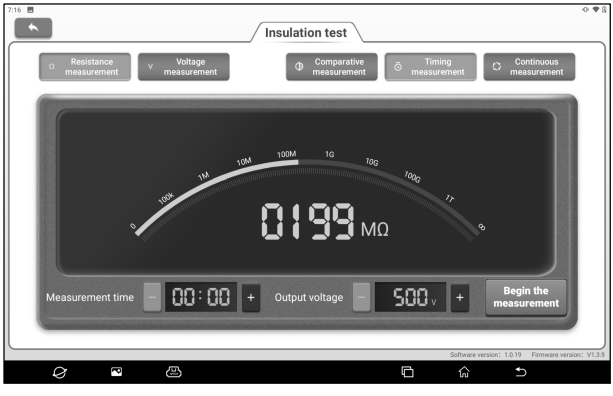
measurement.

Timing Measurement

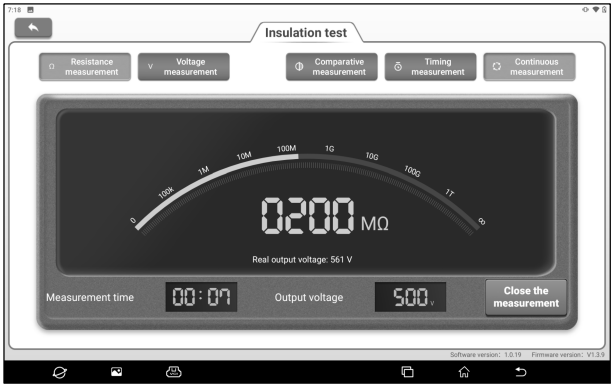
1) Tap **Timing measurement** or switch to "Timing measurement" through the TIME button in the function button area.
2) Click -/+ or the left and right direction buttons in the function button area to set the measurement duration, click -/+ or the up and down direction buttons in the function button area to set the output voltage value, and then tap **Begin the Measurement** or long press the TEST button to start measurement.
3) After the measurement is completed, the screen will display the measured resistance value.



Continuous Measurement

1) Tap **Continuous Measurement** or switch to "Continuous measurement" through the TIME button in the function button area.
2) Click -/+ or the up and down direction buttons in the function button area to set the output voltage value, and then tap **Begin the Measurement** or long press the TEST button to start

measurement.



3) Tap **Close the Measurement** or click the TEST button again to end the measurement, and the measured resistance value and measurement duration will be displayed on the screen.

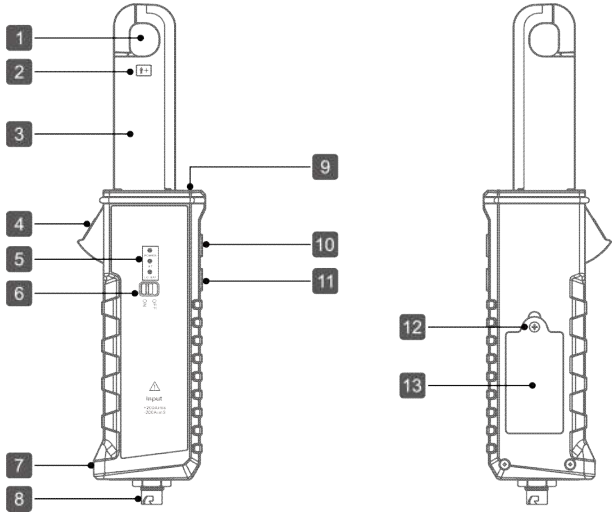
9.3.2 Voltage Measurement

1. Tap **Voltage Measurement**, and then select "DC voltage" or "AC voltage" according to the type of power supply to be measured. You can also switch to the required option through the MODE button.
2. Insert one end of the red insulation test clip into the "LINE" port and connect the other end to the positive electrode of the power supply to be tested. Insert one end of the green insulation test clip into the "EARTH" port and connect the other end to the negative electrode of the power supply to be tested.
3. The screen will display the measured voltage value.

10. Current Clamp

This function module needs to be used with new energy current clamp equipment, and can be used to conduct AC/DC current test and DC voltage test.

10.1 Current Clamp Host



1. Jaw

φ16mm×18mm

2. Direct current positive input indication

3. Clamp Mouth

4. Trigger

Control opening and closing of clamp head

5. Indicator

Power: Power indicator. It illuminates after power-on.
BT: Bluetooth indicator. It flashes when communicating with diagnostic equipment.
LO BAT: Battery indicator. It illuminates when the battery is low.

6. Power Switch

7. Rope Chain Hole

8. Aviation Socket

9. Illuminating Lamp

10. Illuminating Lamp Switch

11. ZERO Button

When measuring DC current, zero adjustment shall be conducted before measurement.

12. Fixing Screws of Battery Cover

13. Battery Cover

10.2 Technical Parameters

Battery:

9V dry battery

Test Mode:

Clamp CT, non-contact measurement

Jaw Size:

φ16mm×18mm (outer diameter of clampable wire)

Input Range:

0~200A AC/DC

Resolution:

1mA AC/DC

Accuracy:

±3%FS (23℃±5℃, below 75%rh)

Zero Adjustment:

The ZERO button can be used for zero adjustment to eliminate the interference of geomagnetic field and external electric field.

Frequency Response:

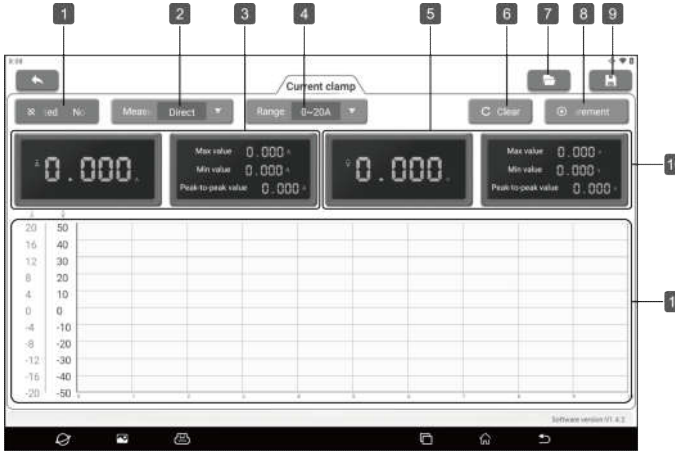
DC～50kHz

Voltage Test:

±48V DC

10.3 Operation

1. Tap **Current Clamp** on the main interface or click the "Current Clamp" function switch button to access the following page.



No.	Description	Operation Prompt
1	**Bluetooth Button** Set current clamp bluetooth connection and view bluetooth connection status	Click to search for and select devices to connect, and "connected" will be displayed after connecting.
2	**Measurement type**	Click the drop-down list to select the measurement type: AC or DC.
3	**Current measurement value display bar**	
4	**Range selector**	Click the drop-down list to display the ranges, including 0 ~ 20A and 0 ~ 200A.
5	**Voltage measurement value display bar**	
6	**Zero**	Click to zero the current clamp. This function is the same as the **ZERO** button on the current clamp.
7	**Open waveform**	Playback of previously saved

		waveforms.
8	**Start/stop**	Click to start/end measurement.
9	**Save waveform**	Click to save the current waveform.

2. Turn on the power switch on the current clamp, and the power indicator lamp will be on.

3. Click the "not connected" button on the screen to start searching for the current clamp. Click the Bluetooth name of the current clamp to be connected (the Bluetooth name is the serial number of the current clamp device) to connect. After the connection is successful, the screen will display "connected".

4. Ensure that the current clamp is not in use. Press the [ZERO] button on the current clamp until the reading on the screen is 0.

Notes: The effect of external electric field or geomagnetic field on the current clamp can be eliminated by using the zeroing function reasonably to make the measured value more accurate. Zeroing steps: Firstly, put the clamp head close to the measured wire, and the current clamp induction will output a voltage (the interference amount of the external electric field). Adjust the ZERO button to zero the interference amount, and then clamp the measured wire, so that the test data will be more reliable.

After measuring the large current, the current clamp will have a certain amount of residual magnetism in a short time. If it is used for the small current test immediately, perform zeroing again.

5. Press the trigger to open the clamp head, clamp the wire to be measured and tap **Start measurement** button on the screen to measure.

6. When measuring the voltage, insert one end of the current clamp test clip into the aviation socket of the current clamp, and

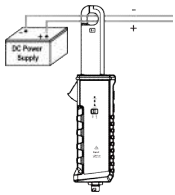
clamp the positive and negative cables of the power supply to be tested at the other end, and then conduct the measurement.

10.4 Specific Application

When measuring DC current

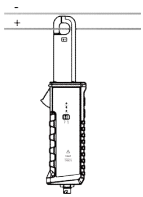
Measure DC leakage:

Clamp the positive and negative wire of the DC line at the same time.



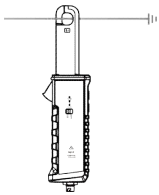
Measure the current of the main line:

Only clamp the main wire of the main line.



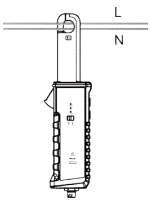
Measure the leakage current of the ground wire:

Only clamp the ground wire.



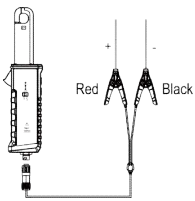
When measuring AC leakage

Clamp the live wire and neutral wire of the AC line at the same time



When measuring DC voltage

Connect one end of the current clamp test clip to the aviation socket of the current clamp, and clamp the positive and negative cables of the power supply to be tested at the other end.



10.5 Battery Replacement

When the battery is low, the LO BAT indicator on the current clamp will be on. Please shut down and replace the battery in time. Use a cross screwdriver to open the battery cover when installing the battery. Pay attention to the polarity of the battery to avoid damaging the current clamp. Please use 9V dry battery for replacement. When the current clamp is not used for a long time,

take out the battery.

11. Special Functions

This module provides the quick entry for commonly used special function operation, including A/F Reset, Brake Reset, maintenance lamp returns to zero, steering angle learning, battery replacement, ABS exhaust, throttle learning, tire pressure reset, DPF regeneration, wave case learning, gear learning, headlamp matching, electronic water pump start, engine power balance, anti-theft matching, high pressure accumulator health detection, GPF regeneration and release of transport mode etc. If you need to operate more special functions, you can enter the diagnostic model software to operate.

Note: The specific special functions provided depend on the vehicle type.

11.1 A/F Reset

This function is applied to set or learn Air/Fuel ratio parameters.

11.2 Electronic Parking Brake Reset

This function enables you to reset the brake pad after replacing the brake pad.

It needs to be performed in the following cases:

1) The brake pad and brake pad wear sensor are replaced.
2) The brake pad indicator lamp is on.
3) The brake pad sensor circuit is short, which is recovered.
4) The servo motor is replaced.

11.3 Oil Reset Service

If the service lamp is on, run car diagnostics first for troubleshooting. After that, reset the driving mileage or driving time, so as to turn off the service lamp and enable a new driving

cycle.

11.4 Steering Angle Calibration

This function enables you to reset the steering angle, after replacing the steering angle position sensor, replacing steering mechanical parts (such as steering gearbox, steering column, end tie rod, steering knuckle), performing four-wheel alignment, or recovering car body.

11.5 Battery Maintenance System Reset

This function enables you to perform a resetting operation on the monitoring unit of vehicle battery, in which the original low battery fault information will be cleared and battery matching will be done.

It needs to be performed in the following cases:

1) The main battery is replaced.
2) The battery monitoring sensor is replaced.

11.6 ABS Bleeding

This function allows you to perform various bi-directional tests to check the operating conditions of Anti-lock Braking System (ABS).

It needs to be performed in the following cases:

1) When the ABS contains air.
2) When the ABS computer, ABS pump, brake master cylinder, brake cylinder, brake line, or brake fluid is replaced.

11.7 Throttle Learning

This function enables you to make initial settings to throttle actuators and returns the learned values stored on ECU to the default state. Doing so can accurately control the actions of regulating throttle (or idle engine) to adjust the amount of air intake.

Cases when throttle learning is required:

1) After the replacement of the ECU, the ECU does not store the characteristics related to the working of the throttle, so the throttle matching is required.
2) After the power-off of the ECU, the memory of the ECU memory is lost, and throttle matching is required.
3) After replacing the throttle assembly, the throttle matching is required.
4) After the replacement or disassembly of the inlet, the coordination of the ECU and throttle body on the idle speed control will be affected, and the throttle matching is required.
5) After cleaning the throttle, the characteristics of the idle throttle potentiometer have not changed, but under the same throttle opening, the air intake has changed, and the idle control characteristics have changed. At this time, it is necessary to match the throttle.

11.8 Tire Pressure Monitor System Reset

This function enables you to quickly look up the tire sensor IDs from the vehicle's ECU, reset tire pressure and turn off the tire pressure MIL.

It needs to be performed in the following cases:

Tire pressure is too low, tire leaks, tire pressure monitoring device is replaced or installed, tire is replaced, tire pressure sensor is damaged, and tire is replaced for the car with tire pressure monitoring function.

11.9 Diesel Particulate Filter (DPF) Regeneration

This function enables you to clear PM (Particulate Matter) from the DPF filter through continuous combustion oxidation mode

(such as high temperature heating combustion, fuel additive or catalyst reduce PM ignition combustion) to stabilize the filter performance.

It needs to be performed in the following cases:

1) The exhaust back pressure sensor is replaced.
2) The PM trap is removed or replaced.
3) The fuel additive nozzle is removed or replaced.
4) The catalytic oxidizer is removed or replaced.
5) The DPF regeneration MIL is on and maintenance is performed.
6) The DPF regeneration control module is replaced.

11.10 Gearbox Matching

This function enables you to complete the gearbox self-learning to improve gear shifting quality.

It needs to be performed in the following cases:

When the gearbox is disassembled or repaired.

11.11 Gear Learning

This function enables you to perform tooth learning for the car, to turn off the MIL.

It needs to be performed in the following cases:

1) After the engine ECU, crankshaft position sensor, or crankshaft flywheel is replaced.
2) The DTC 'tooth not learned' is present.

11.12 Motor Angle Calibration

When the rotor position detected by the motor angle position sensor is different from the actual rotor field position, motor angle calibration must be performed.

11.13 Coolant Bleed

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

11.14 Engine Power Balance Monitoring

It is used to monitor crankshaft acceleration in the power stroke of each cylinder, to determine the relative power provided by each cylinder.

11.15 IMMO Prog

This function supports the reading and writing of car key chip, EEPROM chip, MCU chip, EEPROM and flash of engine ECU and transmission ECU.

11.16 IMMO Service

This function enables you to perform the anti-theft key matching function, so that the immobilizer control system on the car identifies and authorizes remote control keys to normally use the car.

It needs to be performed in the following cases:

When the ignition switch key, ignition switch, combined instrument panel, ECU, BCM, or remote control battery are replaced.

11.17 High Voltage Battery Diagnosis

It is used for high voltage battery diagnosis and status information detection.

11.18 Gas Particulate Filter Regeneration

After the GPF is used for a long time, fuel consumption is

increased and engine output power is reduced. In this case, the GPF replacement or regeneration must be performed.

11.19 Transport Mode

In order to reduce power consumption, the following functions may be disabled, including limiting the vehicle speed, not waking up the door opening network, and disabling the remote control key, etc. At this time, the transport mode needs to be deactivated to restore the vehicle to normal.

11.20 Tire Reset

This function is used to set the size parameters of the modified or replaced tire.

11.21 Windows Calibration

This feature is designed to perform door window matching to recover ECU initial memory, and recover the automatic ascending and descending function of power window.

11.22 AdBlue Reset

After the diesel exhaust treatment fluid (car urea) is replaced or filled up, urea reset operation is required.

11.23 NOx Sensor Reset

NOx sensor is a sensor used to detect the content of nitrogen oxides (NOx) in engine exhaust. If the NOx fault is re-initialized and the NOx catalytic converter is replaced, it is necessary to reset the catalytic converter learned value stored in the engine ECU.

11.24 Injector Coding

This function enables you to write injector actual code or rewrite

code in the ECU to the injector code of the corresponding cylinder, so as to more accurately control or correct cylinder injection quantity.

It needs to be performed in the following cases:

After the ECU or injector is replaced.

11.25 Stop/Start Reset

This function is used to open or close the automatic start-stop function via setting the hidden function in ECU (provided that the vehicle has a hidden function and supported by hardware).

11.26 Sunroof Initialization

This function enables you to set the sunroof lock off, closed when it rains, sliding / tilting sunroof memory function, temperature threshold outside the car etc.

11.27 Suspension Calibration

This function enables you to adjust the height of the body.

It needs to be performed in the following cases:

1) When replacing the body height sensor, or control module in the air suspension system.

2) When the vehicle height is incorrect.

11.28 Language Change

This function is used to change the system language of the vehicle central control panel.

11.29 Intelligent Cruise Control System Diagnosis

It is used for matching after the intelligent cruise control module is replaced or repaired.

11.30 AC System Relearn/Initialization

AC system relearn/ initialization must be performed when the vehicle AC ECU or actuator is replaced or the ECU memory is lost.

11.31 Seats Calibration

This function is applied to match the seats with memory function that are replaced and repaired.

11.32 AFS (Adaptive Front-lighting System) Reset

This function can be used to initialize the adaptive headlamp system. The adaptive headlamp system can decide whether to turn on the headlamp automatically according to the environmental light intensity, and monitor the vehicle's speed and body posture, and adjust the lighting angle of the headlamp timely.

11.33 Compressor Test

This function is used for testing after replacement and maintenance of vehicle compressor.

11.34 Coolant Change

The performance of the coolant deteriorates during normal use and the coolant needs to be changed within a certain period. This function is used to guide and explain the coolant change process.

11.35 EGR Learning

This function is used for learning after EGR (Exhaust Gas Recirculation) valve cleaning or replacement.

12. ADAS Calibration

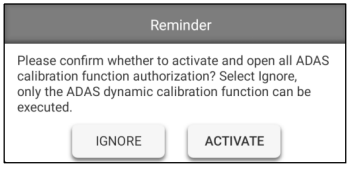
The ADAS calibration function is used to calibrate driver assistance systems with various cameras and radars, such as front-facing cameras for lane departure warning systems, and radar sensors for ACC (Adaptive Cruise Control), etc.

12.1 Activate ADAS Calibration Function

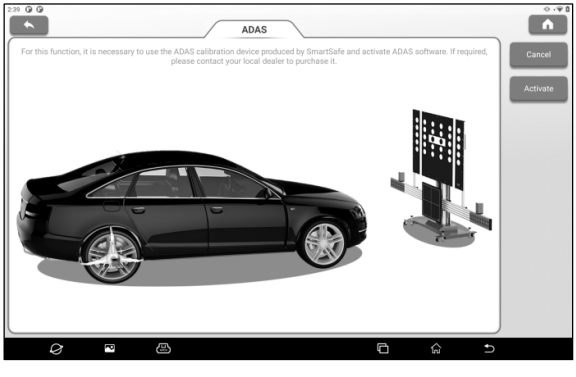
The ADAS calibration function on the device is disabled by default. Users need to use the activation card to activate the function before using it. This function is available with the specified ADAS calibration tool (purchased separately).

Perform the following steps to activate the device:

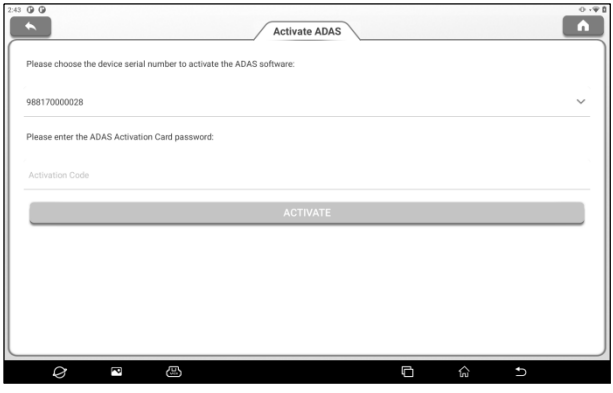
(1) Tap **ADAS Calibration** on the main interface, and the following prompt box will pop up. Tap **Activate** to enter the ADAS activation page.



(2) Tap **Activate** on the ADAS activation page.



(3) Scrape the coating area of the ADAS activation card to display the activation code. Enter the 24-digit activation code, and then tap **Activate** to activate the ADAS function.



(4) After successful activation, the calibration function of ADAS can be used normally.

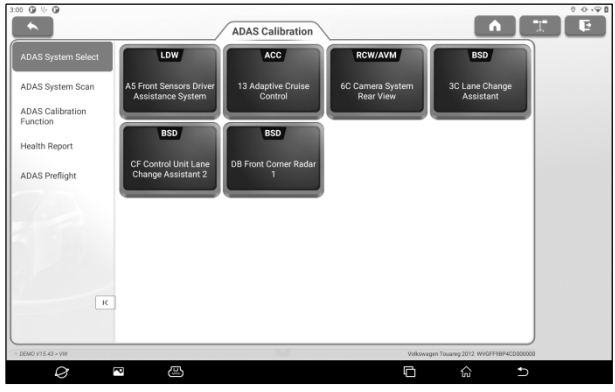
12.2 Start Calibration

Users need to perform the calibration as prompted on the host. The ADAS calibration function is introduced through the ADAS demo program as follows.

Note: Before performing the ADAS calibration operation, make sure that the VCI connector is connected to the vehicle diagnosis seat and the Bluetooth communication between it and the host is normal.

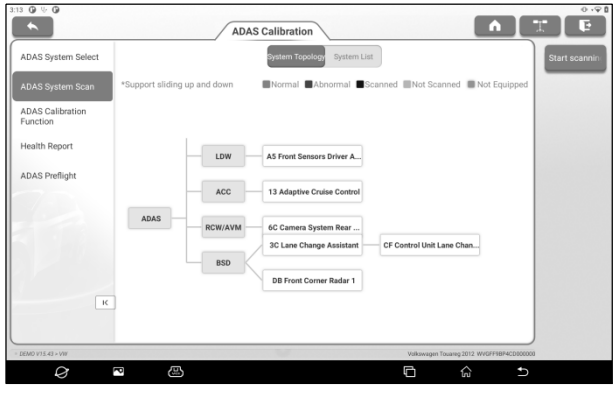
12.2.1 ADAS System Selection

Use this function to select the ADAS system that requires ADAS calibration.



12.2.2 ADAS System Scan

Use this function to scan which ADAS systems are installed on the test vehicle.



The ADAS system supports two display modes: System Topology and System List. Tap **Start Scanning** to scan the ADAS system one by one. After scanning is completed, click the system displayed in red (the system is displayed in red, indicating that there is a fault code in the system) to view the fault code, and click the system that works normally (the system is displayed in green, indicating that the system works normally) to perform other

diagnostic functions.

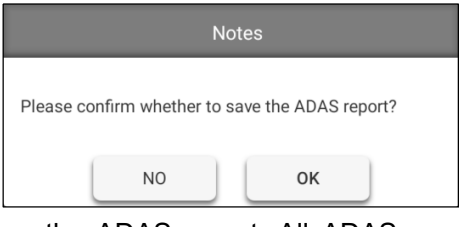
12.2.3 ADAS Calibration Function

Users can use this option to perform ADAS calibration operations. To perform this function, please coordinate with a calibration tool such as ADAS Mobile or ADAS PRO+. The calibration tool is used to locate the calibration target, and the tablet is used to guide the user on how to position the calibration tool and provide detailed calibration steps.

Tap **ADAS Calibration Function** to enter the following page:

Click the item to be calibrated and then follow the instructions on the screen to perform the calibration function.

After the calibration is complete, a prompt box will pop up on the screen asking whether to save the ADAS report.

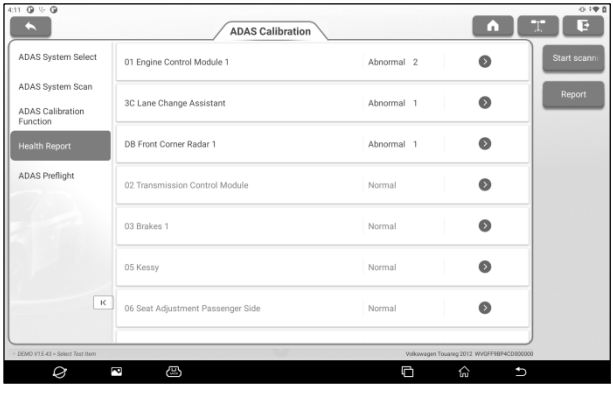


Tap **OK** to save the ADAS report. All ADAS reports are stored

under the **Other** -> **Reports** -> **ADAS Reports** tab.

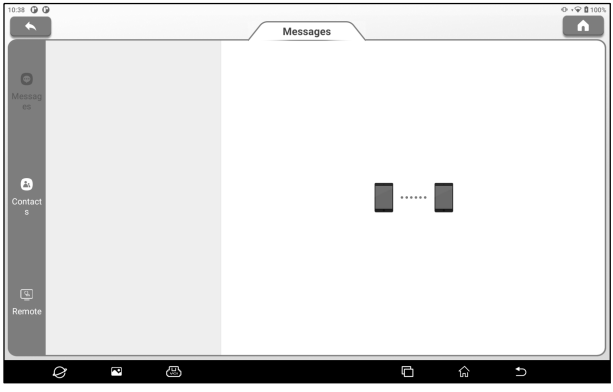
12.2.4 Health Report

After the calibration of the ADAS system, use this option to perform a full vehicle scan to confirm that the vehicle fault code has been cleared.



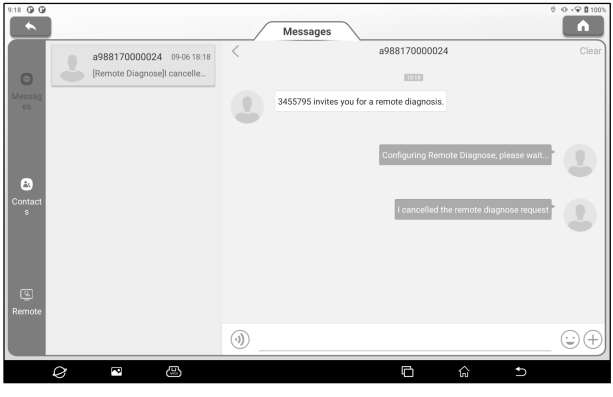
13. Remote Diagnose

The module is used to remotely assist users in diagnosis operations. Tap **Remote Diagnose** to enter the following page:



13.1 Messages

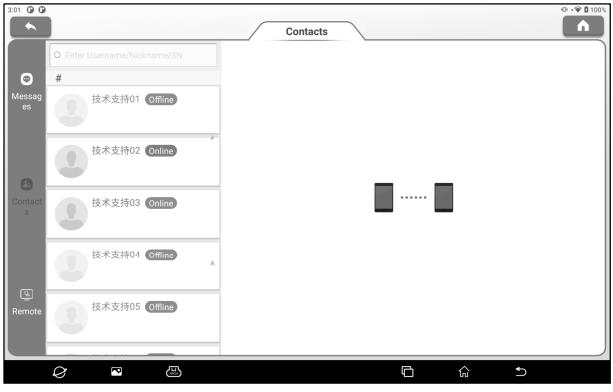
Tap **Messages** to enter the messages page, here you can see all the messages received.



13.2 Contacts

Tap **Contact** to enter the following page. Here you can see the

contact list including maintenance technicians and added friends.

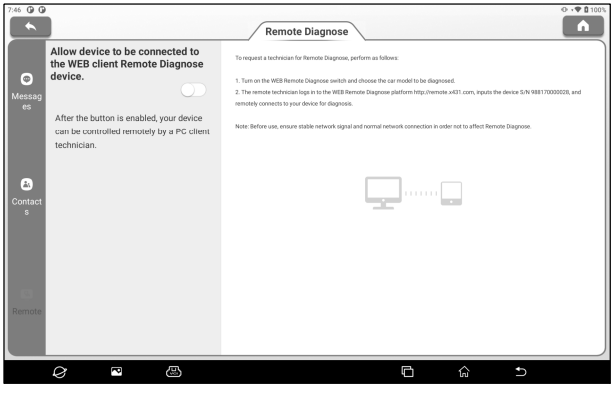


Enter “Username/Nickname/Serial Number" in the search bar to search and add a friend. The added friends will appear in the contacts list.

Select the maintenance technician in the list to enter the interactive page. In the interactive page, you can communicate with text and voice messages, send files and pictures, invite remote diagnose assistance, etc.

13.3 Remote

Tap Remote to enter the following page.



To request a technician for Remote Diagnose, please follow the below steps.

1. Turn on the WEB Remote Diagnose switch and choose the car model to be diagnosed.
2. The remote technician logs in to the WEB Remote Diagnose platform http://remote.x431.com, inputs the device S/N, and remotely connects to your device for diagnosis.

Note: Before use, ensure stable network connection in order not to affect Remote Diagnose.

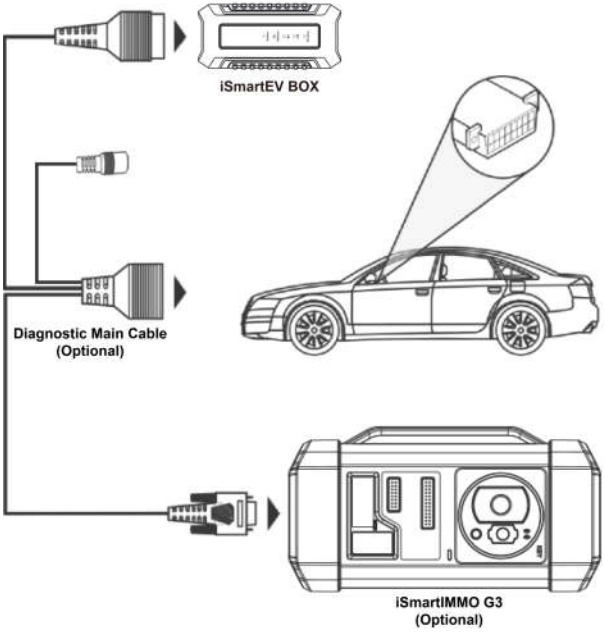
14. IMMO Matching

This function enables you to perform the anti-theft key matching function, so that the immobilizer control system on the car identifies and authorizes remote control keys to normally use the car.

14.1 Anti-theft Matching

14.1.1 Vehicle Connection

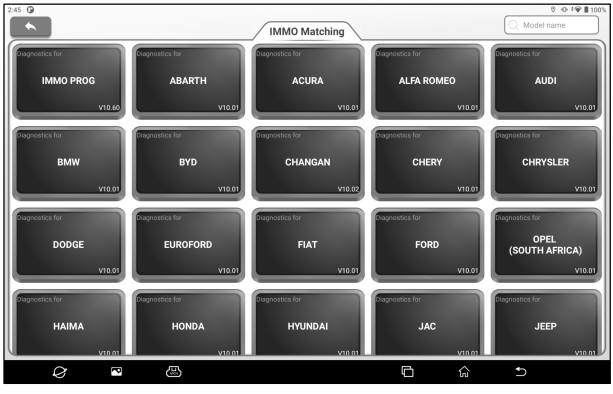
1. For most vehicles, just use the included OBD II extension cable to connect the VCI to the vehicle's DLC port.
2. For other vehicles (including but not limited to the Mercedes Benz, VW, BMW and Porsche), the iSmartIMMO G3 and diagnostic main cable (optional) are required.



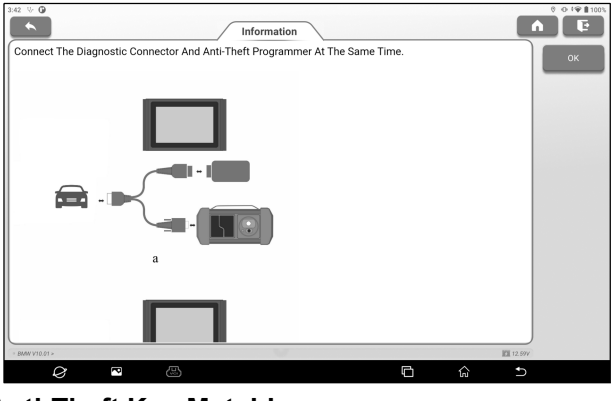
14.1.2 Operations

Here we take the BMW for example to demonstrate how to perform the functions of key adding and all lost for BMW CAS4/CAS4 + anti-theft system module.

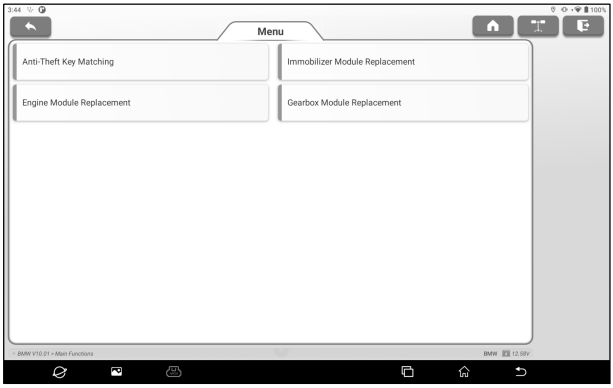
1. Tap **IMMO Matching** on the main interface and select BMW as the vehicle brand.



2. Check that the VCI, vehicle and iSmartIMMO G3 are correctly connected according to the prompts in the software picture, and then tap **OK**.



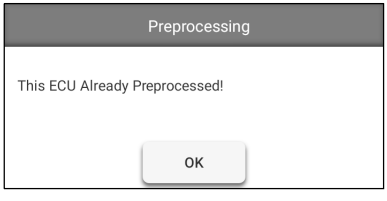
3. Tap **Anti-Theft Key Matching**.



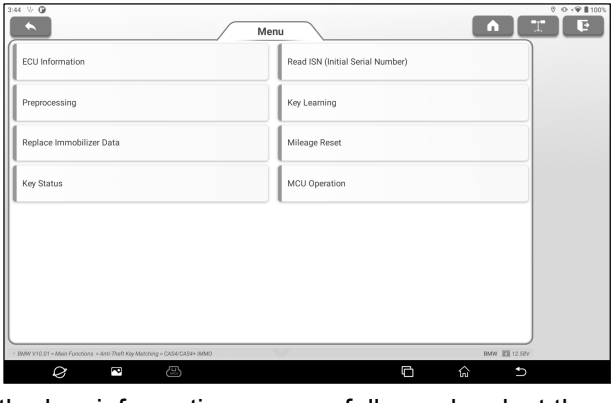
4. Tap **CAS4/CAS4+ IMMO**. If you are not sure about the type of anti-theft system, tap **Automatic Detection**.

5. Tap **Preprocessing** to perform Read anti-theft data, Key matching and more. If it has already been preprocessed, here you can perform the relevant functions. The ECU will be upgraded in this process, and files need to be downloaded online.

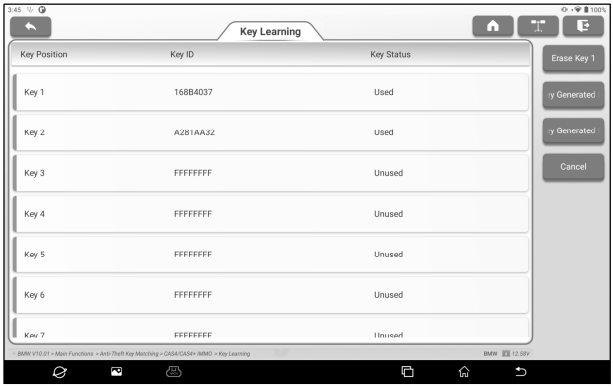
6. After preprocessing, tap **OK**.



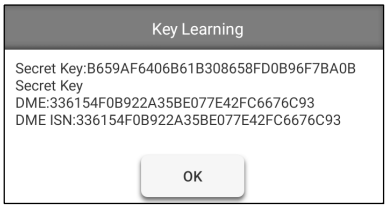
7. Return to the function menu page and tap **Key Learning**.



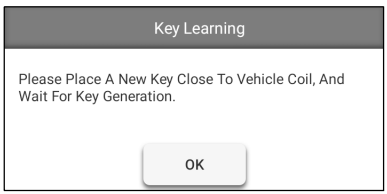
8. After the key information successfully read, select the unused key position and tap **Key Generated By Ignition Switch**.



9. Read and display the password, and tap **OK**.



10. Place a new key close to vehicle coil, tap **OK**, and wait for key generation.



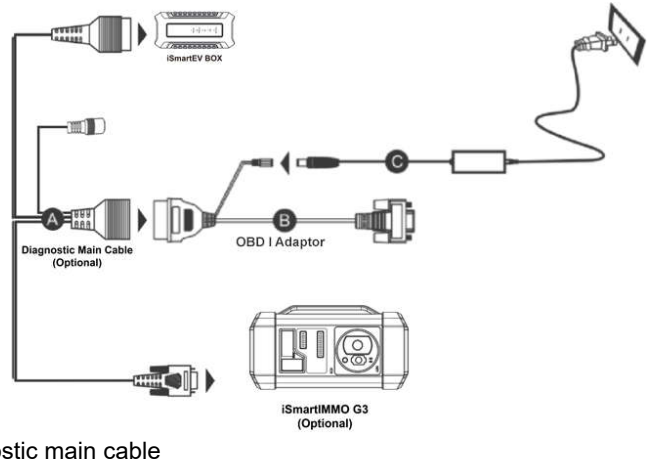
11. After the dealer key is successfully generated, please try to start the vehicle. Now the key matching is finished and the new key is ready for use.

14.2 IMMO PROG

The iSmartIMMO G3 is required when performing this operation. It has the following functions:

- Read transponder data (including Mercedes Benz infrared smart key), and generate exclusive keys.
- Read/write on-board EEPROM chip data, and read/write MCU/ECU chip data.
- Read/write remote control transponder data and detect key frequency.

1. Before performing this function, please make sure the following connections are properly made.

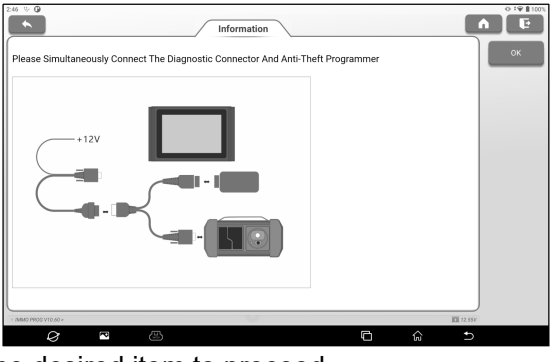


A. Diagnostic main cable
B. OBD I adaptor
C. Switching power supply of the iSmartIMMO G3

Notes:

- *You are suggested to connect the BOX shown in above diagram to the tablet via the USB cable. Using a USB cable could effectively enhance your data transmission speed.*
- *IMMO Programming does not require a connection to the vehicle. To ensure that the iSmartIMMO G3 works properly, ONLY use the switching power supply and OBD I adaptor to supply power to the iSmartIMMO G3. Obtaining power through a connection to the DC power jack of the iSmartIMMO G3 via the switching power supply alone is failed.*

2. Tap **IMMO PROG**. Check that the VCI, vehicle and iSmartIMMO G3 are correctly connected according to the prompts in the software picture, and then tap **OK**.



3. Select the desired item to proceed.

14.2.1 EEPROM Programming

This function allows you to read/write on-board EEPROM chip data.

14.2.2 Engine Programming

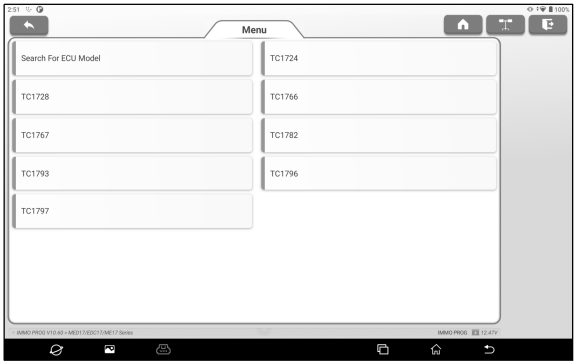
This function allows you to read the engine data and write in the backup data after a new engine is replaced.

Below procedures show you how to perform engine programming.

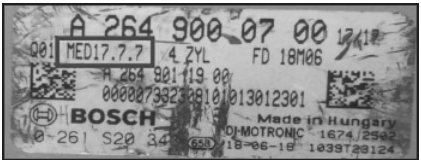
1. Tap **Engine**.
2. Select Engine Brand (e.g. Bosch).

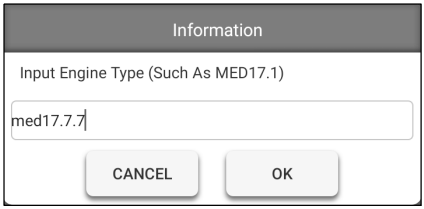
3. Select Engine series (e.g. MED17).

4. Tap **Search For ECU Model**.

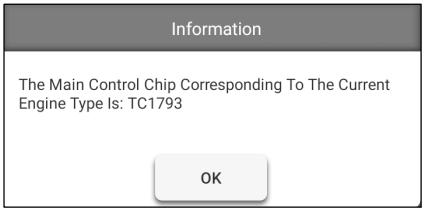


5. Check ECU model (printed on the sticker on the back of your Engine), enter the engine type in the dialogue box (for example , the engine type should be MED17.7.7) and tap **OK**.





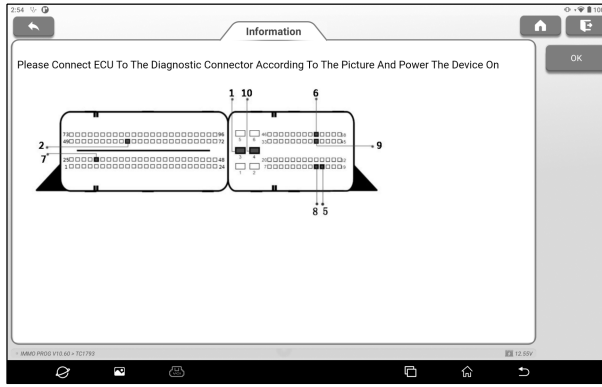
6. Tap **OK** to confirm the engine type and enter the function selection screen.

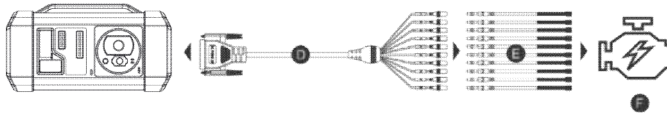


Note: The function selection screen varies by different vehicle manufacturers.

a. Tap **View Wiring Diagram** to check how to connect the engine with the iSmartIMMO G3.

Note: Vehicle engine connection could vary depending on engine types, for information how to connect the car engine, refer to the onscreen connection diagram.





D. BENCH mode cable (optional)
E. Adaptor cable (optional) associated with the BENCH mode cable
F. Engine

b. Tap **Backup EEPROM data** to create a file name and save it on the tablet.

c. Tap **Restore EEPROM data** to write the backup EEPROM data into the new engine.

Stop: The EEPROM restoration applies only when you have encountered irrevocable faults or after a new engine is replaced.

d. Tap **Backup FLASH data** to save the FLASH data on the tablet to avoid accidents.

e. Tap **Read chip ID** to read the chip information.

14.2.3 Gearbox Programming

This function allows you to restore the old gearbox data or write in new data after a new gearbox is replaced.

Below procedures show you how to perform gearbox programming for AUDI.