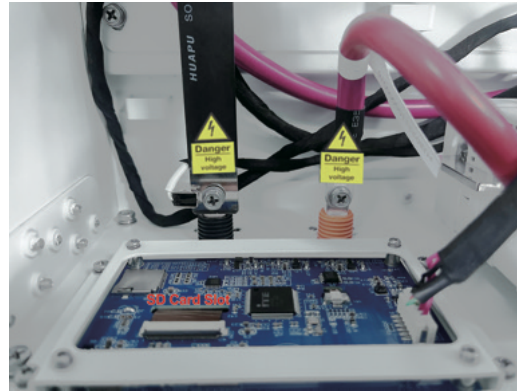


6.4 Maintenance Interface

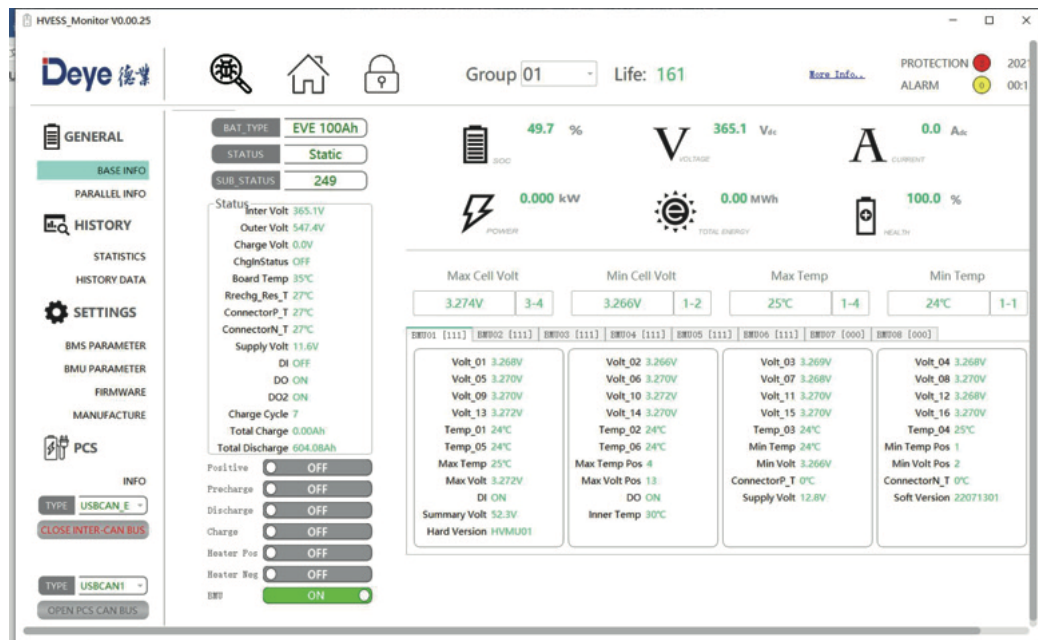
For safety, please unplug the power cord of the positive and negative interfaces before maintenance.



Note: When inserting the SD card, unplug the battery power cord and manually turn the air switch to the off position.

7. Instructions for HVES-Monitor Use

7.1 Main Page



7.2 Function List

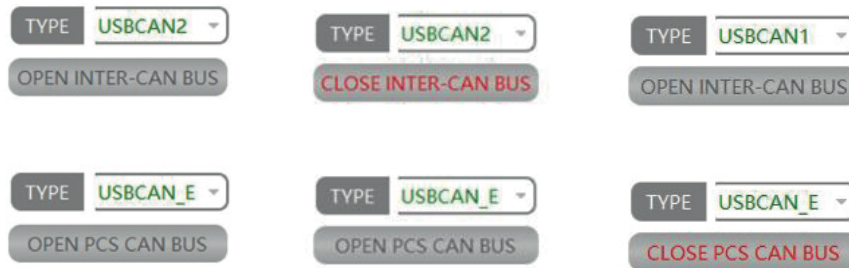
| No. | Communication category | Function category | Function name | Function description | |
|-----|------------------------|-----------------------------|--|---|---|
| 1 | INTER-CAN BUS | Communication configuration | Communication configuration of CAN BUS | "INTER-CAN BUS" or "PCS CAN BUS" can be selected Click the relevant button to start or stop the communication with BMS. | |
| 2 | | Data display | Basic information | 1. Monitoring the total voltage, current, SOC, and other core information | |
| | | | | 2. Monitoring relay switch information and other general information | |
| | | | | 3. Monitoring the voltage and temperature of the cell by BMU | |
| | | | | 4. Display the current alarm of the system by category | |
| | | | Information on parallel devices | Support display of a maximum of 50 parallel devices information | |
| 3 | | | History data | History data | Not available temporarily |
| 4 | | | History record | History record | Read history information stored in BMS |
| 5 | | History event | | Read history event information stored in BMS | |
| 6 | | INTER-CAN BUS | HVESS-Monitor storage | Real-time data storage of HVESS-Monitor | Operation data stored real-time in backstage of HVESS-Monitor |
| 7 | INTER-CAN BUS | Parameter | BMS parameter BMU parameter | Read the current parameters displayed, including the cell's overcharge, the system's overcharge, the cell's over-discharge, the system's system over-discharge, charging overcurrent, discharging overcurrent, charging under temperature, discharging under temperature, charging overtemperature, discharging under temperature, differential voltage, etc. | |
| 8 | | Firmware | INTER-CAN BUS firmware update | Upgrade BMS and BMU via INTER-CAN BUS | |
| 9 | | Manufacture | Manufacture | Extract relevant information such as product serial number | |
| 10 | PCS CAN | Inverter information | Information | Read and display inverter and parallel device information | |
| 11 | | Firmware | PCS CAN BUS firmware upgrade | Upgrade BMS and BMU via PCS CAN BUS | |

7.3 Function Description

1. CAN Communication Configuration

A. Insert the network cable into **IN** port, click the **OPEN INTER-CAN BUS** button to start the INTER-CAN communication, and click the button again to stop such communication.

B. Insert the network cable into the **PCS** port, click the **OPEN PCS CAN BUS** button to start the INVERTER CAN communication, and click the button again to stop such communication.



2. Basic Information

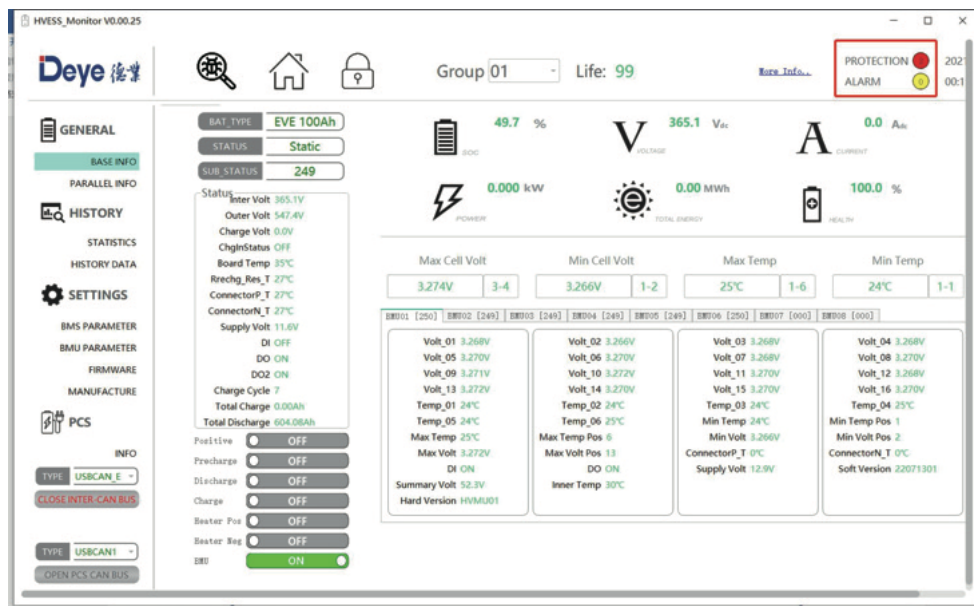
The default boot mode is **Factory Mode**. To display detailed information, change to **Debug Mode** and click the **Set** button

Product Serial Code

| | | |
|------------------|--|----------|
| Software Version | LVNG09622524N1T | Read |
| Hardware Version | LVESS01 | Read |
| Serial Number | YD20210520001 | Read |
| Model Number | | Read |
| Time Calibration | OK | |
| History Energy | Clear Mos Short Circuit Fault | |
| Operation | Debug Mode <input type="checkbox"/> To All | Set |
| Power On Count | 168 | Read |
| Battery Type | GOTION 96Ah | Read |
| PCS Type | Sol-ark | Read Set |

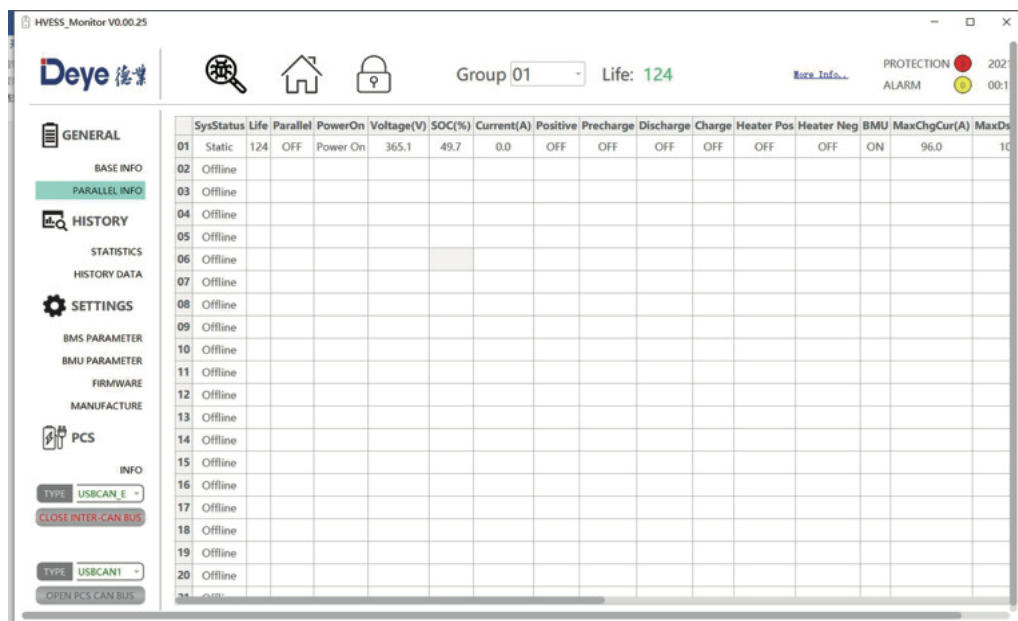
In the parallel system application, click the **OPEN INTER-CAN BUS** button. By default, the data monitoring interface will display the real-time information of the module group number **01**. To display other module information, switch to the desired module group number.

After the communication is available, the specific cell number and temperature information will be displayed in real-time. The HVESS-Monitor displays different alarms. There are protection events and alarm events. Both types of events are displayed in the list. When an alarm event disappears, it will be removed from the list.



3. Parallel Information

In the parallel info display interface, the real-time information of racks that are parallel to each other is displayed successively according to the serial number.

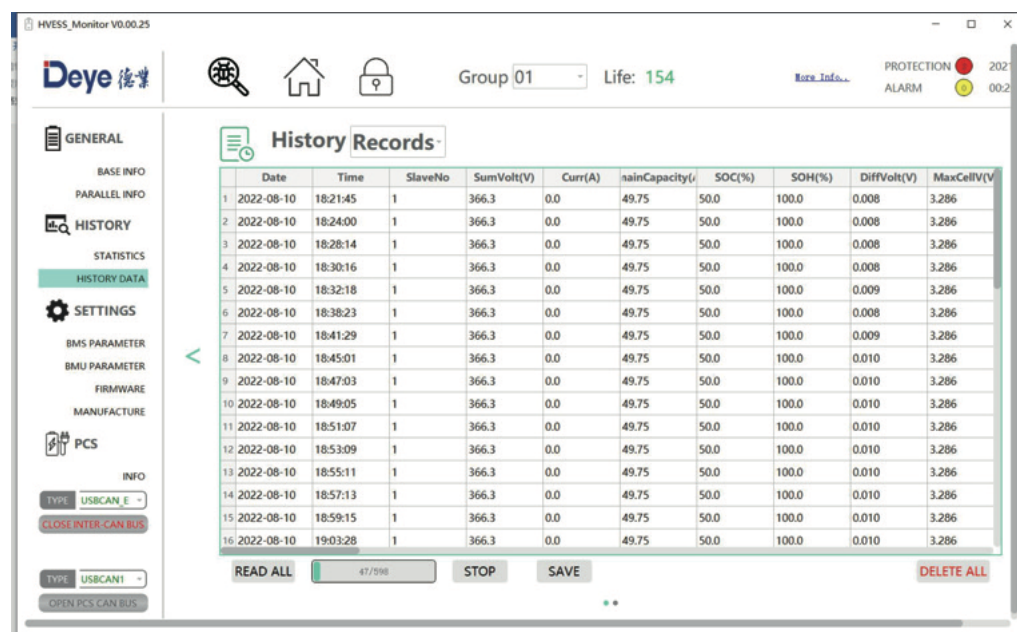


4. History Data

This page is not available temporarily.

5. History Records

Select **Records** and click the **READ ALL** button. The HVESS-Monitor starts the task of reading history records and creates the reading process with the slave computer. After receiving the response, the received history records will be analyzed and displayed in the Flash record list. The latest history records are displayed below the list. Click the **SAVE** button to save the read history records to the user-selected path for offline analysis.



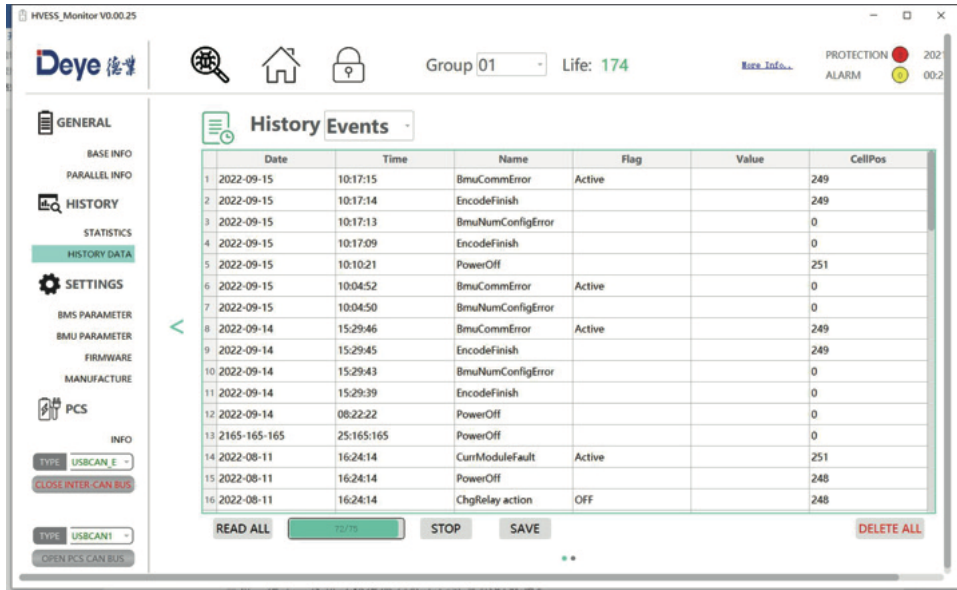
The screenshot displays the HVESS-Monitor V0.00.25 software interface. The main window shows a 'History Records' table with the following data:

| | Date | Time | SlaveNo | SumVolt(V) | Curr(A) | mainCapacity(V) | SOC(%) | SOH(%) | DiffVolt(V) | MaxCellV(V) |
|----|------------|----------|---------|------------|---------|-----------------|--------|--------|-------------|-------------|
| 1 | 2022-08-10 | 18:21:45 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.008 | 3.286 |
| 2 | 2022-08-10 | 18:24:00 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.008 | 3.286 |
| 3 | 2022-08-10 | 18:26:14 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.008 | 3.286 |
| 4 | 2022-08-10 | 18:30:16 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.008 | 3.286 |
| 5 | 2022-08-10 | 18:32:18 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.009 | 3.286 |
| 6 | 2022-08-10 | 18:38:23 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.008 | 3.286 |
| 7 | 2022-08-10 | 18:41:29 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.009 | 3.286 |
| 8 | 2022-08-10 | 18:45:01 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.010 | 3.286 |
| 9 | 2022-08-10 | 18:47:03 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.010 | 3.286 |
| 10 | 2022-08-10 | 18:49:05 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.010 | 3.286 |
| 11 | 2022-08-10 | 18:51:07 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.010 | 3.286 |
| 12 | 2022-08-10 | 18:53:09 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.010 | 3.286 |
| 13 | 2022-08-10 | 18:55:11 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.010 | 3.286 |
| 14 | 2022-08-10 | 18:57:13 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.010 | 3.286 |
| 15 | 2022-08-10 | 18:59:15 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.010 | 3.286 |
| 16 | 2022-08-10 | 19:03:28 | 1 | 366.3 | 0.0 | 49.75 | 50.0 | 100.0 | 0.010 | 3.286 |

Below the table, there are buttons for 'READ ALL', 'STOP', 'SAVE', and 'DELETE ALL'. The 'READ ALL' button is highlighted in green. The interface also shows a sidebar with navigation options like 'GENERAL', 'HISTORY', 'SETTINGS', and 'PCS', and a top status bar with 'Group 01' and 'Life: 154'.

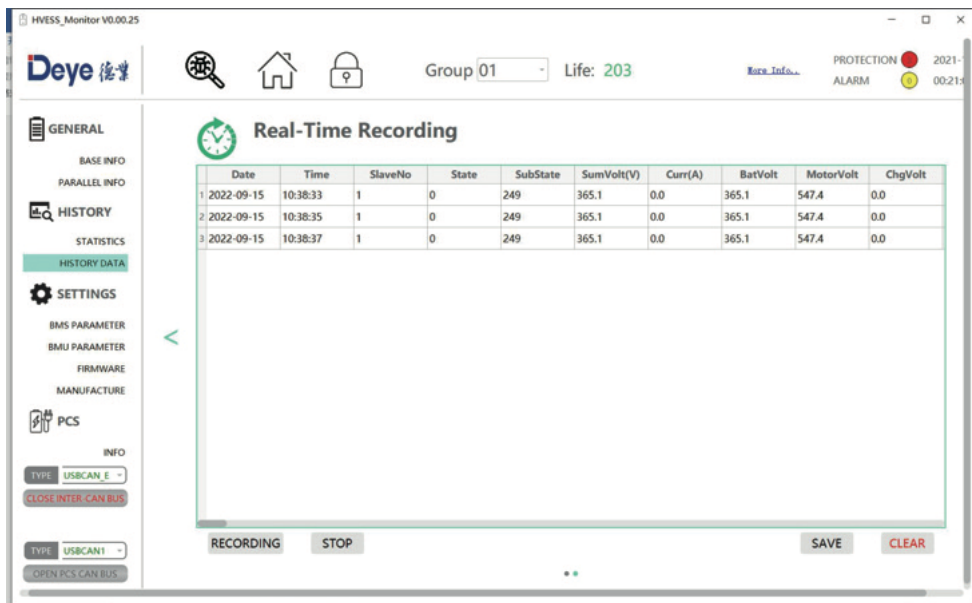
6. History Events

Select **Events**, and click the **READ ALL** button. The HVESS-Monitor will start the task of reading history events, and create the reading process with the slave computer. After receiving the response, the received history events will be analyzed and displayed in the list, and the latest time will be displayed above the list. Click the **SAVE** button to save the read history events to the user-selected path for offline analysis.



7. Real-Time Data Storage of the HVES-Monitor

Click the **RECORDING** button to start the real-time saving of operational data, and click the **STOP** button to stop the real-time saving. Click the **SAVE** button to save the recorded real-time operational data to the user-selected path for offline analysis. Click the **CLEAR** button to clear the displayed data in the list.



8. Parameter

The parameter interface includes BMS parameters and BMU parameters. The operation method is the same. Click the **READ ALL** button to display such data as **ALARM**, **ALM Recover**, **ALM Delay**, **PROTECTION**, **PROT Recover** and **PROT Delay** on corresponding windows, these are factory default values. When the reading is complete, the corresponding windows will become blue.

The screenshot shows the BMS parameter configuration interface. The top status bar indicates 'Group 01' and 'Life: 243'. The left sidebar has 'BMS PARAMETER' selected. The main content area is divided into four sections:

- Cell Over Charge:**

| | | | | |
|--------------|----|------|------|-------|
| ALARM | mV | 3620 | Read | Write |
| ALM Recover | mV | 3350 | Read | Write |
| ALM Delay | mS | 2000 | Read | Write |
| PROTECTION | mV | 3650 | Read | Write |
| PROT Recover | mV | 3350 | Read | Write |
| PROT Delay | mS | 2000 | Read | Write |
- System Over Charge:**

| | | | | |
|--------------|----|------|------|-------|
| ALARM | V | 57.6 | Read | Write |
| ALM Recover | V | 53.6 | Read | Write |
| ALM Delay | mS | 2000 | Read | Write |
| PROTECTION | V | 58.4 | Read | Write |
| PROT Recover | V | 53.6 | Read | Write |
| PROT Delay | mS | 2000 | Read | Write |
- Cell Over Discharge:**

| | | | | |
|--------------|----|------|------|-------|
| ALARM | mV | 2700 | Read | Write |
| ALM Recover | mV | 3100 | Read | Write |
| ALM Delay | mS | 2000 | Read | Write |
| PROTECTION | mV | 2500 | Read | Write |
| PROT Recover | mV | 3100 | Read | Write |
| PROT Delay | mS | 2000 | Read | Write |
- System Over Discharge:**

| | | | | |
|--------------|----|------|------|-------|
| ALARM | V | 43.2 | Read | Write |
| ALM Recover | V | 40.0 | Read | Write |
| ALM Delay | mS | 2000 | Read | Write |
| PROTECTION | V | 40.0 | Read | Write |
| PROT Recover | V | 40.0 | Read | Write |
| PROT Delay | mS | 2000 | Read | Write |

The screenshot shows the BMU parameter configuration interface. The top status bar indicates 'Group 01' and 'Life: 9'. The left sidebar has 'BMU PARAMETER' selected. The main content area displays:

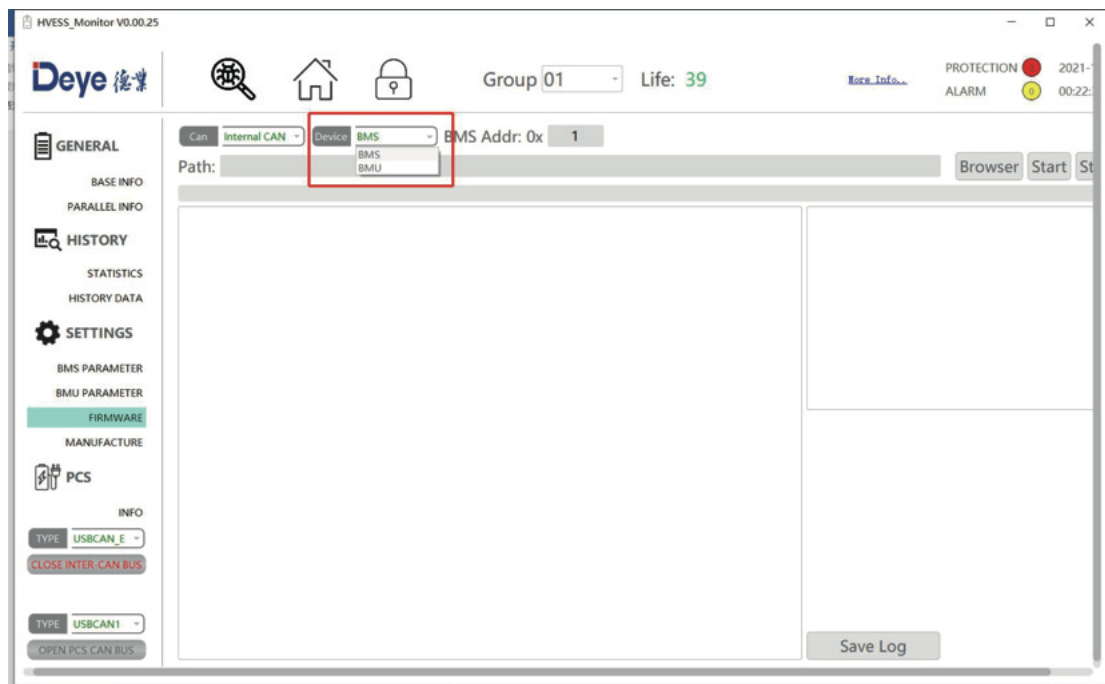
- BatteryCode:** [Input field]
- SerialNo:** [Input field]
- BMU: 1** with buttons: **Read**, **Write**, **ReadAll**, **WriteAll**
- BMU: 1** with buttons: **Read**, **Write**, **ReadAll**, **WriteAll**

Legend: Green: operation succeeded, Red: operation failed, Yellow: the data read out is inconsistent.

9. INTER-CAN Firmware Upgrade

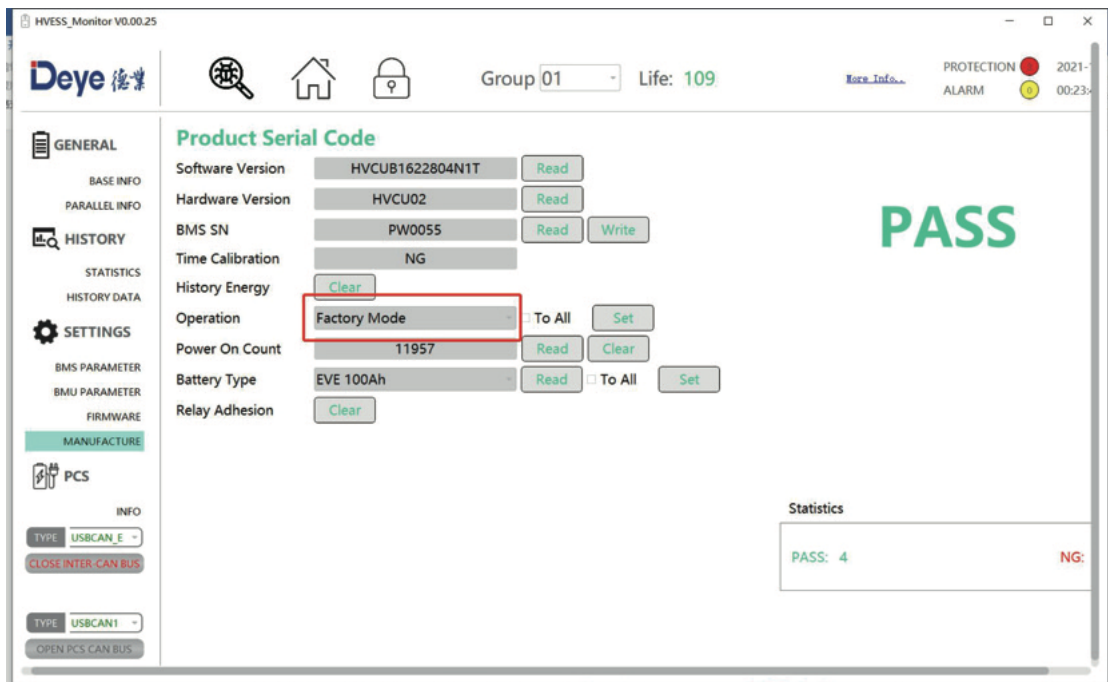
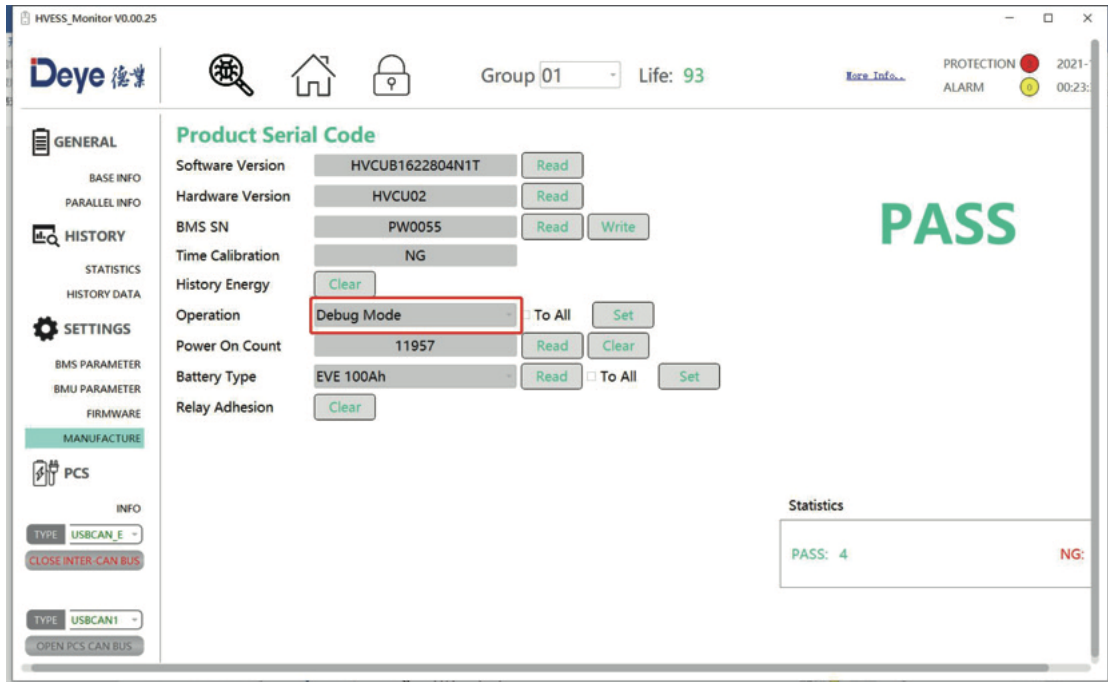
Make a selection in the red box of the **BMS CAN-BUS upgrade** and **BMU CAN-BUS upgrade** interface. Click the **Browser** button, select the configuration file to be upgraded from the computer, or drag the BIN file to be upgraded to the upgrade interface. The HVES-Monitor will read and analyze the data in the file and display it on the corresponding input interface. Click **Start** to start upgrading.

In the case of parallel device operation, when the device address is filled in with 1, the HVES-Monitor will start with No.1 BMS to upgrade BMS and BMU in the entire system one by one. Regardless of whether a BMS upgrade succeeds or not, it will continue to upgrade BMS at the next address. When the device address is filled with a figure other than 1 (for example, 2), the HVES-Monitor will only upgrade a single BMS whose address matches the input. The single BMU upgrade operation is similar. After the upgrade, **OK** will be displayed.



10. Manufacture

Click the **Read** button to read the product serial number and other related information. The default operational or working mode is **Factory Mode**. To display more details, change to **Debug Mode** and click the **Set** button. The number of read/set successes/failures is displayed in the lower right corner. Restart to automatically return to **Factory Mode**.



11. Cell Types

The screenshot shows the 'Product Serial Code' configuration page. The 'Battery Type' dropdown menu is set to 'EVE 100Ah' and is highlighted with a red rectangular box. Other parameters include Software Version (HVCUB1622804N1T), Hardware Version (HVCU02), BMS SN (PW0055), and Time Calibration (NG). A large green 'PASS' indicator is displayed on the right. The interface also features a 'Statistics' section showing 'PASS: 4' and 'NG:'. The top status bar indicates 'Group 01' and 'Life: 125'.

12. Inverter Information

When the INVERTER CAN communication is connected externally, click **OPEN PCS CAN BUS**. This interface will display the information related to the communication with the inverter.

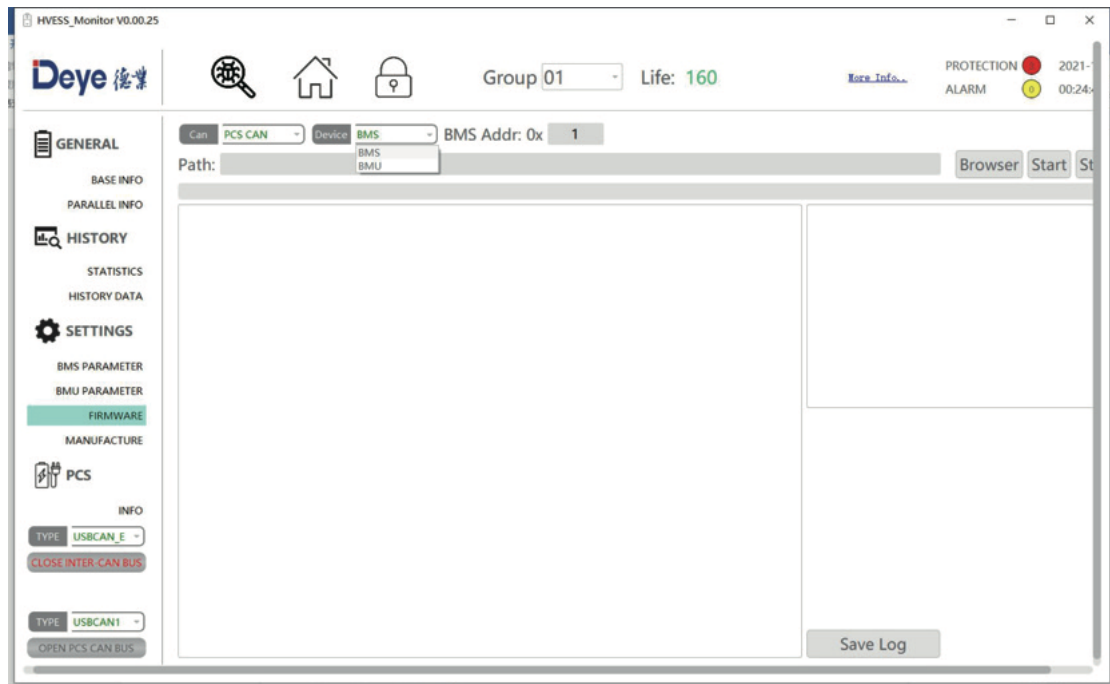
The screenshot shows the 'PCS' (Power Conversion System) information page. The 'OPEN PCS CAN BUS' button is highlighted. The main content area displays a table with two columns: 'Summary' and '1'. The table lists various parameters related to the PCS, including voltage, current, temperature, and counts. The top status bar shows 'Group 01' and 'Life: 143'.

| Summary | 1 |
|---------------------------------|---|
| PCS Time | |
| Charge Voltage(V) | |
| Chg Cur Limit With Power Sys(A) | |
| Dsg Cur Limit With Power Sys(A) | |
| Discharge Voltage Limit(V) | |
| SOC(%) | |
| SOH(%) | |
| Voltage(V) | |
| Current(A) | |
| Temp(°C) | |
| Max Cell Volt(V) | |
| Min Cell Volt(V) | |
| Max Cell Temp(°C) | |
| Min Cell Temp(°C) | |
| Software Version | |
| Hardware Version | |
| Online Module Count | |
| Charge Disable Count | |
| Discharge Disable Count | |
| Communication Error Count | |
| Acting Module Count | |
| Max Charge Current(A) | |
| Max Discharge Current(A) | |
| Manufacturer Name | |
| Module ID | |
| Parallel | 1 |
| Positive | |
| Precharge | |
| Discharge | |
| Charge | |
| Heater Pos | |
| Heater Neg | |
| BMU | |
| Voltage(V) | |
| Current(A) | |
| SOC(%) | |
| SOH(%) | |
| Max Cell Volt(V) | |
| Min Cell Volt(V) | |
| Max Cell Temp(°C) | |
| Min Cell Temp(°C) | |
| Insulation(kΩ) | |
| Heater Temp(°C) | |
| System Status | |
| System Error Level | |
| Cycle Count | |
| Software Version | |
| Hardware Version | |
| Serial No. | |
| Balance(01-08) | |

13. PCS CAN Firmware Upgrade

Click the **Browser** button, select the configuration file you need to upgrade from the computer, or drag and drop the BIN file you need to upgrade to the upgrade interface. The HVES-Monitor will read and analyze the data in the file and display it on the corresponding input interface. Click the **Start** button to start upgrading.

In the case of parallel device operation, when the device address is filled in with 1, the HVES-Monitor will upgrade the BMS and BMU in the entire system one by one, starting from No.1 BMS. Regardless of whether a BMS upgrade succeeds or not, it will continue to upgrade BMS at the next address. When the device address is filled in with a figure other than 1 (for example, 2), the HVES-Monitor will only upgrade a single BMS whose address matches the input. The single BMU upgrade operation is similar. After the upgrade, **OK** will be displayed.



8. BOS-G' FAULT DESCRIPTION

Different types of faults are below:

| | Fault types | Trigger conditions |
|---------------|---|--|
| System faults | Charge over-current alarm | Exceeding the parameter set value and set time (More than 105A, 2s; more than 125A, 5s; more than 140A, 2s; lower than 5°C, set value*0.5) |
| | Charge over-current protection | |
| | Discharge over-current alarm | |
| | Discharge over-current protection | |
| | Charge overtemperature alarm | Exceeding the parameter set value and set time (>45°C, 2s) |
| | Charge overtemperature protection | Exceeding the parameter set value and set time (>50°C, 2s) |
| | Discharge overtemperature alarm | Exceeding the parameter set value and set time (>50°C, 2s) |
| | Discharge overtemperature protection | Exceeding the parameter set value and set time (>55°C, 2s) |
| | Charge under temperature alarm | Exceeding the parameter set value and set time (<5°C, 2s) |
| | Charge under temperature protection | Exceeding the parameter set value and set time (<0°C, 2s) |
| | Discharge under temperature alarm | Exceeding the parameter set value and set time (<-10°C, 2s) |
| | Discharge under temperature protection | Exceeding the parameter set value and set time (<-20°C, 2s) |
| | Excessive differential voltage alarm | Exceeding the parameter set value and set time (>500mv, 2s) |
| | Excessive differential voltage protection | Exceeding the parameter set value and set time (>800mv, 2s) |
| | Excessive differential temperature alarm | Exceeding the parameter set value and set time (>10°C, 2s) |
| | Excessive differential temperature protection | Exceeding the parameter set value and set time (>15°C, 2s) |
| | Cell overvoltage alarm | To maintain consistency, cut off the charging immediately when the full charge calibration rated voltage of 3.6V is reached. When the voltage drops to 3.35V, restart it with the turned-off red light indicator. All protective red |
| | Cell overvoltage protection | |
| | Cell undervoltage alarm | |
| | Cell undervoltage protection | |

| | | |
|-----------------------|--|--|
| System faults | | light indicators are always on! |
| | Pre-charge resistor overtemperature alarm | Exceeding the parameter set value and set time (>55°C, 2s) |
| | Pre-charge resistor overtemperature protection | Exceeding the parameter set value and set time (>65°C, 2s) |
| | Insulation level 1 | Exceeding the parameter set value and set time |
| | Insulation level 2 | Exceeding the parameter set value and set time |
| | Heating film overtemperature alarm | Exceeding the parameter set value and set time (>75°C, 2s) |
| | Heating film overtemperature protection | Exceeding the parameter set value and set time (>80°C, 2s) |
| | BMS connector overtemperature alarm | Exceeding the parameter set value and set time |
| | BMS connector overtemperature protection | Exceeding the parameter set value and set time |
| | BMU connector overtemperature alarm | Exceeding the parameter set value and set time |
| | BMU connector overtemperature protection | Exceeding the parameter set value and set time |
| | Power loop overtemperature alarm | Exceeding the parameter set value and set time |
| | Power loop overtemperature protection | Exceeding the parameter set value and set time |
| | SOC too low | Exceeding the parameter set value and set time |
| | Total voltage too high alarm | Exceeding the parameter set value and set time |
| | Total voltage too high protection | Exceeding the parameter set value and set time |
| | Total voltage too low alarm | Exceeding the parameter set value and set time |
| | Total voltage too low protection | Exceeding the parameter set value and set time |
| | Discharge relay adhesion | Relay feedback information state adhesion |
| | Charge relay adhesion | Relay feedback information state adhesion |
| | Heating relay adhesion | High voltage is detected after disconnecting the heating relay |
| Limit protection | Exceeding the parameter set value and set time | |
| Abnormal power supply | Exceeding the parameter set value and set time | |

| | |
|--|---|
| voltage | |
| Master positive relay adhesion | Relay feedback information state adhesion |
| Fuse Blown | No high voltage is detected after the loop relay is closed |
| Repeated BMU address fault | BMU with the same number |
| INTER-CAN BUS communication failure | Loss of communication between BMS |
| PCS-CAN BUS communication failure | The heartbeat message of the inverter is not received for a long time |
| RS485 communication failure | Inverter RS485 access is not received for a long time |
| Abnormal RS485 communication | C |
| External total voltage acquisition fault | / |
| Internal total voltage acquisition fault | The difference between the acquired internal total voltage and the accumulated internal total voltage exceeding the set value |
| SCHG total voltage acquisition fault | / |
| Cell voltage acquisition fault | The cell voltage acquired is 0 |
| Temperature acquisition failure | The temperature acquired is -40°C |
| Current acquisition fault | / |
| Current module fault | Abnormal Hall current/reference voltage |
| EEPROM storage failure | EEPROM write failure during self-test |
| RTC clock fault | The external RTC failed to enable the charging function |
| Pre-charge failure | Pre-charge timeout |
| Charging voltage too low | The minimum cell voltage is lower than the set value |
| BMU lost | BMU message not received for a long time |
| Abnormal number of BMU | The number of BMU addresses is different from the number of set parameters |



Note: For more information, please contact us.

Email: service-ess@deye.com.cn, Service Hotline: +86 0574 8612 0560.

9. SUMMARY OF FAULT TYPES IN BOS-G'S SCREEN AND HVESS-MONITOR

| Abbreviation | Screen protection event description | HVESS-Monitor protection event description | HVESS-Monitor alarm event description |
|--------------|---|--|---|
| OT | BMS southward connector overtemperature | BMU connector overtemperature protection | BMU connector overtemperature alarm |
| | BMS northward connector overtemperature | BMS connector overtemperature protection | BMS connector overtemperature alarm |
| | Pre-charge resistor overtemperature level-2 alarm | Pre-charge resistor overtemperature protection | Pre-charge resistor overtemperature alarm |
| | Heating film overtemperature level-2 alarm | Heating film overtemperature protection | Heating film overtemperature alarm |
| | Charge overtemperature level-2 alarm | Charge overtemperature protection | Charging overtemperature alarm |
| | Discharge overtemperature level-2 alarm | Discharge overtemperature protection | Discharge over temperature alarm |
| | / | Power loop overtemperature protection | Power loop overtemperature alarm |
| UT | Charge under temperature level-2 alarm | Charge under temperature protection | Charge under temperature alarm |
| | Discharge under temperature level-2 alarm | Discharge under temperature protection | Discharge under temperature alarm |
| OC | Charge overcurrent level-2 alarm | Charge overcurrent protection | Charge overcurrent alarm |
| | Discharge overcurrent level-2 alarm | Discharge overcurrent protection | Discharge overcurrent alarm |
| DV | Excessive differential voltage level-2 alarm | Excessive differential voltage protection | Excessive differential voltage alarm |
| DT | Excessive differential temperature level-2 alarm | Excessive differential temperature protection | Excessive differential temperature alarm |
| OV | Total charge voltage too high | Total voltage too high protection | Total voltage too high alarm |
| | Cell overvoltage level 2 alarm | Cell overvoltage protection | Cell overvoltage alarm |
| UV | Charge voltage too low | Charging voltage too low | / |
| | Total discharge voltage too low | Total voltage too low protection | Total voltage too low alarm |
| | Cell undervoltage level-2 | Cell undervoltage protection | Cell undervoltage alarm |

| | | | |
|--------------------|--|--|--------------------|
| | alarm | | |
| OF | Abnormal numbers of BMU | Abnormal numbers of BMU | / |
| | BMU lost | BMU lost | / |
| | RTC clock fault | RTC clock fault | / |
| | Current module fault | Current module fault | / |
| | SCHG total voltage acquisition fault | SCHG total voltage acquisition fault | / |
| | Abnormal RS485 communication | Abnormal RS485 communication | / |
| | RS485 communication failure | RS485 communication failure | / |
| | PCS-CAN BUS communication failure | PCS-CAN BUS communication failure | / |
| | Repeated BMS address fault | Repeated BMS address fault | / |
| | Repeated BMU address fault | Repeated BMU address fault | / |
| | Abnormal power supply voltage | Abnormal power supply voltage | / |
| | Heating relay adhesion | Heating relay adhesion | / |
| | SOC too low | SOC too low | / |
| | SOC too high | SOC too high protection | / |
| | Fuse Blown | Fuse Blown | / |
| | Charge relay adhesion | Charge relay adhesion | / |
| | Discharge relay adhesion | Discharge relay adhesion | / |
| | Master positive relay adhesion | Master positive relay adhesion | / |
| | Temperature acquisition failure | Temperature acquisition failure | / |
| | Cell voltage acquisition fault | Cell voltage acquisition fault | / |
| | Inter communication failure | INTER-CAN BUS communication failure | / |
| | Pre-charge failure | Pre-charge failure | / |
| | Insulation level 2 alarm | Insulation level 2 | Insulation level 1 |
| | External total voltage acquisition fault | External total voltage acquisition fault | / |
| | Internal total voltage acquisition fault | Internal total voltage acquisition fault | / |
| | Current acquisition fault | Current acquisition fault | / |
| Limit protection | Limit protection | / | |
| EEPROM failure | EEPROM storage failure | / | |
| ISO EEPROM failure | Insulation level 2 | Insulation level 2 | / |

10. MAINTENANCE AND UPGRADE



Warning! Improper decommissioning may cause damage to the equipment and/or battery inverter.

Before maintenance, ensure that BOS-G is decommissioned according to relevant provisions.



Note: All maintenance work shall comply with local applicable regulations and standards.

The USB disk port of BOS-G has the functions of upgrading firmware and recording battery data, which can be used as an auxiliary tool.

10.1 Maintenance of BOS-G

To ensure safe operation, all plug connections must be checked. If necessary, relevant operators shall press them back into place at least once a year.

The following inspection or maintenance must be carried out once a year:

- General visual inspection
- Check all tightened electrical connections. Check the tightening torque according to the values in the following table. Loose connections must be retightened to the specified torque.

| Connection mode | Tightening torque |
|--|-------------------|
| High-voltage control box grounding | 4.5Nm |
| Fixing the lug of the high-voltage control box | 1.2Nm |
| Fixing the lug of the battery module | 1.2Nm |

- Using the monitoring software, check whether the SoC, SoH, battery voltage and temperature of the battery module are abnormal.
- Shut down and restart BOS-G once a year.

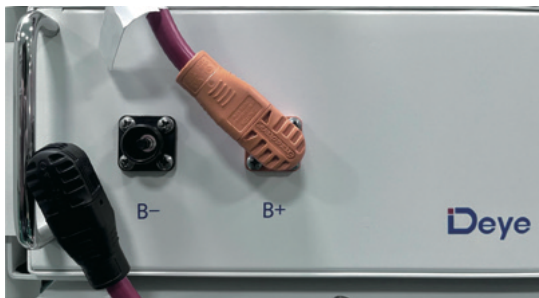
Note: If the system is installed in a polluted environment, maintenance and cleaning must be carried out at short intervals.

Note: Clean the battery rack with a dry-cleaning cloth. Ensure that no moisture comes into contact with the battery connections. Do not use solvents.

10.2 USB's Upgrade Step

- ① USB type: USB2.0, FAT32;
- ② Create the upgrade folder according to the directory;
- ③ Place the upgrade file provided by the supplier in the upgrade folder;
- ④ Turn on the battery, and insert the USB flash disk after the blue indicator is on;
- ⑤ After the blue light indicator flashes and turns off, pull out the USB flash disk to complete the upgrade. Do not turn off the battery during the process.
- ⑥ After the blue light indicator of the battery lights up again, check the version number through the screen or app and verify the upgrade result.

11. BATTERY MODULE STORAGE



- ① To ensure the battery service life, the storage temperature shall be kept between 0°C~35°C.
- ② The battery shall be cycled at least once every 6 months.
- ③ To minimize self-discharge in a long storage period, disconnect the **BATTERY** connection (1/2) of the high-voltage control box of the DC connecting cable. This will interrupt the use of the 12 V power supply installed in the high-voltage control box and prevent the battery from self-discharging.

12. DISPOSAL

For details related to the disposal of battery modules, please contact us. Service Hotline: +86 0574 8612 0560, Email: service-ess@deye.com.cn. For more information, please visit <http://deyeess.com>.

Observe applicable regulations on waste battery disposal. Immediately stop the use of damaged batteries. Please contact your installer or sales partner before disposal. Ensure that the battery is not exposed to moisture or direct sunlight.

i Attention:

1. Do not dispose of batteries and rechargeable batteries as domestic waste!

You are legally obliged to return used batteries and rechargeable batteries.

2. Waste batteries may contain pollutants that can damage the environment or your health if improperly stored or handled.

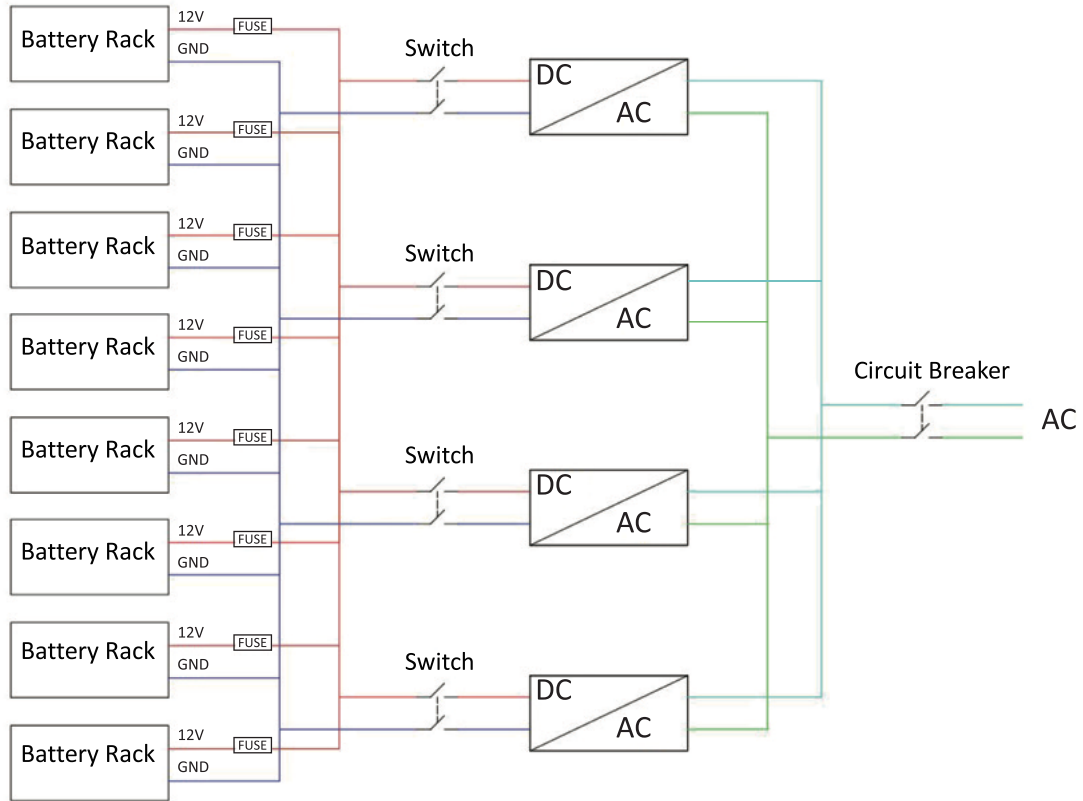
3. Batteries also contain iron, lithium and other important raw materials, which can be recycled.

For more information, please visit <http://www.deyeess.com>. Do not dispose of batteries as household waste!

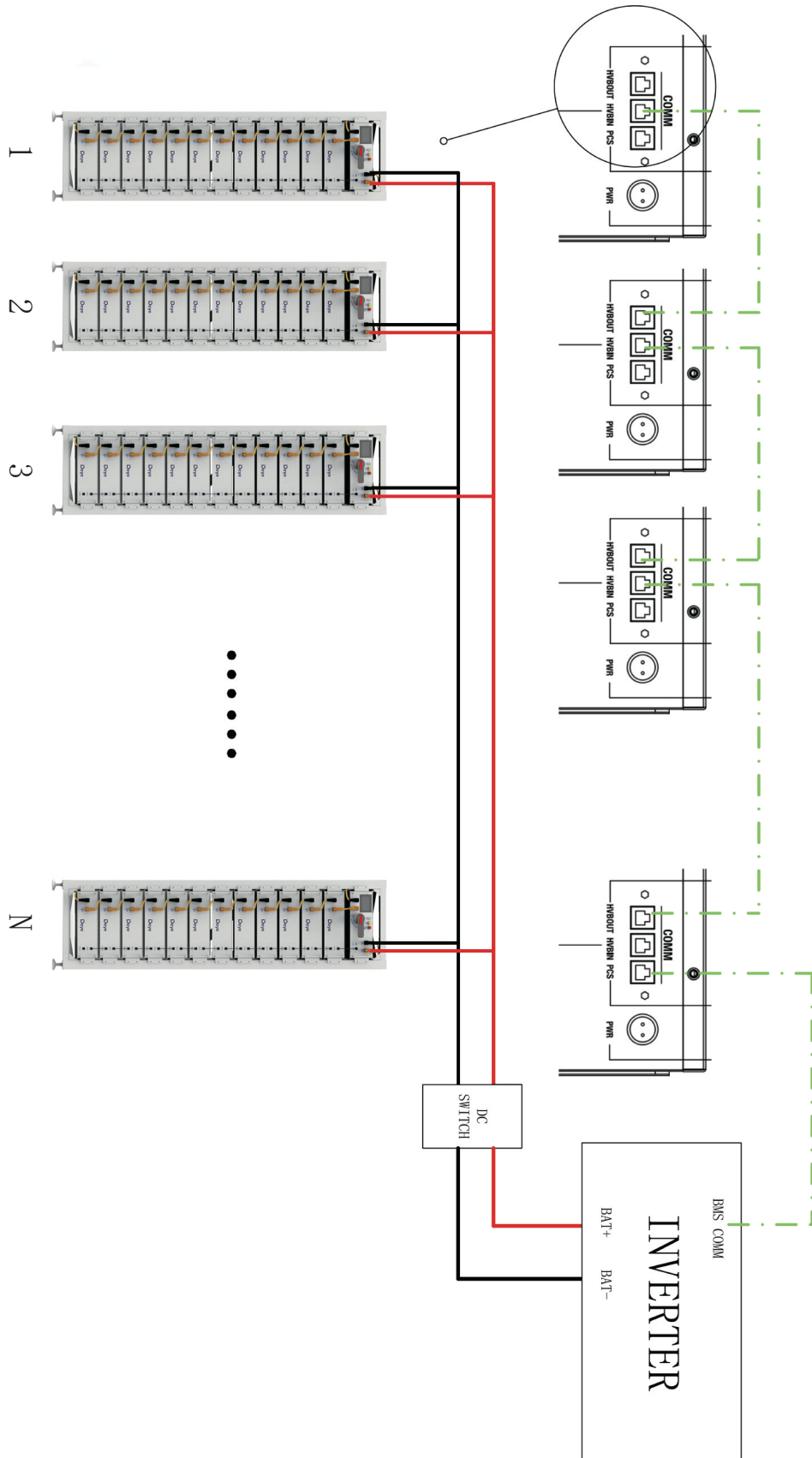


13. APPENDIX

13.1 Circuit diagram for on grid system with 12V supply



13.2 System Circuit Diagram



14. LEGAL NOTICE

Installation and Operation Manual for BOS-G

Last revision: 09/2022

Subject to technical changes.

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