



THINKCAR THINKDIAG3 Full System Diagnostic Tool User Manual

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THINKCAR

THINKCAR THINKDIAG3 Full System Diagnostic Tool



Specification

- **Network:** Wi-Fi, WLAN802.11b/g/n/a/ac
- **Bluetooth:** Bluetooth 5.1
- **Working Temperature:** 14 OF -122 OF (-100C –)
- **Storage Temperature:** -4 OF -140 OF (-200C 600C)

Begin to Use

Connect tablet to VCI: Either Bluetooth or wired connection is accepted. Wired communication is superior to Bluetooth connection in terms of data transmission rate and anti-interference. Connect VCI to vehicle: please refer to Section 1.6 of this manual.

Intelligent Diagnosis

After connecting the vehicle, click “Intelligent Diagnosis” on the main interface, then the tool will start the smart diagnosis program and automatically read the vehicle VIN, as shown below:



If the device failed to access the VIN information, please use “Diagnosis”. At this point, you need to manually input the VIN code to gain the car information.

Diagnosis

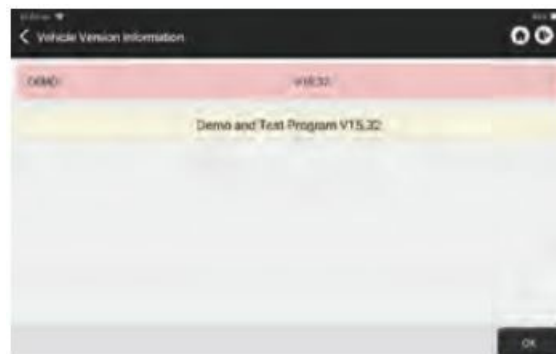
In this mode, user can manually select vehicle models and systems for diagnosis.

Manual Diagnosis

The device also supports step-by-step manual selection of menus for diagnosis. To use the “DEMO” as an example to introduce how to start the diagnosis as below.

1. Select vehicle type: on the “demo” on the main diagnostic interface to enter.

LG Tips: The diagnosis menu varies with different vehicles



2. **Select Diagnostic method:** The interface has two display modes of system topology and system list, with the same functions. Switch according to personal preference.



Smart Scan

- It enables you to quickly access all the electronic control units of the vehicle and generate a detailed report about vehicle health. (This function varies from vehicle to vehicle.) The system will start scanning Electronic Control Units to see if there are fault code and displays the specific results.



- Tap “Report” to generate a vehicle health report.

BUSINESS INFORMATION

Shop Name	Shop Number
Shop ID	Shop
Customer Name	Technician Name
N/A	N/A
Shop	
Shop Email	City
Germany	Kunming
Shop	Zip Code
Online	29524
Address	
Replacement Vehicle ID	
Remarks	N/A

VEHICLE INFORMATION

Model	Vehicle ID (VIN)
F-350	V1542
Year	Registration No.
2012	N/A
PI	Weight
1FTEW307YCE000000	22100lbs

PROFESSIONAL REPORT

PCM (Powertrain Control Module)	2
TCM (Transmission Control Module)	2
ABS (Anti-lock Braking System)	2

System Scan

To check how many systems the car is equipped with.



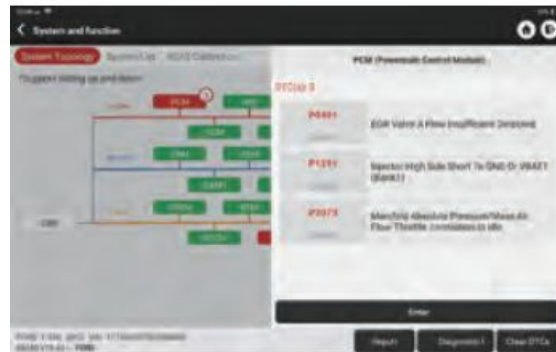
Choose to Scan

Choose the target automotive electronic control system to scan.



System and Function

After “Smart Scan”, And then we can choose one system to check the detail information. Tap “PCM” as an example to demonstrate. The following page shows the selection interface.



To check “System and Function”, Tap “Enter” to get the following interface.



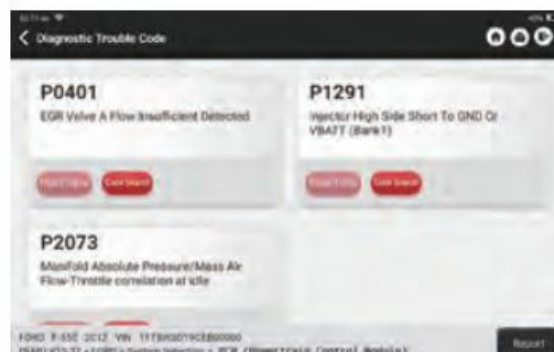
Version Information

As shown in the picture, “Version Information” to read the current version information of the car ECU.

Read Fault Code

This function is to read the OTC in the ECU memory, helping maintenance personnel to quickly identify the cause of the vehicle breakdown. As shown below, “Read Fault Code”, and then the screen will display diagnostic results.

LG Tips: Reading the DTC when troubleshooting a vehicle is only a small step in the entire diagnostic process. Vehicle DTC are for reference only, and parts cannot be replaced directly based on the given DTC definition. Each DTC has a set of test procedures. The maintenance technician must strictly conform to the operation instructions and procedures described in the car maintenance manual to confirm the root cause of the breakdown.



Clear Fault Code

On the diagnostic function selection screen, tap Clear Fault Code, the system will automatically delete the currently existing DTCs and display the dialog box of “DTCs Cleared”.

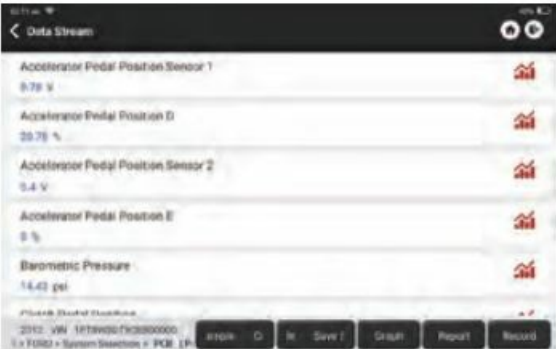
LG Note: For general models, please operate strictly according to the normal sequence: read DTC – clear DTC – test the car – retrieve DTC for verification – repair the car – clear DTC – recheck the car, to confirm that the DTC

no longer appears.

Read Data Stream

This option lets you view and capture (record) real-time Live Data of ECU. This data, including current operating status for parameters and/or sensor information, can provide insight on overall vehicle performance. It can also be used to guide vehicle maintenance. Select all and tap “ok” or just select the one you would like to check.

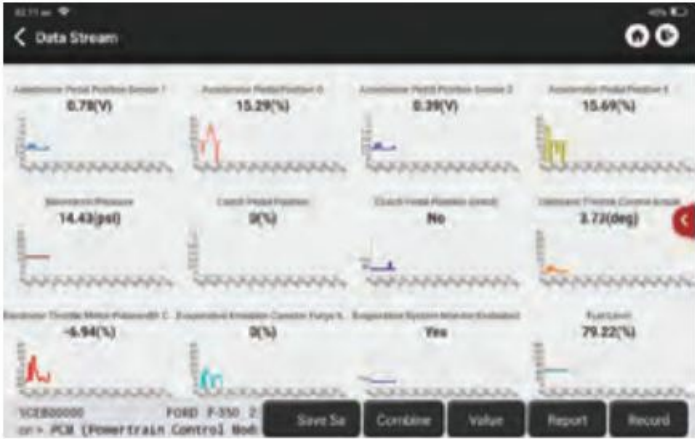
Note: If you must drive the vehicle in order to perform a troubleshooting procedure, ALWAYS have a second person to help you. Trying to drive and operate the diagnostic device at the same time is dangerous, and could cause a serious traffic accident.



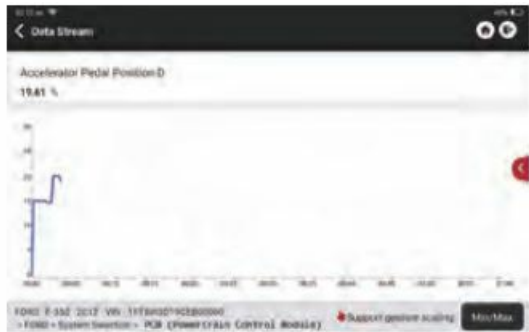
On-screen Buttons


Display the parameters of the selected data stream in waveform. On the data stream waveform page, you can do the following: **[Combine]**: Display in graph merge status for data comparison. **[Value]**: Display the parameters in values and shown in list format. **[Customize]**: Customize the data stream option to be viewed. Tap the button, a pull down list of the data stream items appears on the screen. Select the desired items (max 12 items), and then screen will display the waveforms corresponding to these items immediately. If you need to remove any items, just deselect them.

[Graph]



Display the current (single) data stream in waveform graph. On the waveform graph page, you can do the following: [Min/Max]: To define the maximum/minimum value. Once the value goes beyond the specified value, the system will alarm.



[Customize]: Tap  on the right side of the screen, to define the data stream option to be viewed.

Note: Max 4 data streams can be displayed at the same time. To save the value of current data stream



[Report]

[Compare Sample]

To select the sample DS file. All the values you customized and saved in process of DS sampling will be imported into the Standard Range column for your comparison.

Note: Before executing this function, you have to sample the values of data stream items and save it as a sample Data Stream file.

[Record]	<p>To record diagnostic data, for you to replay and review. Tap “Stop” button to end reading.</p> <p>The saved file follows the naming rule: It begins with vehicle type, and then the product S/N and ends with record starting time. All diagnostic records can be replayed from User Info -> My Report.</p>
[Save Sample]	<p>To sample data stream. After sampling, recording and saving the data stream, each time you review the data stream items, you will be able to call out the corresponding sample data to overwrite the current standard range.</p> <p>Tap it to start recording the sample data stream (Note: Only data stream items with measurement units will be recorded). Once the recording process is complete, tap to end recording, the system will automatically jump to the data revision screen.</p> <p>Tap the Min./Max. value to change it. After modifying all desired items, tap Save to save it as a sample DS file. All DS files are stored in User Info-> Data Stream Sample.</p>

Actuation Test

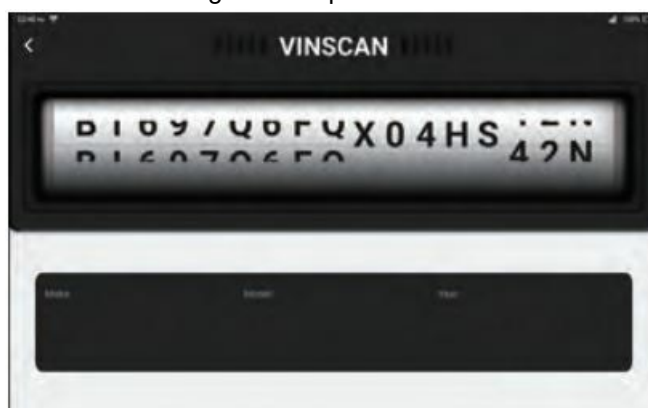
This function is used to test whether the execution components in the electronic control system can work normally.

Special Function

This function is used for data writing operation of electronic control unit. They all belong to this category, such as ECU data calibration, ECU Programming etc. Some Resetting functions are also included in this part.

Quick Check Printing

It adopts smart detection mode. After the vehicle is connected, the system will automatically recognize the vehicle information, automatically check the vehicle, and automatically generates a report. Automatic printing can be set so that no human intervention is needed throughout the process.



- Seat Calibration;
- Stop/Start Reset;
- Transport Mode;
- Tyre Reset;
- Windows Calibration;
- AC System Relearn/Initialization;
- Engine Power Balance Monitoring;
- Gas Particulate Filter Regeneration;
- High Voltage Battery Diagnostics;
- Intelligent Cruise Control System;
- Motor Angle Calibration;
- IMMO PROG (optional).

Oil Reset

The lightening of the car maintenance light indicates that the vehicle needs maintenance. Reset the mileage or driving time to zero after the maintenance, so the maintenance light will go out and the system will start a new maintenance cycle.

Throttle Adaption

Elec. Throttle Adaption is to utilize the car decoder to initialize the throttle actuator so that the learning value of the ECU returns to the initial state. By doing these, the movement of the throttle (or idle motor) can be more accurately controlled, thus adjust the intake volume. Situations when throttle matching is needed:

1. After replacing the electronic control unit, the relevant characteristics of the throttle operation have not been stored in the electronic control unit.
2. After the electric control unit is powered off, the memory of the electric control unit's memory is lost.
3. After replacing the throttle assembly, you need to match the throttle.
4. After replacing or disassembling the intake port, the controlling of the idle speed by the coordination between the electronic control unit and the throttle body is affected.
5. Although the characteristics of the idle throttle potentiometer have not changed, the intake volume has changed and the idle control characteristics have changed at the same throttle openings.

Steering Angle Reset

To reset the steering angle, first find the relative zero-point position for the car to drive in straight line. Taking this position as reference, the ECU can calculate the accurate angle for left and right steering. 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, you must reset the steering angle.

Battery Matching

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.

Battery matching must be performed in the following cases:

1. The main battery is replaced. Battery matching must be performed to clear original low battery information and prevent the related control module from detecting false information. If the related control module detects false

information, it will invalidate some electric auxiliary functions, such as automatic start & stop function, sunroof without one-key trigger function, power window without automatic

2. Battery monitoring sensor. Battery matching is performed to re-match the control module and motoring sensor to detect battery power usage more accurately, which can avoid an error message displaying on the instrument

ABS Bleeding

When the ABS contains air, the ABS bleeding function must be performed to bleed the brake system to restore ABS brake sensitivity. If the ABS computer, ABS pump, brake master cylinder, brake cylinder, brake line, or brake fluid is replaced, the ABS bleeding function must be performed to bleed the ABS.

Break-pad Reset

If the brake pad wears the brake pad sense line, the brake pad sense line sends a signal sense line to the on-board computer to replace the brake pad. After replacing the brake pad, you must reset the brake pad. Otherwise, the car alarms.

Reset must be performed in the following cases:

1. The brake pad is replaced or the brake pad wear sensor
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.

DPF Regeneration

DPF regeneration is used 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.

DPF regeneration may be performed in the following cases:

- The exhaust back pressure sensor is replaced.
- The PM trap is removed or replaced.
- The fuel additive nozzle is removed or replaced.
- The catalytic oxidizer is removed or replaced.
- The DPF regeneration MIL is on and maintenance is performed.
- The DPF regeneration control module is replaced.

Gear Learning

The crankshaft position sensor learns crankshaft gear machining tolerance and saves to the computer to more accurately diagnose engine misfires. If gear learning is not performed for a car equipped with Delphi engine, the MIL turns on after the engine is started. The diagnostic device detects the DTC P1336 'gear not learned'. In this case, you must use the diagnostic device to perform gear learning for the car. After gear learning is successful, the MIL turns off. After the engine ECU, crankshaft position sensor, or crankshaft flywheel is replaced, or the DTC 'gear not learned' is present, gear learning must be performed.

IMMO Service

To prevent the car being used by unauthorized keys, the anti-theft key matching function must be performed so that the immobilizer control system on the car identifies and authorizes remote control keys to normally use the car. When the ignition switch key, ignition switch, combined instrument panel, ECU, BCM, or remote-control

battery is replaced, anti-theft key matching must be performed.

Injector Coding

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. After the ECU or injector is replaced, injector code of each cylinder must be confirmed or re-coded so that the cylinder can better identify injectors to accurately control fuel injection.

TPMS Reset

After the tire pressure MIL turns on and maintenance is performed, the tire pressure resetting function must be performed to reset tire pressure and turn off the tire pressure MIL. Tire pressure resetting must be performed after maintenance is 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.

Suspension Matching

This function can adjust the height of the body. When replacing the body height sensor in the air suspension system, or control module or when the vehicle level is incorrect, you need to perform this function to adjust the body height sensor for level calibration.

AFS Reset

This feature is used to initialize the adaptive headlamp system. According to the ambient light intensity, the adaptive headlamp system may decide whether to automatically turn on the headlamps, and timely adjust the headlamp lighting angle while monitoring the vehicle speed and body posture.

A/T Learning

This function can complete the gearbox self-learning to improve gear shifting quality. When the gearbox is disassembled or repaired (after some of the car battery is powered off), it will lead to shift delay or impact problem. In this case, this function needs to be done so that the gearbox can automatically compensate according to the driving conditions so as to achieve more comfortable and better shift quality.

Sunroof Initialization

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

EGR Adaption

This function is used to learn the EGR (Exhaust Gas Recirculation) valve after it is cleaned or replaced.

ODO Reset

- ODO reset is to copy, write, or rewrite the value of kilometers in the chip of odometer by using a car diagnostic computer and data cable, so that the odometer shows the actual mileage.
- Usually when the mileage is not correct due to the damaged vehicle speed sensor or odometer failure, it is necessary to do ODO reset after maintenance.

Airbag Reset

This function resets the airbag data to clear the airbag collision fault indicator. When the vehicle collides and the airbag deploys, the corresponding fault code of the collision data appears, the airbag indicator lights up, and the fault code cannot be cleared. Since the data inside the airbag computer is disposable, it is required that all new accessories must be replaced, but after performing this function, the data of the airbag computer can be recovered and the fault code can be cleared, the airbag light will go out, and the airbag computer can continue to use.

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.

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).

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.

AdBlue Reset (Diesel Engine Exhaust Gas Filter)

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

Seat Calibration

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

Coolant Bleeding

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

Tyre Reset

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

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.

Language Change

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

AC System Relearn/Initialization

If the ECU or actuator of the vehicle air conditioner is replaced, or the memory of the ECU memory is lost, air conditioner initialization learning is needed.

Intelligent Cruise Control System

For replacement of intelligent cruise control system of vehicle and matching after repairing.

Engine Power Balance Monitoring

At the power stroke of each cylinder, power balance monitors crankshaft acceleration, thus determining the relative power provided by each cylinder.

Gas Particulate Filter Regeneration

After long-term use of the particle catcher, fuel consumption can be increased, engine output power can be decreased, then in this case, the GPF needs to be replaced or regenerated.

Motor Angle Calibration

There is a deviation between the rotor position detected by the angle position sensor of the motor and the actual rotor magnetic field position, so it is necessary to calibrate the motor angle.

High Voltage Battery Diagnostics

For diagnosis and state information detection on high-voltage accumulators.

IMMO PROG (optional)

The anti-theft editor supports vehicle key chip read and write, EEPROM chip read and write, MCU chip read and write, engine ECU and transmission ECU EEPROM and FLASH read and write.

TPMS Diagnosis

The device can work with wireless tire pressure diagnostic tool to achieve the features of TPMS activation, programming and learning.

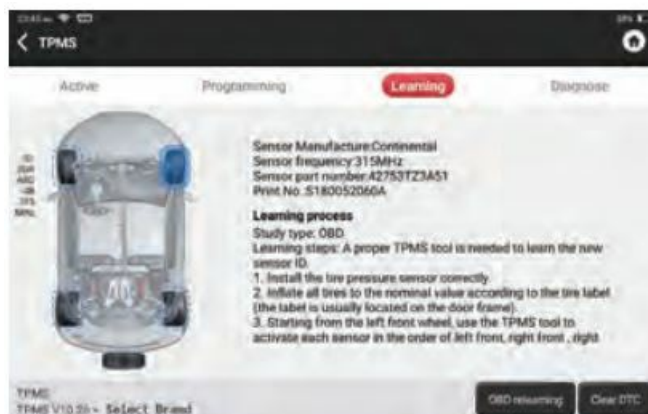
- **Activation:** to activate the sensor's ID, wheel pressure, sensor frequency, tire temperature and battery status.



- **Programming:** to program sensor data to a new THINKCAR sensor, so as to replace a sensor that is in low battery and does not function properly. There are three sensor programming methods available: Automatic, manual, and via activation replication.



- **Learning:** to write the sensor ID into the vehicle ECU for sensor identification.



ADAS



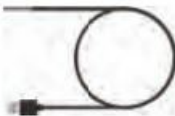
Advanced driver assistance systems (ADAS) is an electronic component in vehicles that include a variety of vehicle safety functions such as automatic emergency braking (AEB), lane departure warning (LDW), lane

keeping assistance, blind spot elimination, night vision cameras, and self-adaptive lighting. Working with various calibration accessories (optional), this tool can perform accurate calibration on vehicle ADAS systems.

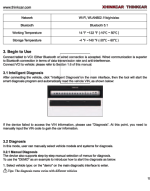


Module

The device supports optional function modules, list as below:

B-THINK Printer		The thermal printers can be used with the device or module dock, quickly print diagnostic reports anytime and anywhere.
THINK Worklight		<p>High Brightness Work light, ultra-high 25000K white light with 144 high brightness LED lights.</p> <p>Service life is more than 10,000 hours. It works with the device or use independently with the dock.</p> <p>Application scenario:</p> <ol style="list-style-type: none"> 1. Go out for rescuing at night; 2. Car repair in a dark environment.
THINK Video Scope		<p>Ultra-long custom coil pipeline design, flexible bending with durable materials, suitable for a variety of complex environments. Multiple uses with 3 kinds of special connectors (Hook, side view mirror, magnet). Supports 720P HD image. With 6 auxiliary lights for brighter light, it is easy to use in a dark environment.</p> <p>Application scenario:</p> <ol style="list-style-type: none"> 1. Engine combustion chamber inspection; 2. Engine internal carbon deposit inspection; 3. Three-way catalytic inspection; 4. Air-conditioning pipeline inspection; 5. Vehicle corners that are not easy to detect, such as falling screws, or water leakage, cracks, and foreign objects.

Documents / Resources



THINKCAR THINKDIAG3 Full System Diagnostic Tool [pdf] User Manual
THINKDIAG3 Full System Diagnostic Tool, THINKDIAG3, Full System Diagnostic Tool, System Diagnostic Tool, Diagnostic Tool

References

- [User Manual](#)