

192V~576V-27Ah

Stacked Battery System Operating Instructions

www.austasolar.net

marketing@osdasol.com

315600 Ningbo, P.R.C



LIH5/7.5/10/12.5/15KWh

About this manual

This manual is intended for the LIH5/7.5/10/12.5/15KWh Stacked battery System.

Product Liability Statement

1.Austa accepts no liability for accidents caused by failure to follow these instructions. Ltd. will not be responsible for any accident caused by the operation not in accordance with the provisions of this manual.

2.Before using the product, please read the instruction manual carefully to understand how to use the product.

3.If the use of the product does not match the parameters specified in the manual, it is improper use. The company will not be responsible for any damage to the product or other peripheral connectors caused by improper use.

4.The Company reserves the right to interpret this manual.

5.The Company reserves the right to modify this manual, the Company has the right to modify this manual without prior notice.

We reserve the right to modify this manual without prior notice.

CONTENTS

| | |
|---|-------------|
| 1. Safety Introduction | 3 |
| 1.1 Important Safety Instructions | 3 |
| 1.2 Warnings in this Document | 3 |
| 1.3 Battery Handling Guide | 4 |
| 1.4 Response to Emergency Situations | 4 |
| 1.4.1 Leaking Batteries | 4 |
| 1.4.2 Fire | 4-5 |
| 1.4.3 Wet battery | 5 |
| 1.4.4 Damaged Battery | 5 |
| 1.5 Installers | 5 |
| 1.6 Notes on use | 6 |
| 1.7 Scrap Battery | 6 |
| 1.8 Contact Information | 6 |
| 2. Guidance for Disconnection of Batteries During Shipment | 6 |
| 3. Product Introduction | 7-10 |
| 3.1 Technical Specifications | 7 |
| 3.2 Indicator and Ports | 8-9 |
| 3.3 Instructions for electricity quantity | 9-10 |
| 4. Battery operating conditions | 10 |
| 4.1 Ambient temperature of use | 10 |
| 4.2 Storage | 10 |
| 5. Common Failure Determination | 10 |
| 6. Battery Care and Maintenance | 11 |

1. Safety Introduction

1.1 Important Safety Instructions








This manual contains important instructions for:

LIH5/7.5/10/12.5/15KWh Stacked battery System product and this manual must be followed when installing and using this product.

This product is designed and tested in accordance with international safety requirements CE and IEC 62619, but as with all electrical and electronic equipment, certain precautions must be observed when installing and operating the product. To reduce the risk of personal injury and ensure the safe installation and operation of the product, you must read carefully and follow all instructions, cautions and warnings in this manual.

1.2 Warnings in this Document

A warning describes a hazard to equipment or personnel. It calls attention to a procedure or practice which if not correctly performed, could result in damage to or destruction of part or all of the Austa equipment and/or other equipment connected to the equipment or personal injury.

| Symbol | Description |
|---|---|
|  | Caution, risk of electric shock |
|  | Heavy enough may cause severe injury |
|  | Keep the battery away from open flame or ignition sources |
|  | Keep the battery away from children |
|  | Do not dispose of the product with household waste |
|  | Recycling |
|  | Read this manual before installation and operation |

For safety reasons, installers are responsible for familiarizing themselves with the contents of this manual and all warnings before performing installation.

1. Safety Introduction

1.3 Battery Handling Guide

- Use the battery pack only as directed.
- If the battery defective, appears cracked, broken or otherwise damaged, or fails to operate, contact the Austa hot line +86 574 89137130 immediately.
- Do not attempt to open, disassemble, repair, tamper, or modify the battery.
- To protect the battery and its components from damage when transporting, handle with care.
- Do not subject it to any strong force.
- Do not insert foreign objects into any part of the battery pack.
- Do not use cleaning solvents to clean the battery.

1.4 Response to Emergency Situations

The Austa battery is designed with multiple safety strategies to prevent hazards resulting from failures. However, Austa cannot guarantee their absolute safety for uncertain situations.

1.4.1 Leaking Batteries

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. Electrolyte is corrosive and contact may cause skin irritation and chemical burns. If one is exposed to the leaked substance, do these actions:

Inhalation: Evacuate the contaminated area, and seek medical attention immediately. Eyes contact: Rinse eyes with flowing water for 15 minutes, and seek medical attention immediately.

Skin contact: Wash the affected area thoroughly with soap and water, and seek medical attention immediately.

Ingestion: Induce vomiting as soon as possible, and seek medical attention immediately.

1.4.2 Fire

Fire-fighting method: The battery contains fire-fighting aerosol, which will trigger the firefighting eruption when there is a short-circuit or high temperature out-of-control fire inside the battery and feed back to the BMS to protect the cut-off function.

In case of a fire, make sure that an ABC or carbon dioxide extinguisher is near by and does not use water to extinguish the fire.

If a fire breaks out where the battery is installed, do these actions:



1.Safety Introduction

1. Extinguish the fire before the battery catches fire.
2. If the battery has caught fire, do not try to extinguish the fire. Evacuate people immediately.

WARNING

If the battery catches fire, it will produce poisonous gases. Do not approach.

1.4.3 Wet battery

Do not immerse the battery and accessories in water or other liquids and protect them from moisture.If the battery is wet or submerged in water, do not try to access it. Contact Austa hot line or your distributor for technical assistance.

1.4.4 Damaged Battery

If deformation or leakage is found during use, do not use the battery again and send it to the battery manufacturer for repair as soon as possible.If the battery damaged,please contact Austa customer service or your distributor for help as soon as possible, because damaged battery is dangerous and must be handled with extreme caution. Damaged battery is not suit for use and may pose a danger to people or property. If the battery seems to be damaged, return it to Austa or your distributor.

CAUTION

Damaged battery might export electrolyte or flammable gas, so contact Austa for advice and information immediately we will deal with it.

1.5 Installers

Austa Energy Storage battery is suggested installing by skilled worker or electrician. A skilled worker is defined as a people who had been trained and qualified electrician or had all of the following skills and experience:

- Knowledge of the functional principles and operation of on-grid Energy Storage systems.
- Knowledge of the dangers and risks associated with installing and using electrical devices and acceptable mitigation methods.
- Knowledge of the installation of electrical devices
- Knowledge of and adherence to this manual and all safety precautions and best practices.

1.Safety Introduction

1.6 Notes on use

Short-circuiting of the positive and negative outputs should be avoided.It is prohibited to use this battery in series or parallel with other models and other manufacturers' batteries:

1.7 Scrap Battery

For scrap battery(-ies), please treat with local laws or regulations to recycle or scrap.

1.8 Contact Information

Use the contacts for technical assistance. The phone numbers are available only during business hours on weekdays.

| | |
|----------------|---|
| Fax | +86 574 89137130 |
| Email | marketing@osdasol.com |
| Address | No.136.Haichuan Rd.,Jiangbei District 315600 Ningbo,P.R.C |

2.Guidance for Disconnection of Batteries During Shipment

- Battery packs should be suitable for transportation by car, train, airplane, etc., but sunshine, rain and violent vibration should be avoided during transportation.
- Battery packs should be packed with insulated shockproof materials and labeled with fragile characters to avoid damage to the battery packs caused by bumps on the way.

Should use the group pole column facing upwards, and mark the good upward labeling, do not put upside down, sideways, etc.

- During transportation, it must be gently held and put down, do not throw it randomly to avoid collision.
- Do not press heavy objects on top of the battery pack during transportation to avoid damage caused by extrusion.
- Do not mix with flammable and explosive, sharp metal objects, etc. for transportation.
- During loading, unloading and transportation, if the forklift crashes the product or inserts and drops the product, you must notify us in time, inform us of the detailed information and the corresponding pictures, such as the state of the product (whether it is deformed, water, heat, etc.), and do a good job of marking and isolation, and we will tell you how to deal with it, because these may bring safety problems.

3.Product Introduction

3.1 Technical Specification

High Voltage



| Battery Module | 2 | 3 | 4 | 5 | 6 |
|---------------------------------------|--------------------|---------|---------|---------|---------|
| Rated capacity (kWh) | 5.18 | 7.77 | 10.36 | 12.96 | 15.55 |
| Available capacity (KWh) | 4.66 | 6.99 | 9.32 | 11.66 | 13.99 |
| Rated voltage (V) | 192 | 288 | 384 | 480 | 576 |
| Operating voltage (V) | 168-216 | 252-324 | 336-432 | 420-540 | 504-648 |
| Max. continuous discharge current (A) | 27(1C) | | | | |
| Max. discharge power (kW) | 4.14 | 6.21 | 8.28 | 10.36 | 12.44 |
| Battery module(single pack) | 96V-2.59KWh | | | | |
| Cell type | IFP 20100140A-27Ah | | | | |
| Cell configuration | 60S1P | 90S1P | 120S1P | 150S1P | 180S1P |

| Technical Description | | | | | |
|-----------------------------------|--|-------------|-------------|--------------|--------------|
| Charging operating temperature | 0℃~50℃ | | | | |
| Discharging operating temperature | -20℃~50℃ | | | | |
| Storage temperature | -20-45℃ (≤1 month) 0-35℃ (≤1 year) SOC:≥50% | | | | |
| Life cycles | 6000 @0.2C/0.2C,25℃ | | | | |
| Altitude (m) | ≤2000 | | | | |
| Protection | IP65 | | | | |
| Communication | CAN | | | | |
| Cooling | Natural | | | | |
| Installation | Overlay landing | | | | |
| Dimension(W×H×D mm) | 600×590×240 | 600×770×240 | 600×950×240 | 600×1130×240 | 600×1310×240 |
| Weight(kg) | 70.1 | 97.9 | 125.7 | 153.5 | 181.3 |
| Rated capacity | Test conditions: cell voltage 2.5V-3.65V, 25±3℃ temperature range, 0.5C charge and discharge | | | | |
| Available capacity | Test conditions: 90% depth of discharge, 25±3℃ temperature range, 0.5C charge and discharge | | | | |

3.Product Introduction

3.2 Indicator and Ports



| Item | Designation | Definition |
|------|---|--|
| 1 | Port | ①、PCS-RJ45 communication connector ②、 When multiple clusters, from the machine RJ 45 input port ③、 Debug the CAN communication port |
| 2 | Port | ①、 PCS _ RS 485 communication port ②、 Debug the CAN communication port |
| 3 | Port | ①、 When multi-cluster machine, insert RJ 45 terminal resistance from the machine ②、 From the terminal RJ 45 terminal resistance port ③、 RJ 45 terminal resistance port in single-machine use |
| 4 | Lithium battery output positive electrode | Connect the PCS battery terminal input negative electrode |
| 5 | Lithium battery output negative electrode | Connect the PCS battery terminal input positive electrode |
| 6 | Pushbutton | Low pressure switch pushbutton |
| 7 | Switch | Air switch |
| 8 | Indicator light | Battery level indicator light From left to right, it is: 100% 75% 50% 25% |
| 9 | LOGO | Austa nameplate |
| 10 | RJ 45 Crystal head | PDU _ OUT port RJ 45 terminal resistance hea |

3.Product Introduction

- 1.Check for abnormalities and other conditions before battery connection.
- 2.According to the base support, battery box- -6,5,4,3,2,1, high pressure box successively superposition;
- 3.If urgent, the — 2 # 3 # RJ 45 port has a debugging CAN RJ45 port to connect to the BMS upper computer (only one data can be seen, and the overall data for subsequent machines is being developed and tested)
- 4.For the single cluster connection, the 10 # RJ 45 crystal head terminal resistance needs to be inserted into the OUT port
- 5.When multiple clusters are required, RJ 45 port connects the network cable according to 1 #, 2 #, 3 # and output input port; and insert the 10 # RJ 45 crystal head terminal resistance into the OUT port of the last slave
- 6.The positive and negative connection between the high voltage box and PCS; junction box can be provided when more than two clusters are required
- 7.Upper power step:

- 7.1 Turn on the air switch, close, and check whether there is any abnormality;
- 7.2 Press the power button, the light board will blink in turn (the internal BMS completes the self-inspection and insulation detection). After the battery completes the self-test and there is no abnormality, the power indicator light will blink according to the real-time quantification, and the LOGO is always on;
- 7.3 The power indicator light (0% -100%) will blink in the charge / discharge state.

3.3 Instructions for electricity quantity

Function declaration:You can view the battery power display

- Light up the instructions
 - "0": Not bright; "1": bright; SOC is the display SOC;
 - "Flash 1": bright 0.5S, out 2.0S, cycle;
 - "Flash 2": bright 1.0S, out 1.0S, cycle;
 - "Flash 3": bright 2.0S, out 2.0S, cycle;
- Soc power quantity change table

| SOC \ LED | LED5 (HSS7) | LED4 (HSS6) | LED3 (HSS5) | LED1 (HSS3) |
|-------------|-------------|-------------|-------------|-------------|
| (85% ,100%) | 1 | 1 | 1 | 1 |
| (75% , 85%) | Flash2 | 1 | 1 | 1 |
| (60% , 75%) | 0 | 1 | 1 | 1 |
| (50% , 60%) | 0 | Flash2 | 1 | 1 |
| (35% , 50%) | 0 | 0 | 1 | 1 |
| (25% , 35%) | 0 | 0 | Flash2 | 1 |
| (10% , 25%) | 0 | 0 | 0 | 1 |
| (5% , 10%) | 0 | 0 | 0 | Flash2 |
| (0% , 5%) | 0 | 0 | 0 | 0 |

3.Product Introduction

- Icon; ico



4.Battery operating conditions

4.1 Ambient temperature of use

Discharge: -20°C~60

Charging:0°C~55°C

Storage temperature:-20-45°C(≤one month)0-35°C(≤one year)SOC:≥50%

4.2 Storage

Batteries should be stored as much as possible in an indoor environment with a relative humidity of ≤90%, (dry, ventilated and clean environment, avoiding contact with corrosive substances, principle sources of ignition and heat, and with the batteries in a state of 50%-70%, and in order to prevent over-discharging, charging 1H (0.5C) is carried out every other month).

5.Common Failure Determination

| Fault condition | Method settle an issue |
|--|---|
| Battery pack cannot be charged or discharged | 1、 Check that the wiring is connected correctly |
| | 2、 Check for normal battery pack voltage |
| | 3、 Check for loose battery connections |
| | 4、 Disconnecting the load before switching on |
| | 5、 Reboot after shutdown |
| Battery heats up during use | 1、 Excessive continuous operating current (charging and discharging ≥ 1C) |
| | 2、 Loose battery plug connection |
| | 3、 Check the display to see if the battery is nearly discharged, and check the temperature points for abnormalities |

6. Battery Care and Maintenance

- Batteries should be fully charged before first use, after 3-5 cycles, the battery capacity can be maximised.
- When the battery capacity is insufficient, it should be charged in time, which is beneficial to the battery life. If the battery is not charged in time, the battery life will be affected if the battery is in a state of power loss for a long period of time. If the battery is to be left for a long period of time, it is best to keep the battery at SOC: 50-70 per cent. If the battery is to be left for a long period of time, it is better to keep the battery at SOC: 50%-70% and to charge it every 2 months for a period of 1H (according to the specified charging power of 0.2C).
- Batteries should be in an air-circulated, dry environment, avoiding close to sources of ignition and flammable and explosive substances. Disconnect the load and air switch when not in use. Disconnect the load and air switch.
- Organic solvents should not be used to clean the battery case, and carbon dioxide fire extinguishers should not be used in the event of an accidental fire. Use carbon tetrachloride fire extinguisher or sand.
- Battery is a consumable product, please replace the battery in time when the battery capacity is less than 60-70% of the rated capacity.



NINGBO AUSTA SOLAR TECH CO.,LTD