Launch and its branches will not bear any liability for the fees and expenses incurred by equipment damage or loss due to accidents caused by users or third parties, misuses and abuses, unauthorized modifications and repairs, or operations and services not following Launch's instructions.

Launch assumes no responsibility for device damages or problems resulted from the usage of other parts or consumables, rather than original products of Launch or products approved by the company.

Official statement: The mentioning of the names of other products in this manual is to illustrate how to use the device, with the ownership of the registered trademarks belonging to the owners.

The device is intended for the use of professional technicians or maintenance and repair personnel.

Registered Trademark

Disclaimer of Warranties and Limitation of Liabilities

All information, illustrations, and specifications in this manual are based on the latest information available at the time of publication.

The right is reserved to make changes at any time without notice. We shall not be liable for any direct, special, incidental, indirect damages or any economic consequential damages (including the loss of profits) due to the use of the document.

Contents

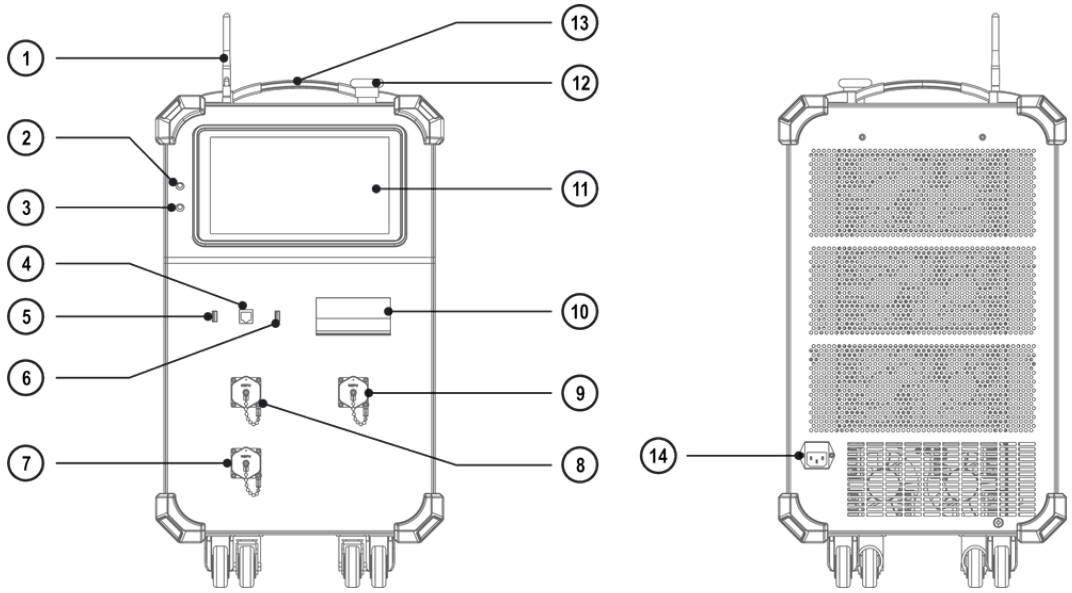
1. Precautions for Safe Use

(1) Followtherelevantrequirementsintheusermanualtooperatethedevice.
(2) Whenoperatingthedevice,pleasetakeinsulationprotectionmeasuresandweardryandclean insulating gloves.
(3) Incaseofabnormality,pleasedisconnectthedevice'sworkingpowersupplyandtestcable.

2. Product Description

EVB648 is a battery module wired equalizer developed by Launch, mainly used to balance the voltage between cells of new energy vehicle battery packs with excessive voltage difference, so as to improve the battery performance and extend its service life. This product mainly achieves independent balancing control for each connected battery cell, using low voltage and low current, and accurately configuring the connected battery cells to the same voltage level according to the voltage target set by the user.

2.1 Functional Description

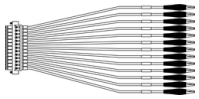


No.	Name	Description
1	Antenna	Used to communication and networking.
2	Power indicator	The red light will be on after turning on the device.
3	RUN	Run indicator: Thegreenlightremainsonindicatingthatthedeviceis connected to battery and in standby mode. Greenlightflashingindicatesthatthedeviceisworking. Redlightflashingindicatesdevicealarm/malfunction.
4	CAN/RS485	Used for communication.

5	OTG	Used for data transmission.
6	HOST	Used for data transmission.
7	TEMP	Used to connect the temperature bus-harness.
8	VOLTAGE #1	Channel 1 used to connect the voltage bus-harness.
9	VOLTAGE #2	Channel 2 used to connect the voltage bus-harness.
10	AC input circuit breaker	Turn on/off the AC input.
11	Screen	10.1-inch touch screen.
12	Emergency stop switch	Used to cut off the power supply of the device in an emergency and stop the device immediately. After pressing this emergency stop switch button, the emergency stop switch must be turned to the right to reset it before the AC circuit breaker can be closed again.
13	Handle	Easy to carry device.
14	Power socket	Power input.

2.2 Accessories Introduction

The following accessories are for reference only. For product configuration details, please consult from the local distributor or check the packing list supplied with this device together.

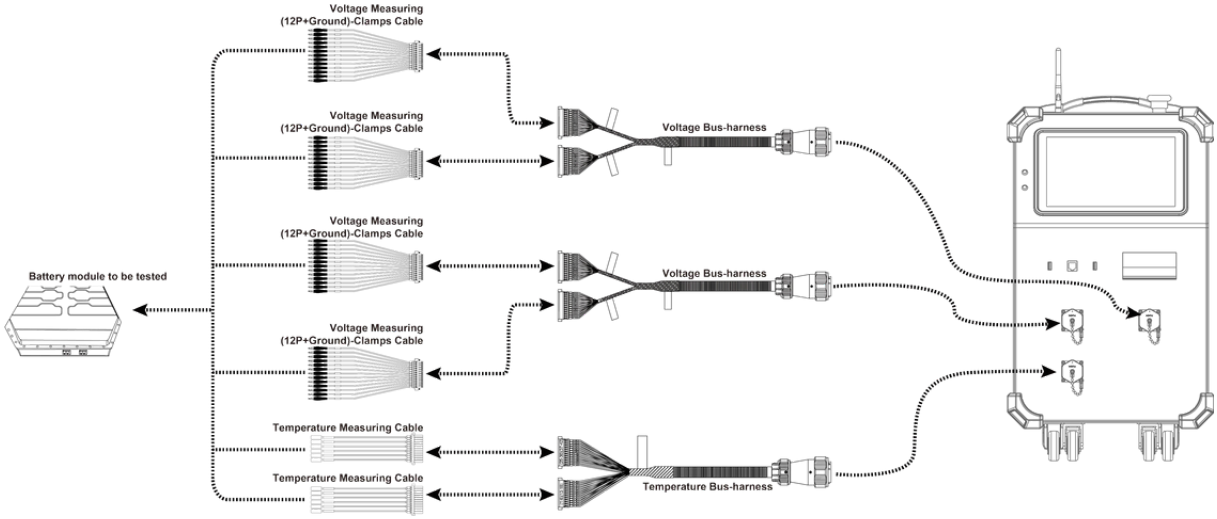
No.	Name	QTY	Reference Picture
1	AC Power Cord (250V 10A) (Include UK/US/EU/AU)	4	
2	Voltage Bus-harness	2	
3	Voltage Measuring (12P+Ground)-Clamps Cable	4	
4	Temperature Bus-harness	1	
5	Temperature Measuring Cable	2	
6	User Manual	1	-
7	Packing List	1	-

2.3 Technical Features

Function Parameter	
Model	EVB648
Power input	AC 90~264V
Discharge & charge voltage range	1.8 ~ 4. 5V
Voltage measurement accuracy	±(0.1%FS±2mV)
Discharge & charge current range	0.1 ~ 5A
Current measurement accuracy	±(1%FS±0.05A)
Batterytemperaturedetectionaccuracy	±2℃(-25 ~85℃)Chargeanddischargetemperature range is settable
Max pack quantity in single unit	Up to 4 battery packs, with a maximum of 12 cells per pack
Discharge & charge power	1200W Max
Voltage port	26 Pin *2
Temp port	24Pin
Display	10.1-inch TFT LCD screen, resolution 1280*800
PC data communication	TCP/IP, USB-Device
Wireless communication	Wi-Fi, BT
Data storage mode	Internal storage of device or data transfer to USB flash drive
Charge mode	Constant current charging + constant voltage charging
Discharge mode	CC+CA
Protection mechanism	Overcharge and over-discharge protection Overvoltage, overcurrent, overtemperature protection Battery short connection, reverse connection protection Abnormal protection against power cord and main cable failure Fan abnormal protection
Safety Testing	
Breaking down test	AC input-metal shell: 2200Vdc 1min
	DC input-metal shell: 2200Vdc 1min
Working Environment	
Cool ing	Forced air cooling
Working temperature	-5℃ ~ 45℃
Working humidity	5% ~ 93%
Dimension	
Dimension	616.5 x 349.0 x 518.3 mm

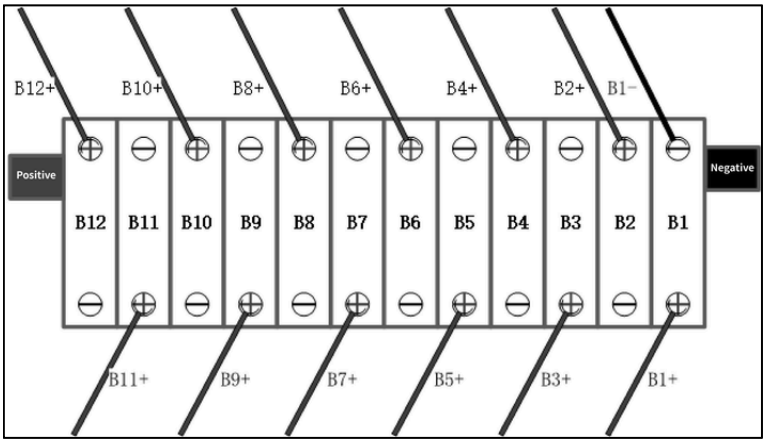
3. Operating Instructions

3.1 Device Connection



1) First, connect the voltage bus-harness to the voltage #1 or voltage #2 terminals of the device, and then connect the voltage bus-harness and the voltage measuring (12P+Ground)-clamps cable by plugging them together; connect the temperature bus-harness to the TEMP terminal of the device, and then connect the temperature bus-harness to the temperature measuring cable.
Note: Please make sure to turn off the power of the device before connecting the voltage bus-harness to avoid damage to the device.

2) Connect the clamp end of the voltage measuring (12P+Ground)-clamps cable to the tested battery module.

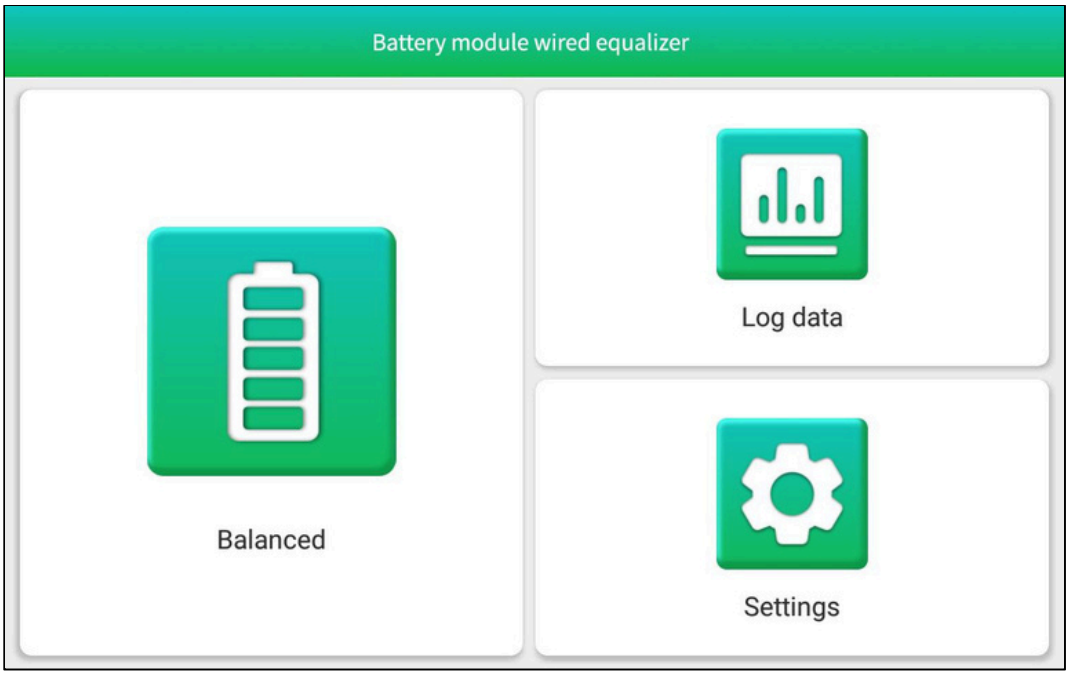


According to the wire label on the voltage measuring (12P+Ground)-clamps cable, B1 - is connected to the negative electrode of No. 1 cell (B1), B1 + is connected to the positive electrode of No. 1 single cell (B1), B2 + is connected to the positive electrode of No. 2 single cell (B2), and connected in sequence.
Note: The nearest to the negative terminal of the battery module is the No. 1 battery cell.

3) Connect the the probe end of the temperature measuring cable to the tested battery module.
4) Connect the provided power cord (i nclude UK/US/EU/AU, choose the appropriate plug according to the region of use) to the power socket of the device and connect the other end to the power supply.

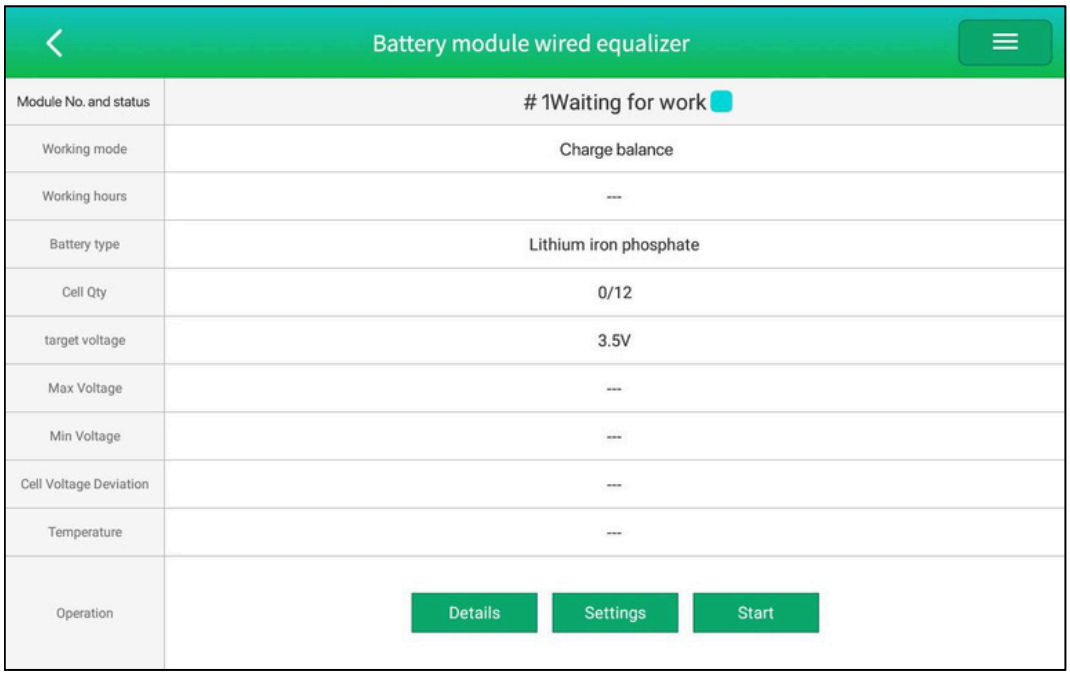
3.2 Main Menu

After the device is connected, close the AC input circuit breaker to turn on the device.
The screen enters into the main menu. Click the function modules on the main menu to enter the corresponding function operation interface.



3.3 Balanced

Tap **Balanced** on the main interface to enter the following interface.



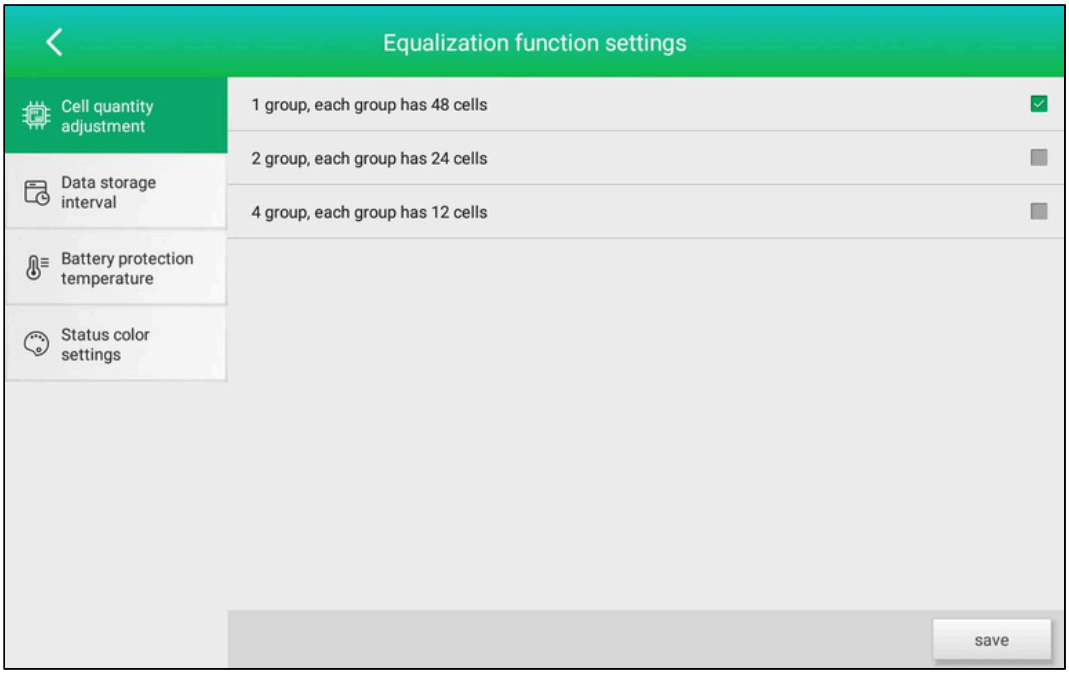
3.3.1 Equalization Function Settings

Tap button in the upper right corner and select the option to be set in the expanded list, including **Cell quantity adjustment**,**Data storage interval Battery protection temperature** and**Statuscolor**

settings.

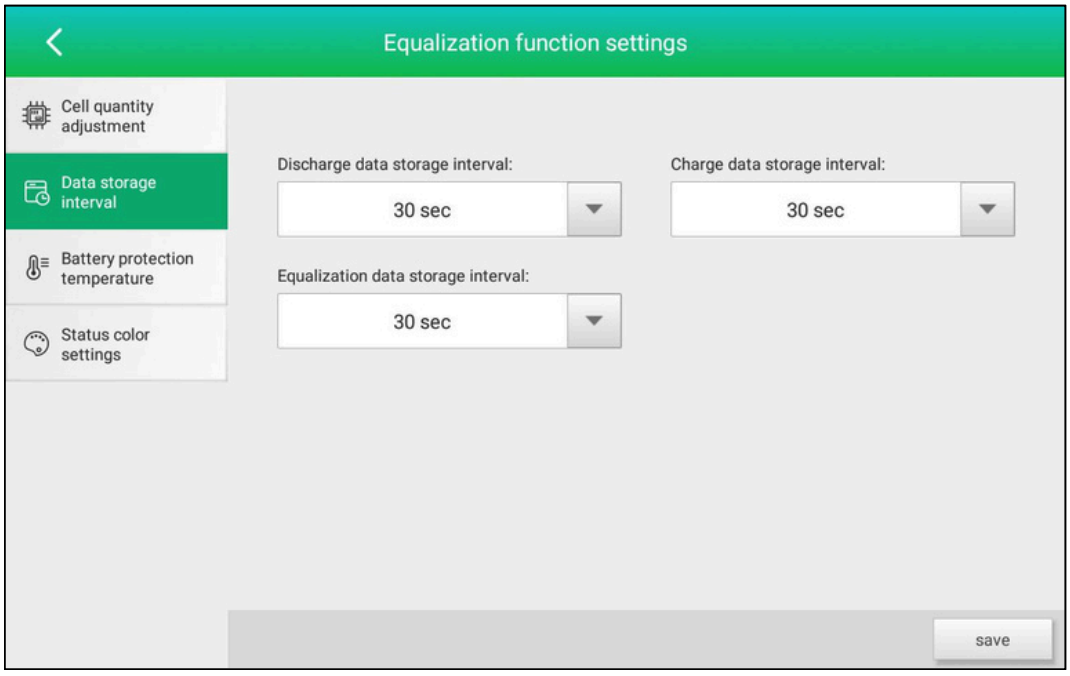
3.3.1.1 Cell Quantity Adjustment

Used to adjust the quantity of cells in the battery pack group.



3.3.1.2 Data Storage Interval

Used to set the data saving interval time of discharge, charge and equalization.

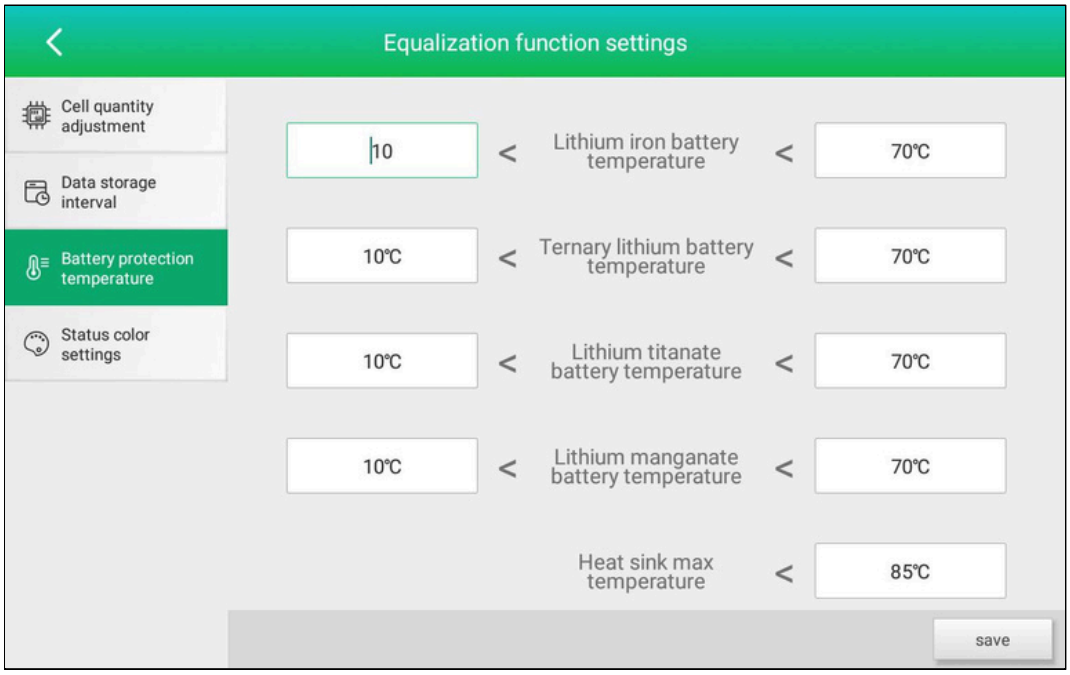


3.3.1.3 Battery Protection Temperature

Used to set the upper and lower limits of temperature protection for different types of lithium battery packs and equalizers. If the battery temperature exceeds the set range during the use of the device, it will stop working and pop up an alarm message.

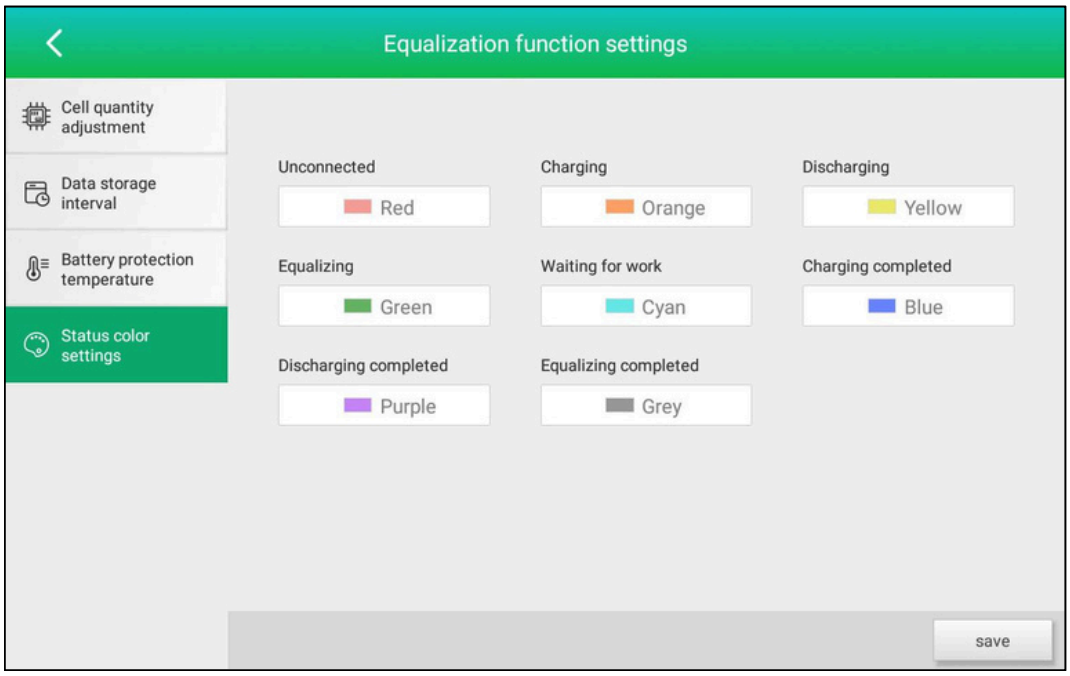
Warning: Setting these parameters may affect the stability of the equalizer. Please be careful when

setting these parameters!



3.3.1.4 Status Color Settings

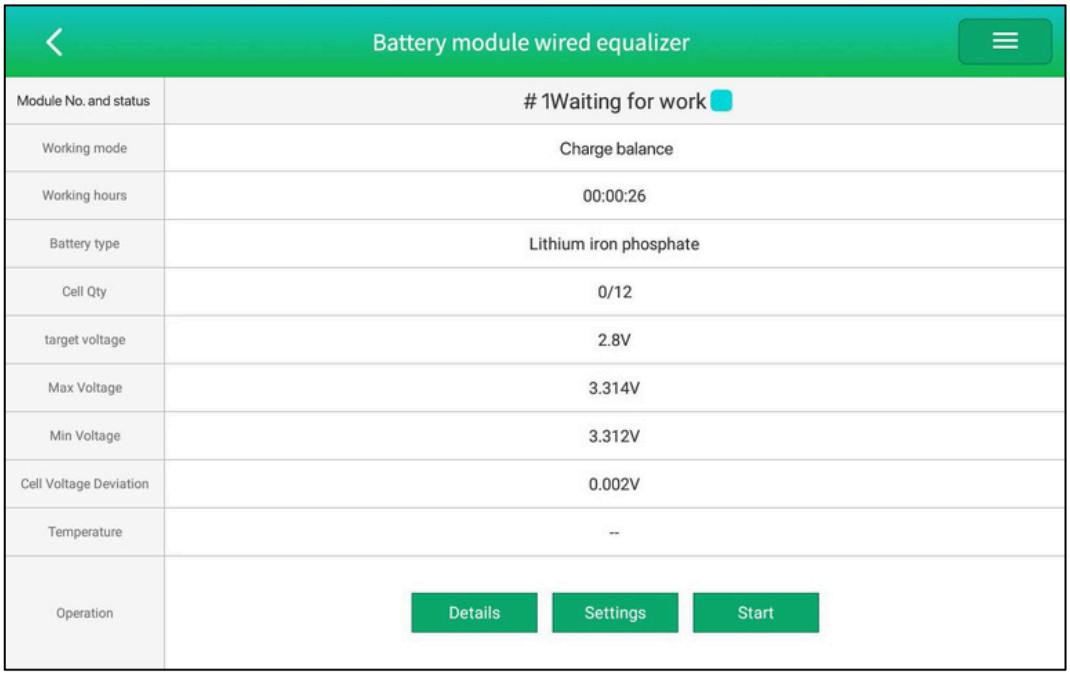
Used to set the display color of the equalizer in various working status.



3.3.2 Parameter Description

The equalizer can maintain up to 4 battery packs (with 12 cells in each pack) at a time.

After powering on, if the battery pack is correctly connected, the current status will be displayed after the battery pack number. If the battery pack is not connected or there is a connection failure, the status is displayed as: **unconnected**.

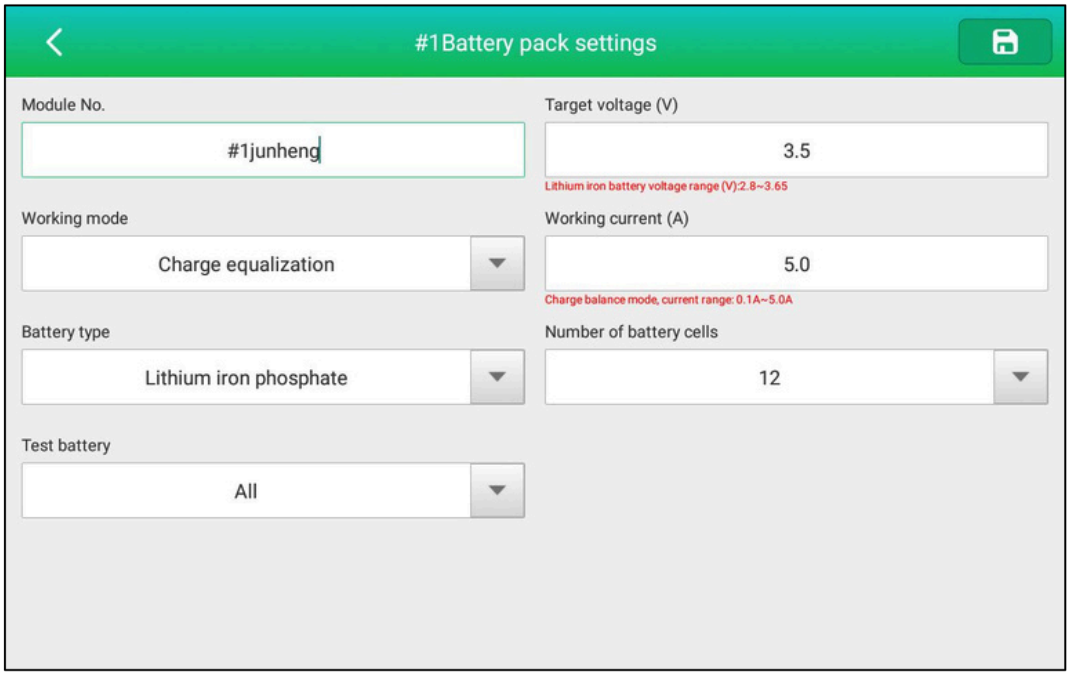


Parameter	Parameter description
Module No. and status	Display the battery pack number and the status of the battery pack.
Working mode	Discharge balance, charge balance, discharge and charge balance.
Work hours	Work time since test started.
Battery type	The type of lithium battery pack.
Cell Qty	Cell quantity in a battery pack.
Target voltage	Cell balance target voltage value.
Max voltage	The max voltage in all cells.
Min voltage	The min voltage in all cells.
Cell voltage deviation	The voltage deviation between the highest and lowest cell voltages.
Temperature	Max temperature measured in battery pack.
Operation	**Start/stop:** Start/stop the working procedures. □ **Details:** Check the specific test data of the battery cells under test. **Settings:** Set the battery pack parameter.

3.3.3 Battery Pack Settings

The equalizer can maintain up to 4 battery packs (with 12 cells in each pack) at a time (depending on the number of cells connected).

1) Click **Settings** button below the corresponding battery pack to enter the setting interface for the battery pack.



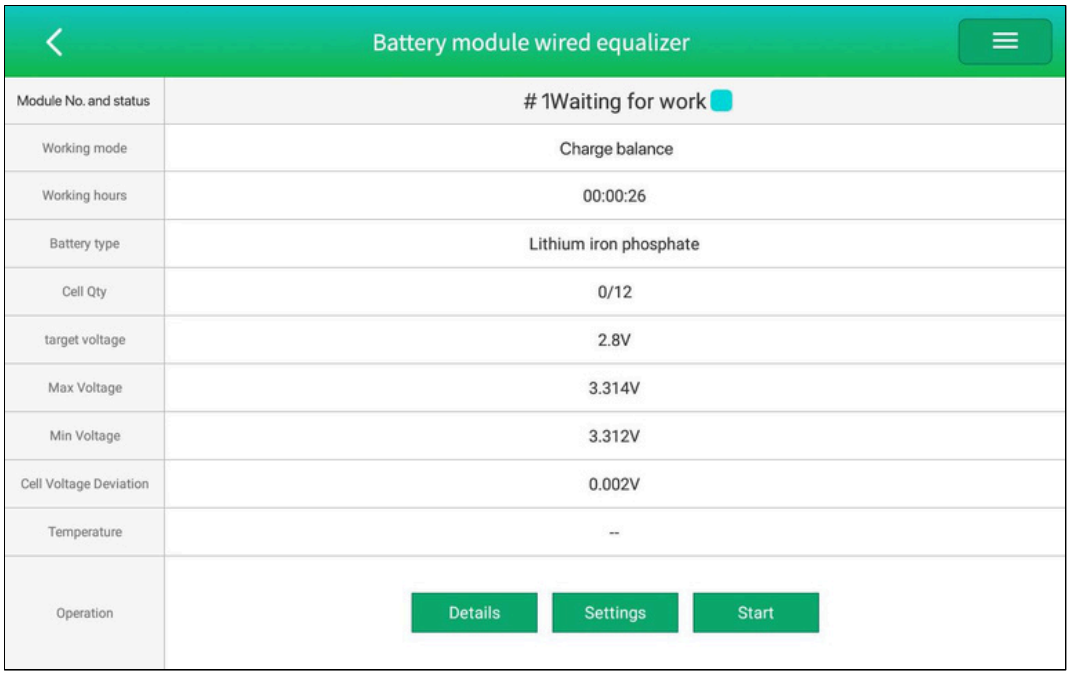
Parameter	Parameter description
Module No.	Enter the battery pack number or corresponding work tag information to name it.
Workingmode	Clickthedrop-downmenuandselectthecorrespondingworkmode(charge balance, discharge balance, charge and discharge balance).
Batterytype	Select the battery type according to the battery pack to be tested, supportinglithiumironphosphatebatteries,ternarylithiumbatteries,lithium titanate batteries and lithium manganate batteries.
Testbattery	Selectallorpartofthebatterycellsfortesting.
Targetvoltage	Cellbalancetargetvoltagevalue.
Workingcurrent	Setthemaximumcurrentlimitfordifferentworkingstatesofthedevice
Number of battery cells	Click the drop-down menu and select the corresponding quantity based on the tested battery pack.

2)Aftersettingtheparameters,click tosavethechanges,andthenclick buttontoreturntothe balance interface.

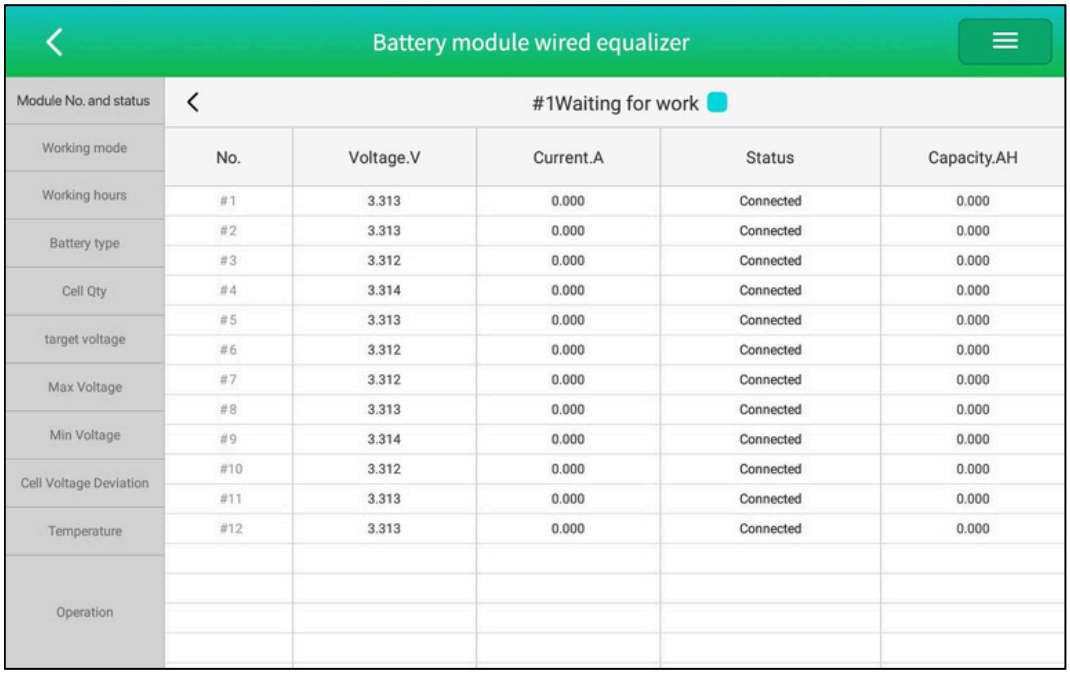
3.3.4 Start the Balance

1)Click **Start** buttonbelowthebatterypacktostartbalancing.Duringworkingprocess,clicking**Stop** can end the working process.During the balancing process, real-time maintenance progress can be viewed and maintenance results can be awaited.

*Note: After starting the balancing, clicking the **Settings** button will only allow you to view the set parameters. The parameters cannot be changed during the balancing process!*



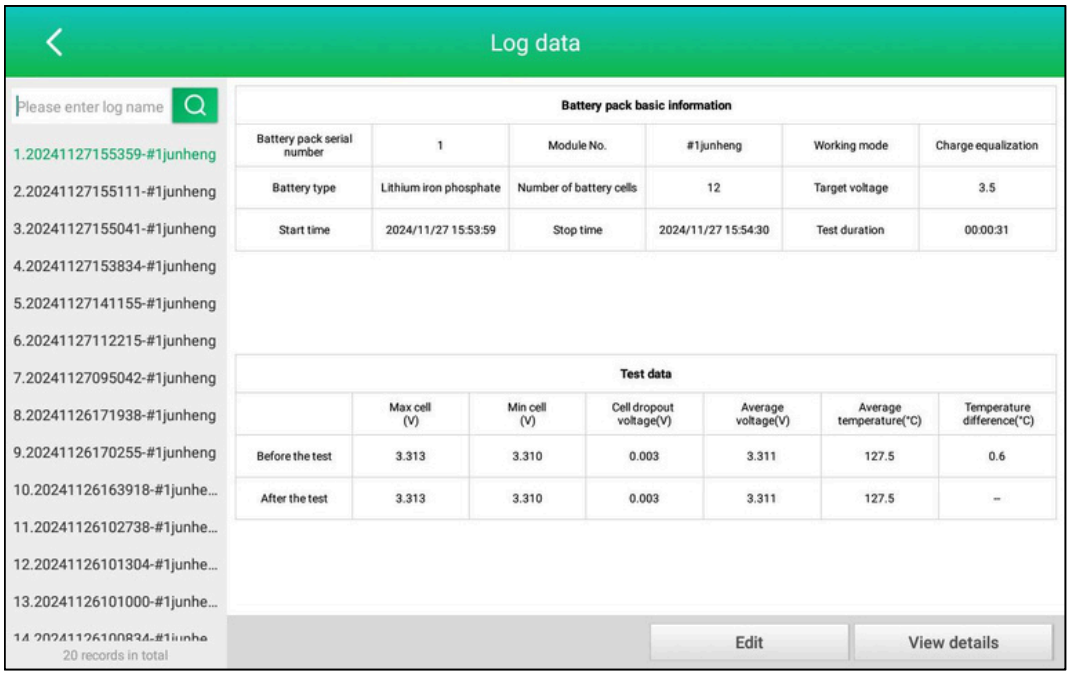
2) Click **Details** to view parameters such as cell voltage, current, status and capacity of the corresponding test battery pack.



3) Click **Stop** to end the current balancing process.

3.4 Log Data

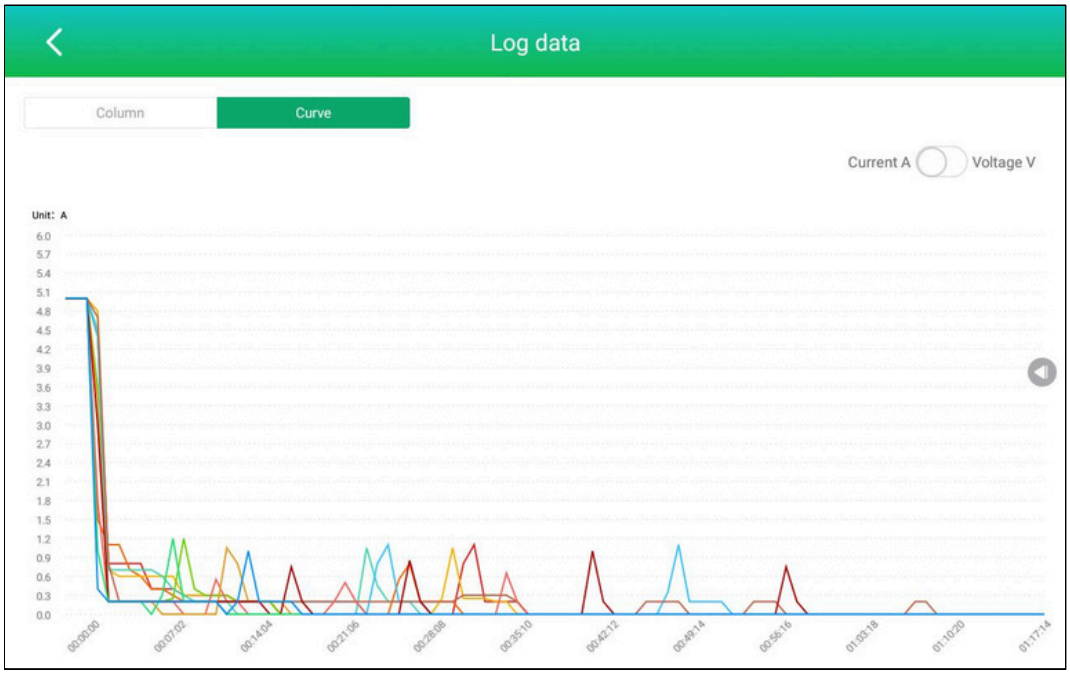
1) Click **Log data** on the main interface to enter the log data interface, where you can view and manage all saved balance data.



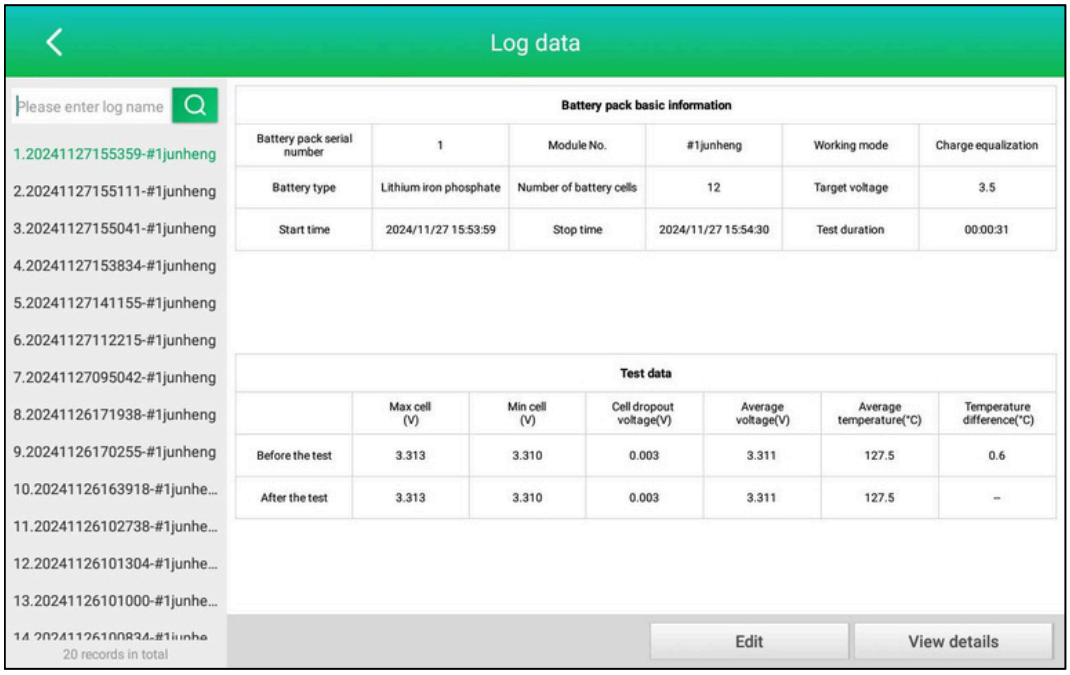
2) Select a single data of the list and then click **View details** button and you can check the balancing data details displayed in column chart. Click button to review the data during the balancing process.

Click buttonandselectsomeorallof the battery cells in the list on the right to view their corresponding data charts.

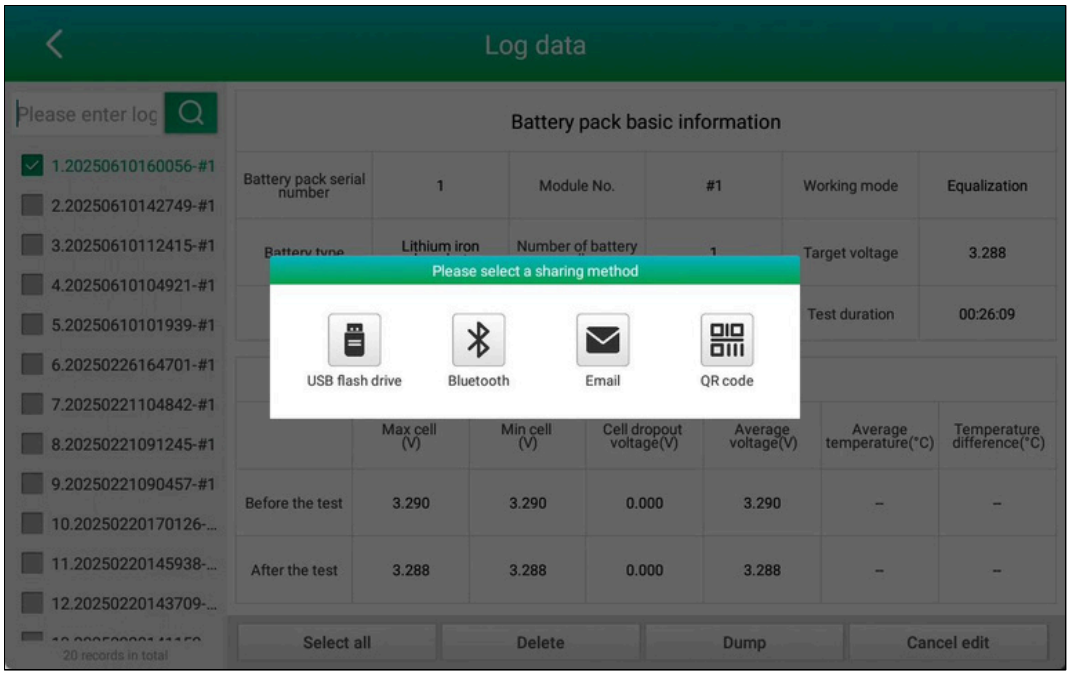
Clicking **Curve** button can switch the display mode to curve graph.



3) Select any log record of the list and click **Edit** button.



And then click the **Dump** button on the editing page to export the log file to USB flash drive; you can also share the log file via Bluetooth or email; and it supports generating a QR Code for scanning and downloading the log file



3.5 Settings

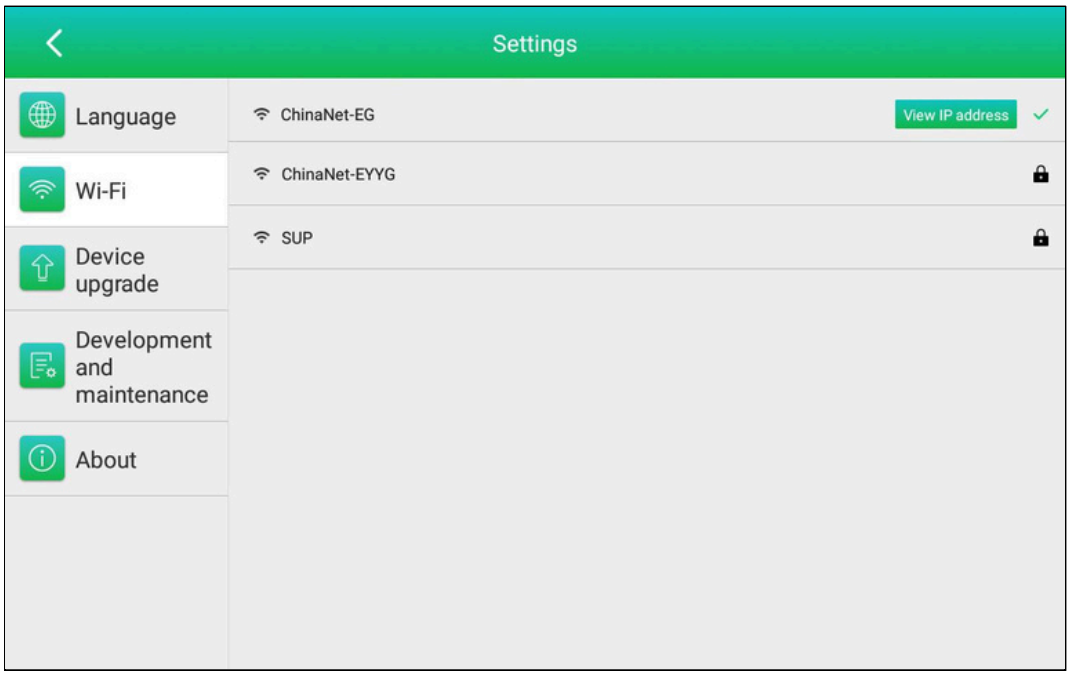
Click **Settings** on the main interface to enter the system settings interface, which includes Language, Wi-Fi, Device upgrade, Development and maintenance and About.

3.5.1 Language

Used to change the system language.

3.5.2 Wi-Fi

Used to connect the Wi-Fi networks.



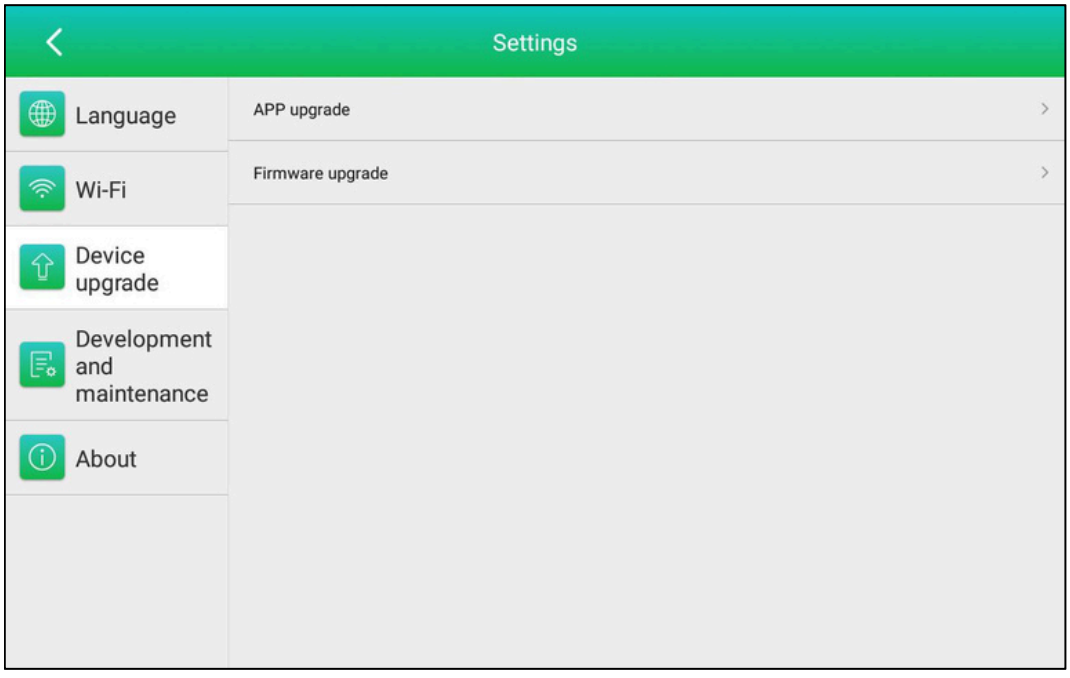
3.5.3 Device Upgrade

Used for device upgrade, including App upgrade and Firmware upgrade.

1) Click **APP upgrade**. If a higher version is available, the system will download and install the latest version APP. You can also use local upgrade by inserting a USB stick with new version APP.

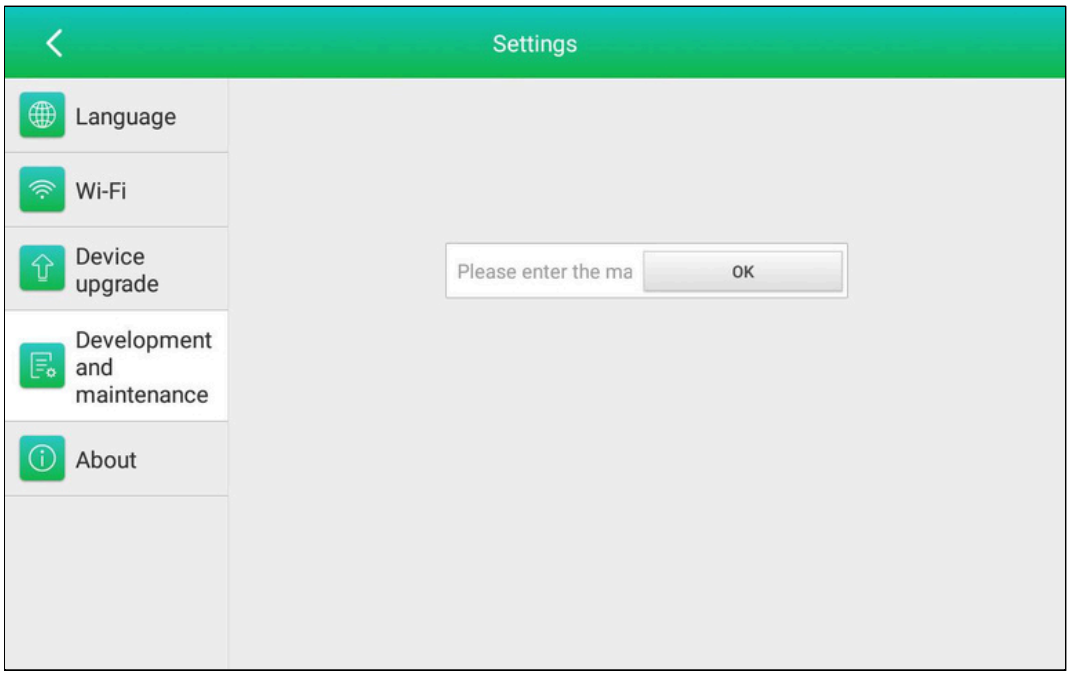
Note: For online upgrade, you need to connect to Wi-Fi first; to ensure the upgrade goes smoothly, make sure the network is stable during the download and upgrade process.

2) Click **Firmware upgrade** to upgrade the firmware to latest version online. You can also use local upgrade by inserting a USB stick with new version firmware.



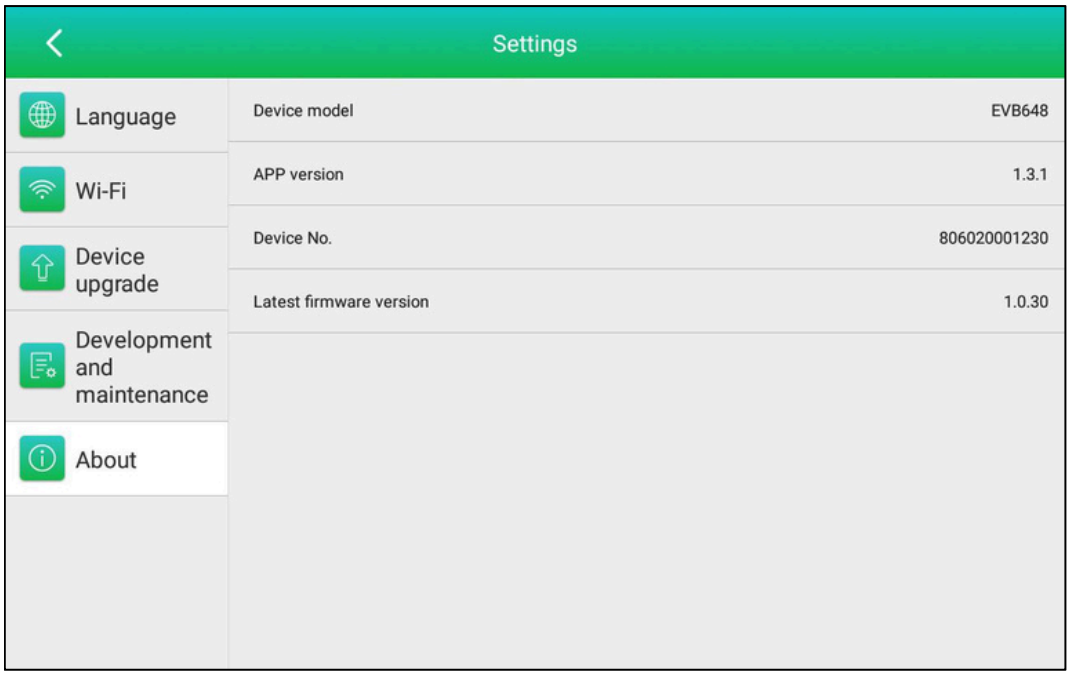
3.5.4 Development and Maintenance

This function is only for development and maintenance.



3.5.5 About

Used to view device model, APP version, device serial number, latest firmware version, etc.



Compliance Information:
FCC ID: XUJEVB648
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

RF Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This device is in compliance with the essential requirements and other relevant provisions of Radio Equipment Directive 2014/53/EU. The RF frequencies can be used in Europe without restriction.