# USER MANUAL

## BSB-ESS-51.2V-280AH-Luxury




BIGBANG SOLAR COMPANY LIMTED

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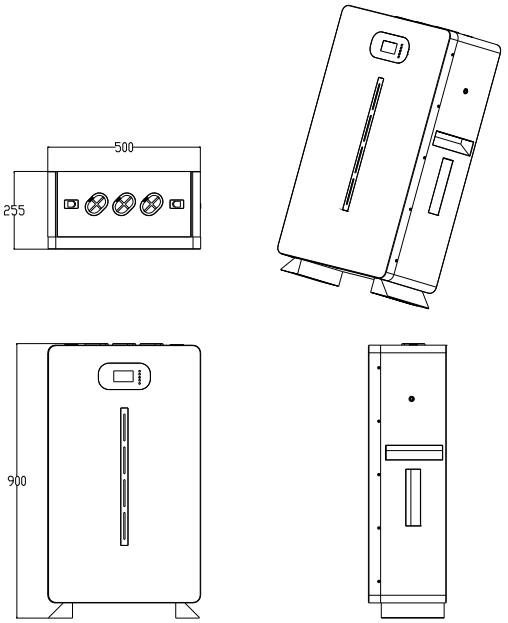
# 01

# TECHNICAL DATA

## note

Operating current derating according to cell

Voltage and battery temperature



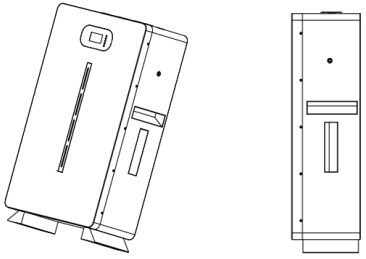

| | |
|---|---|
| Power supply model | BSB-ESS-51.2V-280Ah-Luxury |
| Nominal voltage | 51.2V |
| Nominal capacity | 280Ah/14.336kWh |
| Charging protection voltage | 56.8V |
| Discharge protection voltage | 46.4V |
| Recommended charging current | ≤140A |
| Maximum charging current | 200A |
| Recommended discharge current | ≤140A |
| Maximum discharge current | 200A |
| Battery cycle life | ≥6000（25°C±2°C，0.5C charge-discharge，DOD≥80%） |
| Communication mode | RS485/RS232/CAN |
| Charging temperature | 0~55℃ |
| Operating temperature | -20~55℃ |
| Battery weight | ≈128Kg |
| Battery size | 500*255*900mm<br>（adjustable） |
| certification | MSDS、UN38.3 |
| Adaptable inverter<br>(can customized) | **485:** PYLONTECH、TOPBAND、GROWATT、LUXPOWER、CPSYPOWER、SRNE、Felicity solar、ANC、Shark TopSu<br>**CAN:** PYLONTECH、Deye、TOPBAND、GROWATT、LUXPOWER、GOODWE、SHOUHANG、INVT、MEGAREVO、GINLONG、Afore、SOROUPS、CFAT、BEITT、MUST、SMA、SACOLAR、TBB |

*Can be customized according to the needs, the final interpretation of this product is owned by the company, subject to change without prior notice

# 02

# PRODUCT OVERVIEW

## 2.1 Brief introduction



Product overview

This product is made of Iron(III) phosphate lithium battery cells in series，It is an advanced environmentally friendly household energy storage system，Fashionable design with high energy. long service life，Easy to install and expand.

With rich battery management experience and advanced Energy storage，BSB-ESS-51.2V-280Ah-Luxury Equipped with advanced intelligent Battery management system，The

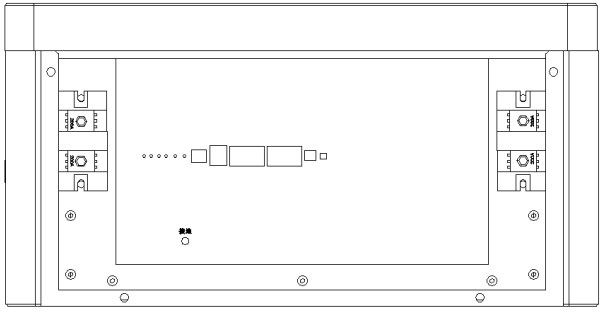
system adopts a modular design，ntegrating functions such as collection, monitoring,

management, and communication，Achieved high-precision single voltage（10mv）/ Current collection，Can simultaneously monitor the environment，Temperature changes of battery cells and main heating devices. Extending the lifespan of battery cells and devices，Simultaneously equipped with intelligent charging balance，SOC，

Power estimation，Data storage, charging current limiting protection module，LED color light bar display，Pre charging, RS232 communication, CAN communication, RS485 communication and other functions.



## 2.2 Interface Introduction



### 2.2.1 Switch ON/OFF

1.SWITCH ON

When used，Connect the load or inverter end wires to the output end of the battery pack first B+/B-，After confirming the wiring is completed，Turn on the power switch of the battery pack，The battery pack begins to supply power to the load for use。

2.SWITCH OFF

After use，Turn off the load and inverter switches first，Then turn off the battery pack switch

## 2.2.2 Interface Introduction

| System state | Running state | RUN | ALM | Battery indicator LED | | | | illustrate |
|---|---|---|---|---|---|---|---|---|
| | | ● | ● | ● | ● | ● | ● | |
| Shutdown | Hibernate | off | off | off | off | off | off | All off |
| Standby | Normal | flash1 | off | Display based on battery level | | | | Position in readiness |
| | Alarm | flash1 | flash3 | Display based on battery level | | | | Example: Module undervoltage |
| Charge | Normal | on | off | off | off | off | flash2 | 0~25% charge |
| | | on | off | off | off | flash2 | on | 25%~50% charge |
| | | on | off | off | flash2 | on | on | 50%~75% charge |
| | | on | off | flash2 | on | on | on | 75%~100% charge |
| | | on | off | on | on | on | on | Charged |
| | Alarm | on | flash3 | Display based on Normal charging level | | | | / |
| | Protect | off | on | Display based on Normal charging level | | | | / |
| Discharge | Normal | flash3 | off | on | on | on | on | 100%~75% discharge |
| | | flash3 | off | off | on | on | on | 75%~50% discharge |
| | | flash3 | off | off | off | on | on | 50%~25% discharge |
| | | flash3 | off | off | off | off | on | 25%~0% discharge |
| | Alarm | flash3 | flash3 | Display based on Normal discharge capacity | | | | / |
| | Overcurrent, short circuit, reverse connection, failure protection, etc | off | on | off | off | off | off | Stop charging and discharging |
| Temperature | Normal | Normal indication based on status | | | | | | / |
| | Charge Alarm | on | flash3 | According to the charging level indicator | | | | Maximum LED flashing 2 |
| | Discharge Alarm | flash3 | flash3 | According to the charging level indicator | | | | According to the constant light indication of the battery level |
| | Protect | off | on | off | off | off | off | / |

## 2.2.3 Explanation of LED light changes

| State | | Charge | | | | Discharge | | | |
|---|---|---|---|---|---|---|---|---|---|
| Capacity indicator light | | **L4●** | **L3●** | **L2●** | **L1●** | **L4●** | **L3●** | **L2●** | **L1●** |
| Electricity consumption (%) | 0~25% | off | off | off | flash2 | off | off | off | on |
| | 25~50% | off | off | flash2 | on | off | off | on | on |
| | 50~75% | off | flash2 | on | on | off | on | on | on |
| | ≥75% | flash2 | on | on | on | on | on | on | on |
| Operation indicator● | | on | | | | flash | | | |

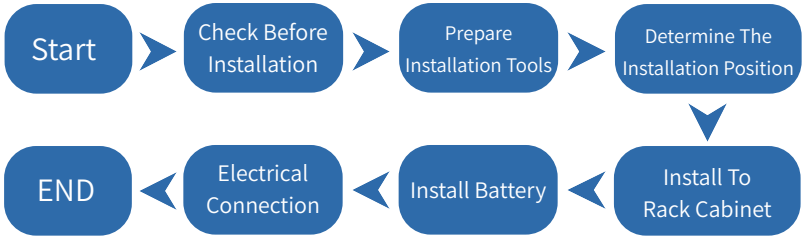
## 2.2.4 Power indicator light description

| Flashing mode | ON | OFF |
|---|---|---|
| flash 1 | 0.25s | 3.75s |
| flash 2 | 0.5s | 0.5s |
| flash 3 | 0.5s | 1.5s |

# 03

# INSTALLATION GUIDE

-In stallation flow chart-




## 3.1 Checking Before Installation

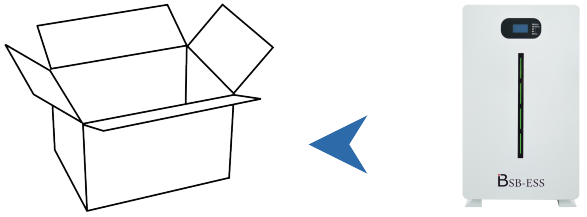
### 3.1.1 Checking Outer Packing Materials

Packing materials and components may be damaged during transportation.Therefore,check the outer packing materials for damage,such as holes and cracks.If any damage is found,do not unpack the battery and contact the dealer as soon as possible.You are advised to remove the packing materials within 24 hours before installing the battery.

### 3.1.2 Cheeking Deliverables

After unpacking the battery,check whether deliverables are intact and complete.If any damage is found or any component is missed,contact the dealer.

The below table shows the components and mechanical parts that should be delivered.




| NO | Picture | Quan ty | Descrip on |
|---|---|---|---|
| 1 |  | 1PCS | Battery |
| 2 |  | 1PCS | Fixed bracket |
| 3 |  | 1PCS | Positive power cord |
| 4 |  | 1PCS | Negative power cord |
| 5 |  | 1PCS | 485 Communica on cable |
| 6 |  | 1PCS | CAN Communica on cable |
| 7 |  | 1PCS | Shipment report |
| 8 |  | 1PCS | Manual |
| 9 |  | 1PCS | Cer ficate |
| 10 |  | 1PCS | Label |

## 3.2 Tools

| Model | Tools | | |
|---|---|---|---|
| Installation |  Knife |  Measuring tape |  Socket wrench (10/16mm) |
| |  Rubber mallet |  Cross Screwdriver |  Percussion drill (12mm) |
| Protection |  ESD gloves |  Safety goggles |  Anti-dust respirator |
| |  Safety shoes | | |

## 3.3 Installation requirements

### 3.3.1 Installation environment requirements

*Install the battery in the indoor environment.

*Place battery in secure location away from children and animals.

*Do not place the battery near any heat sources and avoid sparks.

*Do not expose the battery to moisture or liquids.

*Do not expose the battery to direct sunlight.

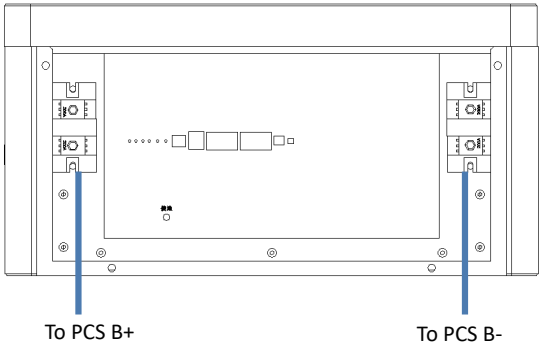
### 3.3.2 Installation carrier requirements

*Only mount battery on fire resistant building.Do not install batteries on flammable buildings.

*Battery is quite heavy,make sure the wall/ground can meet the load bearing requirements.

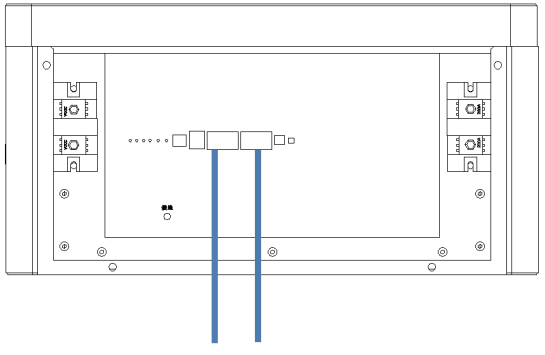
# STEP 1

Connect power cable




# STEP 2

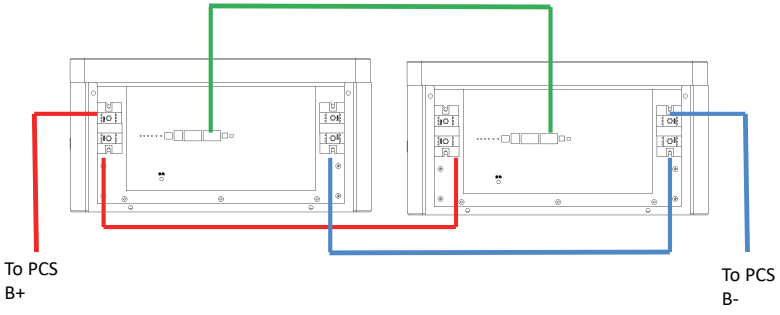
Connect communication cable





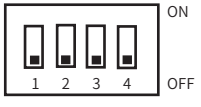

# STEP 3

When multiple batteries are connected in parallel,follow the following wiring mode.




# STEP 4

## DIP Switch settings




When the pack is used in parallel, Different packages can be distinguished by setting the address through the dial switch on the BMS, To avoid setting addresses to the same, Refer to the table below for the definition of BMS dial switch.

| address | Dial switch position | | | |
|---|---|---|---|---|
| | #1 | #2 | #3 | #4 |
| 1 | ON | OFF | OFF | OFF |
| 2 | OFF | ON | OFF | OFF |
| 3 | ON | ON | OFF | OFF |
| 4 | OFF | OFF | ON | OFF |
| 5 | ON | OFF | ON | OFF |
| 6 | OFF | ON | ON | OFF |
| 7 | ON | ON | ON | OFF |
| 8 | OFF | OFF | OFF | ON |
| 9 | ON | OFF | OFF | ON |
| 10 | OFF | ON | OFF | ON |
| 11 | ON | ON | OFF | ON |
| 12 | OFF | OFF | ON | ON |
| 13 | ON | OFF | ON | ON |
| 14 | OFF | ON | ON | ON |
| 15 | ON | ON | ON | ON |

# 04

# MAINTENANCE

## 4.1 Recharge Requirements During Normal Storage

Battery should be stored in an environment with temperature range between -10℃~+45℃,and maintained regularly according to following table with 0.5C(25A) current till 40% SOC after long storage time.

**Recharge Requirements During Normal Storage**

| Storage Environment Temperature | Relative Humidity of Storage Environment | Storage Time | SOC |
|---|---|---|---|
| Below-10℃ | / | prohibit | / |
| -10~25℃ | 5%~70% | ≤12 months | 30%≤SOC≤60% |
| 25~35℃ | 5%~70% | ≤6 months | 30%≤SOC≤60% |
| 35~45℃ | 5%~70% | ≤3 months | 30%≤SOC≤60% |
| Above 45℃ | / | prohibit | / |



## 4.2 Recharge Requirements When Over Discharged

Over discharged (90%DOD) battery should be recharged according to following table,otherwise over discharged battery will be damaged.

**Recharge Requirements During Normal Storage**

| Storage Environment Temperature | Storage Time | Note |
|---|---|---|
| -10~25℃ | ≤15 days | Battery Pack disconnected from PCS |
| -25~35℃ | ≤7 days | |
| -35~45℃ | ≤12 hours | Battery Pack connected to PCS |