



# **User Manual**

**F510 Smart Diagnostic System**

**Shenzhen Xtooltech Intelligent Co., LTD**

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## Disclaimer of Warranties and Limitation of Liabilities

All information, specifications and illustrations in this manual are based on the latest information available at the time of printing.

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Xtool will not be liable for any direct, special, incidental, or indirect damages, or for any economic consequential damages (including the loss of profits) as a result of using this product.

**※ Before operating or maintaining this unit, please read this manual carefully paying extra attention to the safety warnings and precautions.**

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## **Safety Information**

For your own safety and the safety of others, and to prevent damage to the device and vehicles upon which it is used, it is important that the safety instructions presented throughout this manual be read and understood by all persons operating or coming into contact with the device.

There are numerous procedures, techniques, tools, and parts required for servicing vehicles, as well as the skills of the person doing the work. Because of the vast number of test applications and variations in the products that can be tested with this equipment, we cannot possibly anticipate or provide advice or safety messages to cover every circumstance. It is the automotive technician's responsibility to be knowledgeable of the system being tested. It is crucial to use proper service methods and test procedures. It is essential to perform tests in an appropriate and acceptable manner that does not endanger your safety, the safety of others in the work area, the device being used, or the vehicle being tested.

Before using the device, always refer to and follow the safety messages and applicable test procedures provided by the manufacturer of the vehicle or equipment being tested. Use the device only as described in this manual. Be sure to read, understand, and follow all safety messages and instructions in this manual.

## **Safety Instructions**

The safety messages herein cover situations Xtool is aware of at the time of publication. Xtool cannot know, evaluate or advise you as to all of the possible hazards. You must be certain that any condition or service procedure encountered does not jeopardize your personal safety.

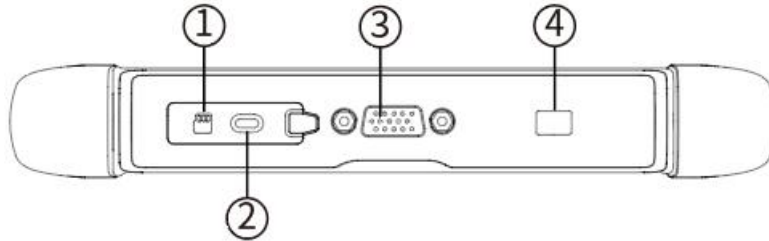
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# 1. GENERAL INTRODUCTION

The XTOOL D5 smart diagnostic system (referred to as the “Scan Tool”) is an advanced scanning tool. The advantage of this OBD-II (On-Board Diagnostics version 2) scanner is its comprehensive functions and its ability to quickly provide the user with more accurate diagnostic information.

## TABLET DESCRIPTION



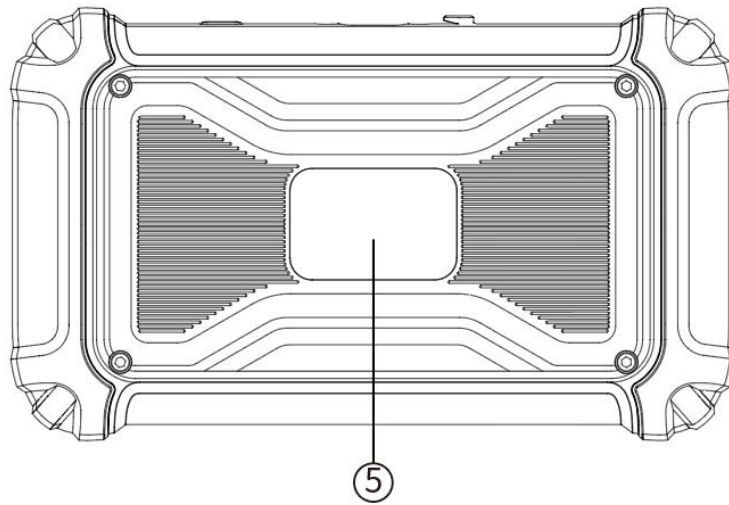
**Top View**

① SD card Slot

② Type-C Port

③ DB15 Port

④ Power Button

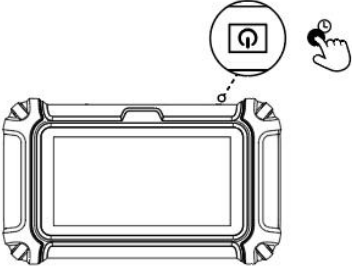
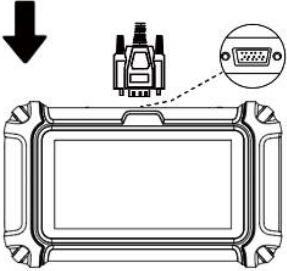
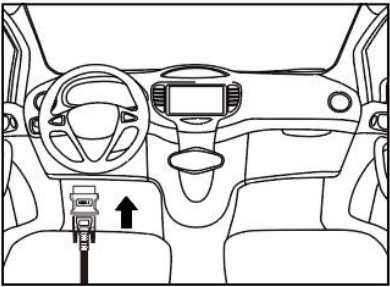
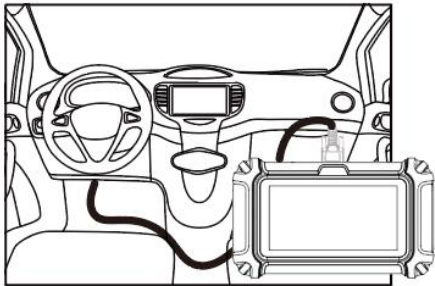


**Back View**

⑤ Nameplate

# VEHICLE CONNECTION

## Wired Connection

<ul style="list-style-type: none"><li>• Press and hold the Power button to turn on the tablet</li><li>• Select App language and start the activation</li><li>• Input your E-mail address, and click <b>OK</b> to complete the activation</li></ul>  <p><b>1</b></p>	<ul style="list-style-type: none"><li>• Connect the main cable's female adapter to the tablet first and tighten the captive screws</li></ul>  <p><b>2</b></p>
 <ul style="list-style-type: none"><li>• Plug the 16-pin male connector of main cable into the vehicle's DLC port</li></ul> <p><b>3</b></p>	 <ul style="list-style-type: none"><li>• Your tablet is now ready for diagnosis</li></ul> <p><b>4</b></p>

## Precautions for Diagnosis

1. The voltage range on the car: +9~+36V DC;
2. When testing some special functions, the operator must operate according to the prompts and meet the test conditions. For some models [special functions], the conditions that need to be met are: engine water temperature 80 °C~105 °C, turn off headlights and air conditioners, keep the accelerator pedal in the released position, etc.;
3. The electronic control systems of different models are very complicated. If you encounter situations where it is impossible to test or a large amount of test data is abnormal, you can search for the ECU of the vehicle and select the menu for the model on the ECU nameplate;

4. If the vehicle type or electronic control system to be tested is not found in the diagnostic function, please upgrade the vehicle diagnostic software to the latest version using the Updates menu or consult the XTOOL technical service department;
5. Only wiring harnesses provided by XTOOL and designed for the device are permitted to be used with this device to avoid damage to the vehicle or the device;
6. When running a Diagnostics function, it is forbidden to shut down the device directly. You should cancel the task before returning to the main interface and then shutting down the device.

## **2. DIAGNOSTICS**

The diagnostic application can read ECU information, read and clear DTC (Diagnostic Trouble Codes) and check live data and freeze frame data. The Diagnostic application can access the ECU of various vehicle control systems, including the Engine, Transmission, Anti-lock Braking System (ABS), Airbag Safety Restraining System (SRS), Electronic Parking Brake system (EPB) and perform many types of actuation tests.

### **BEGINNING DIAGNOSTIC TESTING**

After the tablet device is properly connected to the vehicle, you could start the vehicle diagnosis.

### **VEHICLE SELECTION**

The scan tool supports the following 3 ways to access the smart diagnostics system.

- **AUTO SCAN**
- **MANUAL INPUT**
- **SELECT VEHICLE BY AREA**

● **AUTO SCAN:** It supports the automatic reading of vehicle VIN code. You also can tap on the button “AUTO SCAN” on the diagnosis system entrance to use this function. Please make sure that the car and the device are well connected before using this function.

*△ If your model is not recognized, please try the following steps:*

*① UPDATE all software and check whether the APP is updated in [Settings]*

*② Please click **Diagnosis** on the main menu to enter the selection menu, manually select the engine system to read the ECU information, and confirm whether the VIN can be read.*

*③ Contact the XTOOL technical team to provide the VIN code to confirm whether the model supports automatic identification of VIN.*

● **MANUAL ENTER:** It supports manual input of car VIN code. When entering the VIN code manually, make sure that the 17 characters entered are correct to ensure accurate test results.

● **SELECT VEHICLE BY AREA**

In addition to the above 3 methods, you can also choose a car brand by selecting the appropriate region. You can select the vehicle model that needs to be diagnosed according to the area.

**OBD-II** supports reading the related fault codes of the Powertrain Control Module (PCM).

**DEMO:** a demonstration program. Click this button to experience and learn the operation processes of the diagnostic function.

**Automatic Detection:** Will automatically identify the vehicle's VIN code, and then read the information of your target diagnostic object.



## ● **DIAGNOSIS FUNCTIONS**

Diagnostics functions supported by the scan tool are listed below:

- **Read ECU Information**
- **Read/Clear Trouble Code**
- **Read Live Data**
- **Actuation Test (Bi-Directional Control)**

### ● **Read ECU Information**

This function is to read ECU version information and is the equivalent of "**System Identification**" or "**System Information**" in some electronic control systems. These equivalent terms all refer to reading ECU-related software and hardware versions, models and production date of diesel engines, part numbers, etc. This information is helpful when recording maintenance records and ordering new parts.

### ● **Read Trouble Code**

In the process of diagnosis, if the device shows "System is OK" or "No Trouble Code", it means there is no related trouble code stored in ECU or some troubles are not under the control of ECU.

Most troubles are mechanical system troubles or executive circuit troubles. It is also possible that the signal of a sensor may be inaccurate but within limits, which can be examined using Live Data.

### ● **Clear Trouble Code**

It allows for clearing current and historical trouble codes stored in the ECU memory, under the premise that all the troubles have been resolved.

Some troubles are immediately detected by the ECU with the key in the run position and without the engine running. Other troubles are not detected until very specific test conditions are met such as engine coolant temperature within a range, speed within a range for a duration of time, throttle percentage within a range, etc.

If the trouble codes are erased when the trouble remains unresolved, the trouble code will reappear in the ECU the next time the ECU performs the specific diagnostic test for that trouble.

If the trouble is resolved but there is a stored trouble code, sometimes the ECU will detect the resolution and clear the trouble code or more likely, classify it as “historical” trouble.

If the trouble is resolved and the user clears the trouble codes, the trouble history will be cleared.

If the user intends to have another colleague or mechanic investigate the problem, it is not recommended for the user to clear the trouble code since doing so may erase information helpful to others who may investigate the issue.

### ● **Read Live Data**

Real-time information about various sensors is called “Live Data”. Live Data includes **parameter identifications (PIDs)** of the running engine such as oil pressure, temperature, engine speed, fuel oil temperature, coolant temperature, intake air temperature, etc. Based on these parameters, we can predict directly where the problem lies, which helps to narrow the scope of maintenance. For some vehicles, during their actual operation, the problems such as performance characteristics or sensitivity reduction, can be evaluated using live data.

### ● **Actuation test (Bi-directional control)**

Actuation test, also known as bidirectional control, is a generic term used to describe sending and receiving information between one device and another. This function is used mainly to judge whether these actuating components of the engine are working properly.

The vehicle engineers responsible for designing computer control systems programmed them so a scan tool could request information or command a module to perform specific tests and functions. Some manufacturers refer to bidirectional controls as functional tests, actuator tests, inspection tests, system tests or the like. Reinitialization and reprogramming also can be included in the list of bidirectional controls.

This function allows the device to send information to and receive information from, vehicle control modules. For example, in the case of OBD II generic information Mode 1 (which relates to data parameters), the scan tool user initiates a request for information from the powertrain control module (PCM), and the PCM responds by sending the information back to the scan tool for display. Most enhanced scan tools also can actuate relays, injectors and coils, perform system tests, etc. Users could check the individual part to see what is working properly by actuation test.

### **3. REPORT**

This feature provides a history of diagnostic reports, where you can view and delete the vehicle's diagnostic reports according to your needs.

When you finish the diagnostics progress and exit the diagnostic application specific to this vehicle, you will get a prompt of report regeneration.

### **4. UPDATE**

After activating the device, please **update** the software modules identified in the "Updates" screen. The device will identify all currently available software packages, and you can download them as needed. ALL software updates directly via the Internet.

## **5. SETTINGS**

- **Language**

Select the language you need on this page.

- **Unit**

Select measuring units.

- **Wi-Fi Connection**

Add new network or connect the Wi-Fi on this page.

- **Display & Brightness**

Adjust Brightness level and change the sleep time.

- **Storage**

Check the used / available storage space and clear cache.

- **Date & Time**

Set the time zone and time format.

- **About**

Here to check the version of diagnosis application, serial number of diagnostic tablet, and the serial number of VCI box matched.

- **Account**

Display user name and email address, modify the password on this page.

## 6. SPECIAL FUNCTION

Usually, special functions provide various reset or re-learning functions menus for most vehicle systems. You can easily and quickly solve some faults through special functions for your car. After some functions are successfully executed, fault codes will be generated, which need to be cleared manually after the car is running for a little while which could include a single start of the engine or multiple warm up cycles.

And under each system, you can view the special features supported by that system. Different models and systems often have different special functions. Even for the same system of the same model, the years and ECU type may lead to different special functions supported.

The device supports a lot of commonly used special reset functions, allowing you to quickly access your vehicle system for various scheduled services, maintenance, and reset performance.

These functions often eliminate the need to reset codes after resolving common problems. Since XTOOL is continuously developing, the manual may not include all of the latest special functions that are available for download. This user manual lists some of the commonly used special reset services for your reference.

### ● ABS BLEEDING

Anti-Lock Braking System keeps the tires from locking up immediately when there are brakes. Keeping ABS in good condition can give full play to the effectiveness of the brakes, shorten the braking time and distance, prevent the vehicle from skidding and tailing during emergency braking, ensure good driving stability and steering maneuverability, and avoid violent friction between the tires and the ground to reduce tire wear. When the ABS contains air, the ABS bleeding function must be performed to bleed the brake system to restore ABS brake sensitivity.

ABS Bleeding can be performed in the following cases:

- replace the rear brake distributor pump or the front brake distributor pump. 2.
- Severe brake fluid shortage.
- change the brake fluid.

## Caution

- The ABS pump screw needs to be unscrewed.
- Brake fluid will be under pressure during this process. Secure the bleed hose and open bleeder screws slowly.
- Some vehicles do not support automatic bleeding, but manually bleeding.

- **EPB**

Electronic Parking Brake (EPB) System reset is a popular special function. You can use this function to reset the electronic parking brake system and brake pads (retraction, release of the brake pump), G-sensor and body angle calibration. This function has multiple uses and can safely and effectively maintain the electronic brake system. These applications include deactivating and activating brake control systems, assisting in controlling brake fluid, applying and releasing brake pads, setting brakes after replacing brake discs or brake pads, etc.

1. If the brake pad wears the brake pad sense line, the brake pad sense line will send a signal to the onboard tablet asking for replacing the brake pad. After replacing the brake pad, you must reset the brake pad to clear the trouble code. Otherwise, the car continues to falsely notify the user that the brake pads are in need of replacement.
2. A reset must be performed in the following cases:
  - The brake pad and brake pad wear sensor are replaced.
  - The brake pad indicator lamp is on.
  - The brake pad sensor circuit is shorted.

The servo motor is replaced.

#### ISED Statement

English: This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).

French: Cet appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes aux RSS exemptés de licence d'Innovation, Sciences et Développement économique Canada.

L'exploitation est soumise aux deux conditions suivantes :

- (1) Cet appareil ne doit pas provoquer d'interférences.
- (2) Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

L'appareil numérique du ciem conforme canadien peut - 3 (b) / nmb - 3 (b).

This device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS 102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

cet appareil est conforme à l'exemption des limites d'évaluation courante dans la section 2.5 du cnr - 102 et conformité avec rrs 102 de l'exposition aux rf, les utilisateurs peuvent obtenir des données canadiennes sur l'exposition aux champs rf et la conformité.

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment.

Cet équipement est conforme aux limites d'exposition aux rayonnements du Canada établies pour un environnement non contrôlé.

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

L'appareil destiné à fonctionner dans la bande 5150-5250 MHz est uniquement destiné à une utilisation en intérieur afin de réduire le potentiel d'interférences

nuisibles aux systèmes mobiles par satellite cocanaux.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed with the maximum permissible gain indicated. Antenna types not included in this list, having again greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

#### FCC Caution:

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.

#### Specific Absorption Rate (SAR) information

This device meets the government's requirements for FCC/ISED radiation exposure limits set forth for an uncontrolled environment. This device was tested for typical body-worn operations with the back of the phone kept 0 mm from the body. To maintain compliance with FCC/ISED RF exposure requirements, use accessories that maintain an 0 mm separation distance between the user's body and the back of the Smart Diagnostic System. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC/ISED RF exposure requirements, and should be avoided.

#### Informations sur le taux d'absorption spécifique (SAR)

Ce dispositif répond aux exigences du gouvernement en matière de limites d'exposition aux rayonnements par fcc et par émission pour un environnement non contrôlé. Cet appareil a été testé pour des opérations typiques d'usage du corps avec le dos du téléphone à 0 mm du corps. Pour maintenir la conformité aux exigences d'exposition fcc/ised RF, utilisez des accessoires qui maintiennent une distance de séparation de 0 mm entre le corps de l'utilisateur et le dos du système de diagnostic intelligent. L'utilisation de clips à ceinture, de étui et d'accessoires similaires ne doit pas contenir de composants métalliques dans son assemblage. L'utilisation d'accessoires qui ne satisfont pas à ces exigences peut ne pas satisfaire aux exigences d'exposition fcc/isée par radiofréquences et doit être évitée.

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