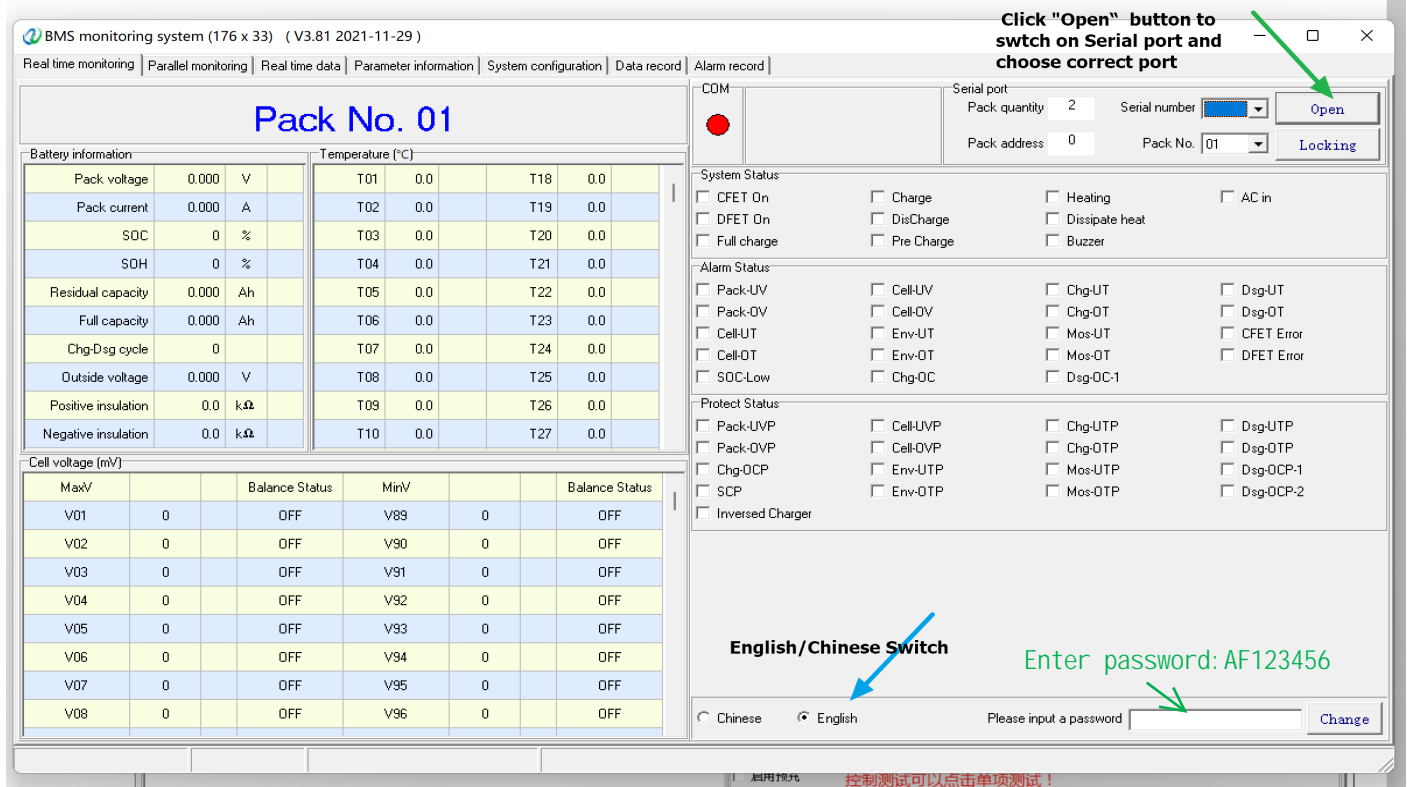


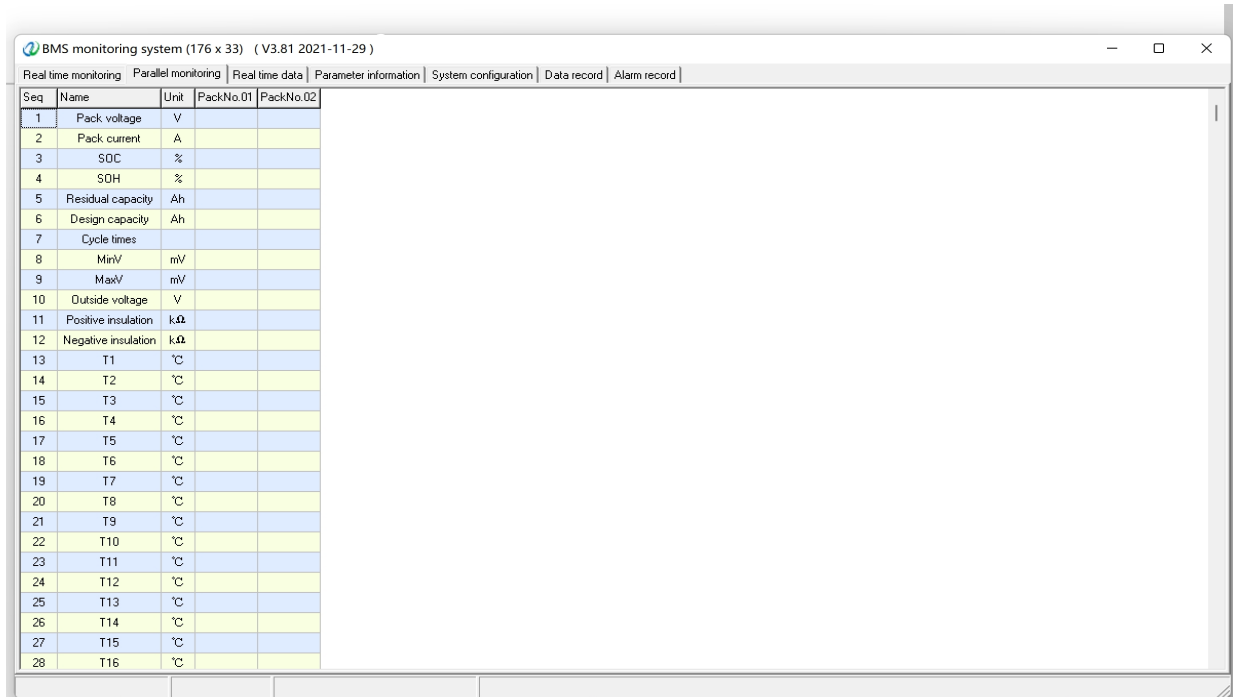
Upper Computer Software Operation Manual

One. Real-Time Monitoring



1. Select the serial port number available for connection, and then click "Open Serial port" button.
 2. Set the number of packs to 8, and the battery string address can range from 1 to 8.
 3. The PACK number is the DIP switch address of the battery pack. In order to avoid misoperation, it is better to click the "Lock" button.
- Note: All operations in Parameter Information, data record, Alarm Record, Parameter Information are for the battery Pack selected in the Pack number drop-down box.
3. System status displays real-time basic action information of BMS;
 - 4, alarm and protection status is BMS real-time alarm and protection information;
 - 5, the detection state is the BMS board real-time self-test fault prompt;
 6. Control status indicates the enabled function module.
 7. Control test: you can click open or close, now only open CFET/DFET, enable charging current limit control; Note: When there is discharge current no Can turn off charging CFET, when there is charging current can not turn off discharging DFET; Charge current limiting open to reach the current limiting open conditions, but can be turned off, turned off If this function is enabled, the current limiting condition is judged again.
 8. To switch between Chinese and English, please click to close the software and open it again to avoid garbled code.
 - 9, Password input box after entering the password can control the test, parameter setting and system configuration operations. Note: Initial password: AF123456; You can also set Update the password, enter and click the change button; Then exit the software before opening is to enter a new password.

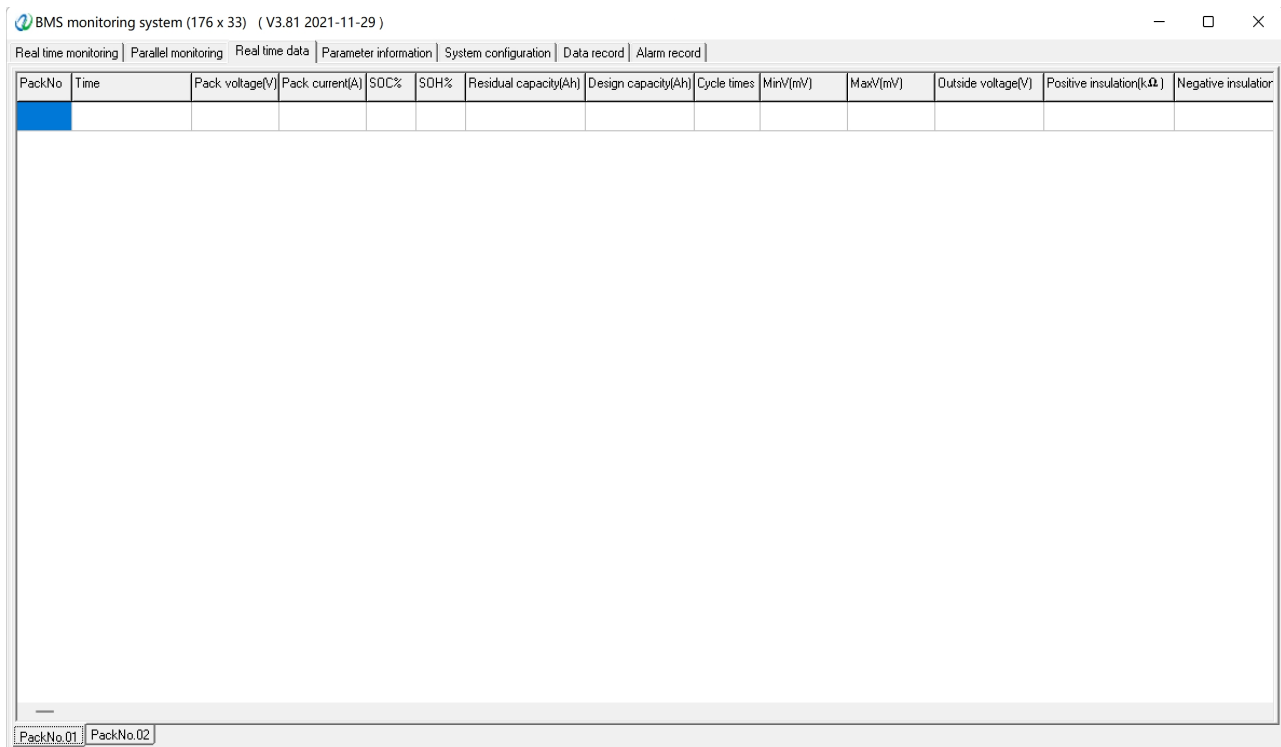
Two. Parallel Monitoring



Seq	Name	Unit	PackNo.01	PackNo.02
1	Pack voltage	V		
2	Pack current	A		
3	SOC	%		
4	SOH	%		
5	Residual capacity	Ah		
6	Design capacity	Ah		
7	Cycle times			
8	MinV	mV		
9	MaxV	mV		
10	Outside voltage	V		
11	Positive insulation	k.Ω		
12	Negative insulation	k.Ω		
13	T1	°C		
14	T2	°C		
15	T3	°C		
16	T4	°C		
17	T5	°C		
18	T6	°C		
19	T7	°C		
20	T8	°C		
21	T9	°C		
22	T10	°C		
23	T11	°C		
24	T12	°C		
25	T13	°C		
26	T14	°C		
27	T15	°C		
28	T16	°C		

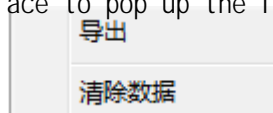
Each column shows the information about the total voltage, current, temperature, and cell voltage of a battery pack. You can check the data of all battery packs in a column.

Three. Real Time Data



PackNo	Time	Pack voltage(V)	Pack current(A)	SOC%	SOH%	Residual capacity(Ah)	Design capacity(Ah)	Cycle times	MinV(mV)	MaxV(mV)	Outside voltage(V)	Positive insulation(k.Ω)	Negative insulation

1. Display record: record the data of each battery pack collected in real time
2. Automatic saving: When the certain recorded data are reaches , it will be automatically saved into an EXCEL file.
3. Automatic scrolling: When the recorded data is added to the full screen, the cursor will croll to the new columns
4. PackNo.01-PackNo.08 Indicates the recorded data of the corresponding battery pack.
5. Right click the mouse on the interface to pop up the following picture:



Data Export: Saves the current data as an EXCEL file.

Data Clearance: Clear up the collected data.

Four、Parameters Information

BMS monitoring system (176 x 33) (V3.81 2021-03-29)

Real time monitoring

Parallel monitoring

Real time data

Parameter information

System configuration

Data record

Alarm record

Parameter name	Unit	Minimum	Maximum	Parameter values
RS485 address				0
Battery node number		1	176	0
Design capacity	mAh			0
Sampling resistance(75mV)	A			0
Balance starting voltage	mV			0
Balance starting pressure difference	mV			0
Cell high voltage alarm	mV			0
Cell high voltage alarm recovery	mV			0
Cell low voltage alarm	mV			0
Cell low voltage alarm recovery	mV			0
Pack voltage high voltage alarm	mV			0
Pack voltage high voltage alarm recovery	mV			0
Pack voltage low voltage alarm	mV			0
Pack voltage low voltage alarm recovery	mV			0
High temperature alarm	℃			0
Low temperature alarm	℃			0
Discharge current alarm	mA			0
Discharge current alarm recovery	mA			0
Charging current alarm	mA			0
Charging current alarm recovery	mA			0
Voltage difference alarm	mV			0
Voltage difference alarm recovery	mV			0

Function control

☐ Enable CFET
 ☐ Enable heating
 ☐ Enable Led
 ☐ Enable dormancy

☐ Enable DFET
 ☐ Enable Radiating
 ☐ Enable Buzzer
 ☐ Enable Charge limited

Alarm control

☐ Enable Pack-UV
 ☐ Enable Cell-UV
 ☐ Enable FET-UT
 ☐ Enable Env-UT

☐ Enable Pack-OV
 ☐ Enable Cell-OV
 ☐ Enable FET-OT
 ☐ Enable Env-OT

☐ Enable Chg-UT
 ☐ Enable Dsg-UT
 ☐ Enable Chg-OC

☐ Enable Chg-OT
 ☐ Enable Dsg-OT
 ☐ Enable Dsg-OC 1

Protection control

☐ Enable Pack-UVP
 ☐ Enable Cell-UVP
 ☐ Enable FET-UTP
 ☐ Enable Env-UTP

☐ Enable Pack-OVP
 ☐ Enable Cell-OVP
 ☐ Enable FET-OTP
 ☐ Enable Env-OTP

☐ Enable Chg-UTP
 ☐ Enable Dsg-UTP
 ☐ Enable Dsg-OC1 1
 ☐ Enable Chg-OC1

☐ Enable Chg-OTP
 ☐ Enable Dsg-OTP
 ☐ Enable Dsg-OC2 2

Other control

Balance mode

Disable balancing

SCP

100

mV

☐ Restore default parameters

Read

Write

Import

Export

1. New data can be entered in the parameter value column of the left table. Other columns cannot be entered.
2. Function control: represents the basic function Settings of the BMS board.
3. alarm and protection control: Set BMS board function on or off.
4. other control: select the balance mode (there are forbidden balance, charging balance, charging static balance, charging static discharge balance of the four modes) and Short circuit protection current (short circuit protection voltage/sampling resistance).
5. Protocol type: Select the inverter protocol according to the inverter; RS485 supports six protocols and CAN supports 10 protocols.
6. Read parameters: Read data from the device to the computer and display it in the table on the left.
7. Write parameter: write the data in the left table to the device.
8. Export parameters: Export the data in the left table to a file.
9. Import parameters: Import the exported parameter file into the table on the left, which is mainly used for maintenance and plate replacement.
10. Restore default parameters: If this item is selected, no matter what value is entered in the table on the left, the device will be restored to the factory setting when clicking "Write Parameter" Set parameters.

Five 、Data Record

BMS monitoring system (176 x 33) (V3.81 2021-11-29)

Real time monitoring | Parallel monitoring | Real time data | Parameter information | System configuration | Data record | Alarm record

Seq	PackNo	Time	Mode	Voltage(V)	Current(A)	SOC(%)	MinV(mV)	MaxV(mV)	Env(°C)	FET(°C)	T1(°C)	T2(°C)	T3(°C)	T4(°C)	T5(°C)	T6(°C)	T7(°C)	T8(°C)	T9(°C)	T10(°C)	T11(°C)	T12(°C)

Read Stop Delete Export

1. Read: Read the data records saved on the device.
2. Stop: Stop the ongoing data reading process.
3. Delete: clears the current read data.
4. Export: Export the read device data records to a file.

Six、Alarm Record

BMS monitoring system (176 x 33) (V3.81 2021-11-29)

Real time monitoring | Parallel monitoring | Real time data | Parameter information | System configuration | Data record | Alarm record

Seq	PackNo	Time	Mode	Voltage(V)	Current(A)	SOC(%)	Alarm	Alarm information	MinV(mV)	MaxV(mV)	Env(°C)	FET(°C)	T1(°C)	T2(°C)	T3(°C)	T4(°C)

Read Stop Delete Export

1. Read: Read the data records saved on the device.
2. Stop: Stop the ongoing data reading process.
3. Delete: clears the current read data.
4. Export: Export the read device data records to a file.

Seven、System Configuration

BMS monitoring system (176 x 33) (V3.81 2021-11-29)

Real time monitoring | Parallel monitoring | Real time data | Parameter information | System configuration | Data record | Alarm record

Date time
Equipment time: 2022-10-14 23:36:59 Use system date Read

Capacity
Design capacity: (mAh)
Full capacity: (mAh) Read
Residual capacity: (mAh)

Production Information
Bar Code: Read

Discharge
Capacity accumulating: 0.0 (Ah) Read
Power accumulating: 0.00 (kWh)

1. Data: read and set the date of the device.

2. Storage: We will not store data by default. If you want to save data, you need to fill in data in the "Data interval" item
Data is saved based on the interval. You are advised not to set the interval too small because the storage space on the board is limited. "Delete Data" and "Delete Alarm"
Erase past data records and alarm records (erase the data store on the board).
3. Capacity: Read and set the capacity of the battery pack corresponding to the device to facilitate the calculation of other data.
4. Charge and discharge cycle: read and set the number of charge and discharge cycles of battery packs. The system accumulates from this data
I'm going to use.
5. Production information: The code information set by the manufacturer board can also be modified into its own code with a maximum of 30 characters.
- 6, voltage calibration: only useful for old products, new products are not used;
- 7, current calibration: now only open zero calibration, read the calibration value, fill in 0 in the box behind, click calibration, if wrong, please click reset after
The calibration.
- 8, temperature calibration: the front box is the read temperature, the back box fill in the actual temperature, and then click the calibration, if the error, please click reset
In the calibration.
9. Product information: The user reads and sets the company name, module name, version number, battery type, serial number and remarks of the device (the longest Both are 30 characters long).
- 10, forced hibernation is the upper computer to send instructions to shut down the BMS board.
- 11, firmware upgrade button like is a serial port upgrade function module, CAN upgrade without this function button.