

# USER MANUAL

## EG4 LIFEPOWER4

### COMMUNICATION HUB





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## **DISCLAIMER**

EG4 reserves the right to make changes to the material herein at any time without notice. You may refer to the EG4 website at [www.eg4electronics.com](http://www.eg4electronics.com) for the most updated version of our manual.

# 1 Safety Information



## Danger: High Voltage and Current

1. **Beware of high battery voltage and current.** Please ensure that the battery module breakers and/or any switches are in the “open” or “off” position before installing or working with the communication hub.
2. Test all exposed conductors with a voltmeter before touching them. **Any voltage exceeding 36V can cause serious injury or death.**
3. **Do not make any connections or disconnections while the system is operating. This could result in serious injury and/or death.**
4. Wear proper personal protective equipment (PPE) when working with your system. This can include but is not limited to, safety glasses, gloves, and proper clothing.
5. **High voltage DC can melt or weld tools and cause serious injury or blindness due to metal splatter.**
6. All wiring should be approved by a licensed electrician or your local authority having jurisdiction (AHJ) for electrical permitting.

# 2 Brief Introduction

The EG4 LiFePOWER4 Communication Hub is a communication device that interprets the 48V LiFePOWER4 battery protocols into information that is readable by the inverter selected in the settings. The hub can establish communication with two battery banks, each consisting of 15 batteries, for communication between 30 LiFePOWER4 modules.

# 3 Installation

## 3.1 Packaging List and Location Selection

### 3.1.1 Packaging List

When the product is unpacked, the contents should match those listed here:



(1) EG4 Communication Hub



(1) 48Vdc Power Cable



(1) 8GB Micro SD Card



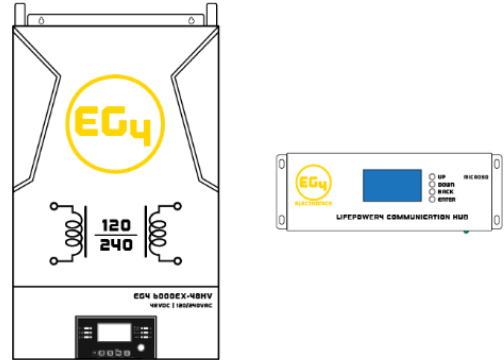
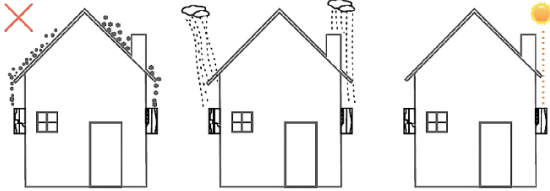
(4) M4-0.7 Bracket Bolts



(2) Mounting Brackets

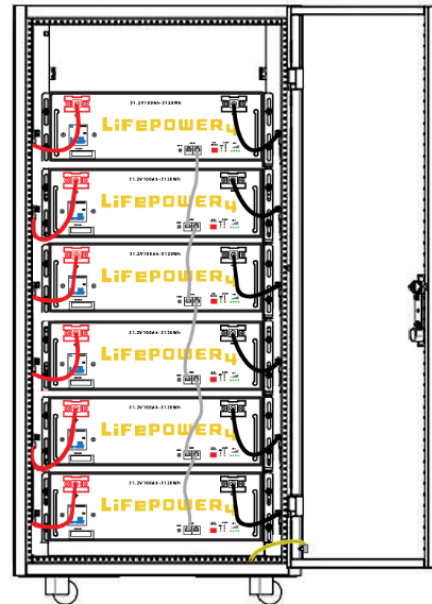
### 3.1.2 Requirements for Installation Location

The communication hub should not be placed in direct sunlight, rain, snow, or other extreme weather conditions. Direct UV exposure can cause LCD screen damage. **The EG4 Communication Hub is only intended for indoor use at room temperature. High humidity levels can render this unit inoperable and void your warranty.**



### 3.1.3 Mounting the Communication Hub

The communication hub is intended to be easily installed alongside any battery and inverter configuration. (See image on the right). The mounting screws are spaced about 2.4 in. (60.9mm) vertically and 9.27 in. (235.5mm) horizontally. The unit can be mounted to a flat surface or with the mounting brackets to serve as stands.



## 3.2 Hub Overview

### 3.2.1 Power Supply Connection

Only use the power supply cable included with the Communication Hub to power the system. This cable should only be used with 48V batteries. Before connecting the terminal box to the unit, make sure the ring terminals are securely fastened to the battery connection.



### Grounding

**There is a bare metal section on the hub that is intended for grounding. If necessary, users can attach a grounding wire here to ground the hub in accordance with local regulations.**

### 3.2.2 Communication Connection



The battery that will communicate directly with the communication hub must be set to DIP switch address 1. (See image on left)

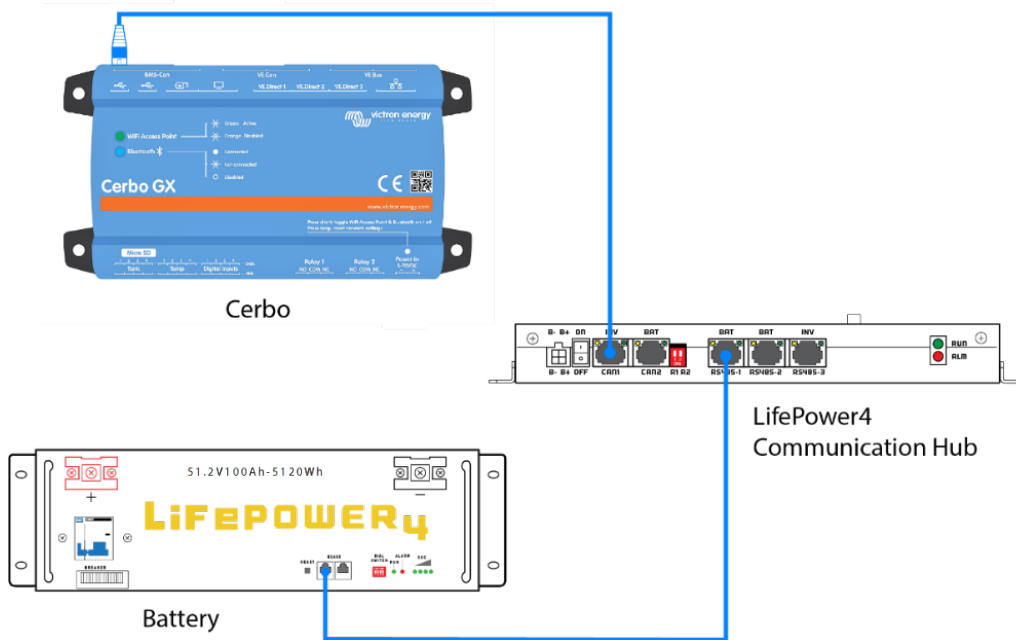
### ! Important

**Do not use address 0 at all (all DIP switches down)** The comm hub acts as the “host” in the bank, so it needs to have this address available for both RS485 BAT ports. Due to this, “Pack 16” will never display any data.

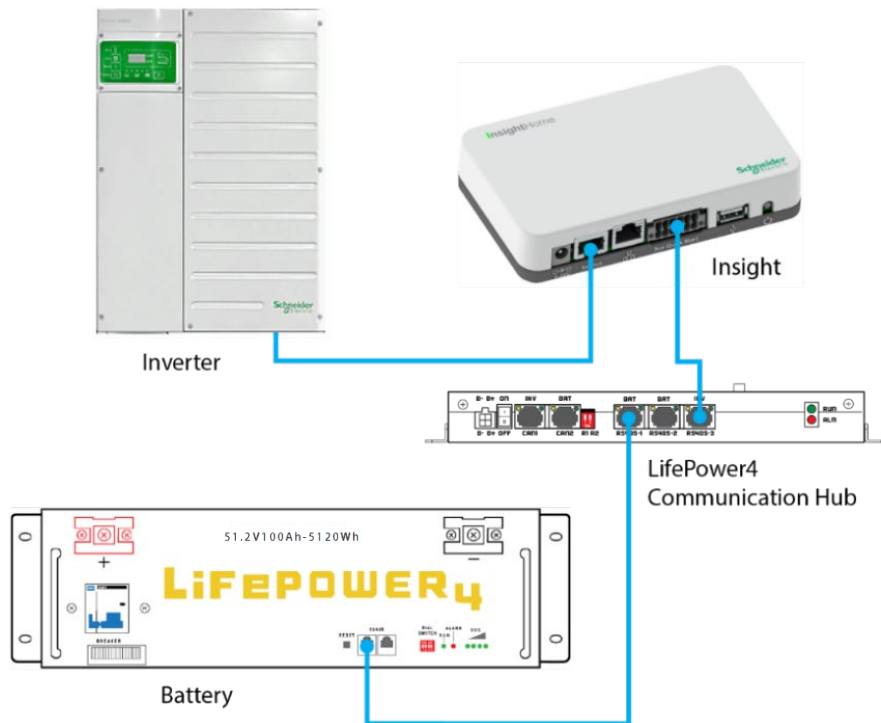
The Communication Hub can support BMS addresses from 1-15 batteries into RS485-1 and addresses 17-31 in RS485-2 for a total of 30 batteries. Connection of CAN BMS batteries into CAN-2 is currently not supported. Inverters are connected via **CAN-1** for inverters using CAN protocols. If the inverter uses RS485 protocols, connect via **RS485-3**. [\(See Section 4.2.2 & 4.3.3 for inverter protocol selection\)](#)

Below are some system connection examples:

### Victron (CAN bus)

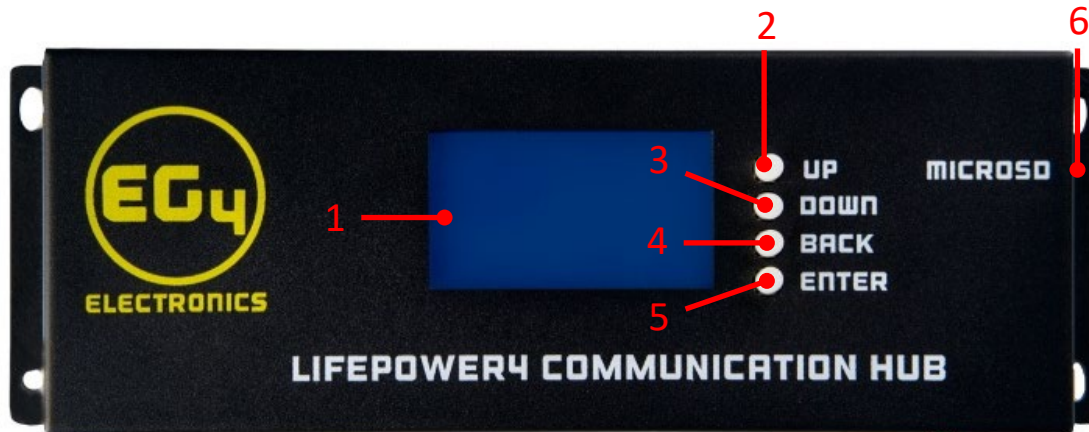


### Schneider (RS485)



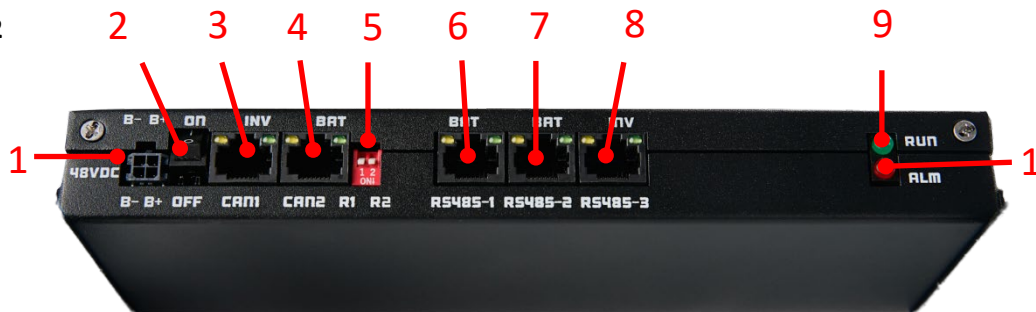
### 3.2.3 Communication Hub Diagram

Figure 1



No.	Item	Description
1	Display Screen	Parameters and module information
2	UP	Moves the cursor up or increases the value
3	DOWN	Moves the cursor down or decreases the value
4	BACK	Return to the main interface
5	ENTER	Press to modify or confirm a selection in the setting interface. (Press and hold for 10s to enter settings)
6	MICROSD	Micro SD card slot

Figure 2



No.	Item	Description
1	B+, B-	48VDC power connection (positive and negative)
2	ON/OFF	On/Off power switch
3	CAN1	CAN port for communication to inverter
4	CAN2	CAN port for communication to CAN batteries (for future use)
5	R1, R2	Dip switches for address configuration
6	RS485-1	RS485 communication port of the BMS. A single bank can chain up to 15 BMSs with addresses 1-15

7	RS485-2	RS485 communication port of the BMS. A single bank can chain up to 15 BMSs with addresses 17-31
8	RS485-3	RS485 communication port to inverter
9	RUN	Run LED, flashes to display run status (See <a href="#">Section 4.3.2</a> )
10	ALM	Alarm LED, flashes to display alarm status (See <a href="#">Section 4.3.2</a> )

## 4 Operation Guide

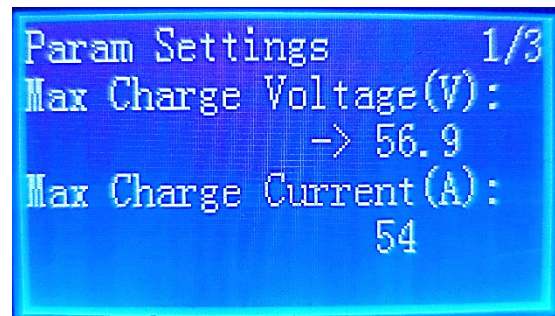
### 4.1 Accessing Settings

Press and hold the “ENTER” button for about 10 seconds while on the home screen to access the settings menu. You will be able to adjust your maximum charge amperage per battery, maximum charge voltage, selected protocol, and baud rate. To return to the main menu, press the “BACK” button.

### 4.2 Parameter Settings

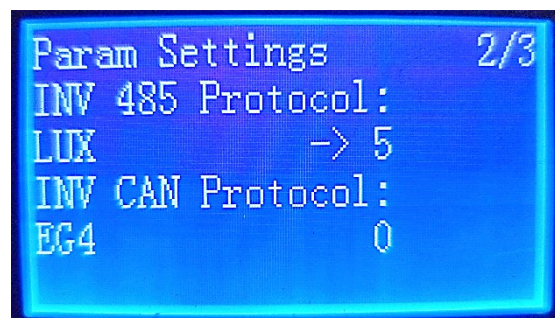
#### 4.2.1 Maximum Parameters (Page 1)

You can adjust the maximum charge voltage and amperage in the settings menu to suit your needs. You can also limit the amperage at which each battery charges. We recommend configuring these to match the LiFePOWER4 battery specifications. (Refer to *LiFePOWER4 specification sheet for a full list of recommended parameters.*)



#### 4.2.2 RS485 Protocol List (Page 2)

No.	Protocol	Brand
0	EG4	EG4
1	GROWATT	Growatt
2	SCHNEIDER	Schneider
3	VOLTRONIC	Voltronics
4	PYLON	Pylontech
5	LUX	Luxpower



#### 4.2.3 CAN Protocol List (Page 2)

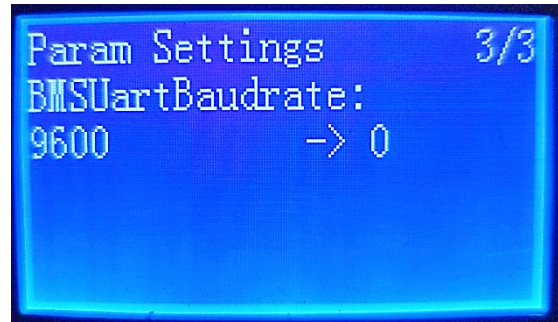
No.	Protocol	Brand
0	EG4	EG4
1	VICTRON	Victron
2	SCHNEIDER	Schneider

No.	Protocol	Brand
3	GROWATT	Growatt
4	AISWEI	Aiswei
5	SOL-ARK	Sol-Ark

6	SMA	Sunny Island	12	SAJ	SAJ
7	SOFAR	Sofar	13	DYNESS	Dyness
8	SOLIS	Solis	14	INVT	INVT
9	GOODWE	GoodWe	15	MEGAREVO	Megarevo/ EG4 8k-EXP
10	DEYE	Deye	16	LUX	Luxpower
11	SIGINEER	Sigineer			

#### 4.2.4 Baud Rate (Page 3)

The rate at which information is transferred in a communication channel is referred to as the baud rate. In the context of a serial port, "9600 baud" means that the serial port can transfer a maximum of 9600 bits per second.



#### **!** Important

**Do not change the baud rate of the Communication Hub, as this can render the device incompatible with the batteries.**

### 4.3 Visibility Function

#### 4.3.1 LCD Screen

The display on the communication hub will show the consolidated voltage, current draw, state of charge, temperature, system (battery bank) communication status, inverter communication status, and the number of batteries in the bank. While in the main menu, pressing up or down will cycle through different pack details, such as individual battery cell voltages.

#### 4.3.2 LED Indicators

Each communication port is equipped with two indicator lights, one yellow and one green. The yellow light should always remain on, while the green light will blink during active communication. There is also a green LED labeled "RUN" that will flash during proper operation and a red light labeled "ALM" that will turn on during an alarm state.

### 4.4 Storage Function

A microSD card is **required** to store data during faults or alarms.

**Removing the SD card with immediately clear all data stored in it.**

You can record BMS address, cell voltage, total voltage, charge/discharge capacity, charge/discharge current, temperature, as well as many other parameters at the time of a fault or alarm. Storage content is read through the monitoring interface in a LIFO (last in, first out) manner.



## 5 Troubleshooting & Maintenance

### 5.1 Extracting Data from SD Card

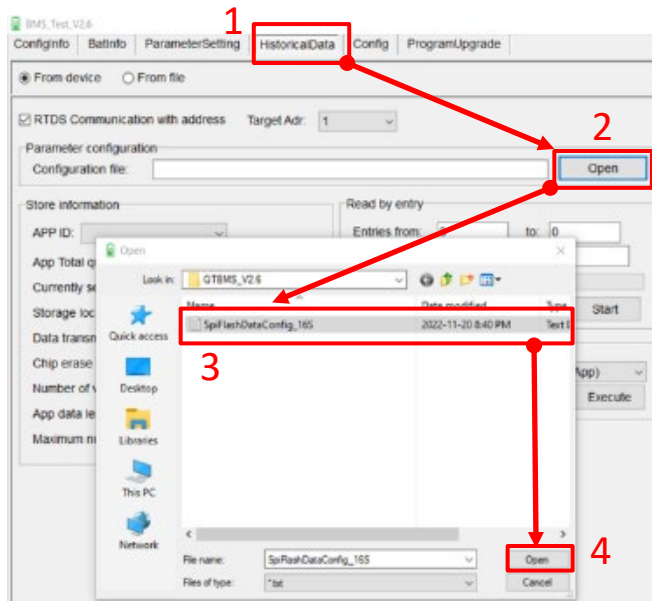
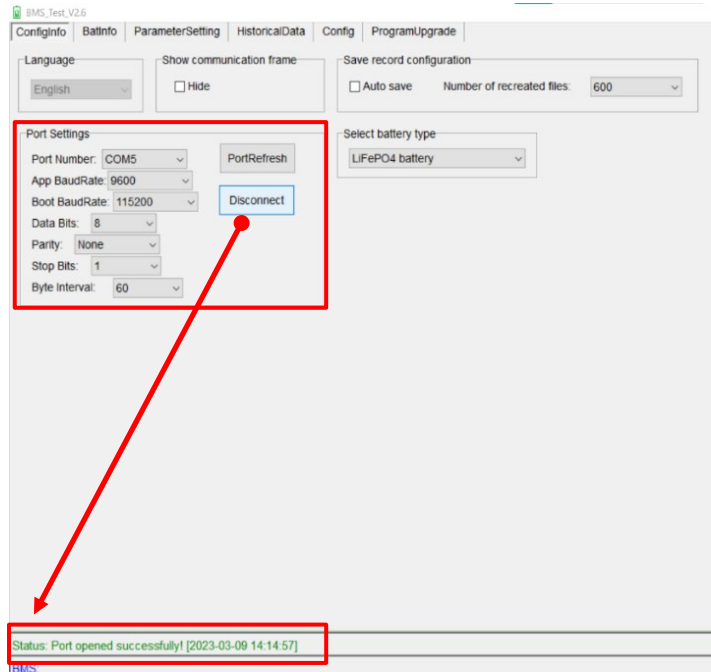
To view and extract data from the SD card you will need the application **BMS Test**, which can be downloaded from the EG4 website:

<https://eg4electronics.com/downloads/>.

Follow the installation instructions located here: <https://youtu.be/1BIyzMdy2TM>.

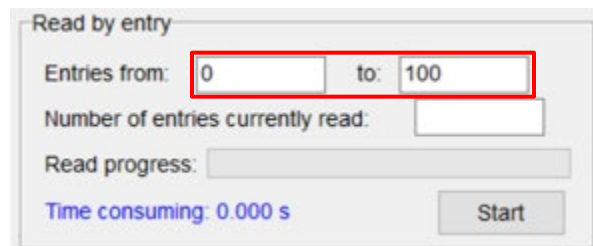
#### Steps to view and extract SD card data

1. After installing BMS Test, open the software and ensure you are connected to the battery. (See image on right)

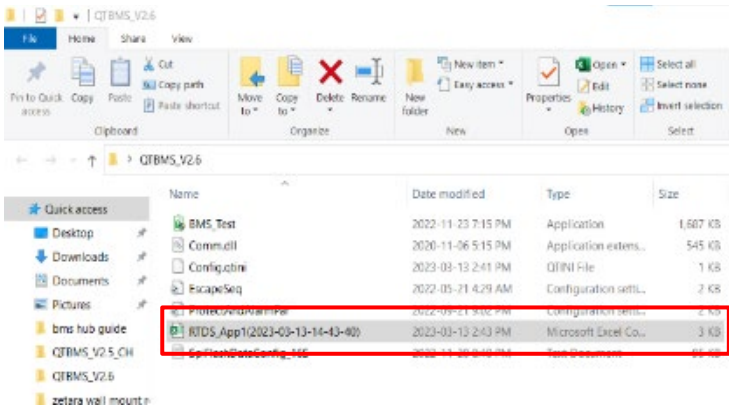
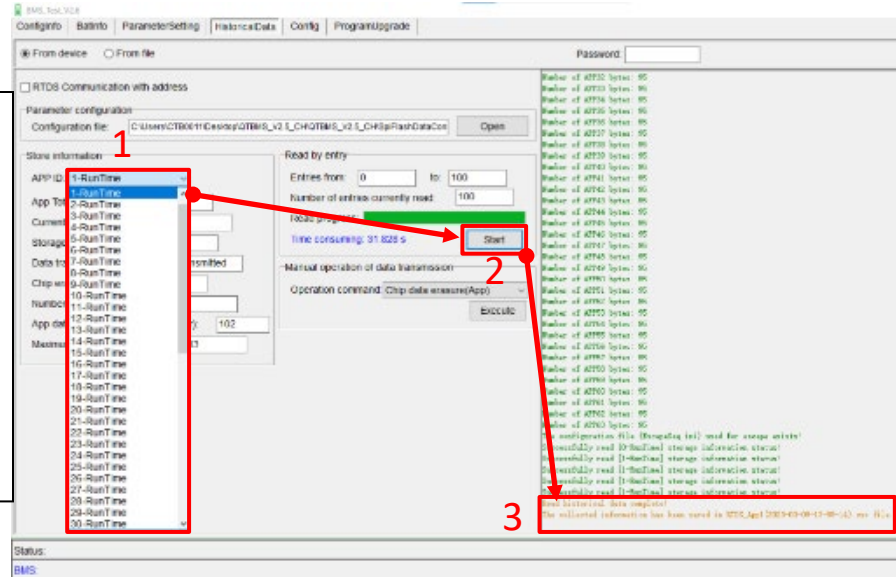


2. Click on the **"HistoricalData"** tab. In the **"Parameter configuration"** box, click **"Open,"** and select the data file named **SpiFlashDataConfig**. Open this file.

3. Under the **"Read by entry"** box, change the **"Entries from"** 0 to 100.



4. Under **“Store information,”** select your battery ID under **“APP ID:”** and click **“Start”** in the **“Read by entry”** box to create an Excel file of the data logs of that battery.



5. The file will be in the BMS Test software folder in your PC with a **RTDS** file name.

## 6 Technical Specifications

Nominal Operating Parameters	
Operating Voltage	20-60VDC
Charge/Discharge Setting Range	0-100A
Nominal Environmental Parameters	
Rec. Temperature	68–77°F (20–25°C)
Humidity	<55%
Communication Parameters	
Communication Ports	RS485/CAN Bus
General Specifications	
Dimensions (H×W×D)	3.4 in.×9.7 in.×1.3 in. (8.5 cm×24.5 cm×3 cm)
Weight	1.3 lbs. (0.6 kgs)
Warranty	3 Year (only when used indoors)

## 7 Pin-Out Definition

RJ45 Jack #	Pin-Out Definition
RS485-1 (BAT)	Pin 7 – A Pin 8 – B
RS485-2 (BAT)	Pin 7 – A Pin 8 – B
RS485-3 (INV)	Pin 1 – B Pin 2 – A
CAN1 (INV)	Pin 4 – High Pin 5 – Low
CAN2 (BAT)	Pin 4 – High Pin 5 – Low



