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FCAR Series Host Machine Maintenance and Use Cautions

- Do not allow unauthorized disassembly.
- Avoid strong impacts to the equipment.
- Avoid proximity to any magnetic field.
- Do not keep this machine in a high temperature environment for any length of time.
- Do not forcefully click on the screen or click the screen with sharp tools.
- Do not use water and chemical solvents to clean the machine, please use a soft clean cloth and neutral detergent instead.

Automobile Inspection Notes

- Follow the standard safety rules of the auto repair industry to operate. Be especially careful to avoid impact or damage caused by environmental factors such as the surrounding PH, poison gas or high pressure environment.
- Vehicle battery fluid contains sulfuric acid, which is corrosive to the skin. During the operation, avoid direct contact with the battery fluid, in particular being careful not to splash into the eyes. Keep away from fire.
- The engine exhaust gas contains a variety of toxic compounds, which one should avoid breathing in. During the operation, park the vehicle in a well-ventilated place.
- When the engine is running, the temperature is very high; please avoid contact with the water tank, exhaust pipe and other high temperature components.
- Before starting the engine, apply the handbrake and place the shift lever in Gear Neutral (Manual Transmission) or P (Automatic Transmission) to

avoid sudden movements of the vehicle when starting the engine.

- Before repairing the vehicle, apply the parking brake, engage the Neutral or P range, and lower the driver seat's glass doors.
- If the engine can be started, warm-up the vehicle to normal temperature (water temperature is about 80 °C), and turn off the auxiliary electrical appliances (such as air conditioning, lighting, sound, etc.).
- Find the diagnostic socket of this car; check and confirm the diagnostic socket cables are in good condition, connecting the main unit for diagnosis. Otherwise, do not test, to avoid damage to the main unit. If necessary, use a multimeter to measure the voltage of the diagnostic socket.

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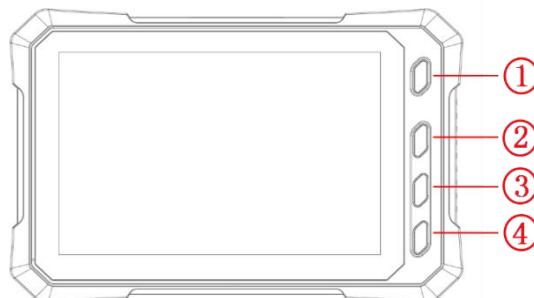
1 PRODUCT INTRODUCTION

1.1 INTRODUCTION

FCAR F9S series product is an integrated automotive computer fault diagnostic instrument aimed at the testing and diagnosis of diesels, and supporting GPS positioning and 4G mobile communication. The product is applicable to large and small service companies, training institutions, automobile manufacturers, repair stations, diesel engine manufacturers, mining machinery, energy and other enterprises.

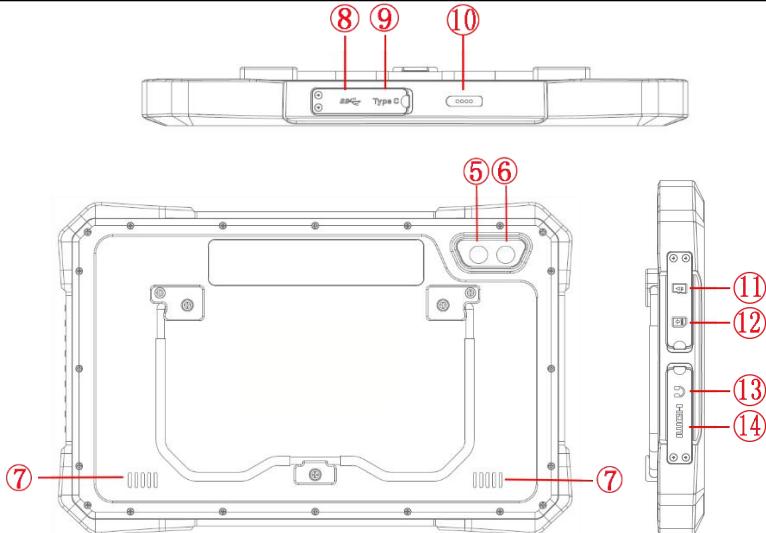
The product software is comprehensively configured, and vehicle data and information in it are authoritative and fully meet the strict requirements of customers' detection breadth and depth. The software covers large amounts of vehicle model data, and provides a powerful help system with maintenance information, enabling users to deal with the problems in practical work easily and quickly, thereby increasing the efficiency and technical level and reflecting the advantage of professional level quality.

1.2 HOST STRUCTURE



| Serial number | Name | Description |
|---------------|------------|---|
| ① | brightness | Adjust to maximum brightness. If you want to adjust the brightness slightly, you can set it through the Android system menu, or slide down twice in the upper right corner of the screen to bring up the brightness bar and directly adjust it. |

| | | |
|---|--------------|--|
| ② | Home | Return to the main interface of the Android system |
| ③ | Return | Return to last interface |
| ④ | Power switch | Used to switch on or off host, or lock screen |



| Serial number | Name | Description |
|---------------|-----------------------|--|
| ⑤ | Camera | Used to take a photo or record a video |
| ⑥ | Flashing light | Used to provide light when the light is weak |
| ⑦ | External speaker port | For external sound playback |
| ⑧ | USB Port | Connect host to the VCI or connect to the USB flash drive. |
| ⑨ | USB Type C | Charge or transmit data |
| ⑩ | Magnetic power port | Charge (DC 12V,2A) |

| | | |
|---|--------------------|--|
| ⑪ | TF card slot | Storage TF card location (Optional) |
| ⑫ | SIM card slot | Storage SIM card location |
| ⑬ | 3.5 headphone jack | headphone jack |
| ⑭ | HDMI Port | Standard HDMI interface: used to connect to TV HD output |

Host parameter

| Name | Specifications |
|---------------------|--|
| CPU | RK3566 Quad-core1.8GHz processor |
| System | Android 11 |
| Memory | 8GB RAM &128GB ROM, besides supporting 128 GB TF memory card |
| Screen | 10.1" 16:10, 1280*800 |
| TP touch screen | Touch capacitive screen |
| Camera | 800 million pixels, with flashing light |
| 2G/3G/4G | LTE-FDD/LTE-TDD/WCDMA/GSM |
| Wi-Fi | 2.4G+5G |
| Bluetooth | BT4.2/5.0 |
| GPS | GPS, Bei-Dou satellite navigation system |
| Sensor | Light Sensor/G sensor |
| Battery | 10000mAh/3.7V |
| Size | 306*197*26mm |
| Work temperature | -10~50°C |
| Storage temperature | -20~60°C |

Note: 2G/3G/4G mobile communication is not supported for some batches of products. For details please refer to the product you purchased.

1.3 VCI BOX STRUCTURE

The diagnostic instrument is connected to the vehicle through VCI box. The VCI box model is FV500.



| Serial No. | Name | Description |
|------------|----------------------|---|
| ① | USB Type-C | Connect with tablet host or upgrade FV500 |
| ② | Diagnostic indicator | Light flashes when communicating with the vehicle |
| ③ | Power indicator | Light on when the power supplied |
| ④ | DC Power Port | Charge by DC power supply |
| ⑤ | OBD Diagnostic Port | Connect the vehicle |

FV500 Main Parameter

| | |
|-----------|----------------------|
| Processor | HPM6360 32Bit RISC-V |
| Frequency | 648MHZ |
| Bluetooth | BT4.2(BLE) |
| Memory | 2048KB |

2 HOST ON/OFF AND FUNCTION MENU

2.1 HOST CHARGING

Host can be charged in following ways:

- AC/DC power adapter
- built-in battery pack

Plug one end of the AC/DC power adapter to the DC power port of the host and then connect the other end to the wall socket. The power adapter can be used to charge the built-in battery pack.

Note: Voltage of the power supply should be within the scope of the product host. Exceeding the range may cause damage to the product.

2.2 POWER ON



Press and hold the host power switch (about 3 seconds) to power on host, and then system starts to run.

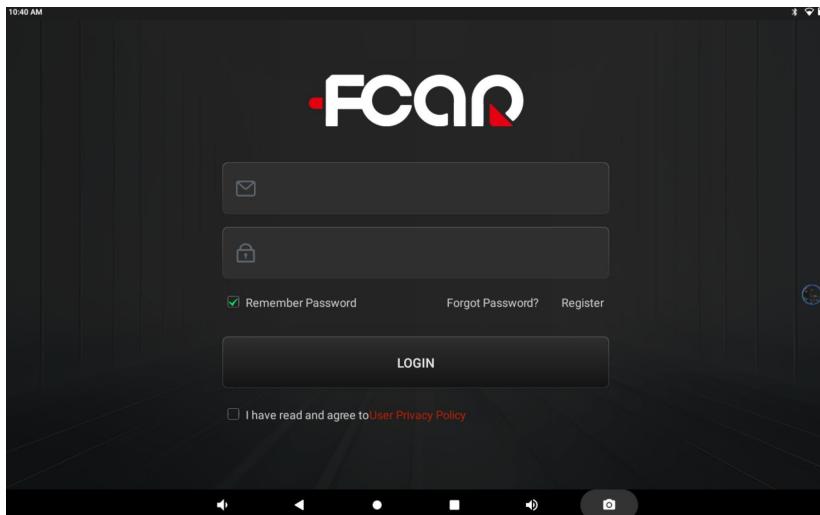
Tip: It is recommended to lock the screen whenever you are not using the device to protect your system information and save battery power. Slightly click the power/lock screen button once, the screen will be automatically locked. Excessive force or long press may cause the button to malfunction or enter the shutdown interface.

2.2.1 SYSTEM LOGIN

To access the Fcar vehicle diagnosis system, an account login is required, and for the first time, you need to register an account.

The steps are as follows:

- 1) Enter the Email and the password. If you have no an account, please click **[Register]**.
- 2) Check in “Remember Password” and “Please read and check ‘User Agreement’”;
- 3) Click **[Login]** to enter the diagnosis system.



2.2.2 LOGOUT

Click the Personal Center icon “” in the upper right corner toolbar of the screen to enter [Personal Center] page, and then select the menu [Log Out] .

2.3 POWER OFF

All vehicle communication must be terminated before shutting down the diagnostic equipment. Vehicle's electronic control module would go wrong if forced shutdown during communication, please exit all diagnostic applications before shutting down.

The shutdown steps are as follows:

- 1) Short press host power switch (about 2 seconds)
- 2) Click [Power off] in the pop-up prompt to close host.

2.4 INTRODUCTION TO EACH MENU OPTION

After the system is logged on, enter the following main menu:



- 1) Choose to inspect the vehicle(see Table 1 below)
- 2) Toolbar(see Table 2 below)
- 3) Main menu(see Table 3 below)
- 4) Guide bar(see Table 4 below)

Table 1: Choose to inspect the vehicle

After selecting the current vehicle, all vehicle checks you do are linked to the current vehicle and a full vehicle report is generated.

Table 2: Toolbar

| Icon | Function name | Function description |
|------|---------------------|--|
| | Back to the Desktop | Back to the System Desktop |
| | Reference Guide | Provide help information such as equipment usage instructions, maintenance assistance, trouble code inquiry, etc |
| | Message Center | Receiving view system messages |
| | Personal Center | Managing User Profiles and Settings |

Table 3: Main Menu

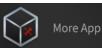
| Icon | Function name | Function description |
|---|-------------------|--|
|  Diagnosis | Diagnosis | Can diagnose the vehicle, can operate basic function and special function |
|  More App | More App | Installing More Applications for Fcar Ecology |
|  Diagnose report | Diagnosis Report | Vehicle Inspection Report Center |
|  Update | Update | Online upgrade of system software, model software, etc |
|  Device Management | Device Management | VCI connected via Bluetooth/USB and firmware upgrade |
|  Feedback | Feedback | Timely feedback to Fcar background on problems encountered in application use |
|  Remote Assistance | Remote Assistance | Run this program to establish remote assistance with FCAR after-sales technical team |
|  Data Management | Data Management | Browse and manage data files stored |

Table 4: Guide bar

| Icon | Function name | Function description |
|---|-----------------------|--|
|  Back | Back | Return to last interface |
|  Homepage | Homepage | Return to the main interface of the Android system |
|  Recently Used Program | Recently Used Program | Display the list of recently-used program thumbnails list, click on the program thumbnail to open the program, and swipe up the program thumbnail to close the program |
|  Volume | Volume | Turn up the volume |

| | | |
|---|------------|----------------------|
|  | Volume | Turn down the volume |
|  | Screenshot | A Key Screenshot |

3 PREPARATION BEFORE DIAGNOSTIC

Through having established data connection with the vehicle's electronic control system that has been connected to the VCI device, the diagnostic program can read vehicle diagnostic information, check the data stream, and perform actuation test and other functions.

- To establish good communication between the diagnostic program and the vehicle, you need to do as below:
 - 1) Connect the VCI box to the vehicle diagnostics socket and supply the power;
 - 2) Establish communication between VCI and F9S host via Bluetooth pairing or USB data cable;
 - 3) Check the VCI connection status in the "Device Management" module. The vehicle diagnosis can be performed after the connection.
 - 4) When you diagnose a vehicle you need to associate the vehicle to generate a diagnostic report, you can click the button "Quick Check Mode" in the upper right corner of the main menu, Enter the vehicle currently inspected. If you do not choose, we will not associate with the car by default, and the diagnostic results of your operation will not be saved as a diagnostic report.
- How to execute Vehicle Diagnosis
 - 1) Establish a good communication between the diagnostic program and the vehicle under test, see 3.2.
 - 2) Select vehicle type.
 - 3) Perform vehicle diagnosis by "Auto Scan" all systems of the vehicle or manually selecting and detecting a designated control unit.

Here we make the detailed instructions.

3.1 PRE-DIAGNOSTIC TECHNICAL REQUIREMENTS

3.1.1 VEHICLE REQUIREMENTS

- Turn ignition switch to gear ON;
- Vehicle battery voltage should be between 11~14V or 24~27V (subject to the vehicle's power supply)
- Accelerator pedal is in OFF state, that is, the idle coupling point;
- Ignition timing and idle speed value should be within the standard range, and the water temperature and transmission oil temperature are in the normal working temperature (water temperature 90~110°C, transmission oil temperature 50~80°C);
- Then, the diagnostic cable is connected properly.

3.1.2 MAINTENANCE TECHNICIAN REQUIREMENTS

- Must have a basic knowledge of automotive electronics;
- Understand the basic operation methods of this product and familiarize with this manual;
- Basically distinguish whether it is a mechanical fault or an electronic control fault from the vehicle fault phenomenon tested;
- Learn about the vehicle's origin, year of production, model, engine model and more.



3.2 VEHICLE CONNECTION

3.2.1 CONNECT VCI BOX TO VEHICLE

Before VCI box connected to vehicle, it is necessary to judge whether the diagnostic socket of the test vehicle is a standard OBD-II port or a non-standard OBD-II port.

- For Vehicles compatible with the OBD-II management system, The VCI can be connected to vehicle diagnostics socket and supplied with power only with

- the integrated standard OBD-II connector;
- For Vehicles that are not compatible with the OBD-II management system, you need to select the corresponding connector; some other vehicles need to supply power to the VCI box through other power sources of the vehicle.

Here we make the operating instruction regards to these two connection modes.

➤ **Standard OBD-II port connection**

For vehicles with standard OBD-II port, you just need to connect with all-in-one main test cable OBD connector rather than other connectors, as shown in Figure 3.2-1:



Figure 3.2-1 Connection of standard-OBD-II port

Instructions:

- 1) Determine the location and the port of the diagnostic socket;
- 2) Connect the integrated OBD-II port of the VCI to the vehicle diagnostic socket;
- 3) At this time, the VCI box is powered by the vehicle diagnostic socket, and the power indicator light is on.

Note: After test is completed, please rotate the fixing bolts and then gently unplug the main test cable to avoid damage to the diagnostic port.

➤ **NON-OBD-II PORT CONNECTION**

For vehicles connected to non-OBD-II port, you need to connect the main test cable to their corresponding dedicated connectors, as shown in Figure 3.2-2:

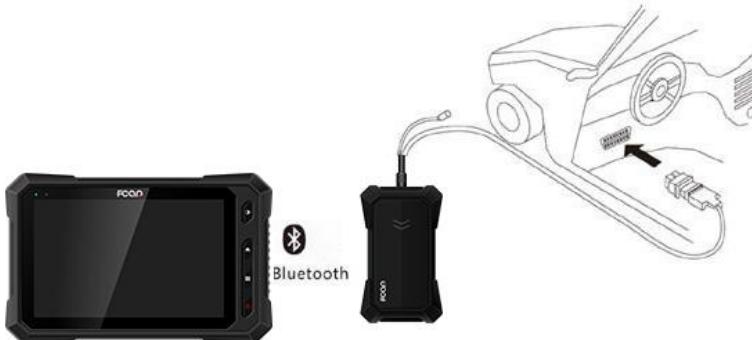


Figure 3.2-2 Connection of non-OBD-II port

Instructions:

- 1) Determine the diagnostic socket location and port, and whether need the external power source;
- 2) Connect the main test cable of the VCI to a dedicated adaptor corresponding to the vehicle;
- 3) Connect the dedicated connector that is connected to the main test cable to the vehicle diagnostic socket;
- 4) At this time, VCI box is powered by the vehicle diagnostic socket, and then power indicator light is on (if it is not lit, it may be because the vehicle diagnostic socket is not energized, you can energize the VCI box by the cigarette lighter or the battery clip).

3.2.2 HOST AND VCI BOX CONNECTION

After VCI box is connected to the vehicle, the connection between the host and the VCI box needs to be matched, and then vehicle diagnosis can be started after matching is completed; the VCI box supports two ways of communicating with the host: Bluetooth pairing and USB cable.

- **Paired through Bluetooth**

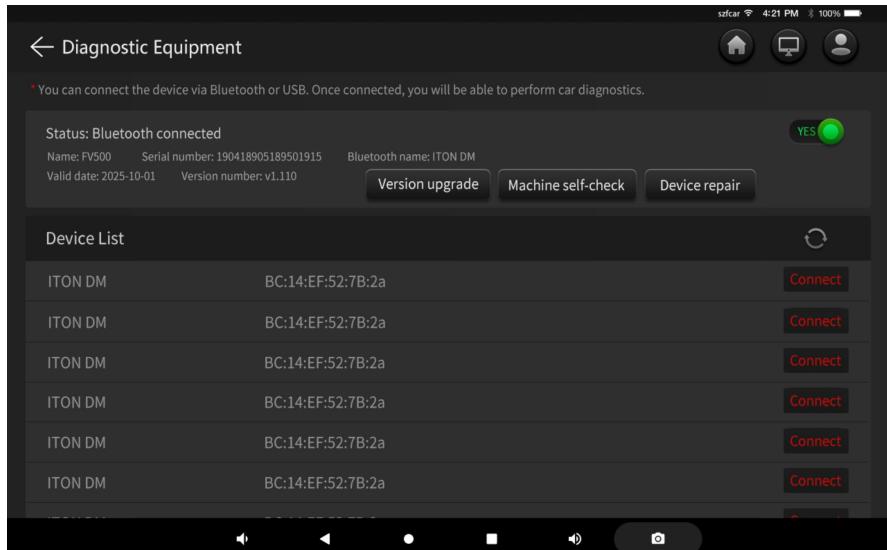
- 1) Turn on the host power, login into the program main menu;
- 2) Click on the device management button  , and then click on the open button  "YES" above the VCI list to scan nearby VCI devices that can be connected;
- 3) Click Connect, Connect successfully, then return to the main menu, the

current connection status of the device management module will change from

"  " to "  ".



4) Select the car diagnostics "  ", enter the diagnostics.



Note: If the signal strength of the transmitter is too weak, Bluetooth device can't be searched. In this case, please move it as close as possible to the VCI Bluetooth device.

- **Paired through USB cable connection**

USB connection is the fastest communication method between the host and the VCI device. Please use dedicated USB cable configured by our factory to connect. After the connection is completed, The VCI icon status on the screen will change

from "  " to "  ", indicating that the USB connection is successful, and then the vehicle diagnosis can be started.

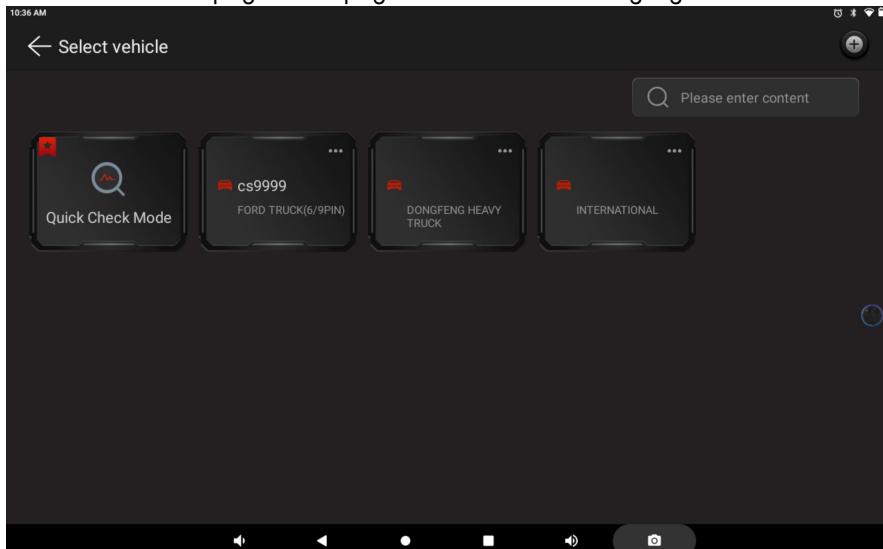
Note: These two connection methods can't be used at the same time!

4 Select Vehicle

When you enter the main menu page, the current vehicle in the upper left corner of the default is not available and displays

Quick Check Mode

"", if you want to associate the vehicle, you need to click the drop-down button in the upper left corner to enter the vehicle selection page. The page shows the following figure:



Note: The associated vehicle is selected to save the vehicle inspection report before entering the main menu for vehicle inspection-related operations. This report brings together the results of all equipment in the Ivka ecology for the vehicle's corresponding inspection, which is a good way to preserve the entire vehicle's inspection history.

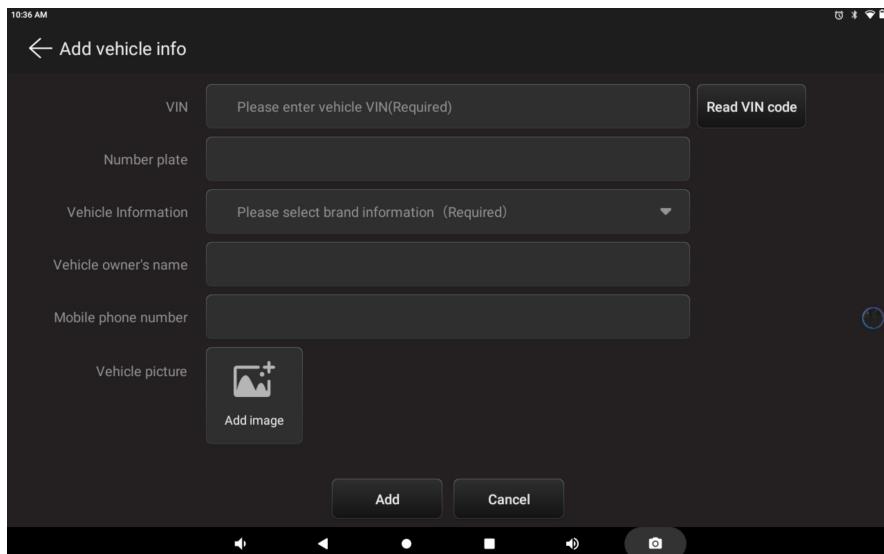
- 1) Select Quick Check Mode: All vehicle inspection items you operate will not be saved as inspection reports.
- 2) If the vehicle selection page does not have the vehicle you want to

associate, you can click on Check vehicle " ", create the vehicle to do the association. Vehicles created at the same time are also displayed in the vehicle list for quick selection next time.

- 3) Historical creation of the vehicle, you can select the top right corner

of a vehicle " ", operation edit and delete: edit is to modify the vehicle related information; Deletion removes the vehicle from the list of historically created vehicles.

Let's take a look at the following features for creating a vehicle:



The information for creating a vehicle is as follows:

1) VIN: This is required and you can automatically read the vehicle VIN

code by entering it manually or by clicking "Read VIN code" in case of VCI connection.

2) License plate number: this is not required, you can fill out according to your own needs.

3) Model information: This is required, you need to select vehicle brand and other relevant information. When you make a vehicle diagnosis later, we will automatically bring this information into your vehicle, you do not have to repeat the brand and other information before entering the diagnosis. We can automatically jump to your brand for you.

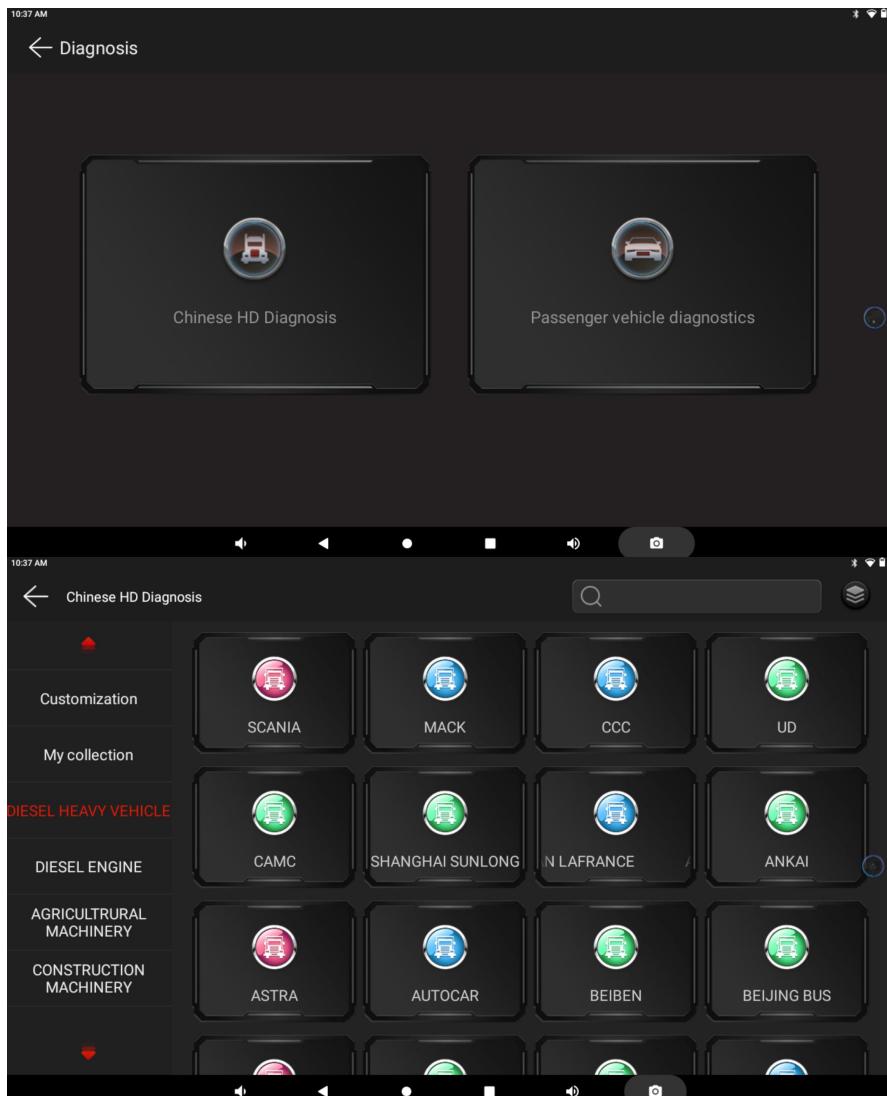
4) Vehicle owner's name, mobile phone number, vehicle image: these three information is not required.

5 Vehicle Inspection Applications

1) Vehicle Diagnosis

Depending on whether you choose an associated vehicle to enter [Vehicle Diagnosis]:

➤ The vehicle is not selected, the top left corner of the main menu page shows "Quick Check Mode", then go to the following page:



[Diagnostic] Related Functions We will explain in the following separate module. See [Module 6]

- If the vehicle is selected, the system jumps directly to diagnostics under the model brand.

2) Endoscope: Connect the endoscope device via USB cable, click on

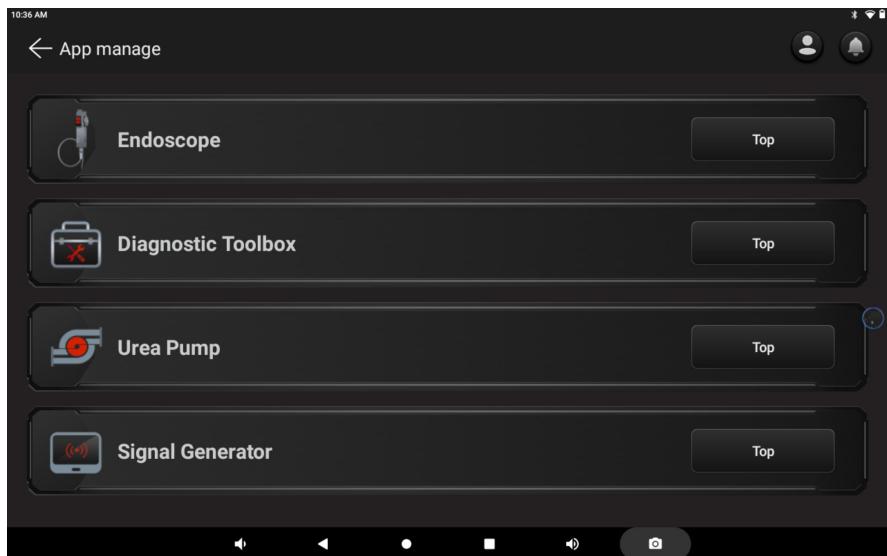


the endoscope " " , go to the following page, you can clearly capture the vehicle parts, and deposit in the album. You can upload pictures of the vehicle parts you have taken as you look at the inspection report.



3) More Applications

Show all the peripheral software in the Evka ecosystem, which inspects the vehicle through various software and stores the results together in a report to generate a complete vehicle report. At present we have access to endoscopes, other equipment we will access, please look forward to.



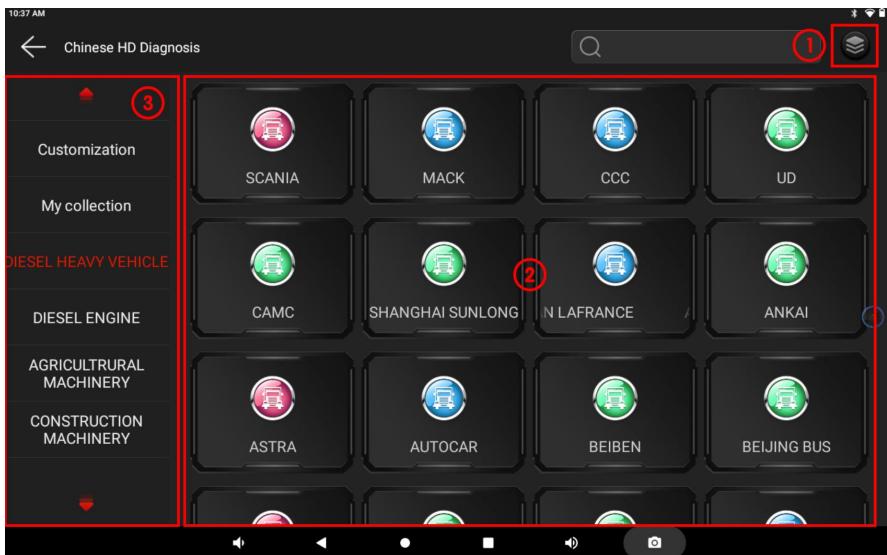
In more application modules you can:

- Download/Install/Uninstall
- Top Home: Software Click Top Home, "Top" will be displayed on the main menu page, "Top", and you can also click "Top" to remove the software from the home page. Note here [Vehicle Diagnostics] We are displayed by default on the main menu and cannot be deleted from the home page.

6 DIAGNOSIS

Here we take the commercial vehicle as the diagnostic function related instructions.

FCAR commercial vehicle diagnosis is classified according to the purpose and electrical control system. The model selection is menu guided mode. The maintenance technician can make a series of choices according to the actual configuration of the vehicle to be tested and the screen prompts until the vehicle to be tested is accurately identified. The specific choices will vary according to the different models to be tested.



- ① Toolbar (see Table 1 below)
- ② Model manufacturer
- ③ Model and related function selection menu (see the following section for specific function operation)

Table 1:

| Icon | Function name | Function description |
|--|-------------------|--|
|  | Diagnostic packet | View current packet version and historical version |

6.1 MODEL SELECTION

The diagnostic program needs to select the vehicle model before entering the system module diagnostic function. The vehicle can be identified in the following ways:

- By manual selection
- By automatic identification
- By OBD II access mode

6.1.1 MANUAL SELECTION

This way is the menu guidance mode. You only need to make a series of choices according to the screen prompts. The specific options will vary according to the measured vehicle types. You can also quickly find the model brand through the search function of the toolbar, and then select it according to the screen prompt.

6.1.2 SELF-IDENTIFICATION SELECTION

The latest "self-identification" function can skip the manual selection step, directly obtain the specific vehicle information from the vehicle ECU, and quickly enter the diagnostic interface after confirmation. At present, this function supports some models, and the details are subject to the function menu display, taking Bosch as an example:

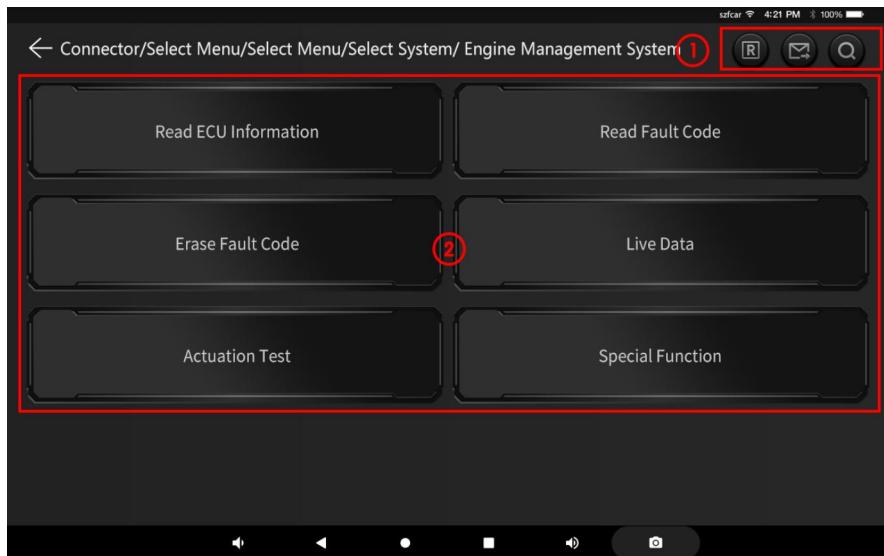
- 1) Select [**Electronic System**] in the commercial vehicle diagnosis selection interface;
- 2) Click [**Bosch - Bosch (China 4,5,6) self-identification**] on the electronic control system interface to automatically identify the vehicle information.

6.1.3 GENERAL OBD ACCESS MODE

In some cases, because the database does not support or the vehicle has other functional characteristics, the diagnostic instrument cannot identify the vehicle and establish communication through normal channels. At this time, the general OBD II or EOBD test can be carried out through OBD direct access function.

6.2 DIAGNOSIS AND OTHER HIGH-LEVEL FUNCTION

Vehicle diagnosis can be carried out after vehicle type selection. The main diagnosis interface is shown in the figure below:



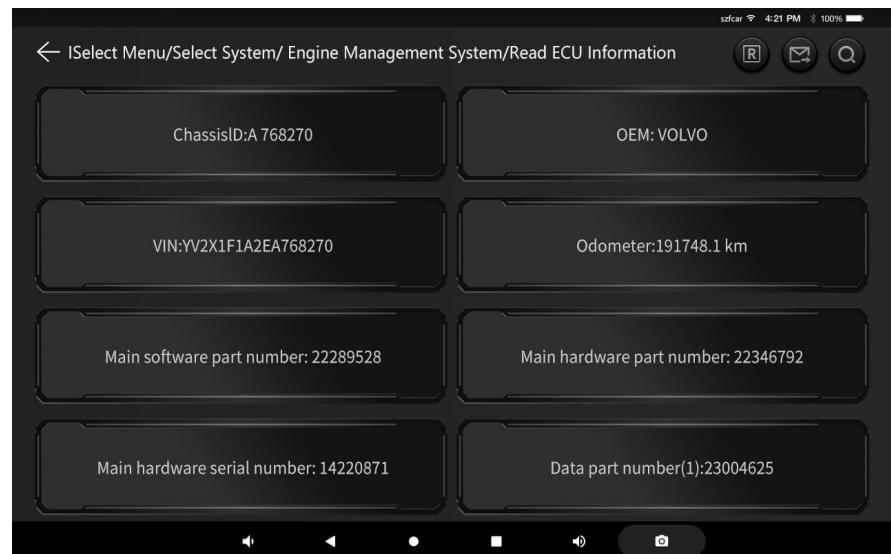
- 1) Toolbar and status bar (see Table 1 for details)
- 2) Main interface of diagnosis function

Table 1:

| Icon | Function Description |
|------|--|
| | Create a test report. You can view, print and send test reports in “Data Management” |
| | One click feedback to feed back the problems in the process of vehicle diagnosis to the after-sales technical team of FCAR |
| | One click search for models of major brands |

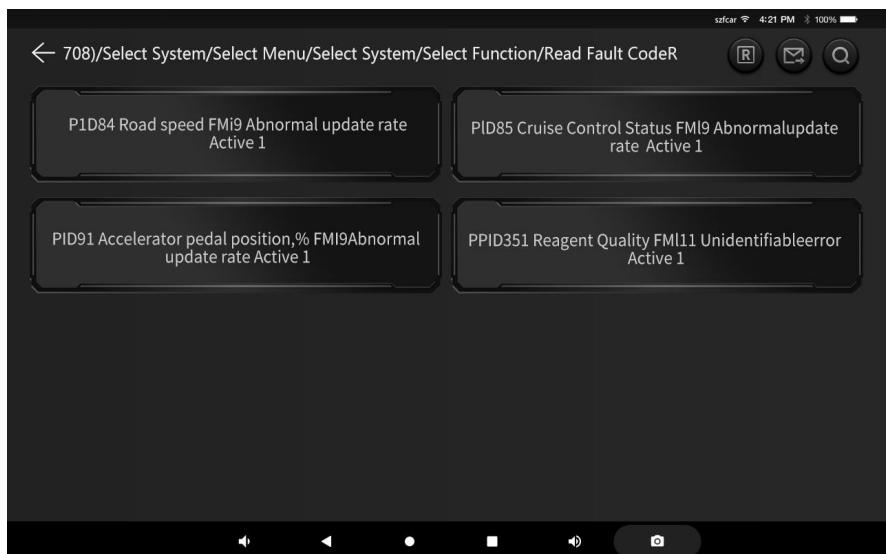
6.2.1 VERSION INFORMATION

Read and display the ECU version information (hardware and software) retrieved from the tested vehicle.



6.2.2 READ FAULT CODE

Read and display the fault code retrieved from the system module of the tested vehicle and explain the fault content.



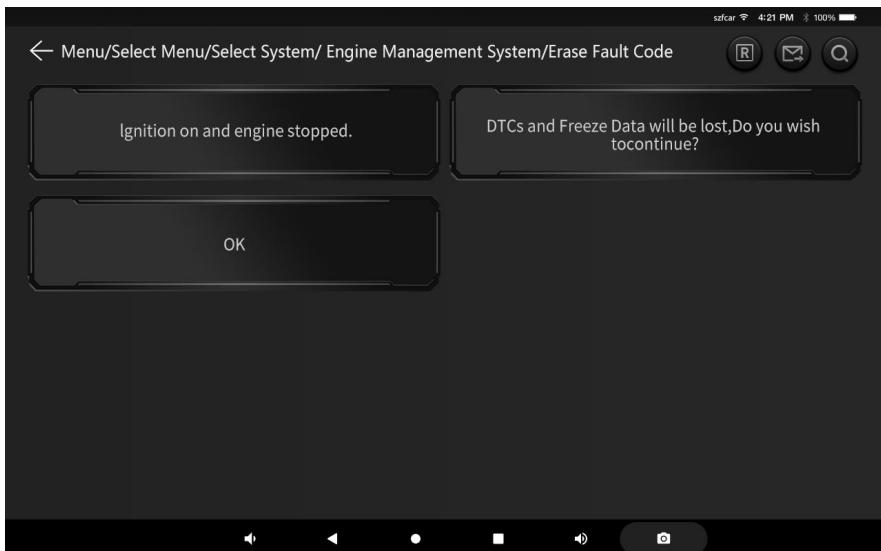
6.2.3 ERASE FAULT CODE

Before clearing the fault code, please record and save the read fault code for later

viewing and comparison.

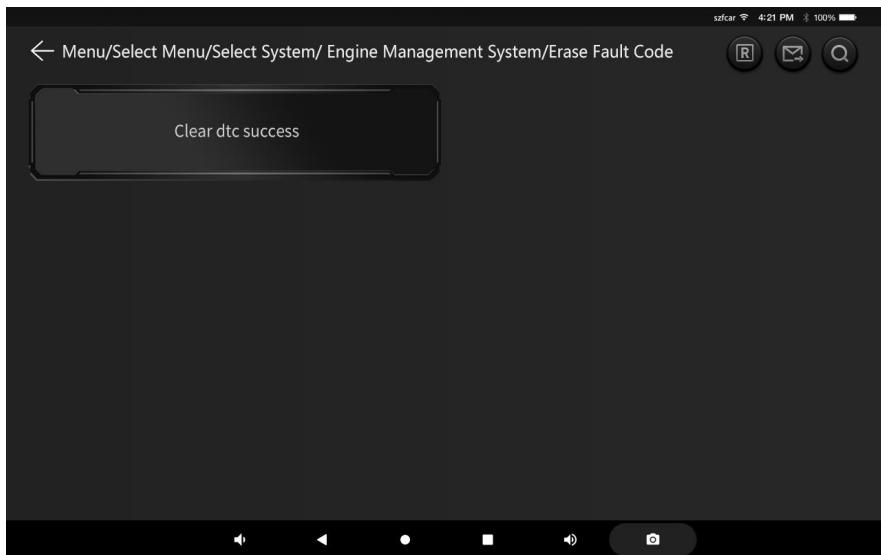
➤ **How to erase fault code**

- 1) Select **[Erase Fault Code]** on the diagnosis interface;
- 2) The prompt information shown in the figure below will pop up. Click **[OK]** to erase fault codes.



Note: This step requires you to strictly operate the vehicle in accordance with the menu prompts.

- 3) When another prompt message pops up, select **[Return]** key and re-execute the read fault code function to verify whether the fault code has been cleared.



➤ **Fault code analysis steps**

- 1) Read and record all fault codes;
- 2) Erase all fault codes;
- 3) Simulate the conditions generated by the fault and start a road test;
- 4) Then read and record the fault code at this time;
- 5) Distinguish between incidental fault codes (independent fault codes or historical fault codes) and persistent fault codes (current fault codes or associated fault codes);
- 6) Distinguish between the major fault code and the minor fault code associated with the fault symptom;
- 7) Distinguish the major fault codes in many fault codes or related fault codes (it may be the cause of other fault codes);
- 8) According to the above analysis, you can further detect the sensor represented by fault code, related circuit state of the actuator or control computer, as well as accurate position of the fault occurred.

6.2.4 READ LIVE DATA

Select this function, the real-time operating parameters of the selected system module will be displayed on the screen, and the data parameters displayed by different models or different control modules will be different, as shown in the figure

below:

| ID | Name | current values |
|----|-----------------------------------|----------------|
| 1 | Road speed limit, mandated by law | current values |
| 2 | Oil level min | 100 km/h |
| 3 | Oil level max | 49 mm |
| 4 | Chassis ID | 65 mm |
| 5 | Outdoor Temperature | A 768270VOLVO |
| 6 | Odometer | 19.062 °C |
| 7 | Vehicle Made | 191748.110 km |
| 8 | Differentiated RSL, Enable | 6 |
| 9 | Fan Gear Ratio | 0 |

Figure 6.2.4-1 Live data

- 1) Toolbar, see Table 1
- 2) Live data display area
- 3) Data flow waveform diagram
- 4) Data flow comparison
- 5) Save the current data stream (for subsequent data stream comparison)

Table 1:

| Icon | Function description |
|------|---|
| | Save and export the data stream information as a PDF document |
| | <ol style="list-style-type: none"> 1) To add a data stream/fault code to the vehicle inspection report: 2) 1) before the diagnosis has been associated with the vehicle, click the "" icon, the data flow/fault code will be saved directly under the critical vehicle; 3) If the associated vehicle is not selected before diagnostics, click the "" icon and the pop-up window will prompt you if you need to associate the vehicle, and if necessary, select/create the vehicle on the pop-up page. |

| | |
|--|--|
| | The recorded data stream can be viewed in [Data Review] in [Data Management] |
| | The current data stream can be saved as an excel document and can be viewed in the [Data Set] in [Data Management] |
| | Select menu |
| | One-click feedback of problems encountered in the vehicle diagnosis process to the FCAR after-sales technical team |

➤ Data flow waveform

In the data stream display interface, select [Graphic] to view the real-time operating parameters of the unit in the data stream waveform graph mode, as shown in figure 6.2.4-2, select [List] to return to the numerical display state.

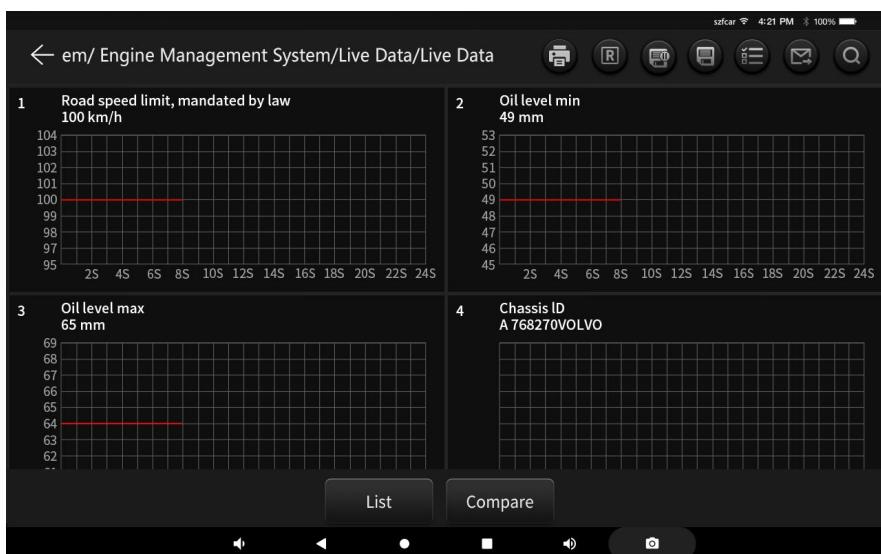


Figure 6.2.4-2 Data flow waveform

Data stream recording and comparison function

The system supports the recording and saving of data streams, and can be viewed unlimited times in [Data Management] / [Data Review]; it also supports the comparison function of data streams. When the vehicle is in good condition, collect and save the data stream, so that the next time you test or encounter a vehicle of

the same model, you can provide data reference through the data stream comparison function.

➤ How to record data stream



- 1) Click the function icon " " in the upper right corner, check the parameter items that need to be recorded in the pop-up window, and select [OK] to return;

- 2) Select the function icon " ", enter the saved file name in the pop-up window (the file name is preferably named with the vehicle information for easy reference), and select [OK] to return;

- 3) The system starts recording, and click the " " button in the lower left corner to stop recording and automatically save the data stream

- 4) After the data stream is recorded, the system automatically saves it (**Note**: the data stream can be recorded for up to 2 minutes), and you can select [Data Review] in the [Data Management] to view the saved data stream.

➤ How to compare data streams



- 1) Click the function icon " " in the upper right corner, check the parameter items that need to be compared in the pop-up window, and select [OK] to return;

- 2) Click [Compare], select a saved data file of the same vehicle type in the pop-up dialog box, and then press [OK] to return;

- 3) At this time, there is an additional column "comparison value" in the data stream interface, as shown in Figure 6.2.4-3. The maintenance technician can quickly find and eliminate vehicle faults through the comparison of system parameters.

| ID | Name | CMPR values | current values |
|----|-----------------------------------|----------------|----------------|
| 1 | Road speed limit, mandated by law | current values | current values |
| 2 | Oil level min | 100 km/h | 100 km/h |
| 3 | Oil level max | 49 mm | 49 mm |
| 4 | Chassis ID | 65 mm | 65 mm |
| 5 | Outdoor Temperature | A 768270VOLVO | A 768270VOLVO |
| 6 | Odometer | 19.062 °C | 19.062 °C |
| 7 | Vehicle Made | 191748.110 km | 191748.110 km |
| 8 | Differentiated RSL, Enable | 6 | 6 |
| 9 | Fan Gear Ratio | 0 | 0 |

Figure 6.2.4-3 Data flow comparison

6.2.5 ACTUATION TEST

By executing this function, you can access the specific subsystems of the vehicle and perform component tests. When the action test is performed, the diagnostic instrument inputs instructions to the ECU to drive the actuators, and judges whether the actuators of the vehicle's electronic control system and their circuits are normal. Different control systems of different models have different executable test options, please refer to the screen display.

- How to perform an action test

- 1) Select **[Actuation Test]** in the diagnosis interface;
- 2) Select a test item;
- 3) Operate strictly in according to the prompt on the screen;
- 4) Click Back button to exit the test.

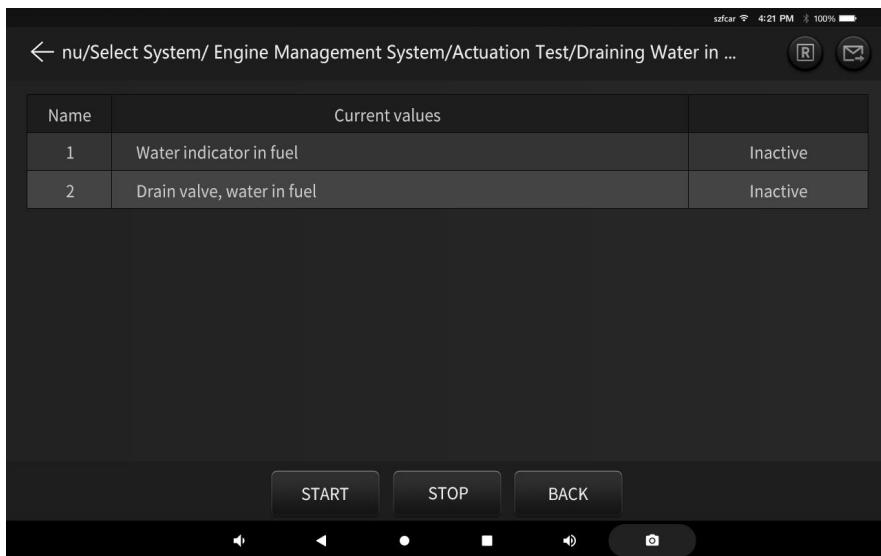


Figure 6.2.5-1 Actuation Test

Note: Depending on the selected test item, the control buttons will be different, such as "Start", "On" and so on.

6.2.6 SPECAIL FUNTION

The special function can perform adaptive operation of each component, which is mainly used to re-calibrate or configure the components after repairing or replacing the components, so that the components of the electronic control system can adapt to each other, otherwise the system will not operate normally.

The main interface of the adaptive operation is in the menu guided mode. Please read the on-screen prompts carefully and operate according to the prompts. The specific selection procedure will vary depending on the model being tested.

The following are the general steps of the adaptive operation:

- 1) Select the model and related configuration;
- 2) Wait for the program to establish normal communication with the vehicle ECU, select the functional operations that need to be performed, and some functional operations need to meet specific conditions before they can be performed;
- 3) Carefully read the information on the screen and check the corresponding vehicle status, strictly follow the menu prompts;

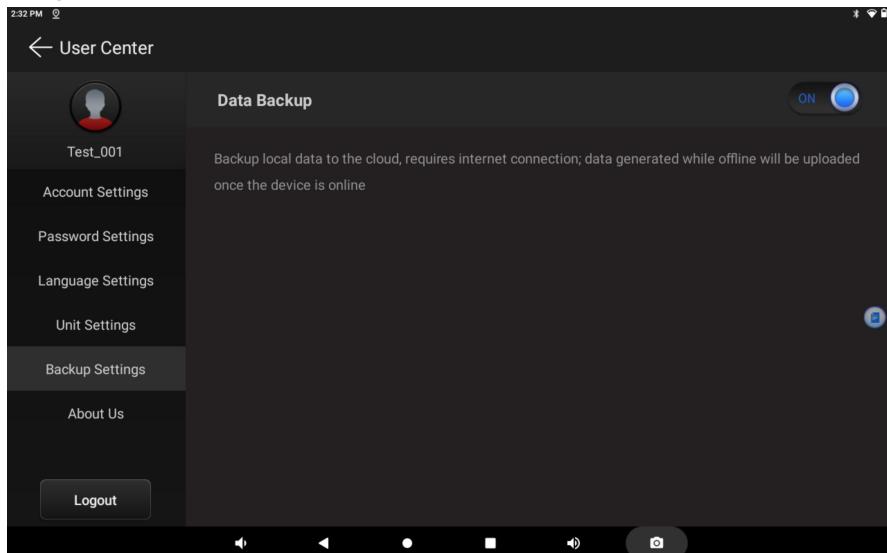
4) After the adaptive operation is completed, the screen will display prompt messages such as "Operation success" and "Matching completed".

7 Diagnose Report

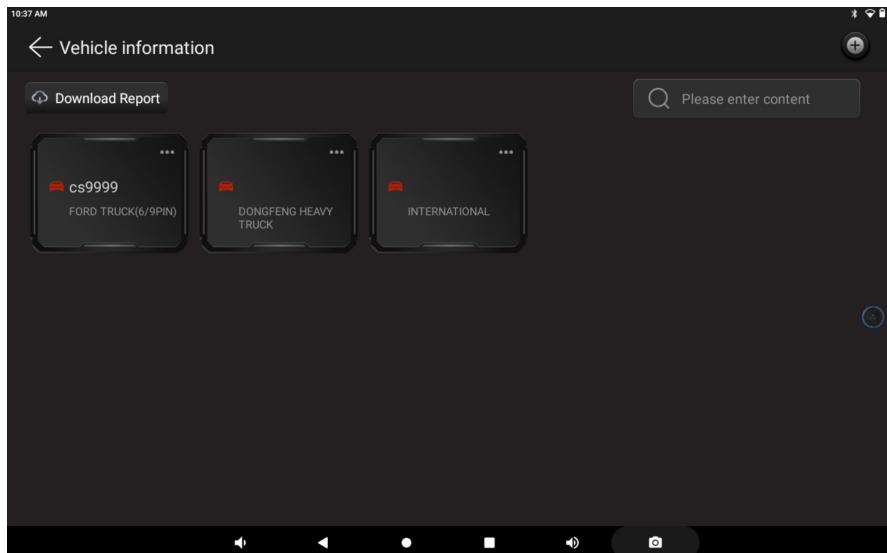
The function is used to bind vehicles to perform vehicles diagnosis. The vehicle diagnostic data can be saved locally and also uploaded to the cloud sever.

Note:

The diagnostic data can be uploaded to the cloud server only when **[Data Backup]** in the personal center page is set to On.

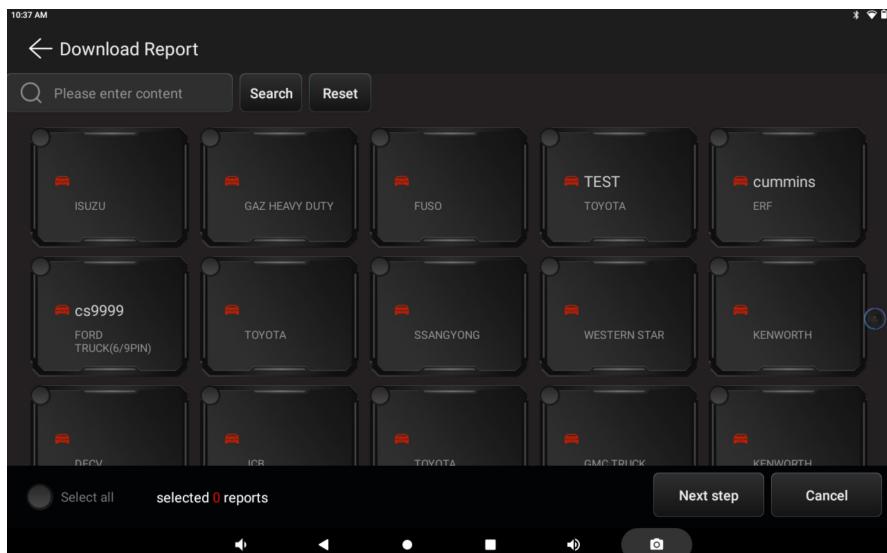


1) **[Inspection Report]** The list of vehicles associated with the local report is displayed by default, and the inspection report for this vehicle can be accessed by selecting any vehicle.

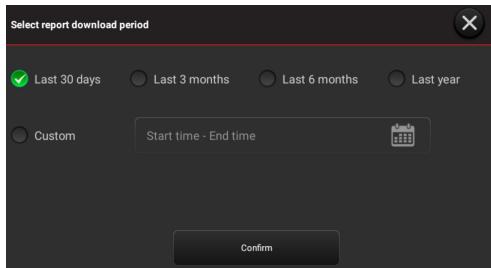


➤ Download the Cloud Report as follows:

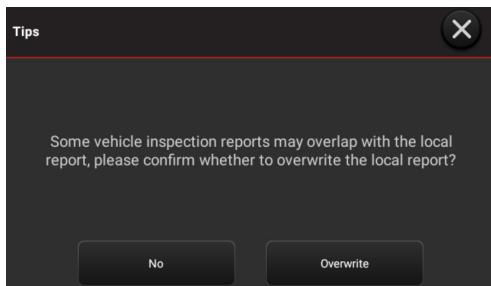
Select the vehicle to download the report



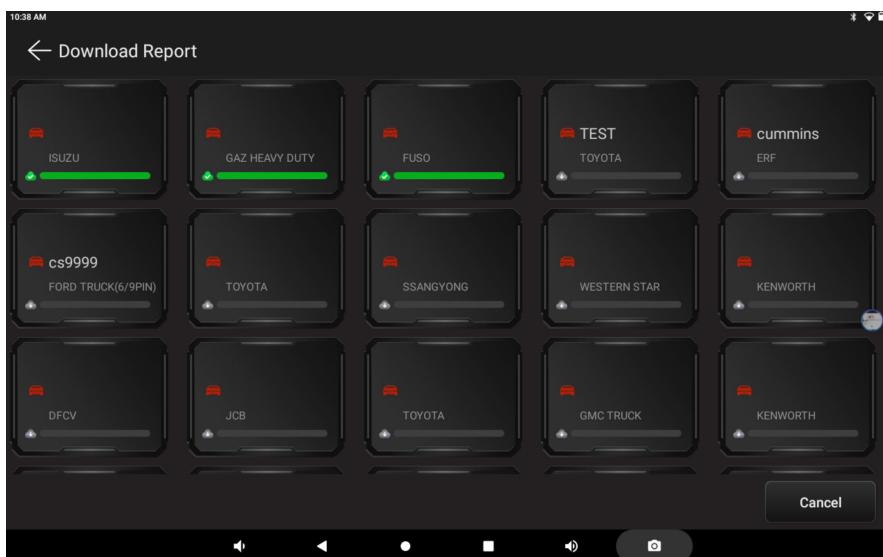
Download Based on Report Save Time



Some cloud-based reports may be duplicated locally and need to choose whether to cover local duplicate reports

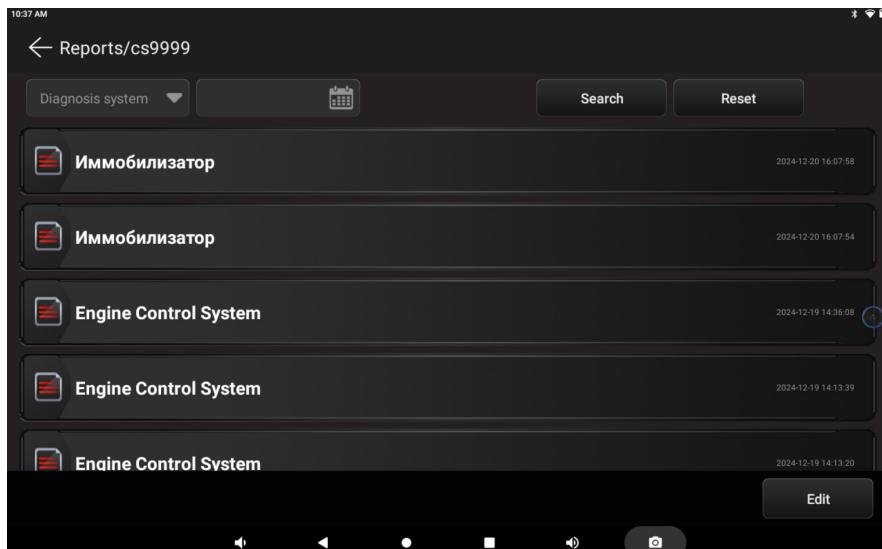


Start the download and you can choose to cancel the download at the bottom right corner.



➤ View the report:

All local inspection reports entering into the vehicle



You can do this:

Query/reset: You can check according to license plate number/VIN code, diagnostic system, check time interval.

Contrast: Select the same system of the vehicle, check the report at different times, can be compared with the inspection situation.

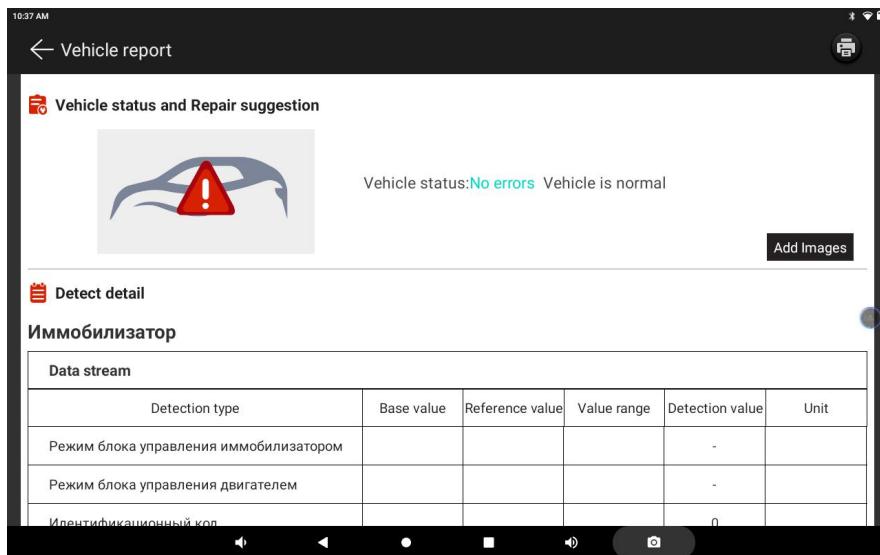
The screenshot shows a detailed report for the Engine Control System. The top bar includes a back arrow, the text 'Report Comparison', and a 'Hide the same item' button with a red circle and 'OFF' text. The report title is 'Engine Control System'. The table below shows data flow information:

| Detection Class | Detection Result 2024-10-17 12:00:00 | Detection Result 2024-10-17 12:00:00 |
|------------------------------------|---|---|
| Data Flow | | |
| ECM Time (Key On Time) | 04:51:15 | 04:51:15 |
| Percent Accelerator Pedal or Lever | 0% | 0% |
| Engine Hours | 00:00:00 | 00:00:00 |
| Fan Control Switch | Off | Off |
| Air Conditioning Pressure Switch | On | On |
| Remote PTO Switch | Off | Off |
| PTO Decrement Switch | Off | Off |
| PTO Increment Switch | Off | Off |

Note: When the Hidden Same Item "  " opens in the upper right corner, the comparison list does not display data with the same result, and you can only look at data with different results.

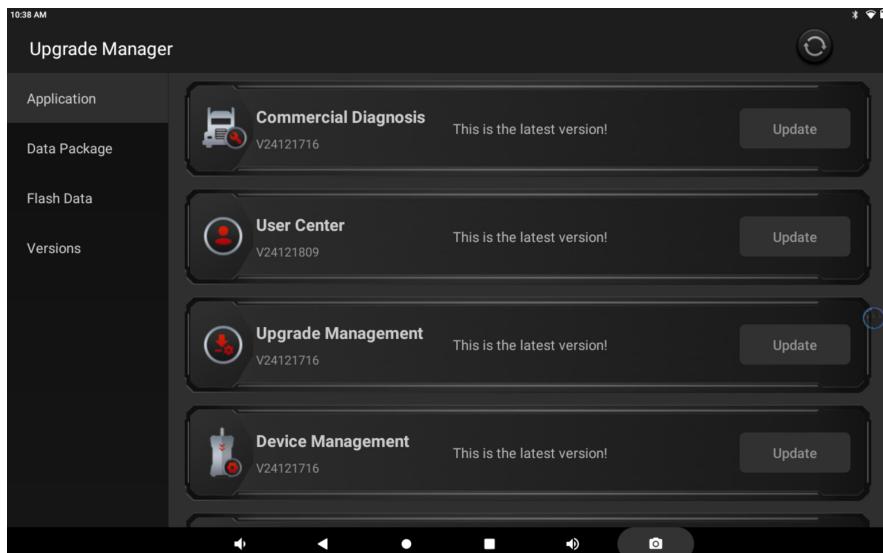
Delete: Multiple check reports can be selected for deletion and will not appear locally after deletion.

- Edit/Delete Vehicles: Note here that when deleting a vehicle, the local report of the vehicle will be deleted together.
- View Report: You can view a breakdown of the vehicle's inspection report and click on the upload button "  " to upload the vehicle parts captured by the endoscope.



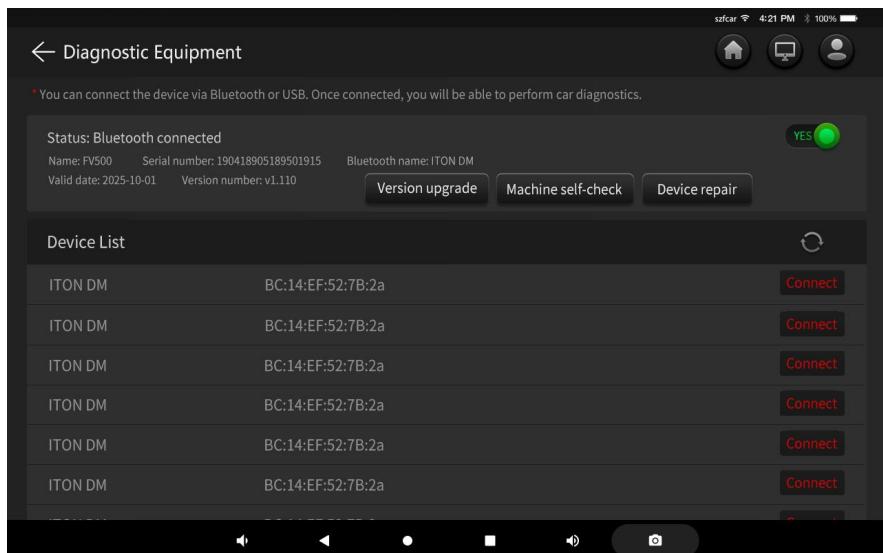
8 Update

Connect the device to the Internet to upgrade the software and vehicle types to improve product functionality in a timely manner. Enter **[Update]** in main menu page, then the system will automatically search for the latest update program, as shown below, click **[Update]** to update vehicle types and other applications to the latest version.



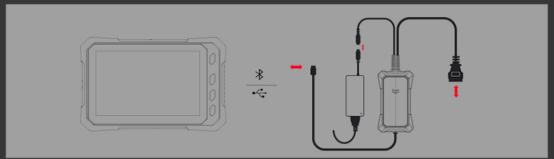
9 Device Management

VCI Device Management Module, Here you can choose VCI to connect via Bluetooth/USB. After the connection, you can perform diagnostics and obtain VCI version information. At the same time, you can upgrade the firmware version of the VCI, machine self-test, device repair.



- Version Upgrade: Upgrade the firmware version of the VCI to experience more features.
- Self Test:

Machine self-check



This function is used to detect the VCI box. If the test fails, please contact our company's after-sales service personnel as per the prompt information to receive timely support.

Connection method as shown in the diagram: VCI box + main testing line + self-check connector + power adapter.

Notes:

Start testing

- Equipment Repair:

Device repair



This function is used for the repair of VCI communication devices (referred to as communication boxes). It is used when the communication box cannot be upgraded and is not functioning properly.

This function supports the repair of the types of communication boxes shown in the diagram above. During the repair, use a USB cable for the connection; do not use Bluetooth.

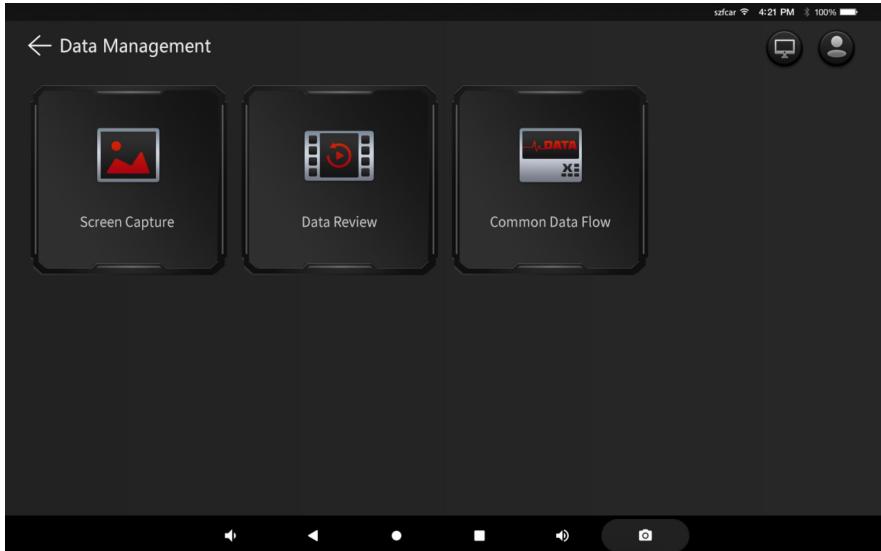
Precautions:

Start repair

10 DATA MANAGEMENT

""Data Management" application is used to save, view, or print saved files.

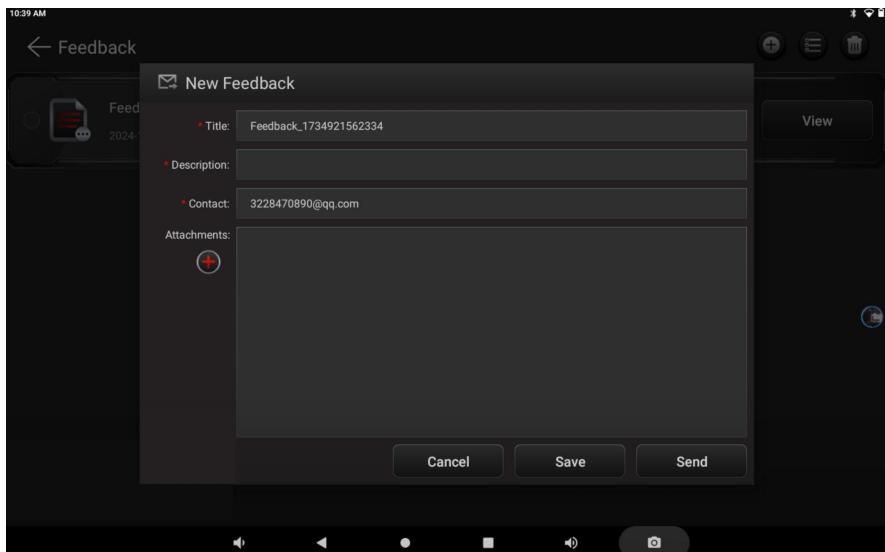
Most of the files are generated by the toolbar operation of the vehicle diagnostics interface.



11 Feedback

After experiencing problems using the system, you can feedback to the FCAR background in one click and we will have a dedicated follow-up.

When creating a one-click feedback, you need to classify the problem you have chosen. Please select the type of problem to help our technicians resolve it as quickly as possible.



12 Remote Assistance

This function allows you to receive remote service and support from FCAR's after-sales technicians to assist you with vehicle diagnosis.

- How to receive technical support from FCAR

- 1) Select **[Remote Assistance]** from Main Menu to enter Team Viewer interface, and then the system automatically generates and displays the device ID.
- 2) Send your device ID number to FCAR after-sales team and wait for them to send the remote control request to you;
- 3) After receiving the request, you can select **[YES]** to accept, or **[NO]** to reject in the pop-up window.

Note: Make sure the device is connected to the internet before receiving remote assistance.

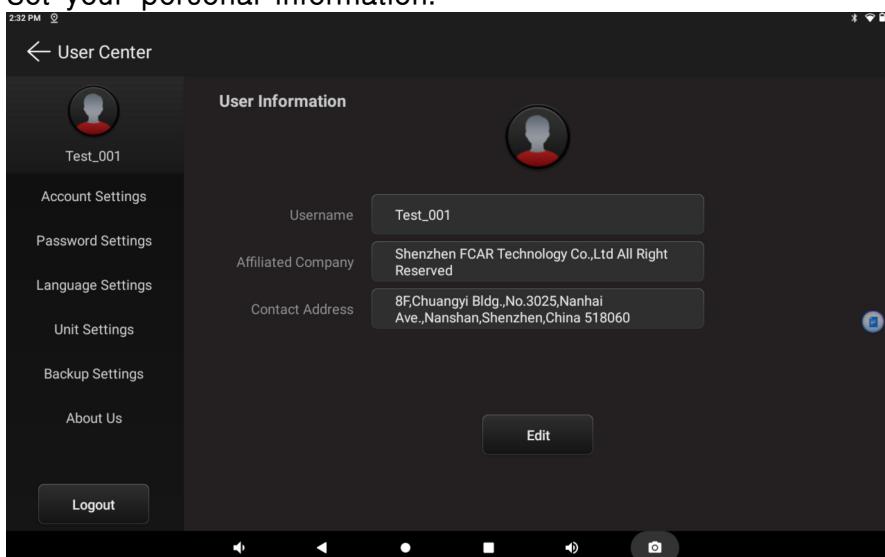


13 Personal Center

Click the icon “” in the upper right corner toolbar of the screen. On this interface, you can adjust following system settings:

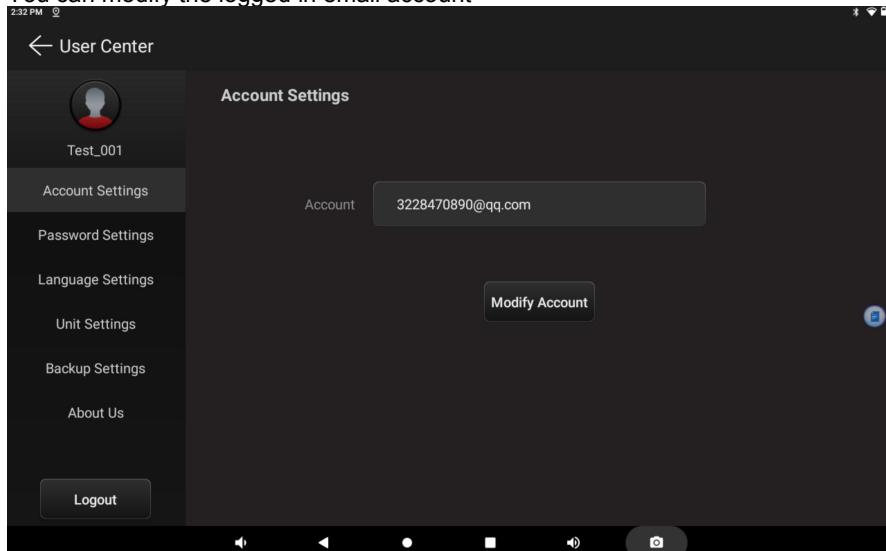
13.1 USER INFO

Set your personal information.



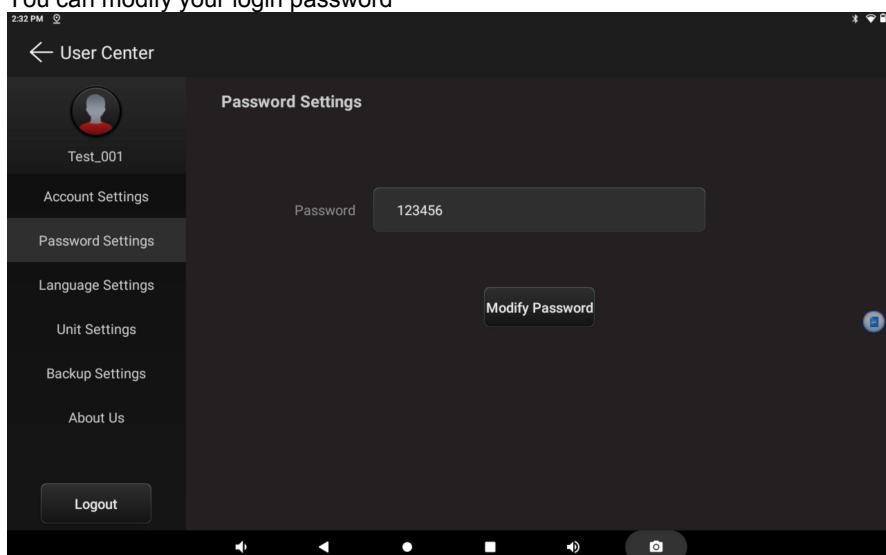
13.2 Account Settings

You can modify the logged in email account



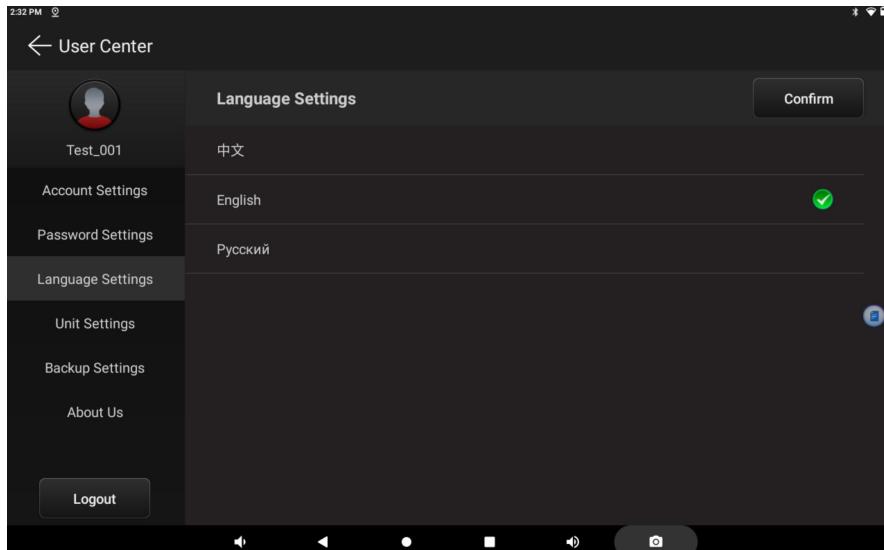
13.3 Password Settings

You can modify your login password



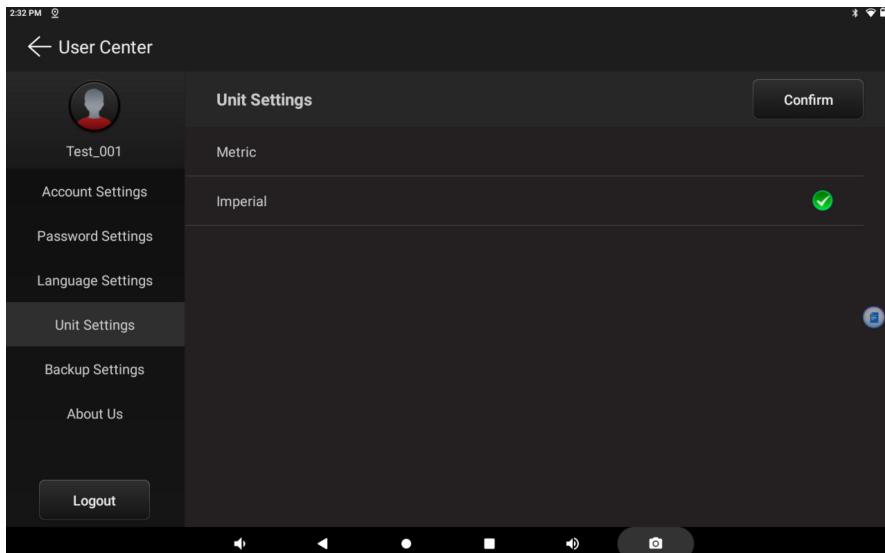
13.4 LANGUAGE

The diagnostic system supports multiple languages setting, please set according to the language supported by the model you purchased.



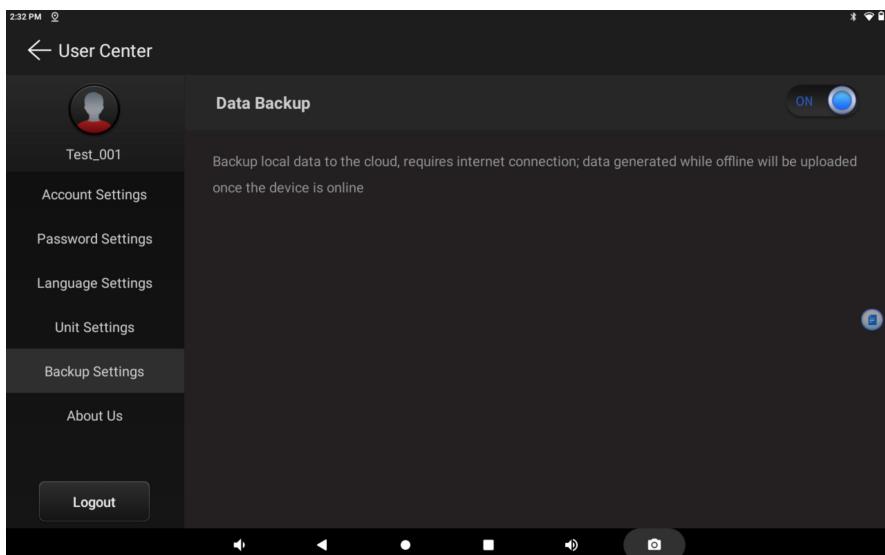
13.5 UNIT

This option allows you to set the live data unit in the diagnostic software, please select Metric or English.



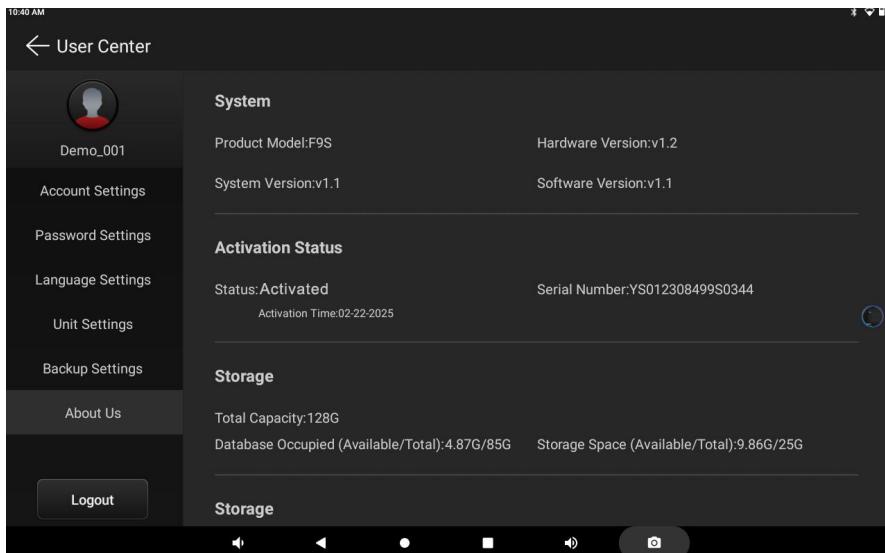
13.6 BACKUP SETUP

Open this function, the diagnosis data can be uploaded to the cloud sever when you diagnose a vehicle through the menu [**Cloud Diagnosis**].



13.7 ABOUT US

This interface shows system information, activation state, storage, etc.



13.8 SYSTEM SETTINGS

You can set the Android system basic information.

13.9 LOGOUT

This menu is used to exit the system login.

WARRANTY CLAUSES

Thank you for choosing FCAR F9S. In order to make the best use of the product, we recommend that you follow all recommendations for maintenance, storage, and operation in accordance with the user manual's instructions at all times. These requirements have been formulated to maximize the useful life of the product.

1. Under the following terms and conditions, and under the premise that you have activated our products and registered on the website of Shenzhen FCAR Technology Co., Ltd. (hereinafter referred to as "FCAR"), we will provide free product warranty services if there are defects in materials or workmanship of hardware.
2. Your product must be purchased from a product dealer that has been authorized by FCAR. If products are purchased from anyone other than a FCAR authorized product dealer, buyers will be solely responsible for the cost of product maintenance services.
3. The following items are not included under the warranty: Items that are readily subject to wear and tear such as product instructions, inner and outer package box, promotional giveaways, SD card, card reader, touch pen, printing supplies, etc.
4. Beginning on the date of purchase (subject to valid purchase proof and effective warranty card of the product), if the product suffers performance failure within one month which is not caused by deviation from the recommended operation or by uncontrollable environmental events, you can choose to repair it or replace with a new one via our maintenance service or replacement of the product with the same model. After that, there is one-year warranty service for the main unit, connectors and power adapter.
5. You will not be entitled to free warranty service under any of the following situations:
 - 1.) Failures, defects or flaws not directly related to the quality of the FCAR products, including but not limited to failing to use the product according to the user manual's instructions, crash, fall, disassembly by anyone other than a FCAR approved service person, connecting improper accessories, damage owing to impact because of improper transport or storage of the product, erosion and/or corrosion caused by infiltration of liquid or food, etc.
 - 2) Natural wear and tear of the product: including but not limited to the outer casing,

buttons, touch screen, accessories, etc.;

3) The product serial number do not match the warranty card product serial number, the product quality inspection label or barcode is removed, altered or damaged;

4) Disassembly and repair and modification without the approval of FCAR Technology.

6. If the product has quality problems or malfunctions during the warranty period, you can take the following measures:

1) You can do self-test on the product according to the product help information. If there is no hardware quality problem, you can try to update the product.

2) You can call FCAR Technology Customer Service Hotline (0086-755-82904730) to get the correct service information.

3) After obtaining the company's authorization, the product must be sent to the designated address for repair and maintenance. Otherwise, your product can not receive timely repair and maintenance. Losses caused by customer negligence or failure to follow company instructions are at your peril.

7. During the product warranty repair process, you will bear the costs associated with delivering the product to the repair place designated by FCAR: Including product packaging, transportation, insurance and other expenses.

8. Within the product warranty period and under this warranty clause, you can obtain free warranty service for losses due to product defects. FCAR shall not be liable for your direct or indirect loss.

9. All product warranty information, product functions and specification changes will be posted on FCAR latest promotional materials and the official website. Changes may be made to the website or promotional materials without further notice.

COMPLIANCE INFORMATION

FCC COMPLIANCE

FCC ID: 2AJDD-IDIAGSF9S1

FCC Statement

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.

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

SAR tests are conducted using

standard operating positions accepted by the FCC with the device transmitting at its highest certified power level in all tested frequency bands, although the SAR is determined at the highest certified power level, the actual SAR level of the phone. While operating can be well below the maximum value, in general, the closer you are to a Wireless base station antenna, the lower the power output. Before a new model phone is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the exposure limit established by the FCC. Tests

for each phone are performed in positions and locations (e.g. at the ear and worn on the body) as required by the FCC.

For body worn operation, this device has been tested and meets the FCC RF exposure. Guidelines when used with an accessory designated for this product or when used with an accessory that Contains no metal and that positions the handset a minimum of 1 cm from the body.

Non-compliance with the above restrictions may result in violation of RF exposure guidelines.

Certification

This product has been strictly inspected as qualified products and met the company standards.

| | |
|-----------------------|------------------------------|
| Product name | Automotive Diagnostic System |
| Product serial number | |
| Date of production | |
| Inspector | |



Warranty card

| | |
|-----------------------|------------------------------|
| Product name | Automotive Diagnostic System |
| Product serial number | |
| Purchase date | |

Company name: _____

User address: _____

Contact person: _____

Contact number: _____

