

User Manual

BMSQt



BMSQt Version: 2.8.4
User manual Version: 2.8.4.1
Update: May 15th 2024

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1. BMSQt Software Description

1.1 Version Introduction

Firmware version	BMSQt V2.8.4
Update:	2024-05-15
Purpose	A green software that installation free, developed by PYTES to Query the real-time or historical data of the battery through PC/Laptop. Upgrade the battery firmware.

1.2 Recommended Operating Environment

Operating system	Microsoft Windows / MAC OS
Monitor resolution	1920*1080
Scale	100% or 125%
*Install the 232 serial port drive before using this program.	

2. Compatible Battery/Device

NO.	Item No.	Product Picture
1	ESS48-2U-L	 A white 2U rack-mountable battery unit with a black front panel. It features a power switch, status LEDs, and four terminal blocks (two black, two orange) for connection.
2	E-BOX4850G	 A black 1U rack-mountable battery unit with a silver front panel. It includes a power switch, status LEDs, and four terminal blocks (two black, two orange).
3	E-BOX48100R-A	 A white 1U rack-mountable battery unit with a black front panel. It features a power switch, status LEDs, and four terminal blocks (two black, two orange).
4	E-BOX48100R-B	 A white 1U rack-mountable battery unit with a black front panel. It features a power switch, status LEDs, and four terminal blocks (two black, two orange).
5	E-BOX48100R-C8	 A white 1U rack-mountable battery unit with a black front panel. It features a power switch, status LEDs, and four terminal blocks (two black, two orange).
6	E-BOX48100R-C16	 A white 1U rack-mountable battery unit with a black front panel. It features a power switch, status LEDs, and four terminal blocks (two black, two orange).
7	V5°	 A white 1U rack-mountable battery unit with a black front panel. It features a power switch, status LEDs, and four terminal blocks (two black, two orange).
8	V5°a	 A white 1U rack-mountable battery unit with a black front panel. It features a power switch, status LEDs, and four terminal blocks (two black, two orange).
9	1uHub	 A black 1U rack-mountable device with a silver front panel. It features a power switch, status LEDs, and a single terminal block.

3. Console Cable

A USB to RJ45 Console cable (Pic 1) should be used to achieve communication connection between battery and PC/Laptop.

A	161412100916	USB to RJ45 Console cable (RS232 protocol)
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Pic 1 USB to RJ45 Console cable (RS232 protocol)

Remarks for E-BOX48100R-A battery and 1uHub

These two adopt RJ11 port and the pin definition is different from rest PYTES batteries, a customized console cable is required.

Follow below instructions to obtain console cable for E-BOX 48100R-A.

A	161412100916	USB to RJ45 Console cable (RS232 protocol)
B	161503100010	Network cable extension socket(RJ45)
C	161412101250	RJ45 to RJ11 communication Cable

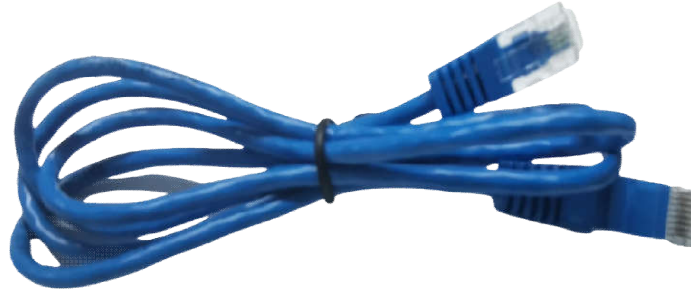
(1) Insert the RJ45 terminal of the USB to RJ45 Console cable into the network cable extension socket (Figure 2);



Pic 2 network cable extension socket (RJ45)

(2) Insert the RJ45 terminal of the RJ45 to RJ11 Communication cable (Pic 3)

into the network cable extension socket;



Pic 3 RJ45 to RJ11 communication Cable

(3) Done



Pic 4 USB to RJ11 Console cable

4. Connection Procedure

4.1 Turn on the battery

Turn on the battery and you have to wait all batteries start up if the system has multiple batteries in parallel.

4.2 Connect battery to PC/Laptop

Plug the USB terminal of the USB to RJ45 Console Cable into the computer USB port (Pic 5) and plug the RJ45 terminal into the battery console port (Pic 6-7).

E-BOX48100R-A

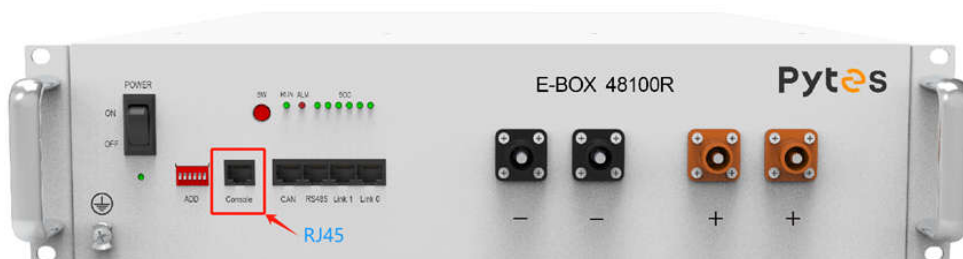
Plug the USB terminal of the completed USB to RJ11 Console Cable into the computer USB port, and plug the RJ11 terminal into the console port of E-BOX48100R-A (Pic 8) or 1uHub (Pic 9)



Pic 5 PC/Laptop End



Pic 6 V5a Battery End



Pic 7 E-BOX48100R C Battery End



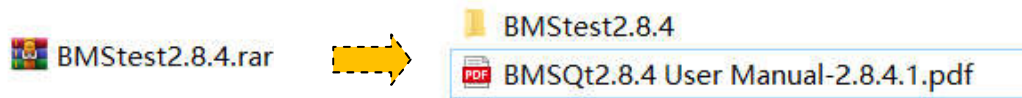
Pic 8 E-BOX48100R A Battery End



Pic 9 1uHub

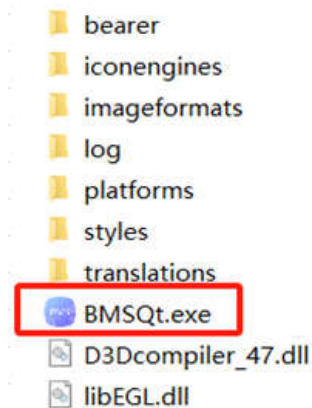
4.3 Run Software BMSQt.exe

Decompression firmware package BMStest2.8.4 (Pic 9)



Pic 10

Open BMStest2.8.4 folder, find BMSQt.exe and double click to run software.



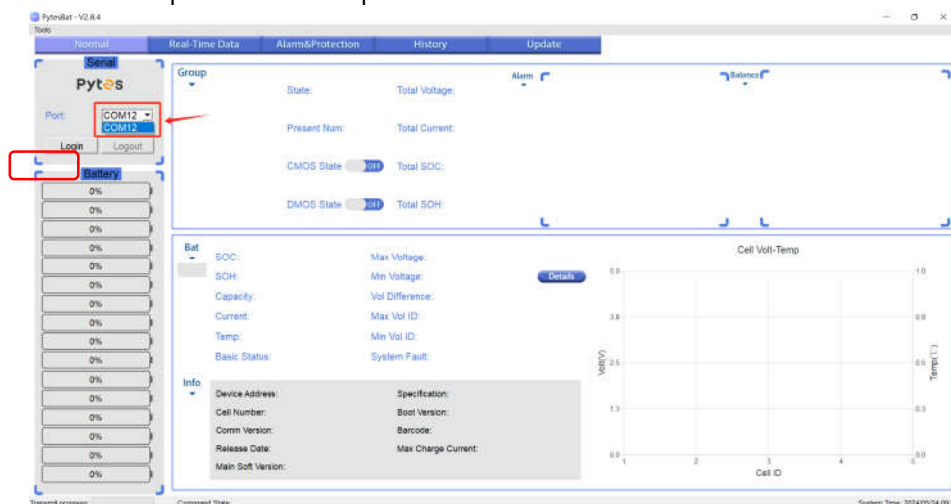
Pic 11

Operation interface will display on desktop automatically, installation free.

4.4 Build the connection

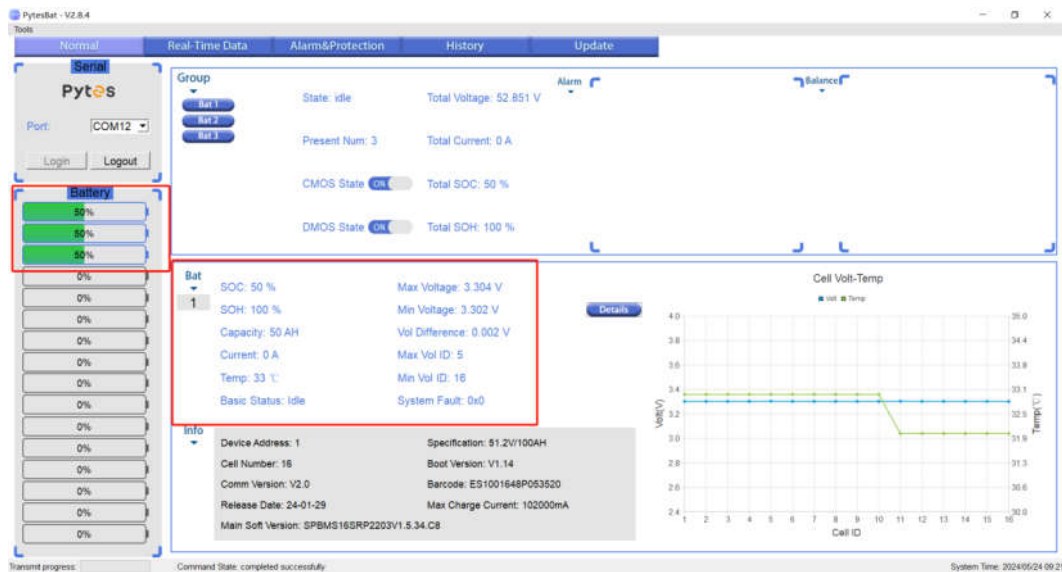
Choose COM port in combo box and click Login button at top left of BMSQt operation interface (Pic 11).

* Plug and unplug the USB port of console cable to determine the correct COM when there are multiple "COM" options in combo box.



Pic 12

BMSQt will retrieve battery data in real time and display on Normal page of BMSQt interface (Pic 12).

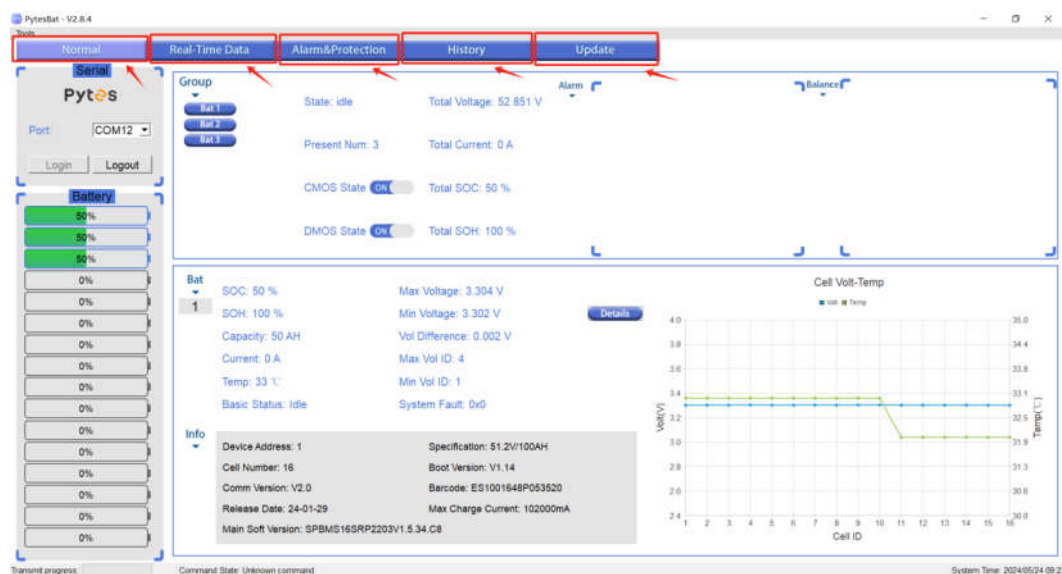


Pic 13

4.5 Basic functions

Click on Normal, Real-Time Data, Alarm & Protection, History and Update button to switch the page (Pic 13).

- a) Normal - Basic information of single battery and whole battery group.
- b) Real-Time Data - Data of single battery.
- c) Alarm & Protection - Parameter of battery settings.
- d) History - Records of error information
- e) Update - Update battery firmware.



Pic 14

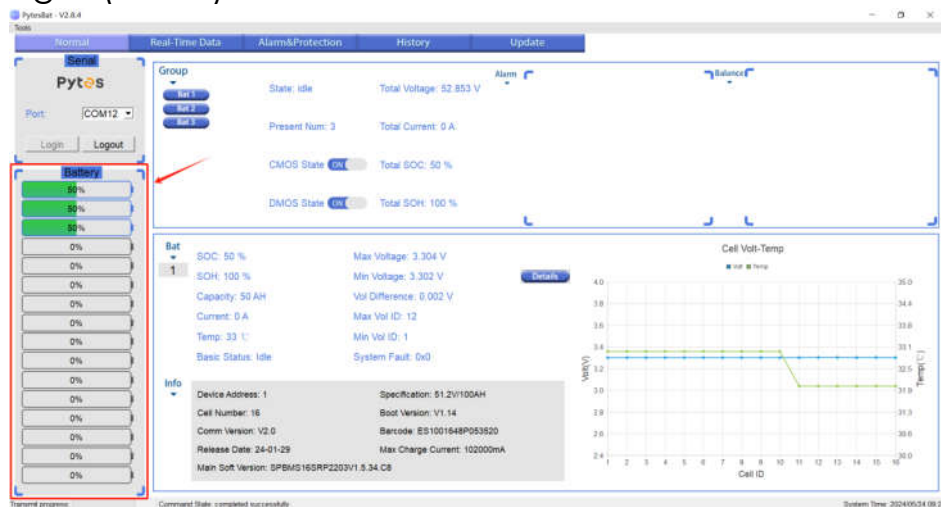
5. Function Pages Introduction

5.1 Normal Page

There are 6 sections on this page, Battery, Group, Bat, Details, Info and Add.

5.1.1 Battery

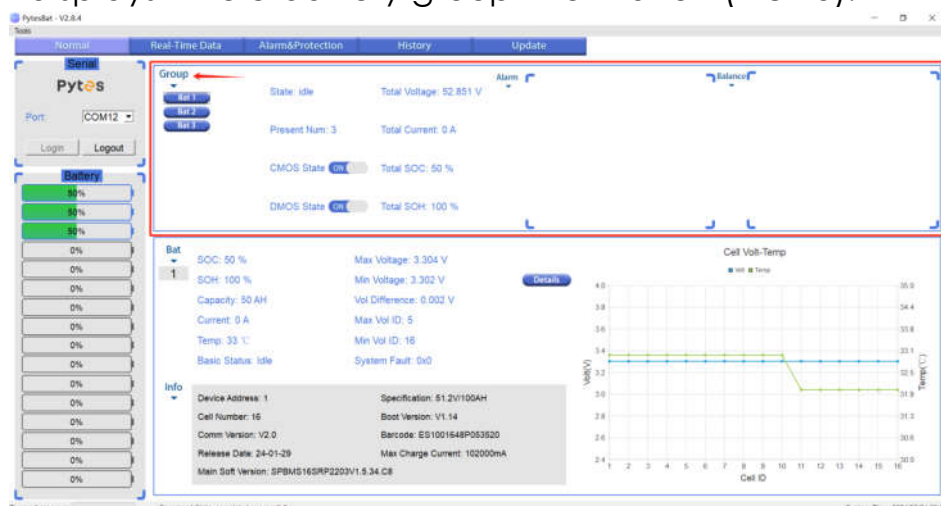
This section displays SOC of batteries up to 16pcs in the same group, in form of percentages (Pic 14).



Pic 15

5.1.2 Group

This section displays whole battery group information (Pic 15).

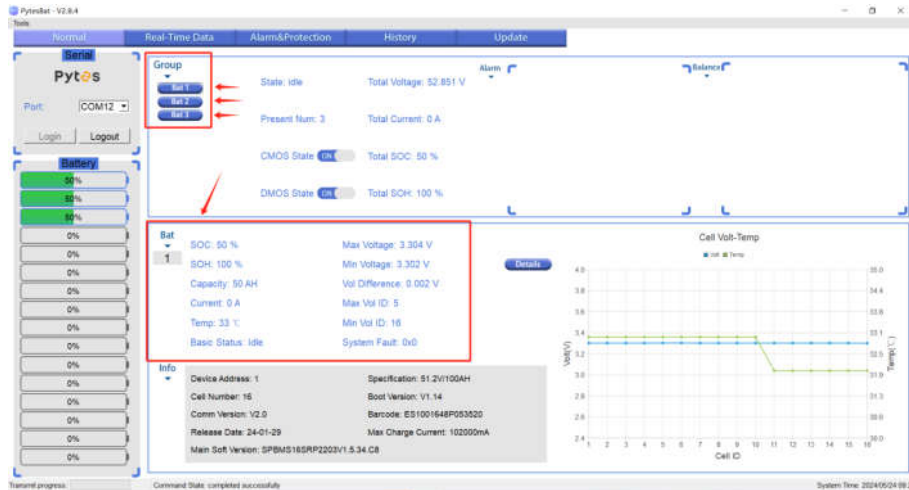


Pic 16

5.1.3 Bat

This section displays real time data of a single battery. Select battery number

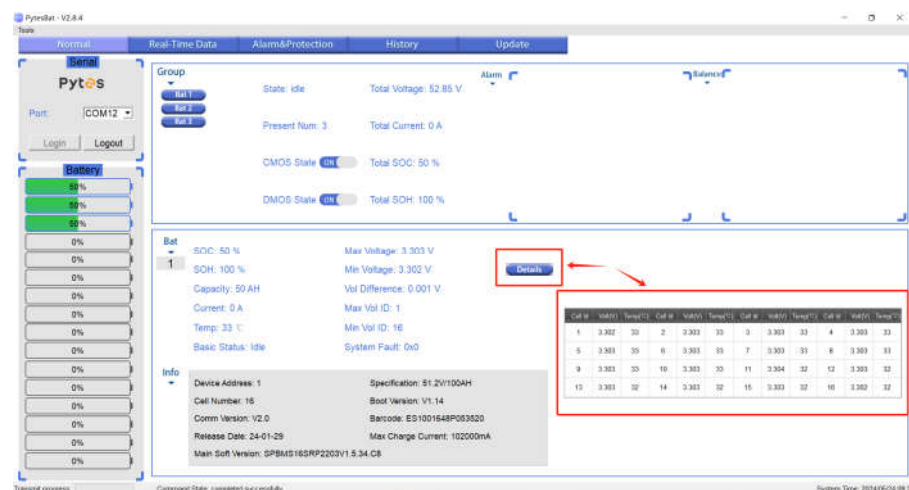
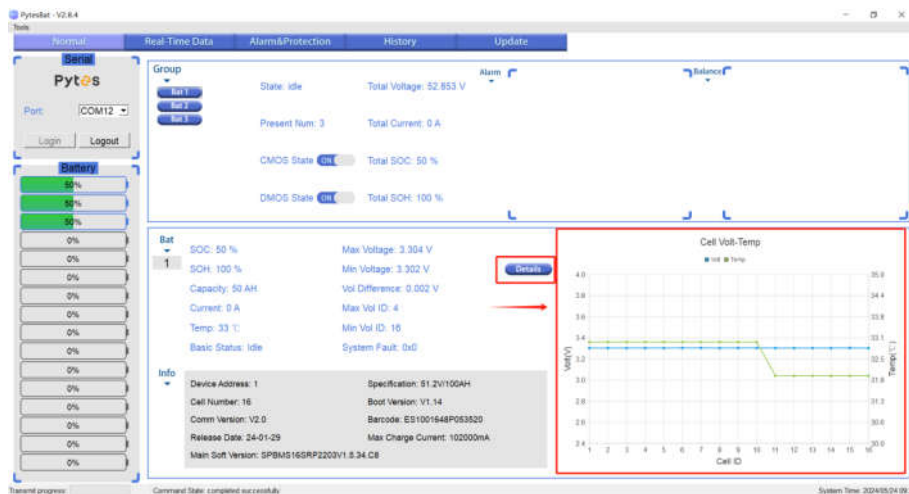
in Group section to switch to the other battery (Pic 16).



Pic 17

5.1.4 Details

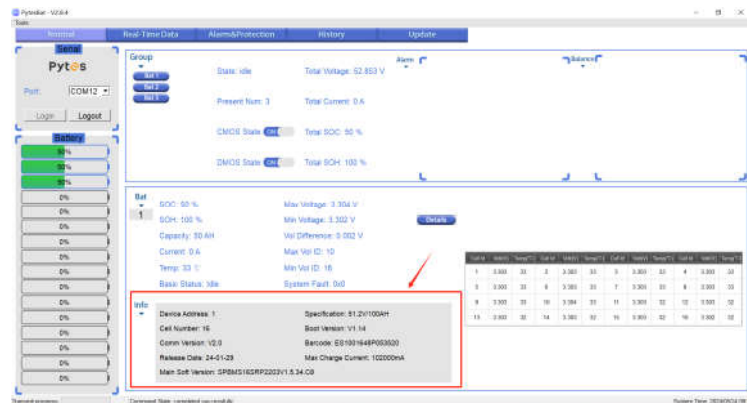
This section displays voltage and temperature of 16 cells inside a single battery. Click on Details icon to switch between graph and table (Pic 17).



Pic 18

5.1.5 Info

This section displays the default information of the battery, including the battery's serial number, software version etc (Pic 18).



Pic 19

5.1.6 Add

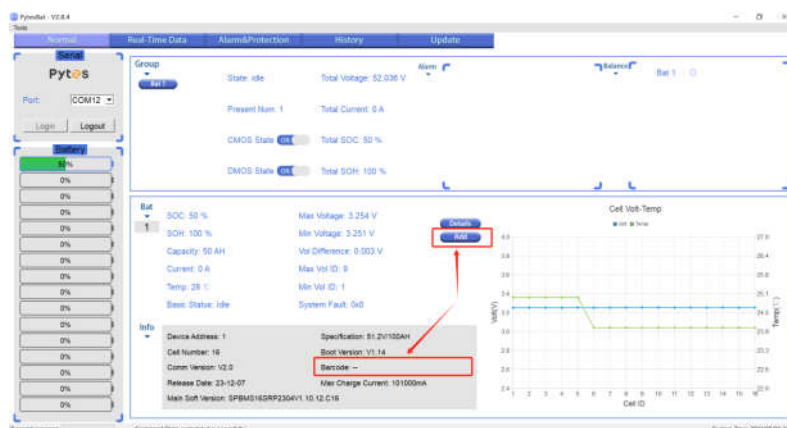
The button in this section will only appear when battery barcode/SN number is lost.

* barcode/SN Number consists of 16 characters, i.e. ES1000281P004173. It is pasted on the battery label on top cover of each battery (Pic 19)

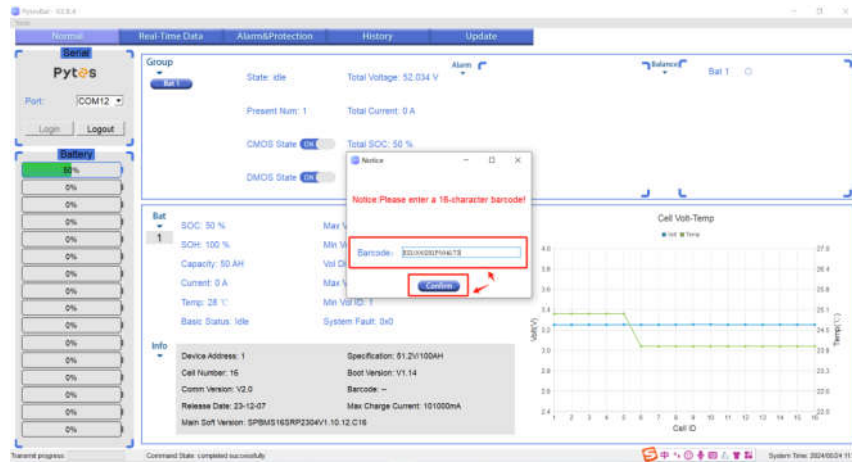


Pic 20

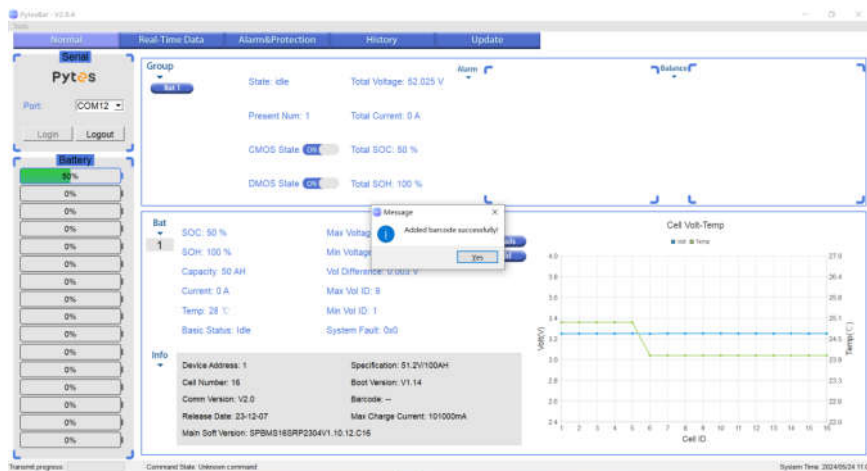
Barcode/SN Number lost results communication error. Click "Add" button to write Barcode/SN Number to battery (Pic 20-22).



Pic 21



Pic 22



Pic 23

5.2 Real-Time Data Page

There are four curve graphs on this page that display SOC, voltage, current, and temperature data of a single battery selected at Normal page (Pic 23).



Pic 24

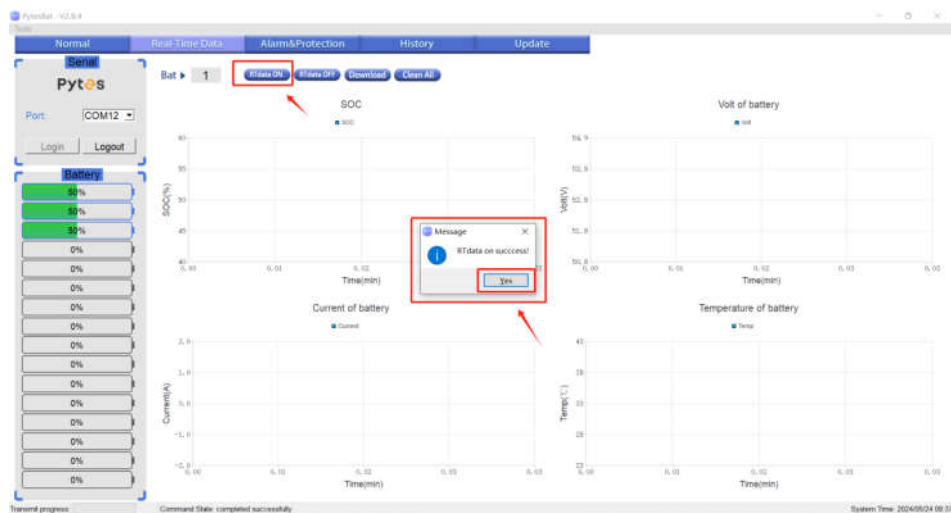
* Moving mouse to a point of curve will display value at specific time (Pic 24).



Pic 25

5.2.1 RTdata ON

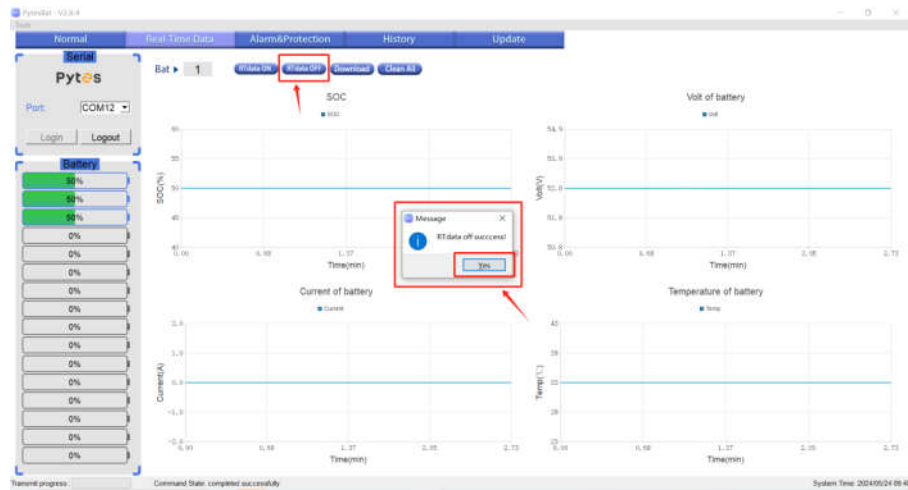
Click this button to record real time charging / discharging data of the selected battery (Pic 25).



Pic 26

5.2.2 RTdata OFF

Click this button to stop recording real time charging / discharging data of the selected battery (Pic 26).



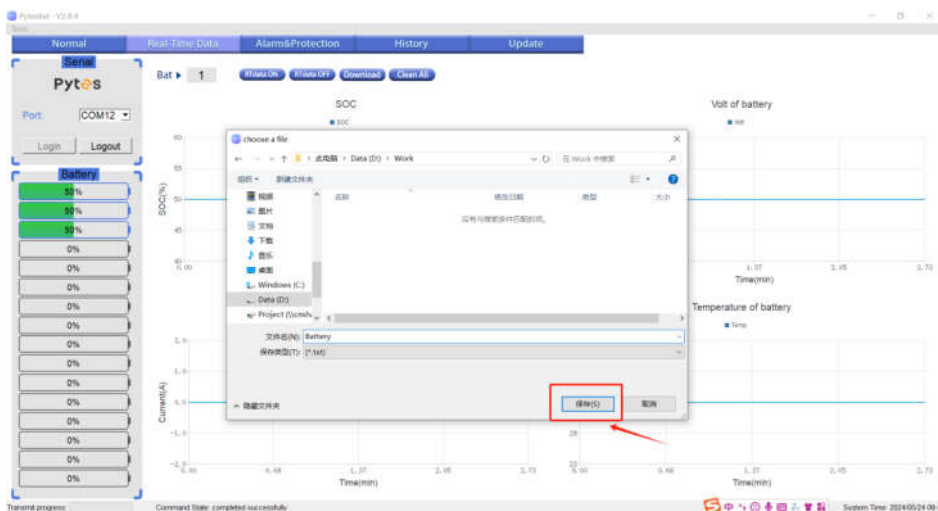
Pic 27

5.2.3 Download

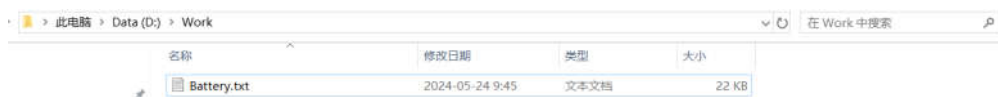
Click this button to download a txt file recorded battery data (Pic 27-30).



Pic 28



Pic 29



Pic 30

Battery.txt - 记事本

文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)

PYTES_debug>disp pwr1

@

Command completed successfully

\$\$

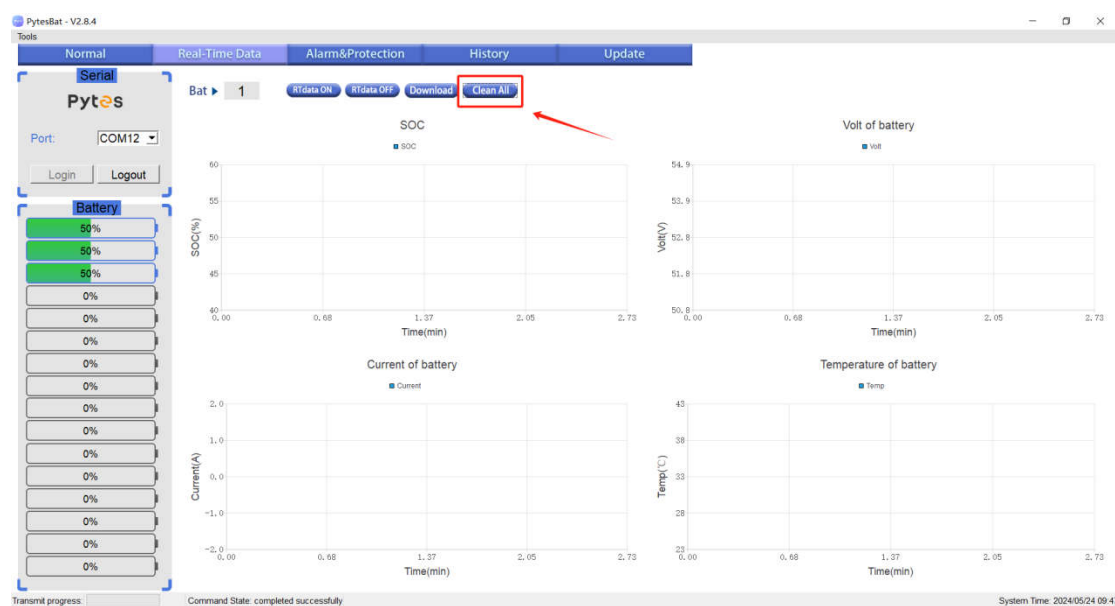
PYTES_debug>

ID	Time	Vo	Vrf	Cu	Tmpr	Tlow	Thigh	Vlow	Vhigh	Base St	Volt St	Curr St	Temp St	Per%	Coul(mAH)	
1	2024-05-24 09:35:20	52849	52860	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
2	2024-05-24 09:35:22	52846	52860	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
3	2024-05-24 09:35:24	52846	52860	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
4	2024-05-24 09:35:26	52850	52860	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
5	2024-05-24 09:35:28	52846	52860	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
6	2024-05-24 09:35:30	52847	52860	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
7	2024-05-24 09:35:32	52849	52870	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
8	2024-05-24 09:35:34	52848	52870	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
9	2024-05-24 09:35:36	52845	52870	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
10	2024-05-24 09:35:38	52847	52870	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
11	2024-05-24 09:35:40	52847	52870	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
12	2024-05-24 09:35:42	52847	52870	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
13	2024-05-24 09:35:44	52846	52870	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
14	2024-05-24 09:35:46	52846	52870	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
15	2024-05-24 09:35:48	52849	52870	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
16	2024-05-24 09:35:50	52849	52870	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
17	2024-05-24 09:35:52	52848	52860	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
18	2024-05-24 09:35:54	52848	52860	0		33000	32000	33000	3303	3303	Idle	Normal	Normal	Normal	50%	50509
19	2024-05-24 09:35:56	52847	52860	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
20	2024-05-24 09:35:58	52847	52860	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
21	2024-05-24 09:36:00	52848	52860	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
22	2024-05-24 09:36:02	52847	52860	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
23	2024-05-24 09:36:04	52846	52860	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
24	2024-05-24 09:36:06	52845	52860	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
25	2024-05-24 09:36:08	52847	52860	0		33000	32000	33000	3302	3304	Idle	Normal	Normal	Normal	50%	50509
26	2024-05-24 09:36:10	52845	52860	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509
27	2024-05-24 09:36:12	52846	52870	0		33000	32000	33000	3302	3303	Idle	Normal	Normal	Normal	50%	50509

Pic 31

5.2.4 Clean All

Click this button to clear the recorded battery data (Pic 31).

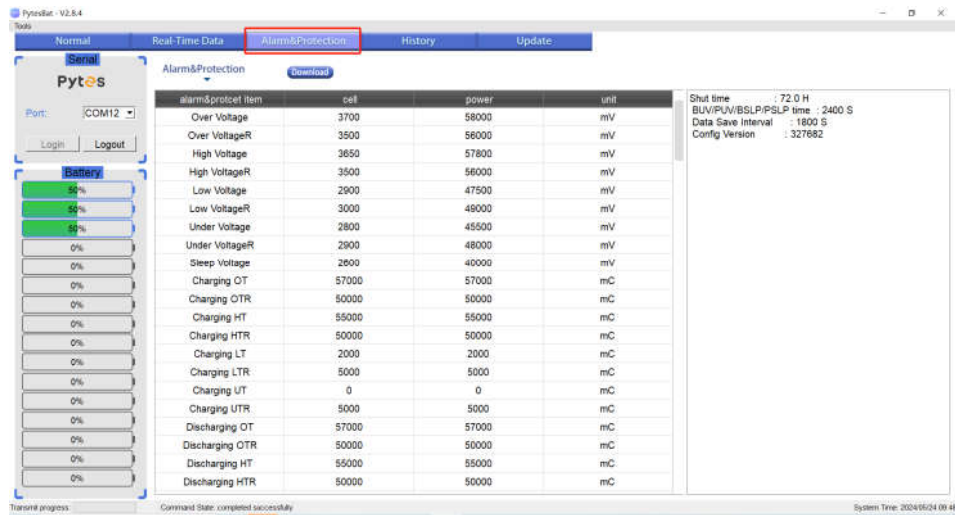


Pic 32

5.3 Alarm & Protection Page

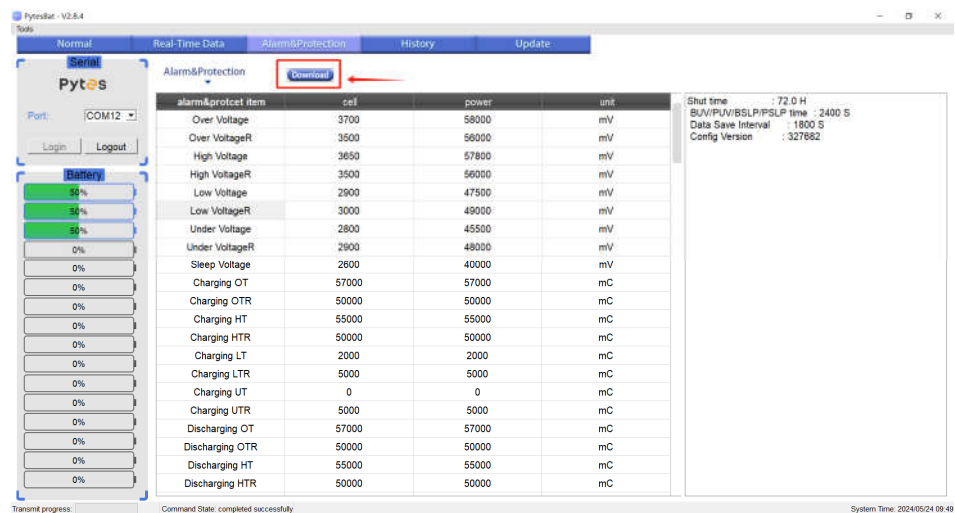
This page displays default alarm and protection parameters of the battery, i.e. high voltage alarm, over voltage protection etc.

If the information is incomplete or not displayed, click "Alarm & Protection" button again (Pic 32).

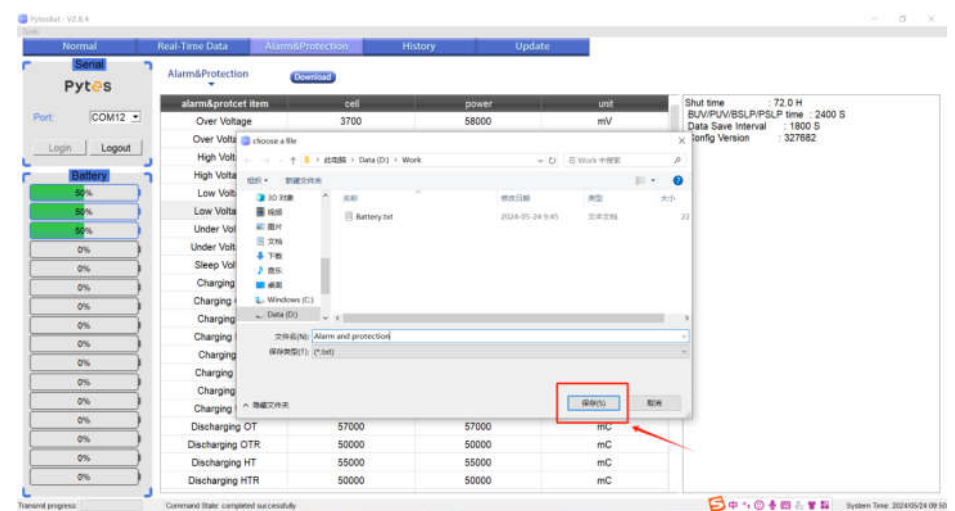


Pic 33

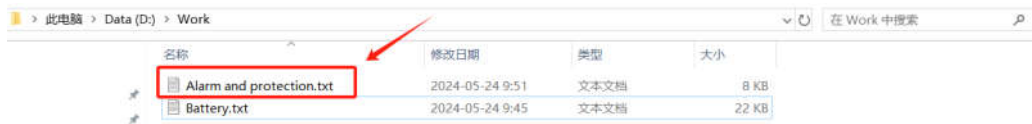
Click Download button to save the parameters in txt format (Pic 33-36).



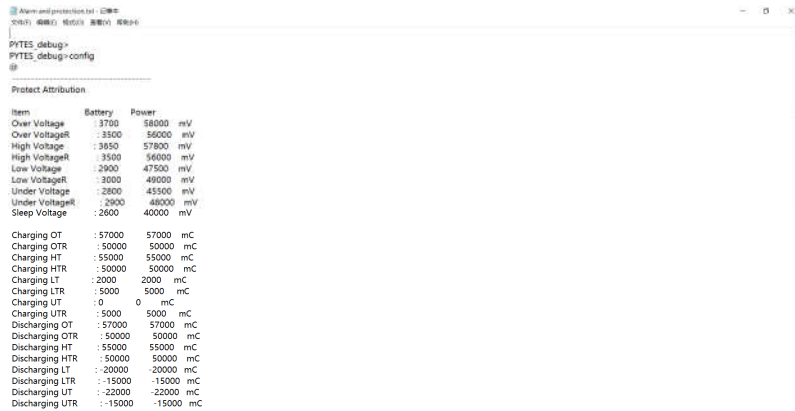
Pic 34



Pic 35



Pic 36



Pic 37

5.4 History Page

5.4.1 Event num

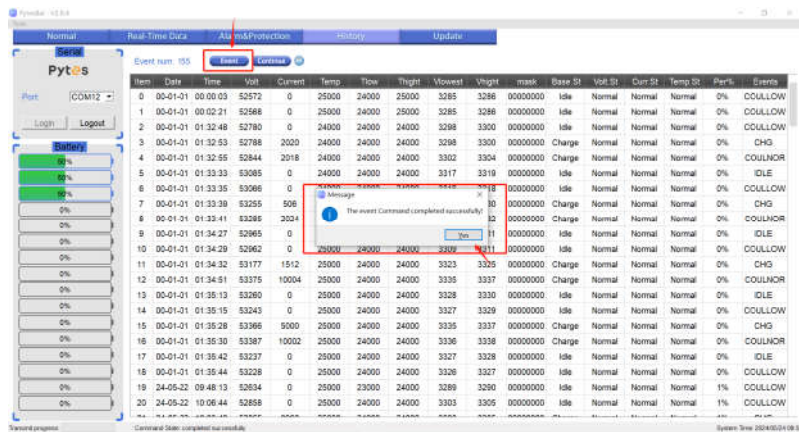
Historical alarm numbers of the selected battery (Pic 37).



Pic 38

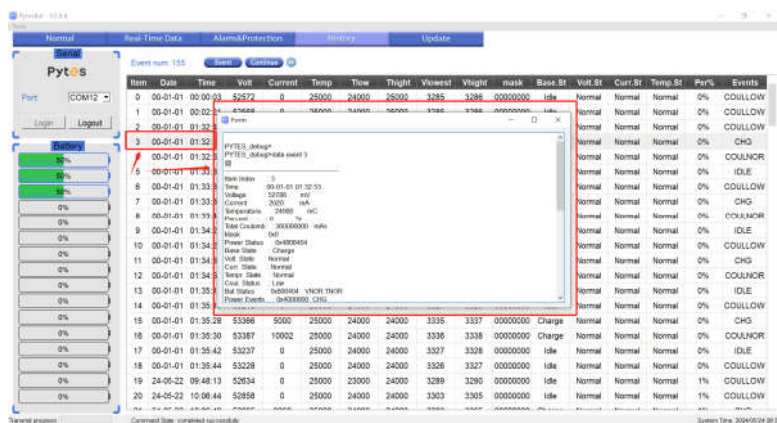
5.4.2 Event

Click this button to obtain alarm records (Pic 38).



Pic 39

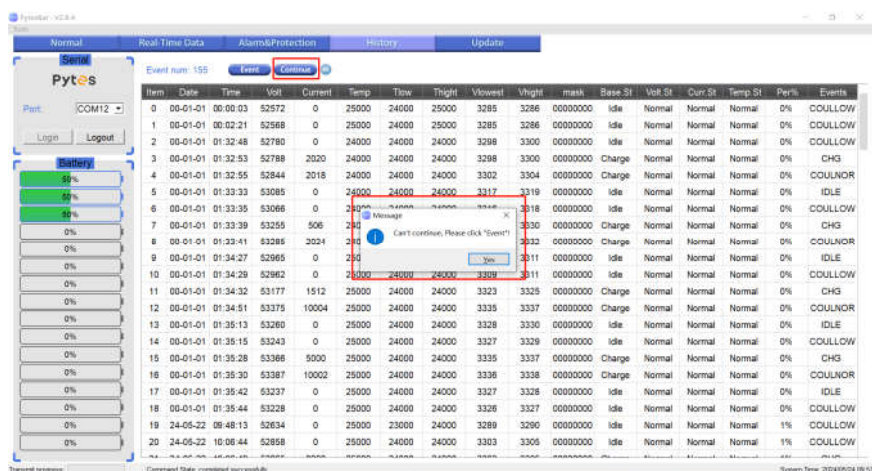
Double-click on a event to view the detailed information (Pic 39).



Pic 40

5.4.3 Continue

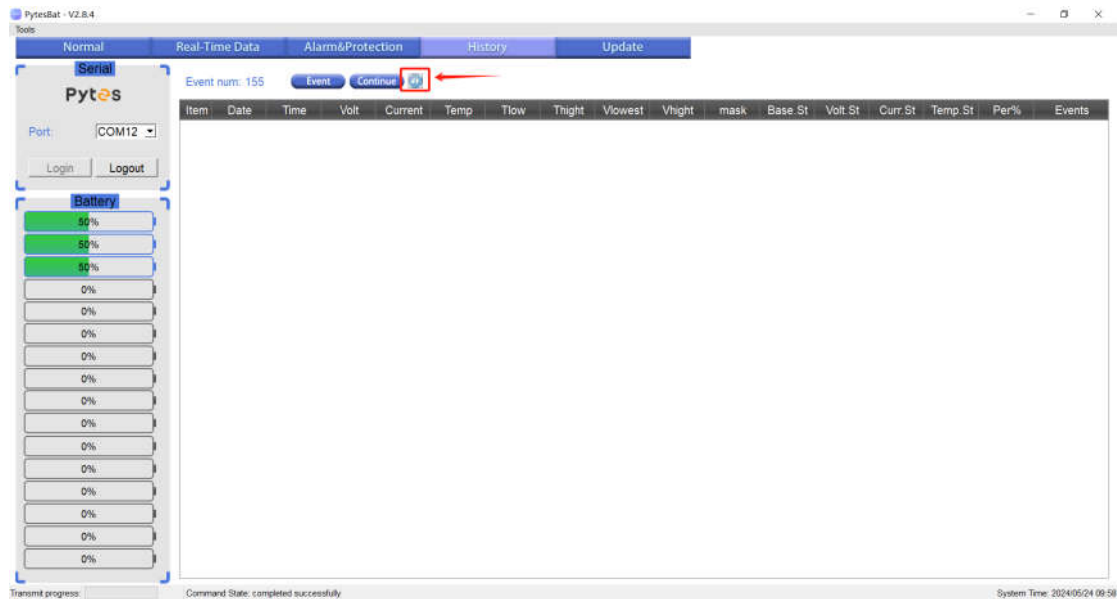
Click this button within 10 seconds after clicking "Event" button to obtain more history records until all battery records are displayed (Pic 40)



Pic 41

5.4.4 Refresh

Before switch to view historical event records of other battery, click this button to clear all records of current battery (Pic 41).

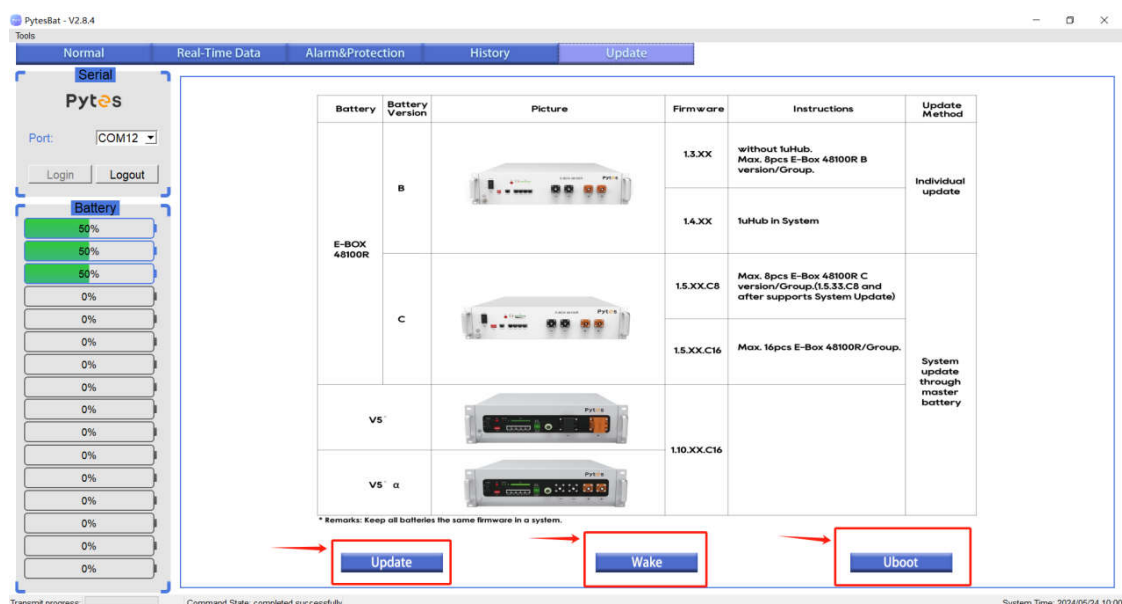


Pic 42

* Historical events are traceable through RJ45 terminal direct connect. Switch RJ45 terminal of console cable to the target battery that needs to check alarm records.

5.5 Update Page

There are three function buttons on this page, including Update, Uboot, and Wake (Pic 42).



Pic 43

5.5.1 Update

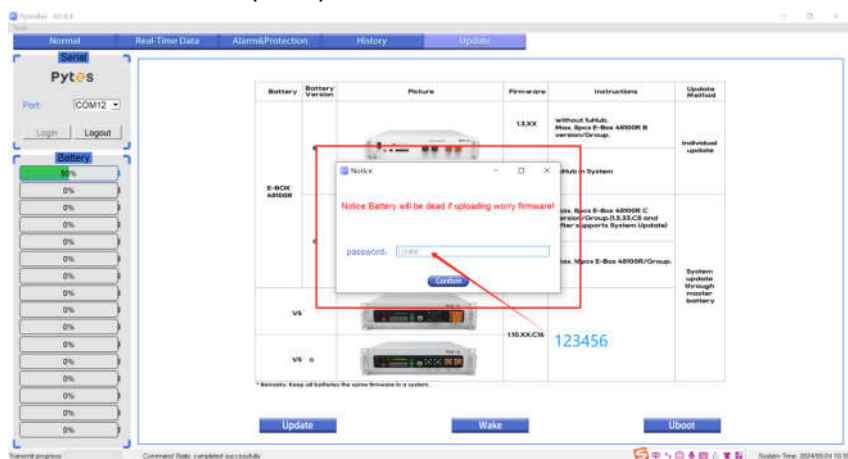
Follow below steps to upgrade battery firmware.

Click "Update" button



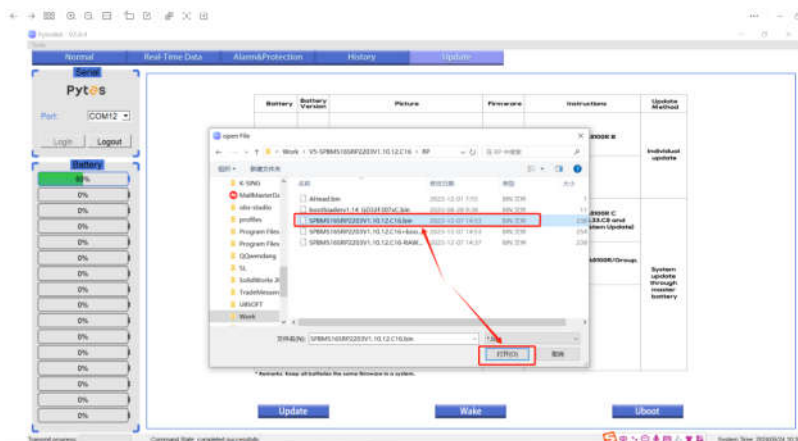
Pic 44

Input password "123456"



Pic 45

Refer the below firmware version table to choose the CORRECT to upload

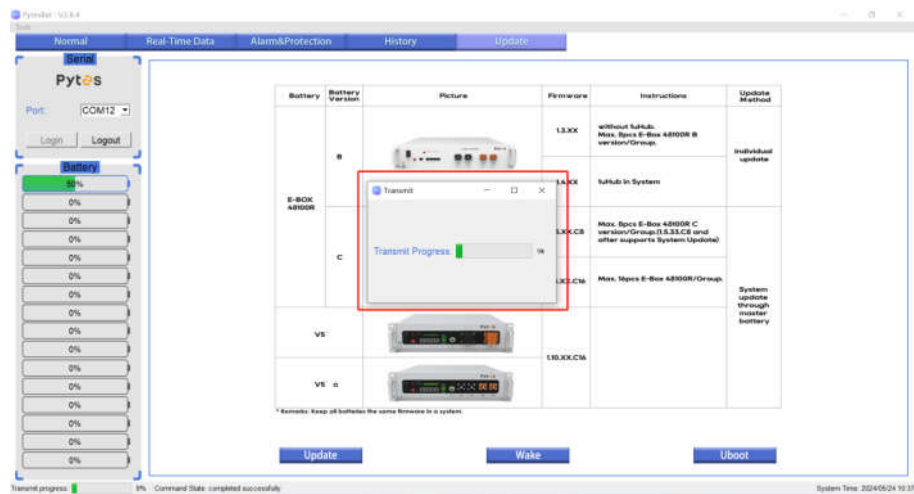


Pic 46

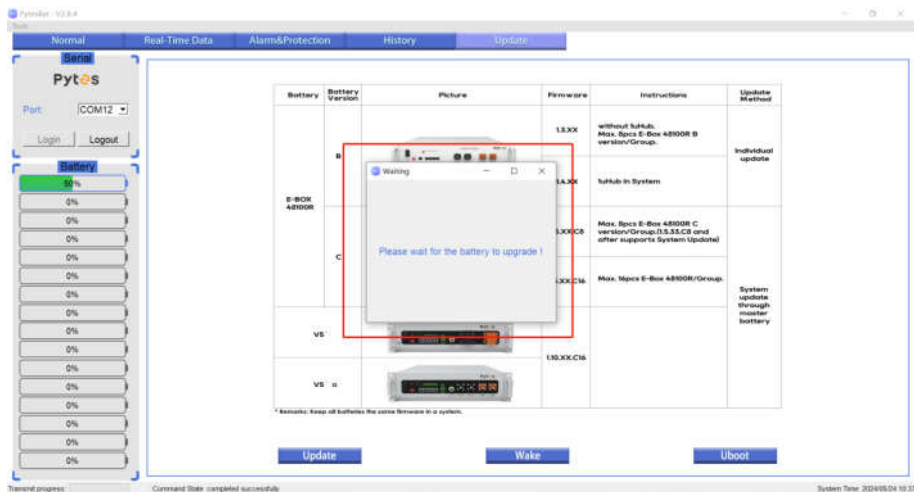
Range	Model	Firmware Version	Release Date
48V	V5° / V5°α	SPBMS16SRP2203V1.10.12.C16	2023/12/15
	E-BOX 48100R-C C16	SPBMS16SRP2203V1.5.18.C16.T3	2023/12/12
	E-BOX 48100R-C C8	SPBMS16SRP2203V1.5.34.C8	2024/2/3
	E-BOX 48100R-B	SPBMS16SRP2111V1.3.28	2023/12/15
	E-BOX 48100R-A	SPBMS16SRP2110V1.1.10.T1	2023/12/25
	E-BOX 4850P-B	SPBMS15SPH2111V1.3.24	2023/5/10
	E-BOX 4850P-C	SPBMS15SPH2203V1.5.33.C8	2023/12/25
	E-BOX 4850G	SPBMS15SGY2205V1.5.10.C16.T7	2023/7/26
Others	1uHUB	HUB1.1.7	2023/5/11

Updated Sep. 5, 2024

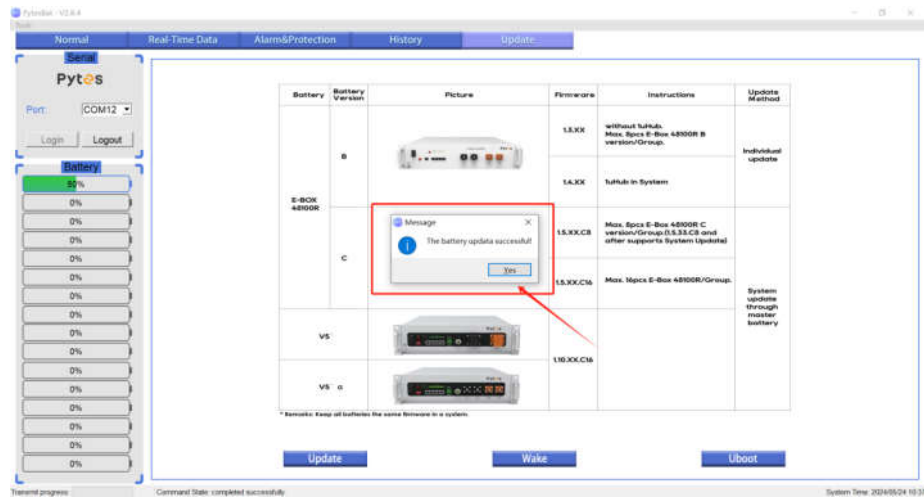
Wait for BMSQt upgrade battery firmware automatically (Pic 43~48)



Pic 47

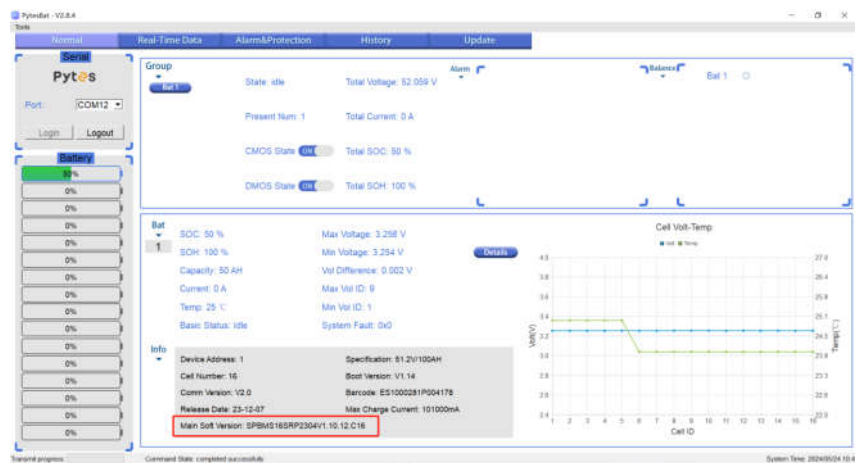


Pic 48



Pic 49

The new firmware version will be displayed on Normal page, Info Section.

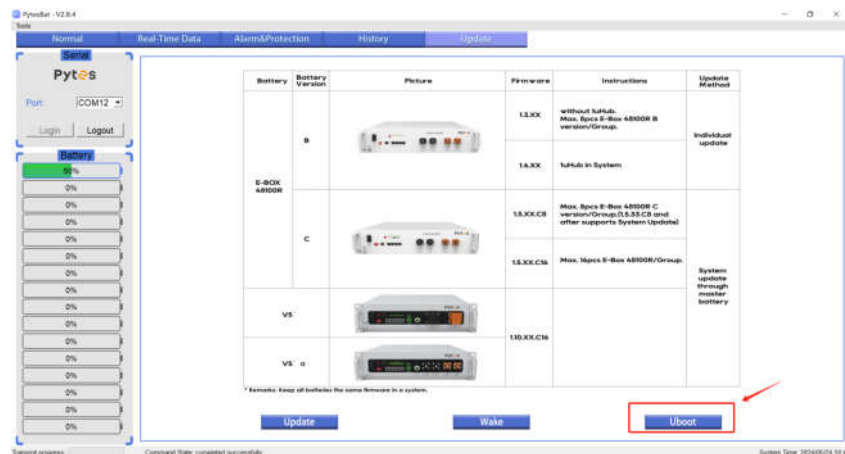


Pic 50

5.5.2 Uboot

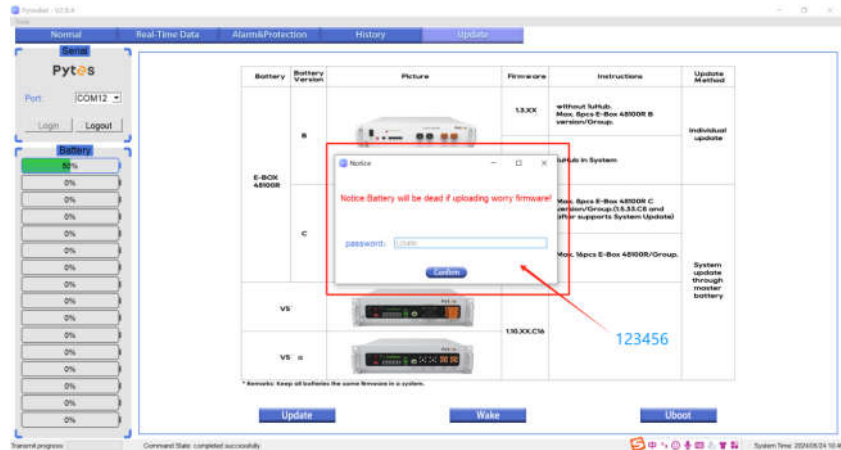
Follow below steps to upgrade battery bootloader.

Click "Uboot" button



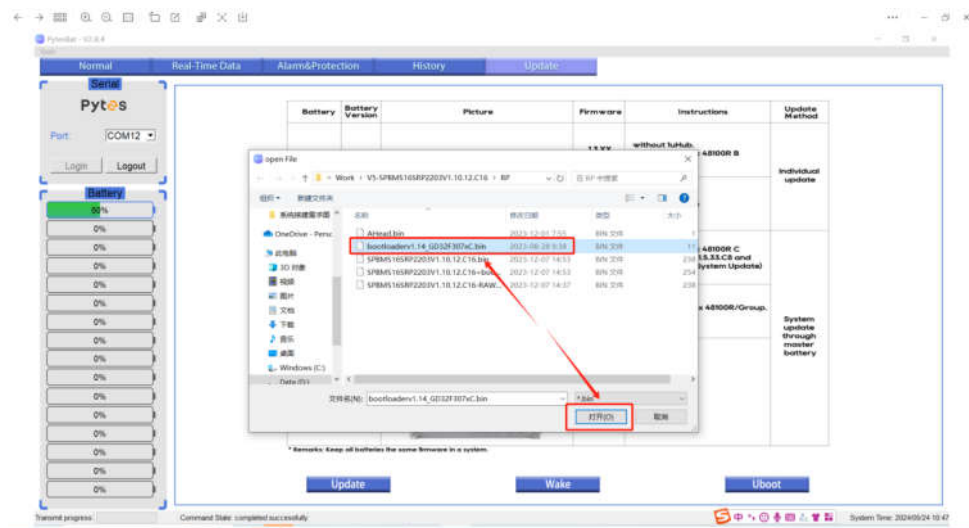
Pic 51

Input password "123456"



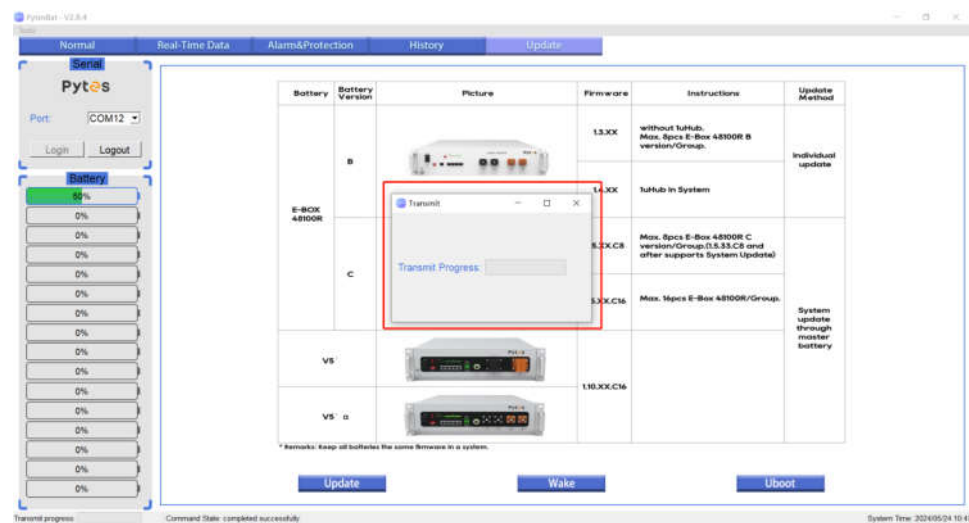
Pic 52

Upload the CORRECT bootloader

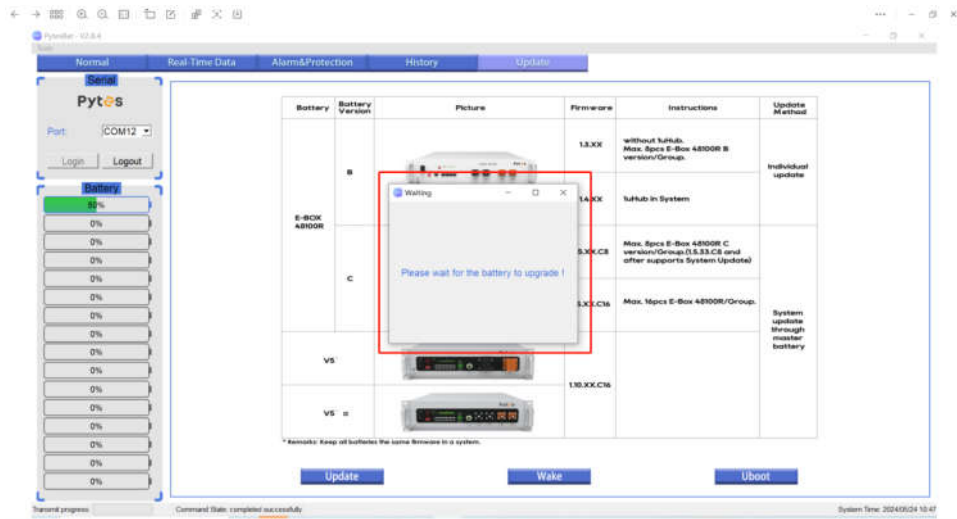


Pic 53

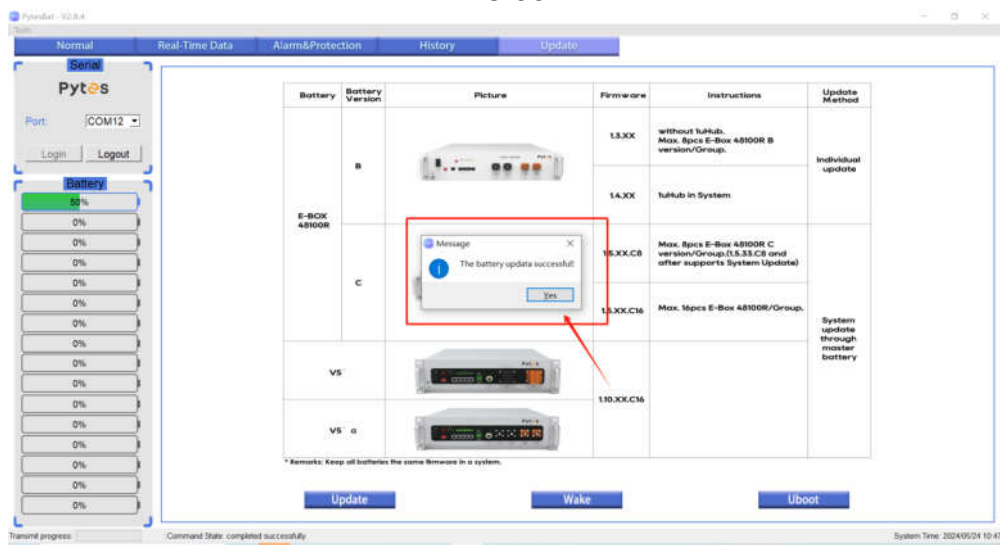
Wait for BMSQt upgrade battery bootloader automatically (Pic 53~55)



Pic 54

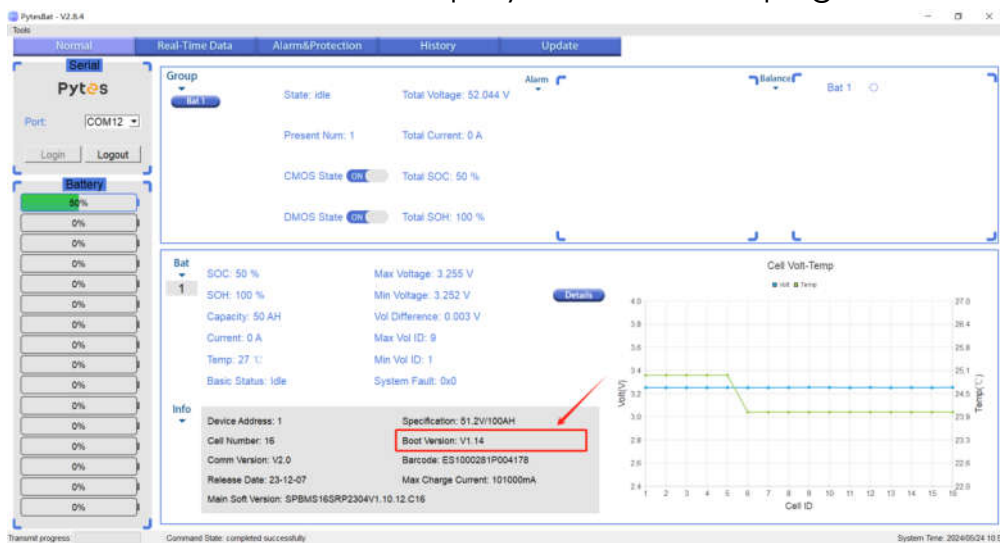


Pic 55



Pic 56

The new boot version will be displayed on Normal page, Info Section.



Pic 57

5.5.3 Wake

When upgrade procedure error occurs, battery needs to be waked up.
Follow below steps to run Wake procedure

Switch on battery black power button



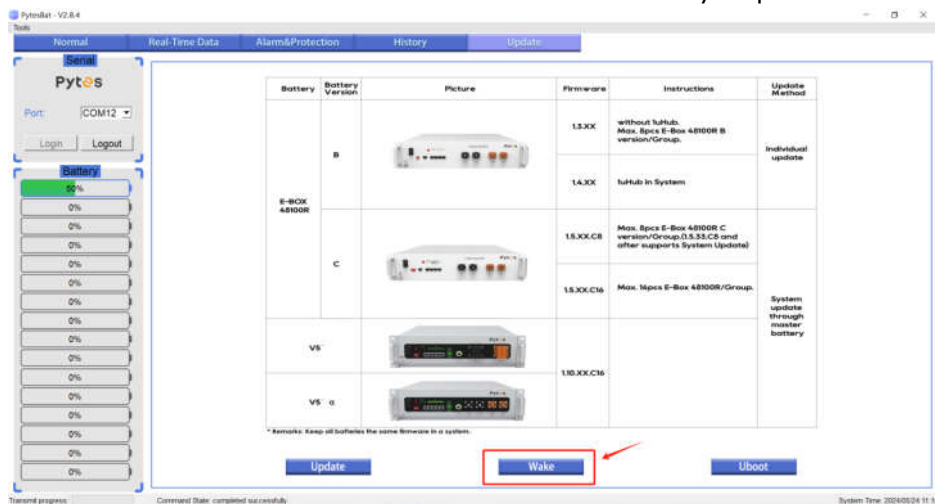
Pic 58

Press red SW button for 2 seconds



Pic 59

Click on Wake within 5 seconds after battery is powered on.



Pic 60

Re-upload the right firmware after Wake procedure is done.

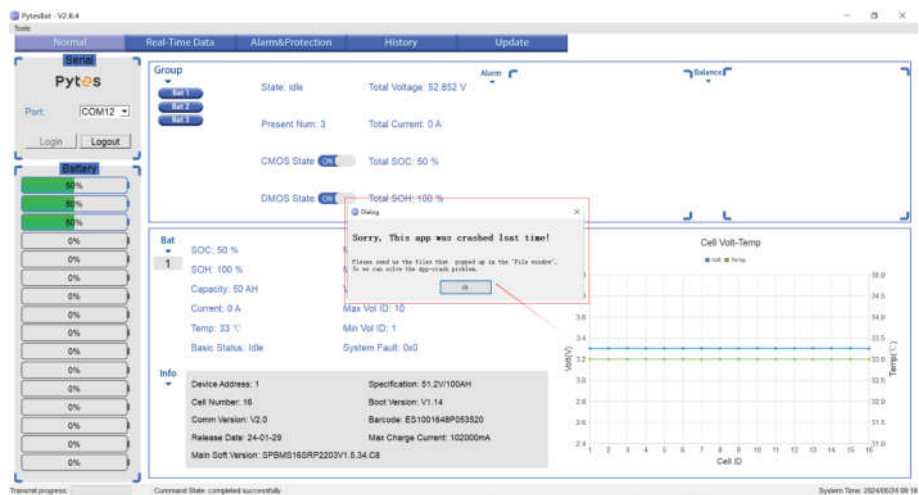
6 Notes

a) Before close the program, click Logout button on Normal page to disconnect battery and PC/Laptop.

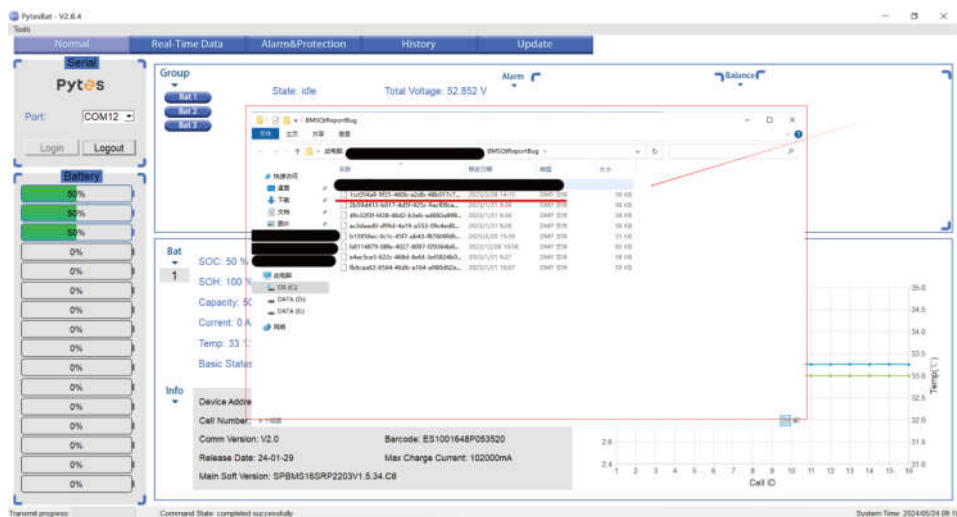


Pic 61

b) If the program crashes, click on OK button on the pop-up window (Pic 61). The program will jump to folder where the crash log is located (Pic 62). Please send the crash log to PYTES for software improvements.



Pic 62



Pic 63

7 Changelog Notes

Firmware Version	Changelog	Editor	Date
V2.8.4	Initial creation	Audrey	2024-05-16