Installation and configuration manual

With Growatt

Pytes Lithium Battery

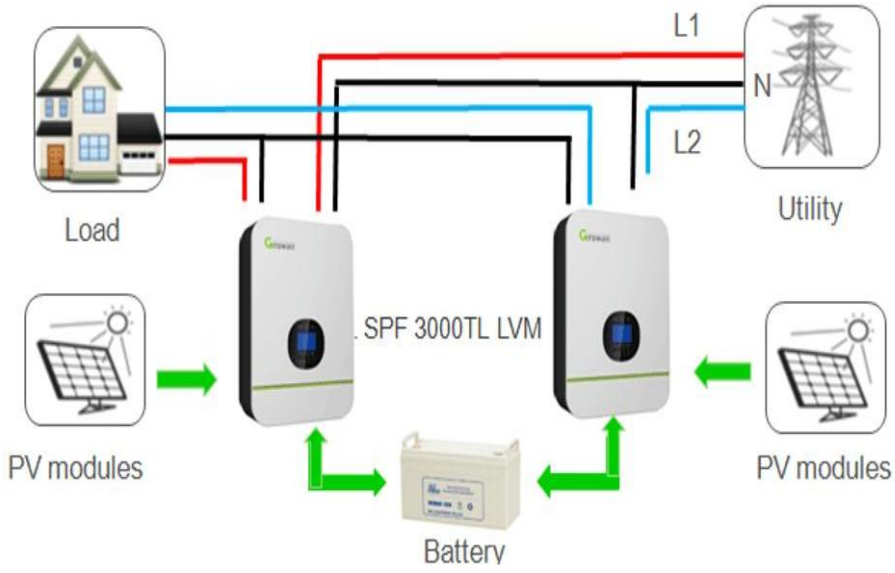
E-BOX series

With Growatt Inverter

1. Inverter-Battery connection.

1.1 Growatt Inverter:

Our designed BMS is compatible with Growatt inverters. Since there are many different kinds of inverters in Growatt product list, the customer should choose the one best suits his design requirements. Please read the manual and data sheet provided by the inverter company to understand the requirements and setting of your particular Growatt inverter. Here, in this connection manual, we have used Growatt SPF 3000TL HVM inverter. The connection and and display setting shown will only represent this model of inverter ,it does not apply to all other Growatt products, the user has to refer to inverter manual to see those settings. ‘

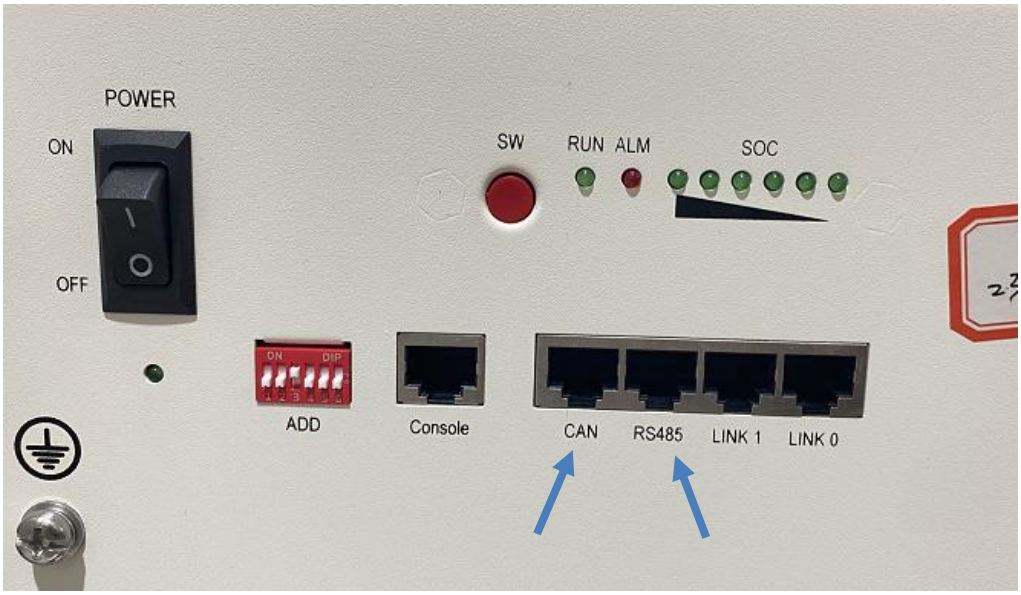


General Block Diagram of Inverter connection

1.2 Lithium Battery Connection

When choosing lithium Iron battery for the inverter be careful about choosing the battery which are compatible with Growatt inverter. Our designed battery packs are fully compatible with Growatt inverters.

There are two inverter to battery connecting ports on the lithium battery, Serial port which is for RS485, communication and CAN port which is for using CAN communication.

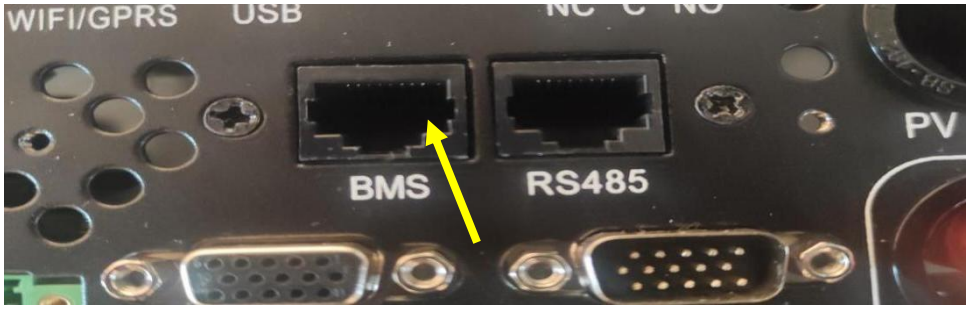


EBOX-48100R

Please follow below steps to implement lithium battery connection:

1. Assemble battery ring terminal based on recommended battery cable and terminal size

2. Connect the end of Serial port of the CAN port of the battery side to the BMS port of the inverter.

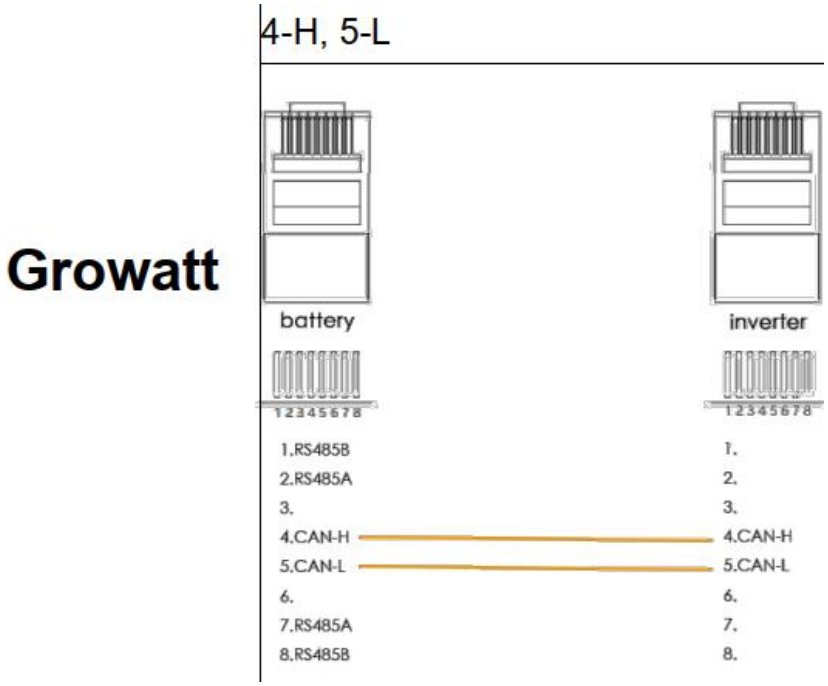


Growatt SPF3000TL Inverter

Note: BMS we designed for our battery pack can only be connected with Growatt inverter to use CAN communication, it does not support RS485 protocol.

Before we connect the communication cable, it's very important to prepare the communication cable as instructed in this manual, failure to make the cable as per the sequence will lead to communication failure.

For the battery side use and the inverter side follow the sequence shown below.



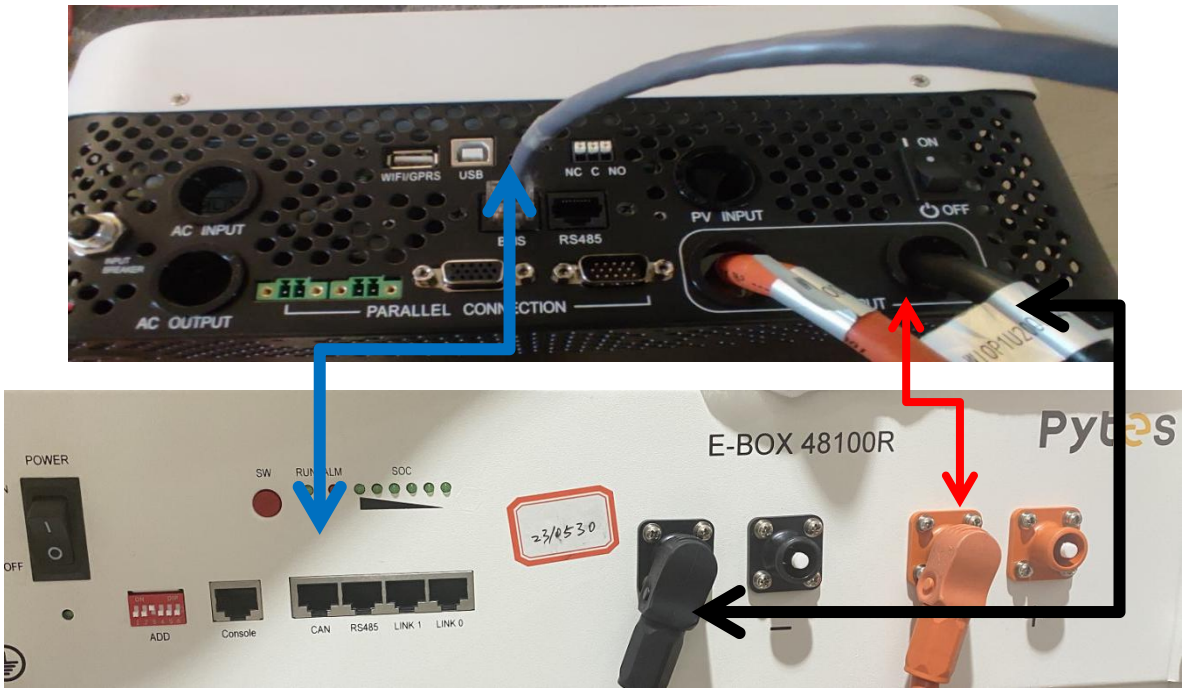
Battery and Inverter side of Communication Cable

After the communication cable has been configured kindly make sure its working properly. It often happens that the cables made locally by the customer is not in proper functioning state. To make sure the cable is functioning as per the sequence it is advised that the customer use cable tester, a device easily available in market.

As seen in the picture given above, EBOX-48100R has power cable connecting

terminals. These terminals should be connected to the respective positive and negative terminals of the inverter using the power cable provided by with the our battery pack. Kindly refer to inverter user manual for connecting cable with the respective terminals on the inverter side.

While connecting power cable it must be ensured that the positive terminal of the battery side must be connected to the positive terminal of the inverter and negative side be connected to the negative terminal of the inverter. In case the polarity is reversed by the user, the inverter can be damaged, in this situation we are not responsible for the loss.



Above is a simple connection of the inverter and a single battery. It's actually for demonstrating that our battery pack is compatible with Growatt inverter. The customer can make the connection with many battery packs in parallel or many inverters in parallel with the combination of external protection and control devices such as bus bar, circuit breakers, combiner box, fuse and so on depending upon their particular design requirements. Kindly follow the inverter user manual for connecting more then many inverters in parallel and to better understand how to connect the inverter with Grid, Solar Panels etc.

1.3 Compatibility Check.

After making this communication and power link between our battery pack EBOX-48100R and Growatt, we need to see whether the BMS and inverter has established a communication link or not.

An Inverter and battery bank have established communication when the inverter can read State of Charge SOC of the battery. SOC is always given in percentage and shows that charge capacity left of the battery pack.

The Display setting of the inverter has so many function which can be set as per the customers' required design. In order to see the setting of the inverter kindly refer to inverter user manual, which explains in detail different setting and chose one which suits your preference.

SOC OF Battery

After sorting through many different parameters we can see the SOC of the battery as shown in the picture above. As you can see ion the picture the SOC is seen as 20%. This value shows the inverter has no communication problem with the BMS and it can be safely used for any required design by the customer.

Since we use only CAN communication the user must choose the CAN protocol sequence in the inverter settings to match with the battery. The communication protocols given in the inverter user manual ranges from L50 to L99. The user should choose L51 for our product as shown in the picture below.

Protocol Setting of Inverter