150 | 100 | 150 |
| Standard discharge current (A) | 50 | 100 | 50 | 100 |

| | | | | |
|-----------------------------------|--------|--------|--------|--------|
| Maximum discharge current (A) | 100 | 150 | 100 | 150 |
| Storage Temp. Range (°C) | -20~55 | -20~55 | -20~55 | -20~55 |
| Storage ambient humidity (RH) | 5%~95% | 5%~95% | 5%~95% | 5%~95% |
| Working environment humidity (RH) | ≤95% | ≤95% | ≤95% | ≤95% |

3.2 LCD Display Instructions



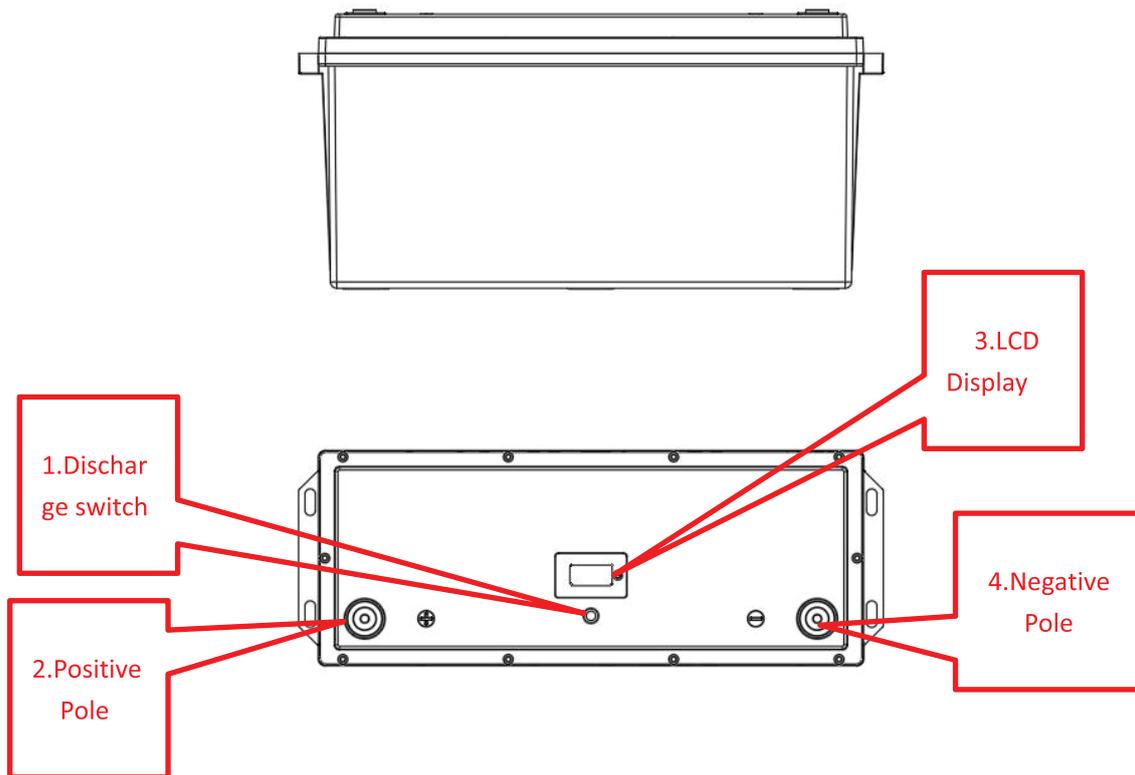
Display contents



4 Operational instructions

4.1 Operational instructions

4.1.1 Battery starting



Pictures are for reference only

| No. | Name | descriptive | note |
|-----|----------|----------------------------------|------|
| 1 | switch | Controlled Battery Discharge | |
| 2 | Positive | Battery Positive Port | |
| 3 | LCD | Display battery operation status | |
| 4 | Negative | Battery Negative Port | |

Note: When charging, you can not open the battery switch, the battery must open the battery switch when the battery is to be discharged externally.

4.1.2 Battery Voltage

When the battery is off, the battery pack voltage is 0V when measured with a multimeter;

When the battery is in the dormant state, use a multimeter to measure the battery pack voltage is about 0V;

When the battery is in working condition, use a multimeter to measure the voltage of the battery pack as 12~14.4V (12.8V battery)/24~28.8V (25.6V battery) as the normal working voltage.

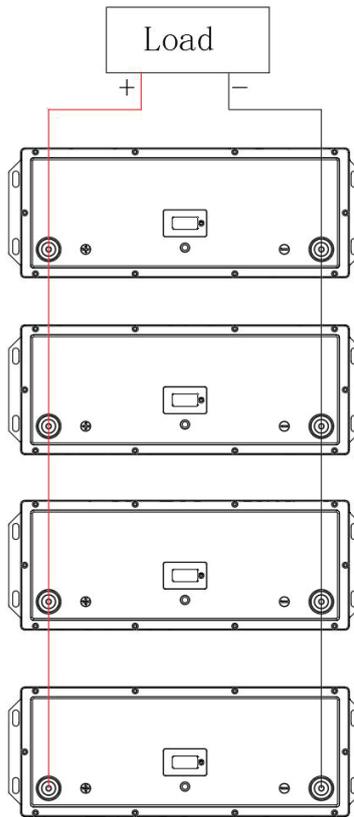
4.1.3 Battery connection

Turn off the battery, determine the positive and negative input terminals of the load equipment, connect the positive and negative terminals of the battery pack to the corresponding positive and negative input terminals of the load equipment, confirm again that the positive and negative terminals are connected correctly, and then turn on the battery switch.

1、 Parallel connection

Installation is as shown in the diagram below, connecting the positive and negative terminals of each parallel-connected battery group separately, and then connecting to the positive and negative terminals of the load.

NOTE: Parallel Connection Limitations: Up to 4 batteries



Parallel wiring diagram

2、 Series connection

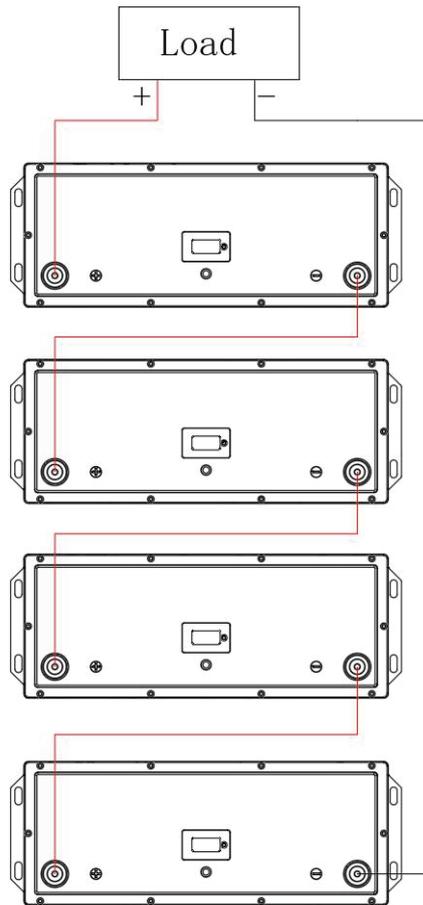
Installation is shown in the following schematic diagram, connect the positive pole of the first group of batteries to the negative pole of the second group, the positive pole of the second group of batteries to the negative pole of the third group, and so on; then connect the negative pole of the first group to the negative terminal of the load, and the positive pole of the last group to the positive terminal of the load.

NOTE:

Series Connection Limitations :

For 12V system Up to 4 batteries (reduces warranty to 12 months)

For 24V system Up to 2 batteries (reduces warranty to 12 months)



Series Wiring Diagram

4.1.4 Accessory specification requirements

Power cable: The discharge current limit of 150Ah battery pack is 100A, so the selection of parallel cable between batteries should be integrated with the load and the maximum current value of the batteries (for example, the parallel cable between 100A requires the selection of 16mm^2 single-core cable), and the connecting cable between the batteries and the load requires the selection of single-core cable above 35mm^2 .

Copper nose: battery terminals are mostly in the form of terminals, in the choice of connecting wire copper nose to consider the wire diameter and terminal diameter, such as SC25-8, SC50-10 and other specifications.

4.1.5 Bluetooth App access

Step 1: Download APP: WeChat sweep code to download small elephant electric APP



Step 2: Open the Little Elephant Electric APP, tap the code scanning function of the APP, and scan the QR code of the device on the battery to add the battery to the APP.



APP



QR code

5 Battery care and maintenance

(1) After completing the installation of the battery according to the installation manual, the battery should be fully charged before the battery is discharged for the first time.

(2) When the battery is low, it should be charged in time, which will be beneficial to extend the battery life. If you do not charge the battery in time, leaving the battery in a state of lack of power for a long time will affect the service life of the battery. If the battery needs to be put aside for a long time, it is better to keep the battery in a semi-charged state, and charge the battery every 2 months, 30A current charging for 2~3 hours can be.

(3) The battery should be installed in an air-circulating, dry and clean environment; avoid fire sources, flammable items close and disconnect the load (switch off the power equipment) when charging.

(4) The operating temperature of the battery is $-10 \sim 60 \text{ }^{\circ}\text{C}$ (the best operating temperature of $15 \sim 35 \text{ }^{\circ}\text{C}$), if outside this temperature range, the battery performance play may change, intuitively manifested in changes in the battery capacity, or changes in the operating time of the equipment, which is a normal phenomenon.

(5) Can not use organic solvents to clean the battery shell. Battery accidental fire, you can not use carbon dioxide to extinguish the fire, but should use carbon tetrachloride and other fire extinguishers or sand to extinguish the fire.

(6) The battery is a consumable product, the life of the battery is limited. Please replace the battery in time when the battery capacity performance is less than 80% of the rated capacity.

6 Battery Use Precautions

In order to prevent accidents such as leakage, abnormal heating, fire, degradation of performance, explosion, etc., please use the battery correctly according to the following specifications. We are not responsible for accidents caused by failure to operate according to the provisions of this manual.

(1) Hold and place the battery gently to avoid violent vibration.

(2) Do not connect the positive and negative terminals inversely to prevent short circuit;

(3) Do not put the battery pack into water or wet it;

(4) Do not charge the battery pack under fire or extreme heat conditions! Do not use or store the battery pack near a heat source such as a fire or heater;

(5) It is strictly prohibited to pierce the battery pack case with nails or other sharp objects, and it is forbidden to hammer or step on the battery pack;

(6) It is strictly prohibited to disassemble the battery pack and cells in any way;

(7) If the battery pack emits peculiar smell, heat, deformation, discolouration or any other abnormal phenomenon, it should be immediately removed from the electrical appliance or charger, and stop using it;

(8) If the electrolyte accidentally splashes into the eyes after the battery leaks, do not wipe it, flush it with water immediately, and seek medical assistance in time if it is serious;

(9) The ambient temperature will affect the discharge capacity, the discharge capacity will be slightly reduced when the ambient temperature exceeds the standard environment ($25^{\circ}\text{C} \pm 5^{\circ}\text{C}$);

(10) If the battery pack has a strange odour or abnormal sound during charging, please stop charging immediately;

(11) If the battery pack has a strange smell or abnormal sound during discharge, please stop discharging immediately;

(12) If the above phenomenon occurs, please contact the manufacturer and do not disassemble it privately.

7 Pre-harvest

Please charge the battery pack to about 50% charge (after discharging, it can be charged with 30A constant current for 2~3 hours), place it in a dry and ventilated place, and cycle it every two months. The battery pack should be stored in a clean, dry and ventilated place, avoid contact with corrosive substances, and keep away from fire and heat sources.

8 Product Liability

1. The Company is not responsible for accidents caused by operation in violation of the provisions of this manual;
2. If the content of this manual is changed due to the improvement of product quality or upgrading of related technical parameters, the Company will not give any notice. For the latest product information, please contact us for a copy.