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1. Safety Precautions

(1) Follow the relevant requirements of the user manual to operate the equipment.

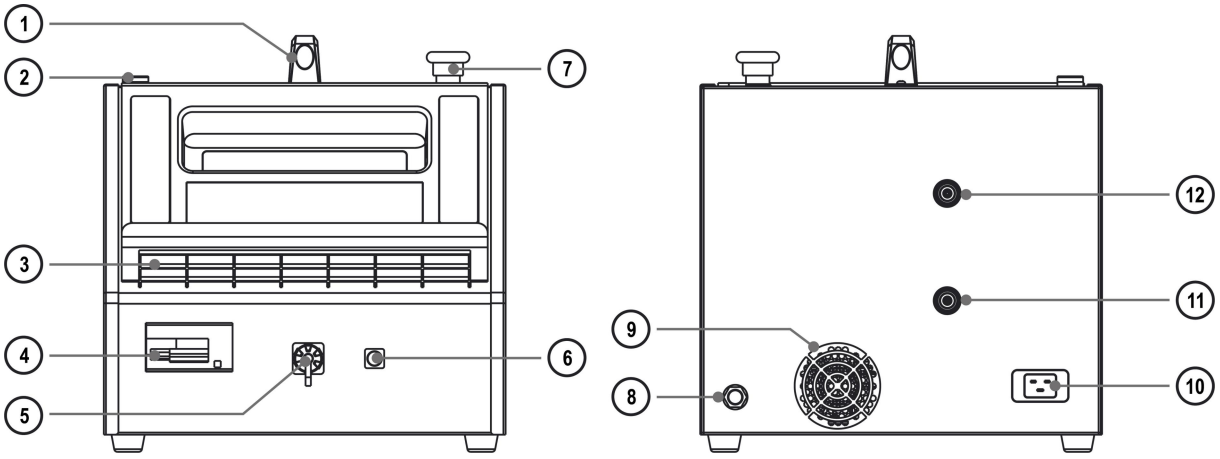
(2) Take insulation measures when operating the equipment, and wear dry and clean insulating gloves.

(3) Disconnect the operating power and test cables in case of equipment abnormality.

2. Product Overview

The ECP739 Electric Compressor Comprehensive Tester is a modular, multi-protocol compatible specialized test equipment developed by SmartSafe. It performs fast and accurate "off-vehicle" testing on compressors by simulating the real operating environment of the compressor on the vehicle (power supply, communication, load, etc.).

2.1. Equipment Interfaces and Controls

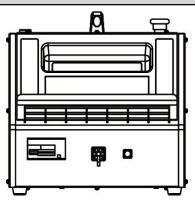
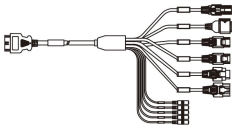
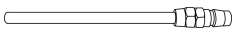


No.	Name	Description
1	Handle	Facilitates carrying the equipment.
2	Indicator Light	Solid blue indicates standby; solid green indicates working; flashing red indicates fault; solid red indicates stop warning.
3	Tablet Stand	Used to place the diagnostic tablet.
4	AC Switch	Turns on/off the equipment AC input; circuit protection.
5	High Voltage Output Interface	Outputs high voltage electricity to simulate the vehicle system's power supply to the compressor.
6	Low Voltage Output Interface	Outputs low voltage electricity to simulate the vehicle system's power supply to the low-voltage components of the compressor.
7	Emergency Stop Switch	Used to cut off power to the equipment in an emergency and immediately stop operation. After pressing this emergency stop button, rotate the switch to the right to reset it before the AC switch can be closed again.
8	Vent	Used to vent gas from the tank.

9	Cooling Fan	Dissipates internal heat when the equipment is working.
10	Power Input Port	Used to connect to the power source.
11	Oil Drain Port	Drains residual refrigerant oil from inside the equipment.
12	High-Pressure Port	Connects to the high-pressure piping of the electric compressor under test for compression performance and line leak-tightness testing.

2.2. Accessories Introduction

The following accessories are for reference only. For product configuration details, please consult your local dealer or refer to the packing list supplied with the device.

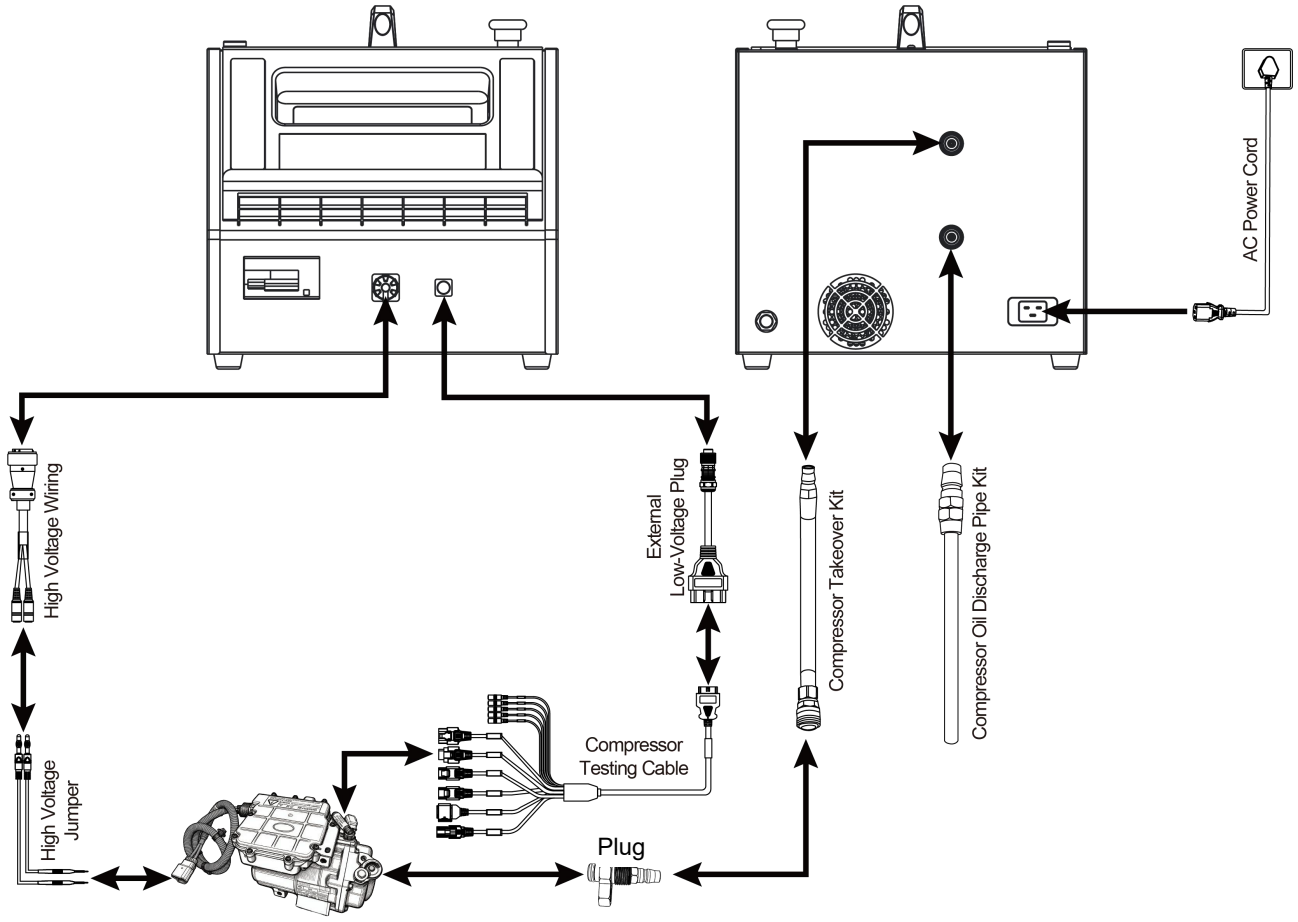
No.	Name	Qty	Unit	Reference Image
1	Main Unit	1	PCE	
2	AC Power Cord	1	PCE	
3	High Voltage Wiring	1	PCE	
4	External Low-Voltage Plug	1	PCE	
5	Compressor Testing Cable	1	PCE	
6	High Voltage Jumper 1	1	PCE	
7	High Voltage Jumper 2	1	PCE	
8	Compressor Takeover Kit	1	PCE	
9	Compressor Oil Discharge Pipe Kit	1	PCE	
10	Plug Kit	1	SET	-
11	Password Envelope	1	PCE	
12	Quick Reference Guide	1	PCE	
13	User Manual	1	PCE	
14	Packing List	1	PCE	

2.3. Technical Characteristics

Parameter Name	Description
Model	ECP739
Power Supply	AC 100-240 V, 50/60 Hz, 16 A Max
Power Input	4.5 kW Max
High Voltage Output	DC 50-750 V, 20 A Max
Low Voltage Output	DC 12 V/24 V, 2 A Max
Gas Tank Capacity	3 L
Equipment Air Pressure	12 kgf/cm2 Max
Compressor Drive Method	CAN, LIN, Enable Control
Protection Function	AC Protection: 0-40 A adjustable circuit breaker; DC Protection: manual circuit breaker
Operating Temperature	-10 ℃~50 ℃
Storage Temperature	-20 ℃~70 ℃
Operating Humidity	20%~90%
Storage Humidity	10%~90%
Dimensions	385.3 x 543.5 x 388.0 mm

3. Product Usage

3.1. Equipment Connection



High Voltage Connection

Insert one end of the aviation plug of the high voltage docking cable into the equipment's "**High Voltage Output Interface**", and connect the other end to the positive and negative terminals of the compressor high voltage socket using high voltage jumpers.

Low Voltage Connection

Connect the external low voltage plug to the equipment's "**Low Voltage Output Interface**". Connect the other end to the female connector of the compressor test cable. Select the corresponding interface according to the compressor type to insert into the low voltage communication interface of the compressor. If a matching interface has not been developed for the compressor, use jumpers for connection according to the software guidelines.

High-Pressure Port

Connect the compressor piping assembly to the equipment's "**High-Pressure Port**", and connect the other end to the compressor's high-pressure pipe port via the plug.

Oil Drain Port

Connect the compressor oil drain pipe assembly to the equipment's "**Oil Drain Port**", and connect the other end to a recovery container.

Power Supply Connection

Use the supplied power cable to connect the equipment's power input port and the power socket to supply power to the equipment. Confirm that the input voltage matches.

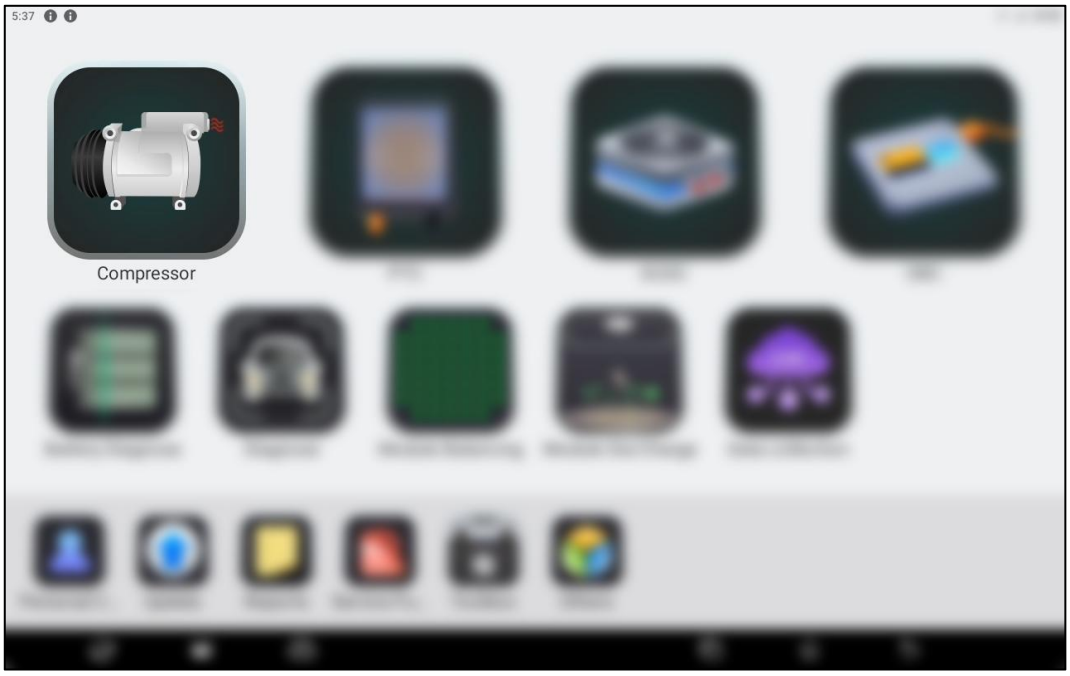
3.2. Equipment Operation

The ECP739 needs to be operated with a diagnostic tablet (optional) loaded with the **"Compressor"** APP.

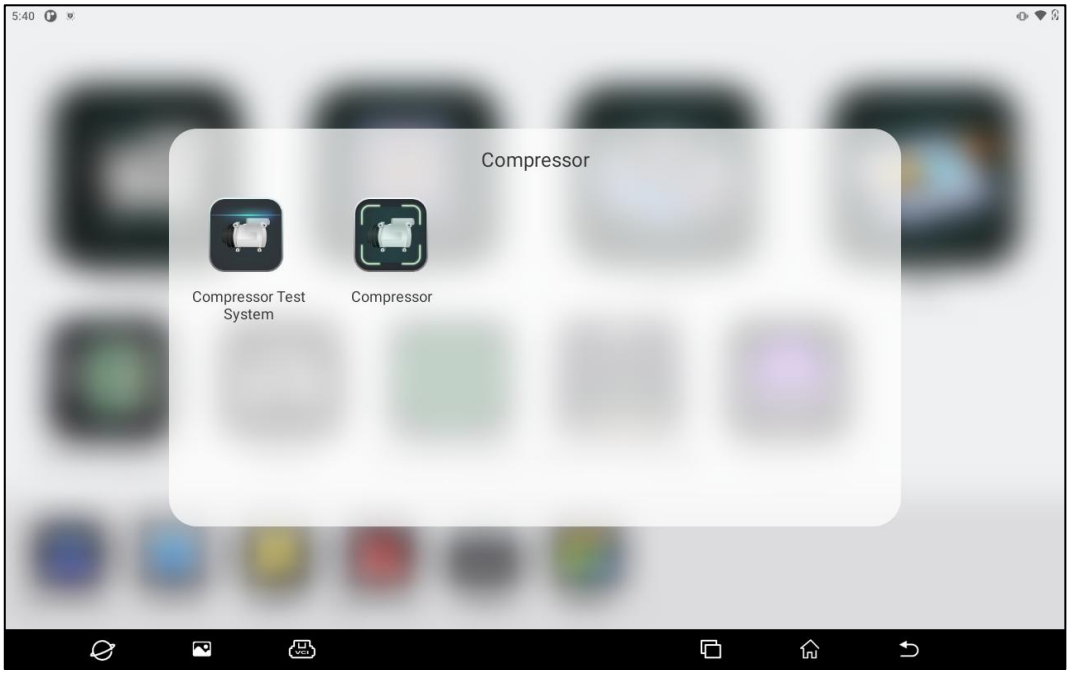
3.2.1. ConnectDiagnostic Tablet

(1) Tap the **"Compressor"** icon on the home page of the diagnostic tablet to launch the corresponding APP.

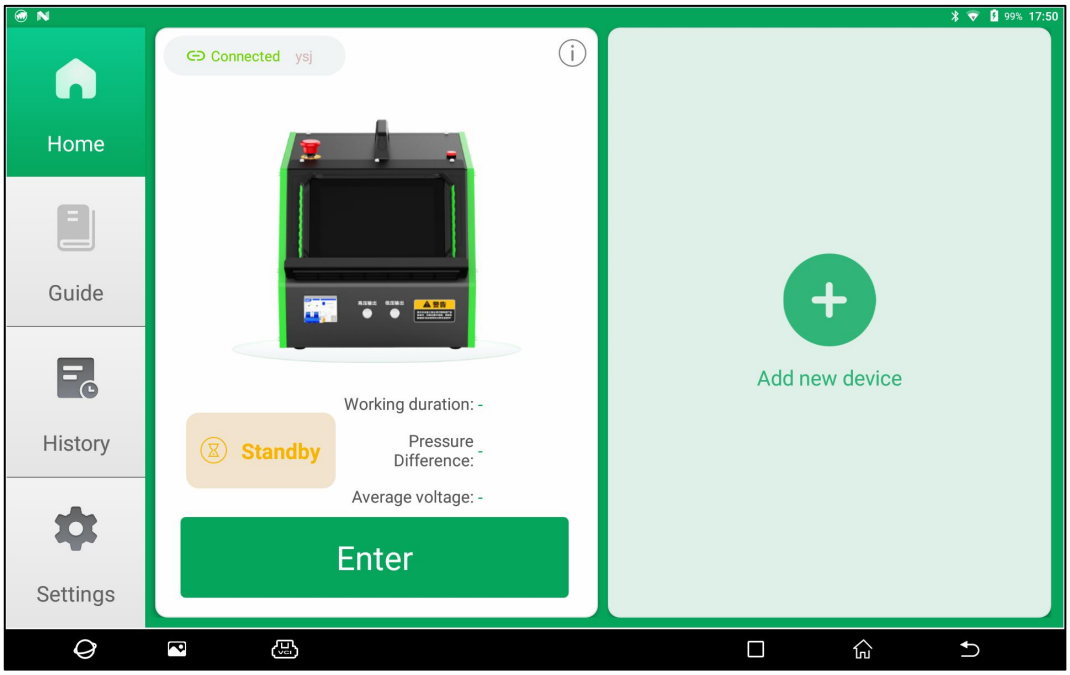
Note: Functional modules may vary across different diagnostic tablets. The following images are for reference only. Please refer to the actual diagnostic tablet for specific functional modules.



(2) Select the **"Compressor"** option in the pop-up window.



(3) If the diagnostic tablet has previously connected to an ECP739 device, the APP will enter the device display interface upon startup and show the devices the tablet has connected to.

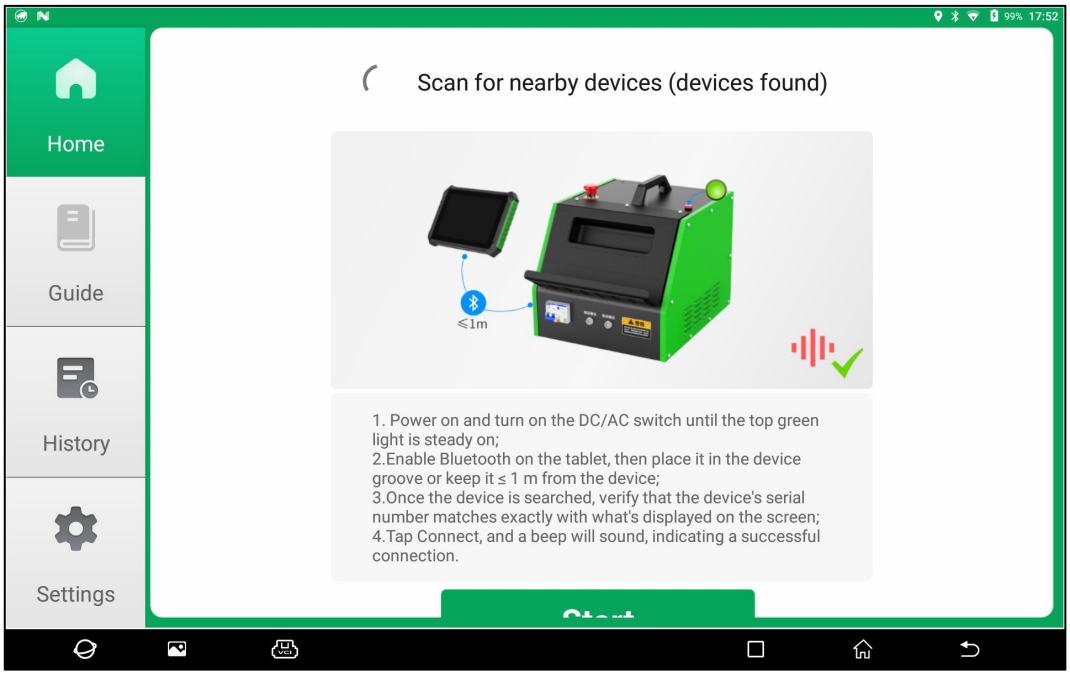


If the diagnostic tablet has not connected to an ECP739 device before, the APP will enter the device search page upon startup. Follow the on-screen prompts to connect the power supply of the ECP739 device and turn on its DC and AC switches. Wait until the indicator light on top of the device turns solid green.

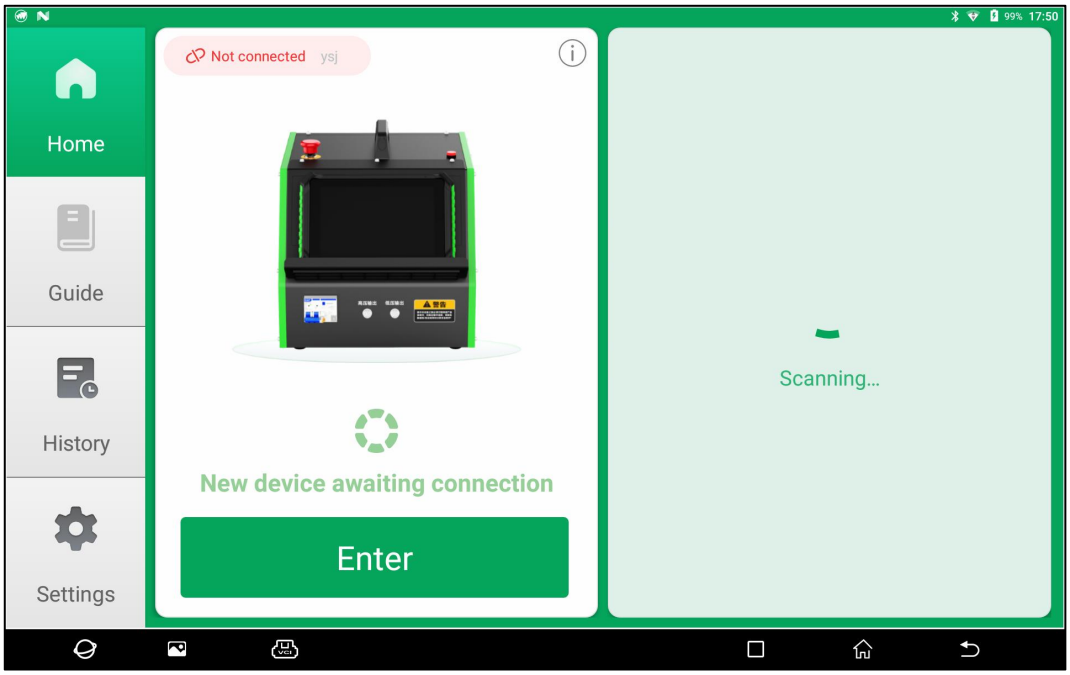


(4) Enable the Bluetooth function of the diagnostic tablet, and keep the distance between the tablet and the ECP739 device within 1 m.

(5) After the ECP739 device is found, the page displays "Device Found", and the **"Start"** button turns from gray to green. Tap the **"Start"** button to enter the home page.



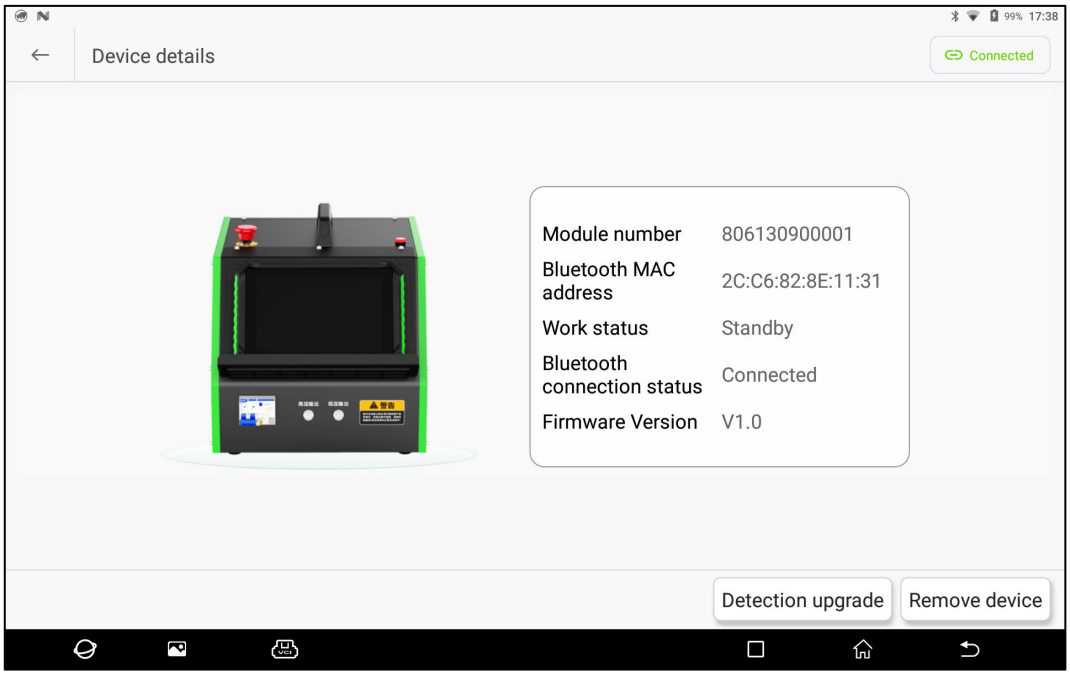
(6) Confirm that the ECP739 device serial number matches the one displayed on the interface, then tap the **"Connect"** button.



(7) The screen prompts "Connected Successfully". If the connection status in front of the device serial number on the screen displays "Connected", it means the connection is successful. Tap the **"Add New Device"** button to add a new device in the same way.

Note: The diagnostic tablet can connect and bind up to two ECP739 devices simultaneously. If you want to connect a new device after connecting two devices, you must remove a previously connected device.

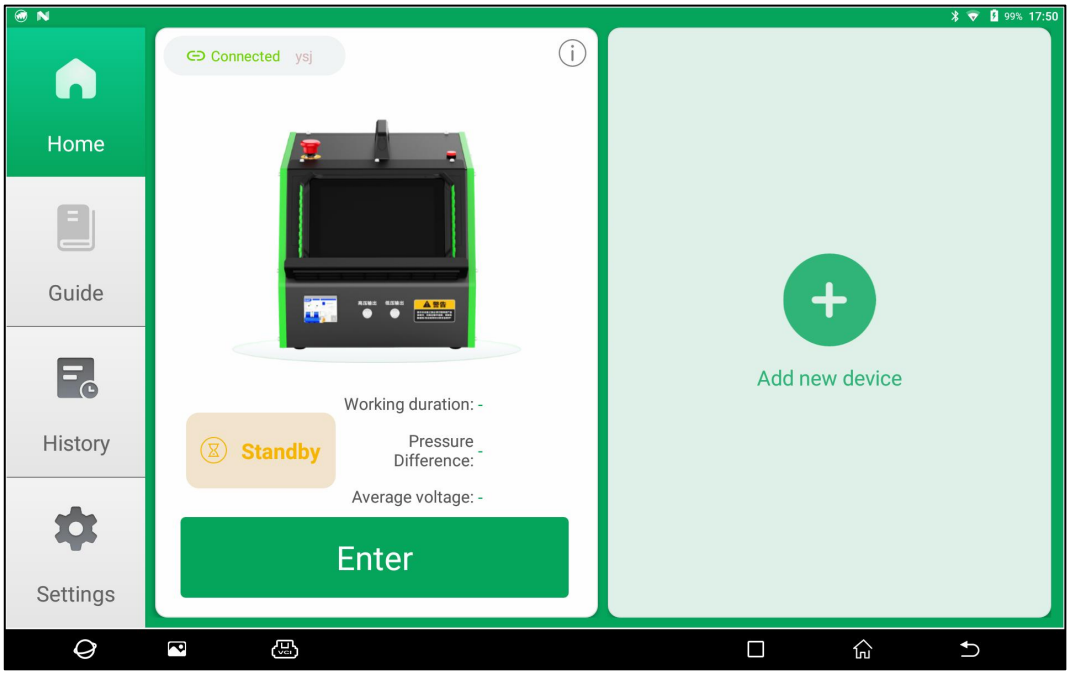
(8) Tap the icon in the upper-right corner of the single-device display interface.ⓘ button to enter the device details page, where you can view device information and remove the device.



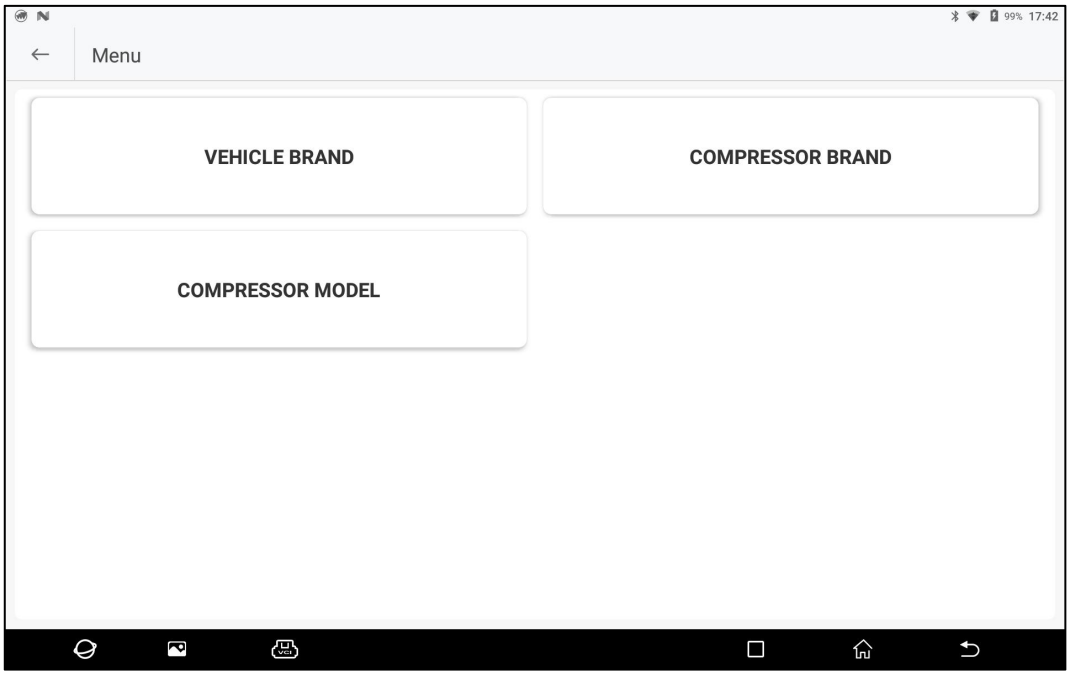
(9) Tap the **"Remove Device"** button, and then tap **"Confirm"** to unbind the device from the diagnostic tablet.

3.2.2. Compressor Diagnosis

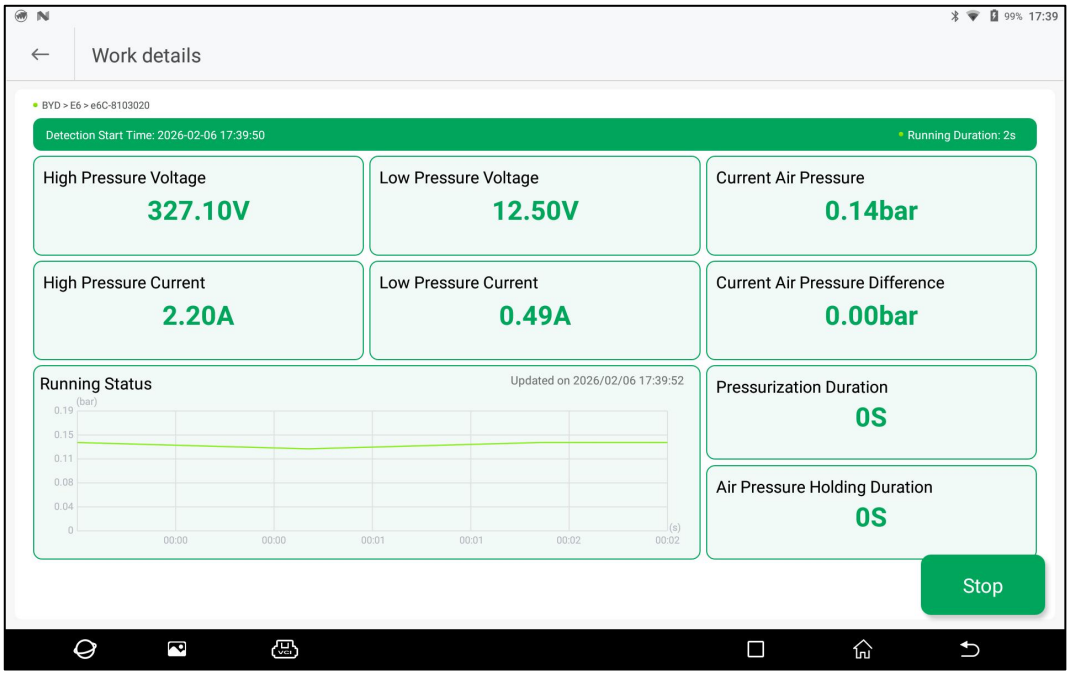
(1) Tap the **"Compressor"** icon on the diagnostic tablet, then select the **"Compressor Diagnosis"** option in the pop-up window to enter the compressor diagnosis home page.



(2) Tap the **"Enter"** button on the device card to enter the compressor model selection page. Select the corresponding vehicle brand, compressor brand, or compressor model to proceed to the next step. After learning and understanding the relevant safety regulations for operating the equipment, tap **"Next"**. The equipment will start testing the compressor.



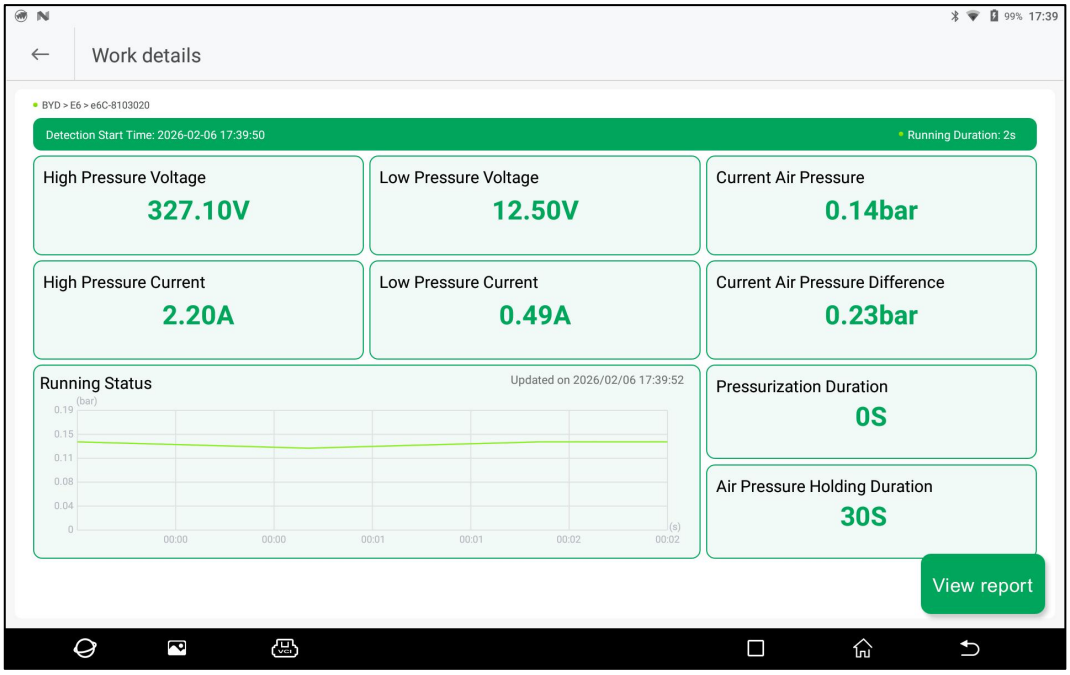
(3) Parameters and curves related to the equipment's operating status can be viewed on the test working page.



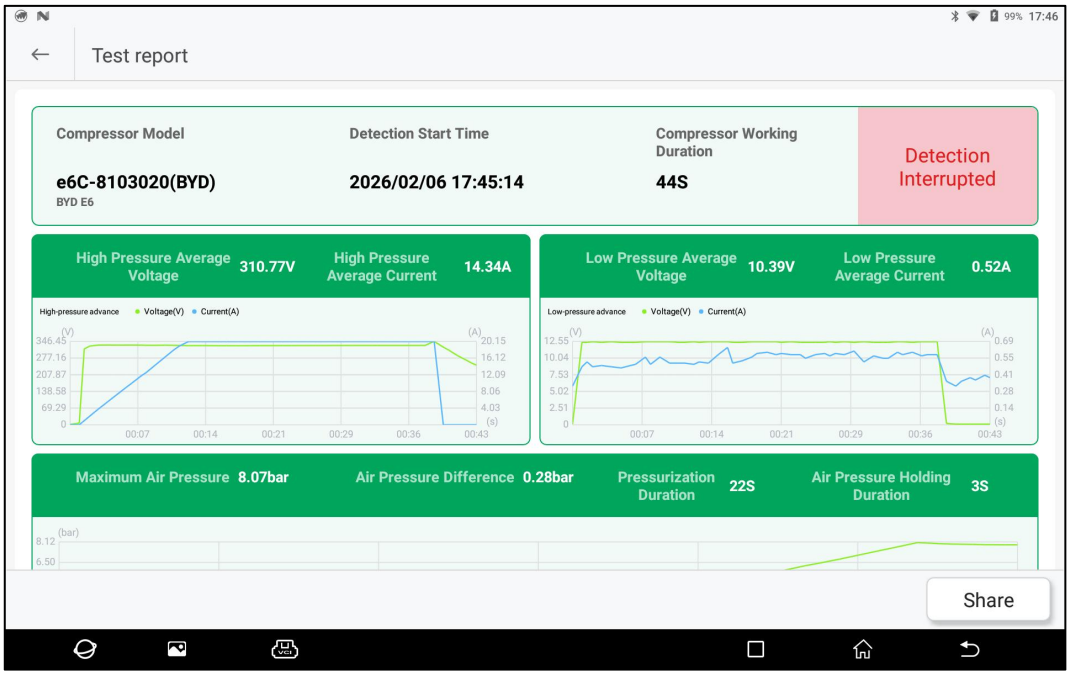
Parameter Description	
HV Voltage	The high voltage driving the compressor motor.
High Voltage Current	The operating current driving the compressor motor.
LV Voltage	The low voltage of the compressor control circuit.
Low Voltage Current	The operating current of the compressor control circuit.

Current Pressure	The refrigerant pressure inside the compressor or in the pipeline.
Current Pressure Difference	The pressure difference between the high and low pressure sides of the compressor.
Running Duration	The duration of the compressor test.
Pressurization Duration	The time taken for the compressor to rise to the current pressure value.
Pressure Holding Duration	The time during which the compressor maintains stable pressure in the pressure holding stage after reaching the target pressure.
Running Status Curve	Displays the dynamic trend of pressure changes over time during the test.

(4) Tap the **"Stop"** button to end the current test process. After stopping, tap **"View Report"** to generate the test report.

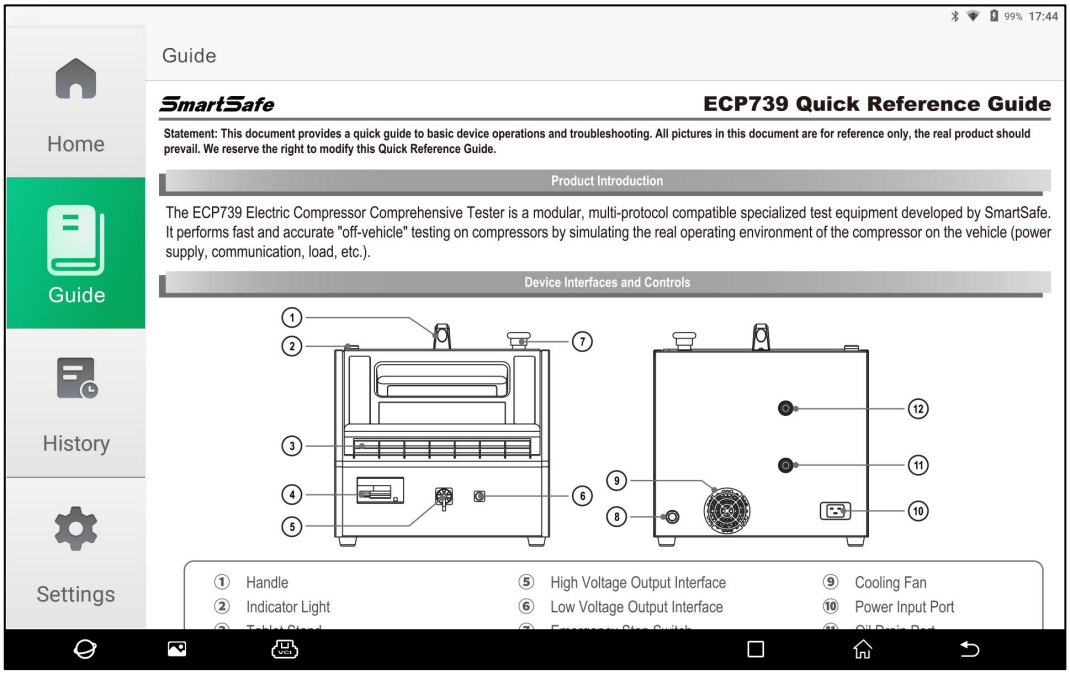


Tap **"Share"** to share the test report via QR code, email, or Bluetooth.



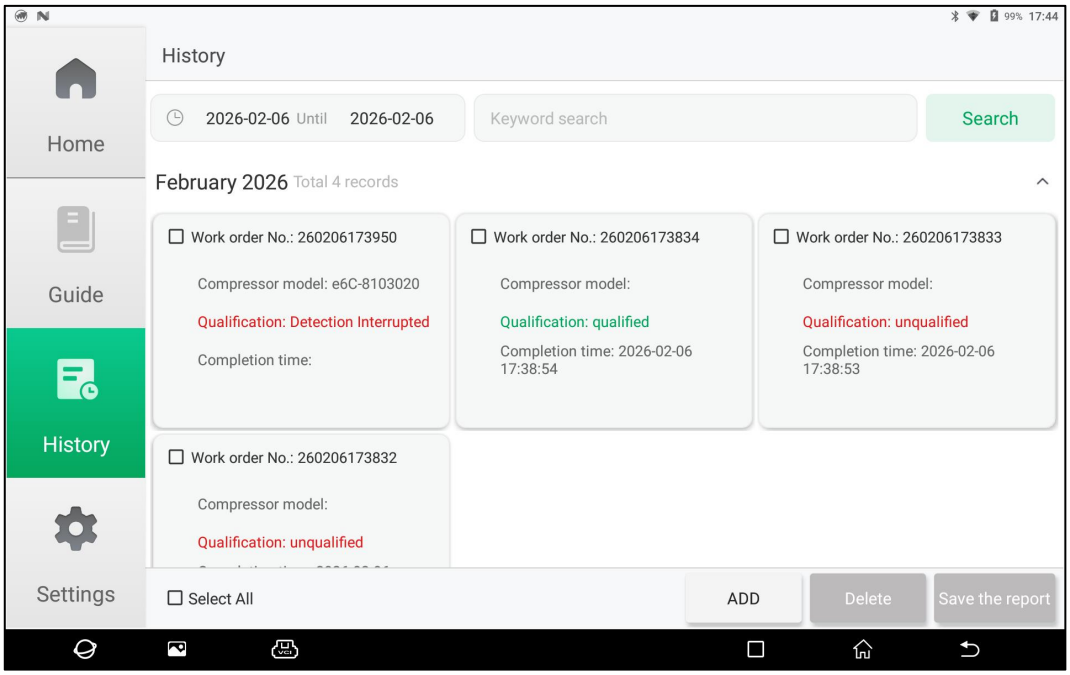
3.3. Guide

Tap **"Guide"** in the left function module navigation on the compressor diagnosis main interface to view the quick Guide of the equipment.



3.4. History

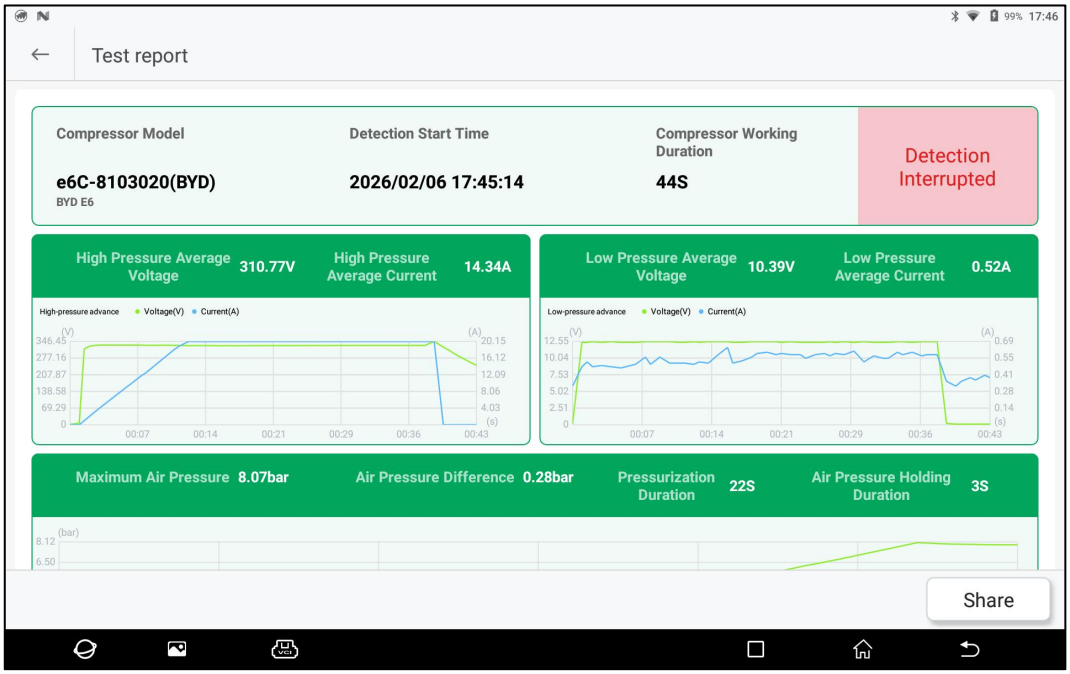
(1) Tap **"History"** in the left function module navigation on the compressor diagnosis main interface to enter the history interface.



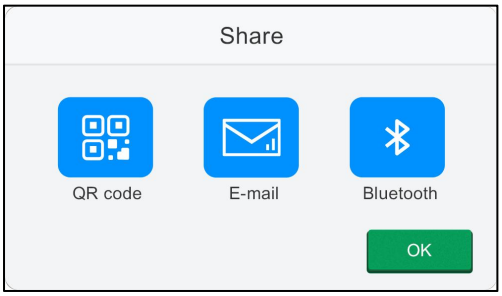
(2) Check one or multiple history records, and tap **"Delete"** to delete the checked records.

(3) Set the start and end dates or enter keywords, then tap **"Search"** to filter out records that meet the criteria.

(4) Tap a single record card to view the detailed test report for that record.

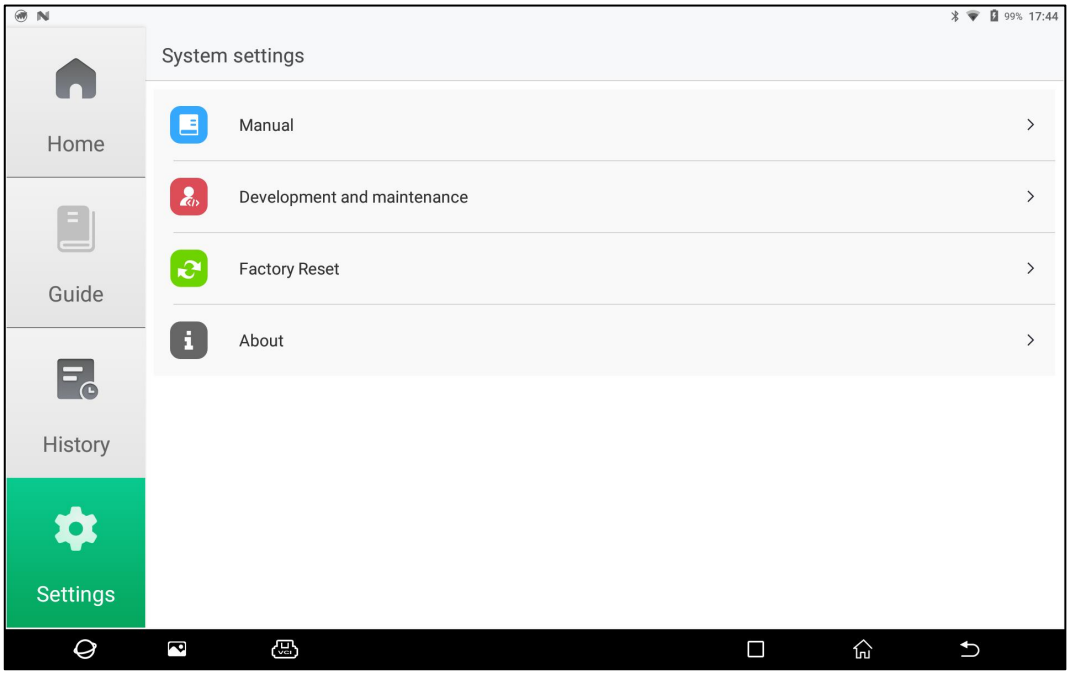


(5) Tap **"Share"** on the test report page to share the test report via QR code, email, or Bluetooth.



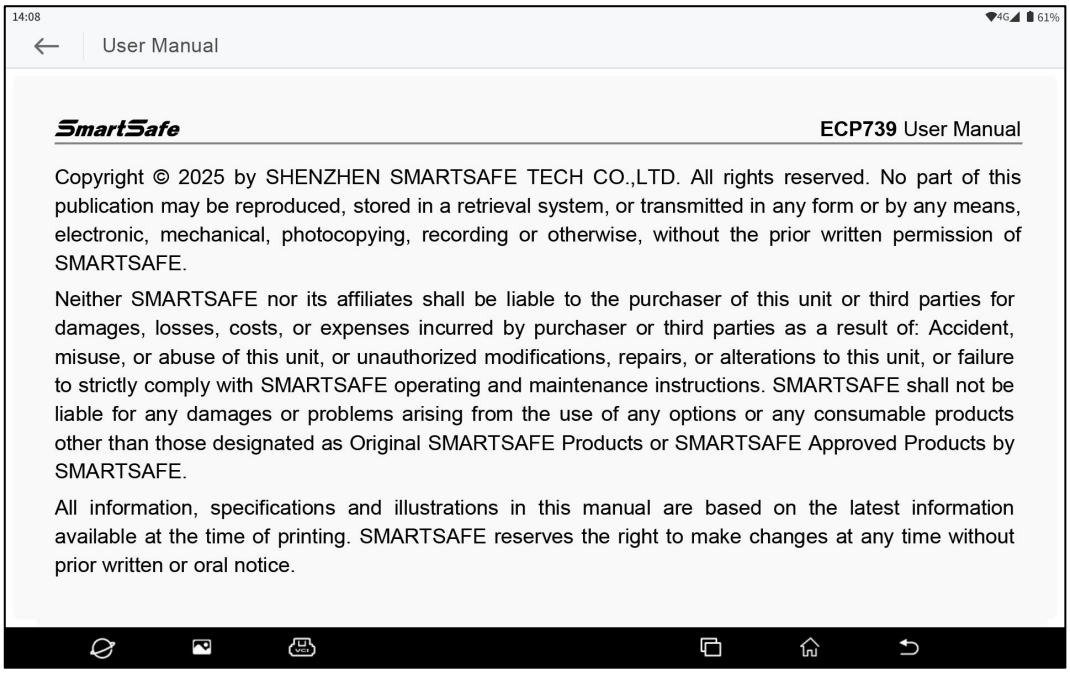
3.5. Settings

Tap the **"Module Equalization"** or **"Module Charge/Discharge"** icon on the diagnostic tablet to enter the home page. Then tap **"Settings"** in the left function module navigation to enter the settings interface. The setting options include User Manual, Development Maintenance, and About.



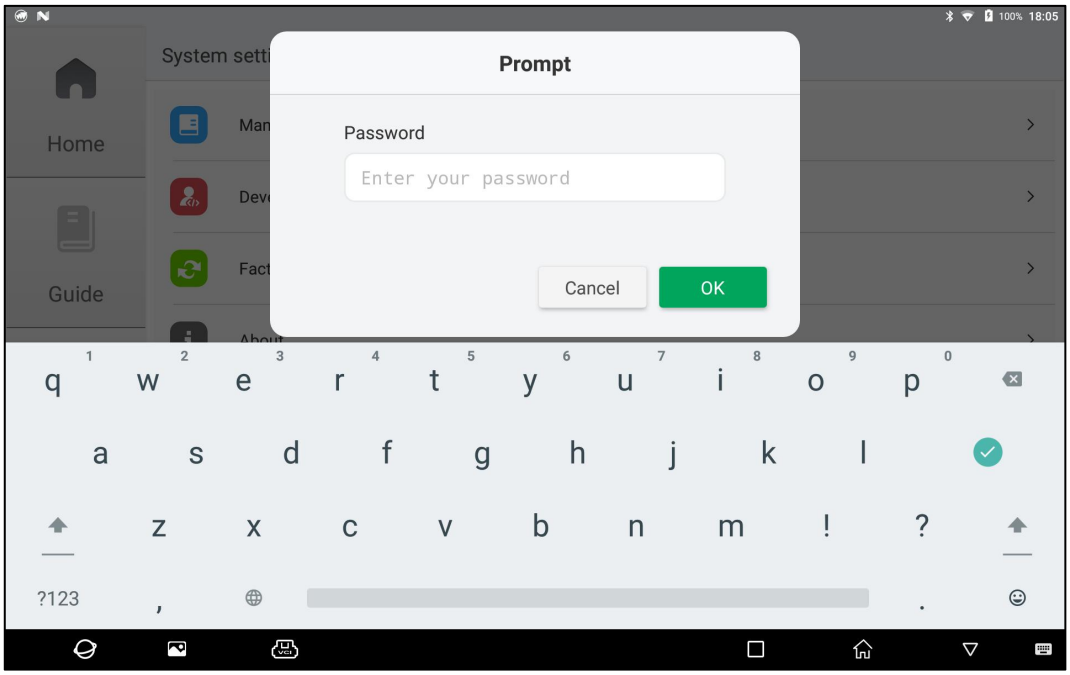
3.5.1 User Manual

Tap **"User Manual"** on the settings interface to enter the manual interface, where you can view the user manual online.



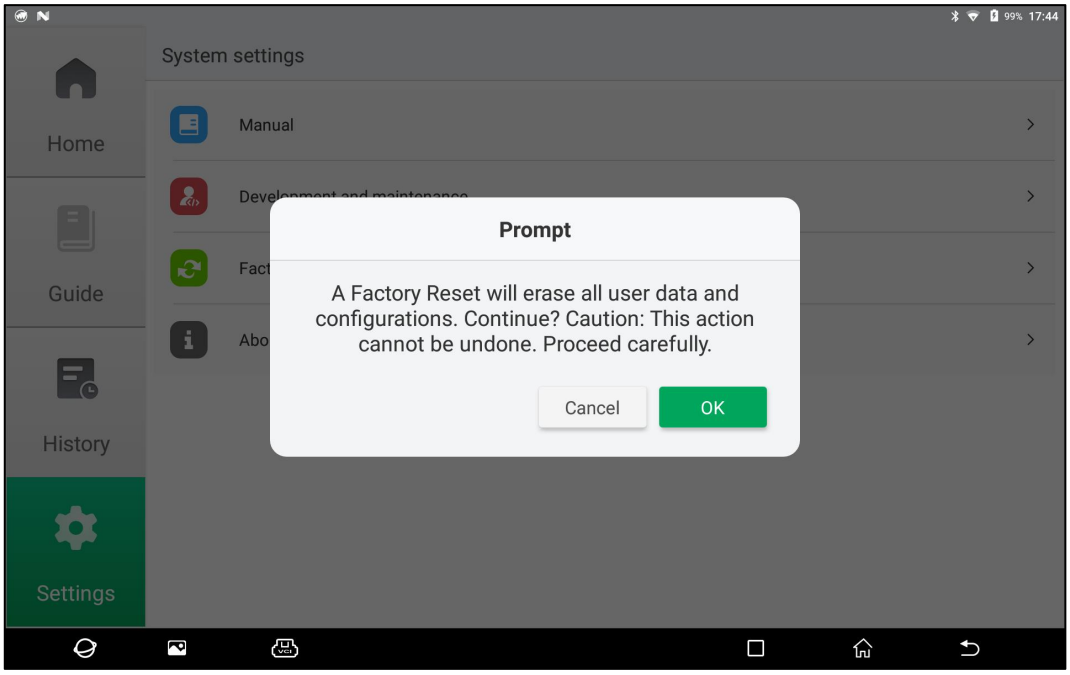
3.5.2 Development and Maintenance

Tap **"Development and Maintenance"** on the settings interface to enter the development and maintenance interface. This function is for manufacturer testing only and requires a dedicated password to access. Unauthorized personnel are not allowed to access it.



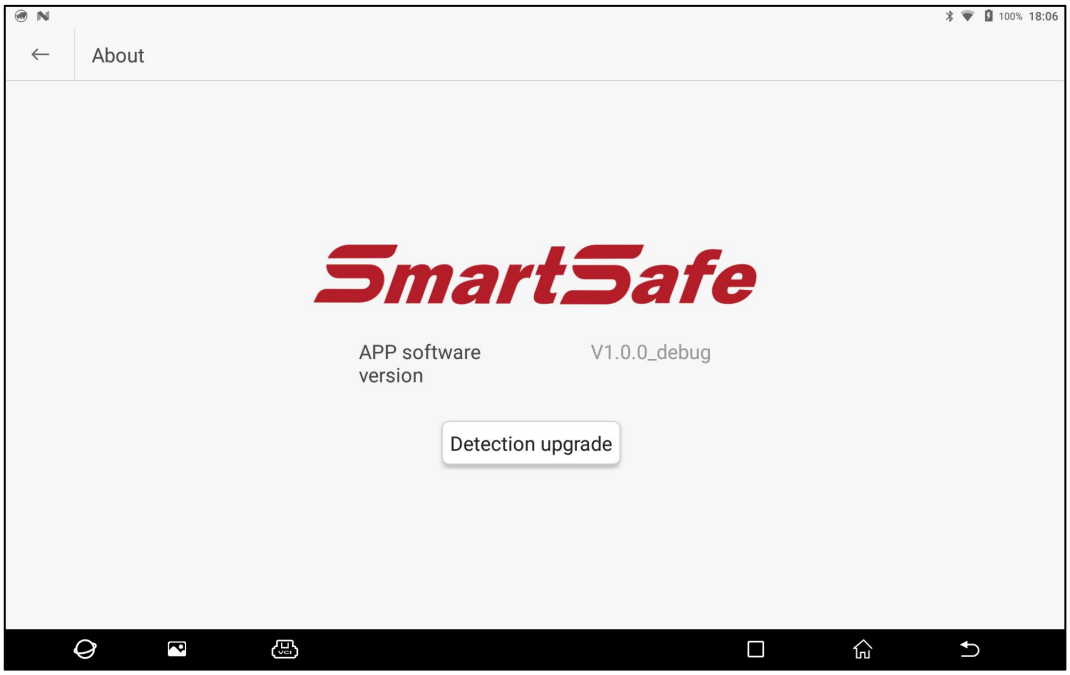
3.5.3 Factory Reset

This operation will delete personal data and custom settings. Please proceed with caution.



3.5.4 About

Tap **"About"** on the settings interface to enter the following interface, where you can view APP version information and check for APP updates.


100% 18:06
About
SmartSafe
APP software version
V1.0.0_debug
Detection upgrade

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:

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