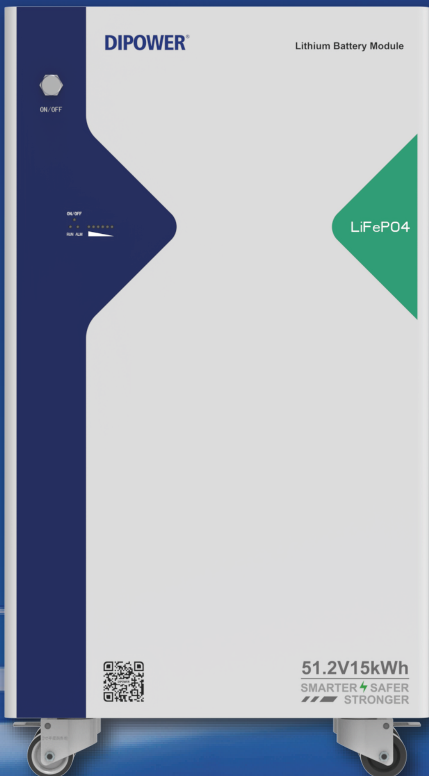
# DIPOWER®

ENERGY STORAGE SOLUTIONS

ROLLER SERIES




# USER MANUAL

## GX 51.2V 300Ah

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www.dipower.cc/www.didubattery.com

**About This Manual**
The manual mainly describes the product information, and guidelines for installation, operation and maintenance. The manual cannot include complete information about the any attached system.

**How to Use This Manual**
Read the manual and other related documents before performing any operation on the battery. Documents must be stored carefully and be available at all times. Contents may be periodically updated or revised due to product development. The information in this manual is subject to change without notice.

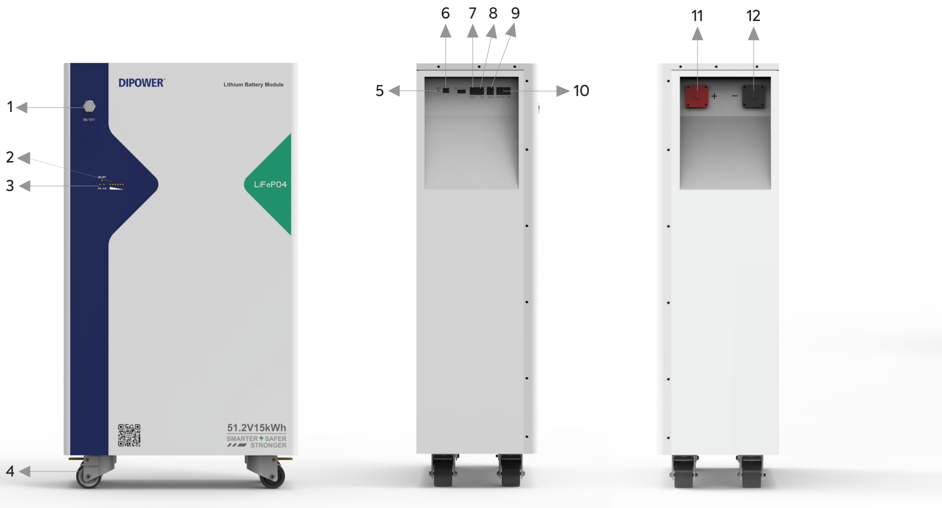
## 1. SAFETY INTRODUCTIONS

This chapter contains important safety and operating instructions. Read and keep this manual for future reference.
Before using the battery, please read the instruction and warning signs of the battery and corresponding sections in the instruction manual.
Do not disassemble the battery. If you need maintenance or repair, take it to a seller.
Improper reassembly may result in electric shock or fire.
To reduce the risk of electric shock, disconnect all wires before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
Caution: Only qualified personnel can install this battery.
For the operation of this battery, please follow the required specifications to select the appropriate cable size. It is very important to correctly operate this battery.
Be very cautious when working with metal tools on or around batteries. Dropping a tool may cause a spark or short circuit in batteries or other electrical parts, even causing an explosion.
Please strictly follow the installation procedure when you want to disconnect.
Grounding instruction – this battery should be connected to a permanent separate grounded wiring system. Be sure to comply with local requirements and regulations to install this battery.
Never cause AC output and DC input to short circuit. Do not connect to the mains when DC input short circuits.

## 2. PRODUCT INTRODUCTION

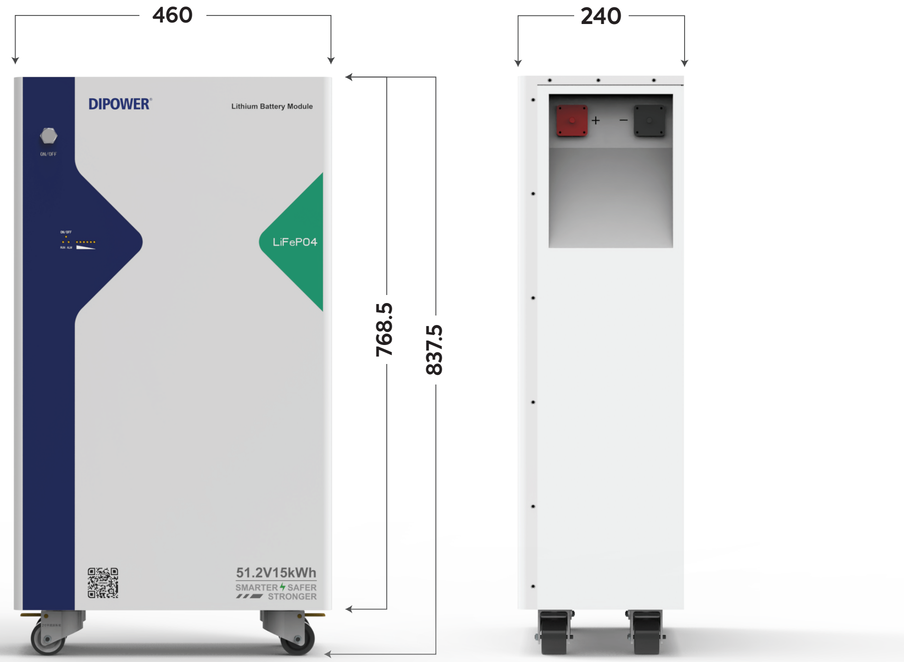
Introducing our latest innovations in energy storage technology: the peak of cutting-edge lithium phosphate batteries. Assemblers of excellence, we've created a solution boasting high energy density, extended lifespan, enhanced safety features. Versatile and dependable, our lithium phosphate battery modules are best for your applications, ensuring seamless integration into your solar energy ecosystem.

### 2.1 Product Overview




| | | | |
|---|---|---|---|
| 1 | Power Switch | 7 | RS485 Port |
| 2 | SOC Indicator | 8 | CAN Port |
| 3 | BMS Indicator | 9 | RS232 Port |
| 4 | Roller | 10 | Parallel Communication Ports |
| 5 | Reset | 11 | Positive Output |
| 6 | DIP Switch | 12 | Negative Output |

## 2.2 Product Size




## 2.3 Product Features

Dual active protection at the Battery Management System (BMS) level provides an added layer of safety
Communication ports such as CAN or RS485 are available in the battery for seamless integration with a wide range of inverters.
Enjoy a remarkable 85% depth of discharge, ideal for adhering inverters to the latest Vaults protocol.
Utilizing LiFePO4 cathode material ensures safety and an extended cycle life.
The BMS offers comprehensive protection against over-discharge, over-charge, over-current, and high/low temperatures.
Automatic management of charge and discharge states, along with cell voltage balancing, is seamlessly handled by the system.
Flexible configuration allows for parallel connection of multiple battery modules to expand capacity and power.

With minimal self-discharge, our modules can remain un charged for up to 6 months on the shelf, exhibiting no memory effect and exceptional performance in shallow charge and discharge cycle.

## 2.4 Battery Orientation


## 3. INSTALLATION

### 3.1 Parts List

Check the equipment before installation Please make sure nothing is damaged in the package. You should have received the items in the following package:

- One Module
- One Output Extension Cable Red 1.2m
- One Output Extension Cable Black 1.2m
- One COM Cable (CAN/RS485) 1m

### 3.2 Installation location

Ensure that the installation location fulfills the following criteria:

1. The area must be completely waterproof.
2. The floor should be flat and level.
3. No flammable or explosive materials should be present.
4. The ambient temperature should fall within the range of 0°C to 50°C.
5. Maintaining a constant level of temperature and humidity will enhance the battery life.
6. Keep the area free from dust and dirt to the extent possible.
7. Maintain a distance of more than 2 meters from any heat source.
8. Maintain a distance of more than 0.5 meters from the air outlet of the inverter.
9. Avoid direct sunlight and heat in the installation areas.
10. While mandatory ventilation requirements for the battery module are absent, refrain from installing it in confined areas. Ensure that aeration is provided while avoiding high salinity, humidity, or temperature conditions.

## 4. OPERATION

### 4.1 Charge/Discharge Parameters

Before connecting to the inverter/UPS, ensure the following:

1. Inverter parameters are configured according to the data provided in this manual.
2. Battery wires are correctly connected on both ends (inverter and battery).
3. Ensure correct polarity by connecting the positive terminal with the red wire and the negative terminal with the black wire.

| | |
|---|---|
| Max Voltage / Charging Voltage | 56.8V |
| Max Charging Current @25C | 200 A |
| Recommended Charge Current | 60 A |
| Max Discharging Current | 200 A |
| Recommended Discharge Current | 60 A |
| Saturation Voltage | 58.4V |
| Float Voltage | 53.6V |
| Low battery Cutoff Voltage | 43.2V |
| Battery Equalization function | Enable |

**4.2 How to Turn ON the battery**

Before connecting with the inverter/UPS, ensure the following steps are taken:

1. Ensure the power switch (A) is in the Off position, before connecting.
2. Connect the right polarity of the inverter: Red wire for positive, Black wire for negative.
3. Verify there are no alarms present, and the Red alarm indicator LED is not on.
4. Confirm that the battery voltage is greater than 51.2V before connecting to the load.
5. If the battery voltage is below 51.2V, it is strongly recommended to charge the battery before using it with a load.
6. Ensure the inverter charging/discharging parameters are correctly configured according to the datasheet of the battery module.
7. Turn the Power switch to On position.

## 4.3 How to Turn OFF the Battery

**Turn Off the Output**

Step 1: Switch the power switch (A) to the off position.

Note: LCD screen will turn off automatically if not changed for > 1 minute to save the power. It can be waked by pressing the menu button at any time.

**Send the Module for Servicing or After-Sales Support**

If you need to send the module for servicing or after-sales support, or if you anticipate not using the module for an extended period, or if any issues are detected, follow the steps below to properly prepare the module for shipment:

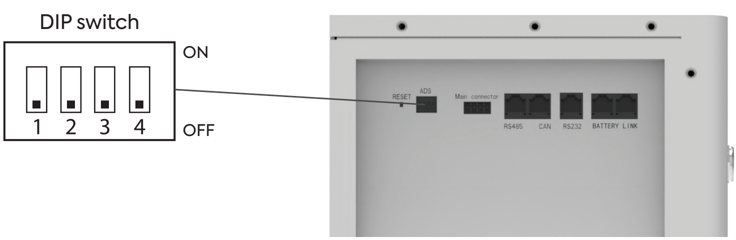
Step 1: Switch the power switch (A) to the off position.

Step 2: Cover the power switch (A) with masking tape to prevent accidental activation.

**Cautions:**

- Failure to turn off the module when it's not in use for an extended period can lead to sleep mode and subsequent deep discharge conditions, potentially damaging the internal cell strings.
- If the module is in a low battery trip position and is left without charging for more than 10 days, it can enter deep sleep mode then at least after 20 days in deep discharge mode. In such cases, follow the procedure mentioned above to turn off the modules using the power switch.

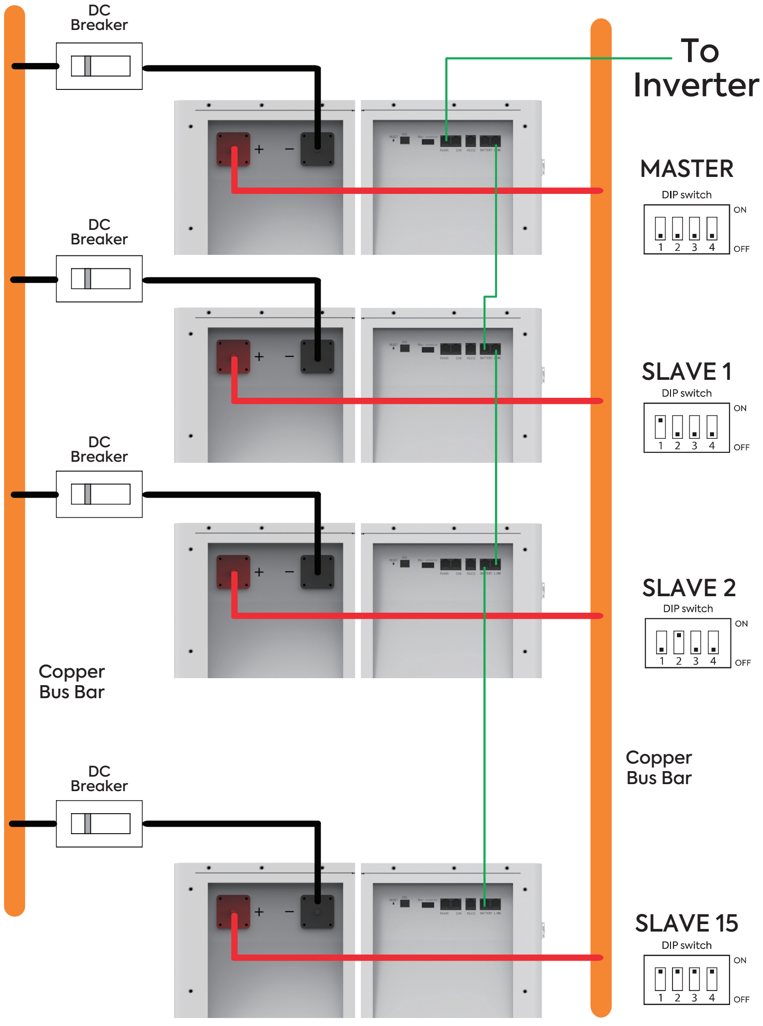
## 4.4 Parallel Connections



When Batteries are used in parallel, configure the DIP switch addresses according to the provided table

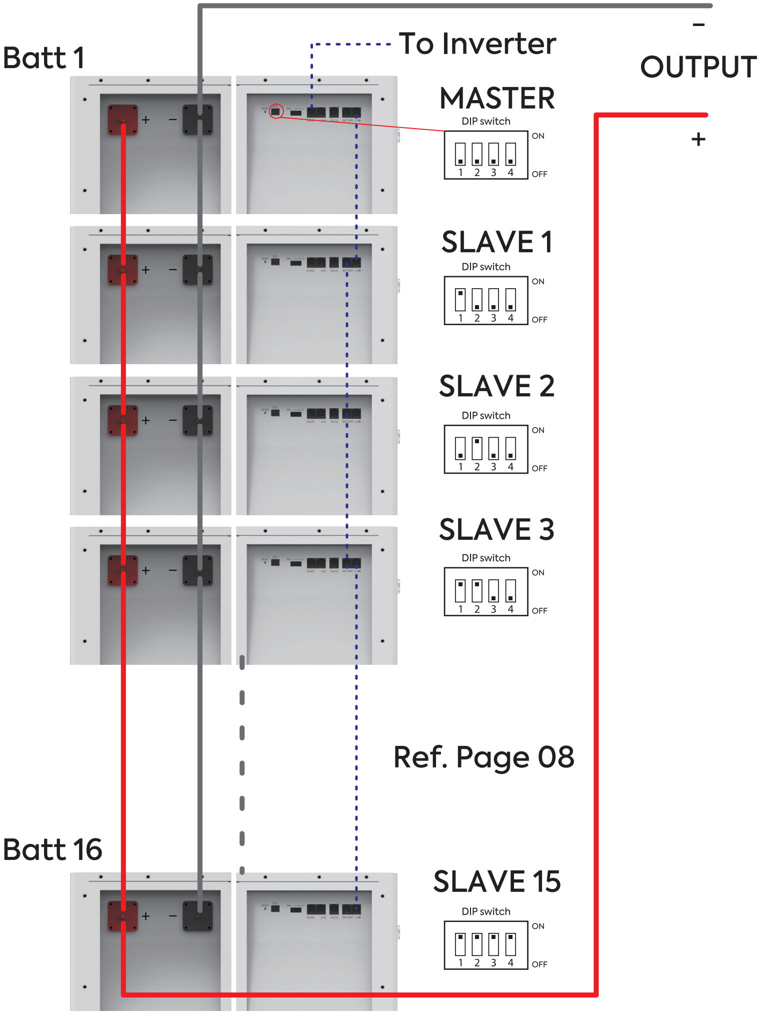
| ADS | DIP Switch | | | |
|---|---|---|---|---|
| | #1 | #2 | #3 | #4 |
| 0 | OFF | OFF | OFF | OFF |
| 1 | ON | OFF | OFF | OFF |
| 2 | OFF | ON | OFF | OFF |
| 3 | ON | ON | OFF | OFF |
| 4 | OFF | OFF | ON | OFF |
| 5 | ON | OFF | ON | OFF |
| 6 | OFF | ON | ON | OFF |
| 7 | ON | ON | ON | OFF |
| 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 |

## 4.5 Connecting in Parallel to Increase Power



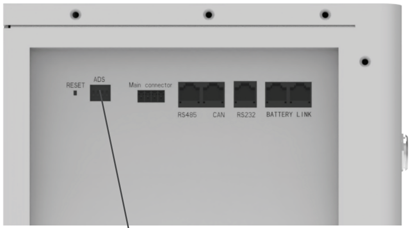

Before connecting in parallel check, the voltage difference of any battery should not be greater than 0.4V. Otherwise, you have to charge the low voltage batteries first. Battery BMS may be damaged voiding warranty if Voltage difference between any battery is > 0.4V.

### 4.6 Adding batteries for Backup Time




Before connecting in parallel check, the voltage difference of any battery should not be greater than 0.4V. Otherwise, you have to charge the low voltage batteries first. Battery BMS may be damaged voiding warranty if Voltage difference between any battery is > 0.4V.

## 4.7 Led Indicators



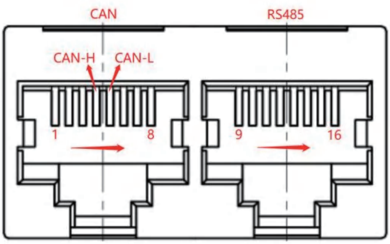

| State | Normal/Alarm/Protection | ON/OFF | RUN | ALM | SOC LED | | | | | | Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L6 | L5 | L4 | L3 | L2 | L1 | |
| Shutdown | Sleep | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | All OFF |
| Stand by | Normal | ON | Flash1 | OFF | Subjecting to the indication | | | | | | Standby state |
| | Alarm | ON | Flash1 | Flash3 | | | | | | | Module Low Voltage |
| Charging | Normal | ON | ON | OFF | Subjecting to the indication (Power indicator maxi LED flashes 2) | | | | | | The highest battery LED flashes (F ②), and the ALM does not flash when there is an overcharge alarm |
| | Alarm | ON | ON | Flash3 | | | | | | | |
| | Overcharge protection | ON | ON | OFF | ON | ON | ON | ON | ON | ON | If there is no mains power, the indicator light will switch to standby mode |
| | Temperature, over-current, failure protection | ON | OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | Stop charging |
| Discharging | Normal | ON | Flash3 | OFF | Subjecting to the indication | | | | | | |
| | Alarm | ON | Flash3 | Flash3 | | | | | | | |
| | Low Voltage Protection | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | Stop charging |
| | Temperature, overcurrent, short circuit, reverse connection, failure protection | ON | OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | Stop charging |
| Fault | | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | Stop charging |

| Flashing method | Bright | Extinguish |
|---|---|---|
| Flash 1 | 0.25S | 3.75S |
| Flash 2 | 0.5S | 0.5S |
| Flash 3 | 0.5S | 1.5S |

**Buzzer Action Description**

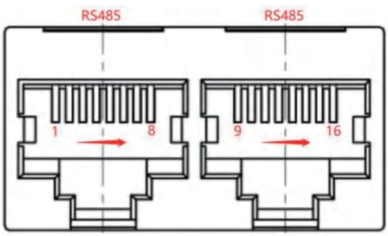
- Failure, every 1 Second tweet 0.25 Second
- Protection each 2 Seconds tweet 0.25 Seconds (except overvoltage protection
- When an alarm occurs, every 3 Seconds tweet every 0.25 Seconds (except for overvoltage alarm)
- The buzzer function can be enabled or disabled through the host computer, and the factory default is enabled.

## 4.8 COM PIN CONFIGURATION

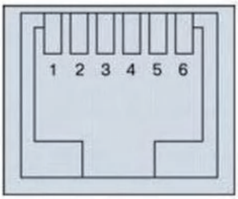



CAN / RS485


Main Connector




Parallel Communication Ports




RS232

| RS232-Using 6P6C vertical RJ11 socket | |
|---|---|
| RJ11 Pin | Definition Description |
| 1、 2、 6 | NC |
| 3 | TX |
| 4 | RX |
| 5 | GND |

| CAN and RS485 interface | | | |
|---|---|---|---|
| CAN-Using RJ45 socket | | RS485-Using RJ45 socket | |
| RJ45 pin | Definition Description | RJ45 pin | Definition Description |
| 1、 3、 6、 7、 8 | NC | 9、 16 | RS485-B1 |
| 4 | CAN-H | 10、 15 | RS485-A1 |
| 5 | CAN-L | 11、 14 | GND |
| 2 | GND | 12、 13 | NC |

| Parallel communication port | | | |
|---|---|---|---|
| RS485-Using RJ45 socket | | RS485-Using RJ45 socket | |
| RJ45 pin | Definition Description | RJ45 pin | Definition Description |
| 1、 8 | RS485-B | 9、 16 | RS485-B |
| 2、 7 | RS485-A | 10、 15 | RS485-A |
| 3、 6 | GND | 11、 14 | GND |
| 4、 5 | NC | 12、 13 | NC |

## 5. STORAGE CONDITIONS

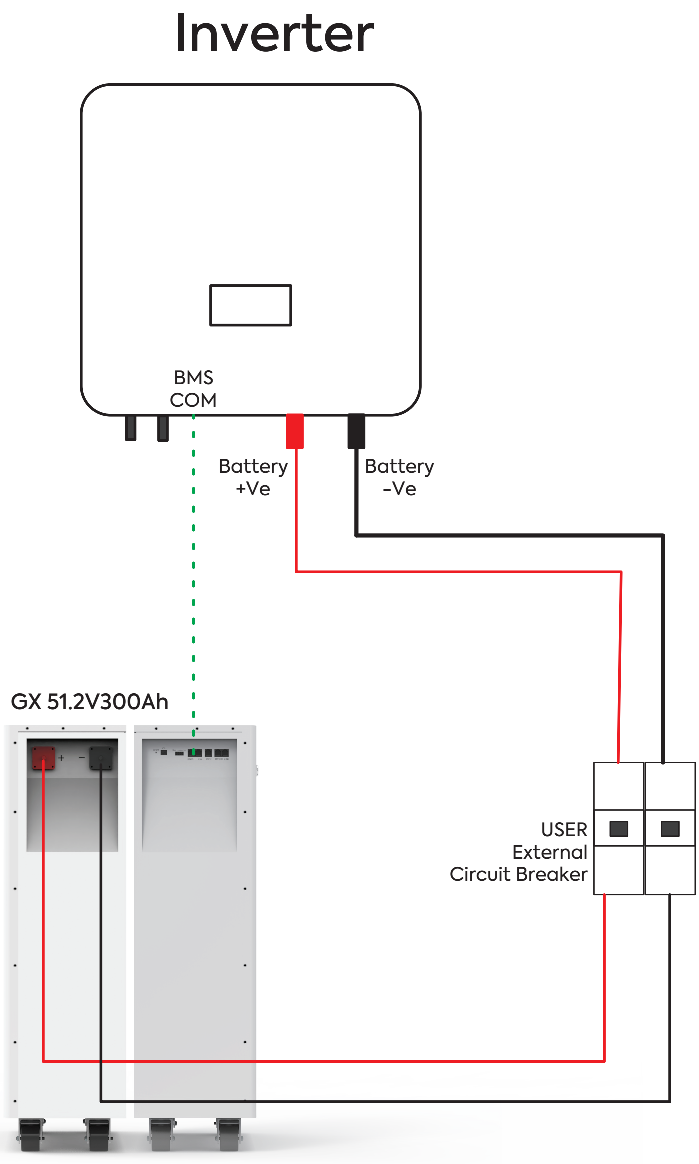
**Environmental suitability:**
The Battery Module allows normal operation under the following conditions:
Ambient temperature: 5°C 35°C;
Relative humidity: 5% ~ 90%;
Atmospheric pressure: 86kPa~106kPa;

**Storage Environment**
Battery should be stored at ambient temperature 5°C~+35°C, the relative humidity is not more than 70%, Clean and well-ventilated warehouse.

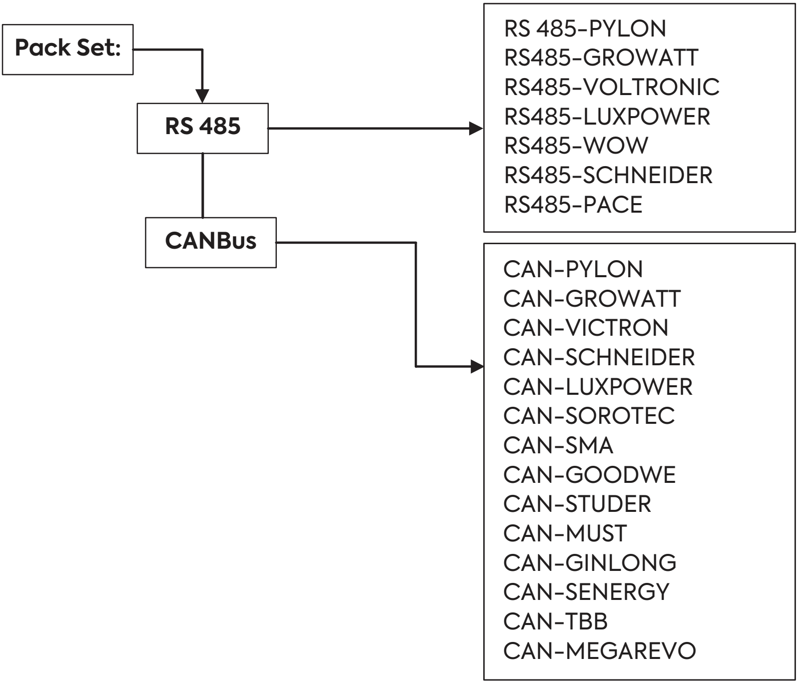
Inside, the air must not contain corrosive gases and media affecting electrical insulation and must not be subjected to any mechanical shock or heavy pressure. Out of direct sunlight.

The distance between it and the heat source (heating equipment, etc.) shall not be less than 2m. Under the above storage conditions.

## 6. HOW TO CONNECT WITH INVERTER

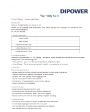


## 7. INVERTER SELECTION MENU




## 8. COMPATIBLE INVERTERS

# PACKING LIST

| Item | Specification | Qty | Picture |
|---|---|---|---|
| Battery Pack | 51.2V/300Ah | 1 |  |
| Power Cable (+) | 35mm Flexible 120cm | 1 |  |
| Power Cable (-) | 35mm Flexible 120cm | 1 |  |
| Com Cable | 100cm RJ45 connectors<br>CAN/485 Wires | 1 |  |
| Warranty Card | / | 1 |  |
| User Manual | / | 1 |  |

# SPECIFICATIONS SHEET

| Model | GX |
|---|---|
| Cell Chemistry | LFP |
| Cell Configuration | 16S1P |
| Nominal Energy (Wh) | 15360 |
| Nominal Capacity(Ah) | 300 |
| Nominal Voltage(V) | 51.2 |
| Working VoltageRange(VDC) | 44.8~57.6 |
| Max. Charge/Discharge Current (A) | 200 |
| BMS Communication | CAN2.0/RS485/RS232 |
| Dimension[L*W*H](mm) | 460*240*837.5 |
| Packing Dimension[L*W*H](mm) | 560*350*910 |
| Weight (kg) | 117.5 |
| Packing Weight (kg) | About 122.5 |
| Permissible Altitude(m) | <4000m(>2000m derating) |
| Display Screen | LCD |
| IP Rating | IP21 |
| Working Temperature(°℃) | -20~60 |
| Relative Humidity | 0~95%，no condensation |
| Cycle Life | 8000 cycles |
| Warranty | 5 years |
| Installation Type | Portable |
| Certification | IEC62619/CE/UN38.3 |

**1 Charge discharge rates are changed with ambient temperature, For more details please check with Dipower service team*
**2 Cycle life is defined based on specific operation conditions, 1 Cycle per day, constant 25 degree C ambient, 0.5C, 70% SOH*

DIPOWER®