

User Manual

Automotive Circuit / Battery / Injector Tester
(4th Generation)

CP40



Support 0-80V Electrical System Testing



Version: A01

STATEMENT: The **OBResource**® has full intellectual property rights to the software used in this product. For any act of reverse or cracking the software, the Company will stop the product and reserve the right to pursue the legal liability.

FCC REQUIREMENT

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

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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

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.

FCC WARNING

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The mobile device is designed to meet the requirements for exposure to radio waves established by the Federal Communications Commission (USA). These requirements set a SAR limit of 1.6W/kg averaged over one gram of tissue. The highest SAR value reported under this standard during product certification for use when properly worn on the body is 0.733W/kg.

For body operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and that positions a minimum of 15mm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

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Safety Precautions and Warnings

To prevent personal injury or damage to the vehicle and diagnostic tool, please read this owner's manual carefully and observe the following safety precautions when operating the vehicle.

- 1) Always conduct vehicle testing in a safe environment.
- 2) **Note: When use battery function, please do not connect the 10-meter extension cord.**
- 3) Do not attempt to operate or observe this tool while operating the vehicle. Operating or observing tools may distract the driver and may result in a fatal accident.
- 4) Wear safety goggles that meet ANSI standards.
- 5) Keep clothing, hair, hands, tools, test equipment, etc. away from all moving or hot engine parts.
- 6) Operate the vehicle in a well-ventilated work area. Exhaust fumes are toxic.
- 7) Place blocks in front of the drive wheels and never leave the vehicle unattended while testing.
- 8) Use extreme caution when working around ignition coils, distributor caps, ignition wires, and spark plugs. These parts can create hazards when the engine is running.
- 9) Place the transmission in P (for A/T) or N (M/T) and make sure the parking brake is engaged.
- 10) Keep a fire extinguisher suitable for gasoline/chemical/electrical fires nearby.
- 11) Do not connect or disconnect any test equipment while the ignition is on or the engine is running.
- 12) Keep the scan tool dry, clean, and free of oil/water or grease. If necessary, clean the outside of the scan tool using a mild detergent on a clean cloth.
- 13) Our company is not responsible for any damage resulting from unintentional or intentional misuse of our products or tools.

1. Overview

1-1. About CP40

CP40 is a new generation tester that combines intelligent electrical system circuit testing and battery testing. It is specially used to test all 0-80V vehicle electrical systems. This product is professional, fast and smart.

This circuit tester is well designed, easy to operate and has complete functions. The instrument uses a 2.4-inch high-resolution color screen and backlight display. The test process and results can be displayed intuitively and clearly on the TFT screen. The design of the instrument has strengthened the protection measures against incorrect and reverse connection of the input signal line, excessive input voltage, excessive load current, etc., in order to make it safer and more convenient during use.

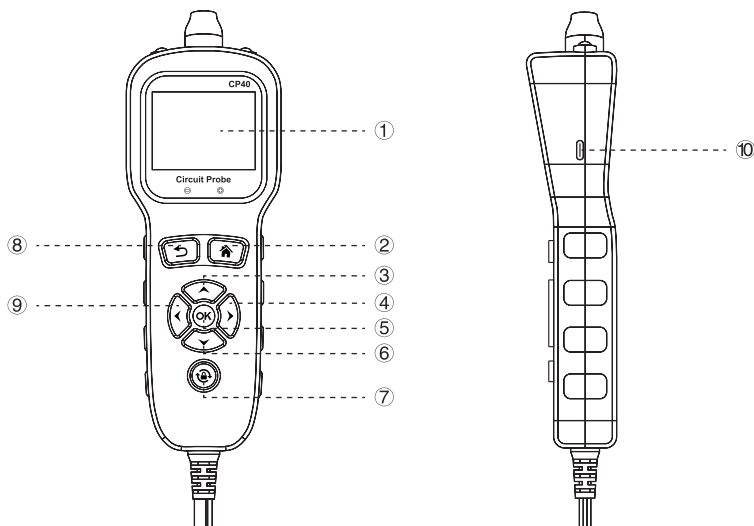
This product is a handheld intelligent electrical system circuit tester that integrates digital multimeter, digital oscilloscope, automotive circuit testing, injector testing, component activation, battery detection and other functions.









1-2. Product Introduction



2. Product Description

2-1. Product Structure and Panel Description



							
UP	Down	Left	Right	OK	Back	Main Menu	Lock/Rotate

- (1) Display — visual display, 2.4-inch TFT true color screen.
- (2) Main Menu — Exit the current page directly and return to the main page.
- (3) UP Key — Use the up key to select between each screen for increasing and flipping functions.
- (4) Right Key — Use the right key to select between each screen to realize the page turning function.
- (5) OK Key — Confirm the selected content and enter the function.
- (6) Down Key — Use the down key to select between each screen for decreasing and flipping functions.
- (7) Lock/Rotate keys — lock/unlock the current interface to facilitate identification of accurate real-time data (**Press and hold to rotate the screen 180°, only the multimeter function interface**).
- (8) Back key — Cancel the selection, undo, or return to the previous screen.
- (9) Left Key — Use the left key to select between each screen to realize the page turning function.
- (10) Type-C interface — Connect the USB to the computer, run the PC upgrade software, and upgrade according to the prompts (see 4-10 for details).

2-2. Power Connection

This product is powered by the vehicle battery or other external power. Connect the red clip to the positive battery terminal and the black clip to the negative battery terminal. The device will automatically boot to the work interface, and the front LED lights will light up to facilitate operation in dark areas.

2-3. Short Circuit Protection

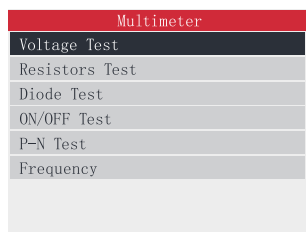
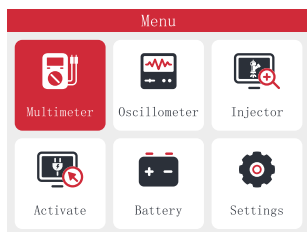
If the current is overloaded, its internal circuit breaker system will automatically trip for protection. A circuit breaker monitors the tool at all times. It serves a very practical function as an important safety measure against overloading.

3. Product Description

3-1. Multimeter Mode

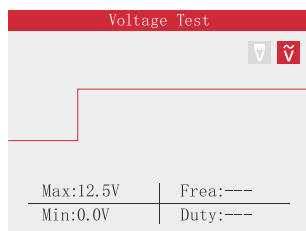
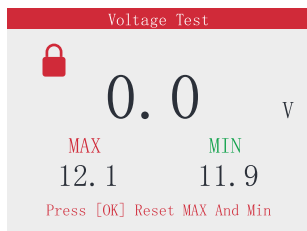
The device equips a 2.4-inch TFT color screen and a 6 grids interface design, with clear display, simple operation and convenient use. You can select the function menu by the navigation buttons, then press the "OK" key to enter.

Press the "Up/Down" button in the main menu to select the function menu, and then press the "OK" key to enter.



1. Voltage Test:

Enter the voltage test option, connect the probe clip (auxiliary ground lead) to the negative terminal, use the probe tip to measure voltage. Press the "Left/Right" key to switch the test mode, attach the probe tip to the circuit, the screen will display the maximum voltage, minimum voltage, frequency and duty info.

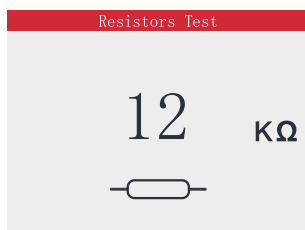
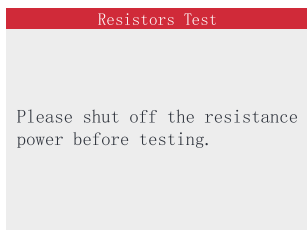


As shown, the current measurement value is displayed, and the maximum and minimum values are recorded. If the voltage fluctuates greatly, press the lock key to lock the instantaneous value. In the voltage test mode, the range is automatically converted, and the maximum voltage can be measured up to 100V signal.

In the voltage test mode, the probe only inputs signals and does not output any pulse signals which will not cause interference to the measured point.

2. Resistance Test:

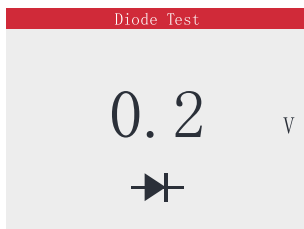
Enter the resistance test option: Connect the probe clip (auxiliary ground wire) to one side of the resistance being measured, connect the probe tip to the other side, the probe will automatically enter the resistance display mode to display the resistance value. (Please turn off the power of the test unit and then enter the resistance test).



The resistance value displayed is the resistance value when the resistance is measured. When the resistance value exceeds the meter range, the display will show "OL".

3. Diode Test:

Connect the probe clamp(auxiliary ground lead) to the negative terminal of the diode under test and the probe tip to the positive terminal. The measured value of the diode will be displayed.



4. ON/OFF Test:

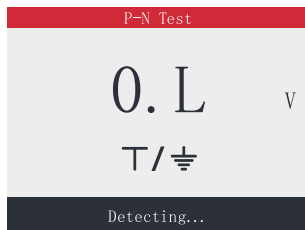
Connect the probe clip (auxiliary ground lead) to one end of the location to be tested, and connect the probe tip to the other end. The measured resistance value will be displayed.



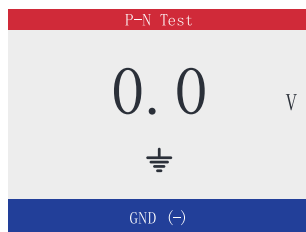
If the resistance between the two measured endpoints is $\geq 100\Omega$, it is considered that the circuit is open and the buzzer is silent; if the resistance between the two measured endpoints is $<100\Omega$, it is considered that the circuit has good conductivity and the buzzer beeps continuously and sounds. At the same time, it is accompanied by a red LED lighting indication.

5. P-N Test:

Attach the probe clip to the vehicle ground wire and use the probe to touch the positive and negative terminals of the vehicle system. The picture below shows the status before testing.



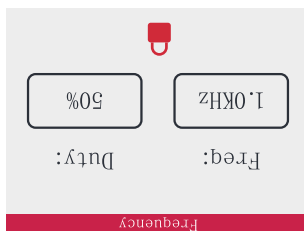
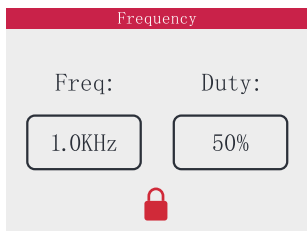
After using the probe to touch the positive and negative terminals of the vehicle system, when a positive signal is detected, the voltage value and positive electrode (+) will be displayed. When a negative signal is detected, the negative voltage value and negative electrode (-) will be displayed.



6. Frequency Test:

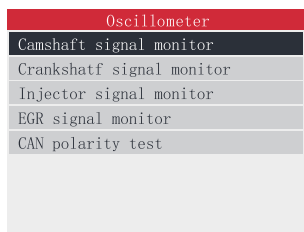
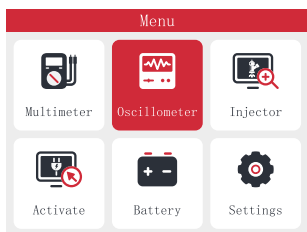
Connect the probe clip to the vehicle ground wire, use the probe to touch the location to be measured, and the frequency and duty cycle of the measured signal will be displayed.

Tip: During the use of the multimeter interface, you can press and hold the freeze key to rotate the display 180 degrees. As shown.



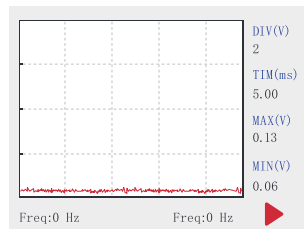
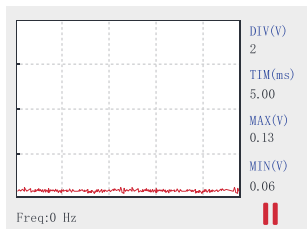
3-2. Scope Mode

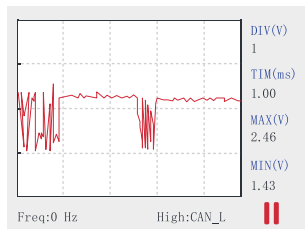
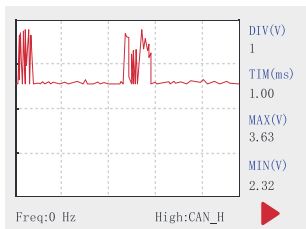
Press the "Up/Down" key in the main menu to select the oscilloscope function, and then press the "OK" key to enter. Enter the function item and press the "Up/Down" key to select the test function. Press the "Return" key to exit.



Display the current signal waveform, DIV is the voltage value, TIM is the time, MAX is the maximum value, and MIN is the minimum value. Press the "Lock" key to pause the waveform display for easy comparison and observation of waveforms.

During the voltage signal measurement process, the instrument automatically switches the range and can measure a maximum voltage signal of 100V.





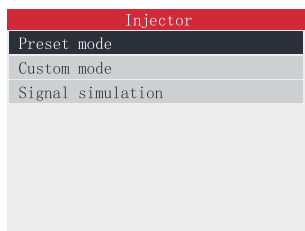
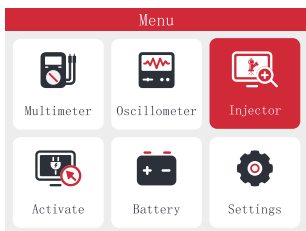
If the measured maximum value is around 3.5V and the minimum value is around 2.5V, then the measured line is CAN_H. If the maximum value being measured is around 2.5V and the minimum value is around 1.5V, then the measured line is CAN_L.

3-3. Injector Test

The CP40 probe outputs different pulse signals to the fuel injector to check the status of the fuel injector. This function can help diagnose the status of the injector and determine whether the injector is stuck, leaking, complete combustion, injection, etc. It can be used in conjunction with any fuel pressure tester.

Press the "Up/Down" keys to select the injector test. Press "OK" key to enter. Note: Before using this function, please be aware of all injector separation tests. It is recommended that you conduct the test in an appropriate usage environment. It is recommended to use it with an injector cleaning machine. In order to avoid damage to the fuel injector, it is recommended that a single test should not exceed 5 seconds when testing with non-professional equipment.

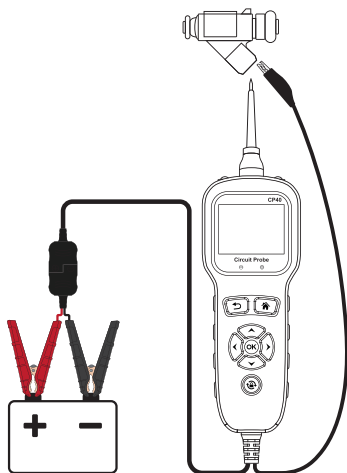
Press the "Up/Down" key in the main menu to select test mode. Then press "OK" key to enter.



1. Preset Mode (Injector Separation Test):

Press the "Up/Down" keys to select the preset mode. Press "OK" key to enter.

First insert the multi-function detection line into the multi-function interface (top of the machine), then connect the battery clamp line; then clip the red clip to the positive terminal of the car battery, clip the black clip to the negative terminal of the car battery, and connect the removed fuel injector to the multifunctional line.



Press the "Up/Down" key to select the selection mode and press the "OK" key to test.

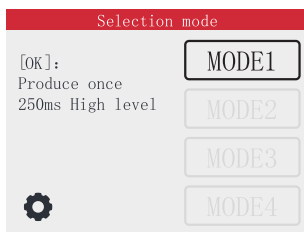
Signal Output Method:

Mode 1: Press the "OK" key to activate the probe to output a high level for 250ms.

Mode 2: Press the "OK" key to activate the probe output for 1.4s, with a high level of 7 ms and a low level of 20ms.

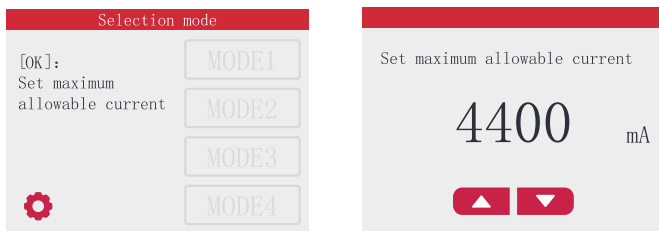
Mode 3: Press the "OK" key to activate the probe output for 1.4s, with a high level of 4ms and a low level of 10ms.

Mode 4: Press the "OK" key to activate the probe output pulse, 4ms high level and 10ms low level.



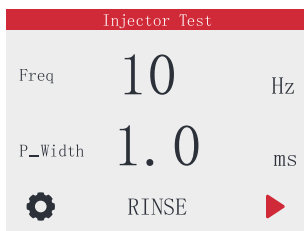
During the test, the injector buzzes continuously, and at the same time it sounds, it is accompanied by a red LED lighting indication.

Press the "Up/Down" key to select the settings icon, and press the "OK" key to enter. You can press the "Up/Down" key to adjust the value, press the "OK" key to confirm the value, and set the maximum allowable current value.



2. Custom Mode (Injector Separation Test):

Press the "Up/Down" keys to select custom mode. Press "OK" key to enter.



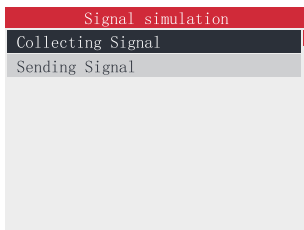
Press the "Up/Down" keys to select frequency and pulse width, and set, start or pause icons. Press the "Left/Right" key to adjust the frequency or pulse width value, and long press the "Up/Down" key to achieve continuous value adjustment. Pressing the "OK" key when adjusting frequency and pulse width will jump to the start icon.

The maximum allowable current value can be set in the settings icon (same as setting the maximum allowable current value page in the selection settings). After starting the test, you can also adjust the value when you choose to pause the test. If you continue to test, the values will run synchronously.

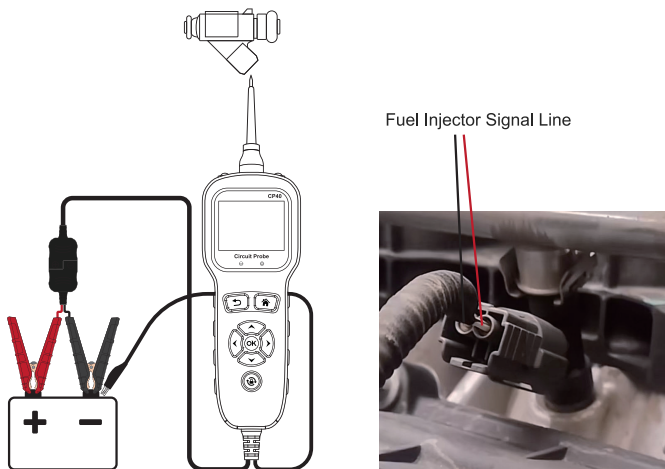
By adjusting the pulse width and frequency of the fuel injector, the injection interval frequency of the fuel injector can be significantly observed, thereby analyzing whether the fuel injector is stuck, leaking, or has burned out.

3. Signal Simulation (Injector Signal On-car Collection + Off-car Simulation):

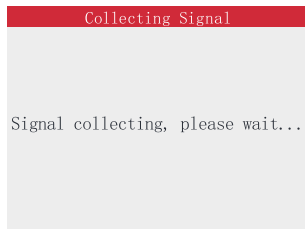
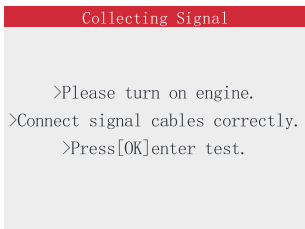
Press the "Up/Down" keys to select signal simulation. Press "OK" key to enter.



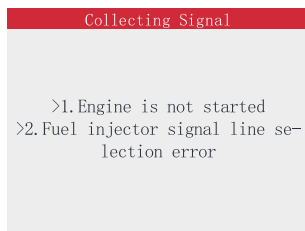
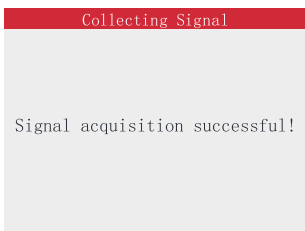
We need to find the location of the injector on the car, start the car's transmitter (if the transmitter is not started, the injector will have no signal and cannot be collected), then connect the CP40's auxiliary ground wire to the car's GND, and connect the probe to Select any signal line of the injector, then enter the signal collection interface, and press the "OK" button to start collecting signals.



1. Press the "Up/Down" key to select the collecting signal, and press the "OK" key to enter. Follow the prompts. Start the engine according to the prompts, then connect the signal cable correctly, and press the "OK" key to enter the test signal collection.

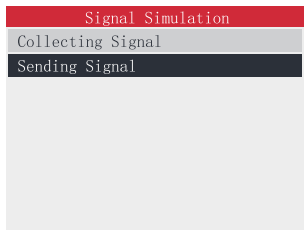


Touch the probe to the position of the injector. If a signal is collected, it will display that the collection is successful. If the collection time exceeds five seconds and no signal is collected, the reason for the unsuccessful collection will be displayed. As shown.



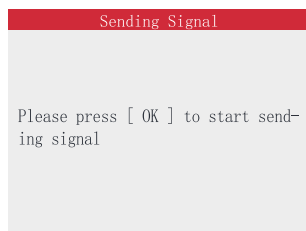
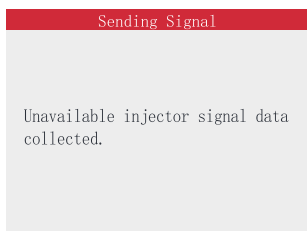
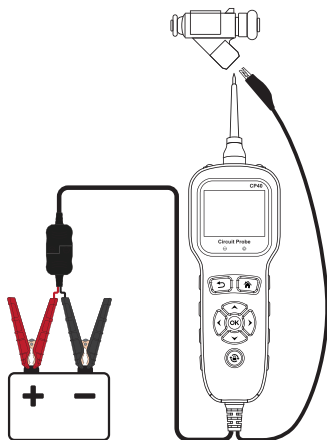
If it prompts that the signal collection is completed, it means that the signal collection is successful. You can exit the collection interface and enter the sending interface to send the signal. If it prompts that the collection fails, you need to connect the probe to another signal line of the injector and press "OK" to try again. Acquire the Signal.

2. Press the "Up/Down" key to select sending signal, and press the "OK" key to enter. Follow the prompts.

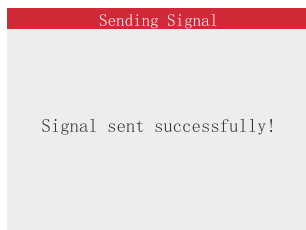
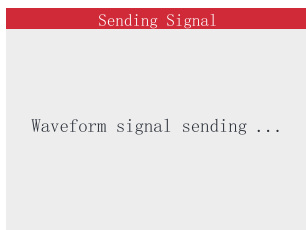


Press the "OK" key according to the prompts to start sending signals, and touch the probe to the

position of the injector. If no injector signal data has been collected, it will display that no available injector signal data has been collected, and the next step cannot be performed. Only when the injector signal data is sent, subsequent operations can be performed, as shown in the figure below.



When the signal waveform is sent, the indicator light will flash at the same time and show that the signal waveform is being sent. After the signal is sent successfully, the screen will display a prompt that the signal is sent successfully.



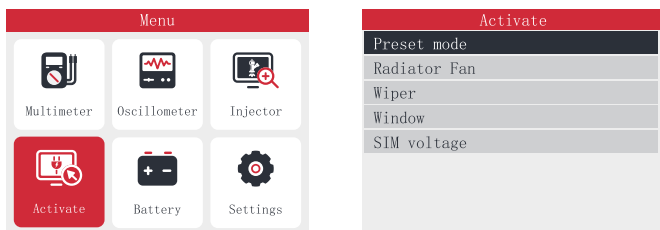
Note: For all the above injector separation tests, it is recommended that you conduct the test in an appropriate environment and use it with an injector cleaning machine. In order to avoid damage to the fuel injector, it is recommended that a single test should not exceed 5 seconds when testing with non-professional equipment.

3-4. Component Activation

Press the "Up/Down" keys in the main menu to select the component to activate. Then press "OK" key to enter.

1.Select Mode:

Press the "Up/Down" keys to select. Press "OK" key to enter.



Warning: The activation mode is only used for power supply and cannot be used for any sensitive electronic equipment (such as ECU, sensor module), otherwise there is a risk of burning components.

Warning: Do not perform any testing on any ECU module, SRS (Safety Airbag) system until the system is completely disabled or unplugged.

Warning: Supplying power to the electrical system can damage the vehicle's sensitive electronic components, so it is strongly recommended that you refer to the vehicle manufacturer's schematics and diagnostic procedures.

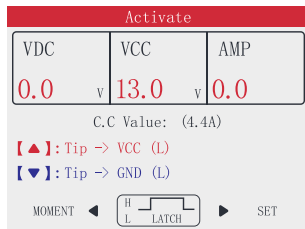
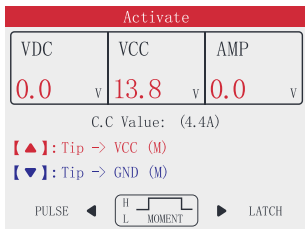
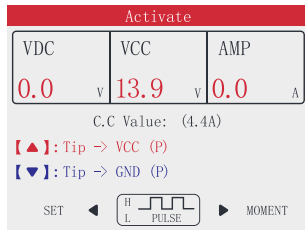
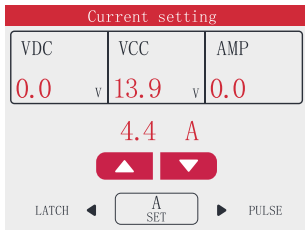
The component activation function aims to generate activation signals to test components, such as activation lights, motors, and other onboard electrical equipment.

Display Value:

VDC: Detected voltage

AMP: Detected current

VCC: Power supply voltage



"PULSE" Mode: Press the "Left/Right" key to select the activation mode as "PULSE" mode, press and hold the "Up" key to power on, and release the "Up" key to stop.

"MOMENT" Mode: Press the "Left/Right" key to select the activation mode as "MOMENT" mode, press the "Up" key to power supply, and release the "Up" key to stop.

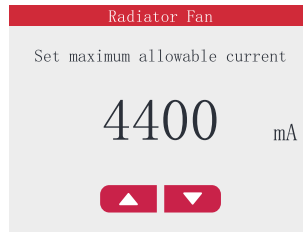
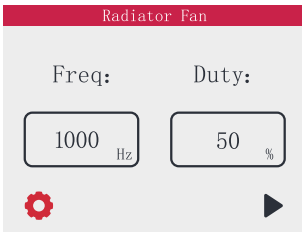
"LATCH" Mode: Press the "Left/Right" key to select the activation mode as "LATCH" mode, press the "Up" key to supply power, and release the "Up" key to stop.

"SET" Circuit breaker: Press the "Left/Right" key to select the activation mode as "SET" mode. Press the "Up/Down" key to adjust the overload current value from 0.1A-8A.

Note: When pressing and holding the "Up" button for power supply, the buzzer will beep continuously, accompanied by a red LED glowing indication. If the current flowing through the probe is greater than the set value, power is cut off and activation ceases.

2. Radiator Fan, Wipers, Electric Windows:

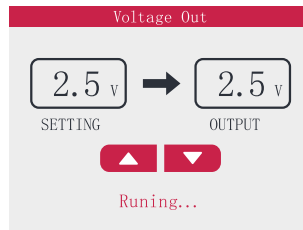
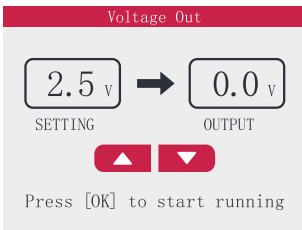
Press the Up/Down buttons to select this option. Press "OK" key to enter. (The picture below take the radiator fan as an example).



Press the "Left/Right" button to select value, setting, start, pause. After selecting the value, press the "Up/Down" button to adjust. Press "OK" key to confirm. Long press the "Up/Down" key to achieve continuous numerical adjustment. You can customize the corresponding values and set the maximum allowable current value (same as setting the maximum allowable current value page in Select Settings) for easy activation.

3. Sensor Voltage Simulation:

Press the "Up/Down" keys to select sensor voltage simulation mode (maximum voltage is 5V). Press "OK" key to output the set voltage.



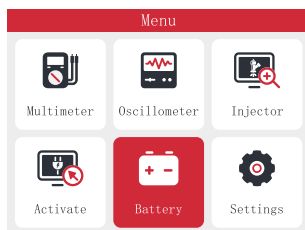
Press the "Up/Down" keys to adjust the setting voltage and output voltage, and press the "OK" key to start the sensor voltage simulation test. There is a red LED glowing indication during the test.

3-5. Battery Test

When entering the battery voltage test, it will automatically recognize the voltage and make corresponding prompts. For 12V batteries, it will prompt: Please make sure the battery is 12V; for 24V batteries, it will prompt: Make sure the battery is 24V.

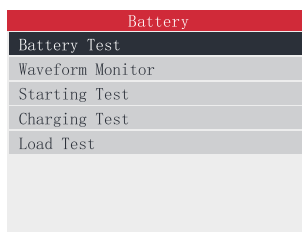
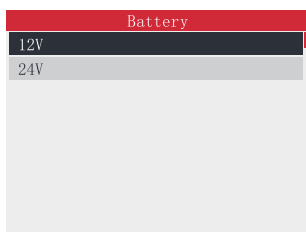
After confirming the battery voltage, proceed to the next step of project testing. The figure below takes 12V as an example:

Press the "Up/Down" key in the main menu to select battery test, and then press the "OK" key to enter.

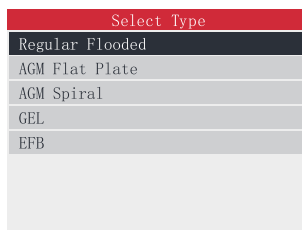
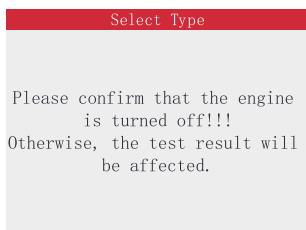


1. Battery Test:

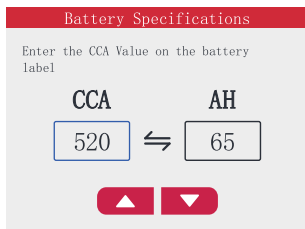
After entering the battery test, Select the battery volt to 12V, press the "OK" button to enter, and then press the "Up/Down" button to select battery test. Press "OK" key to enter.



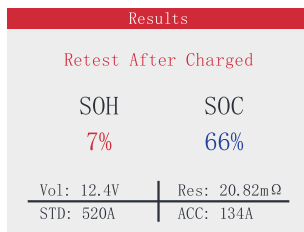
Please make sure the engine is turned off, otherwise, the test results will be affected. Select the battery type to be tested. Press the "Up/Down" button to select the corresponding type item and then press the "OK" key to enter the selection (take an ordinary battery as an example).



According to the standard value marked on the battery under test, press the "Up/Down" button to adjust the battery test reference standard value (taking a standard 520CCA battery as an example). Press and hold the "Up/Down" button to achieve numerical connection. **(If AH has no corresponding value, "-" will be displayed.)**

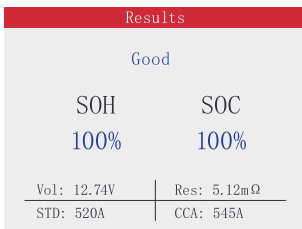


After adjusting the standard value, press the "OK" key to perform the test. The test results display the battery life (SOH) and battery capacity (SOC) of the battery. The test results are as follows:



Battery Test Result Description:

★ **Normal Test Results, As shown:**



Battery voltage: 12.74V, normal voltage.

Under normal circumstances, when the car battery is unloaded (not started), the voltage should be 12.30V ~ 13.00V, which is optimal. If it is lower than 12.30V, it means power loss or aging.

Battery Voltage	Volume of Battery Voltage(SOC)	Description of Remarks
12.78V	100%	Fully charged
12.54V	75%	
12.30V	50%	
12.12V	25%	
11.94V	0%	Discharged

CCA value: 500CCA

The test determines the actual cold-cranking current output of the battery. Generally, cars (gasoline/diesel) have a minimum cold-cranking current standard when starting. The battery's cold-cranking current output is greater than the car's starting standard as the best.

- ★ When testing with 24V, CCA is 1/2 of the series sum of two sets of 12V batteries.

Internal Resistance: 5.66mΩ

The greater the CCA value of the battery, the smaller the internal resistance will generally be.

Note: The standard of internal resistance will vary due to the batteries made of different materials used by various manufacturers, so there is no certain standard. However, batteries of the same manufacturer and model will not have much different internal resistance values when leaving the factory.

- ★ When testing with 24V, the internal resistance is the sum of two sets of 12V batteries connected in series.

Life: The life measured and evaluated by the instrument is based on the comprehensive working conditions of the battery. When the battery life is less than 45%, it is recommended to replace it.

★ It is Recommended to Replace the Test Results:

Results	
Replacement	
SOH	SOC
30%	30%
Vol: 11.6V	Res: 9.80mΩ
STD: 520A	CCA: 285A

According to the test results, the battery life is only 30% and its performance is poor. It is recommended to replace it.

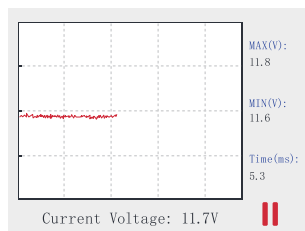
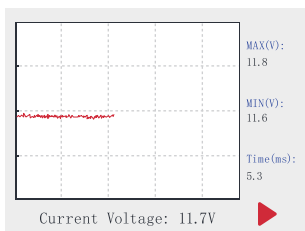
★ The Battery condition is normal, but the battery voltage is too low. Test Results:

Results	
Retest After Charged	
SOH	SOC
80%	0%
Vol: 10.85V	Res: 6.00mΩ
STD: 520A	CCA: 465A

In the test results, the battery voltage is only 10.85V. The voltage is too low, which may affect the test results. At this time, it is recommended to charge before testing.

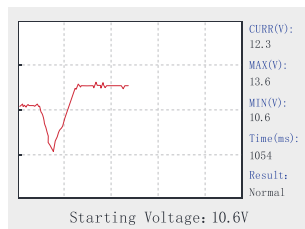
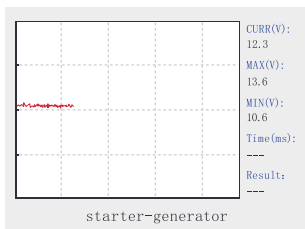
2. Waveform Monitoring:

Press the "Up/Down" keys to select waveform monitoring. Press "OK" key to enter. Check the maximum and minimum battery voltage waveforms and record the monitoring time. You can press the lock key to lock the current time.



3. Start Test:

Press the "Up/Down" keys to select Start Test. Press "OK" key to enter. If the car is stalled, please start the car engine first. After completing the operation according to the prompts, you can get the starting load test results.



The figures respectively show that the starting voltage during the current starting process is 10.6V, the starting time is 1054ms, and the final starting capability test result is normal. (When starting the test, when the battery is 12V, stop recording when the voltage reaches 16V. When the voltage is 24V, stop recording when the voltage reaches 30V).

Instructions for Starting the Test:

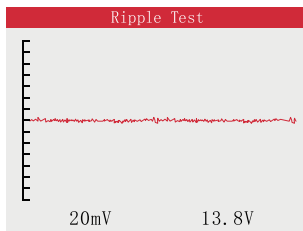
- ★ If the starting voltage reading is greater than 9.6V (for a 24V system, the reading is greater than 16V), it means that the walking system is good.
- ★ If the starting voltage reading is less than 9.6V (for a 24V system, the reading is less than 16V), it means there is a problem with the starting system.

Please check relevant parts such as connection points, wires and starter, and battery terminals for corrosion.

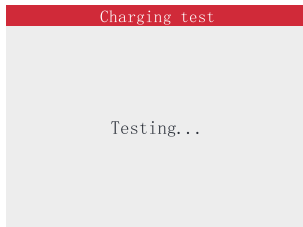
Data reference table (12V system)		
Start Meter voltage	Battery Start Ability	Dispose of Batteries
13.5V the above	Low	Return to factory for maintenance
9.6 ~ 13.5V	Normal	No need to replace
9.6V the following	Low	Return to factory for maintenance

4. Charging Test:

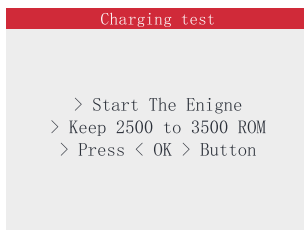
Press the "Up/Down" keys to select Charging Test. Press "OK" key to enter.



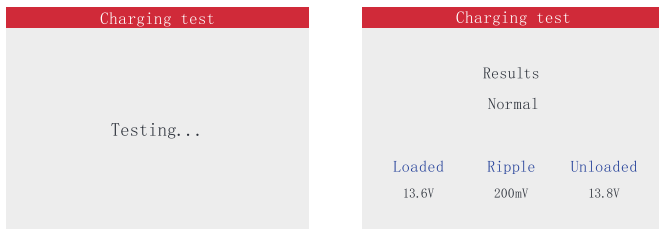
The smaller the fluctuation of the waveform, the more stable the voltage is.



After waiting for 10 seconds for the charging test interface, the instrument will prompt the following interface.



After operating as shown in the diagram, press the "OK" key to obtain the charging test results.



The final charging test result description: normal (indicating that the battery is charging normally); high output (indicating that the battery charging voltage is too high); no output (indicating that the battery is not charging).

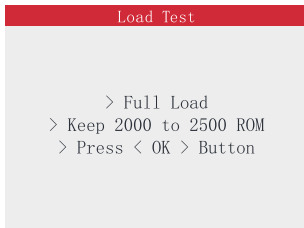
Charging Test Instructions:

- ★ If the voltage reading is greater than 15.0V (for a 24V system, the reading is greater than 30.00V), check the voltage regulator.
- ★ If the voltage reading is less than 13.3V (for a 24V system, the reading is less than 26.60V), check the connection points, wires, and engine.

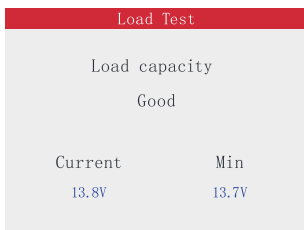
Data Reference Table (12V System)		
Status	Battery Voltage	Engine Output
(Need to step on the accelerator to check)	14.5V the above	High(Return to factory for maintenance)
	13.6 ~ 14.5V	Normal
	13.6V the following	No output, battery may be damaged

5. Load Test:

Press the "Up/Down" keys to select Load Test. Press "OK" key to enter. After entering the load test, the instrument will prompt the following interface:



After operating as shown in the diagram, press the "OK" key to obtain the load test results.

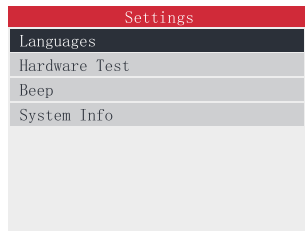
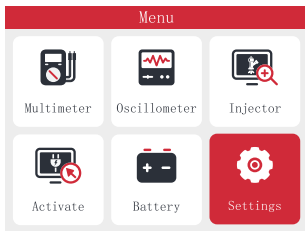


The figure shows the current test voltage is 13.8V, the standard voltage is 12.80V (for a 24V system, the standard voltage is 25.60V), and the lowest voltage is 13.70V.

Read the lowest voltage value. If the voltage reading is greater than 12.80V (for a 24V system, the voltage reading is greater than 25.60V), it means that the load system is normal. If the voltage reading is less than 12.80V (for a 24V system, the reading is less than 25.60V), check whether the generator belt is worn out and whether there is a short circuit in the wire.

3-6. Settings

In the main menu, press the "Up/Down" key to select the setting item and press the "OK" key to enter the setting.



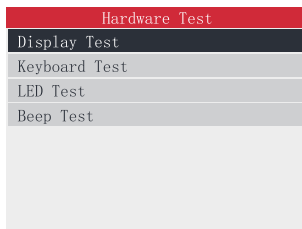
1. Language Selection:

Press the "Up/Down" key to select the desired language. Press the "OK" key to confirm.



2. Hardware Test:

Press the "Up/Down" keys to select Hardware Test. Press the "OK" key to enter the test.



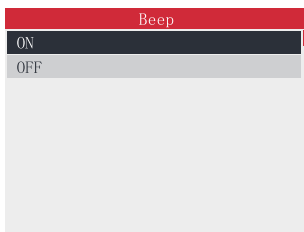
Display Test: Used to detect whether there are dead pixels on the display screen of the device to avoid incomplete display of the screen content;

Keyboard Test: Used to detect whether the buttons of the device are malfunctioning and cannot be used;

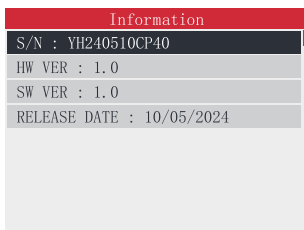
LED Test: The LED lights used to detect whether the equipment can be lit will affect the use in dark environments;

Beep Test: Used to detect whether the device's prompt tone is normal.

3. Beep: Press the "Up/Down" key to select the on/off item and press the "OK" key to confirm.



4. System Info: Press the "Up/Down" key to select system information, and then press the "OK" key to confirm. View device information



4. Test Application

4-1. Continuity Test

"DODE" mode continuity can be tested on wires and components that connect or disconnect the vehicle's electrical system by using the probe tip with the vehicle chassis ground or auxiliary ground wire while the probe is in "Multimeter Mode" and the resistance test function is selected.

In the "Main Menu", when the probe contacts a good ground, the LCD screen will display "0.0Ω" In "SMART" mode, the buzzer will beep at the same time if the sound is enabled from the settings.

In other cases, the LCD screen will only display the resistance value. If the resistance is greater than 200 KΩ, the LCD screen will display "OL"

Warn: Do not perform any testing on any ECU module, SRS (Safety Airbag) system until the system is completely disabled or unplugged.

Note: You can use the probe tip to pierce the plastic insulation on the wire to test it.

4-2. Signal Circuit Test

Using an OBDII scanner to read trouble codes (DTC) from the vehicle reveals that the problem is with a certain sensor circuit. There is a quick way to test the sensor condition using the probe.

For example, if you suspect a problem with your vehicle's intake manifold absolute pressure sensor circuit, follow this procedure to test the sensor.

1. Enter oscilloscope mode and use a probe with a chassis ground or auxiliary ground lead.
2. Connect the vacuum pump to the M.A.P. sensor.
3. Touch the probe tip to the positive terminal of the M.A.P. sensor and observe the LCD screen.

Normally, a sine waveform should be in good condition.

4. Apply vacuum pump.
5. Release the vacuum pump and observe the reading on the LCD display.

4-3. Activate the Component in Your Hand

For Example: Test lamp operating conditions.

1. Connect the battery clip to the power source.
2. Enter component activation and select MOMENT mode function.
3. Connect the auxiliary ground lead to the negative terminal of the component under test, connect the probe to the positive terminal of the component, and press the "Up" key to trigger the test.
4. The screen will display the values of VDC, AMP and VCC.

Tip: In order to avoid burning out the components, please refer to the specifications and parameters of the components and then set the overload current value.

If the probe breaker trips, the probe is overloaded. This happens for the following reasons:

1. You have connected the probe tip to direct ground or negative voltage.
2. The component you are testing has a short circuit.
3. This component is a component that draws a very high current (such as a starter motor).

4-4. Activate Vehicle Components

Warn:

The activation mode is only used for power supply and cannot be used for any sensitive electronic equipment (such as ECU, sensor module), otherwise there is a risk of burning components.

Do not perform any testing on any ECU module, SRS (Safety Airbag) system until the system is completely disabled or unplugged.

Supplying power to the electrical system can damage your vehicle's sensitive electronic components, so we strongly recommend that you refer to your vehicle manufacturer's schematics and diagnostic procedures.

Test Program:

1. Connect the battery clip to the power source.
2. Enter component activation and select MOMENT mode function.
3. If necessary, connect the auxiliary ground lead to the negative terminal of the part under test.
4. Attach the probe tip to the positive terminal of the component and press the "Up" key to trigger the activation test.
5. The screen will display the values of VDC, AMP and VCC.

If the circuit breaker's probe restarts tripping or the message Overload appears on the screen, you can adjust the overload current value and repeat the above for further activation.

Note: In order to avoid burning out the components, please refer to the specifications and parameters of the components and then set the overload current value.

If the probe breaker trips, the probe is overloaded. This happens for the following reasons:

1. You have connected the probe tip to direct ground or negative voltage.
2. The component you are testing has a short circuit.
3. This component is a component that draws a very high current (such as a starter motor).

Warn: If you come into contact with a protected circuit, the vehicle fuse may burn or the probe may trip if grounded.

4-5. Check the Ground Contact for Damaged

Use the probe tip to find an available ground wire.

1. Enter the component activation interface. Select the MOMENT mode function and set the overload current to 1A.

2. Connect the probe tip to an available wire.

3. Power is triggered when the "OK" key is pressed.

If the VDC value is almost the same as VCC, and the minimum AMP value is close to 0A, the LCD screen will display the values of VDC, AMP and VCC. This means it's not, if the probe breaker trips or the monitor is overloaded, it could be grounded.

Note: Note that high current components such as the starter motor can also trip the circuit breaker.

4-6. Track and Locate Short Circuits

In most cases, a short circuit will manifest itself as a blown fuse or a tripped electrical protection device (such as a tripped circuit breaker).

Here are the best places to start checking for short circuits:

1. Remove the blown fuse from the fuse box.

2. Use the probe tip to activate each fuse contact.

3. A short circuit occurs when the circuit breaker trips. Record the number or color of the wire.

4. Trace the wire as far as possible.

Here is an example of this application:

1. If you are tracing a short in the brake light circuit, you need to know that the wire must pass through the wire at the door switch. Locate the color-coded wires in the harness and expose them.

2. Select MOMENT mode in the component activation interface. Using the probe tip to touch the marked wire, press the "Up" key to trigger power.

3. If the circuit breaker trips, you have identified the shorted wire. Use the probe tip again to cut off the wires and power.

4. Trace the wire in the direction of the short circuit and repeat this process until you find the short circuit.

4-7. Trailer Light and Connection Test

While the probe is on the multimeter or smart test, connect the probe auxiliary ground lead to the trailer light and insert the probe tip into the OBD socket to display the current voltage. Using this method, you can check the function and orientation of the connector and trailer light if You find that the trailer lights are connected correctly and you can use the "Component Activation" feature to test whether the trailer lights are working.

4-8. Jumper Function

The black clip and the auxiliary ground wire are directly connected through the device, and the red clip is disconnected from the vehicle battery. The device can be used as a long jumper.

Note: When the device is used for jumper function, please be careful to avoid short circuits and overloads. Jumper function Not protected by equipment circuit breaker.

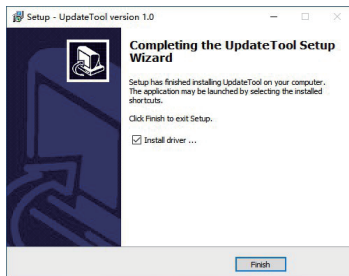
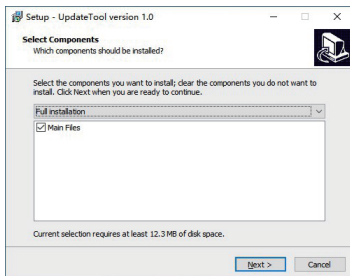
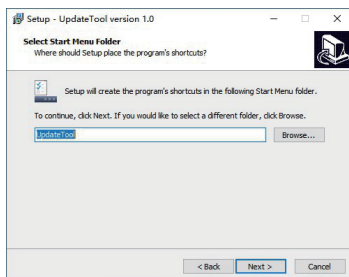
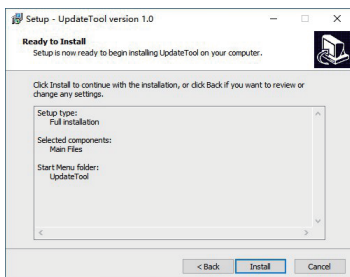
4-9. Battery Test

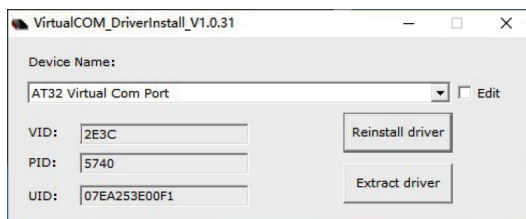
Note: When we perform battery testing, please do not connect the 10-meter extension cable, otherwise it will affect the test results.

4-10. Equipment Upgrade

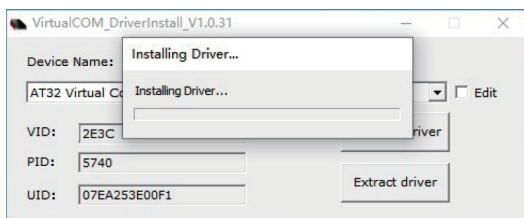
Software installation:

1. Enter the "<https://www.obdresource.cn/support/software.html>" website and click "UpdateTool SetupV1.0.zip" to download the software. After the download is complete, click the software to install. Select the default path during the installation process, and then click the "Next" button, as shown.

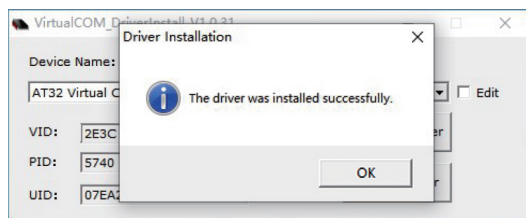




2. To install the serial port driver software, click the "Reinstall driver" button. If it is already installed, you can skip it directly.

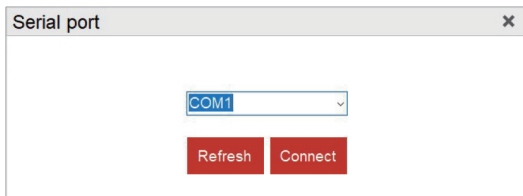


3. If it cannot start normally after the installation is completed, and an exception message similar to "Missing .Net Frame V4.72 environment" is reported, you need to download "ndp48" from the "<https://www.obdresource.cn/support/software.html>" website -x86-x64-allos-enu.rar" and install it, or you can download .Net Frame V4.72 or higher from the Internet.

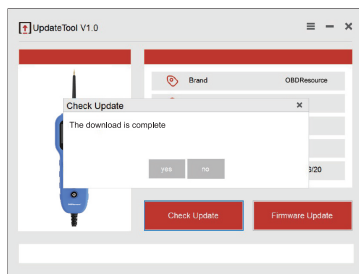
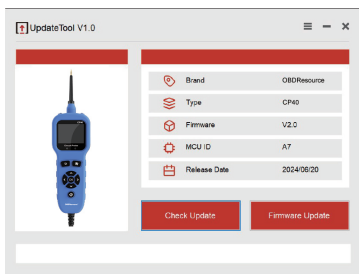


Software Usage:

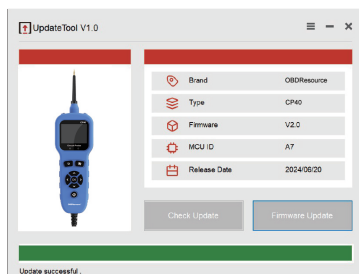
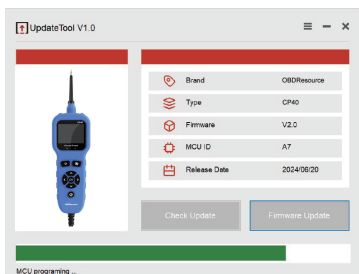
1. Connect the device and computer with a Type-c USB cable, select the correct serial port, click the "Connect" button to enter the software, if the connection fails, click the "Refresh" button to refresh, and select the new serial port to reconnect.



2. Click the "Check for Upgrade" button to download the latest firmware on the server to your local computer.



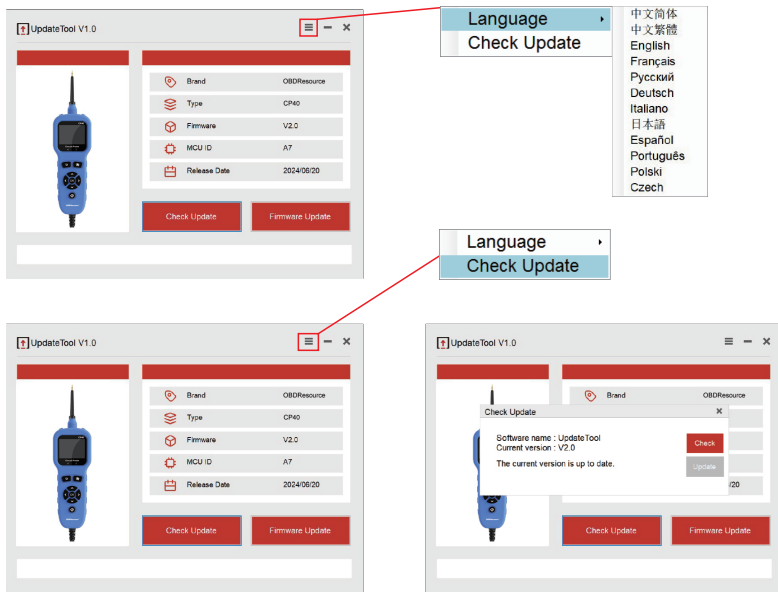
3. Then click the "Firmware Upgrade" button to perform the firmware upgrade and Flash file upgrade.



Function Options:

1. Language selection: You can select different languages in the drop-down menu of the function options in the upper right corner of the main interface, and support eleven languages such as Chinese Simplified, Traditional Chinese, and English.

2. Software upgrade: Click the Check for upgrade button in the drop-down menu of the function options in the upper right corner of the main interface, and the upgrade tool's check for update interface will pop up. Click Check Now to check whether there is a new version of the upgrade software, and if so, click the upgrade button.



Common Errors and Solutions:

1. Before using this software, you need to connect the product with a computer with a Type-c USB Cable.
2. Software startup failure: This software runs on the architecture of .Net Frame V4.8. Please ensure that .Net Frame V4.72 or higher is installed on this machine. The software package is downloaded from "https://www.obdresource.cn/support/software.html" or download it yourself from Microsoft's official website.
3. The serial port cannot be found: Please reinstall the software and make sure to check the option to install the serial port driver software.
4. Failed to open the serial port: first close the software, and then go to the computer's Device Manager → Port option to list all the serial devices connected to the computer. In this interface, re-plug and unplug the device to view the serial port number corresponding to the device. Then re-open the software

and select the correct serial port number.

4. Failed to connect to the server: Check whether www.obdresource.cn can be browsed normally.

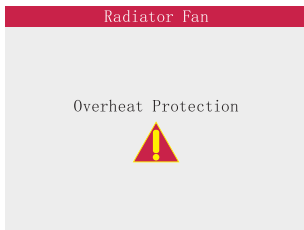
If not, please contact the manufacturer.

5. Missing files: Please reinstall the software.

Note:

1. Run the software in administrator mode.
2. Please make sure to close the anti-virus software before running the software. If running the software without closing the anti-virus software causes the software files to be missing, please reinstall it.

4-11. Overcurrent/Overheat Protection



Overcurrent Protection:

1. When the test current exceeds the set maximum current ampere, CP40 will respond in milliseconds and turn on the overcurrent protection to prevent losses caused by short circuit.
2. When a short circuit occurs in the test circuit, CP40 will respond in milliseconds and turn on the overcurrent protection to prevent losses caused by the short circuit.

Overheat Protection:

When the test circuit temperature reaches a high temperature, CP40 will respond in milliseconds and turn on over-temperature protection to prevent losses caused by excessive temperature. Over-temperature protection requires waiting for the device to cool down before continuing to use it.

5. Specification Parameters

PRODUCT SPECIFICATION	
Minimum Supply Voltage	8VDC
Maximum Supply Voltage	32VDC
Voltage Test Range	0-80VDC
Voltage Test Tesolution	0.1VDC
Probe Tip Impedance to Ground	4.7M
Resistance Test Range	0.1M Ω (please pay attention to the error value when it is greater than 200K)
Frequency Test	5Hz - 20K Hz
Power Feed Test	< 90 mA
Red LED Response	The probe voltage is greater than the battery voltage of -0.8V
Green LED Response	Probe voltage less than 0.8V and resistance less than 300 Ω
The Highest Sampling Rate of the Oscilloscope	1M Hz
The Highest Monitoring Fr- equency of the Oscilloscope	20K Hz
Circuit Breaker	8A heat sensation - self recovery
Operation Temperature	-20°C (-4°F) ~ 50°C (122°F)
Storage Temperature	-40°C (-40°F) ~ 65°C (149°F)
Operating Altitude	Maximum 3048 meters
Store Altitude	Maximum 12000 meters

6. Warranty and Service Statement

6-1. Warranty Card

Hello! Thank you for purchasing our product. In order to better serve you, please carefully read and correctly fill out this warranty card and save it.

Name		Email	
Purchase Date		Contact Number	
Address		Product Name	
Order Number			
Repair Records	Date		Cause of Failure and Solution

6-2. Warranty Statement

If the product has any quality problems and needs repair, please send this warranty card together with the purchased product back to our company for after-sales service.

Manufacturer

OBDResource Electronics Co., Ltd

Email: info@obdresource.com

Tel: +86-755-29071623

Web: www.obdresource.cn

Add: Xinniu Community, Longhua District, Shenzhen, CN



GOAL REACH CONSULTING LTD

OFFICE 1029 3 HARDMAN STREET 10TH FLOOR,
SPINNINGFIELDS MANCHESTER, UK M3 3HF
goalservice@hotmail.com



SUCCESS COURIER SL

CALLE RIO TORMES NUM.1, PLANTA 1, DERECHA
OFICINA 3, Fuentlabrada, Madrid, 28947 Spain
succsss-service2@hotmail.com

EU001721038211949SOf0



Made in China



Tech Support Group

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