



User Manual

Automotive Diagnostic System



Shenzhen Fcar Technology Co., Ltd.

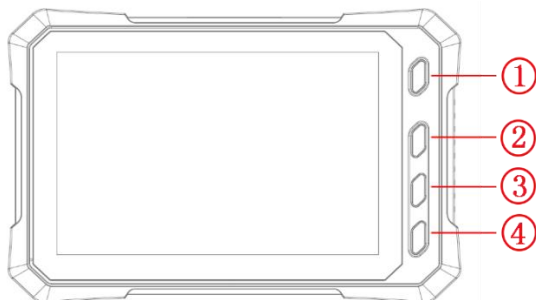
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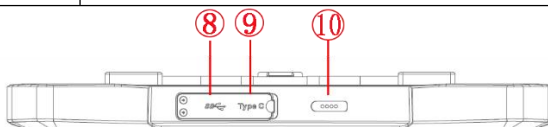
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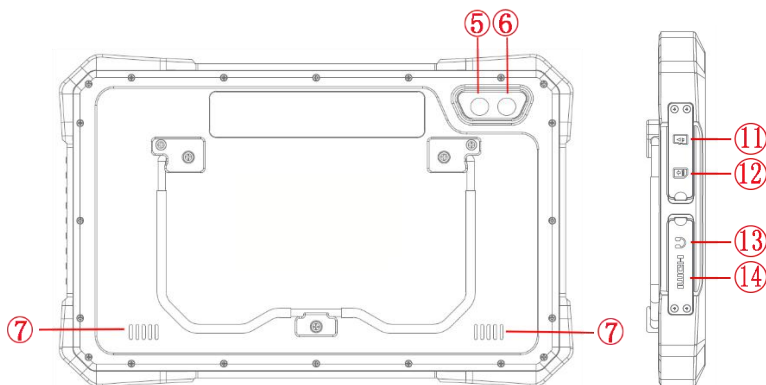
1 PRODUCT INTRODUCTION

1.1 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 App Main Menu
③	Return	Return to the main interface of the system
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

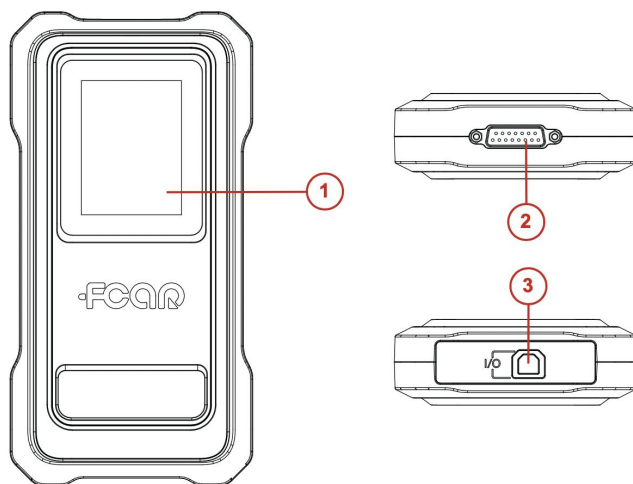
Name	Specifications
CPU	Quad-core1.8GHz processor
System	Android 11
Memory	8GB RAM &128GB ROM, besides supporting 128 GB TF memory card
Screen	10.1" 16:10, 1280*800
TP touch screen	Touch capacitive screen
Camera	800 million pixels, with flashing light
2G/3G/4G	LTE-FDD/LTE-TDD/WCDMA/GSM
Wi-Fi	2.4G+5G
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.

1.2 VCI BOX STRUCTURE

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

1.2.1 FV400



Serial No.	Name	Description
①	Screen	2.8 inch and 240*320 resolution screen
②	Diagnostic port	Communicate with the vehicle through the Diagnostic Connection Cable
③	I/O data Port	Type B USB port is designed for building stable communication when performing ECU Programming or IMMO Key Programming.

FV400 Main Parameter

Operating System	LINUX
Screen	2.8 inches, 240*320
Memory	256M
Storage	8G
Working Voltage	9-18V
Working Environment	-10°C~50°C
Storage Environment	-20°C~60°C

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



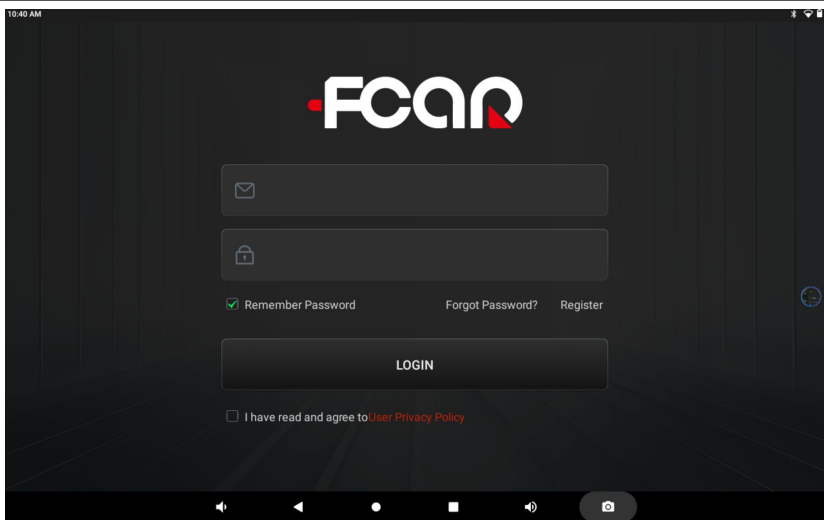
Press and hold the host power switch (about 3 seconds) to power on host, and then system starts to run.

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:

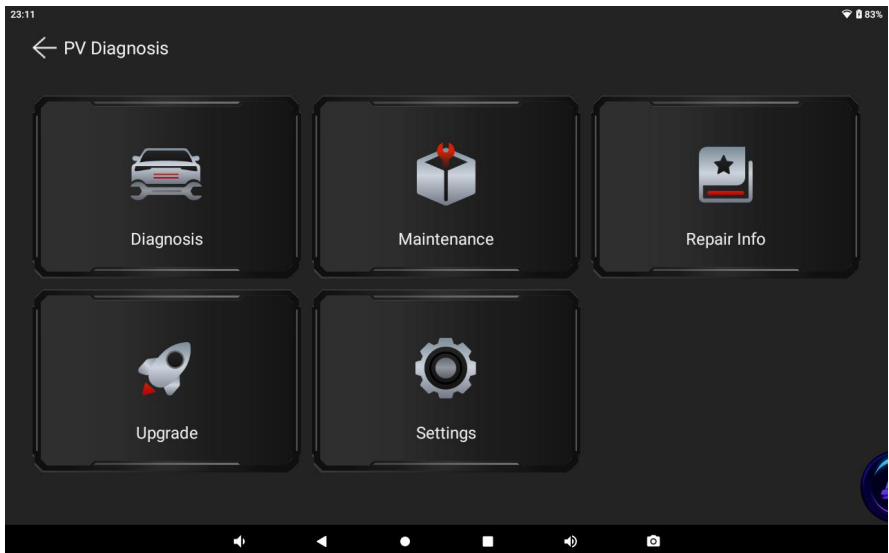
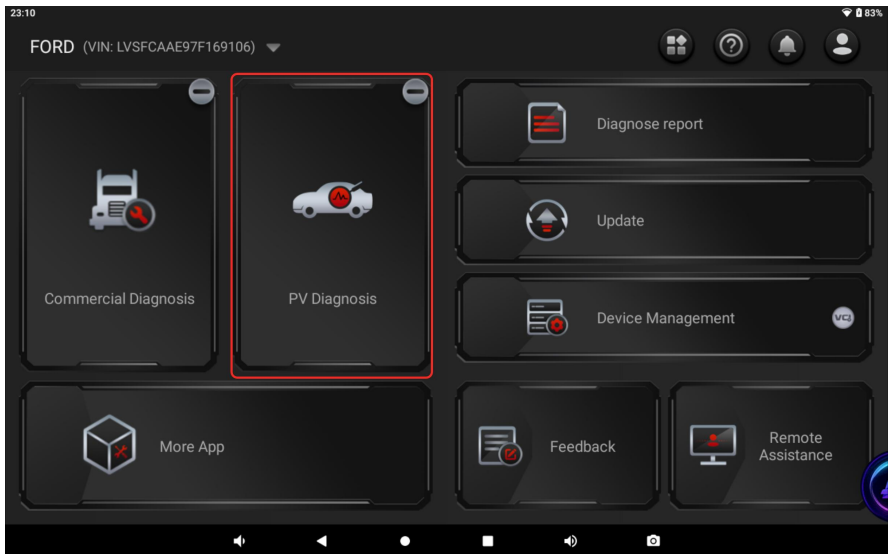
- 1) Short press host power switch (about 2 seconds)
- 2) Click **[Power off]** in the pop-up prompt to close host.

3 Passenger vehicle diagnosis

For passenger vehicle diagnosis, please use the VCI model FV400.

3.1 Menu Entry

Select **[PV Diagnosis]** from Main Menu to enter Passenger vehicle diagnosis.



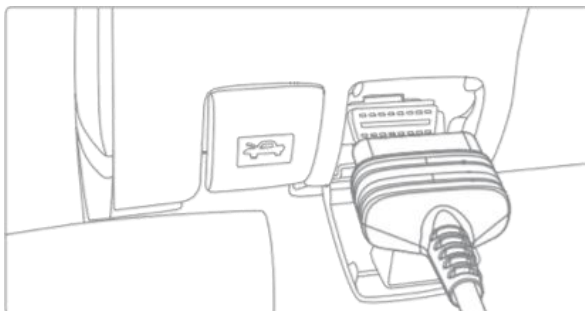
3.2 Activate Device

If you are first time to use, you will be prompted whether to activate device. You can choose [Activate], the device will be activated and using all function normal.

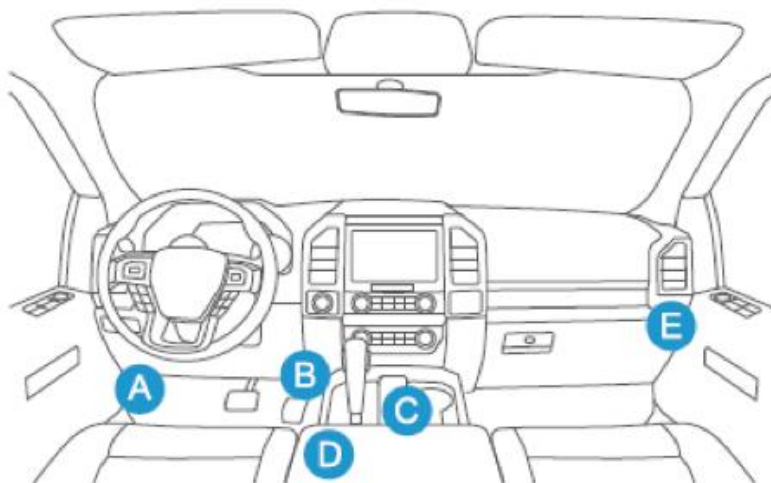
3.3 VCI Connections

3.3.1 For OBD-II standard vehicle

Connect the FV400 VCI to OBDII port of vehicle through the OBD Diagnostic Cable.

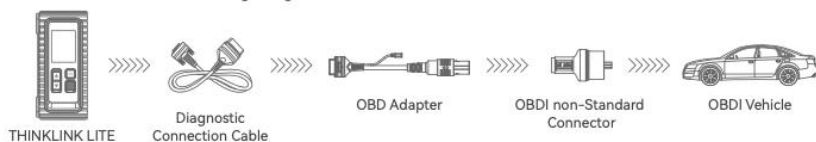


The vehicle OBDII port is usually located under the dashboard, on the driver's side above the pedals. Below are five locations for the most common OBDII ports.



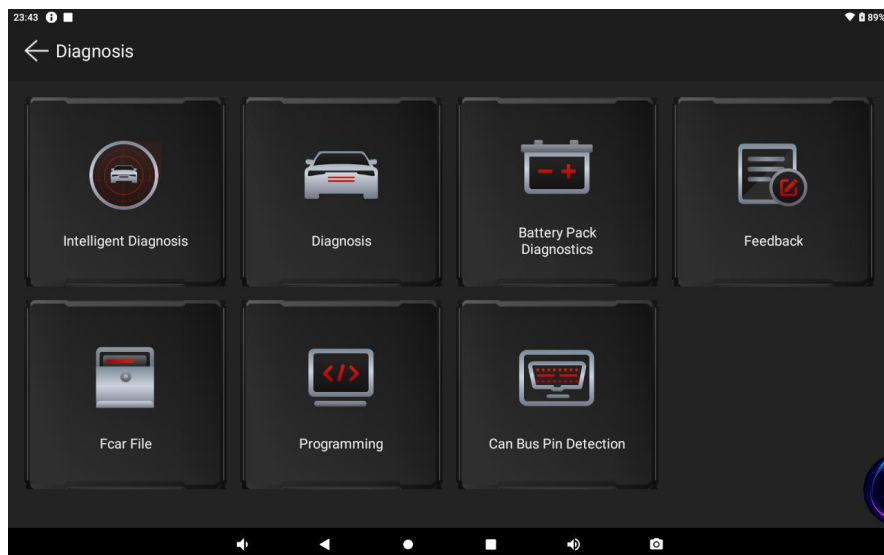
3.3.2 For OBD-I standard vehicle

Please refer to the following diagram for detailed connection:

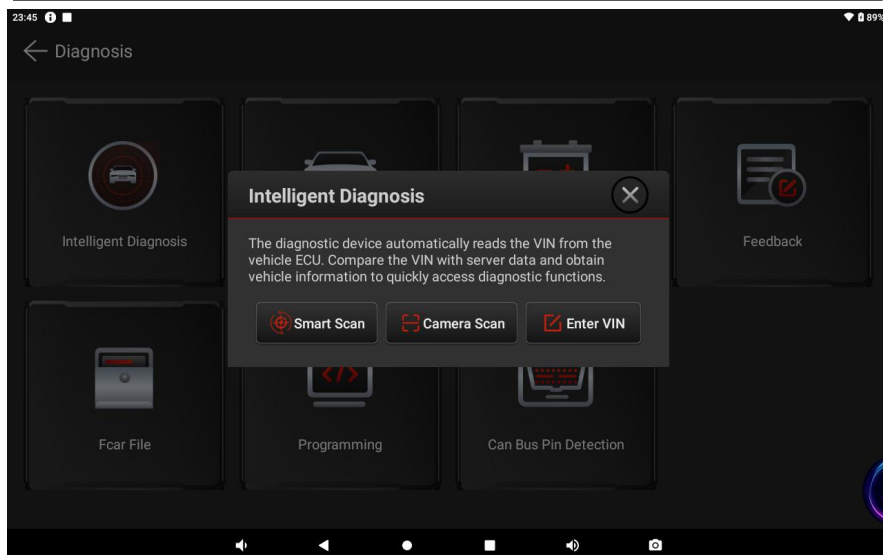


! *Tips: For the types of OBDI connectors for , please refer to the Packing List.*

3.4 Diagnosis



3.4.1 Intelligent Diagnosis



The Intelligent Diagnosis function compares the current vehicle's VIN information with the server's database. To obtain vehicle information for rapid diagnosis. Compared to the past, Intelligent Diagnosis solves the problem of slow speed and easy selection errors by only selecting menus based on the vehicle model level by level.

There are currently three ways to do this:

- Smart Scan: The diagnostic device is connected to the vehicle and reads the VIN code from the vehicle ECU.
- Camera Scan: Use a camera to take photos of the vehicle's VIN and automatically recognize it.
- Enter VIN: Manually enter the vehicle VIN.

3.4.2 Diagnosis

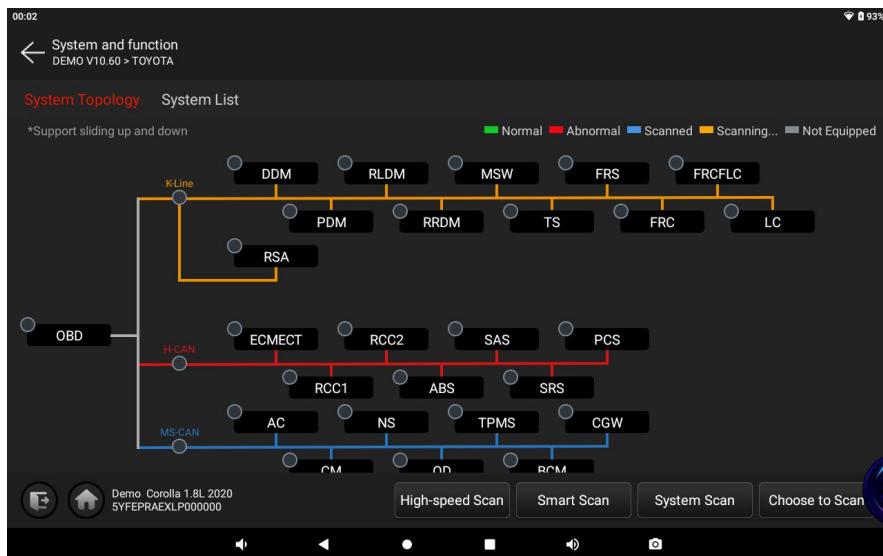
Support manual selection of vehicle brand and model for diagnosis.

3.4.2.1 Manually Selecting Vehicle

Enter the Diagnosis vehicle software interface and click to select the software icon for the vehicle that needs to be diagnosed. After successful communication with the vehicle, it is necessary to select information such as model, year, and

displacement based on the vehicle information. The diagnostic selection menu may vary for different vehicle models. After completion, you will enter the diagnostic function interface.

F9S Series supports diagnostic topology map functionality.



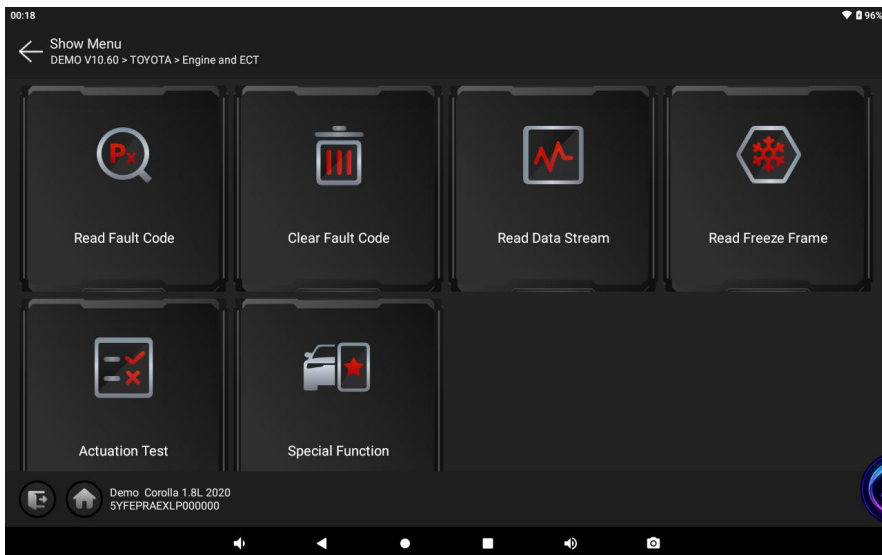
3.4.2.2 Diagnostic function

- **System Topology:** Display the distribution of lines in the automotive system in the form of a topology diagram. Can visually see the distribution of the system.
- **System List:** Display car systems in a list format.
- **Other function:** Special functions, programming, ADAS Calibration, and other functions can be accessed at the top. The functional menus of different car models may vary.
- **High speed Scan:** Scans all systems in a concurrent manner, greatly improving efficiency.
 - **Tips:** Currently, only some models support High speed Scan, and there is a probability that the system may be missed during the scan.
- **Smart Scan:** It enables you to quickly access all the system of the vehicle and generate a detailed report about vehicle health.
- **System Scan:** To check how many systems the car is equipped with.

- **Choose to Scan:** Choose the target automotive electronic control system to scan.

3.4.2.3 System and Function

- Click the ECU module, and the screen will enter the function selection interface.
- Click to select the function to perform.



- 1) Version Information: Read the current version information of the automotive ECU.
- 2) Read Fault Code: Read the DTC in the ECU memory to help maintenance personnel locate the cause of the failure.
- 3) Clear Fault Code: The system will automatically delete the existing fault codes.
- 4) Read Data Stream: View and capture (log) real-time live data from ECUs.
- 5) Actuation Test: Used to test whether the execution components in the electronic control system can work normally.
- 6) Special Function: Used for data writing operation of electronic control unit. They all belong to this category, such as ECU data calibration, ECU Programming etc. Some maintenance functions are also included in this part.

3.4.2.4 Battery Pack Diagnostics

Conduct professional-level diagnostic testing for battery packs and battery modules of new energy vehicles, and provide multi-mode diagnosis: OBD interface diagnosis, battery pack low-voltage interface diagnosis.

It can help users accurately locate battery faults through real-time analysis of important battery cell data such as voltage, temperature, and pressure difference, and provide battery diagnosis and maintenance guidance.

- **Tips:** F9S is equipped with this feature. If necessary, please contact the dealer to purchase an EV PACKAGE for activation.

3.4.2.5 Feedback

If you encounter an unresolved problem or diagnostic software bug during diagnosis, you can revert the most recent 20 test records to FCAR Team. When we receive your feedback, we will analyze and troubleshoot it in a timely manner, to improve the quality of our products and user experience.

3.4.2.6 Fcar File

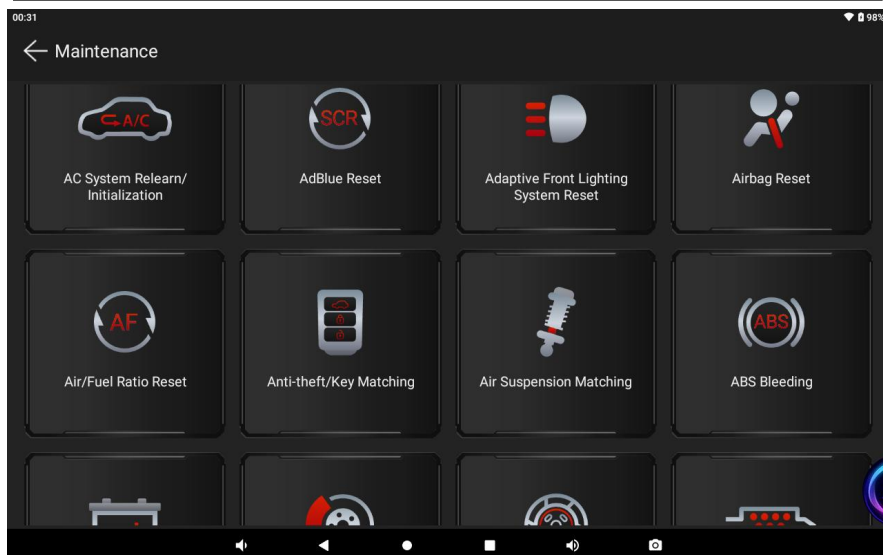
It is used to record and establish the file of the diagnosed vehicles. The file is created based on the vehicle VIN and check time, including all VIN-related data such as diagnostic reports, data stream records and pictures.

3.4.2.7 Can Bus Pin Detection

Pin Detection is used to detect the voltage and supported protocol types of the OBD-II diagnostic socket pins in vehicles. If the detection results do not match the actual vehicle configuration, there may be a fault with the corresponding pin.

3.5 Maintenance

F9S Series currently supports 41 common maintenance functions:



➤ **AC: AC System Relearn/ Initialization**

Vehicle air conditioning replacement of the electronic control unit, replacement of the actuator or memory loss of the electronic control unit memory, the need for air conditioning initialization learning.

➤ **ADBLUE: AdBlue Reset**

Reset urea after the diesel exhaust treatment fluid is replaced or filled up.

➤ **AFS: Adaptive Front Lighting System Reset**

Initialize the adaptive headlamp system.

➤ **SRS: Airbag Reset**

Resets the airbag data to clear the airbag collision fault indicator.

➤ **A/F: Air/Fuel Ratio Reset**

Set or learn Air/Fuel ratio parameters.

➤ **ABS: ABS Bleeding**

Help exhaust the air.

➤ **BMS: Battery Matching**

Register the battery after replacement.

➤ **GEARBOX: Gearbox Learning**

Relearn Crank Position Sensors.

➤ **EPB: Brake-pad Reset**

Help replace and reset the brake pad.

➤ **CLUTCH: Clutch Matching**

Clutch pedal position or switch learning. This function learns the contact and position where the clutch starts to transmit engine torque after an electronic control unit replacement, transmission replacement/removal, or clutch replacement, and is applicable to adaptive clutches.

➤ **ECB: Electronic Water Pump Starting**

Use this function to activate the electronic water pump before venting the cooling system.

➤ **DPF: DPF Regeneration**

Specially works for diesel particulate filter system with DPF regeneration, DPF component replacement teach-in and DPF teach-in after replacing the engine control unit.

➤ **ECU: ECU Reset**

The ECU reset service can be used to command the ECU to perform a self reset through diagnostic commands. There are various forms of reset, distinguished by sub-function parameters.

➤ **EGR: EGR Adaption**

Learn the exhaust gas recirculation valve after being cleaned.

➤ **PB: Engine Power Balance Monitoring**

During the power stroke of each cylinder, the power balance monitors the crankshaft acceleration to determine the relative power provided by each cylinder.

➤ **ETS: Electronics Throttle Adaption**

Initialize the throttle actuators to the default state.

➤ **FRM: FRM Matching**

When replacing the battery, the starter switch is not turned off, the battery terminals are overlapped, and some other non-professional battery operations are prone to cause damage to the FRM module. The general result is that the CPU data on the circuit board is lost, and there is a control failure of the lights, doors and windows. If the data is lost, then you just need to rewrite the exact same set of data into it to fix it.

➤ **GW: Gateway Module Data Calibration**

After replacing the gateway control unit, there may be inconsistencies such as VIN, so calibration is required.

➤ **GEAR: Gear Learning**

The crankshaft position sensor learns crankshaft gear machining tolerance and saves to the computer to more accurately diagnose engine misfires.

➤ **GPF: Gas Particulate Filter Regeneration**

Particle traps will cause an increase in fuel consumption and a decrease in engine output after a long period of use, at which time the GPF needs to be replaced or regenerated.

➤ **HVB: High-Voltage Battery Diagnostics**

Used for high voltage battery diagnostics and status information detection. Most hybrid vehicles have this feature.

➤ **ICCS: Intelligent Cruise Control System**

Used for vehicle intelligent cruise module replacement and matching after repair.

➤ **IMMO: Anti-theft/Key Matching**

Disable any lost keys and add new keys. ONLY for cars with easy IMMO system.

➤ **INJEC: Injector Coding**

Write the new injector code into the car system for correct cylinder injection quantity.

➤ **LANGUAGE: Language**

Change vehicle system language.

➤ **MAPS: Motor Angle Calibration**

Deviations between the rotor position detected by the motor's angular position sensor and the actual rotor field position require calibration of the motor angle.

➤ **NOX: NOx Sensor Reset**

Reset catalytic converter learned value stored in ECU.

➤ **ODO: ODO Meter Reset**

Copy, write or rewrite the kilometer value.

➤ **OIL: Oil Reset**

Allows you to perform reset for a new calculation of engine oil life system once changed the oil, clear the oil light.

➤ **RLS: Rainfall Light Sensor Settings**

The rain sensor is used to adjust the wiper frequency, and the light sensor adjusts the light intensity of the automatic headlights according to the ambient light and darkness. This function allows for adjustment of the initial parameters.

➤ **SAS: Steering Angle Reset**

Reset the steering angle to zero to keep the car running straight.

➤ **SEAT: Seat Calibration**

Calibrate the memory in replaced or repaired seats.

➤ **START/STOP: Stop/Start Settings**

Set up the automatic start-stop function in ECU.

➤ **ROOF: Sunroof Initialization**

Initialize the sunroof when locked off or closed.

➤ **SUS: Air Suspension Matching**

Adjust the vehicle body height sensor for level calibration.

➤ **TPMS: TPMS Reset**

Reset the tire pressure.

➤ **TRANSPORT: Transport Mode**

Deactivate the transport mode.

➤ **TURBO: Turbocharging Matching**

Learning after booster system component replacement, or resetting turbocharger learning value.

➤ **TYRE: Tyre Size Adjustment**

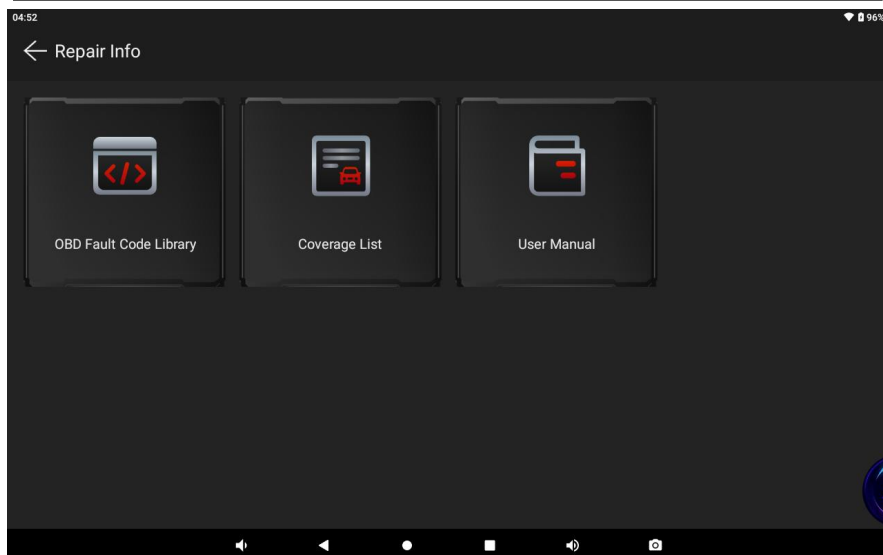
Set the size parameters of the modified or replaced tire.

➤ **WINDOW: Windows Calibration**

Perform door window matching to recover ECU initial memory.

Tips: The maintenance function software may increase with the software release, please pay attention to the software update instructions.

3.6 Repair Info



3.6.1 OBD Fault Code Library

Support enquire the definition of car's OBD fault codes.

3.6.2 Coverage List

You can enter the Vehicle brand, model, year and other information to enquire the support functions and diagnostic system.

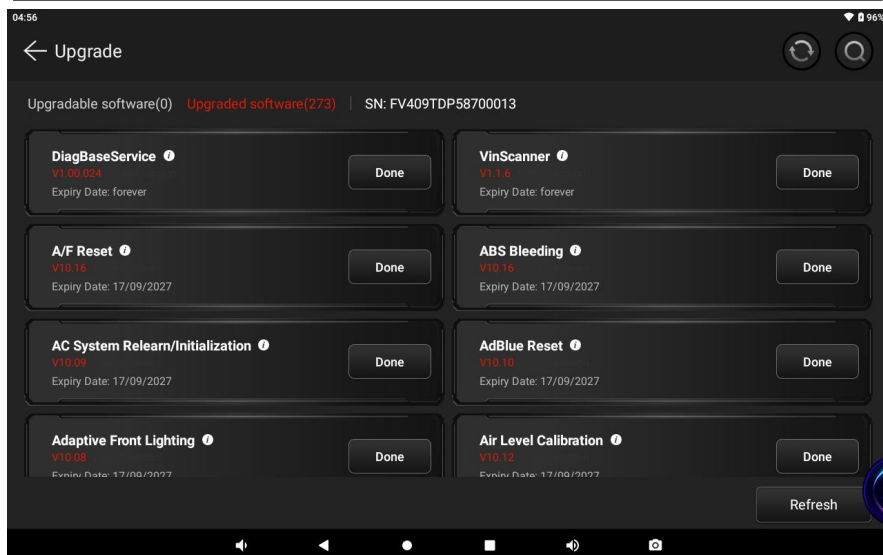
3.6.3 User Manual

You can find the E-Manual in here.

3.7 Upgrade

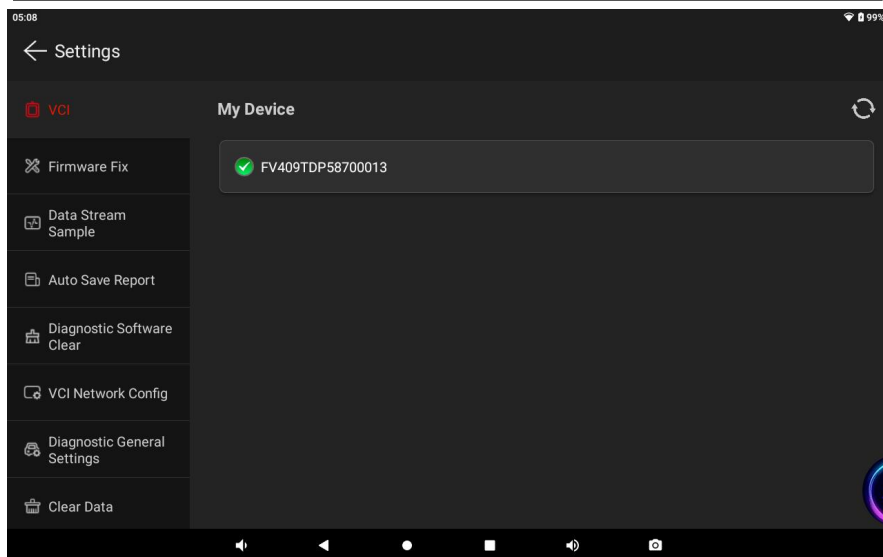
Obtain updated information on device support software in Upgrade. In order to experience better features and upgrade services, we recommend that you periodically upgrade your software.

- Upgradable software: A list of software that can be upgraded.
- Upgrade software: List of downloaded software.



- **Upgradable software:** A list of software that can be upgraded.
- **Upgrade software:** List of downloaded software.
- **Renewals:** If the software validity period of the device has expired, only the software version before the expiration can be downloaded. Please contact your dealer in a timely manner to purchase renewal software.
- **Tips:** During the upgrade process, please maintain a normal network connection. Upgrading many software may take some time, please wait. If you need to delete certain software, you can perform software deletion in [Settings] → [Diagnostic Software Clear].

3.8 Setting



3.8.1 VCI

Support viewing bound device information.

3.8.2 Firmware Fix

Support fixing VCI firmware and remote firmware. If there are abnormalities in the diagnostic, you can try to repair them.

3.8.3 Data Stream Sample

This feature allows you to manage the recorded data stream sample files.

3.8.4 Auto Save Report

The Auto Save Report function can save user information in the diagnostic report in advance. After the function is enabled, it can generate car diagnostic reports faster and avoid repetitive filling actions.

3.8.5 Diagnostic Software Clear

This option can clear some cache files and free up the storage space.

3.8.6 VCI Network Config

Operate as VCI to connect to WiFi on the host device.

3.8.7 Diagnostic General Settings

Enabling or disabling Sline Update function, and save two software versions.

3.8.8 Clear Data

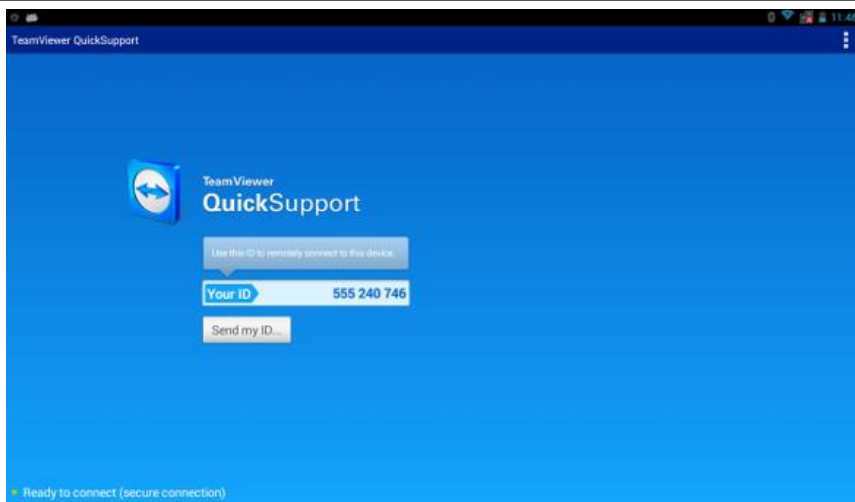
Clear the data of this application,including settings,account login information,database and other application data.

4 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.

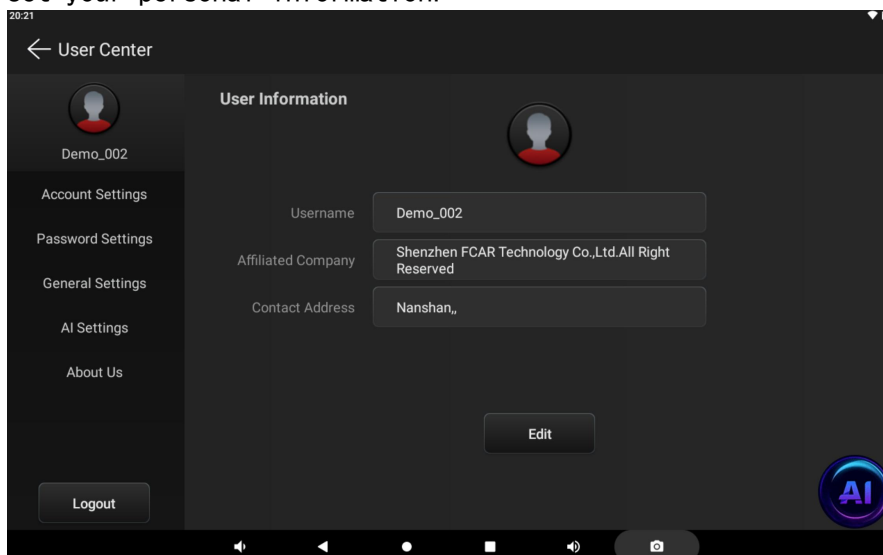


5 Personal Center

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

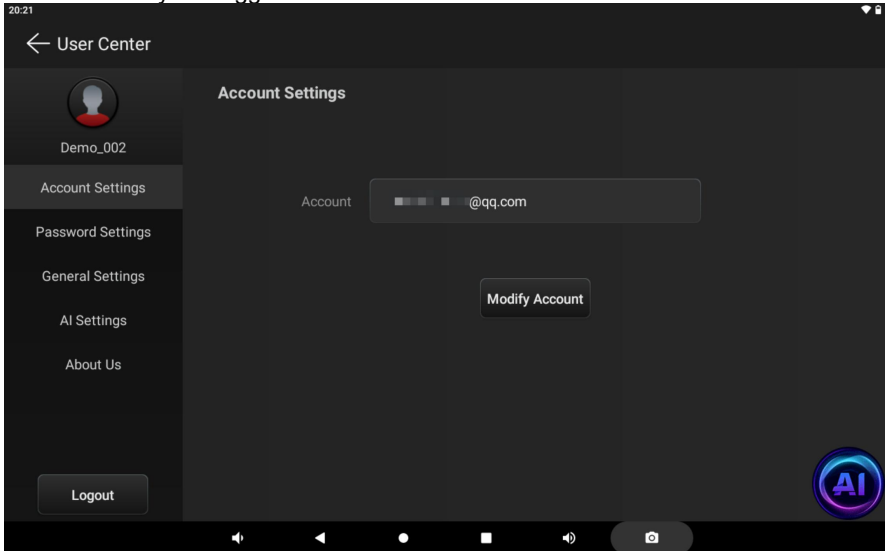
5.1 USER INFO

Set your personal information.



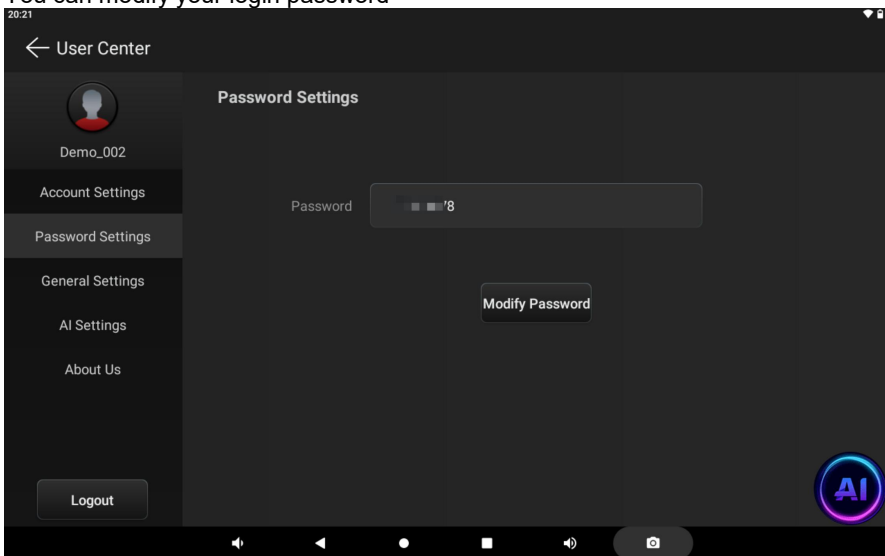
5.2 Account Settings

You can modify the logged in email account



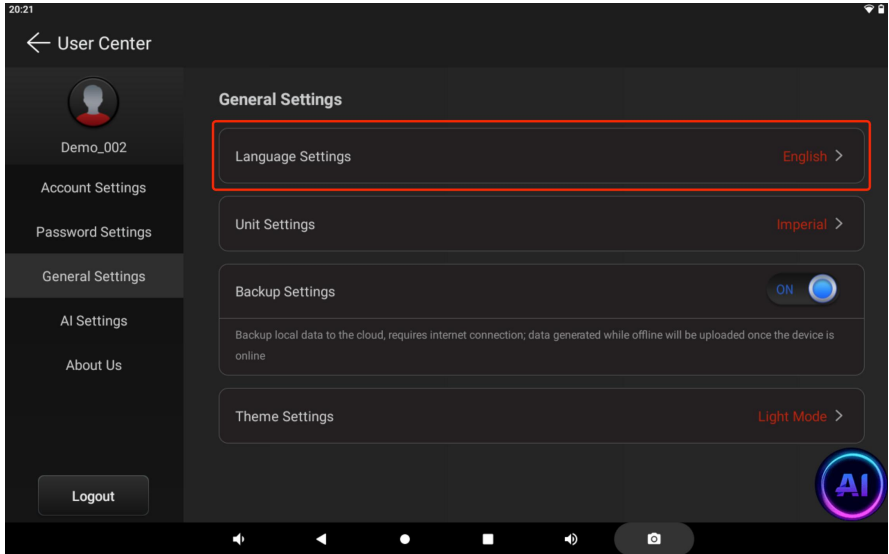
5.3 Password Settings

You can modify your login password



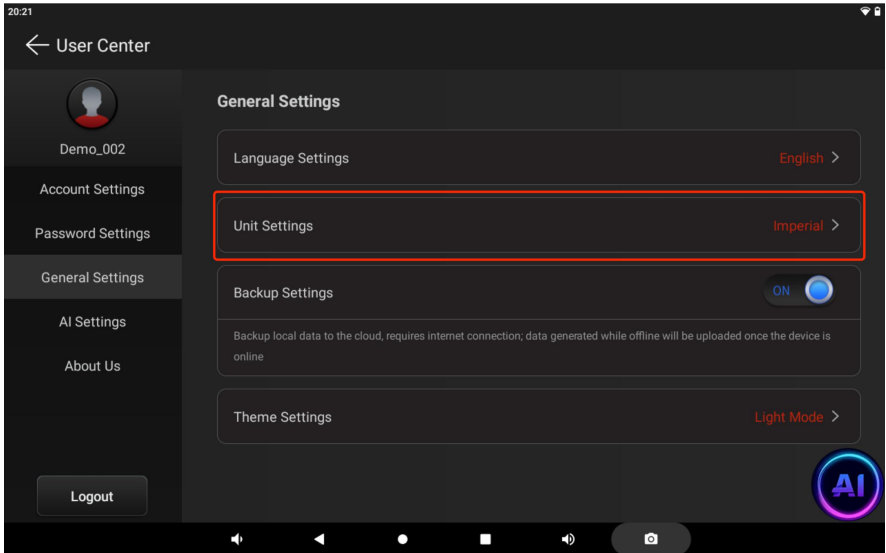
5.4 LANGUAGE

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



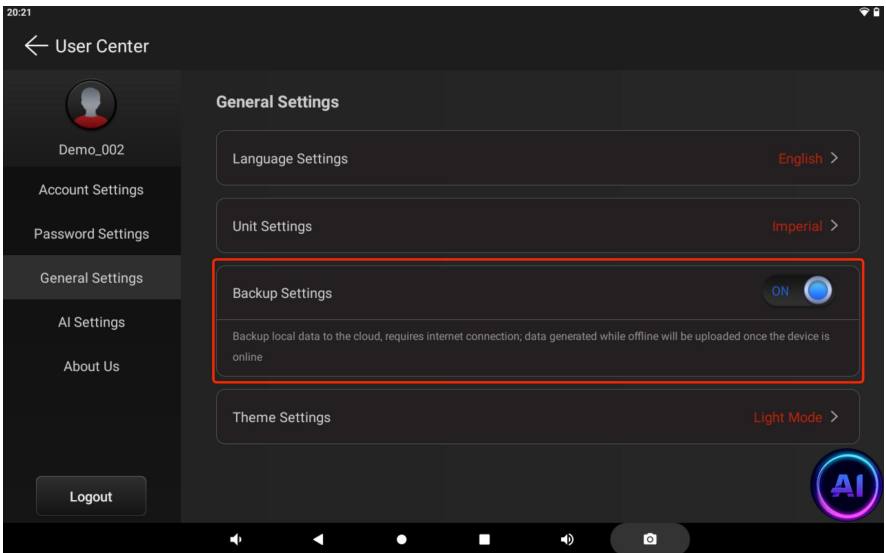
5.5 UNIT

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



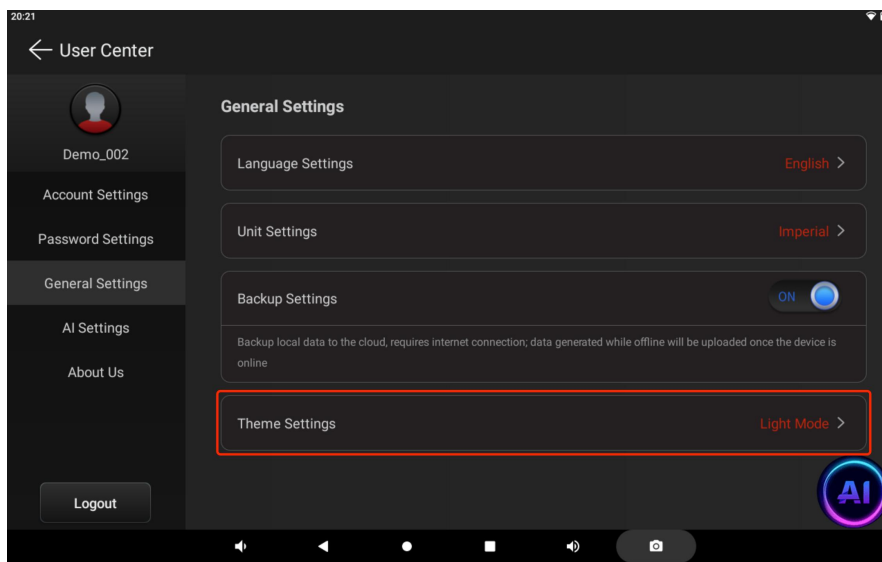
5.6 BACKUP SETUP

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



5.7 Theme Settings

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



5.8 LOGOUT

This menu is used to exit the system log

FCC WARNING

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.

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
- The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction

FCAR® Technology



Load the QR code
for more information

Shenzhen Fcar Technology Co., Ltd

Headquarter: 8F, Chuangyi Bldg., No. 3025, Nanhai Ave., Nanshan, Shenzhen, China

Zip code: 518057

Tel: 0086-755-82904730

Fax: 0755-83147605

E-mail: marketing@szfcar.com

Website: <http://www.fcar.com>

