PYLONTECH

Force H3
Technical Training

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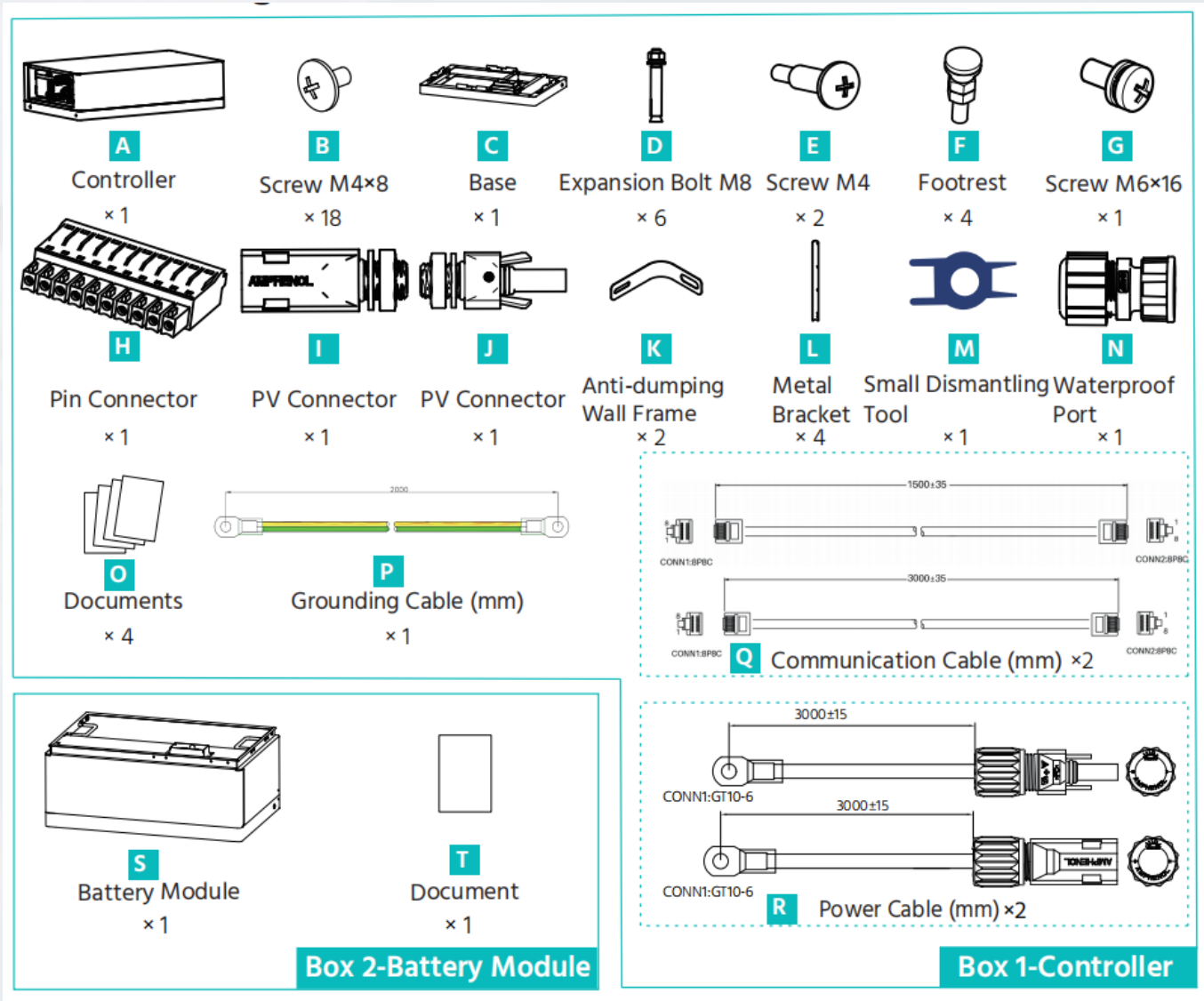
Force H3
QUICK INSTALLATION

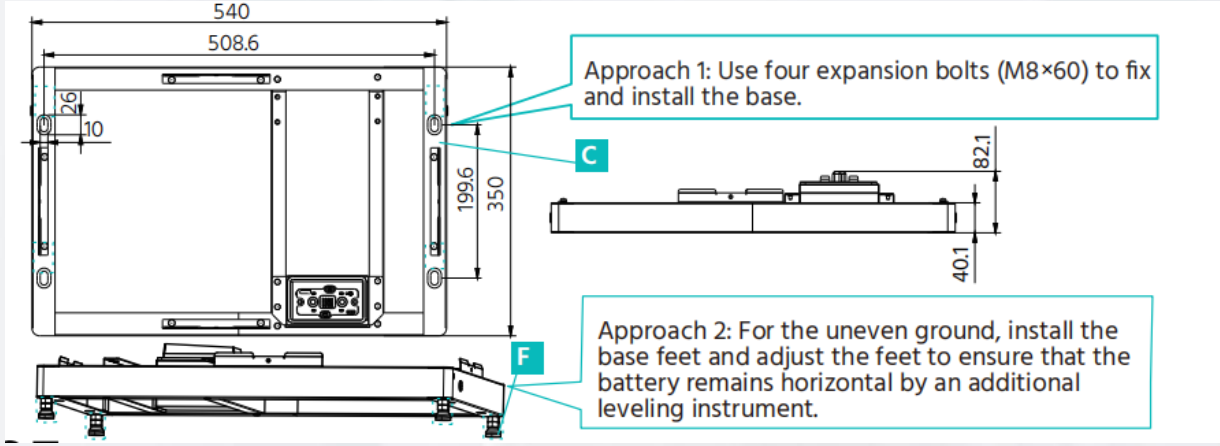
Quick Installation

BMS + Battery Modules + Base + Bracket

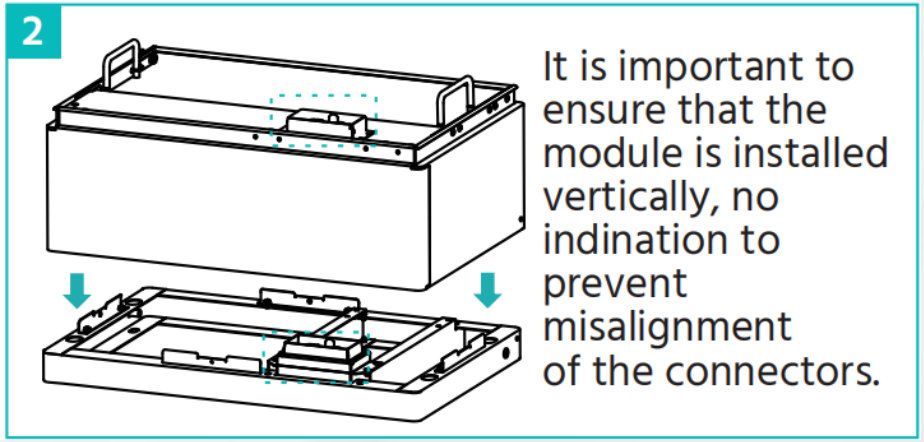


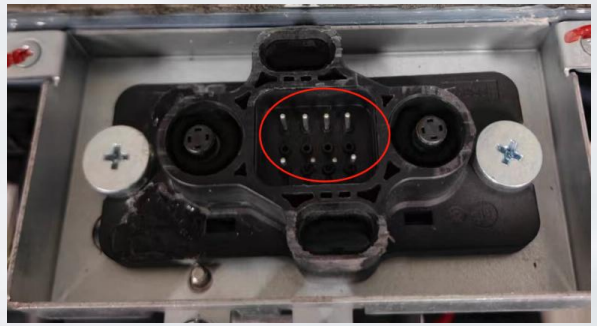
Quick Installation

1. Fix the base - two approaches



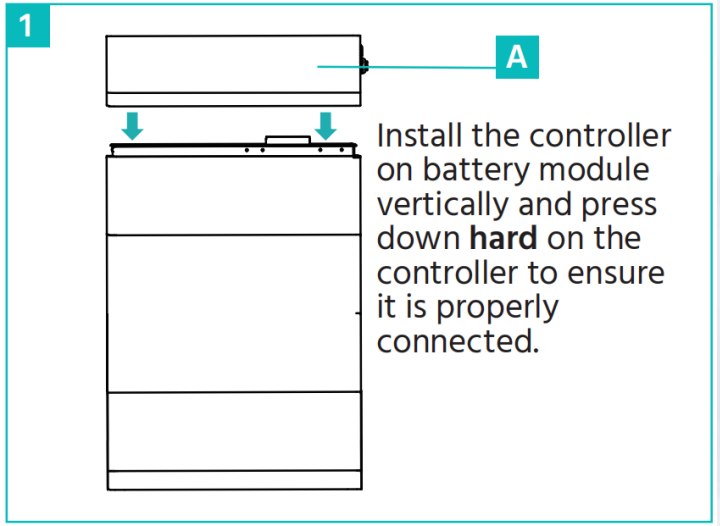
2. Stack the modules

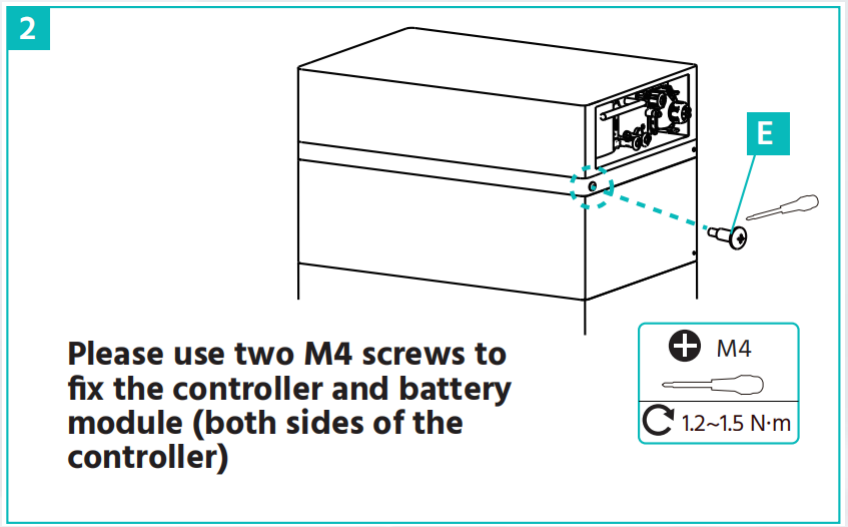




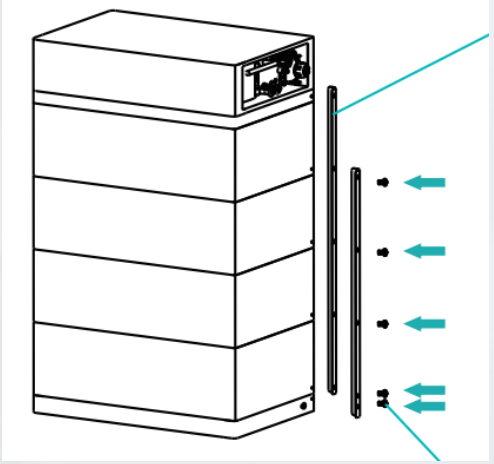
Quick Installation

3. Install the BMS box





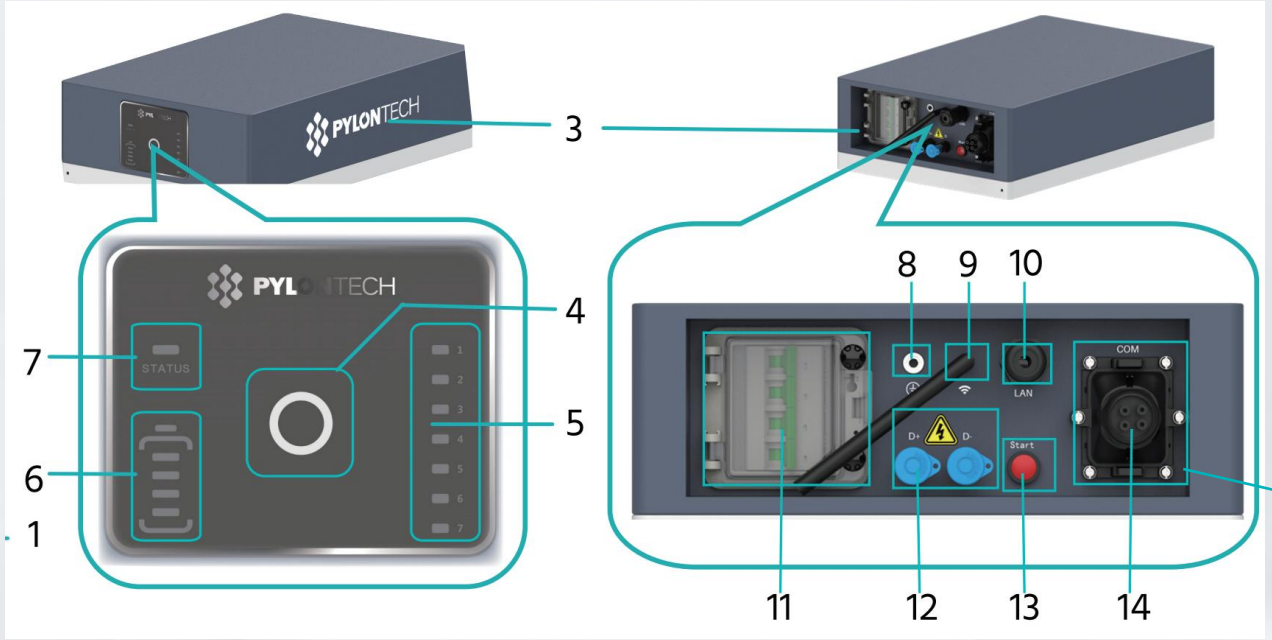
4. Install metal brackets



Note: bracket is not adjustable so it is normal to see bracket being overlapped.

Quick Installation

5. Wiring



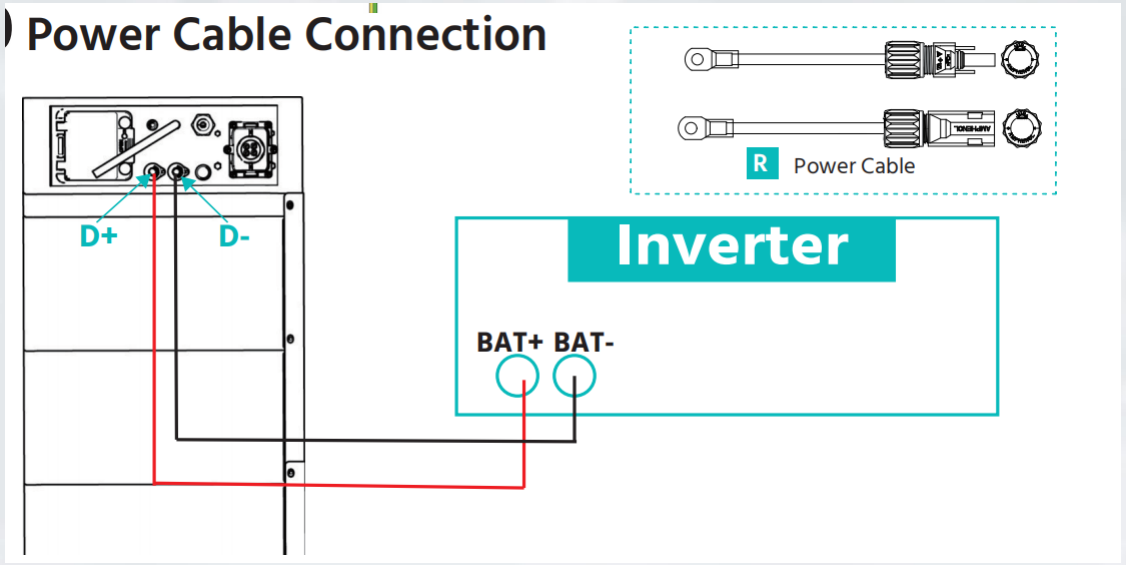
1.	Battery Module	8.	Grounding Point
2.	Base	9.	Wi-Fi Port
3.	Controller	10.	LAN Port
4.	LED Button	11.	Power Switch
5.	Battery Module Status LED	12.	Power Terminals +/-
6.	System Capacity Status LED	13.	Start Button
7.	System Status LED	14.	Communication Terminals

Quick Installation

5. Wiring

5.1 Power cable connection

D+ to INV BAT+; D- to INV BAT-



Quick Installation

6. Power on

Step 1 Check all the cables are connected correctly.

Step 2 Turn on the switch for battery on the inverter or the switch between inverter and battery system (if applicable). If possible, turn on AC or PV power source to wake up the inverter.

Step 3 Open the protection cover of Power Switch on the control module (BMS). And turn on Power Switch.

Step 4 Press the red Start Button for at least 5 seconds or until buzzer rings. Battery takes 10-30 seconds for self-checking.

Solarman Setup

Solarman Setup

WEB

SOLARMAN Smart: https://home.solarmanpv.com/login
SOLARMAN Business: https://globalpro.solarmanpv.com/login

APP

For End User

SOLARMAN Smart

For Installer & Distributor

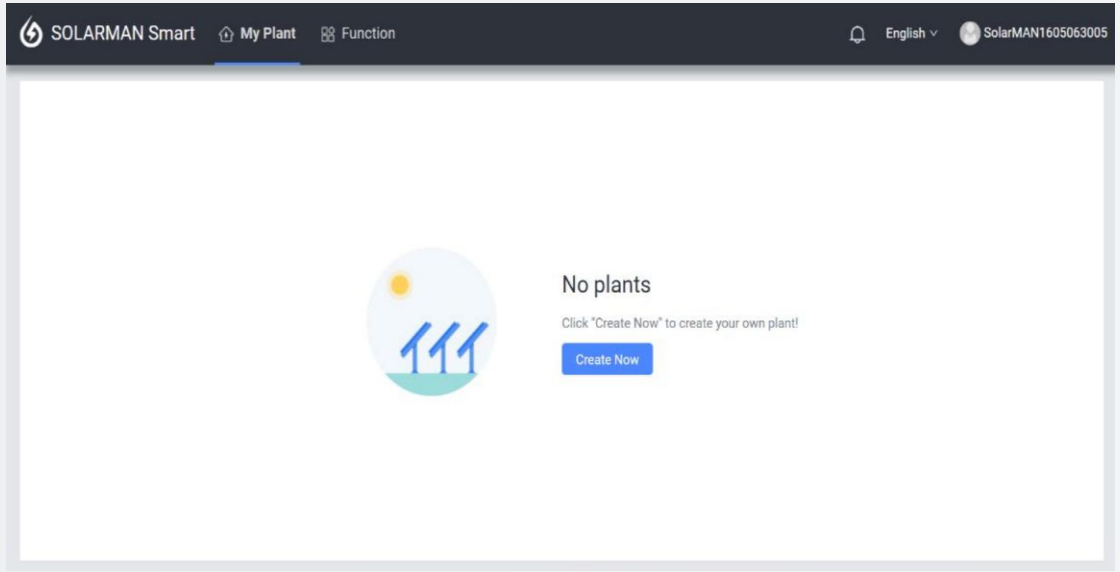
SOLARMAN Business

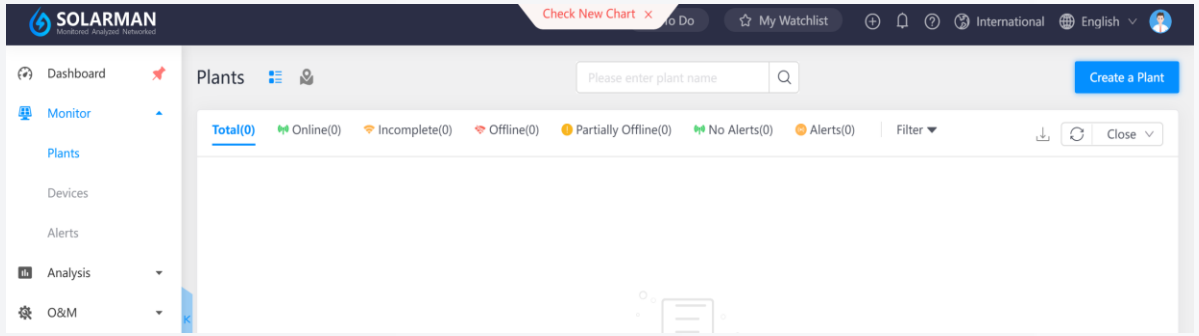
Solarman Setup

Commission Procedure:

STEP 1: Registration and Login

STEP 2: Create a plant

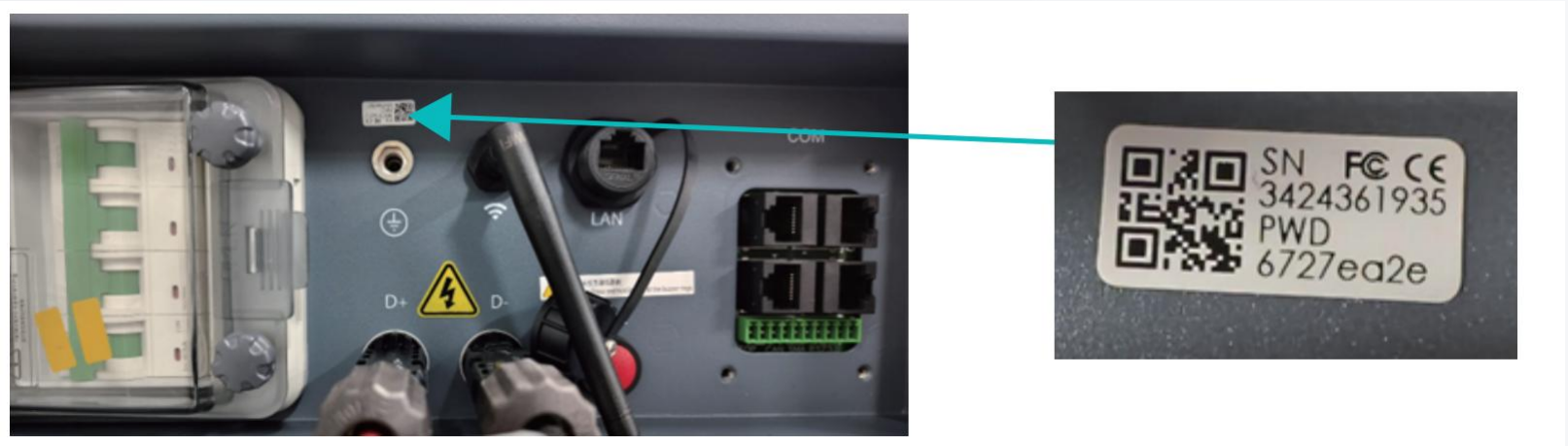


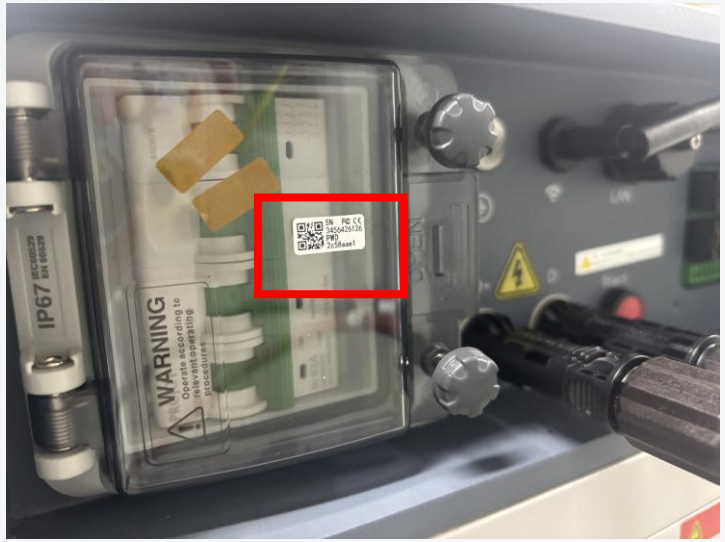


Solarman Setup

Commission Procedure:

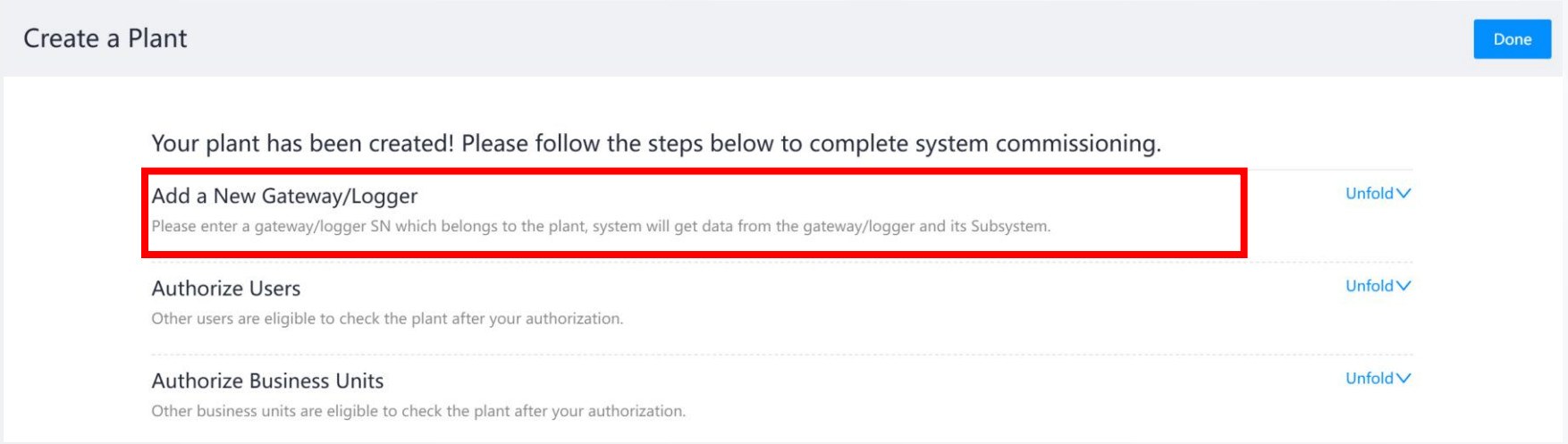
STEP 3: Add a logger
After the plant creation, the system will prompt to add a logger.
Follow the instructions to put in or scan the logger SN.
The SN and Password of the wifi logger can be found on the battery control module, as shown in the figure.

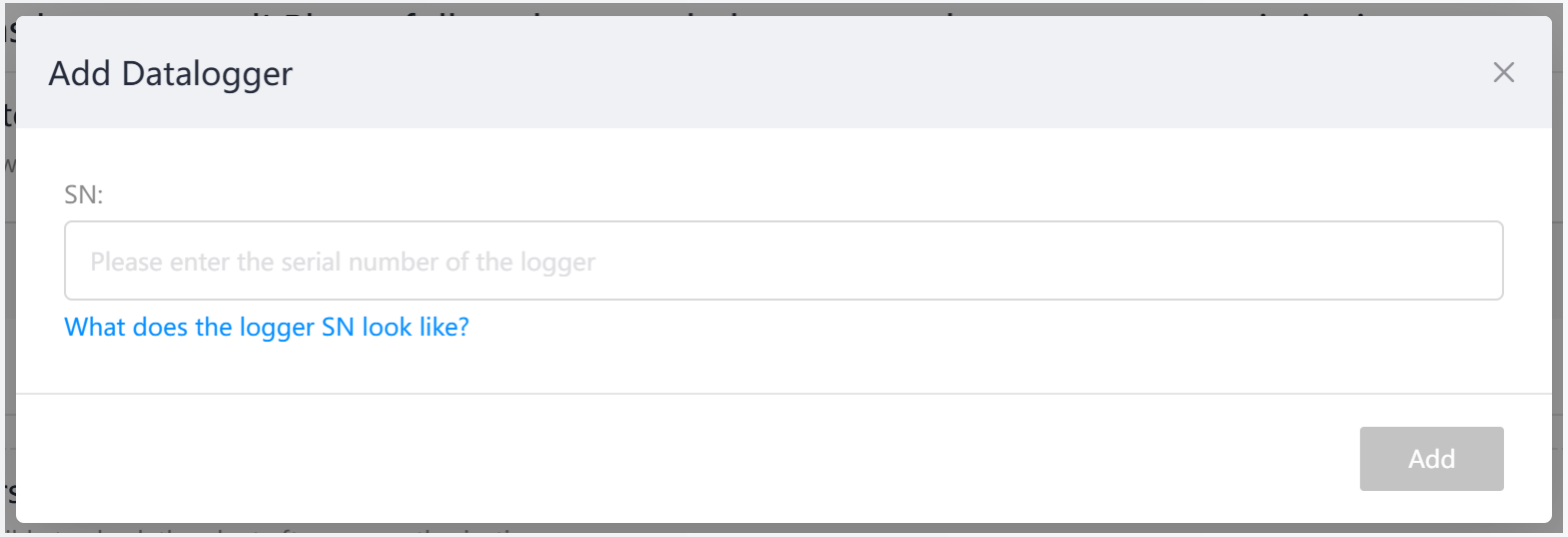




Solarman Setup

Commission Procedure:





Solarman Setup

Commission Procedure:

STEP 4 Network Configuration

Method 1 - **LAN connection**

Using a regular network cable, connect one terminal to the home router and the other to the BMS LAN port. Then the device will automatically connect to the network.
NOTE: This automatic connection takes about 10 minutes.

Solarman Setup

Commission Procedure:

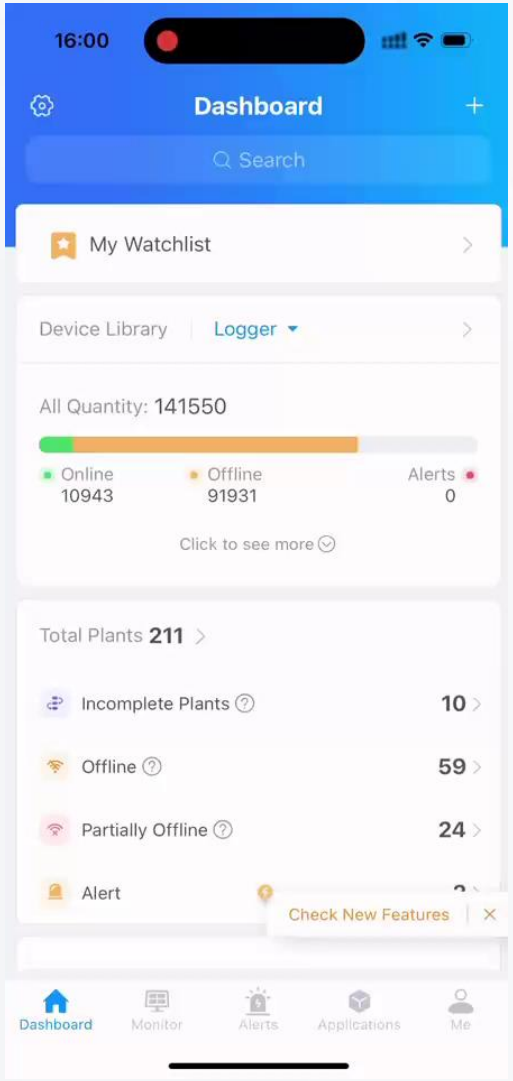
STEP 4 Network Configuration

Method 2 - **Wi-Fi connection**

On PC, wifi connection needs to be done through a local configuration website, details in ‘Force H3_Wi-Fi Portal Introduction’

NOTE: Install the antenna to the wifi port on BMS for better connection

APP Setup



Troubleshooting for common errors

Troubleshooting

Cannot Communicate with Inverter

Phenomenon: status light solid orange, SOC light solid blue

Error message:
Batteryview/log - 0x1000
Solarman - External Communication Failure

Possible reasons:
1. Communication cable is not well connected;
2. Inverter not turned on;
3. Inverter is not compatible with FH3 battery;
4. BMS is not well fixed with battery module (both sides of controller) with two M4 screws.

Checklist:
1. is the inverter running, is the cable loosen on either end, if the pins used are correct, swap a cable if possible;
2. Check compatible list, if the inverter model is listed and on the right firmware, if the battery settings on the inverter are correct;
3. Check if the M4 screws are fixed, try to press the BMS down hard to ensure stable connection.

Troubleshooting

Cannot pass self-check

Phenomenon: After turning on, Status LED slow flashing orange. Others off. Cell temp values are all 0 degree

Error message:
Batteryview/log - 0xe000
Solarman - Self-Test Volt Error / Self-Test Module Coulomb Error / Self-test Modu

Possible reasons:
1. BMS is not well fixed with battery module (both sides of controller) with two M4 screws;
2. BMS or battery modules are not well stacked;

Checklist:
1. Check if the M4 screws are fixed, try to press the BMS down hard to ensure stable connection.
2. Try to stack the modules one by one with the BMS, check if one of them is causing the selfcheck error. If there's a pin bent in the black connector between modules and BMS, it should be ok after it's straightened.

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BMIC error

Error message:
Batteryview/log - 0x8
Solarman - BMIC error

Possible reasons:
1. Sampling failure in one of the modules or BMS;

Checklist:
1. Check if there's abnormal cell volt or temp value on solarman to try locating the defective module directly.
2. Stack the modules one by one with the BMS, check if one of them is causing the BMIC error. Check if there's any pin bent or deformed in the connectors on the modules and BMS. If the fault continues with every module, the problem should be on the BMS.

Troubleshooting

BMS/battery lockup

Possible reasons:
1. The battery module used to have errors continuously.

Solution:
1. Check the history data to find out the faulty module, and remove it.
2. Unlock the BMS through Solarman, or batteryview

Device Control - Clear Fault - Effective

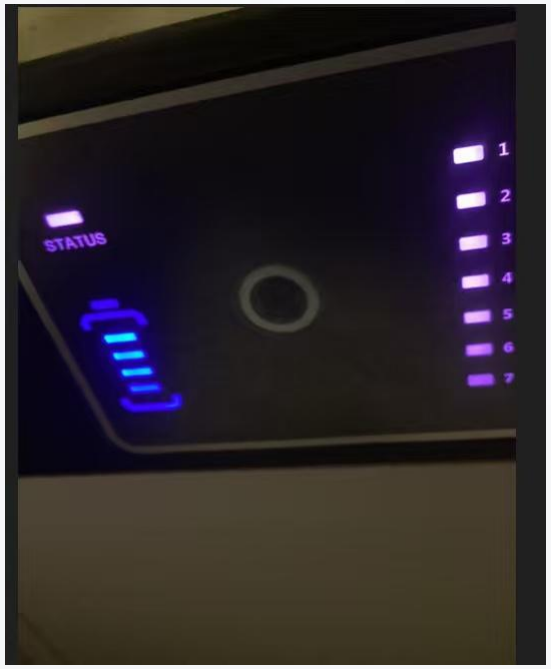
BatteryView Command for unlock BMS:
clrfault iec

Troubleshooting

Purple light on BMS

Possible reasons:
1. BMS lights are in purple shortly during selfchecking, if the light stuck in purple, it’s caused by wrong firmware installed.

Solution:
1. Use force upgrade tool to reupgrade the BMS back to the correct version



Troubleshooting

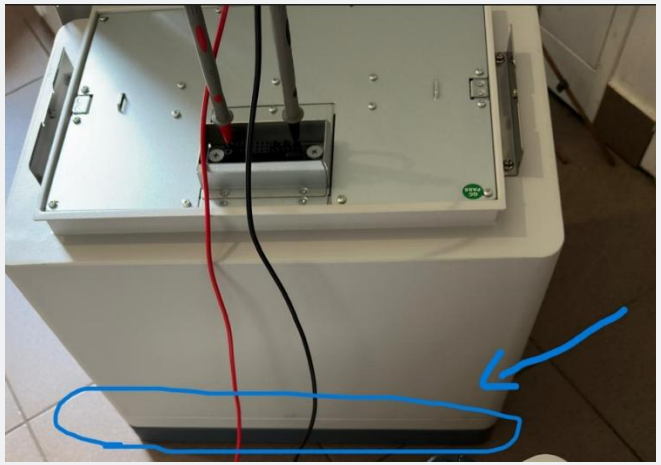
Logger is online but battery is not

Checklist:
1. Wait for a while, it may connect after few minutes after registration.
2. Check the grounding cable connection, reconnect it. Improper grounding may cause interference therefore effecting the network connection.
3. Disconnect power cables and communication cable between battery system and inverter, waits for a while and restart the battery system.
4. In a multistack system, it is normal that only the logger of the master is visible, the battery information of slave is invisible.

Troubleshooting

Communication is working, but cannot charge & discharge

Possible reasons:
1. Battery Voltage is not in the operation voltage range of the inverter’s battery port;
2. Power cable is not well connected;
3. Battery work mode setting is preventing the battery from charging or discharging;
4. Battery Output Voltage is abnormal;

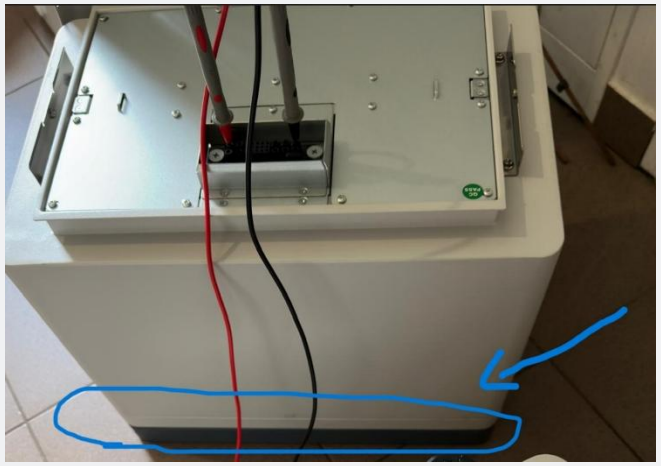


Checklist:
1. Check if the battery nominal voltage is lower than the inverter's start-up voltage.
2. Check if the power cables are well connected and functioning ok. Unplug, replug and restart the system.
3. Check all the battery and work mode settings on the inverter.
4. Measure the output voltage of BMS(voltage between D- and D+) while communication cable is connected, or under black start. (hold the "Start" button for more than 10s until the BMS make a click sound)
If there is voltage measured, the stack should be ok. If there’s no voltage, put the module on the base and test voltage directly.

Troubleshooting

BMS cannot start up

Possible reasons:
1. Battery voltage is too low.



Checklist:
1. Use the Black Start Function: Press and hold the "Start" button for an extended period. If the system can successfully start using the Black Start function, force charge can be applied through inverter.
2. Measure the Voltage of Each Battery Module: ensure that each battery module is placed on its base before measuring the voltage. If the module voltages are above 90V, it could be the BMS having issue.

Troubleshooting

Other charge and discharge issues: SOC jump/cannot fully charge, etc.

Possible reason:
Mostly caused by cell imbalance

Solution:
Needs Solarman data or log to locate the defective unit.

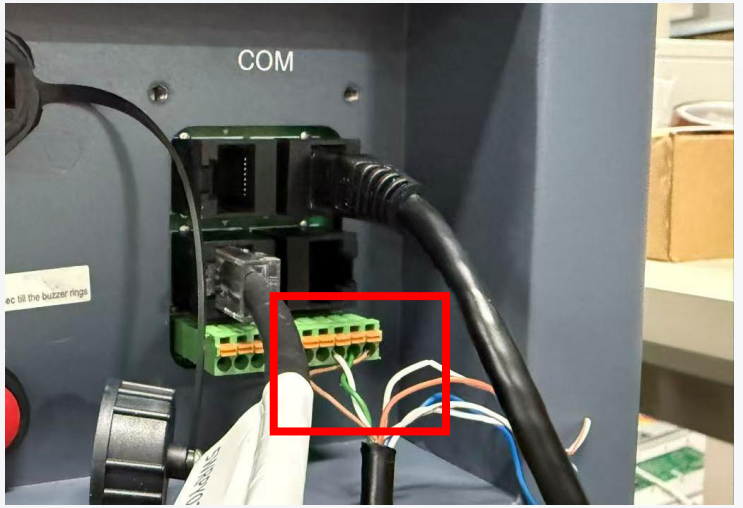
Troubleshooting

BatteryView Connection

Software: Batteryview V3.9.4
Cable: RJ45-DB9-DB9-USB

Connection on BMS end:
1. Cut off the RJ45 connector, Strip off the insulation layer of the green white, green, brown cable, about 15mm.
2. Insert into the terminal plug accordingly.

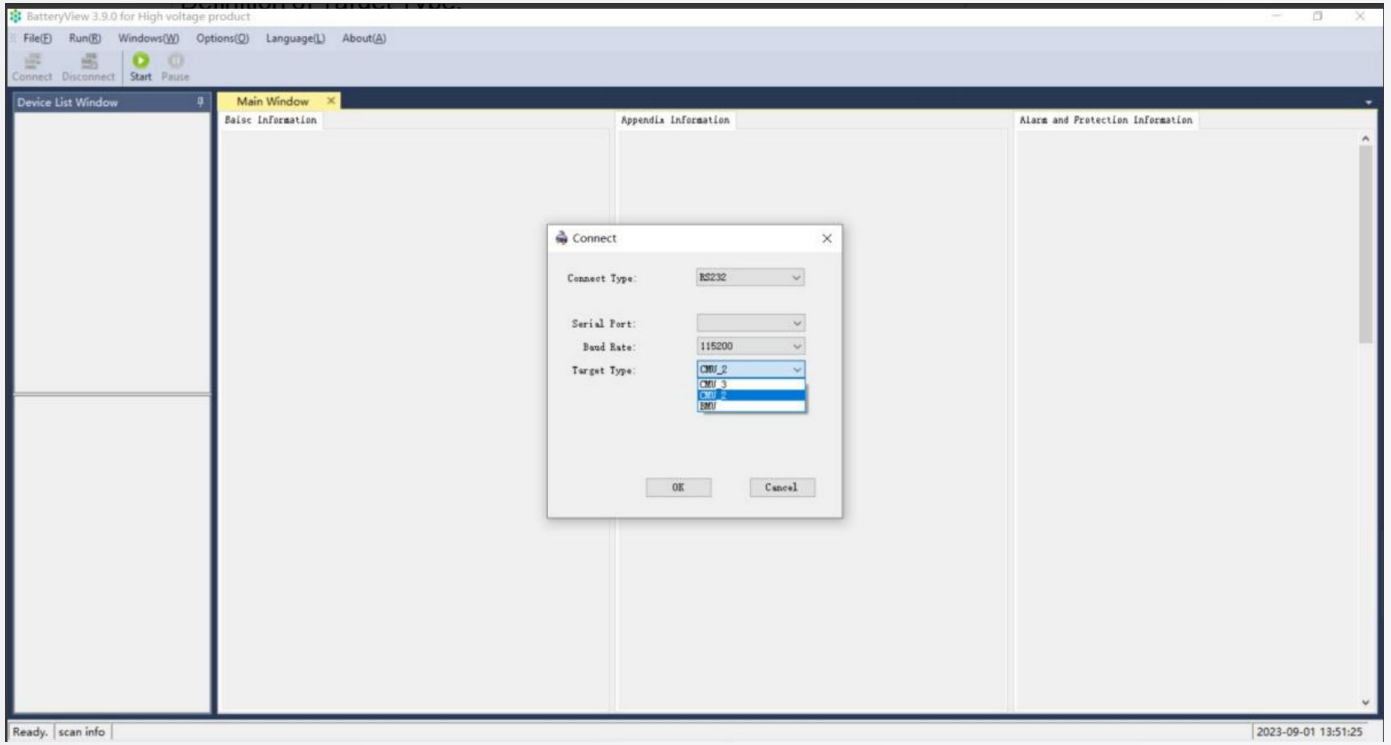
PIN 1-10	RJ45
PIN 8	PIN 3 (Green and white)
PIN 9	PIN 6 (Green)
PIN10	PIN 8 (Brown)



Troubleshooting

BatteryView Connection

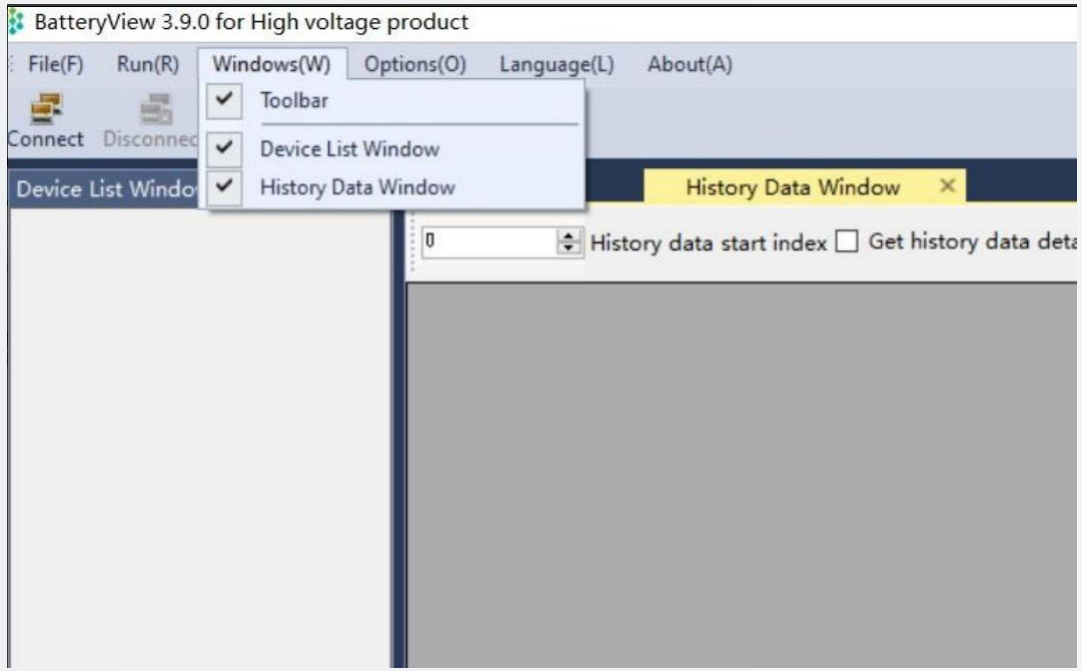
1. Once cable is connected, open batteryview.
2. Select ‘Target Type’ as ‘CMU_2’, Baud Rate 115200. Serial Port should be obtained automatically, such as ‘COM3’, goes with the usb port used on the laptop.

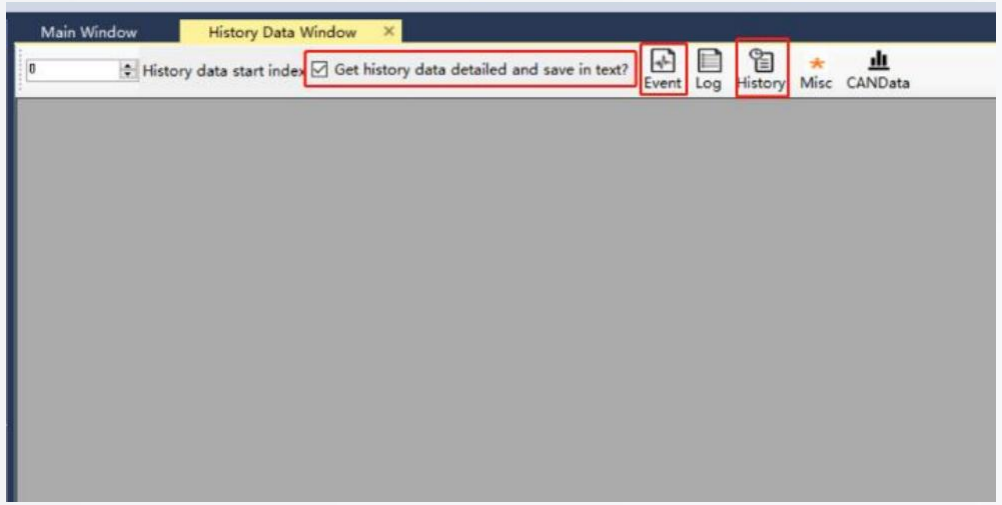


Troubleshooting

BatteryView Connection

2. Go to History Data Window, tick "Get history data detailed and save in text?", then click "History" and "Event" to download the Data. The export can take long for old systems.





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Thank You