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1. Safety Precautions

(1) Observe the relevant requirements of the user manual to operate the device.

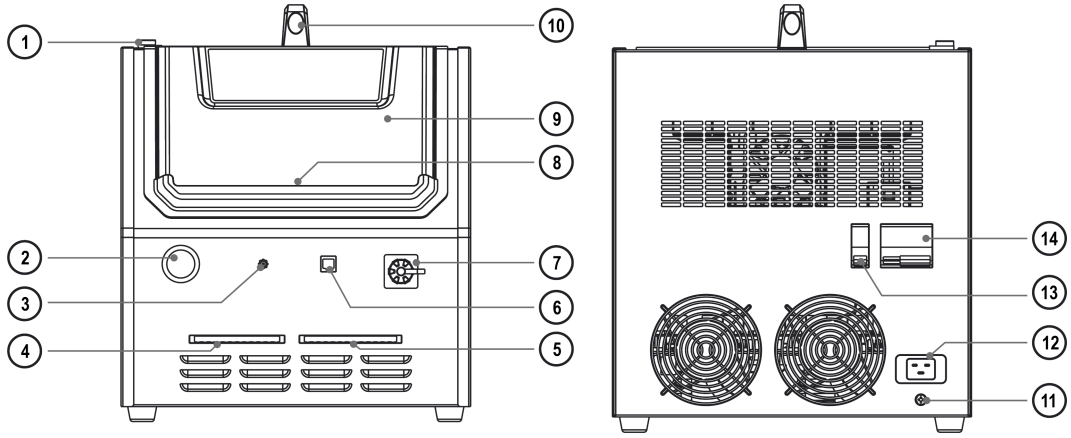
(2) When operating the device, make sure to take proper insulation measures and wear dry, clean insulated gloves.

(3) In the event of device malfunction, please disconnect the power supply and the test cables.

2. Product Overview

The CE39, developed by Smartsafe, is a new energy maintenance device that combines battery module balancing, charging and discharging. This device is suitable for testing and maintaining various types of battery packs, including power and energy storage batteries. The device supports independent balancing control for each connected cell, enabling precise adjustment of each cell to a uniform voltage level based on the user's specified voltage target. Additionally, it offers the capability for rapid high-current charging and discharging at the terminal, efficiently adjusting the overall voltage of the battery pack to the desired state. CE39 should be used with a detection tablet. With the accompanying app on this detection tablet, users can remotely monitor, check battery status, and export diagnostic reports, effectively enhancing operational convenience and maintenance efficiency.

2.1 Device Interfaces and Controls

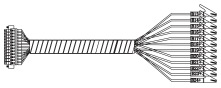
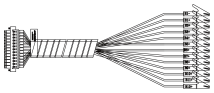
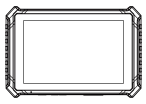
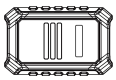
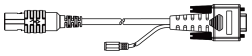
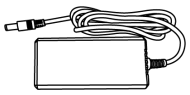


S/N	Name	Description
1	Indicator	The green light is ON when the device is switched on.
2	Emergency stop switch	For cut-off of the device power supply and immediate stopping of its operation in case of emergencies. After pressing the emergency stop button, it must be turned to the right to reset before the AC switch can be turned off again.
3	Buzzer hole	Buzzer sounding hole.
4	Channel 2	For connecting a 12-pin cell voltage acquisition wire.
5	Channel 1	For connecting a 13-pin cell voltage acquisition wire.
6	Communication interface	For communication and other expandable functions.
7	DC output port	For inserting the DC high-voltage interface plug and connecting the positive and negative terminals of the battery module.
8	Charging contacts	Used for charging detection tablets with Pogo pin charging ports.

9	Detection tablet storage slot	Used for storing detection tablet.
10	Handle	For handling the device.
11	Grounding terminal	For connecting the device to the grounding wire.
12	Power outlet	Power supply input.
13	DC switch	Switch on/off the device DC output. When switched on: the device can output according to the set parameters; When switched off: the output port is shut down and cannot produce output.
14	AC switch	Switch on/off the device AC input.

2.2 Accessories

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

S/N	Name	Qty.	Picture
1	Main Unit	1	
2	AC Power Cord	4	
3	DC High Voltage Interface Plug	1	
4	12-pin Cell Voltage Acquisition Wire	1	
5	13-pin Cell Voltage Acquisition Wire	1	
6	E10	1	
7	VCI	1	
8	HFT Test Cable	1	
9	OBD II-16	1	
10	Switching Power Supply	1	
11	Power Cable	4	
12	Power Adaptor	1	

13	USB Cable	1	
14	E10 User Manual	1	
15	E10 Quick Reference Guide	1	
16	Password Envelope	1	
17	User Manual	1	
18	Quick Reference Guide	1	
19	Packing List	1	

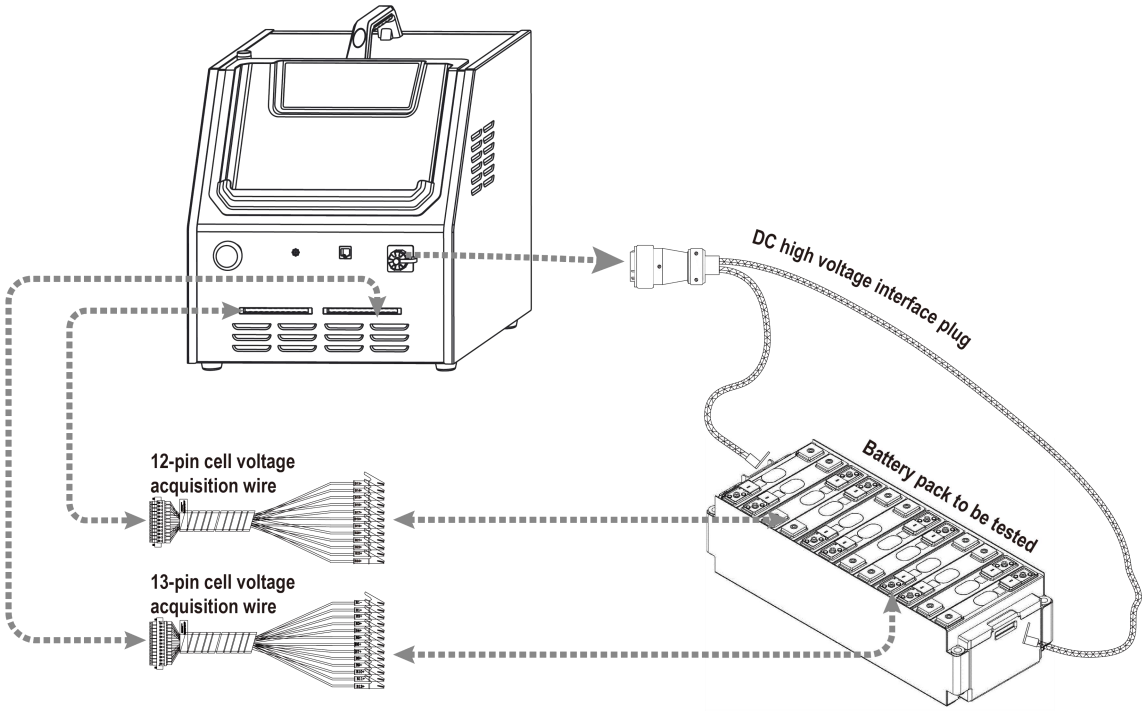
2.3 Technical Characteristics

Parameter	Description
Model	CE39
Operating Power Supply	AC100~240V, 50/60Hz
Operating Voltage	Discharge voltage: DC 0-5V, Charge voltage: DC 0-110V
Voltage Detection Accuracy	±0.1%FS+5mV (maximum range: 5V)
Operating Current	Discharge current: 0.1 ~ 20A, Charge current: 0.5 ~ 40A
Current Detection Accuracy	±0.5%FS±0.05A (maximum range: 20A)
Operating Power	Maximum discharge power: 2.4kW, Maximum charge power: 3.2 kW
Number of Balancing Channels	24 channels
Battery Interface	The charge side contains positive and negative interfaces, and the discharge side contains 24-channel voltage sampling interface
Display	10.1", with 1280*800 resolution
Wireless Communication	Wi-Fi, Bluetooth
Operating Mode	Constant current charge + constant voltage charge
	Constant current discharge + constant voltage discharge
Protection Mechanism	Input over-current protection, over-voltage protection; output over-current protection, over-temperature protection; support for reverse and cross-connection protection
Heat Dissipation	Forced wind cooling

Operating Temperature	-5°C~45°C
Storage Temperature	-20°C~70°C
Operating Humidity	5%~93%
Storage Humidity	5%~93%
Dimensions	454.5 X 385.6 X 447.0 mm

3. Product Use

3.1 Device Connection



Connect the high voltage plugs to the positive and negative battery terminals

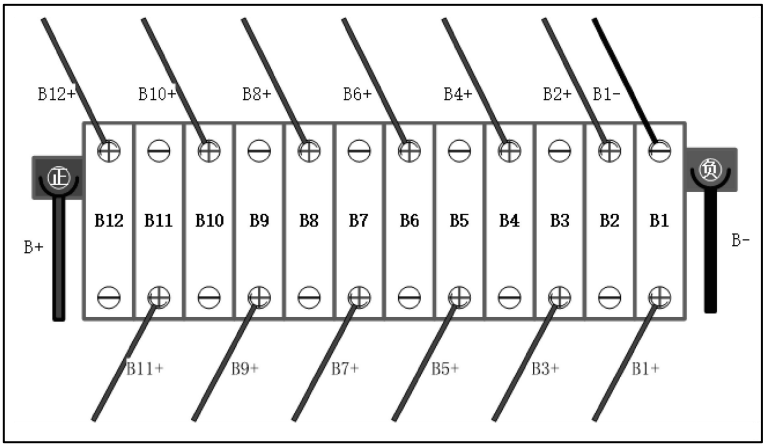
Plug the DC high voltage interface plug into the **"DC output port"** of the device, and connect the other end to the positive and negative terminals of the battery module.

Connect the cell voltage acquisition wire to the battery cell

Plug the male connector of the cell voltage acquisition wire into the front interface of the device, and connect the other end to the corresponding battery cells one by one according to the numbers on the cell voltage acquisition wire.

(1) If the number of cells to be measured does not exceed 12: Connect the channel 1 interface of the device with a 13-pin cell voltage acquisition wire;

(2) If the number of cells to be measured exceeds 12: Connect more cells to the channel 2 interface of the device with a 12-pin cell voltage acquisition wire (up to 24 cells supported).



Operating power connection

Use the power cord supplied with the device to connect its power port to the outlet for power supply, ensure that the input voltage matches.

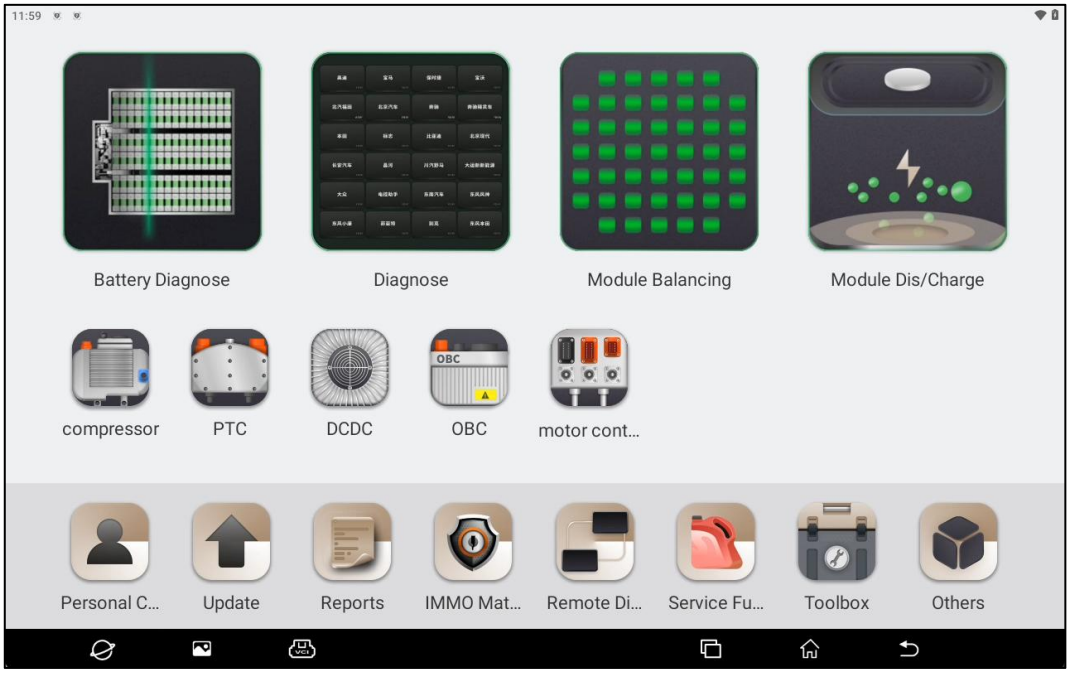
3.2 Device Operation

CE39 is operated with a detection tablet loaded with the **"Module Balancing"** and **"Module Dis/Charge"** apps.

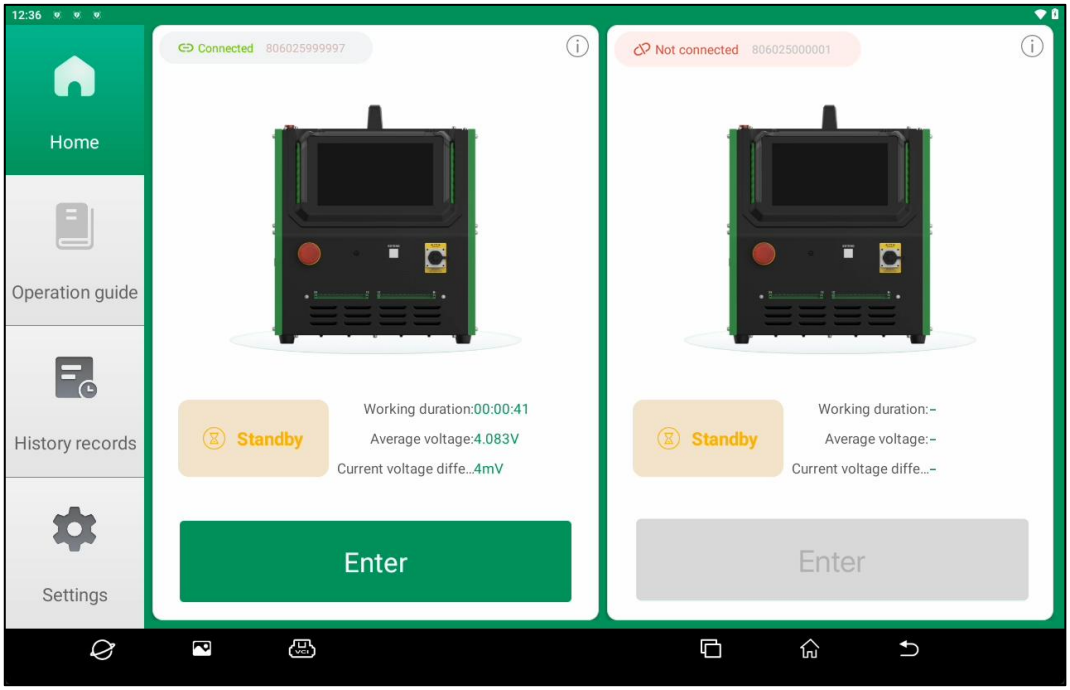
3.2.1 Connect the Detection Tablet

(1) On the home page of the detection tablet, click either the **"Module Balancing"** or **"Module Dis/Charge"** button to start the corresponding APP.

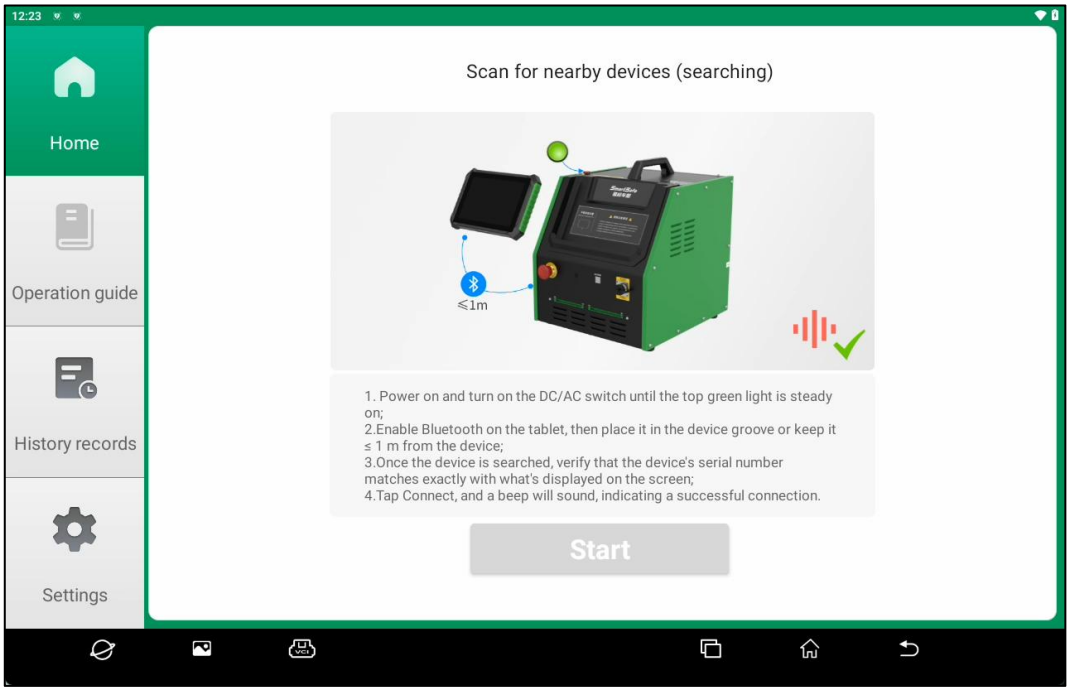
Note: Functional modules may differ across detection tablets. The images below are for illustrative purposes only. Please refer to the actual detection tablet for details on specific functional modules.



(2) If the detection tablet has previously been connected to the CE39, the app will enter the device display screen after startup and display the device to which the detection tablet is connected.

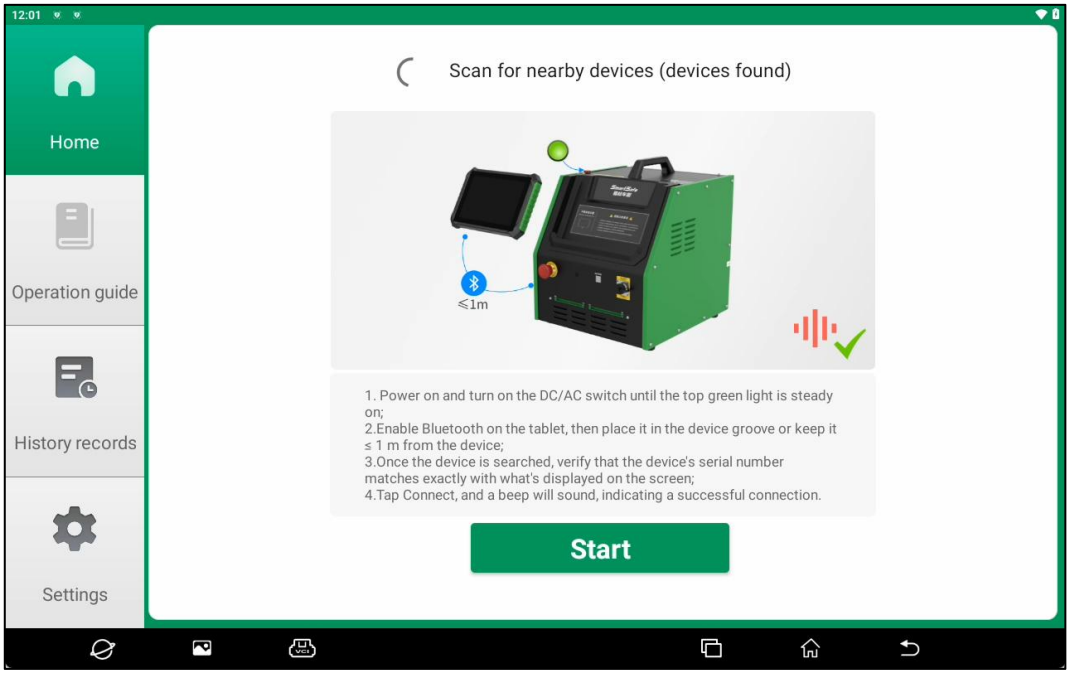


If the detection tablet hasn't been connected to the CE39 before, the app will open the device search page upon startup. Follow the on-page instructions to connect power to the CE39, turn on its DC and AC switches, and wait for the green light on top of the device to light up.

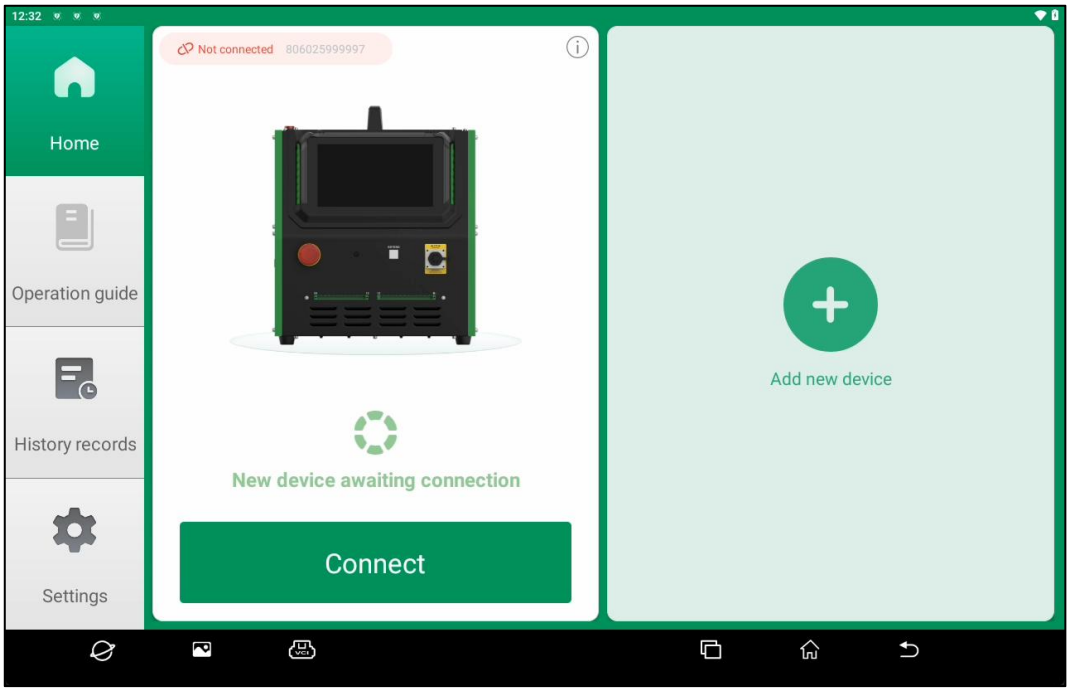


(3) Activate the Bluetooth function of the detection tablet and ensure that it remains within 1m of the CE39.

(4) Once the CE39 is found, the page shows "Devices found", and the **"Start"** button changes from gray to green. Click the **"Start"** button to go to the home page.

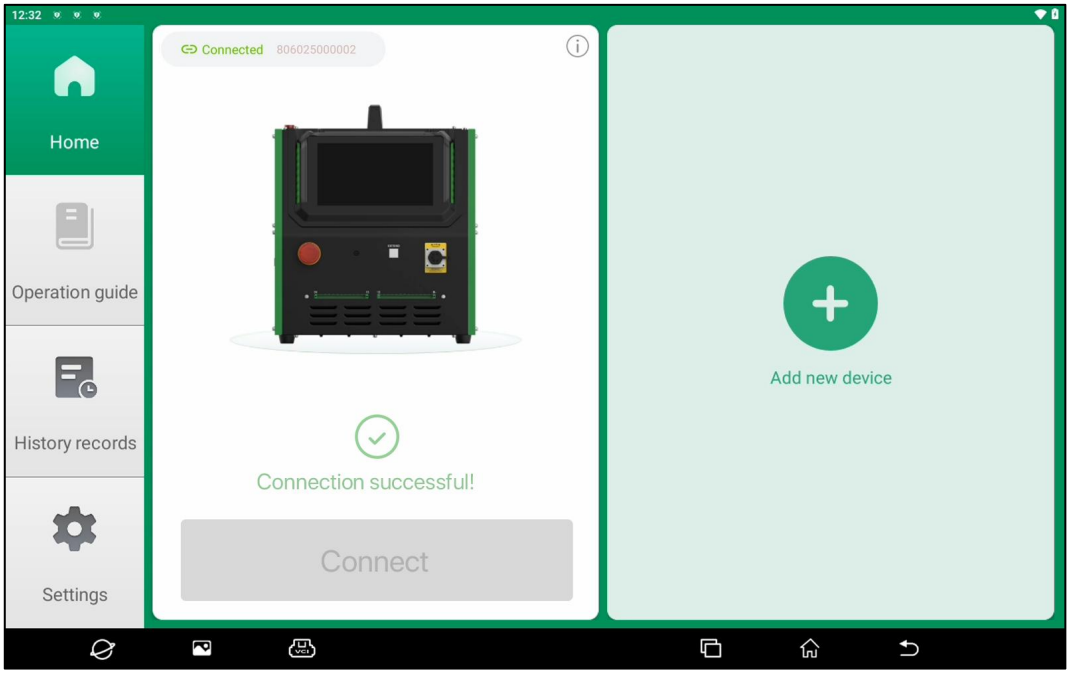


(5) Once the CE39 serial number is verified to exactly matches the serial number shown on the screen, click the **"Connect"** button.

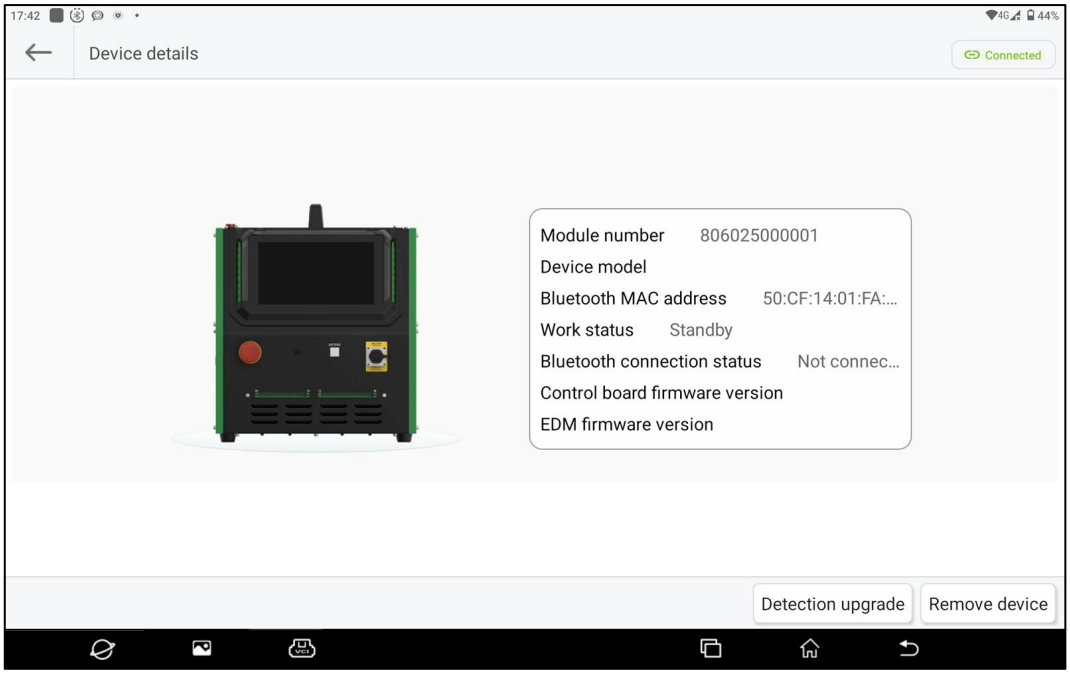


(6) When the buzzing sound indicates a successful connection, the device connection status shown before the serial number on the screen changes to "Connected." Click the **"Add new device"** button to add a new device in the same manner.

Note: The detection tablet can connect and bind with up to two CE39 devices at the same time. To connect a new device after reaching this limit, you must first remove one of the previously connected devices.



(7) Click the "ⓘ" button in the top right corner of the individual device screen to go to the device details page, where you can view device information, perform firmware upgrades, and remove the device.



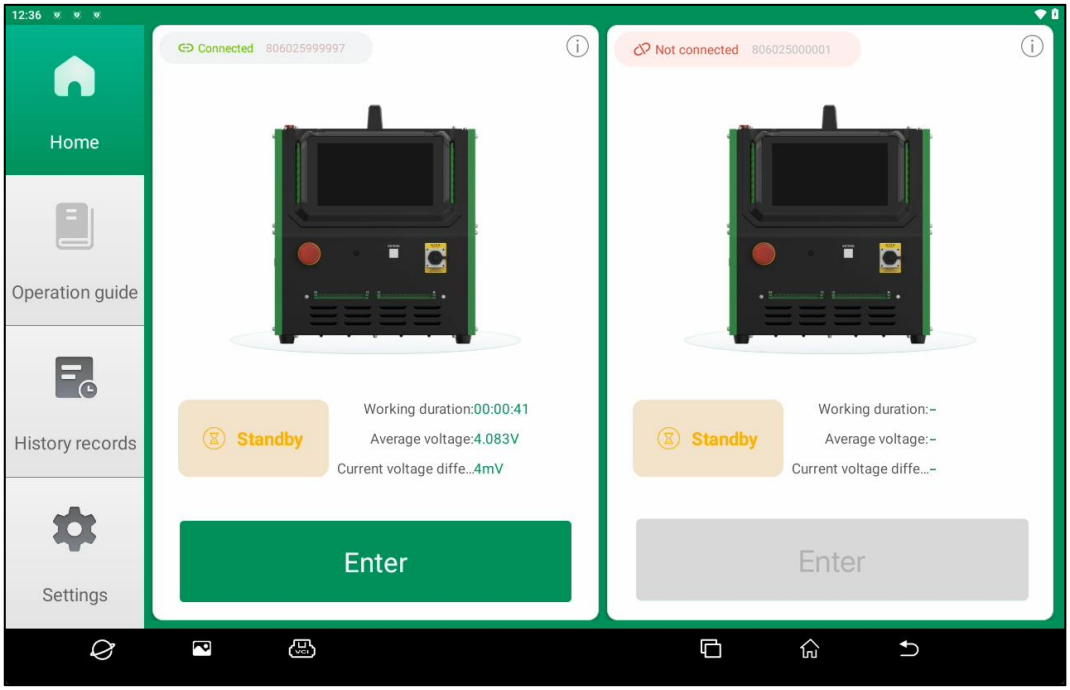
(8) Click the **"Detection upgrade"** button to upgrade the device to the latest version.

Note: Upgrade is not available when the device is in the operating state.

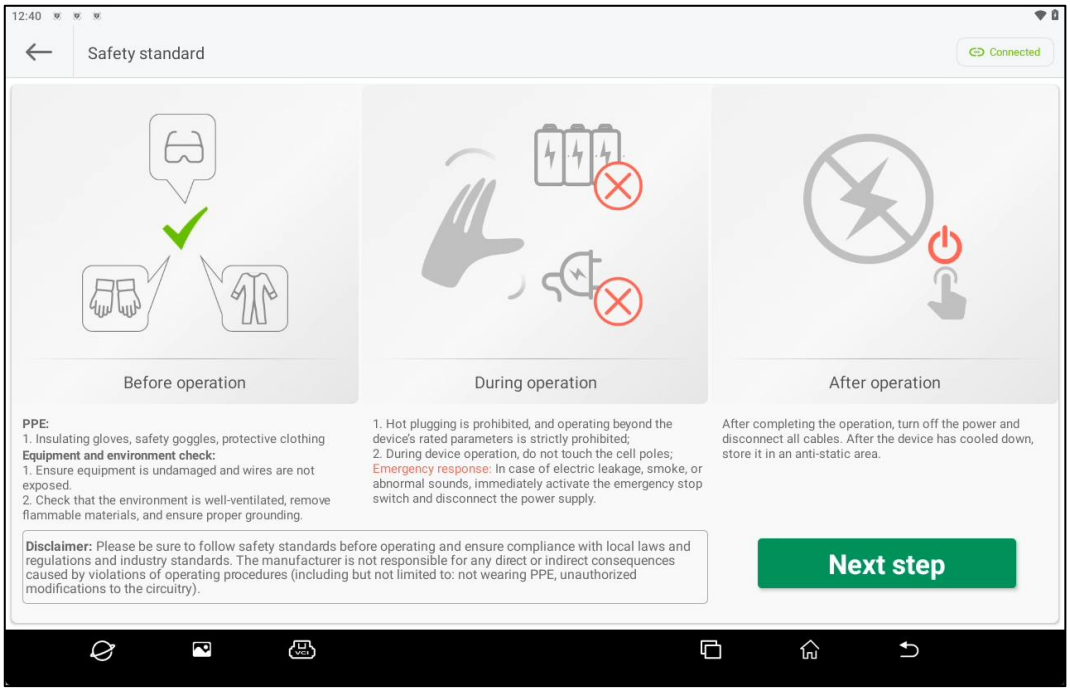
(9) Click the **"Remove device"** button and then click **"OK"** to remove the device from the detection tablet.

3.2.2 Module Balancing

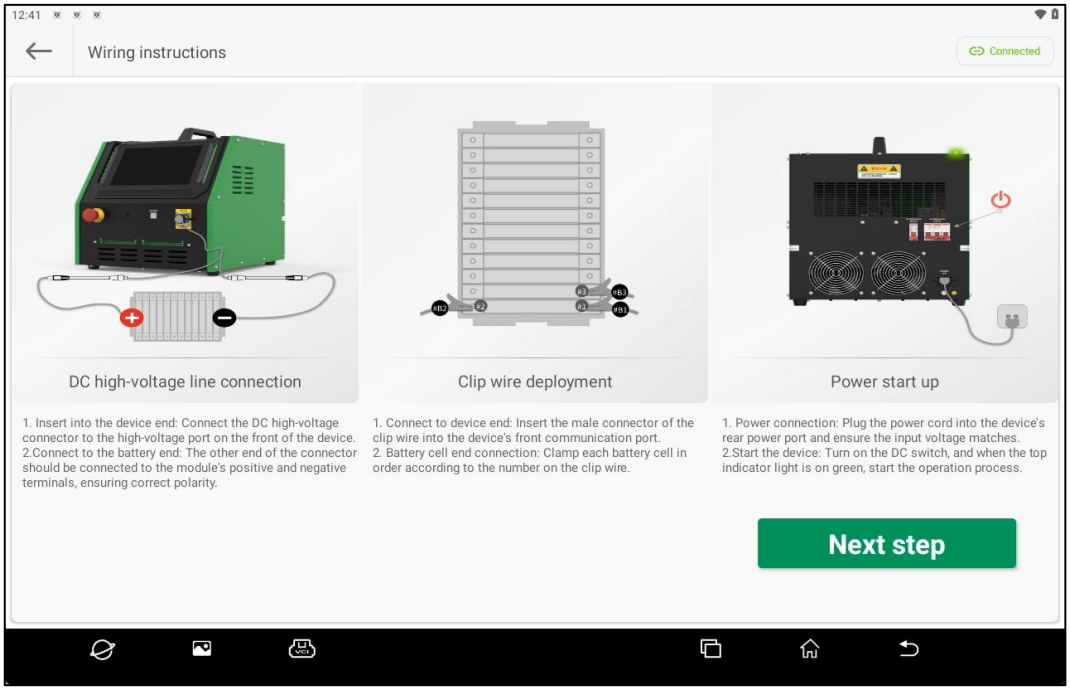
(1) Click the **"Module Balancing"** button on the detection tablet to go to the home page, and click the **"Enter"** button on the device card to go to the safety specification screen.



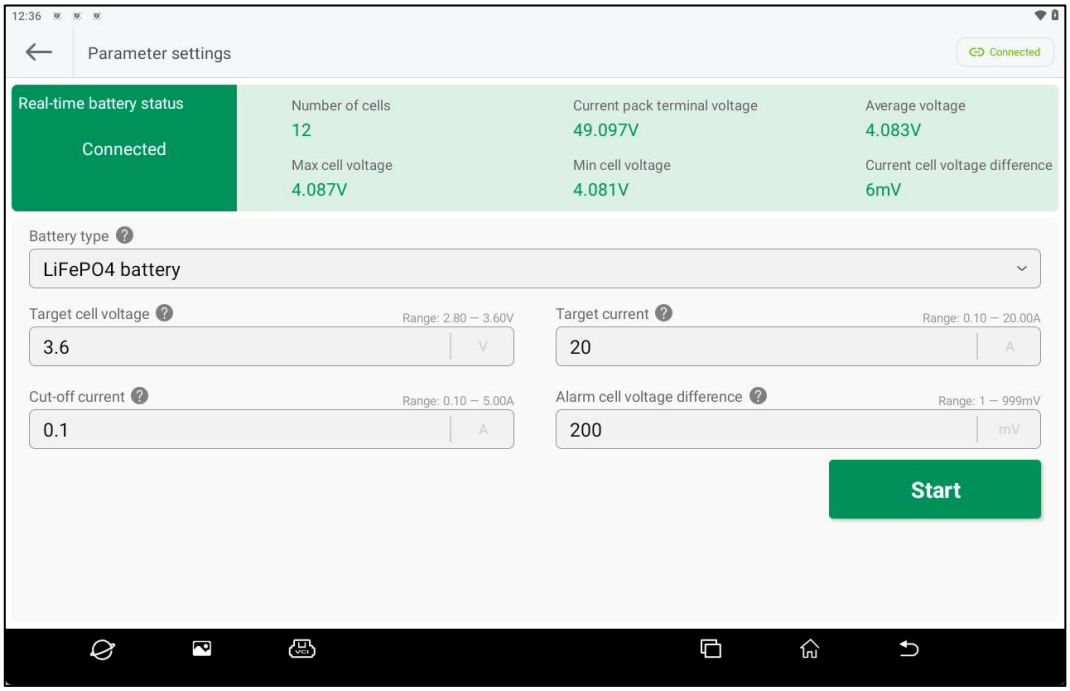
(2) Once you have learned and understood the relevant safety regulations for operating the device, click the **"Next step"** button to go to the wiring instruction page.



(3) Click the **"Next step"** button to go to the parameter settings screen after following the wiring instructions to connect the device.



(4) In the parameter settings screen, you can view the real-time battery status and set its parameters. Click the **"Start"** button to save the current settings and begin balancing after setting the parameters.



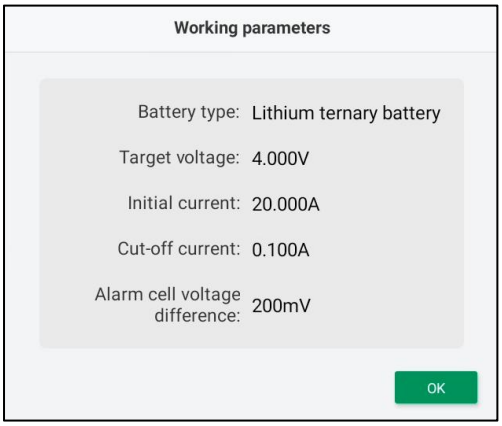
Parameter Description	
Real-time battery status	Connection status of the battery module.
Number of cells	The number of connected cells is displayed.
Current pack terminal voltage	The terminal voltage of the battery module is displayed.
Average voltage	The average cell voltage is displayed.
Max cell voltage	The maximum cell voltage is displayed.
Min cell voltage	The minimum cell voltage is displayed.

Current cell voltage difference	The voltage difference between the maximum cell voltage and the minimum cell voltage.
Battery type	Select based on the specific type of battery to be tested, as parameter ranges differ for various battery types.
Target cell voltage	The target cell voltage value for balancing operation.
Target current	Sets the maximum current allowed to be reached during balancing operation.
Cut-off current	Current threshold for termination of balancing operation.
Alarm cell voltage difference	Threshold value for cell voltage difference to trigger an alarm.

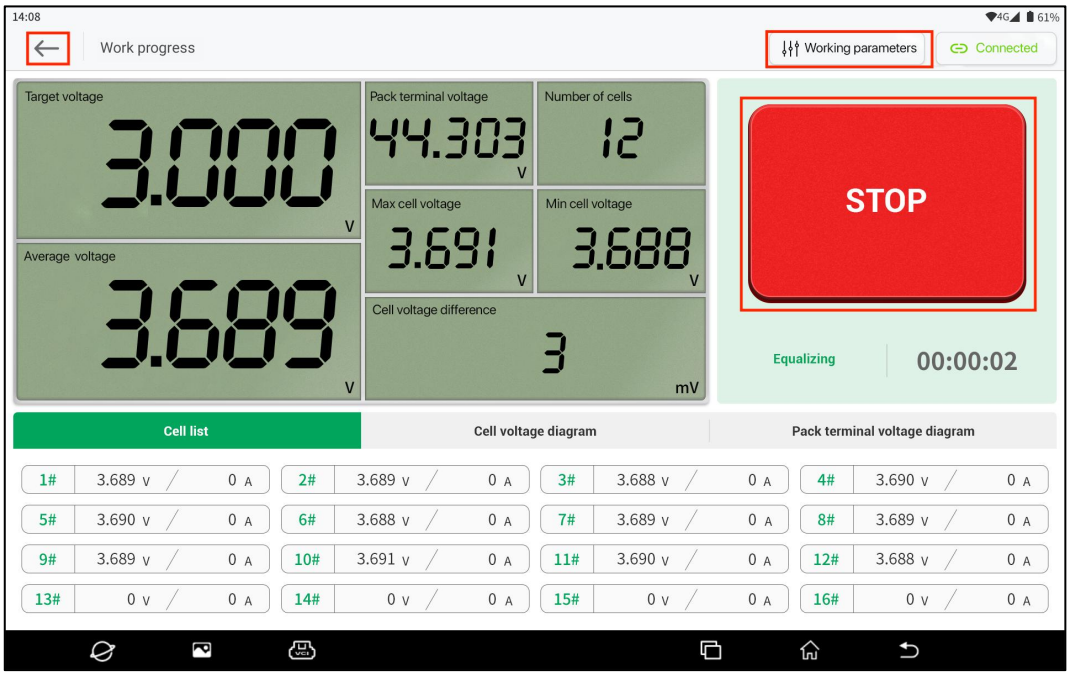
(5) During the balancing process, you can monitor the progress, including the list of cells, cell voltage chart, and terminal voltage chart.

5-1) Click the **"STOP"** button to terminate the current balancing process. Once stopped, you can view the test data in the **"History records"** section.

5-2) In the work progress screen, click the **"Working parameters"** button to pop out the following window, where you can view the currently set parameters.

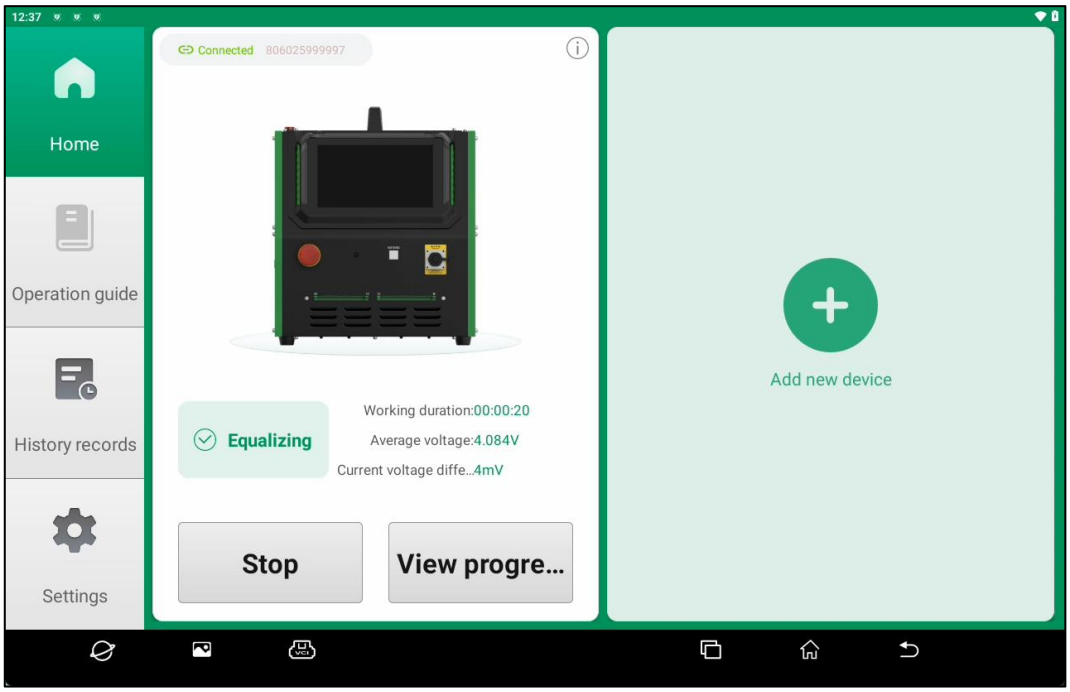


5-3) In the work progress screen, click the "⟵" button to return to the home page and check the device status.



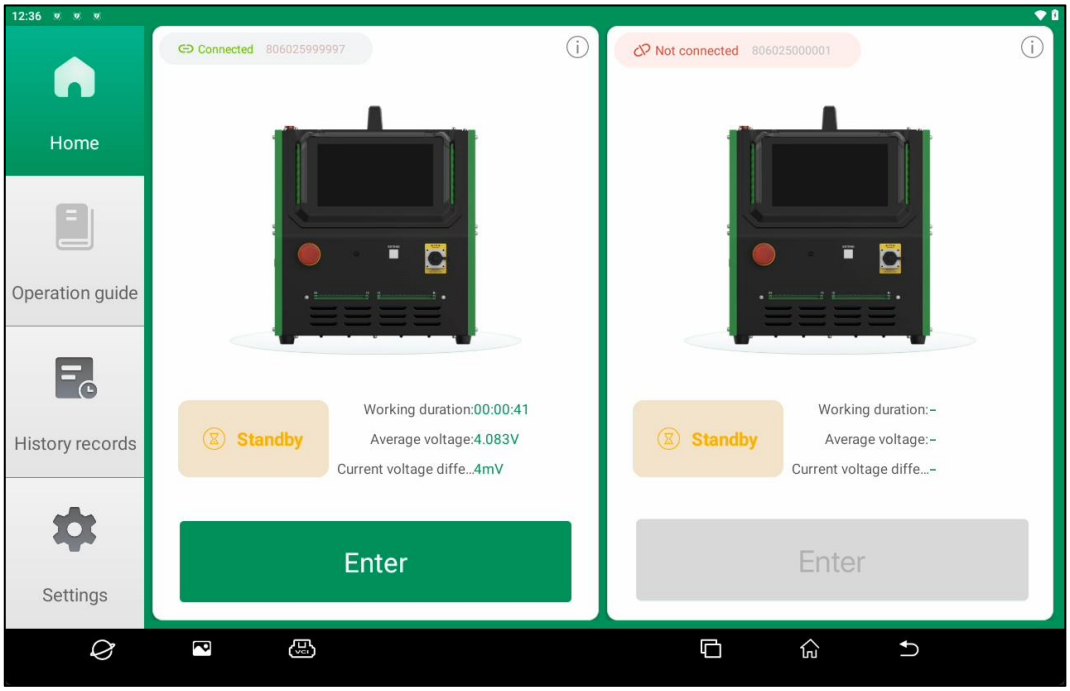
(6) Click the **"View progress"** button on the home page to switch to the operating progress screen,

and click the **"Stop"** button to terminate the current balancing process.

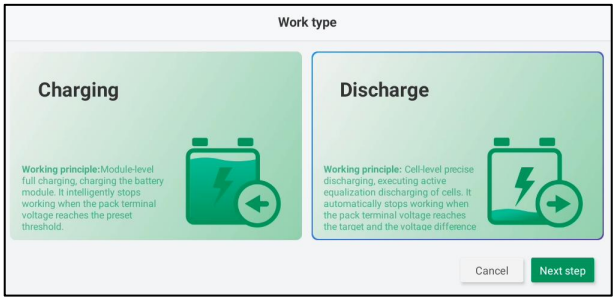


3.2.3 Module Dis/Charge

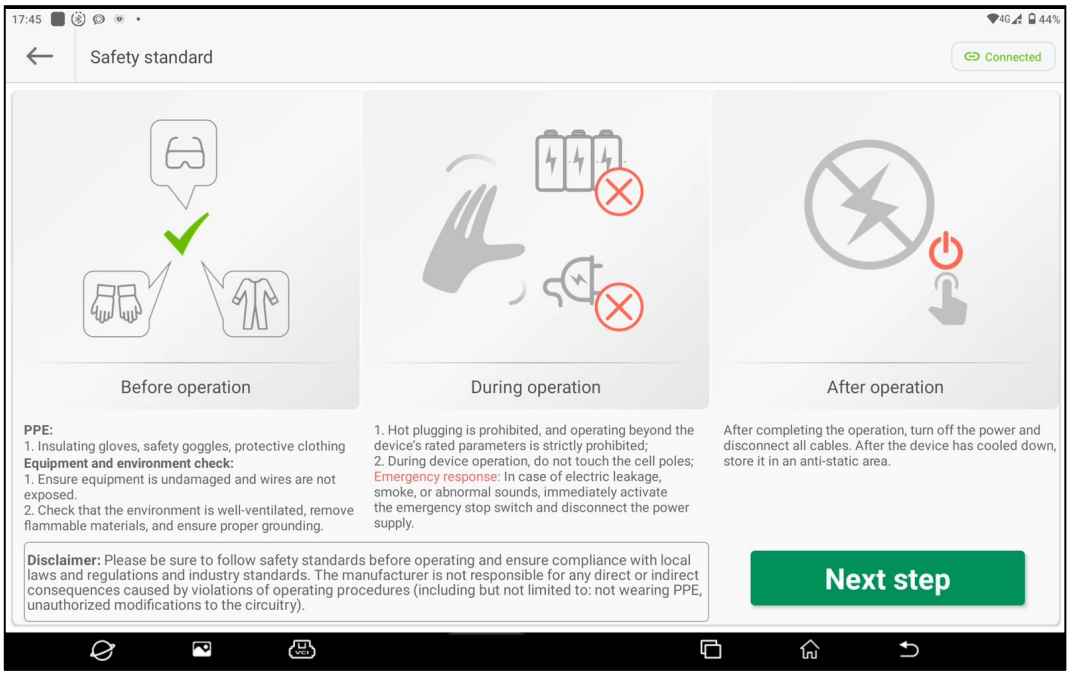
(1) Click the **"Module Dis/Charge"** button on the detection tablet to go to the home page, and click the **"Enter"** button on the device card to pop up the work type selection window.



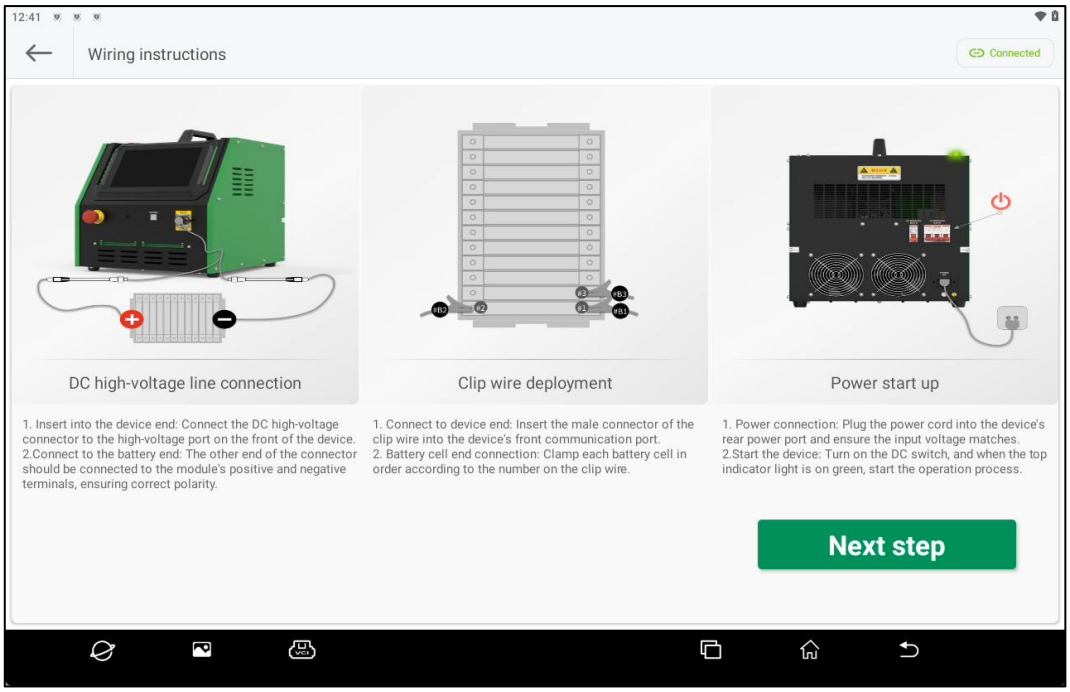
(2) Click the **"Next step"** button to go to the safety guideline screen after selecting **"Charging"** or **"Discharging"** in the popup window. The following is an example of the subsequent steps when selecting the job type of **"Charging"**.



(3) Once you have learned and understood the relevant safety regulations for operating the device, click the **"Next step"** button to go to the wiring instruction page.

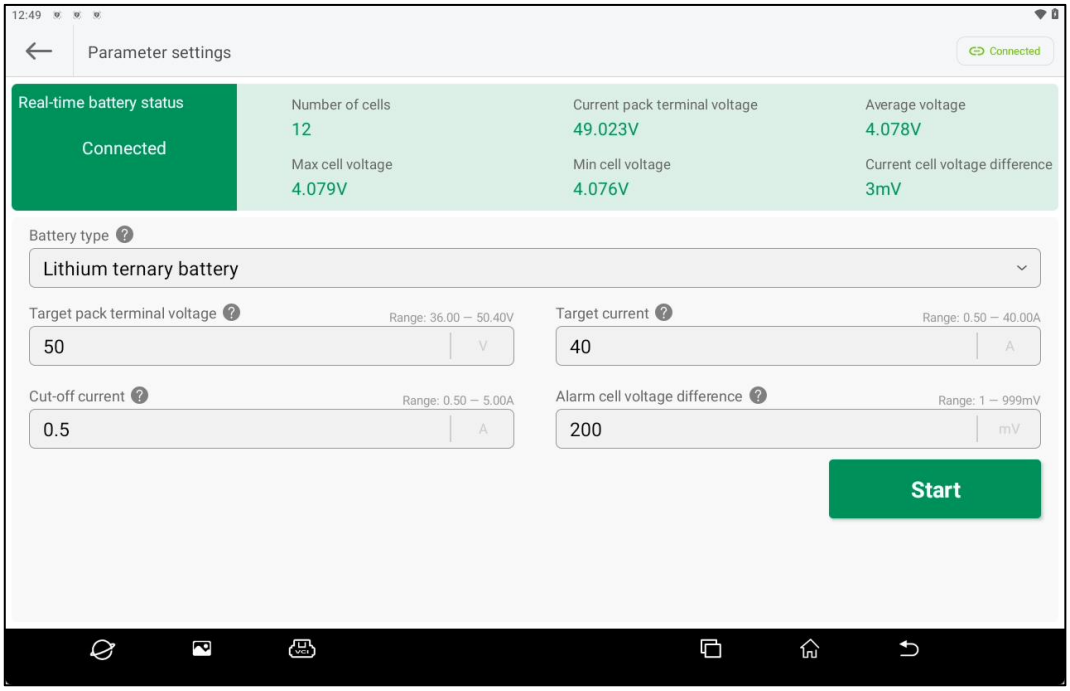


(4) Click the **"Next step"** button to go to the parameter settings screen after following the instructions to connect the device.



(5) In the parameter settings screen, you can view the real-time battery status and set its parameters.

Click the **"Start"** button to save the current settings and begin charge/discharge after setting the parameters.

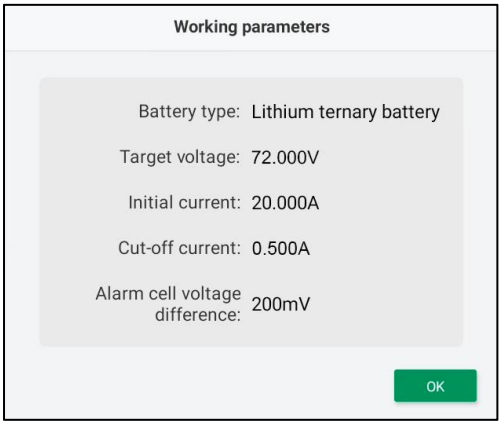


Parameter Description	
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Number of cells	The number of connected cells is displayed.
Current pack terminal voltage	The terminal voltage of the battery module is displayed.
Average voltage	The average cell voltage is displayed.
Max cell voltage	The maximum cell voltage is displayed.
Min cell voltage	The minimum cell voltage is displayed.
Current cell voltage difference	The voltage difference between the maximum cell voltage and the minimum cell voltage.
Battery type	Select based on the specific type of battery to be tested, as parameter ranges differ for various battery types.
Target pack terminal voltage	The target voltage value for charging/discharging the battery module.
Target current	Set the maximum current allowed to be reached during charging/discharging.
Cut-off current	Current threshold for termination of charging/discharging.
Alarm cell voltage difference	Threshold value for cell voltage difference to trigger an alarm.

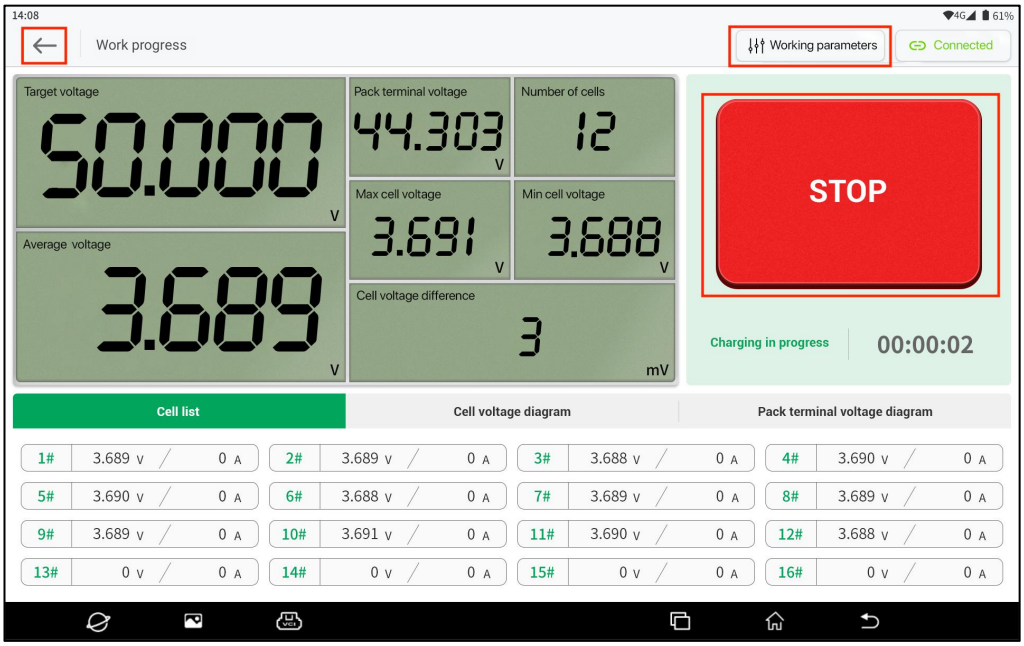
(6) During the charging/discharging process, you can monitor the progress, including the list of cells, cell voltage chart, and terminal voltage chart.

6-1) Click the **"STOP"** button to terminate the current charging/discharging process. Once stopped, you can view the test data by clicking the **"History records"** button.

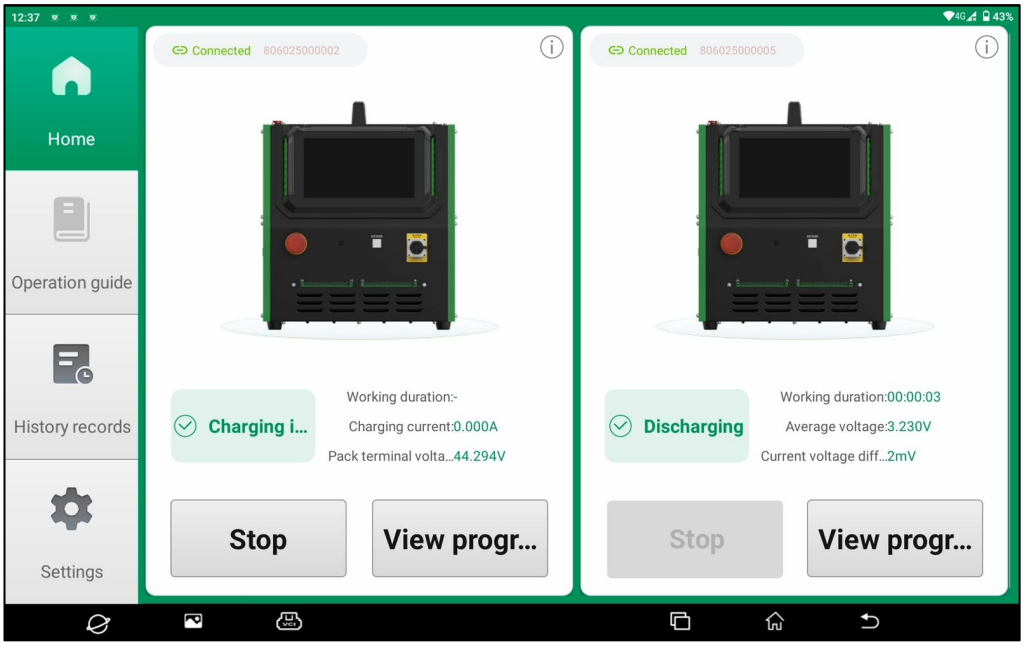
6-2) In the work progress screen, click the **"Working parameters"** button to pop out the following window, where you can view the currently set parameters.



6-3) In the work progress screen, click the "⟵" button to return to the home page and check the device status.

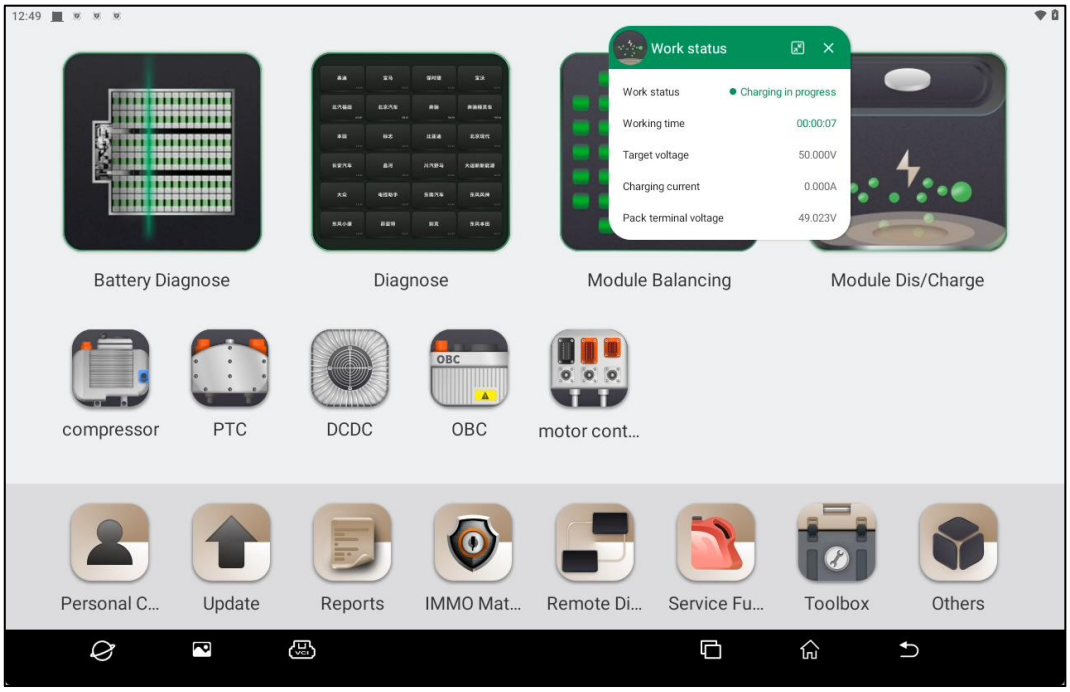


(7) Click the **"View progress"** button on the home page to switch to the operating progress screen, and click the **"Stop"** button to terminate the current charging/discharging process.



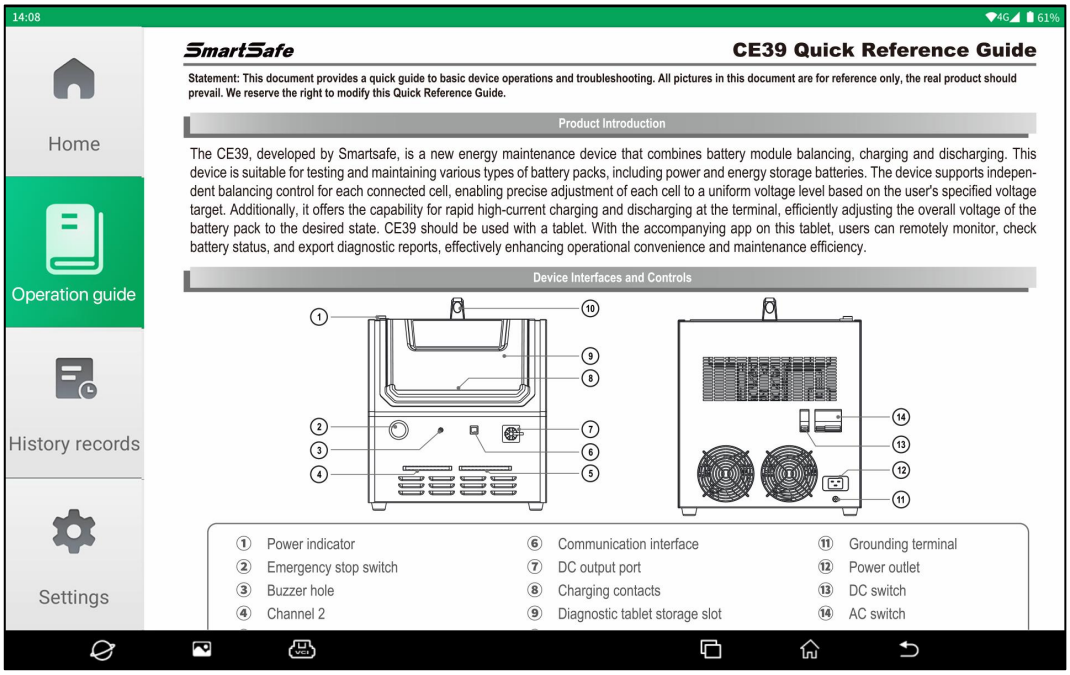
3.2.4 Floating Window Function

When using the **"Module Balancing"** and **"Module Dis/Charge"** functions, switching to another app will display a floating window on the desktop that shows the current status of the device, allowing users to check it anytime.



3.3 Operation Guide

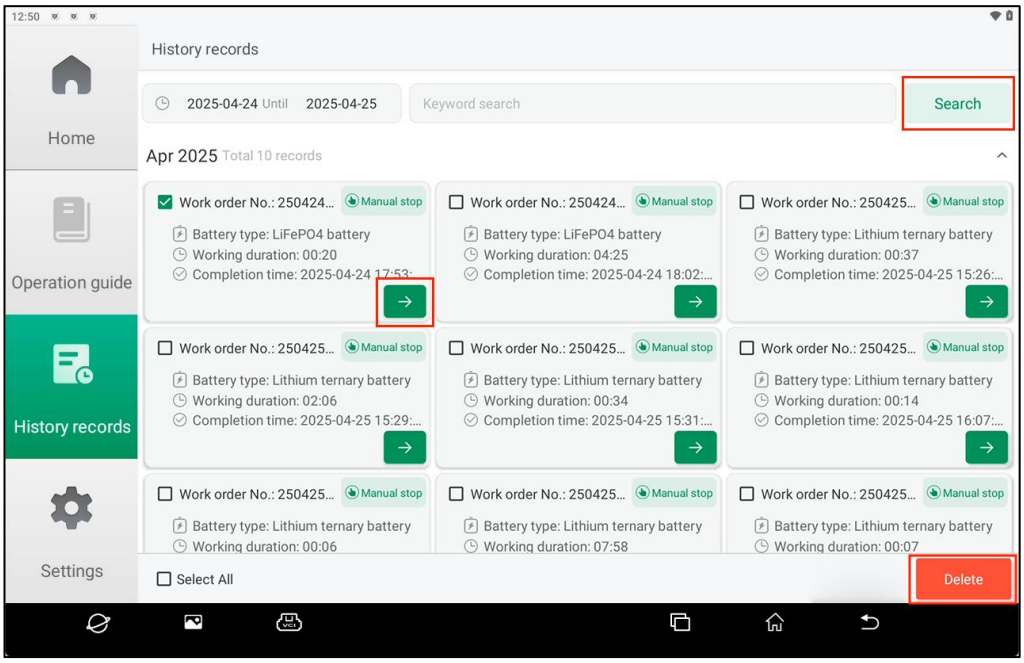
Click the **"Module Balancing"** or **"Module Dis/Charge"** button on the detection tablet to go to the home page, then click the **"Operation Guide"** button from the left-hand function module navigation to view the quick operation guide for the device.



3.4 History Records

(1) Click the **"Module Balancing"** or **"Module Dis/Charge"** button on the detection tablet to go to the home page, then click the **"History Records"** button from the left-hand function module navigation

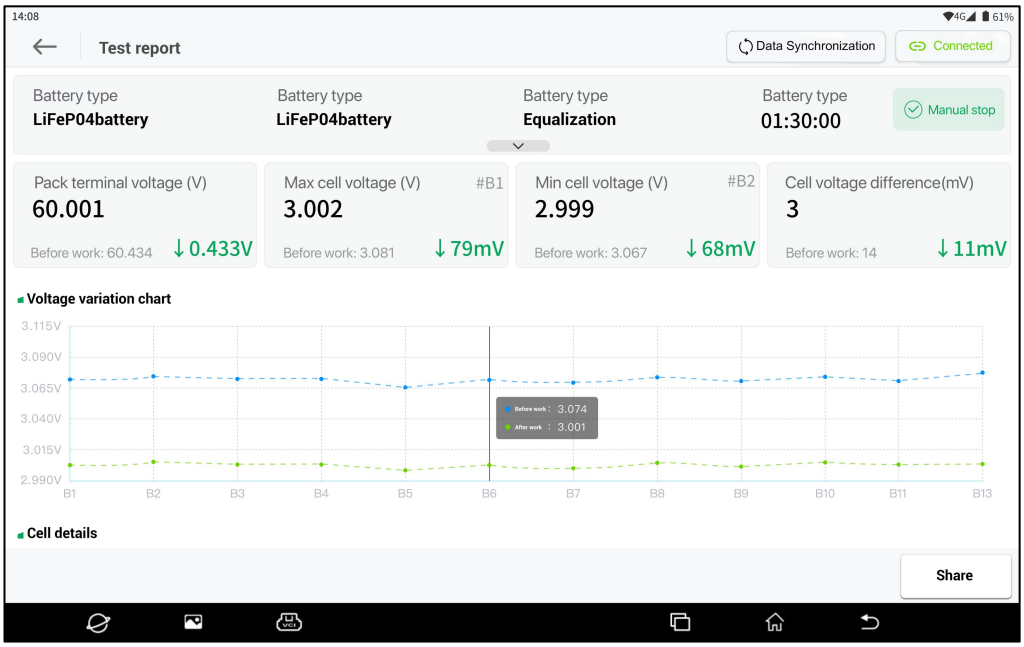
to open the history screen.



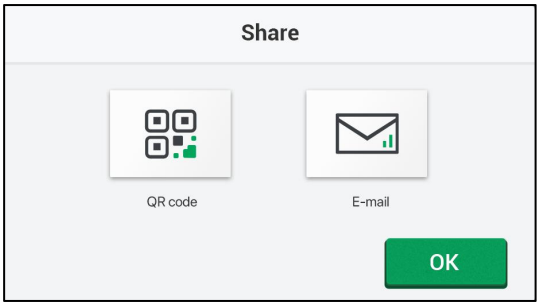
(2) Check one or more history records, and click the **"Delete"** button to remove them.

(3) Set the start and end dates or keywords, then click the **"Search"** button to filter records that match the conditions.

(4) Click the "⟶" button on an individual record card to view the detailed test report for that record.

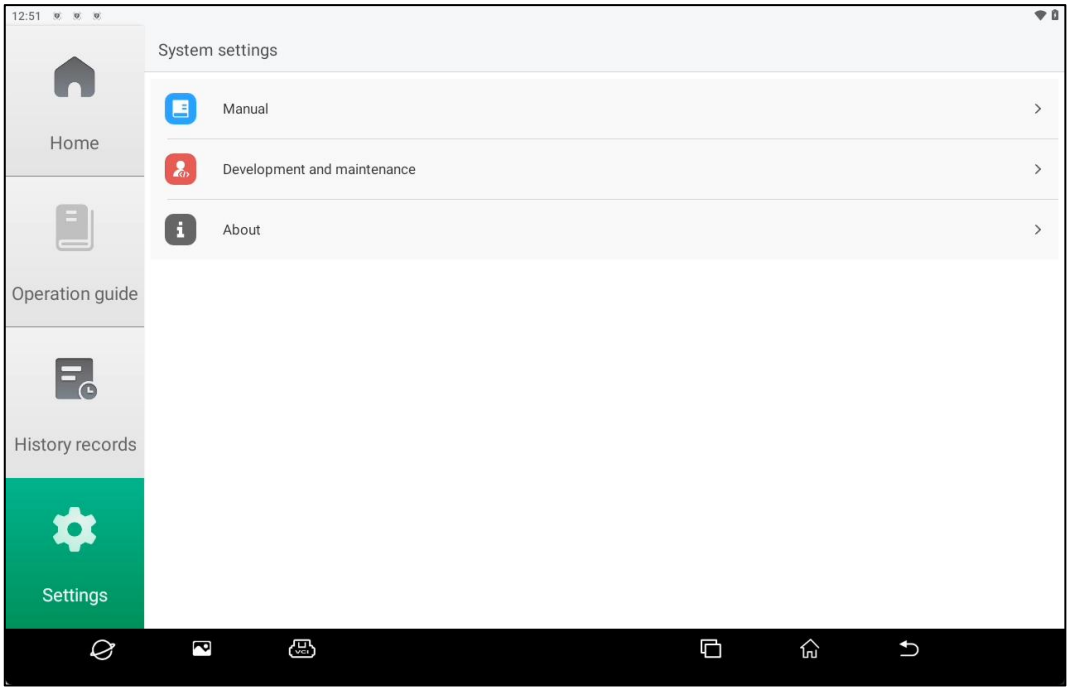


(5) Click the **"Share"** button on the test report page to share the report via "QR Code" or "Email".



3.5 Settings

Click the **"Module Balancing"** or **"Module Dis/Charge"** button on the detection tablet to go to the home page. Then, click the **"Settings"** button in the left-hand function module navigation to go to the settings screen, with the settings options including Manual, Development and Maintenance, and About.



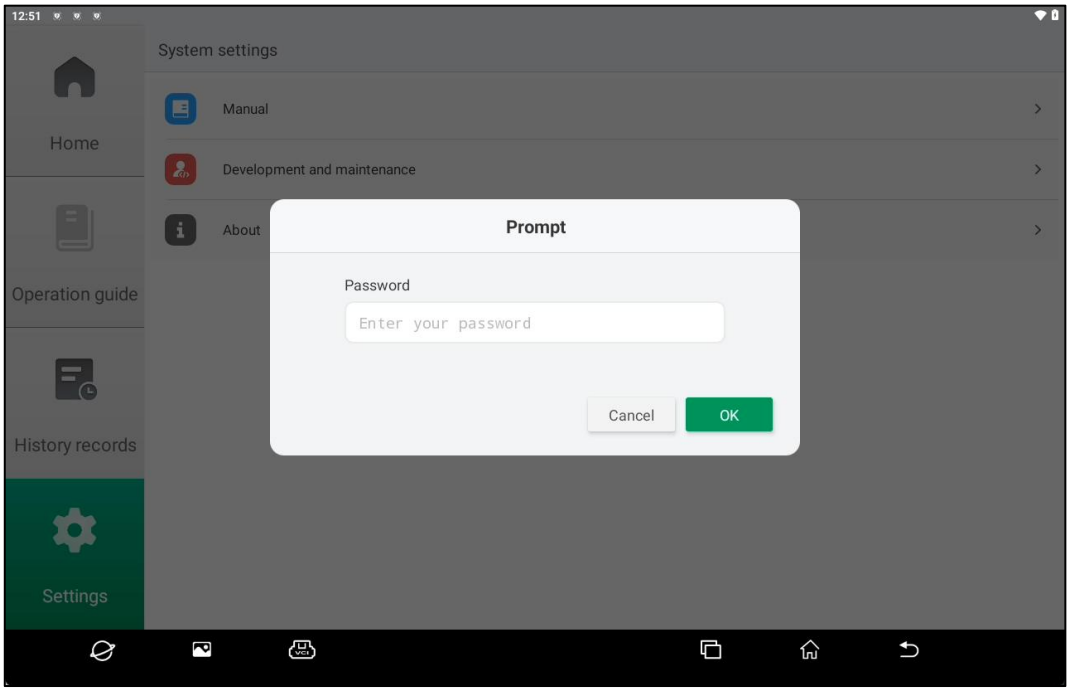
3.5.1 Manual

Click the **"Manual"** button to go to the manual screen, where you can view the Manual online.



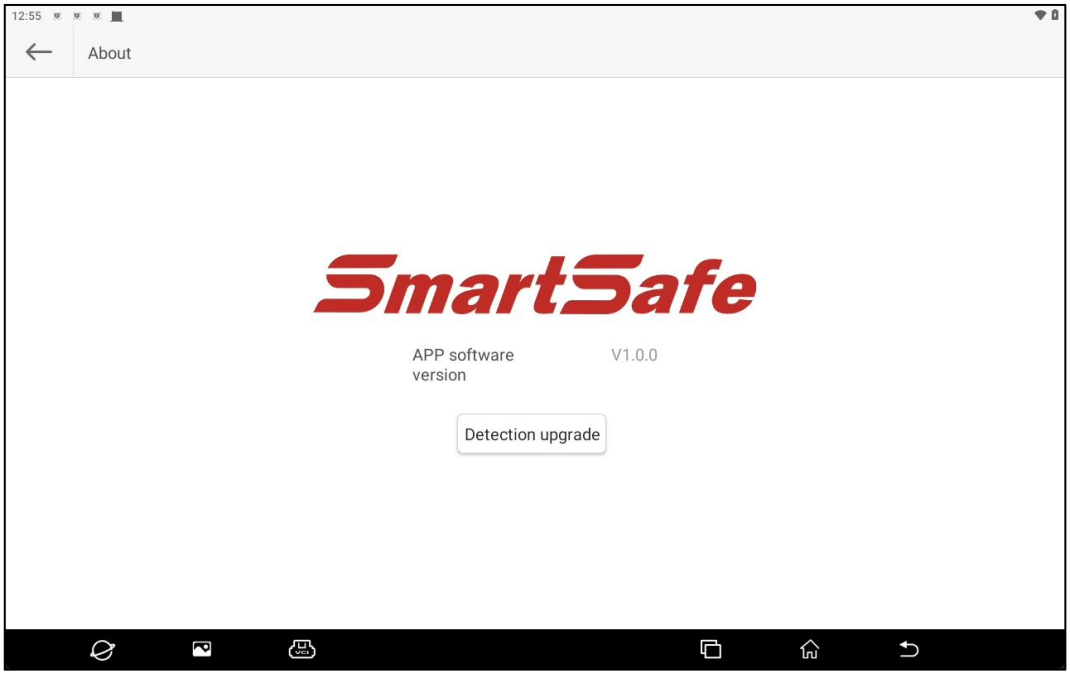
3.5.2 Development and Maintenance

Click the **"Development and Maintenance"** button to go to the development and maintenance screen. The development and maintenance functions are intended for testing by the manufacturer only, and accessing this page requires a special password. Unauthorized personnel are not allowed to access.



3.5.3 About

Click the **"About"** button to go to the following screen, where you can view APP version information and perform APP new version upgrade detection.



Warranty

THIS WARRANTY IS EXPRESSLY LIMITED TO PERSONS WHO PURCHASE SMARTSAFE PRODUCTS FOR PURPOSES OF RESALE OR USE IN THE ORDINARY COURSE OF THE BUYER'S BUSINESS.

SMARTSAFE electronic product is warranted against defects in materials and workmanship for one year from date of delivery to the user.

This warranty does not cover any part that has been abused, altered, used for a purpose other than for which it was intended, or used in a manner inconsistent with instructions regarding use. The exclusive remedy for any automotive meter found to be defective is repair or replacement, and SMARTSAFE shall not be liable for any consequential or incidental damages.

Final determination of defects shall be made by SMARTSAFE in accordance with procedures established by SMARTSAFE. No agent, employee, or representative of SMARTSAFE has any authority to bind SMARTSAFE to any affirmation, representation, or warranty concerning SMARTSAFE automotive meters, except as stated herein.

Disclaimer

The above warranty is in lieu of any other warranty, expressed or implied, including any warranty of merchantability or fitness for a particular purpose.

Purchase Order

Replaceable and optional parts can be ordered directly from your SMARTSAFE authorized dealer. Your order should include the following information:

- Order quantity
- Part number
- Part name

Statement:

SMARTSAFE reserves the rights to make any change to product designs and specifications without notice. The actual object may differ a little from the descriptions in the manual in physical appearance, color and configuration. We have tried our best to make the descriptions and illustrations in the manual as accurate as possible, and defects are inevitable, if you have any question, please contact local dealer or after-sale service center of SMARTSAFE, SMARTSAFE does not bear any responsibility arising from misunderstandings.