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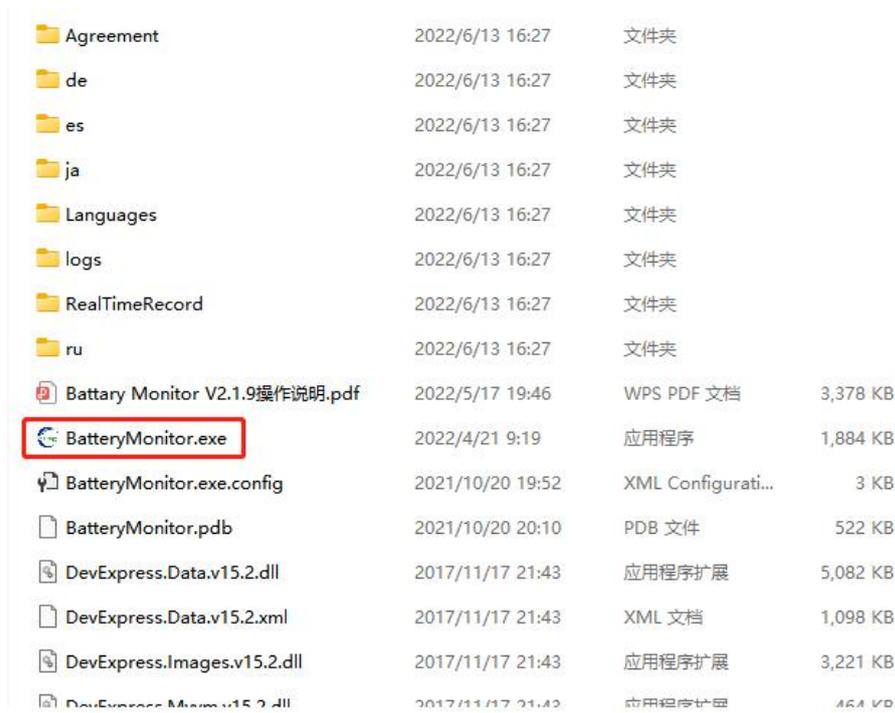
# Upper Computer Operation

## 1. Decompress the host computer file

 BatteryMonitor V2.1.9.zip

## 2. Open the monitor software

- 1) Open the folder
- 2) select the upper computer software
- 3) double click to open the upper computer



Agreement	2022/6/13 16:27	文件夹	
de	2022/6/13 16:27	文件夹	
es	2022/6/13 16:27	文件夹	
ja	2022/6/13 16:27	文件夹	
Languages	2022/6/13 16:27	文件夹	
logs	2022/6/13 16:27	文件夹	
RealTimeRecord	2022/6/13 16:27	文件夹	
ru	2022/6/13 16:27	文件夹	
Battery Monitor V2.1.9操作说明.pdf	2022/5/17 19:46	WPS PDF 文档	3,378 KB
<b>BatteryMonitor.exe</b>	2022/4/21 9:19	应用程序	1,884 KB
BatteryMonitor.exe.config	2021/10/20 19:52	XML Configurati...	3 KB
BatteryMonitor.pdb	2021/10/20 20:10	PDB 文件	522 KB
DevExpress.Data.v15.2.dll	2017/11/17 21:43	应用程序扩展	5,082 KB
DevExpress.Data.v15.2.xml	2017/11/17 21:43	XML 文档	1,098 KB
DevExpress.Images.v15.2.dll	2017/11/17 21:43	应用程序扩展	3,221 KB
DevExpress.Menu.v15.2.dll	2017/11/17 21:43	应用程序扩展	464 KB

## 3. Load protocol file

- 1) Select **Import Protocol**  
See Figure 3-1
- 2) pop up the folder (select *Agreement* in the upper computer folder)  
See Figure 3-1
- 3) select the protocol suffix EN in the Agreement folder that corresponds to the English protocol (e.g. 16s \_ V20 \_ ADDR \_ EN)  
See Figure 3-2
- 4) click **OK**  
See Figure 3-3

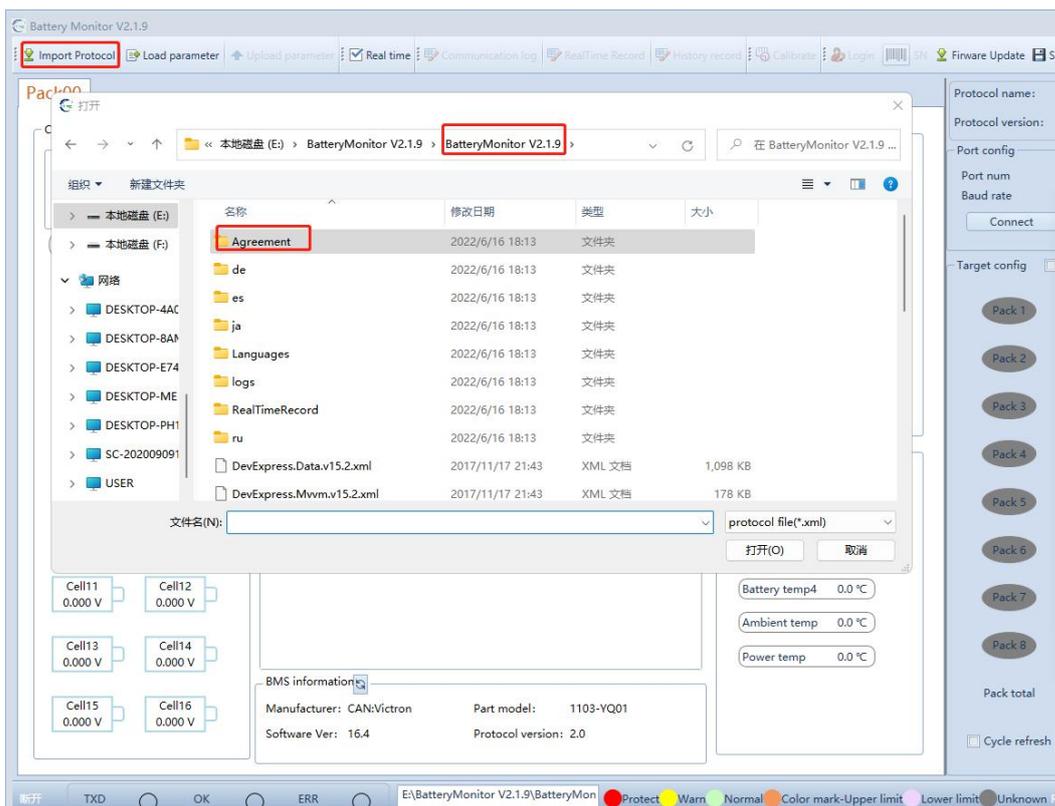


Figure 3-1

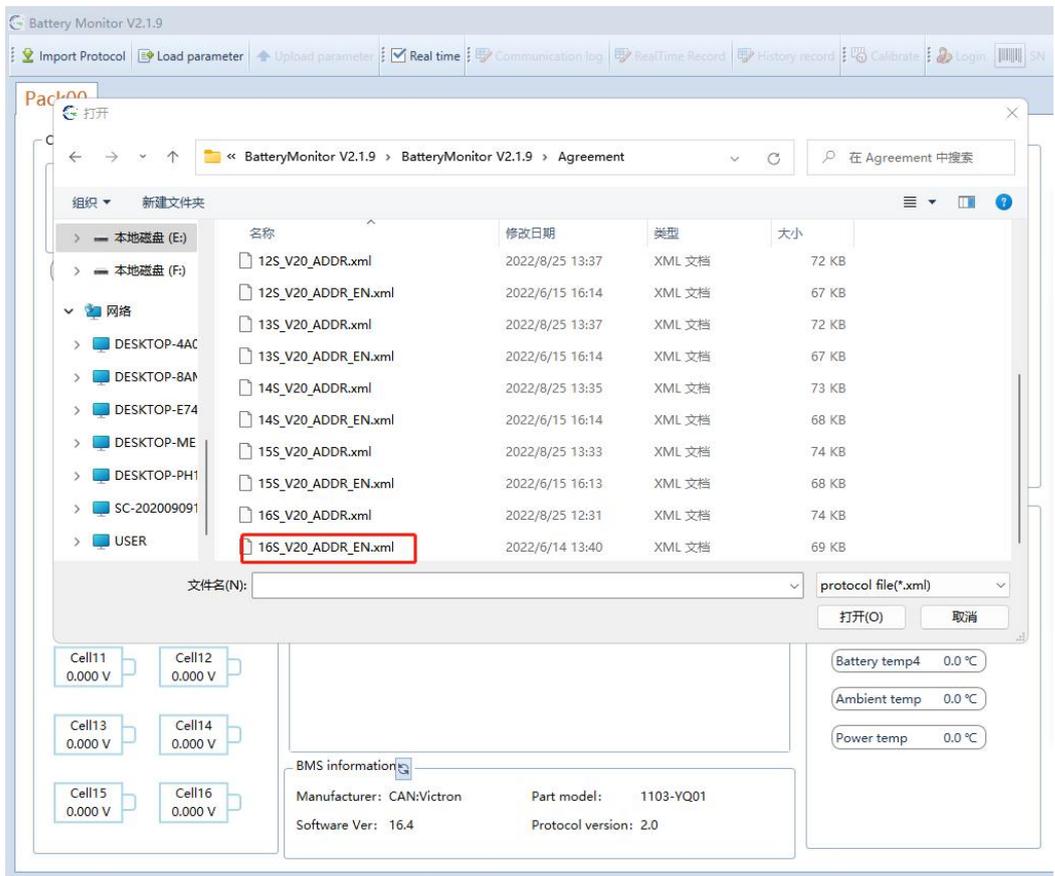


Figure 3-2

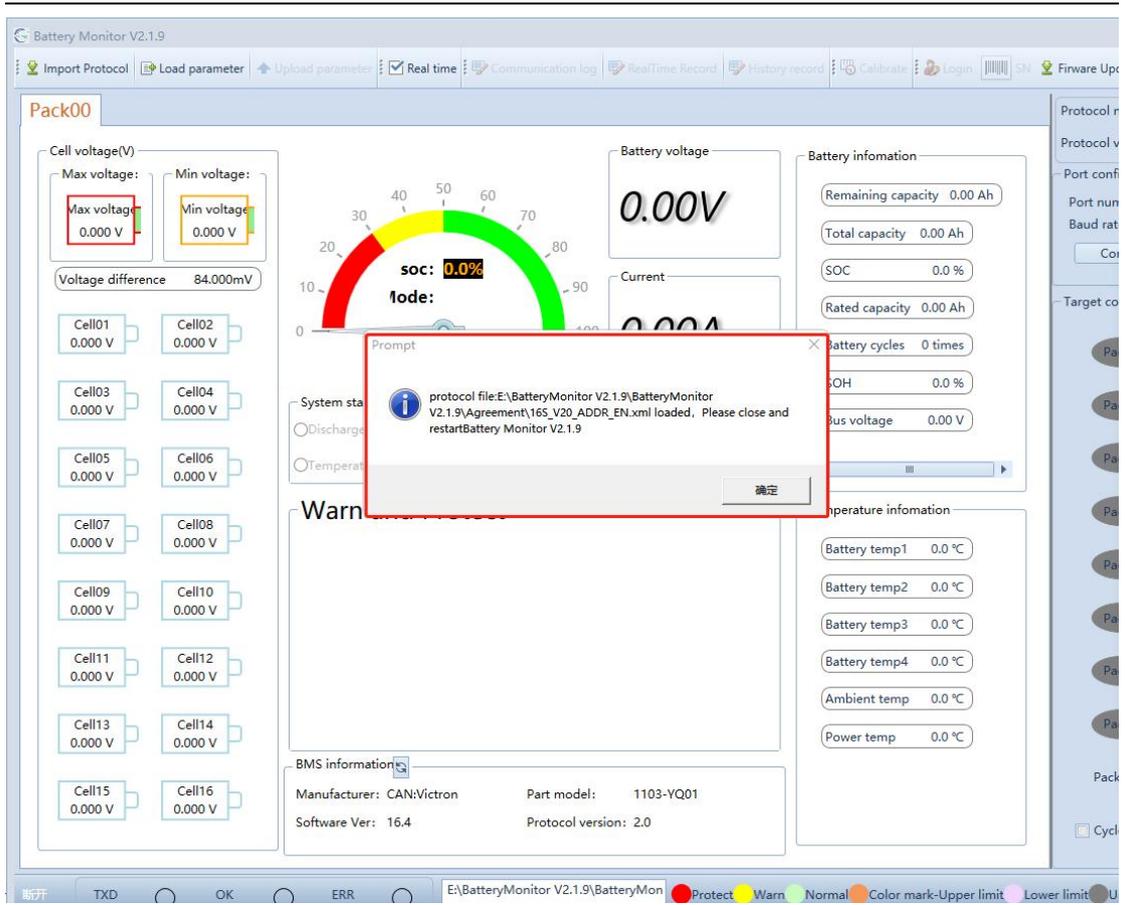


Figure 3-3

## 4. Communication Port Configuration

- 1) **Port number** (the upper computer will automatically identify the USB to 485 serial port number)
- 2) **Baud rate** : 19200  
See Figure 4-1
- 3) Click **Connect**  
See Figure 4-2

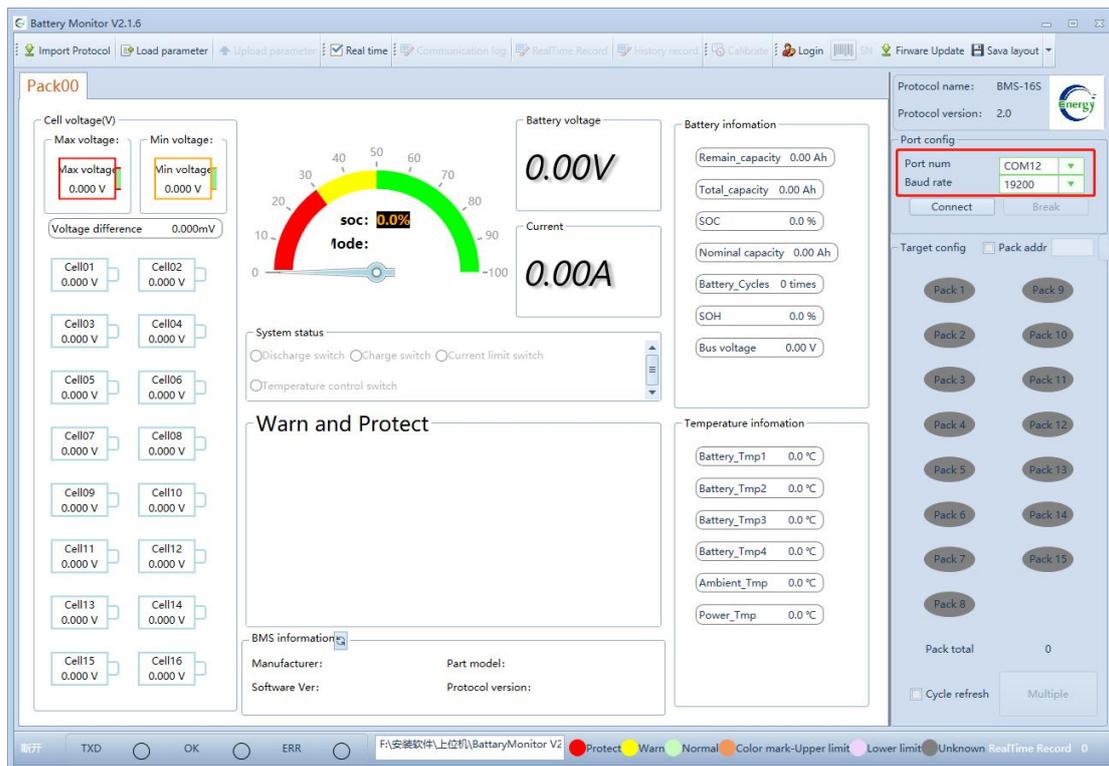


Figure 4-1

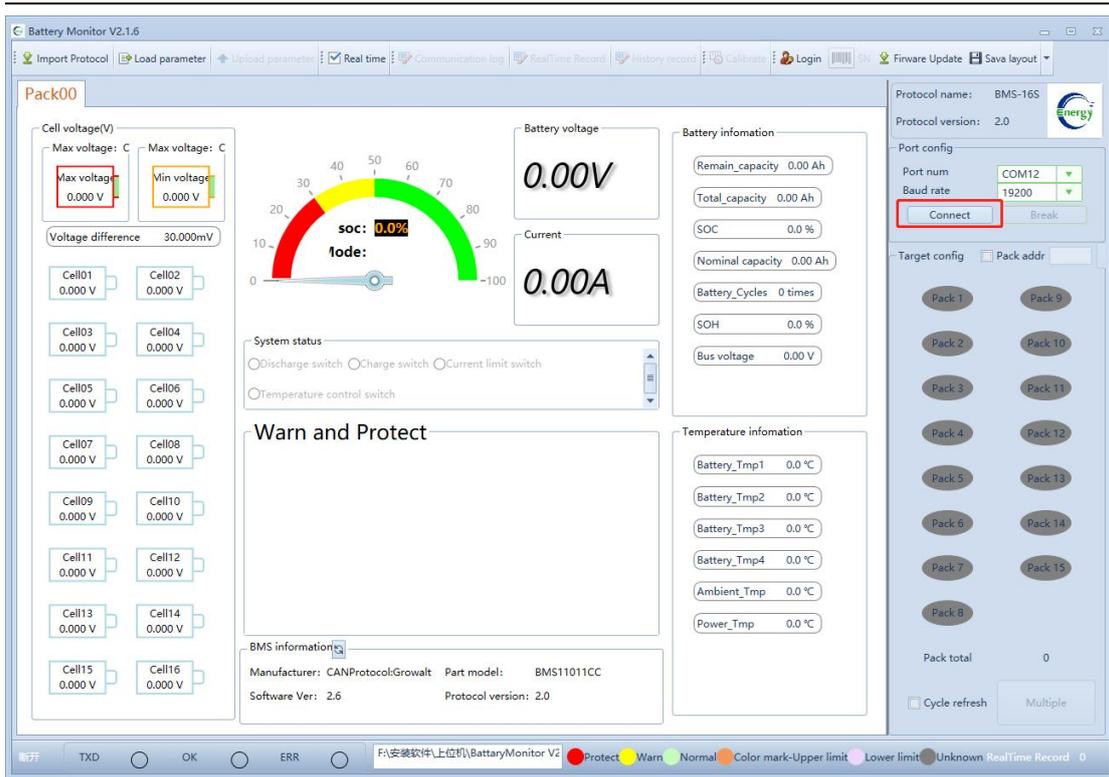
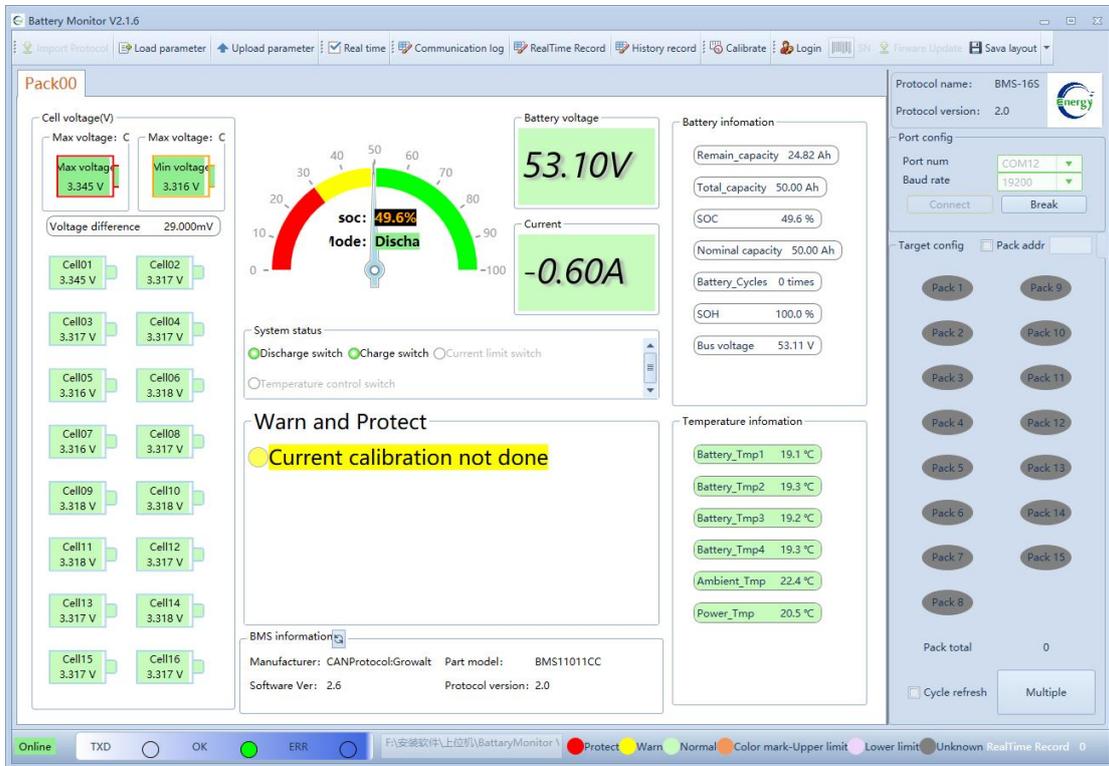


Figure 4-2

After successful connection, the upper computer displays the battery data.  
See Figure 4-3



See Figure 4-3

## 5. Login

**Account:** admin

**Password:** admin

The screenshot displays the Battery Monitor V2.1.6 software interface. The main window shows various battery parameters for Pack00, including cell voltages, SOC (49.6%), and battery voltage (53.10V). A login dialog box is overlaid on the interface, prompting for a username and password. The username field contains 'admin' and the password field contains '\*\*\*\*\*'. The dialog box also features the Energy logo and a close button (X). The background interface includes a 'Warn and Protect' section with a yellow warning message 'Current calibration no...', a 'BMS information' section, and a 'Port config' section on the right. The bottom status bar shows 'Online' and various system indicators.

**Cell voltage(V)**

Cell	Voltage
Cell01	3.345 V
Cell02	3.317 V
Cell03	3.317 V
Cell04	3.317 V
Cell05	3.316 V
Cell06	3.318 V
Cell07	3.316 V
Cell08	3.317 V
Cell09	3.318 V
Cell10	3.318 V
Cell11	3.318 V
Cell12	3.318 V
Cell13	3.317 V
Cell14	3.318 V
Cell15	3.317 V
Cell16	3.317 V

**Battery voltage**  
53.10V

**Battery information**

Remain_capacity	24.82 Ah
Total_capacity	50.00 Ah
SOC	49.6 %
Nominal_capacity	50.00 Ah

**Port config**

Protocol name: BMS-16S  
Protocol version: 2.0

Port num: COM12  
Baud rate: 19200

**Warn and Protect**

Current calibration no

**BMS information**

Manufacturer: CANProtocol:Growatt Part model: BMS1101CC  
Software Ver: 2.6 Protocol version: 2.0

**Temperature information**

Battery_Tmp1	19.0 °C
Battery_Tmp2	19.2 °C
Battery_Tmp3	19.0 °C
Battery_Tmp4	19.1 °C
Ambient_Tmp	22.2 °C
Power_Tmp	20.5 °C

**System status**

Discharge switch  Charge switch  Current   
Temperature control switch

**PACK00**

Max voltage: C 3.345 V  
Min voltage: C 3.316 V  
Voltage difference 29.000mV

**PACK ADDR**

Pack 1	Pack 9
Pack 2	Pack 10
Pack 3	Pack 11
Pack 4	Pack 12
Pack 5	Pack 13
Pack 6	Pack 14
Pack 7	Pack 15
Pack 8	

PACK total: 0

Cycle refresh: Multiple

**Status Bar:** Online TXD OK ERR Protect Warn Normal Color mark-Upper limit Lower limit Unknown RealTime Record 0

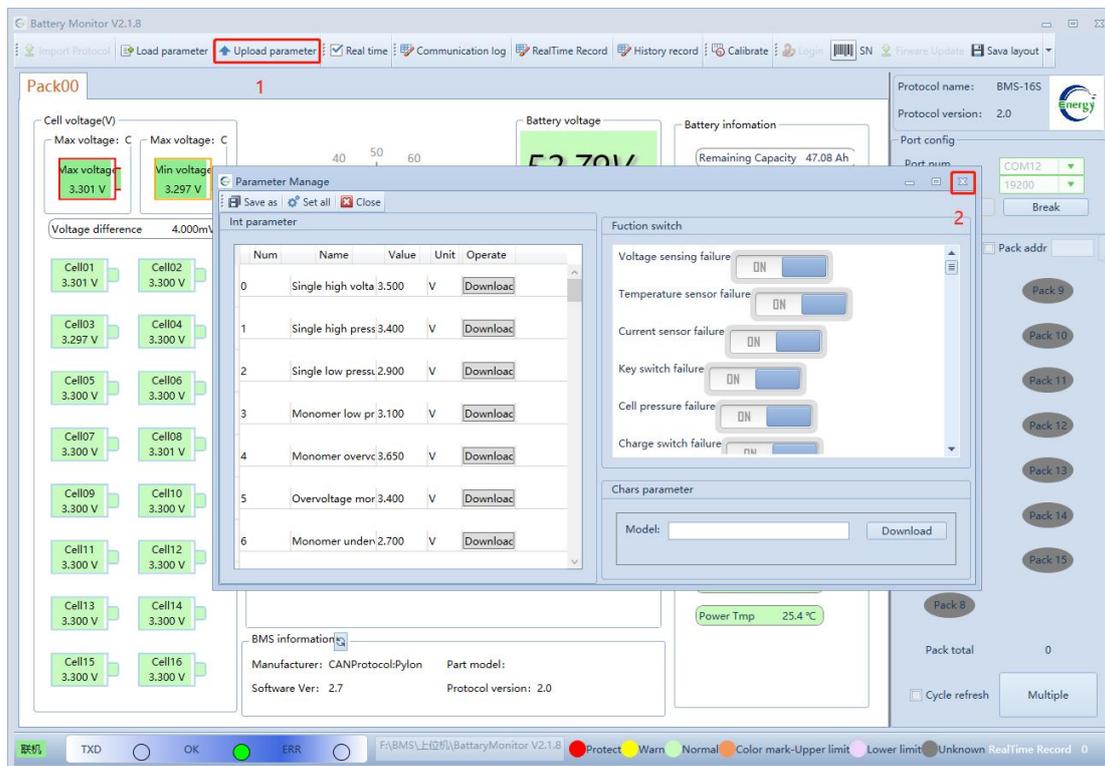
## 6. Loading parameters and uploading parameters

**Load parameter:** download parameter to BMS from upper computer

**Upload parameter:** upload parameter to upper computer from BMS

### 6.1 Upload Parameters

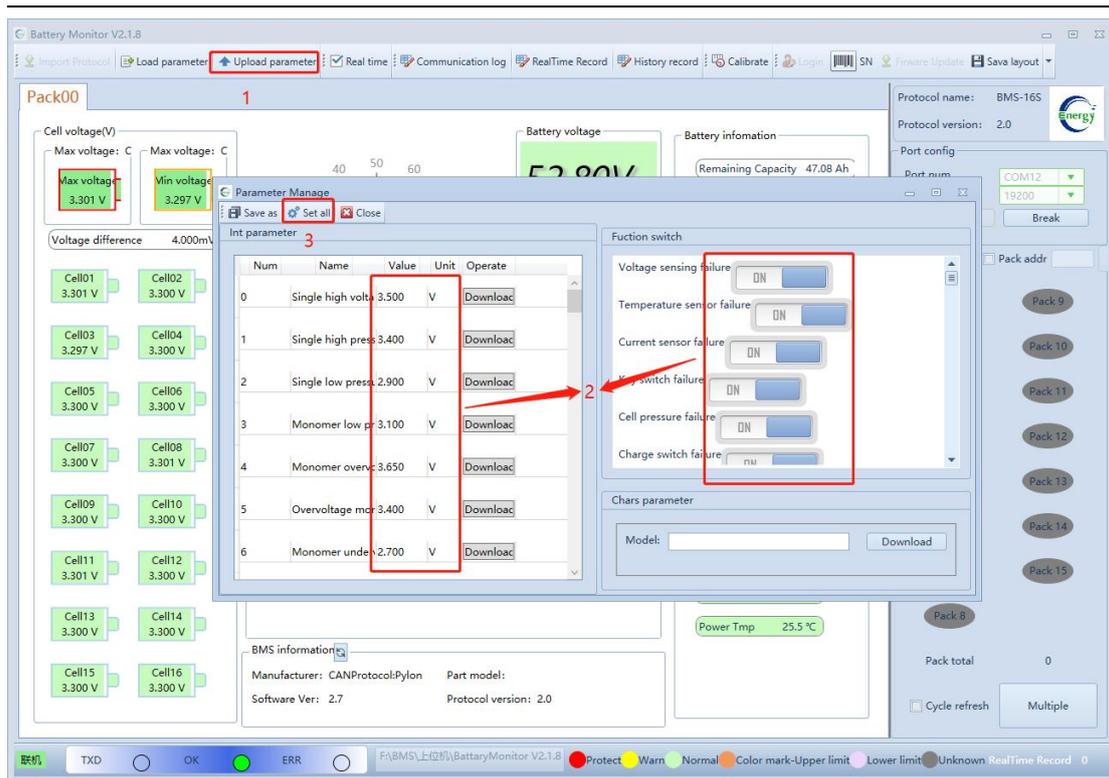
When you use the upper computer **at the first time, downloading parameters directly without checking is not allowed**, you need to upload the parameters at first and then close them.



### 6.2 Modify parameters

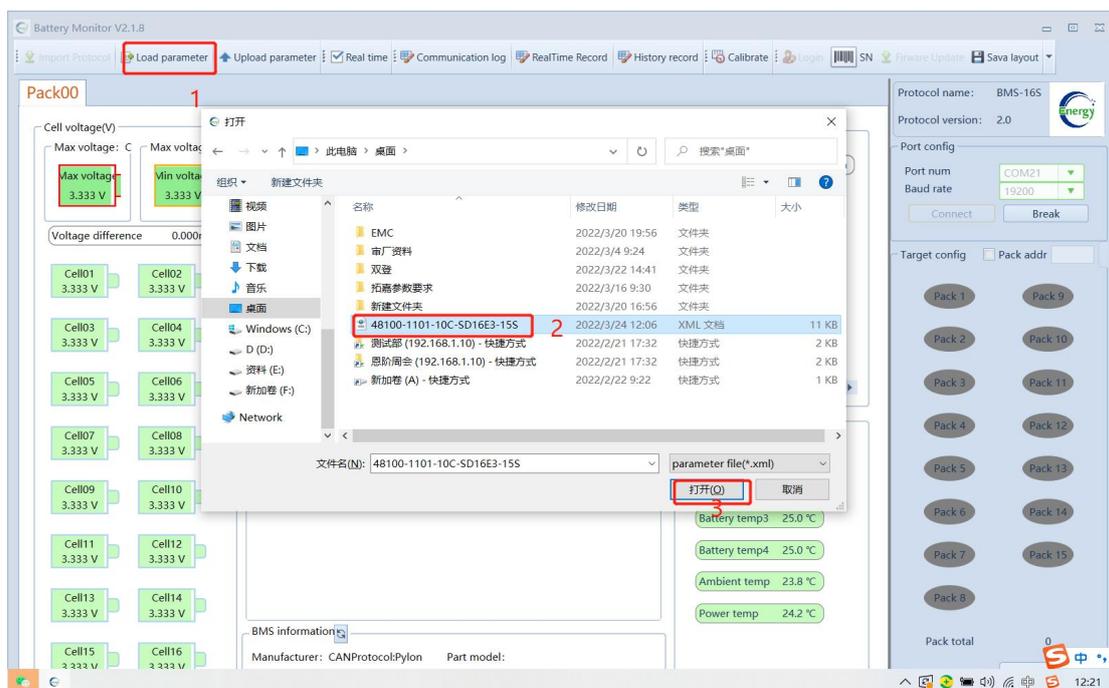
- 1) Click "**Upload Parameters**" here to upload parameters from BMS
- 2) Change the internal BMS parameters and function switches
- 3) Click **Set all** to enable the modification

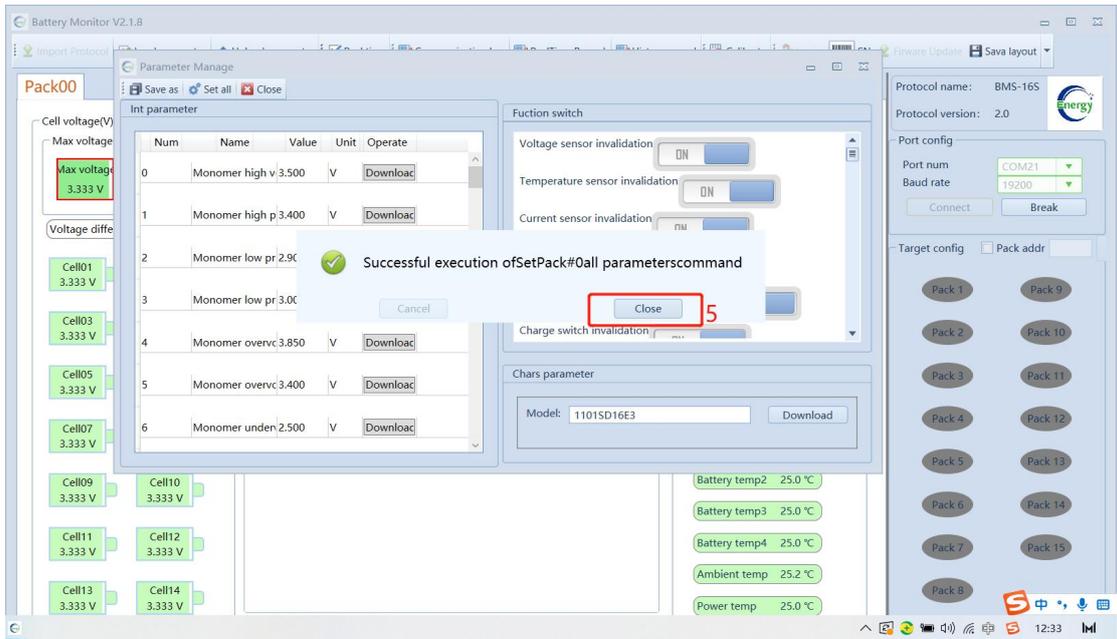
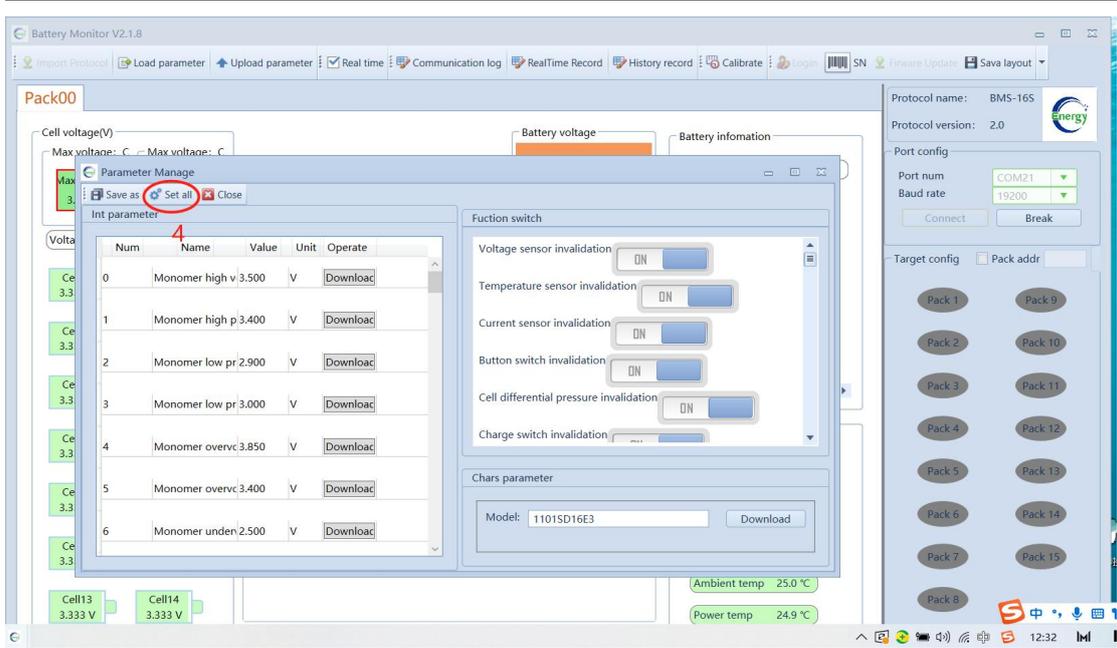
*Note: The red numbers in the figure below indicate the operation sequence*



### 6.3 Load Parameters

- 1) Click **Load Parameters** (step 1 below)
  - 2) Chose the **target parameter document** (step 2 below) and click **open** (step 3 below)
  - 3) Click **Set All** (step 4 below)
  - 4) Click **Close** (step 5 below) after prompting success
- Parameters have been configured OK





## 7. Communication Protocol Configuration

Click **CAN**, Select the corresponding CAN protocol according to the inverter type

- 1) 6 options: PN-GDLT / GRWT / VCTR / SMA-SF / GINL / Studer

Protocol Type	Supported Inverter Brands
PN-GDLT	Pylon/Goodway/TBB/Luxpower/Deye
GRWT	Growatt SPF/SPH
VCTR	Victron
SMA-SF	SMA/Sofar
GINL	Solis
Studer	Studer

See Figure 7.1

- 2) after switching the protocol, confirm whether the protocol is switched **successfully**, refresh the protection board information

See Figure 7.2

- 3) the corresponding manufacturer information will displayed in “**BMS information**” frame

See Figure 7.3

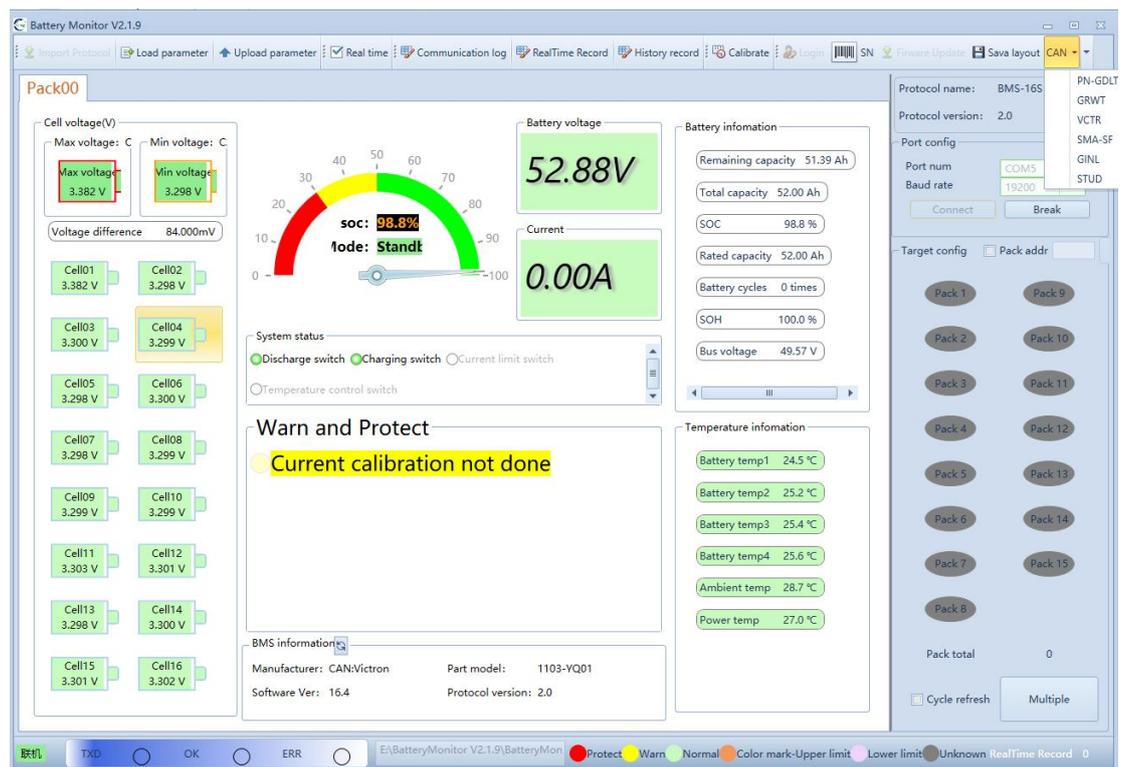


Figure 7.1

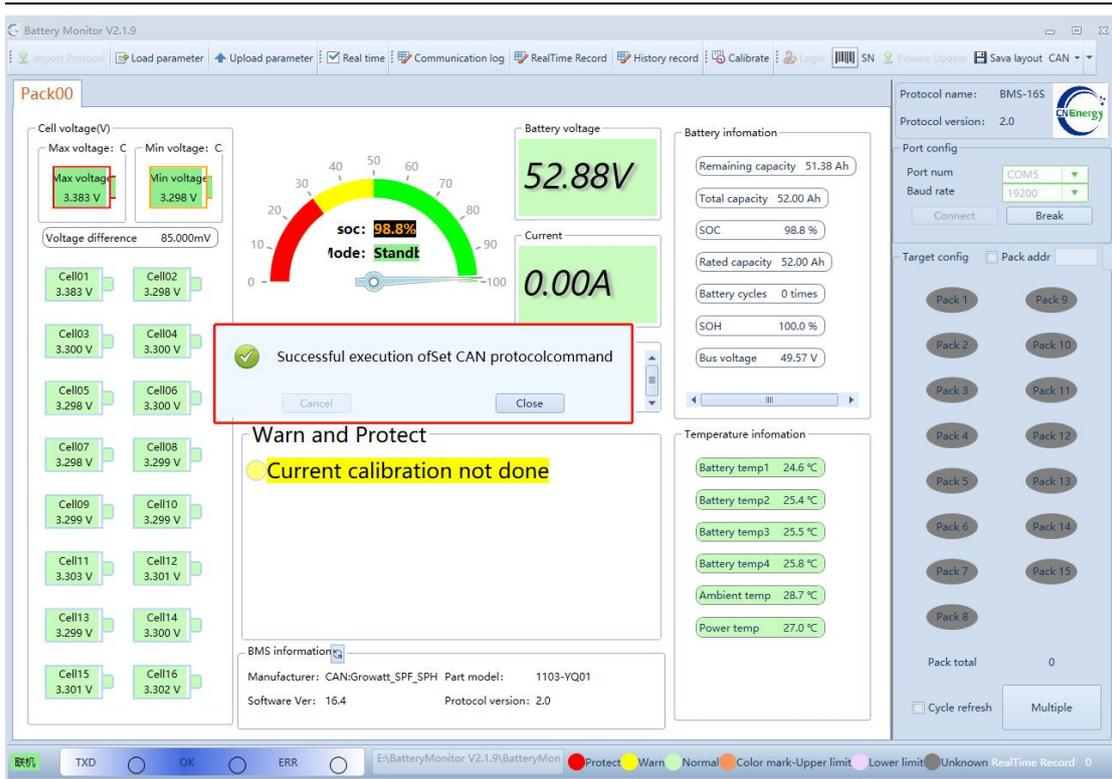


Figure 7.2

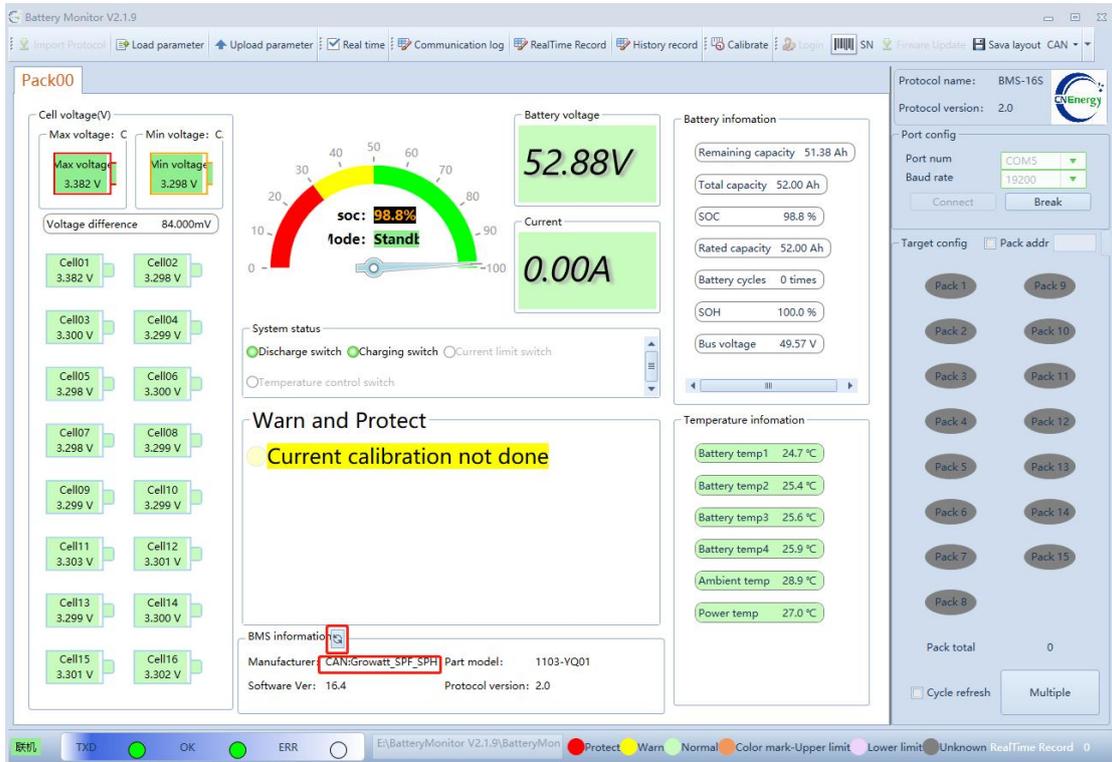


Figure 7.3

BMS information 

Manufacturer: CAN:PNG\_DYE\_Luxp\_TB Part model: 1103-YQ01  
Software Ver: 16.4 Protocol version: 2.0

BMS information 

Manufacturer: CAN:Growatt\_SPF\_SPH Part model: 1103-YQ01  
Software Ver: 16.4 Protocol version: 2.0

BMS information 

Manufacturer: CAN:Victron Part model: 1103-YQ01  
Software Ver: 16.4 Protocol version: 2.0

BMS information 

Manufacturer: CAN:SMA\_SOFAR Part model: 1103-YQ01  
Software Ver: 16.4 Protocol version: 2.0

BMS information 

Manufacturer: CAN:GINLONG Part model: 1103-YQ01  
Software Ver: 16.4 Protocol version: 2.0

BMS information 

Manufacturer: CAN:Studer Part model: 1103-YQ01  
Software Ver: 16.4 Protocol version: 2.0

Figure 7.4(other manufacturer information)

## 8. Display Interface Introduction

After successful connection, the red box below is the display Interface Introduction

See Figure 8-1

Detailed introduction see Table 8-1

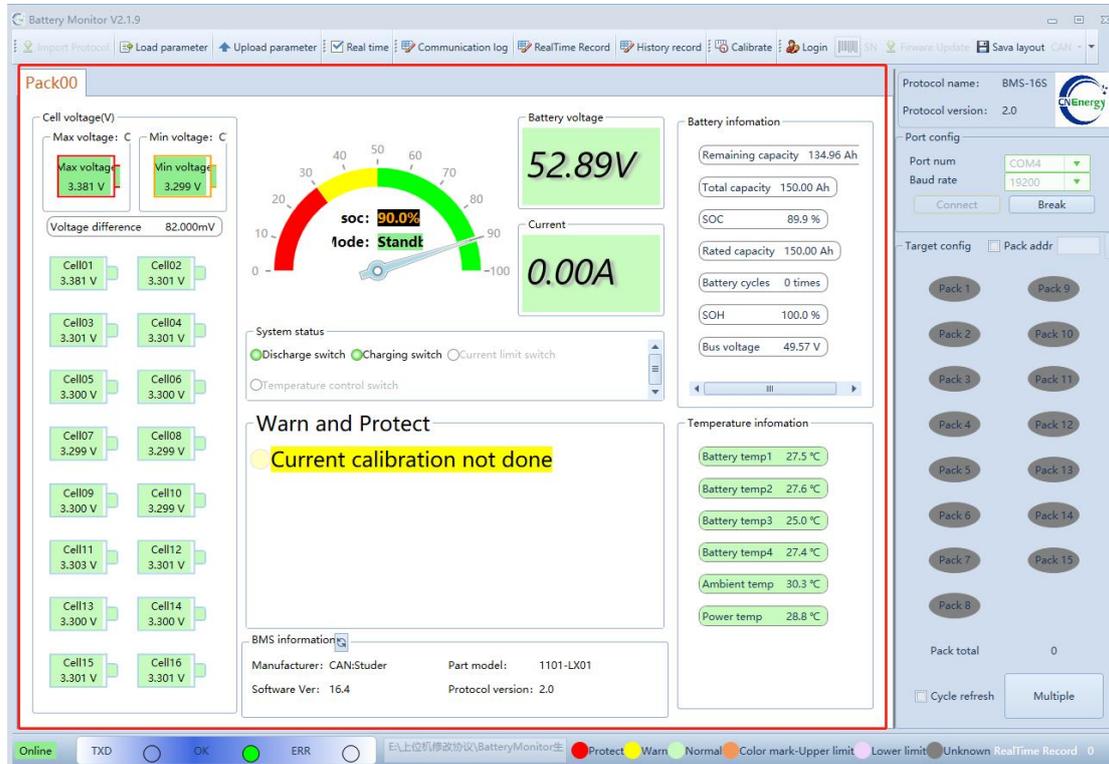


Figure 8-1

Name	Description	Notes	Figure
Max voltage	Highest voltage cell		
Min voltage	Lowest voltage cell		
Voltage difference	Voltage difference between the max voltage and min voltage		
Battery voltage	Battery total voltage		
Current	Charge current Or Discharge current (negative value)		

Remain_capacity	Current battery capacity	Upload parameter-Num59 can set current capacity	Remain_capacity 49.87 Ah
Total_capacity	Actual capacity after full battery		Total_capacity 100.00 Ah
SOC	State of charge	Remain_capacity/Total_capacity*100%	SOC 49.8 %
Nominal_capacity	Rate capacity.	Upload parameter-Num58 can set capacity	Nominal capacity 50.00 Ah
Battery_cycles	Cycle number	The number of cycles will be increased by one when the cumulative discharge capacity reaches 80% of the full capacity	Battery_Cycles 4 times
SOH	state of health		SOH 100.0 %
Bus voltage	Port voltage. Detection of external voltage	When there is no external connection, the bus voltage is equal to the total battery voltage	Bus voltage 52.79 V
Discharge switch	Discharge switch indicator	Green: switch connected Gray: switch disconnected	<input checked="" type="checkbox"/> Discharge switch
Charge switch	Charge switch indicator	Green: switch connected Gray: switch disconnected	<input checked="" type="checkbox"/> Charge switch
Current limit switch	Current limit switch indicator	Green: switch connected Gray: switch disconnected	<input type="checkbox"/> Current limit switch
Temperature control switch	Temperature control switch indicator	Green: switch connected Gray: switch disconnected	<input type="checkbox"/> Temperature control switch
Warn and Protect	BMS warning and protect display area		Warn and Protect
Battery_Tmp1	Cell temperature1 value		Battery_Tmp1 19.5 °C

Battery_Temp2	Cell temperature2 value		Battery_Tmp2 19.9 °C
Battery_Temp3	Cell temperature3 value		Battery_Tmp3 20.0 °C
Battery_Temp4	Cell temperature4 value		Battery_Tmp4 29.1 °C
Ambient_Temp	Ambient temperature value		Ambient_Tmp 22.7 °C
Power_Temp	Power temperature value		Power_Tmp 20.8 °C

Table 8-1

## 9. Parallel Mode

### 1) Parallel pack selection

When several batteries (max to 16) are combined, ensure that the corresponding address dialed by the BMS is consistent with the address set (**pack x**) by the upper computer (click the pack number to light up or greyed the icon) .

See Figure 9-1

2) When confirming the number of parallel machines, click connect to upper computer and select **Cycle Refresh**. The upper computer can see the number of parallel machines and pack refresh data

See Figure 9-2

3) On the upper computer interface, you can click **Multiple** to see each group of PACK data

See Figure 9-3

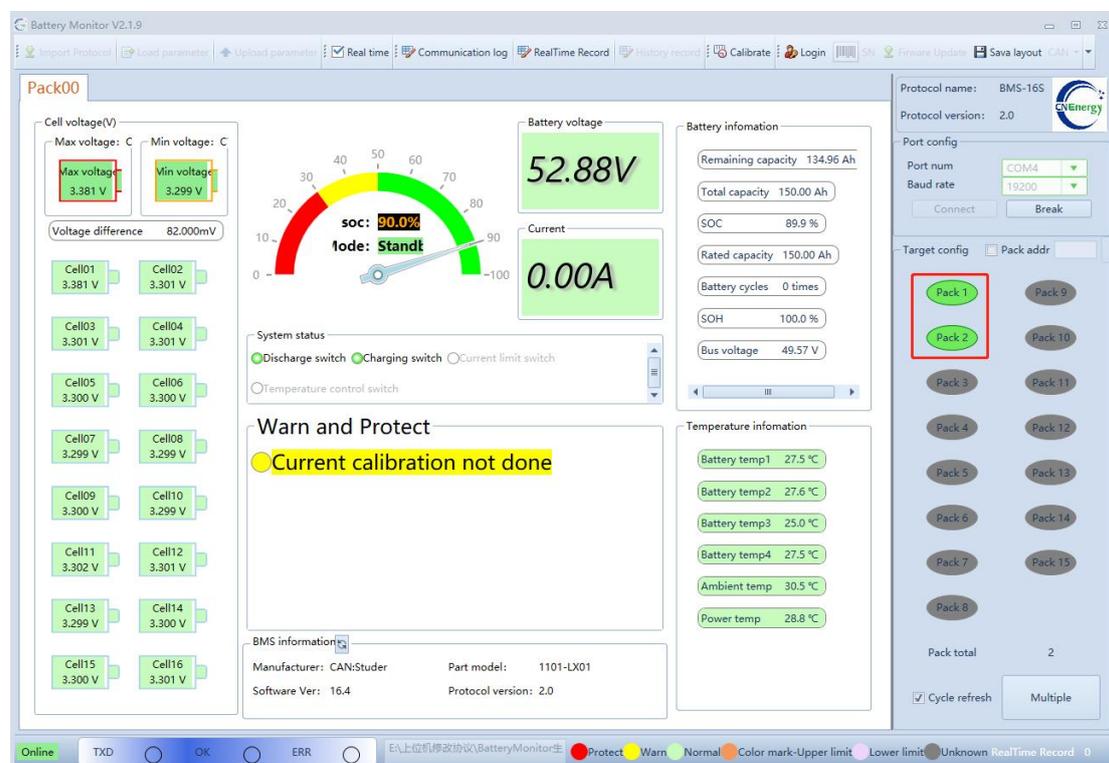


Figure 9-1

In figure 9-1, there are 2 pack icons display in the pack frame, this means there are 3 packs in parallel status. Only the slave pack can be displayed in the pack frame.

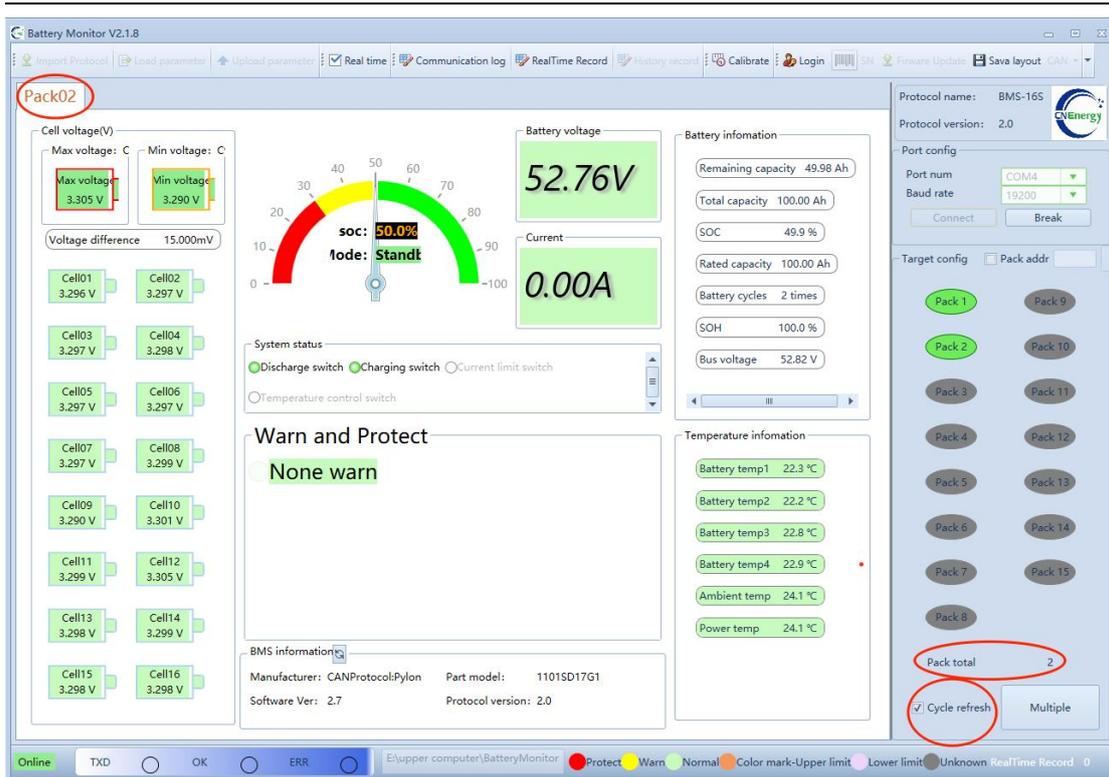


Figure 9-2

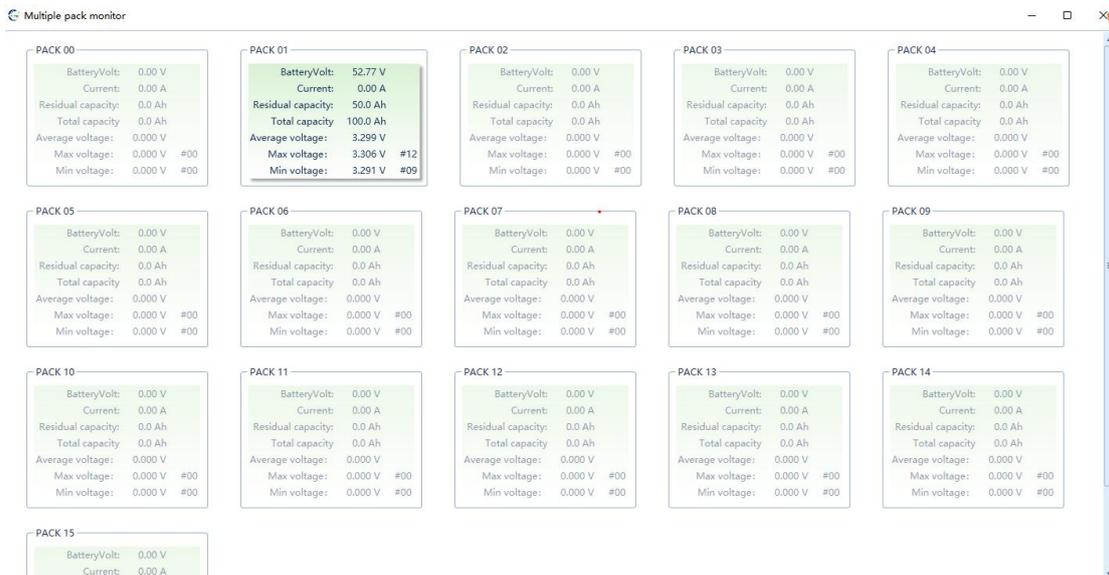
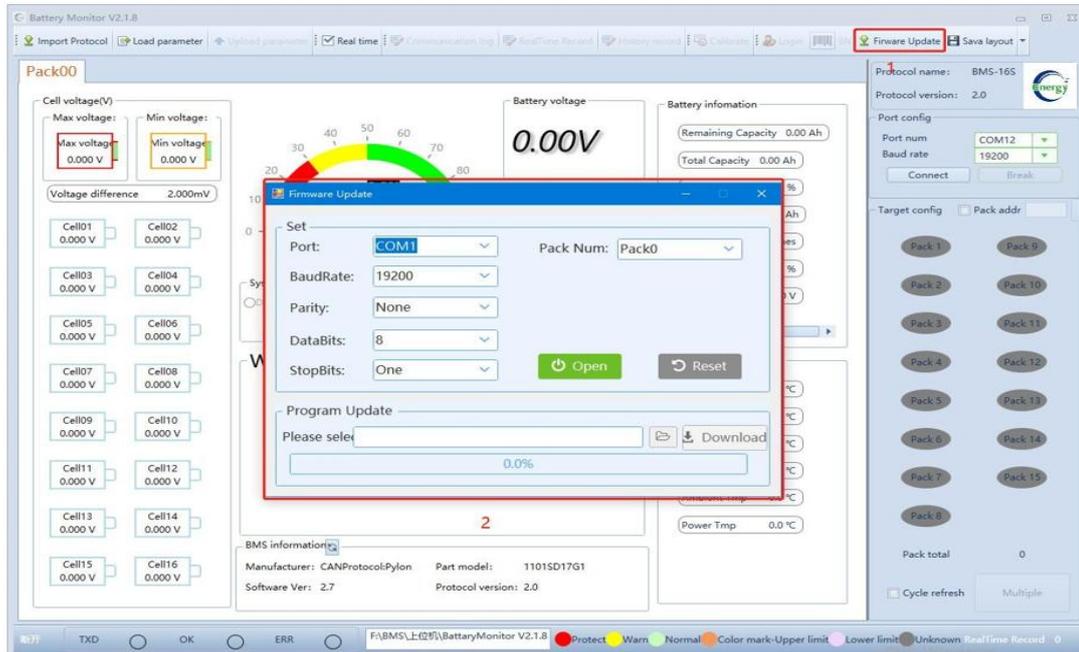


Figure 9-3

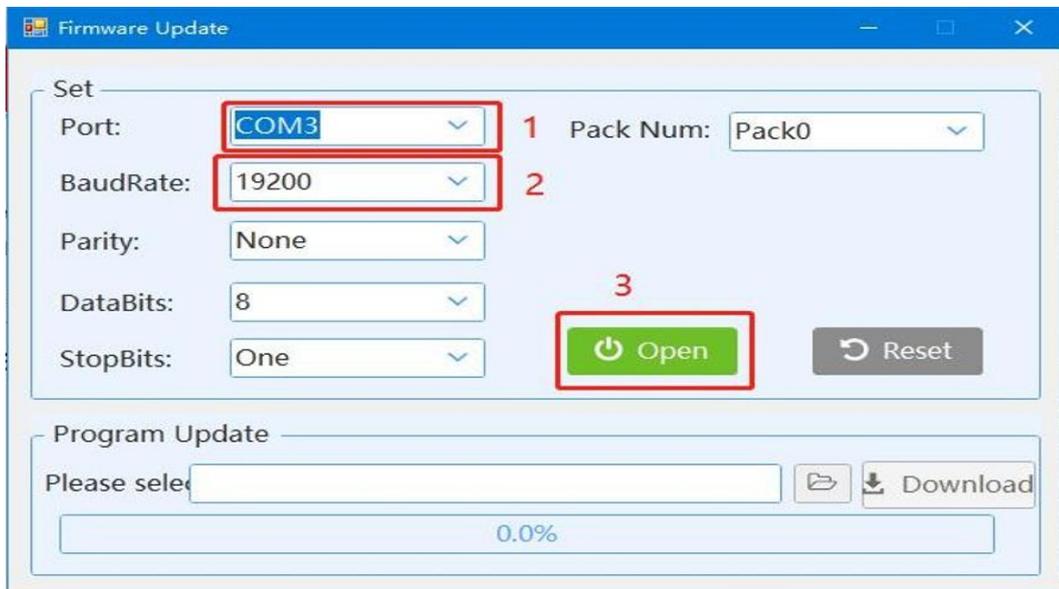
## 10. Firmware update

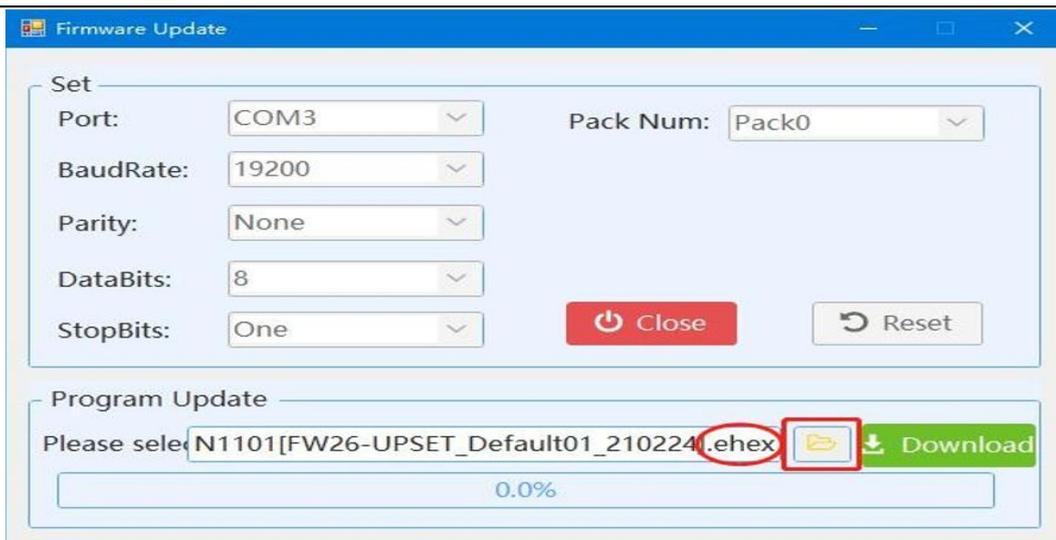
### 10.1 Open Firmware Update (BMS boot state)



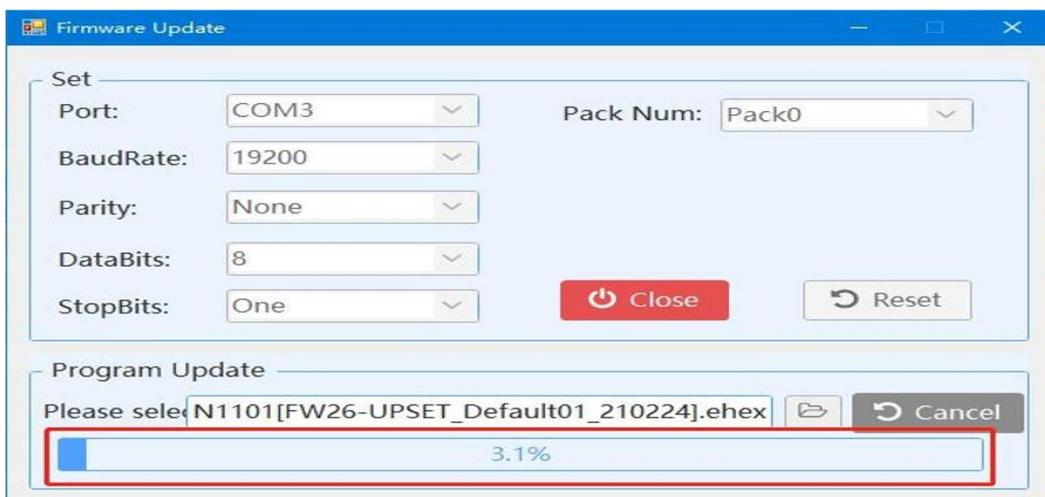
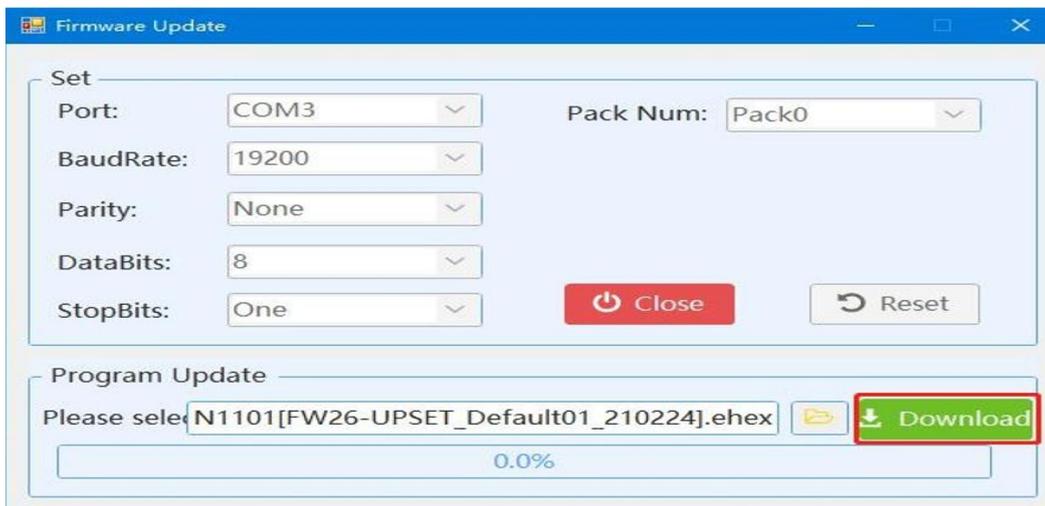
**10.2** Use USB to 485 communication line, select the corresponding **port**, select the **baud rate** of 19200, and click **Open**.

**10.3** Select folder——Jump out of corresponding box——choice the target program ( This program. *hex* format )

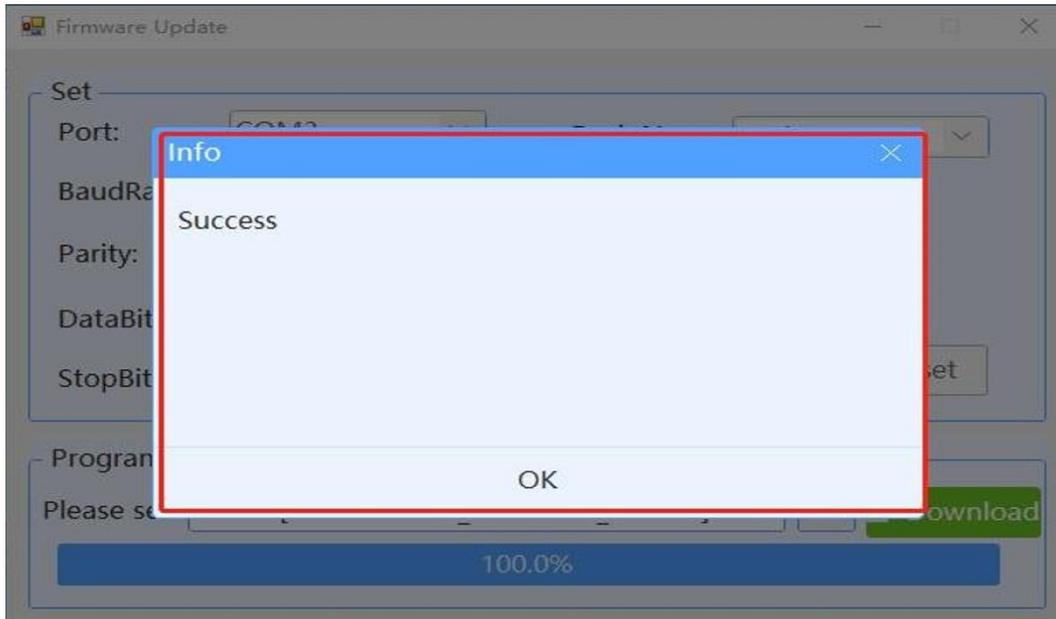




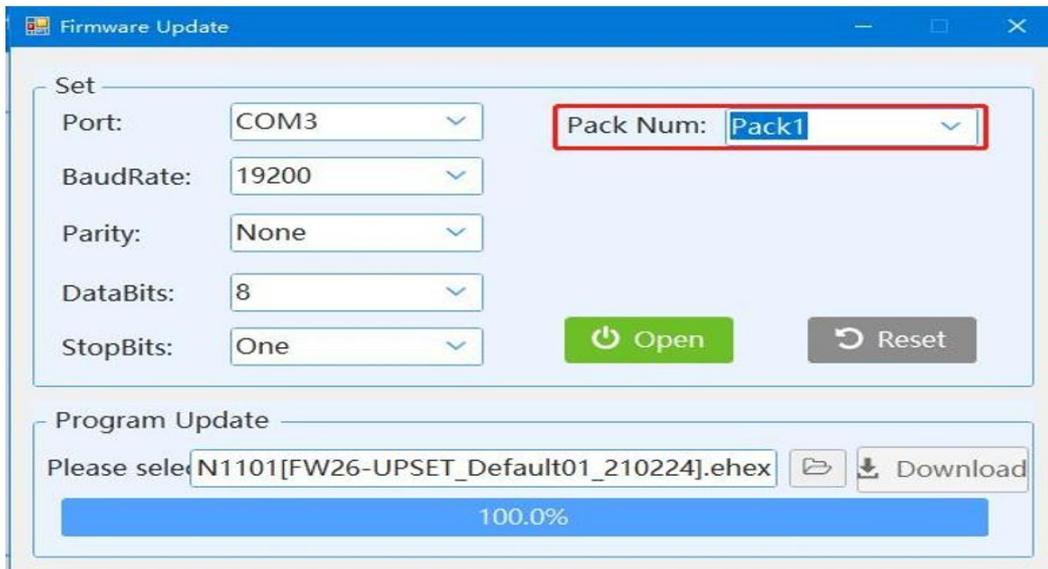
10.4 Click **download** and the progress bar will appear (When you report an error, try pressing the reset button or downloading it several times)



10.5 after the program upgrade **OK**, prompt download successful proof that the program upgrade OK.



**Note:** This upgrade software can also be upgraded according to the corresponding address. If the address of BMS is consistent with the address of Pack number, it can be upgraded.



## 11 Real Time Record

The real time record will record all the real time information of the battery. The function can be used for automatic monitoring of battery working status

- 1、Click **Real Time** to enable real time record  
See figure 11-1
- 2、Click **Real Time Record** to edit the detail information  
See figure 11-1/11-2/11-3

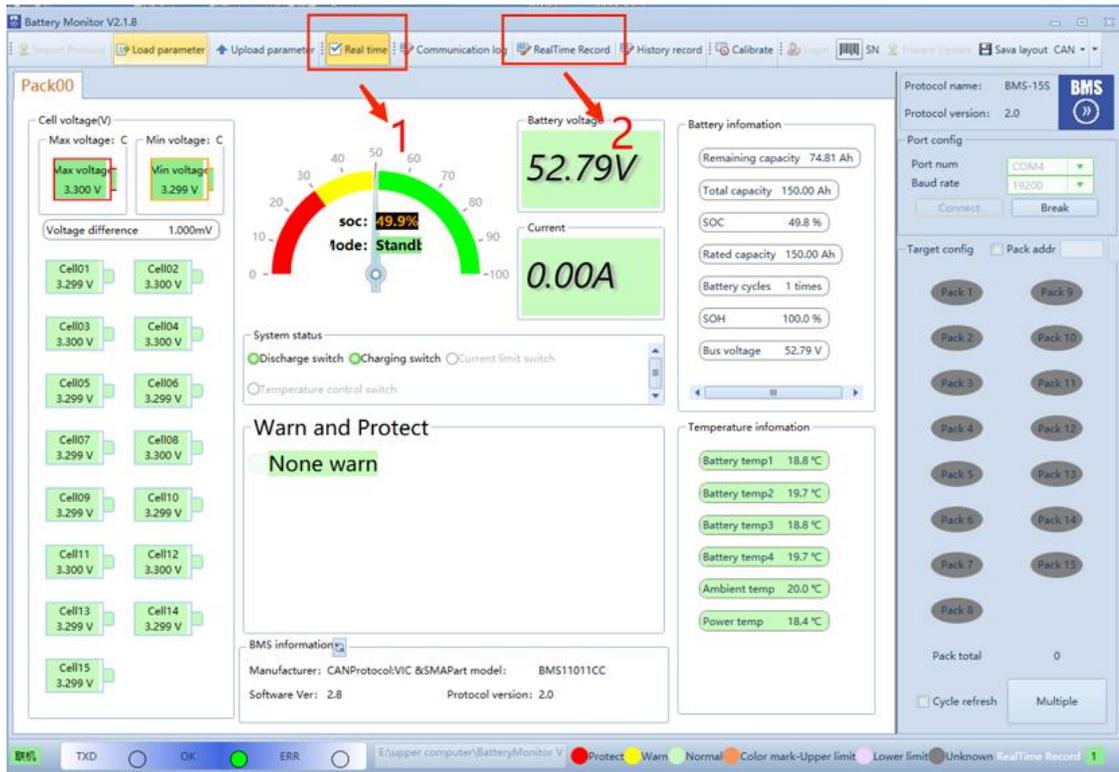


Figure 11-1

Num	Pack#	Date	Time	Mode	Warn	Cell010V	Cell020V	Cell030V	Cell040V	Cell050V	Cell060V	Cell070V	Cell080V
1	0	2022-03-22	11:08:39	Standby	None	3.299	3.300	3.300	3.300	3.299	3.299	3.299	3.299
2	0	2022-03-22	11:08:41	Standby	None	3.299	3.300	3.300	3.300	3.299	3.299	3.299	3.300
3	0	2022-03-22	11:08:44	Standby	None	3.299	3.299	3.300	3.300	3.299	3.299	3.299	3.299
4	0	2022-03-22	11:08:46	Standby	None	3.299	3.299	3.299	3.301	3.299	3.299	3.299	3.300
5	0	2022-03-22	11:08:48	Standby	None	3.299	3.299	3.299	3.300	3.299	3.299	3.299	3.299
6	0	2022-03-22	11:08:50	Standby	None	3.299	3.299	3.299	3.301	3.299	3.299	3.299	3.300
7	0	2022-03-22	11:08:52	Standby	None	3.299	3.299	3.300	3.301	3.300	3.299	3.299	3.300
8	0	2022-03-22	11:08:55	Standby	None	3.299	3.300	3.300	3.301	3.300	3.299	3.299	3.300
9	0	2022-03-22	11:08:57	Standby	None	3.299	3.299	3.300	3.300	3.299	3.299	3.299	3.300
10	0	2022-03-22	11:08:59	Standby	None	3.299	3.299	3.300	3.300	3.299	3.299	3.299	3.300

Figure 11-2

Click **STOP** to stop record.

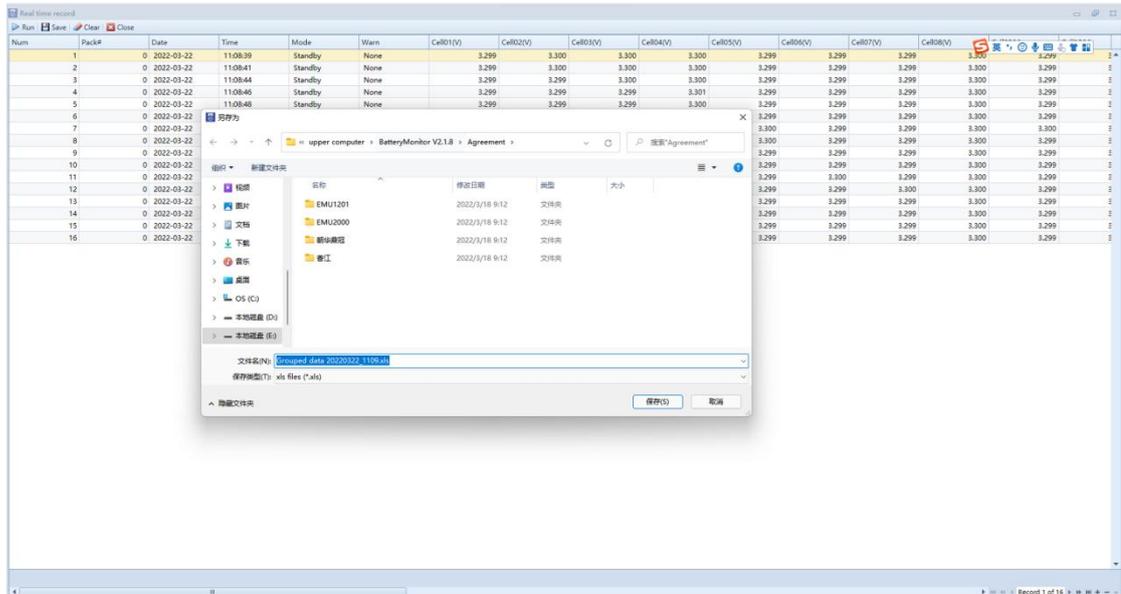


Figure 11-3

Click **RUN** to record again.

Click **Clear** to empty the record frame.

Click **Save** to export the record document.