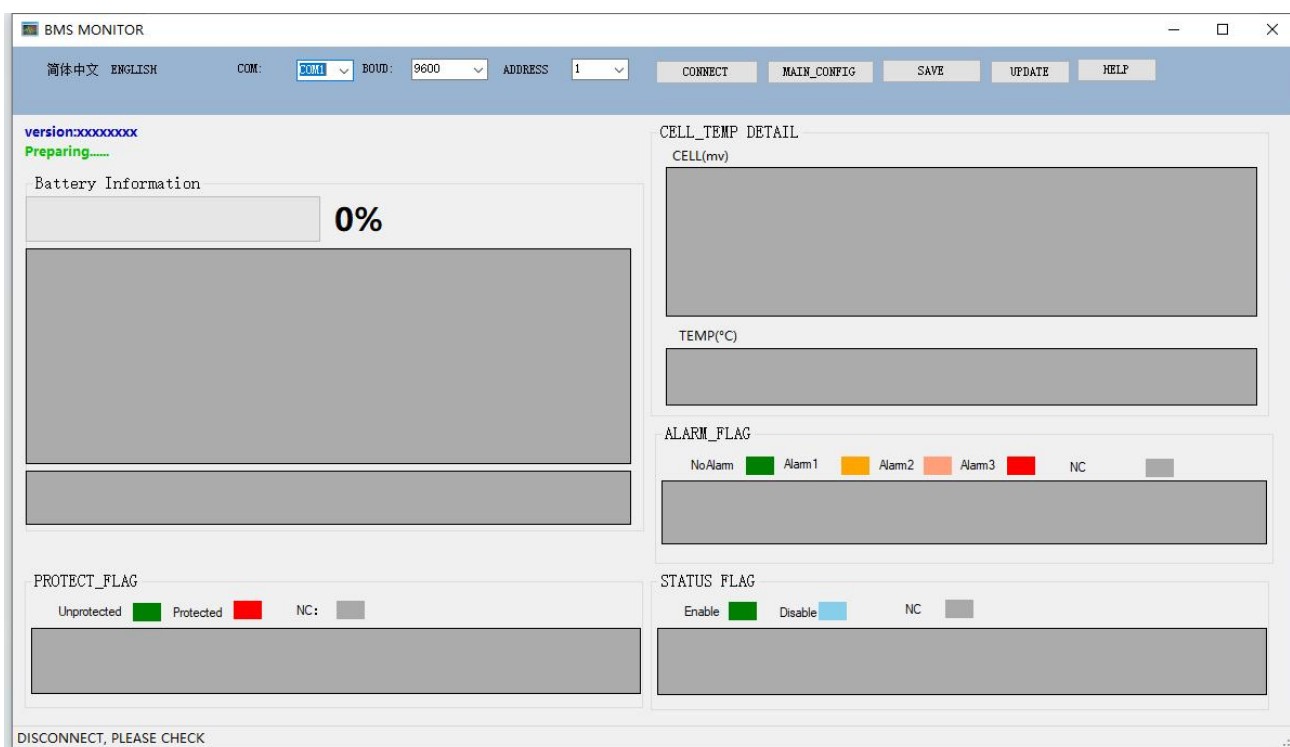
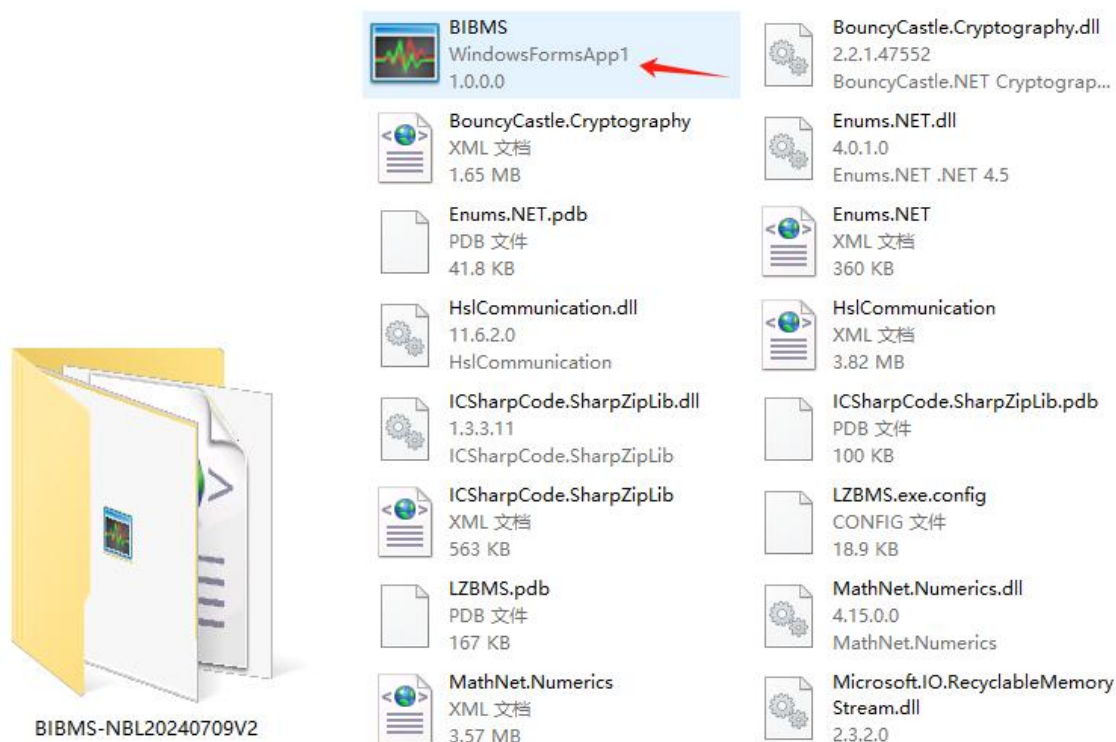


BMS 连接上位机使用方式 BMS connection to upper computer.

上位机程序用于查看电池信息，修改 BMS 参数校准，升级 BMS 固件，批量参数一件导入。

The upper computer program is used to view battery information, modify BMS parameter calibration, upgrade BMS firmware, and import batch parameters one by one.

1. 打开上位机程序文件 Open the upper computer program file.



RS485 A
RS485 B



当 BMS 连接电池组后，将 RS485 线缆连接到转换模块上面。
After connecting the BMS to the battery pack, connect the RS485 cable to the conversion module.
选择对应端口，RS485 默认波特率 9600，点击连接设备。
Select the corresponding port on the upper computer, RS485 defaults to a baud rate of 9600, and click to connect the device.

2.连接成功以后的主界面 The main interface after successful connection.

BMS MONITOR

简体中文 ENGLISH

COM: COM4

BAUD: 9600

ADDRESS: 1

DISCONNECT

MAIN_CONFIG

SAVE

UPDATE

HELP

Vserion: 35-7-3

Receive Frame: Success: 731 Error:0

Battery Information

29%

| | | | |
|------------|---------|---------|---------|
| Voltage | 79.12 V | Current | 0 A |
| FCC | 50 AH | RC | 14.5 AH |
| CycleCount | 0 | RunTime | 0 |
| BatType | LFP | CellNum | 24 S |

| | | | | | | | |
|------|------|------|------|------|------|------|------|
| Vmax | 3314 | Vmin | 3290 | Tmax | 29.7 | Tmin | 27.4 |
|------|------|------|------|------|------|------|------|

PROTECT_FLAG

Unprotected Protected NC

| | | | | | | | |
|--------|---------|---------|--------|--------|--------|--------|--------|
| SCBit | VDIFBit | OCD2Bit | OCCBit | OCDBit | TOVBit | TUVBit | COVBit |
| CUVBit | OTCBit | UTCBit | OTDBit | UTDBit | COMBit | PWRBit | PreChg |

CELL_TEMP_DETAIL

CELL(mv)

| | | | | | | | |
|-----|------|-----|------|-----|------|-----|------|
| B01 | 3290 | B07 | 3305 | B13 | 3299 | B19 | 3314 |
| B02 | 3290 | B08 | 3296 | B14 | 3299 | B20 | 3297 |
| B03 | 3291 | B09 | 3291 | B15 | 3299 | B21 | 3299 |
| B04 | 3291 | B10 | 3290 | B16 | 3300 | B22 | 3298 |
| B05 | 3290 | B11 | 3303 | B17 | 3298 | B23 | 3301 |
| B06 | 3293 | B12 | 3299 | B18 | 3298 | B24 | 3296 |

TEMP(°C)

| | | | | | | | |
|-----|------|-----|------|-----|------|-----|------|
| T01 | 29.7 | T02 | 28.6 | T03 | 27.5 | T04 | 27.4 |
| T05 | -40 | T06 | -40 | | | | |

ALARM_FLAG

NoAlam Alarm1 Alarm2 Alarm3 NC

| | | | | | | | |
|-----|-----|-------|------|------|------|-----|-----|
| TOV | COV | TUV | CUV | OTD | OTC | UTD | UTC |
| OCD | OCC | VDIFF | D_ER | C_ER | COMM | SC | NC |

STATUS_FLAG

Enable Disable NC

| | | | | | | | |
|-------|-------|----|----|----|----|--------|--------|
| DSGEN | CHGEN | NC | NC | NC | NC | DSGING | CHGING |
| NC | NC | NC | NC | NC | NC | NC | NC |

BMS Connect Success!

智能BMS管理系统V4.0

2024/3/26 16:48:21

| PROTECT_FLAG 保护标志 | | | | | | | |
|---------------------------|---------------------------|-----------------------------|----------------------------|----------------------------|---------------------------|----------------------------|--------------------------|
| short circuit | differential pressure | Discharge overcurrent 2 | Charging overcurrent | Discharge overcurrent | Total voltage overvoltage | Total voltage undervoltage | CELL overvoltage |
| CELL undervoltage | Charging High temperature | Charging low temperature | Discharge High temperature | Discharge Low temperature | Communication malfunction | Power failure | Temperature malfunction |
| ALARM_FLAG 报警标志 | | | | | | | |
| Total voltage overvoltage | CELL overvoltage | Total voltage undervoltage | CELL undervoltage | Discharge High temperature | Charging High temperature | Discharge Low temperature | Charging low temperature |
| Discharge overcurrent | Charging overcurrent | Differential pressure alarm | Discharge failure | Charging failure | Communication malfunction | Communication malfunction | |
| STATUS_FLAG 状态标志 | | | | | | | |
| Discharge relay | Charging relay | | | | | Discharge in progress | Charging in progress |
| | | | | | | | |

读取 BMS 的信息，并查看电池状态，可以保存电池循环记录分析。
Reading information from BMS and checking battery status can save battery cycle records for analysis.

3.参数设置界面 Parameter setting interface.

BMS MONITOR

简体中文ENGLISHCOM:COM4BOUD:9600ADDRESS1DISCONNECTMAIN_CONFIGSAVEUPDATEHELP

CONFIG

SYSTEM PARAMETER

| | | | |
|----------------|------|-----------------|------|
| 485_ADDR | 1 | 485_BOUND | 9600 |
| CAN1_BPS | 250 | CAN2_BPS | 250 |
| CTIME | 1000 | CELLNUM | 24 |
| AFE_M | 12 | AFE_S | 12 |
| FCC(AH) | 50 | STATE | 3 |
| CHG_V(V) | 56 | CHG_C(A) | 10 |
| REALRC_H | 102 | REALRC_L | 95 |
| SHIELD_I(A) | 3 | SAMPRES | 20 |
| HOT_ON_T(°C) | 0 | HOT_OFF_T(°C) | 10 |
| HOT_ON_TIME(S) | 50 | HOT_OFF_TIME(S) | 0 |
| CAN_ID | 3 | CTRL_PLY | 3 |
| PRECHG_TIME(S) | 0 | NC | 0 |

CONFIGIMPORTEXPORT

CTRLCHG_ENDSG_ENRESETCHG_DISDSG_DISRESTORE

Cal_Cur(Unit:A)How_CourrentZero_C_CalC_Value0Real_C_Cal0CALIBRATE

REG_Config(Unsigned Short)REG_AddressREG_ValueCONFIG

PROTECT PARAMETER

| | | | |
|--------------|-------|-------------------|------|
| TOV(V) | 100.8 | TOVDelay(S) | 1 |
| TOVR(V) | 98.88 | TOVRDelay(S) | 5 |
| COV(mV) | 4200 | COVDelay(S) | 5 |
| COVR(mV) | 4120 | COVRDelay(s) | 30 |
| TUV(V) | 72 | TUVDelay(S) | 1 |
| TUVR(V) | 74.4 | TUVRDelay(S) | 5 |
| CUV(mV) | 3000 | CUVDelay(S) | 5 |
| CUVR(mV) | 3100 | CUVRDelay(S) | 30 |
| OTD(°C) | 60 | OTDDelay(S) | 5 |
| OTDR(°C) | 55 | OTDRDelay(S) | 10 |
| OTC(°C) | 60 | OTCDelay(S) | 5 |
| OTCR(°C) | 55 | OTCRDelay(S) | 10 |
| UTD(°C) | -20 | UTDDelay(S) | 5 |
| UTDR(°C) | -10 | UTDRDelay(S) | 10 |
| UTC(°C) | -20 | UTCDelay(S) | 5 |
| UTCR(°C) | -10 | UTCRDelay(S) | 10 |
| OCD(A) | 450 | OCDDelay(S) | 30 |
| OCDR(A) | 5 | OCDRDelay(S) | 30 |
| OCC(A) | 220 | OCCDelay(S) | 2 |
| OCCR(A) | 3 | OCCRDelay(S) | 30 |
| OCD2(A) | 550 | OCD2Delay(S) | 5 |
| OCD2R(A) | 5 | OCD2RDelay(S) | 30 |
| SC(A) | 800 | VDIF(mV) | 2000 |
| BalV(mV) | 4100 | BalVdiff(mV) | 5 |
| BalPer | 20 | BalT | 60 |
| MR | 20 | MRGND | 0 |
| PCHG_TUV(V) | 0 | PCHG_TUVDelay(S) | 0 |
| PCHG_TUVR(V) | 0 | PCHG_TUVRDelay(S) | 0 |

CALLBRATION PARAMETER

| | | | |
|---------------|------|---------------|-------|
| C_Gain | 82 | C_Offset | 16380 |
| TempOffset1 | 400 | TempOffset2 | 400 |
| TempOffset3 | 400 | Vol0 | 3010 |
| Vol1 | 3300 | Vol2 | 3710 |
| Vol3 | 3730 | Vol4 | 3750 |
| Vol5 | 3780 | Vol6 | 3810 |
| Vol7 | 3860 | Vol8 | 3920 |
| Vol9 | 4000 | Vol10 | 4150 |
| FCC_iteration | 50 | Cal_HV | 0 |
| Cal_LV | 0 | Cal_MidFlag | 110 |
| Cal_MidEnable | 70 | ChgRate | 100 |
| DsgRate | 102 | FCCRate | 100 |
| SelfPowerLoss | 10 | LowRSOCEnable | 0 |

ALARM PARAMETER

| | | | |
|------|-------|------|------|
| TOV1 | 98.4 | TOV2 | 99.6 |
| TOV3 | 100.8 | COV1 | 4100 |
| COV2 | 4150 | COV3 | 4200 |
| TUV1 | 74.4 | TUV2 | 73.2 |
| TUV3 | 72 | CUV1 | 3100 |
| CUV2 | 3050 | CUV3 | 3000 |

SLEEP PARAMETER

| | | | |
|-------------|-------|-------------|------|
| PowerDownEn | 1 | FastVoltage | 2200 |
| FastDelay | 10 | MidVoltage | 3200 |
| MidDelay | 5400 | SlowVoltage | 3300 |
| SlowDelay | 10080 | | |

| SYSTEM PARAMETER 系统参数 | | | |
|------------------------------|------|------------------------------|------|
| 485_address | 1 | 485 baud rate | 9600 |
| CAN1 baud rate | 250 | CAN2 baud rate | 250 |
| Collection interval | 1000 | CELL string count | 23 |
| Chip 1 collects string count | 12 | Chip 2 collects string count | 11 |
| Rated capacity | 50 | Status value | 3 |
| CAN charging voltage | 84 | CAN charging current | 10 |
| Iterative high point | 102 | Iterative low point | 95 |
| Shielding current | 3 | Sampling resistor | 20 |
| Turn on heating | 0 | Stop heating | 10 |
| Enable heating delay | 50 | Stop heating delay | 0 |
| CAN ID selection | 3 | CAN charging selection | 3 |
| Discharge pre charge delay | 0 | NC | |

红色区域可以修改参数，其它无需修改。

The red area allows for parameter modification, while no other modifications are required.

控制策略：2 是盲充，3 是 CAN 协议充电。

CAN charging selection: 2 is to disable CAN charging, and 3 is to enable CAN charging.

请勿改动 RS485 波特率，会让 BMS 无法连接上位机。

Do not change the RS485 baud rate, as it will prevent the BMS from connecting to the upper computer.

| PROTECT PARAMETER 保护参数 | | | |
|-------------------------------------|------|---|------|
| Total pressure overvoltage | 85 | Total pressure overvoltage delay | 1 |
| Total pressure overpressure release | 80 | Total pressure overvoltage release delay | 5 |
| CELL overvoltage | 3650 | CELL overvoltage delay | 5 |
| CELL overvoltage release | 3450 | CELL overvoltage release delay | 30 |
| Total undervoltage | 57.5 | Total undervoltage delay | 1 |
| Total pressure undervoltage release | 66.7 | Total pressure undervoltage release delay | 5 |
| CELL undervoltage | 2600 | CELL undervoltage delay | 5 |
| CELL undervoltage release | 3000 | CELL undervoltage release delay | 30 |
| High temperature discharge | 60 | High temperature discharge delay | 5 |
| Discharge high temperature release | 55 | Discharge high temperature release delay | 10 |
| Charging high temperature | 60 | Charging high temperature delay | 5 |
| Charging high temperature release | 55 | Charging high temperature release delay | 10 |
| Discharge Low temperature | -20 | Discharge Low temperature delay | 5 |
| Discharge Low temperature release | -10 | Discharge Low temperature release delay | 10 |
| Charging low temperature | -20 | Charging low temperature delay | 5 |
| Charging low temperature release | -10 | Charging low temperature release delay | 10 |
| Discharge overcurrent | 400 | Discharge overcurrent delay | 30 |
| Discharge overcurrent release | 5 | Discharge overcurrent release delay | 30 |
| Charging overcurrent | 150 | Charging overcurrent delay | 2 |
| Charging overcurrent release | 2 | Charging overcurrent release delay | 30 |
| Discharge overcurrent 2 | 500 | Discharge overcurrent 2 delay | 5 |
| Discharge overcurrent 2 release | 5 | Discharge overcurrent 2 release delay | 30 |
| Short circuit | 800 | Differential pressure | 1000 |
| Balanced turn-on voltage | 3450 | Balanced opening pressure difference | 30 |
| Balanced duty cycle | 50 | Balance high temperature stop | 60 |

| | | | |
|----------------------------|----|-------------------------------|---|
| Positive insulation value | 20 | Negative insulation value | 0 |
| Pre charge opening voltage | 0 | Pre charge opening delay | 0 |
| Pre charge stop voltage | 0 | Pre charge stop voltage delay | 0 |

红色区域可以修改参数，其它无需修改。
The red area allows for parameter modification, while no other modifications are required.

| CALLBRATION PARAMETER 校准参数 | | | |
|----------------------------|------|----------------------------|-------|
| Current gain | 82 | current bias | 16380 |
| Temperature compensation 1 | 400 | Temperature compensation 2 | 400 |
| Temperature compensation 3 | 400 | Vol 0 | 2500 |
| Vol 1 | 3150 | Vol 2 | 3195 |
| Vol 3 | 3213 | Vol 4 | 3227 |
| Vol 5 | 3236 | Vol 6 | 3245 |
| Vol 7 | 3265 | Vol 8 | 3280 |
| Vol 9 | 3290 | Vol 10 | 3550 |
| Actual capacity | 50 | NC | NC |
| NC | NC | NC | NC |
| NC | NC | NC | NC |

校准参数除了表格中红色区域其它参数属于工程参数，请勿随意改动。
Calibration parameters, except for the red area in the table, belong to engineering parameters and should not be changed arbitrarily.

| ALARM PARAMETER 报警参数 | | | |
|-----------------------------|--|-----------------------------|--|
| Total pressure overvoltage1 | | Total pressure overvoltage2 | |
| Total pressure overvoltage3 | | CELL overvoltage1 | |
| CELL overvoltage2 | | CELL overvoltage3 | |
| Total undervoltage1 | | Total undervoltage2 | |
| Total undervoltage3 | | CELL undervoltage1 | |
| CELL undervoltage2 | | CELL undervoltage3 | |
| Discharge over temperature1 | | Discharge over temperature2 | |
| Discharge over temperature3 | | Charging over temperature1 | |
| Charging over temperature2 | | Charging over temperature3 | |
| Low temperature discharge1 | | Low temperature discharge2 | |
| Low temperature discharge3 | | Low temperature Charging1 | |
| Low temperature Charging2 | | Low temperature Charging3 | |
| Discharge overcurrent1 | | Discharge overcurrent2 | |
| Discharge overcurrent3 | | Charging overcurrent1 | |
| Charging overcurrent2 | | Charging overcurrent3 | |
| Voltage difference1 | | Voltage difference2 | |
| Voltage difference3 | | | |

报警参数用于触发状态提醒，不会让 BMS 关闭和断开充电和放电。
The alarm parameters are used to trigger status reminders and will not cause the BMS to shut down or disconnect charging and discharging.

| SLEEP PARAMETER 休眠参数 | | | |
|-------------------------|-------|-------------------------|------|
| Sleep Enable | 1 | Fast sleep voltage | 2200 |
| Fast sleep time | 10 | Medium sleep voltage | 3200 |
| Moderate sleep duration | 5760 | Low speed sleep voltage | 3300 |
| Low speed sleep time | 10080 | | |

休眠参数用于避免 BMS 将电量耗尽，根据 CELL 电压判断，并设置对应分钟时间。
The sleep parameter is used to prevent the BMS from running out of battery. It is determined based on the CELL voltage and sets the corresponding minute time.

4.快捷常用电流校准 Quick current calibration function.

Cal_Cur(Unit:A)

Now_Ccurrent

☐ Zero_C_Cal

C_Value

☐ Real_C_Cal

0

CALIBRATE

如电池无充电和放电，显示有充电和放电电流时，将选择校准零点偏移。
If the battery has no charging or discharging, and there are charging and discharging currents displayed, the calibration zero offset will be selected.

Cal_Cur(Unit:A)

Now_Ccurrent

☒ Zero_C_Cal

C_Value

☐ Real_C_Cal

0

CALIBRATE

选择电池零点校准，输入 0 点击校准按钮。
Select battery zero point calibration, enter 0 and click the calibration button.

Cal_Cur(Unit:A)

Now_Ccurrent

☐ Zero_C_Cal

C_Value

☒ Real_C_Cal

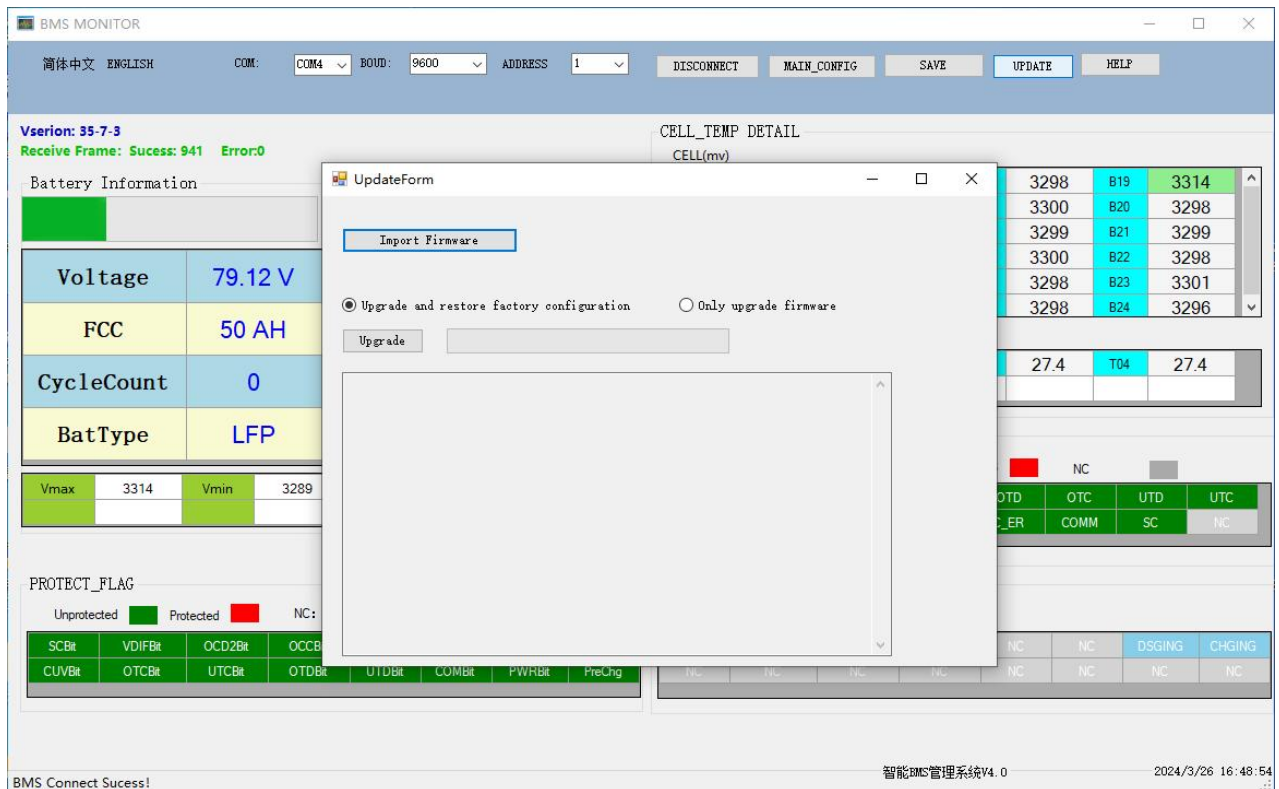
-10

CALIBRATE

如果电池零点没有问题，但是充电和放电与实际功率不符合，选择实际电流校准，这项校准方式需要在充电情况下完成，使用 10A–50A 充电器，输入实际充电电流，点击校准按钮。（充电输入负数）
If there is no problem with the zero point of the battery, but the charging and discharging do not match the actual power, choose actual current calibration. This calibration method needs to be completed while charging. Use a 10A–50A charger, input the actual charging current, and click the calibration button.
(Charging Input “-” Symbol).

5.BMS 固件升级操作 BMS firmware upgrade operation.

No need to upgrade unnecessarily.



选择对应的 FP 格式文件，加载成功后，点击升级等待完成即可。

Select the corresponding FP format file, load it successfully, and click upgrade to wait for completion.

* 固件烧录过程中，请勿断开 BMS 供电，请勿中断。

* During firmware burning, do not disconnect the power supply of BMS, and do not interrupt.

