

PC Master Software -V1.0

User Manual



Table of contents

3
5
9
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13
13
18
19
20
21
23
25
31
31
32
35
35
37

Overview

PC Master is a PC-side Upper computer based on DALY BMS. It is compatible with UART, RS485, and CAN protocols. It manages battery information visually and displays the voltage, temperature, current, and other information collected by BMS. Users can view battery data and alarm information in real-time and parameter settings, replace or maintain abnormal batteries, track battery usage, and use IAP to upgrade BMS software version.

The host computer mainly includes "communication settings", "language switching", "board number switching", "refresh data", "data monitoring", "active balance", "parameter reading/setting", "engineering mode", "history alarm" ", "BMS upgrade" and other functions. **Figure 1-1**.

BMS India-V1.0			e nevra bri de becche			
Board 1	Data monitoring	Active Parameter Equilibrium settings	Readparam Enginee Readparam mode	ring Alarm history	BoardNo 中文 BMS upgrade	Refresh CommS
	Battery state Max Volt:	is	Max Temp:	Max Temp Pos:	Chg Mos:	ON OFF
SumVolt:	Min Volt:	Min Cell Pos:	Min Temp:	Min Temp Pos:	Dischg Mos:	ON OFF
	Cells num:	NTC num:	Remain cap:	BMS Life:		
	DI1 status:	DI2 status:	DI3 status:	DI4 status:	Cycle Times:	
	DO1 status:	DO2 status:	DO3 status:	DO4 status:		
100 %	Cell voltage		Discharg SOP:			
	1~10:		<u> </u>			
	21~30:		┼──┼──	+ $-$		
	31~40:					
	41~48:					
	LBattery temp	rature				
	1~10:					
	11~16:					
Comm status: disconnect						

Figure 1-1 Main interface of the PC Master



- BMS Communication Settings: Set communication connection options.
- BMS Language switch: English, Chinese switch.
- BMS Board number switching: When the BMS is connecting in parallel, and switching the board number of the BMS to obtain the information of the corresponding BMS.
- **BMS Data monitoring**: Obtain the real-time voltage, current, temperature and other data of the battery pack.
- **BMS Active equalization**: read and set the parameter information of the active balance module of the software version.
- BMS Parameter setting/reading: Get or set the parameters of the BMS.
- BMS Engineering mode: Test BMS functions, such as restarting BMS, current calibration, charge and discharge control.
- BMS Historical alarm: Obtain the historical alarm data of the BMS. At present, only the BMS whose MCU is STM32F103C8T6 has this function. Since several current BMS's do not have RTC, the alarm time can't be record. To view the BMS historical data, you can find the saved data EXCEL file in the Savaging Data directory in the PC Master installation file.
- **BMS upgrade**: used to upgrade the software programs in the BMS.



1. PC Master connection

Unzip the compressed file on the upper computer, enter the file, as shown in

Figure 1-2, and double-click PC Master.exe to open it.

<mark>—</mark> BMS-IAP-India-V1.0 ④ 新建 ~	ⓒ 前 № 排序 · 三 直看	~				-	0	×
← → · ↑ 🎦 → 此电脑 → 新加卷 (D:)) > 文档类 > 测试 > 印规的上位机使用说明	> BMS-IAP-India-V1.0 >	BMS-IAP-India-V1.0		~ C	○ 在 BMS-IAP-India-V1.0 中搜索		
> 📩 快速访问	名称 	修改日期	类型 へてへ	大小				
> la OneDrive	S ClosedXML.dll	2021/6/11 14:23	应用程序扩展	1,023 KB				
> 🚬 OneDrive - Personal	🗋 cn-ZH.lng	2021/6/11 14:23	LNG 文件	1 KB				
> 🏊 WPS网盘	ControlCAN.dll	2021/6/11 14:23	应用程序扩展	52 KB				
~ 📮 此电脑	DocumentFormat.OpenXml.dll	2021/6/11 14:24	应用程序扩展	5,564 KB				
> 🛂 視频 > 🚬 图片	DocumentFormat.OpenXml.xml	2021/6/11 14:24	XML Document	15,885 KB				
> 🔄 文档	🗋 en-US.Ing	2021/6/11 14:23	LNG 文件	1 KB				
> 🛓 下戦	S ExcelNumberFormat.dll	2021/6/11 14:24	应用程序扩展	27 KB				
> 🕑 音乐	D ExcelNumberFormat.xml	2021/6/11 14:24	XML Document	5 KB				
> 🧱 桌面 > 🏪 OS (C:)	S FastMember.dll	2021/6/11 14:24	应用程序扩展	23 KB				
> — 新加卷(D:)	B HslControls.dll	2021/6/11 14:24	应用程序扩展	303 KB				
> 🕳 新加卷 (E:)	HslControls.pdb	2021/6/11 14:24	Program Debug	922 KB				
> 🎾 网络	D HslControls.xml	2021/6/11 14:24	XML Document	259 KB				
	LayeredSkin.dll	2021/6/11 14:23	应用程序扩展	696 KB				
	MetroFramework.dll	2021/6/11 14:23	应用程序扩展	331 KB				
	PCMaster.application	2022/9/30 11:47	Application Man	2 KB				
	PCMaster.exe	2022/9/30 11:47	应用程序	979 KB				
	PCMaster.exe.config	2021/6/11 14:21	XML Configurati	1 KB				
	PCMaster.exe.manifest	2022/9/30 11:47	MANIFEST 文件	12 KB				
	PCMaster.pdb	2022/9/30 11:47	Program Debug	570 KB			_	-

Figure 1-2 Upper computer file directory

BMS India-V1.0		- 10 - 1 1 - 1100							_		×
Board 1	Data monitoring	Active Equilibrium	Parameter settings	Readparam	Engineerin model	^{ig} Alarm history	BoardNo BMS upgrade	中文	Refresh	Comm	Set
	Battery stat										
	Max Volt:	M	Max Cell Pos:	Max Ter	n p :	Max Temp Pos:	c	hg Mos:	ON	OFF	
	Min Volt:	1	Min Cell Pos:	Min Ter	ıp:	Min Temp Pos:	Disc	hg Mos:	ON	OFF	
	Cells num:		NTC num:	Remain c	ap:	BMS Life:					
	DI1 status:		DI2 status:	DI3 state	is:	DI4 status:	Cycl	e Times:			
	DO1 status:		DO2 status:	DO3 state	IS:	DO4 status:					
	SOH:	Che	arging SOP:	Dischar	g SOP:						
100 %	Cell voltage										
	1~10:										
	11~20:										
Alarm list	21~30:										
	31~40:										
	41~48:										
	Battery temp	erature —									
	1~10:										
	11~16:										
Comm status: disconnect											





PC Master can communicate with BMS through UART, RS485, CAN. Click "Communication Settings" in the upper right corner if you need to connect UART or RS485, set the corresponding items directly in the "Serial Port Settings" interface, as shown in **Figure 1-4**. "Serial port number" can be viewed in the device manager of the computer management (right click on "this computer", select "manage", then click "device manager"), select "port (COM and LPT)" or "Universal Serial Bus" Controller" to find the corresponding COM, as shown in **Figure 1-5**, **Figure 1-6**. DALY BMS serial communication defaults to 9600bps without parity bit. After the setting is complete, click "Open Serial Port.



Figure 1-4 PC master communication settings







Figure 1-6 Computer Device Manager



If you need to connect CAN, first click ">>", as shown in **Figure 1-7**. Then set the corresponding items in the "CAN Settings" interface, as shown in **Figure 1-8**. "CAN device" is written on the CAN box, the default is USB CAN-I, the default for "device index" and "CAN channel" is 0, and the default for "baud rate" is 250K. After the setting is completed, click "Enable CAN". After the setting is completed, the host computer can communicate with the BMS.

CommPort:	Parity	
$COM37$ \sim	None	~
BaudRate:		>>
9600		~

Figure 1-7 PC Master communication settings

BMS India-V1.0										-	-
Board 1	Data monitoring	Active Equilibrium	Parameter settings	Readpara	Engineerin m model	^g Ala	m history	BoardNo BMS upgrade	中文	Refresh	CommSet
60 00 120 140	[Battery sta	tus ———									
20 180	Max Volt:	M	ax Cell Pos:	Max	Temp:	Max T	emp Pos:		hg Mos:	ON	OFF
SumVolt:	Min Volt:	м	in Cell Pos:	Min	Temp:	Min T	emp Pos:	Disc	hg Mos:	ON	OFF
	Cells num		NITO	Domai	in can [.]		MS Life:				
-120 ⁻⁰⁰ 60 120 -120 120	DI1 status		CAN Set				status:	Cycl	e Times:		
-240 240	DO1 status:		CAN de	evice: [Device Index:		status:				
Curr:	SOH:	Char	CAN CH	annel: E	SaudRate:	»					
0.8	Cell voltage	·	0	V 21	50 ~						
SOC:	1~10:		R	efresh CAN	Close CAN		4	_	_		
Alarm list	11~20:						•	_			
	21*30:	-					_	_			
	31~40:						_	_			
	41~48:										
	Battery ten	perature —			-a - a						
	1~10:										
	11~16:										
Comm status: CAN	(

Figure 1-8 PC Master CAN communication settings

2. Introduction to the functions of the PC Master

2.1 Data Monitoring

The data on the data monitoring interface mainly includes battery voltage, current, temperature, SOC, charge and discharge MOS status, alarm list, etc., all of which require real-time data, as shown in **Figure 2-1**. The data refresh cycle of this interface is 1 second. When the communication is normally, the BMS life value are refreshing once, and the value changes cyclically.

BMS India-V1.0											-	
Board 1	Data monitoring	Activ Equilib	ve Pa prium se	rameter ettings	Readparam	Engineerin model	ng Alarm b	nistory BM	BoardNo IS upgrade	中文	Refresh	CommSet
40 ⁶⁰ 100 20 100 100 100 100 100 100	Max Vol	tus ———	Max Ce	ll Pos: 11	Max T	emp: 30 °C	Max Temp	Pos: 1	Cł	ng Mos:	ON	OFF
SumVolt: 73.9 V	Min Volt Cells nur	≈ 3.072 V n: 24	Min Cel	IPos: 22 num: 1	Min Te Remain	emp: 30 °C cap: 50 Ah	Min Temp BMS	Pos: 1	Disch	ng Mos:	ON	OFF
-120 -120 -100 -100 -100 -100 -100 -100	Di1 status DO1 status		DI2 st DO2 st	atus: ON atus: OFF	DI3 sta DO3 sta	itus: OFF itus: OFF	DI4 st DO4 st	tatus: OFF tatus: OFF	Cycle	Times:		
Curr: 0 A	SOH:		Charging	SOP:	Disch	arg SOP:						
100 %	Cell voltag	(e										
SOC: 100 %	1~10:	3.077	3.078	3. 085	3.084	3. 082	3. 081	3.086	3.086	3. 08	2 3. (082
Alarm list	11~20:	3.086	3.086	3.08	3.08	3:084	3. 084	3.074	3.074	3. 07	9 3. ()8
	21~30:	3.075	3.075	3. 077	3.077							
	31~40:									┨───		
	41 48:				<u> </u>	II				J		
	Battery ter	perature-							-1			
	1~10:	30										
	11~16:											
Comm status: serial port												

Figure 2-1 PC Master data monitoring interface

The data is detailed below:

(1) "Total voltage": the total voltage of the battery pack, with an accuracy of 0.1V.

(2) "Current": the charge and discharge current of the battery PACK, a positive

number means charging, a negative number means discharging, and the accuracy is 0.1A.

(3) "SOC": state of charge (state of charge), indicating the percentage of remaining power of the battery PACK, with an accuracy of 0.1%.

(4) "Alarm List": It is used to display the faults of the current BMS. The fault corresponds to the data ID "0x98" of the Lithium communication protocol. The default trigger fault can be protected, there are only three types of voltage protection, current protection, and temperature protection. Other faults only alarm but not protect.

(5) "Communication status": indicates the connection status of the communication between the host computer and the BMS.

(6) "Highest voltage": Indicates the highest voltage of a single cell of the battery pack, with an accuracy of 1mV.

(7) "Minimum voltage": Indicates the minimum voltage of a single cell of the battery pack, with an accuracy of 1mV.

(8) "Highest voltage position": Indicates which cell has the highest voltage.

(9) "Lowest voltage position": Indicates which cell has the lowest voltage.

(10) "Maximum temperature": indicates the maximum temperature with an accuracy of 1°C.

(11) "Minimum temperature": Indicates the minimum temperature with an accuracy of 1°C.

(12) "Highest temperature position": Indicates the highest temperature position.

(13) "Lowest temperature position": Indicates the lowest temperature position.

(14) "Charging MOS": Indicates the state of the charging MOSFET, ON means it is turned on and can be charged; OFF means it is not turned on and can't be charged.

(15) "Discharge MOS": Indicates the state of the discharge MOSFET, ON means it is turned on and can be discharged; OFF means it is not conductive and cannot be discharged.

(16) "Number of battery strings": Indicates the number of strings of battery



packs.

(17) "Number of Temperatures": Indicates the number of battery pack temperature controls.

(18) "Remaining capacity": Indicates the remaining capacity of the battery, with an accuracy of mAh.

(19) "BMS Life": Indicates whether the BMS is running, and Life will increase by one every second (0~255 cycles).

(20) "DI/O": Digital input/output (digital input/output), indicating the status of I/O.

(21) "Number of Charges and Discharges": indicates the number of charge and discharge cycles, total charging ampere hours/rated total ampere hours.

(22) "SOH": battery state of health.

(23) "Charging SOP": Charging SOP.

(24) "Discharging SOP": Discharging SOP.

(25) "Single voltage": Indicates the voltage of each cell of the battery pack, with an accuracy of 1mV.

(26) "Battery temperature": Indicates the temperature of each temperature control of the battery pack, with an accuracy of 1°C..

2.2 Active Balance

The active equalization function is used to read the BMS active equalization status information, and can set the battery PACK active equalization parameters. This page also has the functions of saving parameters, loading parameters, one-key setting, and one-key reading. Active equalization is shown in **Figure 2-2**. Show:



SMS India-V1.0		×
Board 1	Data Active Parameter Readparam Engineering Alarm history BMS upgrade monitoring Equilibrium settings Readparam model Alarm history BMS upgrade Active Equilibrium Information	1Set
SumVolt: 73.9 V	equilibrium state: OFF	
-120 ⁴⁰ 0 120 -120 120 -200 240 -300 300 1	equilibrium location: 0	
Curr: 0 A	100 active equilibrium param Save Config Load Config Set All Read All	
100 %	equilibrium current: none	
SOC: 100 %		
Alarm list	equilibrium start volt: none equilibrium diff volt: none Stt	
	sleep time: none	
Comm status: Serial		

Figure 2-2 PC Master active equalization setting interface

2.2.1 Equalization Information

In the balance information bar, check the active balance on status, real-time current, and the battery position of the active balance.

2.2.2 Active Balance Parameters

The active equalization parameters are used to set the active equalization current, the number of strings, the equalization open voltage, the equalization open voltage difference, the sleep time, and the active equalization on or off parameters.

2.2.3 The special functions are as follows:

(1) Save parameters

Click to save the currently set parameters with one key, which can be using next time.



(2) Loading parameters

It is using to load parameters that have been set externally, instead of setting them one by one.

(3) One-key setting

After setting the parameters or after loading the parameters, click one key to set, or can set all the current parameters.

(4) One-click reading

Read all current parameters.

2.3 Parameter setting

The parameter setting function is using to set the basic parameters and protection parameters of the battery pack corresponding to the BMS. At present, BMS is suitable for NMC, LFP, LTO batteries. In addition, the interface also has functions such as "one key write", "save configuration", "load configuration", "quick setting" and so on.

2.3.1 Parameter description

Parameter setting interface, as shown in Figure 2-3 below.

BMS India-V1.0														-	×
Board 1	Da monit	ta oring I	Active Equilibr	e Pa iun s	rameter ettings	Read	param	Engineer model	ing Ala	ırm histor	Boa y BMS պ	pgrade	中文 R	efresh	CommSet
40 20 0 20 100 140 140 140 120 140 120 140 120 120 140 120 120 140 120 140 120 140 120 120 140 120 140 120 140 120 140 120 140 120 140 120 140 120 140 120 140 120 140 120 140 120 140 120 140 120 120 120 120 120 120 120 12		Rater Rated C	d Cap(Ah) CellVolt(V):			Set	Bala Ba	ince start I start diff	Volt(V): Volt(V):		Set		Sleep time(Current wav	S): 6 /e(A): 1	5535
SumVolt: 73.8 V	Cun Cumul	nulative ch ative disch	harge(Ah): harge(Ah)			Set	Cur se	Short Cun mpling Re	rent(A):		Set		Battery pro 2000 Y	duction d	ate: ODSet
-120 ⁻⁶⁰ -190 -240 -300 -300 -300	No. o	f acquisiti	on board:			board [•] board 1	I~3 Cell N ~3 NTC N	D.: 1			Set		ernery type ernery 1 lattery ope	e: ithium ration mo spower	▼ ode: on/off ▼
Curr: 0 A			_					_							
100 %	Firm	ware Index Battery c	No.: ode:	_	_	_	_		Set Set	SOC:		Set		l	
SOC: 100 %			IP:						Set						
Alarm list	Lev	cell volt high	cell volt Iow	sum volt high	sum volt low	discharge curr large	charge curr large	volt diff large	temp diff large	SOC high	SOC low	charge temp high	charge temp low	discharge temp high	^e discharge temp low
	0														
	>	Set		Set		Set		Set		Set		5	Set		<u> </u>
							- Oui	h Cat				Course		_	Sec 11
							Quit	k Set		oau conri	<u> </u>	Save c	omry		Set all
Comm status: Serial															



Figure 2-3 PC Master parameter setting interface

Description of special parameters:

(1) **Equalization parameters.** This parameter is a passive equalization setting parameter. The equalization opening conditions are charging, equalizing opening voltage, and equalizing opening voltage difference. After the passive equalization is turned on, you can check which string has the equalization turned on in the "Single Voltage".

(2) **Sleep time**. The sleep time is set to the number of seconds that the BMS waits to enter the low-power mode, that is, sleep, when there is no wake-up source. The wake-up source can be seen in "engineering mode", and the light is on to indicate that there is a wake-up source. As shown in **Figure 2-4**, it means that there is no wake-up source at present.



Figure 2-4 PC Master wake-up source

C DALY



(3) Current wave. Due to the design of the electronic circuit, interference between electronic devices, environmental interference, and other factors, the BMS detects the current in the static state. Setting the zero drift means

that the BMS will consider the current below the set value as an invalid current, still in a static state, and will not be included in the SOC's ampere-hour integral calculation.

(4) Over voltage and Under voltage. This value is set according to the characteristics of the battery. Figure 2-5 NMC charging OCV, Figure 2-6 NMC discharge OCV; Figure 2-7 LFP charging OCV, Figure 2-8 LFP discharging OCV; Figure 2-9 LTO charging OCV, Figure 2 2-10 LTO discharge OCV. The NMC over voltage protection value is 4.25V, and the Under voltage protection value is 2.7V; the LFP Over voltage protection

value is 3.75, and the Under voltage protection value is 2.2V; the LTO Over voltage protection value is 2.75V, and the Under voltage protection value is 2.75V. The value is 1.7V.



Figure 2-5 NMC Battery Charging OCV





Figure 2-6 NMC Battery Discharging OCV



Figure 2-7 LFP Battery Charging OCV









Figure 2-9 LTO Battery Charging OCV





Figure 2-10 LTO Battery Discharging OCV

(5) SOC and RTC.

RTC sets the RTC of the protection board or interface board. This parameter requires the user to write the value of soc, and then click to set, the upper computer will print out the current time written to the RTC, and the historical alarm panel will print the correct time only after reading the historical data.

2.3.2 Set all data

One-click write can write all the data in the parameter setting interface into the BMS. When writing, the label after the parameter needs to have content, and the corresponding set of data must have content before writing. However, the waiting time for one-key writing is long. If you only modify a certain parameter, it's not recommended to use it. **Figure 2-11**.



SMS India-V1.0														-	
Board 1	Da monit	ta oring 1	Active Iquilibr	e Pa iun s	arameter ettings	Read	param	Engineer model	ing Ala	arm histor	Boa y BMS u	ardNo pgrade	中文 R	efresh	CommSet
40 20 20 20 20 20 20 20 20 20 20 20 20 20		Rated Rated C	I Cap(Ah): ell∨olt(∨):			Set	Bala Ba	nce start start diff	∨olt(∨): ∨olt(∨):	_	Set	s c	leep time(urrent wav	S): 68 /e(A): 1	535
SumVolt: 73.8 V	Cun Cumul	nulative ch ative disch	iarge(Ah): harge(Ah):			Set	Cur sa	Short Curi mpling Re	rent(A): es(mΩ):	_	Set	в 2	attery pro	duction de 0 м	tte: OD Set
-1260 00 120 -180 180 -240 240 -300 500 -		f acquisiti	on board:	_		board 1	1~3 Cell N	D.: .			Set		attery ope 元 attery ope	ration mo	te:
Curr: 0 A			_												
100 %	Firm	ware Index Battery ci	No.:	_	_	_	_		Set Set	SOC	_	Set			
SOC: 100 %			P:						Set						
Alarm list	Lev	cell volt high	cell volt low	sum volt high	sum volt low	discharge curr large	charge curr large	volt diff large	temp diff large	SOC high	SOC low	charge temp high	charge temp low	discharge temp high	discharge temp low
	0														
	>	Set		Set		Set		Set		Set		S	et		
							Quic	k Set	1	.oad confi	٤	Save co	onfig		et all
Comm status: Serial															

Figure 2-11 Set all data to the PC Master

2.3.3 Save configuration

Save the configuration to save all the data content of the "parameter setting" interface. First click "Save Configuration", as shown in **Figure 2-12**. Then select the saved path, as shown in **Figure 2-13**.

BMS India-V1.0														-		×
Board 1	Da nonit	ta oring	Active Equilibr	e Pa ium s	rameter ettings	Read	param	Engineer model	ing Ala	urm histor	Boa y BMS up	ograde	中文 R	efresh	CommS	iet
60 100 120 140 73 6 160 10 20 0 200		Rate Rated (d Cap(Ah): CellVolt(V):			Set	Bala Bal	nce start start diff	∨olt(∨): ∨olt(∨):	_	Set	I s	ileep time(arrent wa	S): (/e(A): [5535	
SumVolt: 73.8 V	Cun	nulative cl	harge(Ah):			Set		Short Cur	rent(A):		Set		lattery pro	duction (<mark>О</mark> М	date: 0 D S	et
1	Cumul	ative disc	harge(Ah)				Cursa	mpling Re	es(mΩ):			В	attery type	93		
-180 180 -240 240 -300 300		f acquisiti	on board:			board 1	1~3 Cell No ~3 NTC N	D.:			Set	B	attery ope	ration m	ode:	
Curr: 0 A																
100 %	Firm	ware Index	No.:						Set	RTC.	_	_				
		Battery c	ode:	_	_	_	_		Set	soc:		Set				
SOC: 100 %			IP:						Set							
Alarm list	Lev	cell volt high	cell volt low	sum volt high	sum volt low	discharge curr large	charge curr large	volt diff large	temp diff large	SOC high	SOC low	charge temp high	charge temp low	discharg temp high	e discharge temp low	e v
	0															
	0	C 1				<u> </u>		<u> </u>		<u> </u>						-11
	->	Set		Set		Set		Set		Set		5	et			
							Quic	k Set	L	.oad confi	8	Save c	onfig		Set all	
											- L			-		
Comm status: Serial							-	· ·								

Figure 2-12 PC Master saves the configuration



BMS Indi	ia-V1.0							- 🗆 X
Í	♥ 另存为							× mset
1	$\leftarrow \rightarrow ~ \uparrow$	<mark>二</mark> > 此电脑 > 新加卷 (D;	> 文档类 > 測试	> 拓邦3-20221019	> 拓邦修改程序20221018	(6) ~	C 户 在拓邦修改相	副序20221018
	组织 • 新建文件:	夫						≣ • 0
9	> 🔀 图片	名称	^ ·	修改日期	类型	大小		
Ŭ	> 🧾 文档			1	没有与搜索条件匹配的项。			Set
1	> 🛓 下載							
1	> 🕖 音乐							
E-500	> 📒 桌面	1						
	> 🏪 OS (C:)							
	> 新加卷 (D:)							
	> 🕳 新加卷 (E:)							
	> 🖆 网络	1						
Alarm list	文件名(N):							 ✓ harge
	保存类型(T): C	fg File (*.cfg)						 low
	▲ 隐藏文件夹						保存(S)	取消
		-> Det	Set	Set	Det	Set	Set	
				-				
					Quick Set	Load Config	Save config	Set all
Comr	m status: Serial							

Figure 2-13 Save the configuration file path

2.3.4 Load configuration

Load configuration can load the local parameter configuration file into the PC Master. Click to load the file, select the local configuration file, and then load it into the host computer. **Figure 2-14**.

BMS India	-V1	.0								-	O X
6	•	打开	π								× ^{nmSet}
	← → ∽ ↑ 🛄 > 此电脑 > 桌面 → ℃						○ 在桌面中搜索				
	组	织▼ 新建文	件夹								0
-	~	- 此电脑		名称	â	修改日期	类型	大小			
s	>	12 初版		Dbjects		2022/9/22 21:03	文件夹				Set
	Ş	同時				2022/10/19 20:36	文件夹				
1	Ś		1	123.cfg		2022/10/21 11:12	CFG 文件	2 KB			
-300	>	业 下戦		192.168.1.57		2022/6/17 15:22	快捷方式	2 KB			
	>	④ 音乐									
	>	💷 桌面									
	>	L OS (C:)									
	>	— 新加卷 (D:)									
Alarm list	>	— 新加卷 (E:)	1								harge
			文件	名(N): 123.cfg				~	Cfg File(*.cfg)		> low
									打开(0)	取浦	
				Det .	Der	361	341	Set	381		1
							Quick Set	Load config	Save config	Se	st all
Comm	ı sta	atus: Serial									

Figure 2 - 14 PC Master loads the configuration file



2.3.5 Quick Settings

In the parameter setting interface, some parameters are set according to the production order, and the rest can be configured as default parameters for shipment. The quick setting function is to set several parameters, and the rest are automatically loaded and calculated. First, fill in the content to be set in the label after the setting item, there are 6 items in total, and then click "Quick Settings".

The setting items are as follows:

(1) Short circuit protection current, the label is the current of the order specification, such as 60A.

(2) Current sampling resistor, the label of this item is the number of sampling resistors, such as 6.

(3) The number of single collection boards, the label of this item is the number of battery strings of the BMS, such as 16+8.

(4) The number of temperature of the collection plate, the label of this item is the temperature control number of the BMS, such as 1.

(5) Battery type, select one of the check boxes, such as ternary.

(6) The number of protection board acquisition chips, for example, the number of protection board acquisition chips is 1.



BMS India-V1.0														-	×
	Dat monito	a pring	Active Equilibr	e Pa ium s	rameter ettings	Read	param	Engineer model	^{ing} Ala	rm histor	Boa y BMS u	pgrade	中文 Re	efresh	CommSet
		Rate Rated (ated Cap(Ah):			Set Balance start Volt(V): Bal start diff Volt(V):			_	Set	Set Sleep time(Current war		5): 68 re(A): 1	535	
SumVolt: 73.8 V	Curr Cumule	ulative cl ative disc	harge(Ah): harge(Ah):			Set	Cur sa	Short Curr mpling Re	rent(A): <mark>6</mark> ·s(mΩ): <mark>6</mark>	0	Set		lattery proi	duction de <mark>0</mark> M	tte: 0 D Set
-120 -140 -240 -000 Curr: 0 A	No. of	acquisiti	on board:	1		board 1 board 1	- 	o.: <mark>16</mark> o.: <mark>1</mark>	8		Set		ithium ti attery ope hort pres	tanate ation mot s power	te: on/off •
100 %	Firmv	vare Index Battery c	No.: ode:	_	_		_	╡	Set Set Set	RTC: SOC:	_	Set			
Alarm list	Lev	cell volt high	cell volt low	sum volt high	sum volt low	discharge curr large	charge curr large	volt diff large	temp diff large	SOC high	SOC low	charge temp high	charge temp low	discharge temp bigh	discharge temp low
	0	Set		Set		Set		Set		Set		s	et		
							Quic	k Set	L	oad confi	g	Save c	onfig	S	et all

Figure 2-15 Quick setting of the PC Master

BMS India-V1.0		- 🗆 X
Board 1	Boo Data Active Parameter Readparan Engineering Alarm history BMS w monitoring Equilibrium settings Readparan model Alarm history BMS w	ardNo 中文 Refresh <mark>CommSet</mark>
40 100 120 140 140 140 140 140 140 140 14	Rated Cap(Ah): 50 Reset Reset Balance start Volt(V): 3 Reset Bal start diff Volt(V): 0.03 Reset	id Sleep time(S): 65535 Current wave(A): 1
SumVolt: 73.8 V	Cumulative charge(Ah): 55 Read Short Current(A): 5000 Read Current(A): 0 0.33	Battery type: ternary Battery production date:
-120 ⁶⁰ -120 -140 -240 -500 -300	Board 1 ^{~3} Cell No.: 16 8 0 No. of ecquisition board: 2 Board 1 ^{~3} Cell No.: 16 8 0	d Battery operation mode: Long press Read
Curr: 0 A	Firmware Index No.: Read RTC: 2022/10 Battery code: Read IP:	1/21 11:22:17 Read Read
SOC: 50 %	BMS SW version: BMS HD version	Read
	Lev cell volt cell volt sum volt sum volt discharge charge volt diff temp diff sOC high SOC low 0 4.15 2.8 99.6 67.2 20 0.5 10 100 20 0 4.25 2.7 102 64.8 50 50 0.8 15 102 10 -> Read Read Read Read Read Read	charge charge discharge discharge temp lemp low high temp low 55 - 35 65 - 35 65 - 40 70 - 40 Read All
Comm status: Serial		

Figure 2 - 16 Display of the quick setting result of the PC Master



2.4 Parameter reading

The parameter reading function can obtain the basic battery parameters and protection parameters stored in the EEPROM in the BMS. At the same time, you can also check the software and hardware model scheme of BMS.

The "parameter reading" interface provides single-group reading and one-key full-reading functions. **Figure 2-17**.



Figure 2 - 17 Read the parameters of the PC Master

BMS India-V1.0										D		m -2- m	-	×
Board	Data monitoring	Activ Equilibr	e Pa ium s	arameter ettings	Read	param	Engineeri model	ing Ala	rm histor	y BMS u	ardNO upgrade	ΨX H	(efresh	CommSet
400 100 120 140 20 12.4 100 20 100 100	Re Rete	ted Cap(Ar d CellVolt(V): <mark>50</mark>): <mark>3. 2</mark>		Read	Bal Ba	ance start \ Il start diff \	Volt(V):). 03	Rea	a c	Sleep tir Current wa	me(S): 65 ve(A): 1	535
SumVolt: 73.8 V	Cumulative Cumulative di	charge(Ah scharge(Ał): <mark>55</mark> n): <mark>0</mark>		Read	Cur s	Short Cun ampling Re	rent(A):	5000). 33	Rea	d	Battery Battery pi 0, 200	y type: te roduction 0	ernary date:
-120 ⁶⁰ -140 -240 -300 -300 -300	No. of acqu	isition boar	d. <mark>2</mark>		Board Board	1~3 Cell I 1~3 NTC I	No.: <mark>16</mark> No.: <mark>1</mark>	8 0	0	Rea	d	Battery of Long p	peration m	node: Read
	Firmware Inde: Battery	: No.:	_	_	_	_		Read Read	RTC. 2	2022/10	/21 11	1:27:4		Read Read
SOC: 50 %	BMS SW ve	rsion:				Read	В	MS HD ve	ersion:				Rea	đ
Alarm list	WNT SW ve	rsion:					~~~~~	/NT HD ve	ersion:	_		_		
	Lev cell volt high	cell volt low	sum volt high	sum volt low	discharge curr large	charge curr large	volt diff large	temp diff large	SOC high	SOC low	charge temp high	charge temp low	discharge temp high	discharge temp low
t.	 4.15 4.25 -> Read 	2. 8	99.0 102 Read	64. 8	20 50 Read	50	0. 5 0. 8 Read	15	100 102 Read	10	65 1	-40 tead	70	-40
														Read All
Comm status: Serial													-	



Figure 2 - 18 Read All of the PC Master

Although the "Read All" function can read all parameter values on the interface, it takes a long time. If you just want to know a single parameter value, it is recommended to use the "read" function.

Compared with "Parameter Setting" on the "Parameter Read" interface, read-only items have been added: software version number and hardware version number, interface board software version number, and hardware version number. **Figure 2-19**.

BMS India-V1.0			19											
Board 1	Data monitoring	Active Equilibr	e Pa iun s	arameter ettings	Read	param	Engineer model	ing Ala	um histor	Boo y BMS t	ardNo upgrade	中文 R	efresh	CommSet
40 20 100 120 140 13.5 160 180 20 20 20 20 20 20 20 20 20 2	Ra Rate	ted Cap(Ah d CellVolt(V): <mark>50</mark>): <mark>3.</mark> 2		Read	Bak Ba	ance start Il start diff	Volt(V): 3 Volt(V): 0	3). 03	Rea	d c	Sleep tim urrent wav	ie(S): 65 re(A): 1	535
SumVolt: 73.8 V	Cumulative Cumulative di	charge(Ah scharge(Ah): <mark>55</mark>): <mark>0</mark>		Read	Cur s	Short Cu ampling R	rrent(A):	5000). 33	Rea	d	Battery Battery pr 0, 2000	type: oduction d	late:
-120 ⁻¹²⁰ ⁻¹²⁰ 120 -160 180 -240 260 -300 300	No. of acqu	isition boan	d: <mark>2</mark>		Board Board	1 1~3 Cell 1 1~3 NTC N	No.: <mark>16</mark> No.: <mark>1</mark>	8 0	0 0	Rea	d	Battery op	eration m	ode: Read
Curr: 0 A	Firmware Index Battery	No.:						Read Read	RTC: 2	2022/10)/21 11	:27:4		Read 读取
SOC: 50 %	BMS SW ve WNT SW ve	rsion:	_	_	_	Read		BMS HD ve WNT HD ve	ersion:	_	_	_	Read	
	Lev cell volt high 0 4.15 0 4.25 > Read	cell volt low 2. 8 2. 7	sum volt high 99. 6 102 Read	sum volt low 67. 2 64. 8	discharge curr large 20 50 Read	charge curr large 20 50	volt diff large 0.5 0.8 Read	temp diff large 10 15	SOC high 100 102 Read	SOC low 20 10	charge temp high 55 65 Re	charge temp low -35 -40	discharge temp high 65 70 R	discharge temp low -35 -40 ead All
Comm status: Serial														

Figure 2 - 19 Software and hardware version numbers

"BMS hardware version number" records the hardware chip scheme selected by the BMS. For a total of thirteen characters, the first three digits are fixing as BMS, the middle is MCU, as shown in Table 2.1, and the last four digits are AFE, as shown in Table 2.2.



Table 2.2 MCU

MCU Abbreviation	MCU Full Name
ST103	STM32F103RBT6
ST030	STM32F030C8T6
GD230	GD32E230C8T6

Table 2.2 AFE

AFE Abbreviation	AFE Full Name
309E	SH367309
303E	SH367303
DVCE	MT DVC
9818	9818

"BMS software version number" records the project software version of the BMS. Total of thirteen characters, the first two digits represent the chip solution, the middle represents the release date, the last four digits are reserved, and the default represents the project code.

(1) The first item of the item number: 1, STM32F103; 2, STM32F030; 3, GD32E230.

(2) The second digit of the item number: 1, 309; 2, 303; 3, 9818; 4, DVC.

2.5 Engineering Mode

"Engineering Mode" is mainly a BMS function test, and special function parameter setting. The main functions include current calibration, restart/sleep BMS, equalization test, set board number, set heating/fan temperature, wake-up source, charge and discharge MOS control, DO1 control, and inverter protocol. **Figure 2-20**.



BmsMonitor-V2.1.7					– 🗆 X
Board 1	Data Active monitoring Equilibrium	Parameter settings Readparam	Engineering model Alarm histor	BoardNo 中文 ry BMS upgrade	Refresh CommSet
20 160 20 200	Control Manager	Current OA calibrati	BillS ac	idress manager —— iNo: Slavef Read Set	Num:
-120 ⁶⁰ ⁵⁰ 120	BMS Sleep Restart BMS	Current calibration		DN(°C): MosT	emp
-200 260 300 Curr:	WakeUpMethod Key Button	485 CAN (Heat Key o	ON(°C):	
SOC:	Control Switch	DO1 Control: OFF		Read Set	
Alarm list	DsgControl: OFF		NONE RS48	, v Inve 5 × Comm	rter Manager Tyme
			S	elect Read	
Comm status: disconnect					

Figure 2-20 PC Master Engineering Mode Interface

Current calibration steps:

(1) Set the current sampling resistor of the protection board in the parameter setting panel. **Figure 2-21**.

(2) When the battery is not connected to the charger and load, click "Current 0A Calibration".

(3) Charge or discharge the battery. For example, if the discharge is 10A, then enter "-10" in the input box next to "Current Calibration", and if it is charging 10A, then enter "10". Then click "Current Calibration". **Figure 2-22**.



BMS India-V1.0							- 🗆 X
Board 1	Data Activ. monitoring Equilibr	e Parameter ium settings	Readparam	Engineering Al model Al	Bc arm history BMS	pardNo 中文 Ro upgrade	efresh CommSet
60 73.8 160 180 180 0 200 180	Rated Cap(Ah) Rated CellVolt(V):	50 3. 2	Set Bala	ince start Volt(V):). 03	Sleep time(Current war	s): <mark>65535 /</mark> ve(A): 1
SumVolt: 73.8 V	Cumulative charge(Ah) Cumulative discharge(Ah)	55 0	Set Cur se	Short Current(A):	5000). 33	Battery pro	duction date:
-100 -100 -200 -200 Curr: 0 A	No. of acquisition board:	2	board 1~3 Cell N board 1~3 NTC N	o.: <mark>16 8</mark> o.: <mark>1 0</mark>	0 0	三元 Battery ope	ration mode:
50 × 10 × 10 × 10 × 10 × 10 × 10 × 10 ×	Firmware Index No.: Battery code: IP:			Set Set Set	RTC: 2022/1 SOC: 50	0/21 11:22:06	1
Alarm list	Lev cell volt high cell volt low ① 4.15 2.8 ② 4.25 2.7 → Set 0	sum volt high sum volt low 99. 6 67. 2 102 64. 8 Set	discharge curr large 20 20 50 50 Set	volt diff large large 0.5 10 0.8 15 Set	SOC high SOC low 100 20 102 10 Set 10	charge temp high 55 - 35 65 -40 Set	discharge temp high 65 -35 70 -40
			Quic	k Set	Load config	Save config	Set all
Comm status: Serial							

Figure 2-21 Setting the current sampling resistor of the BMS

* DVD1 / V/ D		
W BMS India-V1.0		ー X Describle 伊文 Defeath CompOrt
Board 1	Data Active Parameter Engi monitoring Equilibrium settings Readparam m	neering odel Alaxm history BMS upgrade
40 40 73.8 160 180 180 20 0 200 200 200 200 200 200	Control Manager Balance testing Current OA calibration	BoerdNo: SleveNum:
SumVolt: 73.8 V	IMES Sleep Current calibration -10	Read Set
-120 60 120 -130 180	Restart BMS Current accuracy test	Fan ON("C): MosTemp -40
-240 240 -300 -300 -300 -300 -300 -300 -300 -3	[WakeUpMethod	Heat ON(°C):
Curr: 0 A	Key Button 485 CAN Current	Key control MOS: Disable V
50 <mark>*</mark>	Control Switch	Read Set
SOC: 50 %		_Inverter Manager
Alarm list	DsgControl: OFF	NONE - Inverter Manager
		RS485 V Comm Type
8		Select Read
5		
Comm status: Serial		

Figure 2 - 22 Current Calibration



Restart/Hibernate BMS: Click "Restart BMS", the BMS will perform software reset and restart. When the BMS is set not to sleep (sleep time 65535), it needs to be restarted, or it needs to be restarted when it is changed from not to sleep. The BMS also needs to be restarted when the protection recovery value is modified through the upgrade program and the protection is delayed. Click "Sleep BMS", the BMS enters the sleep mode and waits for the wake-up source to wake up the BMS. **Figure 2-23**.



Figure 2-23 PC Master Restart/Hibernate BMS

Wake-up source: The wake-up source includes key KEY, button light board button or Bluetooth button, RS485 and CAN communication, charging and discharging current. **Figure 2-24**. If the BMS is not automatically activated when it power on for the first time, it can only be woken up by the "key" and "current" wake-up sources. But in the subsequent wake-up logic, the wake-up source can wake up. Pay special attention to the under-voltage fault of the BMS, it will go to sleep after 60 seconds. At this time, RS485 cannot be used, and the CAN communication wakes up the BMS.

C DALY

BMS India-V1.0		- X
Board 1	Data Active Parameter Engineerin monitoring Equilibrium settings Readparam model model	BoardNo 中文 Refresh CommSet ^{Mg} Alarm history EMS upgrade
40 X2 8 160 20 190 20 20 200	Control Manager Balance testing Current OA calibration	BMS address manager
Sumvoit. 73.8 V	MES Sleep Current calibration -10 Restart MES Current accouracy test	Fan ON("C): MosTemp -40
Curr: 0 A	VakeUpMethod Key Button 465 CAN Current	Heat ON(*C): Key control MOS: Disable
50 × 10 ×	Control Switch ChgControl: OFF DO1 Control: OFF	Read Set
Alarm list	DsgControl: OFF	Inverter Manager
		RS425 Comm Type Salect Read
Comm status: RS485		

Figure 2 - 24 Wake-up sources

Charge and discharge MOS control, DO1 control: click the switch to control. If it has not been clicked, this item is disabled by default.

Set board number: This item is used in parallel BMS. Set different board numbers for the BMS to distinguish the BMS on the bus. It can also be said that the board number is the number of the BMS, which is used to identify the BMS on a bus. The number of slave boards is not currently used, and can be set to 1, as shown in **Figure 2-25**. The default setting range of the base version software board number ranges from 0 to 7.





Figure 2 - 25 Set the board number

After modifying the board number, select BMS through "Board Number" to obtain the data of the current BMS. At present, the PC Master can switch to board No. 24 at most. **Figure 2-26**.

BMS India-V1.0				
Board 1	Data Active Parameter Engineering		中文 Refresh	CommSet
- The state of the	monitoring Equilibrium settings Readparam model Alarm hist	ry 2	1	
60 80 100 120 40 73.7 160	-Control Manager	addr 4		
	Balance testing Current OA calibration Boo	ardNo 5	SlaveNum: 1.	
SumVolt: 73.7 V	BUS Sleen	6	Set	
		8		
-120 00 120	Restart BMS Current accuracy test	9 ON(10	MosTemp -40	
-180 180 -240 240		10		
l≣ -300 1 300 ≣1		12 13		
Curr: 0 A		con 15 14	sable ~	
50 <mark>%</mark>	Control Switch	15	Sat	
	ChgControl: OFF DO1 Control: OFF	17		
SUC: 50 %	Inve	rter 18		
Alarm list	DsgControl: OFF NOI	NE 20	Inverter Manager	
5		485 22	Comm Type	
		23		
2		24		
5				
Comm status: RS485				





Fan/Heat On: Set the fan and heat the temperature of the BMS. The MOS temperature indicates the temperature of the BMS protection board, and this temperature is the judgment temperature when the fan is turned on. The judgment temperature for heating is the temperature controlled by the BMS.

2.5 Historical Alarms

2.5.1 Historical alarms of the PC Master

(1) read

Click the "Read" button on the "Historical Alarm" interface to read the BMS historical alarm data. This feature is only available for 103 plans. 030 and 230 have not developed this function due to insufficient memory.

BmsMonitor-V2.1.7													- [×
Board 1										Boar	dNo 中:	文 Refre	sh Co	ommSet
	D noni	ata toring Eq	Active uilibrium	Parameter settings	Readpa	aram E	nginee: model	ring l Ala	urm history	7 BMS upg	rade			
60 0 120 140 60 0 180 20 180 20 180 20 180	No.	ErrTime	ErrID	ErrState	Sum∛	Cur	SOC	Chg M	Dchg	MaxCellV	Max	MinCellV	Min	MaxT
SumVolt:	-													
-120 ⁶⁰ 50 120 -180 160 -300 240 -300 300														
Curr:	-													
0 %														
SOC:	<													<pre></pre>
Alarm list		Re	d	FraceRocor	ad a	RecordM		1004	5/)					Creat
		110	act	ET asertecor	u	Recordin		/ 304						
		St	qc											
Comm status: disconnect														

Figure 2-27 History alarm

(2) Stop button

Forcibly exit the "Read History Alarm" mode, and let the host computer re-poll the BMS data. When you click "Read" again, it starts from the first alarm and can read up to 384 historical data.



(3) Erase historical data

Clear the historical warning log data. After erasing the historical records, the protection board needs to be powered on again.

2.5.2 Host computer Save Data

After the communication between the host computer and the BMS is successful, the basic data of the BMS can be seen on the data interface. At the same time, the host computer will also save these data to local. The save location is in the Save Data folder in the same directory as PC Master. Compared with "historical alarm", the data saved by Save Data is more detailed and comprehensive. **Figure 2-28**.

BMS-IAP-India-V1.0				-		
 	ⓒ 前 № 排序 · ≡ 查看 ·					
← → 、 ↑	印规的上位机使用说明 > BMS-IAP-India-V1.0	~ C 🔎	在 BMS-IAP-India-\	/1.0 中搜索		
> 📩 快速访问	名称	修改日期	类型	大小		
> OneDrive	📁 Images	2022/10/21 10:10	文件夹			
> OneDrive - Personal	늘 kerneldlis	2022/10/21 10:10	文件夹			
> わ WPS网盘	늘 SaveData	2022/10/21 11:57	文件夹			
SaveData					o x	
⊕ 新建 · X 0 10 ⊡	◎ ① 1↓ 排序 · 三 查看 ·					
← → ✓ ↑ □ 《 印规的上位机使用说	明 > BMS-IAP-India-V1.0 > SaveData	~ C ^	在 SaveData 中搜索			
> 📩 快速访问	名称 ^	修改日期	类型	大小		
> 🔷 OneDrive	2022年10月21日10_11_11.csv	2022/10/21 10:15	XLS 工作表	27 KB		
> 🚬 OneDrive - Personal	图 2022年10月21日10_20_34.csv	2022/10/21 11:55	XLS 工作表	560 KB		
> 🏊 WPS网盘	2022年10月21日11_57_5.csv	2022/10/21 12:00	XLS 工作表	19 KB		
/ 🖳 此电脑						
> 📔 视频						
> 🔀 图片						
> ■ 文档 ↓ 下部						
◇ ⊻ 13%						
> 🧱 桌面						
> 🏪 OS (C:)						



The file name is the time when the host computer and BMS start to communicate, and the file format is "CSV". The table will save the time of writing data, and all



data in the "Data Monitoring" interface, as shown in **Figure 2-29**. The host computer obtains the "data monitoring" data for the timer event monitoring, and requests data from the BMS every second. However, saving data as a thread task may lose data at a certain time. And File Stream cannot be read and written at the same time. When connecting to the host computer, please do not open the write file of Save Data.

Ħ	页 🛛 🕑	稻売	PC Mas	ster使用说明	9.docx	Q •	▶ 多个串口的	E.docx		区 测量	式申请单-上位.	试项22091	4 🖓	5 2022年10	月21日10_11	1_11.csv 🖵	× +	4] 88 () #8	₽ ₿ -	đΧ
Ξ	文件 🗸 🛅	1200	50 = (开始描述	入 页面	布局公	式 数据	审阅 视图	开发工	具 会员专利	K Q 查找	命令、搜索	莫板					G	★同步 삼 성	州作 凸分享	: ^
P	入戦切	凸 宋	*	- 11	- A* A-	= <u>+</u>	= += +=	E	(=) #	规		B	円 眼表	祥式 -	$\Sigma \nabla$	AL ET	1 1	<u>FFP</u>	FFR F		6
私财	- 口想制-	格式剧 B	I U ⊞• F	5- Q- A	4- 0-	2.2	±≡ 🖽 ,	合并居中。 白	动换行 羊	4 - % 000 t	0 .00 #TUSE	→ □ 消益 - 二条(件	四 格式・ 12 単元	諸様式・ オ	∠」 ∐ 秋和- 얢洗-	□↓ □↓	」 →···: 5- 単元格·	- 行和列 - 1	□ □ 「作表・ 冻结	米 ロ 寄格 - 売格	.υ T∰- i
								🚺 將文档	备份云端,可	可避免文件丢失	,省心省事	立即登录									× _
	41		(a) fy Ti	ne																	13
		0	C 14 11			r	6			1	K				0	0	0	0		т	-
1	A	B	C.	U C	E	F ChaMOS	Di -Ch -MOC	H	TamaNam	J Para i a Cara	K	L Man V Ma	Minu	IN MG - V M-	ManT	P ManT Na	Q MinT	K Mint No	S C-11V 1	C-11V 2	* 19
2	10:11:11	Duis_Life 215	72 0	rent o	100	OFF	ON	Serialivum 24	rempivum	nemaricap 1 50	2 099	MAXV_NO	2 3 074	21	Max1	nax1_NO	1 5	31111_30	1 2.079	3.09	147
3	10:11:13	217	73.0	0	100	OFF	ON	24		1 50	3,089	1	2 3.074	22	31	n	1 3	10	1 3.078	3.08	0
4	10:11:16	219	73.9	0	100	OFF	ON	24		1 50	3, 087	1	2 3.072	22	30	D	1 3	10	1 3.079	3,081	-
5	10:11:18	222	73.9	0	100	OFF	ON	24		1 50	3,091	1	2 3.073	22	30	D	1 3	0	1 3.078	3,08	6
6	10:11:21	224	73.9	0	100	OFF	ON	24		1 50	3.088	1	2 3.073	22	30	D	1 3	0	1 3.078	3.08	
7	10:11:24	227	73.9	0	100	OFF	ON	24		1 50	3.089	1	1 3.075	21	30	D	1 3	0	1 3.079	3.08	8
8	10:11:27	230	73.9	0	100	OFF	ON	24		1 50	3.086	1	2 3.072	22	30	D	1 3	0	1 3.079	3.081	m
9	10:11:29	232	73.9	0	100	OFF	ON	24		1 50	3.087	1	1 3.073	22	30	D	1 3	0	1 3.078	3.08	Цa
10	10:11:32	235	73.9	0	100	OFF	ON	24		1 50	3.088	1	1 3.074	21	30	D	1 3	0	1 3.078	3.079	
11	10:11:34	237	73.9	0	100	OFF	ON	24		1 50	3.089	1	1 3.075	21	30	D	1 3	0	1 3.079	3.08	
12	10:11:37	240	73.9	0	100	OFF	ON	24		1 50	3.088	1	2 3.074	21	30	D	1 3	0	1 3.079	3.081	
13	10:11:39	243	73.9	0	100	OFF	ON	24		1 50	3.086	1	2 3.072	22	30	D	1 3	0	1 3.079	3.081	
14	10:11:42	245	73.9	0	100	OFF	ON	24		1 50	3.089		8 3.074	21	30	D	1 3	0	1 3.078	3.08	
15	10:11:45	248	73.9	0	100	OFF	ON	24		1 50	3.088	1	1 3.075	21	3:	1	1 3	1	1 3.079	3.08	
16	10:11:47	250	73.9	0	100	OFF	ON	24		1 50	3.087	1	2 3.073	21	3:	1	1 3	1	1 3.079	3.08	
17	10:11:50	253	73.9	0	100	OFF	ON	24		1 50	3.087	1	2 3.073	21	30	0	1 3	0	1 3.079	3.081	
18	10:11:52	255	73.9	0	100	OFF	ON	24		1 50	3.088	1	2 3.074	21	30	0	1 3	0	1 3.078	3.08	
19	10:11:55	2	73.9	0	100	OFF	ON	24		1 50	3.09	1	2 3.074	21	30	0	1 3	0	1 3.079	3.08	
20	10:11:57	4	73.9	0	100	OFF	ON	24		1 50	3.089	1	2 3.075	21	30	0	1 3	0	1 3.079	3.08	
21	10:12:00	7	73.9	0	100	OFF	ON	24		1 50	3.088	1	1 3.072	22	30	0	1 3	0	1 3.079	3.081	
22	10:12:02	9	73.9	0	100	OFF	ON	24		1 50	3.088	1	2 3.072	22	30	0	1 3	0	1 3.078	3.08	
23	10:12:05	12	73.9	0	100	OFF	ON	24		1 50	3.088	1	2 3.073	22	30	0	1 3	0	1 3.078	3.08	
24	10:12:07	15	73.9	0	100	OFF	ON	24		1 50	3.089	1	2 3.073	22	30	0	1 3	0	1 3.078	3.08	
25	10:12:10	17	73.9	0	100	OFF	ON	24		1 50	3.087	1	3.072	22	30	0	1 3	0	1 3.079	3.081	
26	10:12:12	20	73.9	0	100	OFF	ON	24		1 50	3.087	1	2 3.07	21	30	0	1 3	0	1 3.079	3.081	
27	10:12:15	22	73.9	0	100	OFF	ON	24		1 50	3.088	1	3.074	21	30	0	1 3	0	1 3.078	3.081	
28	10:12:17	25	73.9	0	100	OFF	ON	24		1 50	3.089	1	2 3.075	17	30	0	1 3	0	1 3.078	3.081	*
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Figure 2-29 Save Data

Since the "CSV" table encoding is utf-8, it will be garbled when opened with some excel that recognizes the ANSI encoding format, so the encoding of the file needs to be changed. First, open with Notepad, then save as select the encoding format. The operation steps are as follows.

🕼 DALY

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<mark>>></mark> « 印规的上位机使用)	兑明 → BMS-IAP-I	你要如何打开这个文件?	:a 中J	:a 中搜索					
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rsonal	⑧ 2022年1(Windows Media Player		560 KB	-				
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Figure 2-30 Notepad to open the CSV file

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10:11:13,217,73.9,0,100,OFF,ON,24,1,5 10:11:16,219,73.9,0,100,OFF,ON,24,1,5 10:11:18,222,73.9,0,100,OFF,ON,24,1,5 10:11:21,224,73.9,0,100,OFF,ON,24,1,5 10:11:24,227,73.9,0,100,OFF,ON,24,1,5 10:11:27,230,73.9,0,100,OFF,ON,24,1,5 10:11:32,235,73.9,0,100,OFF,ON,24,1,5 10:11:32,237,73.9,0,100,OFF,ON,24,1,5 10:11:32,247,73.9,0,100,OFF,ON,24,1,5 10:11:37,240,73.9,0,100,OFF,ON,24,1,5	 ↓ 此电脑 ↓ 1000 ↓ 1000	26 [^]	修改日期 没有与搜索条件匹配的项。	类型	大小	88,3.081,3.081,3.085,3. 089,3.081,3.081,3.085,3. 08,3.08,3.079,3.082,3.0 88,3.08,3.079,3.084,3.0 87,3.08,3.08,3.085,3.08 089,3.081,3.081,3.085,3. 08,3.08,3.084,3.084,3. 08,3.08,3.084,3.084,3. 088,3.08,3.084,3.084,3. 088,3.081,3.081,3.085,5. 088,3.081,3.081,3.081,5. 088,3.081,3.081,3.085,5. 088,3.081,3.081,3.081,5. 088,3.081,3.081,3.081,5. 088,3.081,3.081,3.081,5. 088,3.081,3.081,3.081,5. 088,3.081,3.081,3.081,5. 088,3.081,3.081,3.081,3.081,5. 088,3.081,3.081,3.081,5. 088,3.081,3.081,5. 088,3.081,3.081,5. 088,3.081,3.081,5. 088,3.081,3.081,5. 088,3.081,3.081,5. 088,3.081,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,3.081,5. 088,5
10:11:42,245,73.9,0,100,OFF,ON,24,1,5 10:11:45,248,73.9,0,100,OFF,ON,24,1,5 10:11:47,250,73.9,0,100,OFF,ON,24,1,5 10:11:50,253,73.9,0,100,OFF,ON,24,1,5 10:11:52,255,73.9,0,100,OFF,ON,24,1,5 10:11:55,2,73.9,0,100,OFF,ON,24,1,50,3 10:11:57,4,73.9,0,100,OFF,ON,24,1,50,3 10:12:00,7,73.9,0,100,OFF,ON,24,1,50,3	文件名(N): 20. 保存类型(T): 文才 《除藏文件夹 .089,12,3.075,21,3 .088,11,3.072,22,3	22年10月21日10_11_11 <mark>csv</mark> 序文档(*.bxt) 0,1,30,1,3.079,3.08,3.086,3 0,1,30,1,3.079,3.081,3.087,	2.	保存(5) 086,3.082,3.082 8.087,3.083,3.08 007,2.002,2.002	取消 取消 2,3.088,3.088 33,3.089,3.08	3.08,3.08,3.084,3.084,3.084,3 87,3.081,3.081,3.085,3. 87,3.081,3.081,3.085,3.0 088,3.081,3.081,3.085,3. 88,3.081,3.081,3.085,3. 1.08,3.08,3.085,3.084,3. 3.08,3.08,3.085,3.084,3. 39,3.081,3.081,3.085,3.0
行1,列1				100%	Windows (CRL	F) UTF-8

Figure 2-31 Save as CSV file



2.6 BMS upgrade

2.6.1 BMS upgrade function

BMS uses the IAP (In Application Programming) design scheme to complete the software upgrade. IAP mainly includes Boot Loader and App programs. After the BMS receives the upgrade request from the host computer, the Boot Loader erases the App (Using Flash). Then receive the upgrade file sent by the PC Master and write it into the App. The steps to upgrade BMS using the PC Master are as follows:

(1) The PC Master communicates with the BMS. Check the "Communication Status" to see if the connection is successful. At this time, don't care whether there is data in "Data Monitoring", because the APP may have been erased.

(2) **Click "Open Upgrade Program**" to load the upgrade file into the host computer, or directly drag the upgrade file into the "BMS Upgrade" interface. **Figure 2-32**.

BMS India-V1.0										-	
								BoardNo	中文	Refresh	CommSet
AND THE OWNER		Data monitoring	Active Equilibrium	Parameter settings	Readparam	Engineering model	Alarm history	BMS upgrade			
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> 🔀 图片											151000
> 🔤 文档										Start	the upgrade
> 🞍 下载											
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) L OS (C)											0%
> = əm)utes (D:)											
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文件	名(N): DalyBms	App103_309_2022	0722基版本.s19	~ S19	9 File(*.s19)	~				Retry	Counts:
					打开(0)	取消					
Comm status: R											



Figure 2-32 Open S19 file to upgrade

(3) Click "Start Upgrade" and wait for the upgrade.



Figure 2 - 32 Click to start the upgrade

2.6.2 Notes on BMS Upgrade

The upgrade program matches the BMS. The current BMS software versions are 103+303, 103+309, 030+303, 030+309, 230+303, 230+309. Before upgrading, make sure the program matches the BMS. In addition to the software and hardware version numbers, you can also confirm the MCU through the boot version. "V1.01.1E" is 103; "V2.01.1E" is 030; "V3.01.1E" is 230. The scheme of collecting chips can be directly determined by the number of strings, three-five strings are 303, and more than six strings are 309.

Upgrade failed, BMS has no data. During the fourth step of the IAP upgrade, the APP program will be erased. The BMS has no data at this time. The BMS upgrade is completed by Boot, and you don't need to worry about whether there is data, just perform the upgrade operation directly.



2.7 Universal Interface Board (WNT) upgrade

2.7.1 Universal Interface Board (WNT) upgrade function

Universal Interface Board (WNT) uses the IAP (In Application Programming) design scheme to complete the software upgrade. IAP mainly includes Boot Loader and App programs. After the BMS receives the upgrade request from the host computer, the Boot Loader erases the App (Using Flash). Then receive the upgrade file sent by the PC Master and write it into the App. The steps to upgrade BMS using the PC Master are as follows:

(1) The PC Master communicates with the Universal Interface Board

(WNT). Check the "Communication Status" to see if the connection is successful. At this time, don't care whether there is data in "Data Monitoring", because the APP may have been erased.

(2) Click "Open Upgrade Program" to load the upgrade file into the host computer, or directly drag the upgrade file into the "Universal Interface Board (WNT) Upgrade" interface. Figure 2-33.

SmsMonitor-V2.1.7									-	
Board 1			D				BoardNo	中文	Refresh	CommSet
A DECEMBER OF A	Data monitoring	Active Equilibrium	Parameter settings	Readparam	Engineering model	Alarm history	BMS upgrade			
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						tTT(O)	FROM	1		
	1.11					שתנו	4以月			
Comm status: disconnect										

Figure 2-33 Open S19 file to upgrade

(3) Click "Start Upgrade" and wait for the upgrade.



Figure 2 - 34 Click to start the upgrade

