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Dongguan Jiabaida Electronic Technology Co., Ltd.

嘉佰达C级-秘密

<<JBD-XX-XXX-001/A0 R&D Department-PC Software Instructions>>

Writed by: Review: Zhang Qiaoqiao Approval: Liu Guanghui

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一、 Purpose

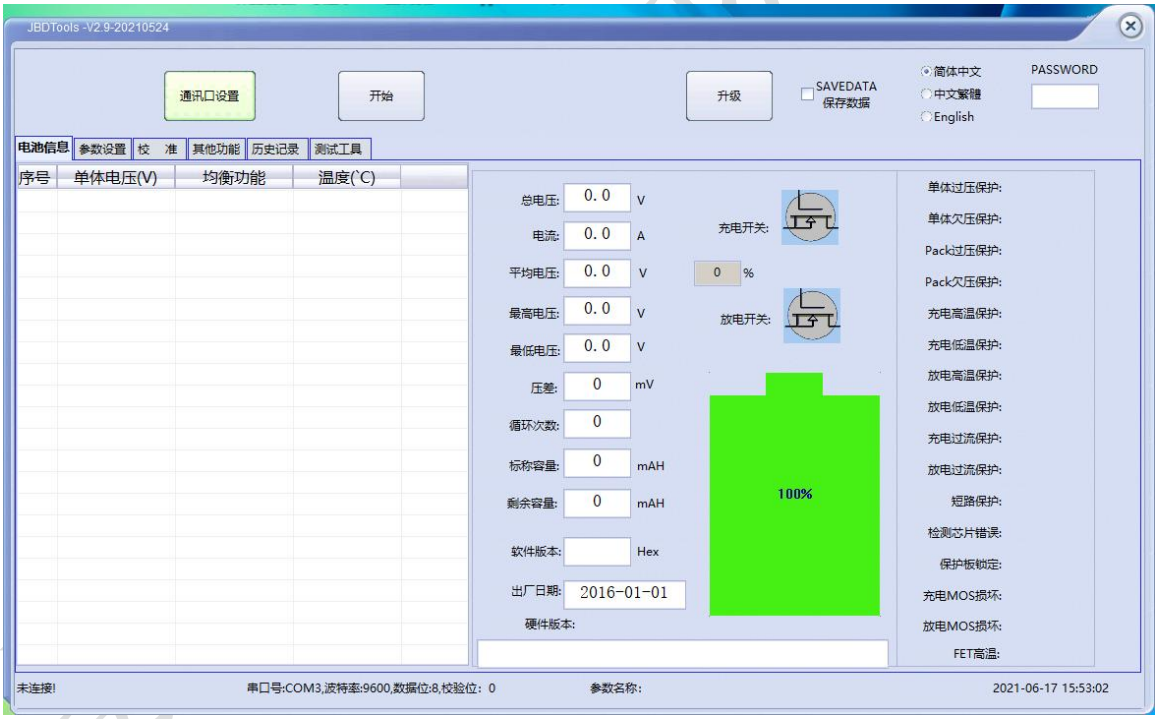
This article providesJBDTools host computer instructions and general function introduction.

二、 Scope

All company personnel and customer technical personnel.

三、 introduce

JBDTools software is independently developed by Dongguan Jiabaida Technology Co., Ltd., which is specially used in the company's intelligent protection board series PC to monitor battery data, modify protection board parameters and other functional software software.



The user-friendly operation interface of the software is convenient for users to perform various operations. The editing interface is as shown in the figure below

The software window is mainly divided into several sections such as battery information, parameter setting, calibration and other functions;

3.1 Computer system requirements

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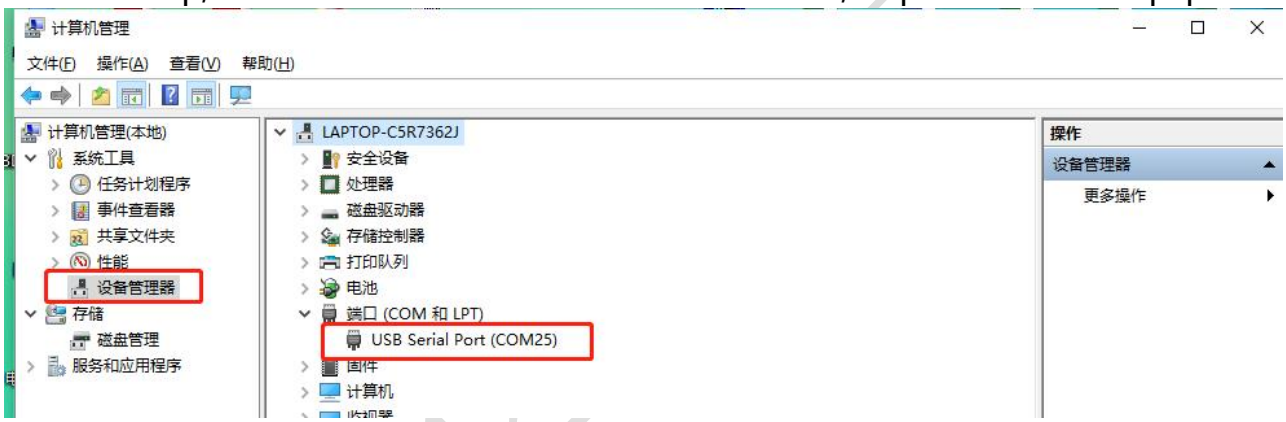
JBDTools can be installed and used on windows XP and windows 7 and above systems. JBDTools communicates with the smart protection board through the serial port, the serial port tool is USB to RS232, USB to RS485, USBTo TTLSuch as serial port equipment, suitable for most computers, and does not support other operating systems except windows..

3.2 Communication tools and driver instructions

The communication tool is a serial device, ordinary USB to TTL or USB to 485 devices can be used, just follow the tool driver to install, after the installation is complete, go to my computer to check whether the driver is installed successfully.

Jiabaida can provide special UART tools and 485 tools, both of which use imported FT232RL chip, with stable communication and isolation, to prevent some equipment of



the battery pack from being separated from the computer ground wire and burning out the computer motherboard when monitoring data.

四、 Software function introduction

Mainly introduce the use of the entire host computer and the introduction of each module.

4.1 Introduction to Homepage Function Keys

4.1.1 Communication port settings

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This section mainly introduces how to set the communication port settings, through the communication port settings setting button, enter the setting page, the specific entry method is as follows

The following parameters need to be set when entering the communication setting page:

Serial number: select the corresponding serial number for communication, if there are multiple serial numbers, you can drop down to select the corresponding serial number

Baud rate: select the baud rate that needs to be communicated. The conventional baud rate of our products is 9600, and the corresponding baud rate needs to be selected for special customized products.

Check Digit: Select the check digit of the corresponding communication format. Normally, our company has no check digit.

Data length: The default is 8 bits and cannot be changed.

Stop bit length: The default is 1 bit and cannot be changed.

Refresh button: This button is used to refresh the serial port. By default, the serial port number on this page is automatically refreshed once. If it is not refreshed, you can click this button to refresh manually.

RTC function: The special custom board has this function, check this button, the internal time of the BMS will be read during communication. This function is generally not available, and the product specification is mainly introduced.

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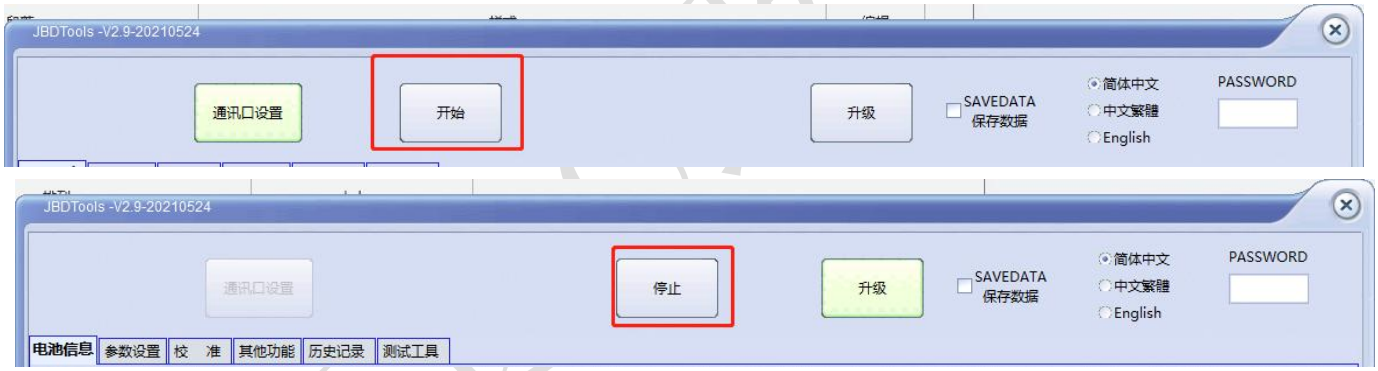
Confirm button: After setting, click the confirm button to save the communication port setting parameters, and then exit the serial port setting interface.

Back button: Exit directly without saving the selected communication port setting parameters.

After the setting is completed, there will be setting parameter information at the bottom of the entire software interface.

Note: The upper computer of our company will automatically save the communication port parameters set last time when it is closed. When the communication port parameters are not changed the next time it is turned on, there is no need to set the serial port parameters and communicate directly.

4.1.2 Introduction to communication start and stop



The start button and the stop button are interlocked buttons, one is displayed and the other is hidden by itself.

Start button: indicates the button to start communication

Stop button: a button to stop communication

Disadvantages: 1. When you click to start communication, if the following phenomena occur: Error opening the communication port, it means that the serial port is set incorrectly, or the serial port does not exist or is not occupied.

2. When it appears, it always shows that it is reading, as shown in the figure below:

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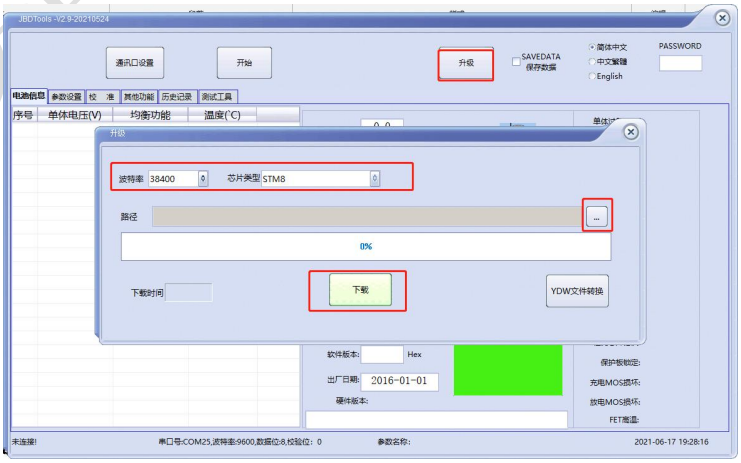
It means that the communication box has not established a normal connection with the BMS. At this time, please check whether the communication line is correct or whether the connection with the BMS is normal.

normal phenomenon:

It should be every1S will refresh a reading device successfully, and all data will be updated, once the connection is disconnected, it will show that it is reading.

4.1.3 Introduction to upgrade function

The upgrade function is mainly to complete the later program upgrade or program



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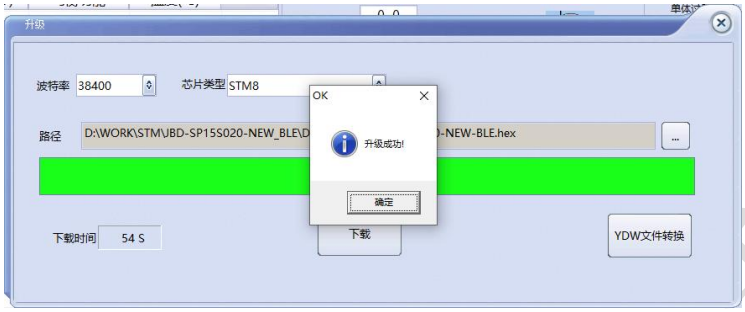
upgrade when the function changes, click upgrade

Pay attention to the selection of the chip when upgrading the setting. The chip is subject to the chip setting provided by our technology, and then select the corresponding upgrade file, click download, until the upgrade is 100%, and the upgrade is completed. If it prompts that it fails during the upgrade, click Upgrade again, but the upgrade is still



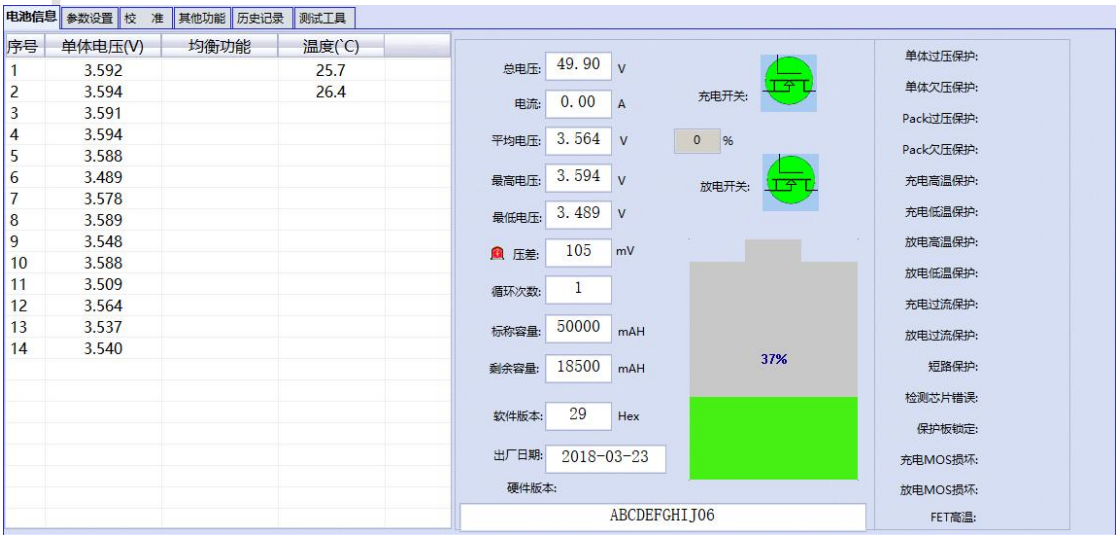
unsuccessful, contact our after-sales personnel to upgrade the agreement.

4.1.4 Data saving function

The data saving function means that when the host computer keeps saving the data during the communication process, and saves it in the EXCEL table for data analysis. When the computer enters sleep or disconnects, the data saving will be terminated. Our company will save the data every time. A file will be regenerated under the same path every 4~5 hours.

4.2 Introduction to the battery information page

This page mainly displays the current current information, including real-time voltage, temperature, current, equilibrium status, capacity information, and protection status. Among them, the MOS tube indicates: gray means the software thinks the MOS tube is off, and the green MOS is closed. About protection status: Chip detection error indication: Communication error between MCU and analog front-end chip, generally belonging to



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hardware damage; Protection board lockIt means that the software turns off the charging and discharging MOS, and the software must send instructions to unlock it. This is common in boards with Bluetooth. After Bluetooth is turned off, the software must be unlocked before it can be turned on. The unlocking method is on the other function pages, which will be introduced separately later.

4.3 Introduction to the parameter page

This page protects the 4 function keys and the parameters of the protection board. The parameters that are turned on by default are not correct, but the results displayed on the software interface arbitrarily do not indicate the internal parameters of the protection board.

4.3.1 Function keys:

Read parameters: Read the internal parameters of the protection board, and the interface will be refreshed after reading.

Write parameters: Write the data of the current parameter setting page into the protection board. When the user operates, it is necessary to confirm that the parameters are correct before writing. Normally, the parameters are not changed, and the default parameters are directly written into the protection board, which causes the parameters to be abnormal.

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Exporting parameters: refers to exporting the current parameters into a file format and storing them in the computer for the next time data query or parameter recall.

Importing parameters: Refers to importing parameter files into the host computer for viewing or writing.

4.3.2 Parameter description:

4.3.2.1 Description of basic protection parameters:

Conventional protection parameter settings, set various protection parameters according to requirements, fill in according to actual values, each type of parameter has protection points, release conditions and protection delays. Note: The protection delay cannot be set to 0, which will cause constant protection.

4.3.2.2 Advanced protection:

OC2&SC*2: It means that both over-current protection and short-circuit protection in advanced protection are multiplied by 2.

Discharge overcurrent 2 value: refers to the protection value of discharge overcurrent 2. It is a voltage unit and refers to the voltage drop on the current-sense resistor.

Overcurrent 2 delay: refers to the duration of time when the voltage drop on the current-sense resistor is greater than the discharge overcurrent 2 value, when this duration is met, it is determined that overcurrent 2 protection has occurred.

Short-circuit protection value: refers to the short-circuit protection value, a unit of voltage, which refers to the voltage drop across the current-sense resistor.

Short-circuit delay: refers to when the voltage drop on the current-sense resistor is greater than the duration of the short-circuit protection delay, when this duration is met, it is determined that the short-circuit protection has occurred.

Hardware overvoltage protection: Only the internal overvoltage protection value of the chip can prevent software misdetection from causing no protection. The range is usually set higher than the software overvoltage protection range.

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Overvoltage delay: hardware overvoltage protection delay time.

Hardware undervoltage protection: Only the undervoltage protection value inside the chip can prevent software misdetection from causing no protection. The range is usually lower than the software undervoltage protection range setting.

Under-voltage delay: hardware under-voltage protection delay time.

Short-circuit release time: How long will it take to restore the normal state after the short-circuit state is released. If the load function is selected in the function configuration, the set time will be restored after the load is disconnected.

4.3.2.3 Function configuration

Function configuration refers to configuring the internal functions of the protection board, which is valid when selected, as follows:

SW_EN: usually refers to the weak current switch function LOAD_EN: load lock function, used to disconnect the load when a short circuit is required to recover

BAL_EN: balance function switch is only CHG_BAL: charge balance, only turn on balance when charging

LED_EN: LED power indicator function LED_num: compatible with multiple LED modes

RTC: function mode with history recording, EDV_EN: whether it is necessary to set the range when it is currently used for FCC update

CHGLIMIT: Commonly used charging current-limiting function, including protocol allowing charging and current-limiting module enabling functions.

GPS_EN: used to enable the GPS function on the board with GPS, BUZZER_EN: buzzer enable

4.3.2.4 NTC configuration

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It is used to configure the temperature probe enable switch, which channel is selected and which channel is effective, as shown in the figure, the enable temperature is 1/2

4.3.2.5 Balanced configuration

Turn-on voltage: It means that the voltage to turn on the equalization function must be higher than the set voltage.

Balance accuracy: It means that the voltage of a certain section must be higher than the minimum voltage before it can be turned on.

The above setting means that the equalization condition must be to satisfy two conditions, that is, to satisfy the voltage condition and also to satisfy the pressure difference condition.

GPS off voltage: When there is a GPS function protection board, the lowest voltage below this value may turn off the GPS power supply.

GPS turn-off delay: it means that the GPS power supply will be turned off for this time when the voltage is lower than the turn-off voltage.

4.3.2.6 Other information configuration

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Current detection resistance value: This represents the resistance value of the current detection resistance in the BMS protection board in parallel. You can set 1 digit after the decimal point. Pay attention to whether the hardware adopts the voltage division method.

Number of battery strings: the actual number of battery strings in series.

Cycles: how many cycles the battery pack has used in total.

Serial number: has no practical meaning, common words are used as the second function, used to set the station address of MODBUS in the MODBUS protocol

Manufacturer: set manufacturer information, maximum support 31 digits

BMS_SN: Set the bar code information of the BMS. The check box in front is used for the automatic serial number increase of the last three digits. Add 1 to the serial number once after writing,

For example: BMS001, after the writing is completed, this place is automatically updated to BMS002, and the maximum support is 31 digits

Production date: the year, month and day of production

BARCODE: Set bar code information, often used for battery packs. The check box in front is also used to increase the serial number. The maximum support is 31 digits.

4.3.2.7 Capacity configuration information

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Nominal capacity: It is used to set the nominal capacity of the battery pack at the factory. After the aging study, this value will change according to the protection study.

Cycle capacity: used to calculate the number of cycles. When the accumulated discharge capacity of the battery pack reaches this value, it is considered that the battery pack has been used for one cycle.

Usually this value is set to 80% of the nominal capacity, so that the number of cycles after a full discharge after the battery has decayed is increased by 1.

Single cell full voltage: After the battery is fully charged, when the average voltage is greater than this value, it is considered to meet the full charge condition, but if it is a ternary battery, the charging current needs to be less than a certain value. The default value of this current is 1.5A~2A. SOC will be set to 100% after 5S after continuing the above state

Cell cut-off voltage: When discharging, if the average voltage is lower than this setting and the duration is 5S, it is judged that the battery is empty and the SOC will be set to 0%.

Self-discharge rate: No actual application, just follow the default value.

100%-10% voltage point: This value is the capacity point corresponding to the voltage of a single cell at static state. Please write it according to the actual value. .

Switch: This function is generally used when the key switch is used to delay the start time.

LED: This setting is used for the single trigger lighting time of the LED power light board.

Protection times:

Record the protection times of various protections, among which RST records the number of resets or the number of power-ups.

4.4 Introduction to calibration function

4.4.1 Voltage temperature calibration

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This function is used to calibrate the voltage and temperature. Fill in the actual voltage or temperature in the corresponding calibration column, the unit is mV,The temperature unit is ℃, if you fill in 0, or the temperature value is empty, it will not participate in the calibration.

If the voltage value is filled in 1, after clicking the calibration value, it will return to the uncalibrated state.

4.4.2 Current calibration

1. Static calibration: equal to the calibration current of 0, when there is a small current fluctuation when it is not charged or discharged, click the static calibration button, the current state will be calibrated to the 0 current state.Note: If the static calibration is clicked when there is actual current, the current will be inaccurate, and the charge and discharge calibration will be reset after the static calibration is completed, so the charge and discharge current must be recalibrated after the calibration is completed.

2. Charging current calibration: used to calibrate the charging current, the unit is mA, fill in the actual charging current, please do not click this button during non-charging during operation.

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3. Discharge current calibration: used to calibrate the discharge current, the unit is mA, fill in the actual discharge current, during operation, please do not click this button during non-discharge, no need to fill in positive and negative signs.

4.5 Introduction to other functions

This page is mainly for some extended functions or quick function tests. The following introduces frequently used functions.

4.5.1 Edit remaining capacity

Used to quickly write the remaining capacity, directly fill in the capacity value, and click the button.

4.5.2 MOS tube control function

It is used to control MOS by software. This function is used to quickly test the MOS tube switch. CHG_OFF means that the charging MOS software is closed, and DSG means that the discharging MOS software is closed. If any option is selected and the control MOS button is clicked, a protection board lock status will be displayed on the battery information page, indicating that the protection board is locked and the lock must be unlocked here. Often used to unlock Bluetooth.

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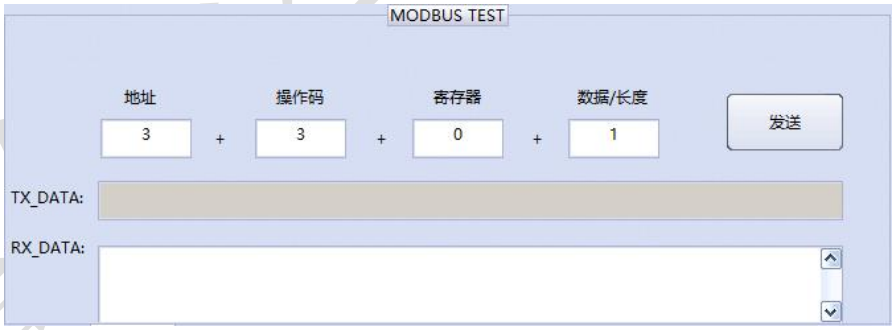
4.5.3 Enter sleep function

General R&D personnel use it to test the dormancy function of the protection board. After clicking enter, the protection board will quickly enter the dormant state.
After this function enters the sleep mode, generally it can only be waked up by communication, not by current.



4.5.3 MODBUS_RTU test function

Address, opcode, register, length, are all filled in decimal
The station address is 1 by default, and information such as operation code, register, data length, etc. is filled in according to the agreement. After clicking send, the corresponding information will be returned.

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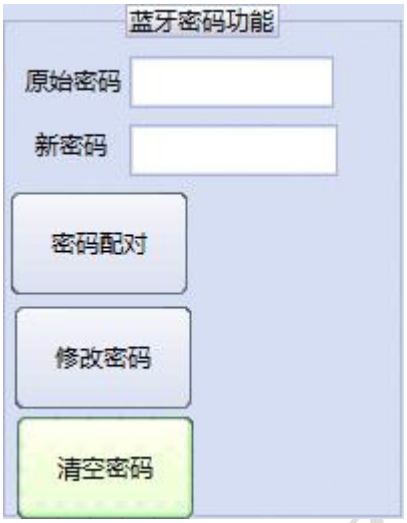
4.5.4 Bluetooth password test function

1. Password pairing: fill in the password that has been set in the original password box to



see if the pairing can be successful

2 Modify password: enter the original password and the new password to modify

3. Clear the password, click directly to reset to the state of no password, and then modify the new password again.

The function here is mainly for the function of clearing the password with a computer operation after setting the password for Bluetooth, otherwise the parameters cannot be read and written. If the read and write parameters are abnormal, the password may have been set.

4.6 Introduction to History Page

This page is used to read some products with a history function of the protection board,

through this page to read the record data

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Read record: read all the record data of the protection board, and then display it in the table

Set time: Generally, those with recorded data have the characteristics of time. The set time button is used to synchronize the internal time of the protection board with the current time.

Clear records: Clear all the historical records of the current protection board.

Export document: Export the read history record to EXCEL table.

4.7 Introduction to test tools

It is the generation tool of the agreement. Mainly to generate conventional source data of

Jiabaida General Protocol

五、 Routine anomalies