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USER'S MANUAL

Intelligent Electrical System Circuit Tester

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SAFETY PRECAUTIONS AND WARNINGS

To prevent personal injury or damage to vehicles and / or the scan tool, read this user's manual first carefully and observe the following safety precautions at a minimum whenever working on a vehicle:

- ▶ Always perform automotive testing in a safe Environment.
- ▶ Do not attempt to operate or observe the tool while driving a vehicle, Operating or observing the tool will cause driver distraction and could cause a fatal accident.
- ▶ Wear safety eye protection that meets ANSI standards.
- ▶ Keep clothing, hair, hands , tools , test equipment, etc. Away from all moving or hot engine parts.
- ▶ Operate the vehicle in a well-ventilated work area. Exhaust gases are poisonous.
- ▶ Put blocks in front of the drive wheels and never leave the vehicle unattended while running tests.
- ▶ Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
- ▶ Put the transmission in P (for A/T) or N(M/T) and make sure the parking brake is engaged.
- ▶ Keep a fire extinguisher suitable for gasoline /chemical / electrical fires nearby.
- ▶ Don't connect or disconnect any test equipments while the ignition is ON or the engine is running.
- ▶ Keep the scan tool dry, clean free from oil/ water or grease. Use a mild detergent on a clean cloth to clean the outside of the scan tool when necessary.
- ▶ Our company is not responsible for any damage caused by unintentional or deliberate misuse of our products or tools

ABOUT P100 Pro

The P100 Pro is the newest generation intelligent Electrical System Circuit Tester with 2.4 inch large size LCD screen display. It is dedicated to test all 9V~30V vehicle electrical systems. P100 Pro is Convenient, Fast and Intelligent !

- ▶ Intelligent identification of voltage/resistance
- ▶ Multimeter mode (measure voltage, resistance, diode)
- ▶ Oscilloscope function
- ▶ Activation of vehicle components
- ▶ 0~5V adjustable power supply
- ▶ Hertz
- ▶ Network online upgrade
- ▶ Built in multiple languages



OVERVIEW

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Power Connector

Connect the battery clip to the car battery and extension cable.



Probe Tip

contact the circuit or component for testing.

Front LED light

Used for lighting in dark working areas.

LCD screen

Display test results.

Key Button Operation

4-Key Navigation for fast operation.

Auxiliary ground lead

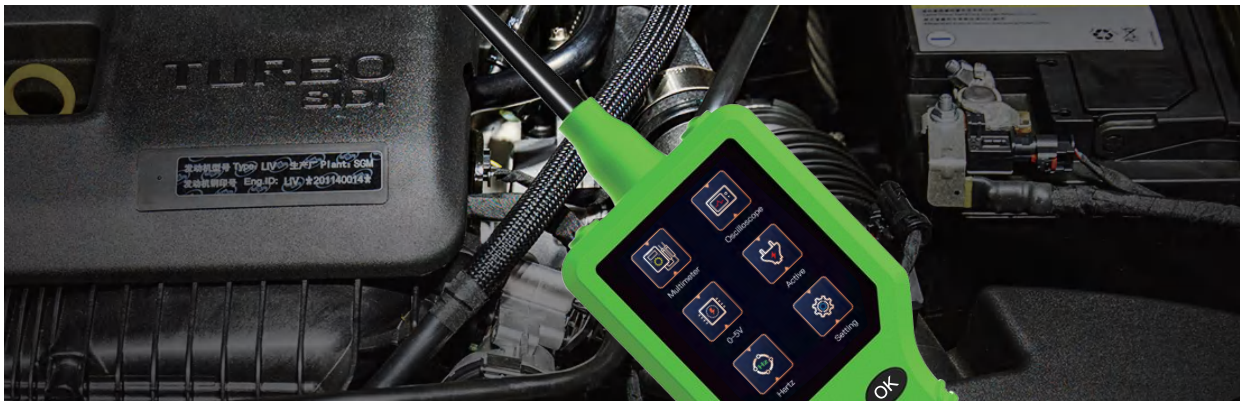
Auxiliary clip of ground lead (probe negative).

Speaker

Buzzer for warning or remind.

USB Port

Update by connect PC with USB cable to probe.



SPECIFICATIONS AND PARAMETERS

- 1、Display: 2.4 inches (320*240 DPI) TFT true color display
- 2、Working temperature: 0~60°C (32~140 F°)
- 3、Storage temperature: -40~70°C (-40~185 F°)
- 4、External power supply: 12V or 24V powered by battery
- 5、Minimum working voltage: 9V
- 6、Maximum working voltage: 30V
- 7、Maximum measuring voltage: 100V
- 8、Minimum measuring voltage: 0.1V
- 9、Resistance measurement range: 1 ohm~200K ohm
- 10、Current measuring range: 0~18A
- 11、Maximum continuous current: 18A
- 12、Color: black white red orange yellow green blue

Power Supply Connection

The Probe is powered by the vehicle battery. Connect the RED clip to the positive pole of the battery, and the BLACK clip to the negative pole of the battery. The probe will automatically start to the working interface, The front LED light will illuminate the test area, which is convenient for operation in the dark area.



KEY Button Operation

The Probe equipped with multi functional buttons adopts the latest scientific design. There are 6 physical buttons “Left”, “Right”, “Up”, “Down”, “ESC” and “OK”.

* In different functional interfaces, the key functions performed are not exactly the same.

Left key– navigation key

Right key– navigation key

Up key– navigation key or voltage output, numerical adjustment

Down button–navigation button or voltage output, numerical adjustment

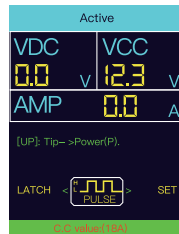
OK– Confirm key

ESC– exit key



Short-Circuit Automatic Protection

If current overloaded, its internal circuit breaker system will automatically trip for protection. The circuit breaker monitors this tool at all times. As an essential safety measure to prevent overload, it is a very practical function.



WORKING MODE

Multimeter Mode

Functions Display

The LEFT of the interface is the functional area from UP to DOWN are: DC voltage (VDC), resistance (OHM), diode/continuity test (DIO).

How to use

Press the “UP/DOWN” button to select the test mode. Press “ESC” Button to exit.

- 1) **DC voltage (VDC):** Connect the probe clip (auxiliary ground lead) to the negative pole, and connect the probe Tip to the measured voltage.
- 2) **Resistance (OHM):** Connect the probe clip (auxiliary ground lead) to one side of the Resistance being measured, and the probe tip to the other side.
- 3) **Diode/continuity test (DIO):** Connect the probe clip (auxiliary ground lead) to one side of the Diode being measured, and the probe tip to the other side. Meanwhile it will display the voltage and show Positive and Negative of Diode.



Oscilloscope Mode

Instructions

“START/STOP” (press “OK” to Start or Stop waveform refresh)

“DIV” voltage per grid (test range 1V–49V) Press up and down keys to adjust the voltage value)

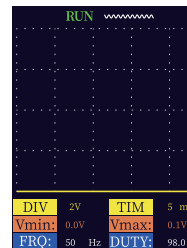
“Time” time parameter

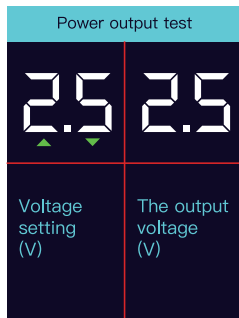
“FREQ” “DUTY” Display test frequency

“Vmin” Max Voltage

“Vmax” Min Voltage

“ESC” Button to Exit this working mode





0-5V Power Supply

The 0-5V power supply function is useful when checking the wiring to the ECU/ECM. After you check the sensor with a Multimeter , if there is still a problem, you can simulate the voltage output by the sensor to verify the wiring to the ECU. You can use the OBD scanner to diagnose the result in the ECU , you can set a power supply voltage from 0 to 5V (current <100mA) in 0.5 volt increments.

There is a set point voltage alarm, in case the circuit connected to the probe tip will force the voltage to be higher or lower than the set point voltage to 0.5 volts, the device will sound an alarm to know that the output voltage is different from the set voltage. It can be disconnected and check for short circuit or other faults.

* 0-5V power supply mode designed as an active mode, but the function is different from the component activation mode. It can adjust the voltage output under 5V and limit the current under 100mA. (This is safety to avoid burning out electric components).



Component Activation

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

Warning: Do not perform any tests on any ECU module ,SRS (air bag) system before the system is completely disabled or unplugged.

Warning: Supply Power to electrical system will cause damage to the vehicle's sensitive electronic components, so we strongly recommend that you refer to the vehicle manufacturer's schematic diagram and diagnostic process .

The component activation function is designed to generate activation signals to the tested components, such as activating lights, motors and other on-board electric equipments.

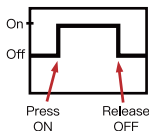
Display Value

VDC : Detected Voltage

AMP : Detected Current

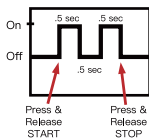
VCC : Power Supply Voltage

Activation Type



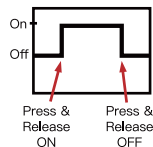
“MOMENT” Mode

Press “Right” button to select the activation mode to MOMENT mode.
Press and hold the “UP” button to perform the power supply , Release “UP” button to stop.



“PULSE” Mode:

Press “Right” button to select the activation mode to MOMENT mode.
Press and hold the “UP” button to perform the power supply , Release “UP” button to stop.



“LATCH” Mode:

Press “Right” button to select the activation mode to LATCH mode.
Press the “UP” button to perform the power supply , Press “UP” button again to stop.

“SET” Circuit Breaker :

Press “Right” button to select the activation mode to SET mode.
Press “UP/DOWN” button to adjust the overload current values from 1A–18A.

if the current flowing through the Probe is greater than the set value, it will cut off the power and stop activation.

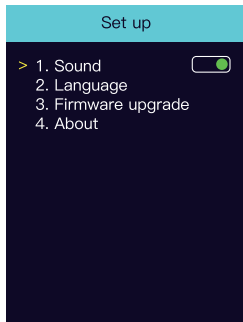
Hertz

This function tests the frequency of the AC signal. If a square wave is input, the frequency and duty cycle can be displayed.

Frequency

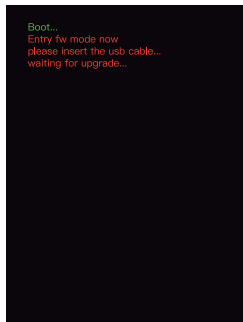
Freq:
1.0KHz
Dutv:
50 %

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Setting

From setting interface, you can set Sound, Language, update, Screen, Use “UP” and “DOWN” button to select, press “OK” button to Change parameters. Press “ESC” button to save and exit.



Online Update

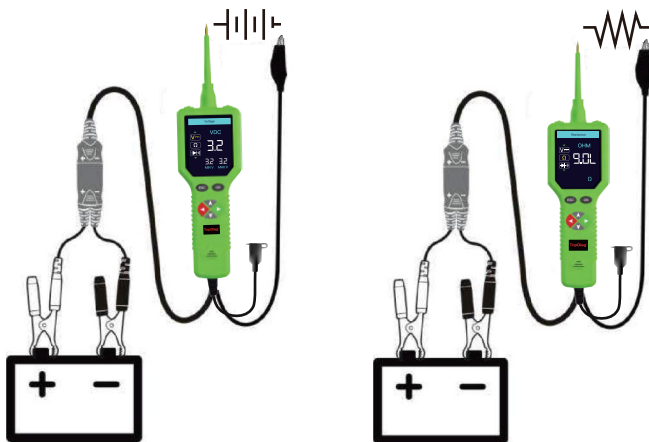
1. By in setting interface, Select “Firmware upgrade” to enter into Update mode.
Connect PC with USB cable to Probe, Open update tool on computer to update.
2. Press “LEFT” and “OK” button on the same time to enter into Update mode.
Connect PC with USB cable to Probe, Open update tool on computer to update.

TEST APPLICATIONS

Continuity Testing

When the Probe is in the “Multimeter mode” Select Resistance test function, Use the Probe Tip with chassis ground of the vehicle or auxiliary ground lead, “DIODE” Mode Continuity can be tested on wires and components attached or disconnected from the vehicles electrical system.

In “Main Menu”, When the Probe is contacting a good ground, the LCD Screen will display “0.0Ω”. In “SMART” mode, If the Sound enabled from setting, the buzzer will beep at the same time.



- 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”

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There is another way to verify the continuity of the connection to the ground or battery, While in Component Activation mode, You can supply power to the electrical system . if the circuit breaker trips, it means that this connections is a good connection with low resistance.

Warning: Do not perform any tests on any ECU module ,SRS (air bag) system before the system is completely disabled or unplugged.

Note: You can use the Probe Tip to pierce the plastic insulation on a wire to run test.

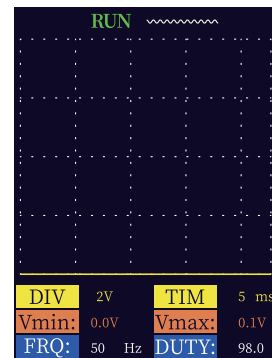
Signal Circuit Testing (Oscilloscope Test)

Use an OBD2 Scanner to read out the FAULT CODE(DTC) from the vehicle and found the problem is with some kind of sensor circuit, there is a fast way to testing the sensors conditions with this probe.

For example, if you suspect that the problem is with the MAP sensor circuit of the vehicle , follow this procedure to testing the sensor.

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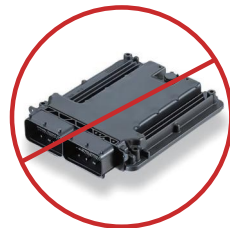
- 1 Enter into Oscilloscope Mode , use the Probe Tip with Chassis ground or auxiliary ground lead.
- 2 Connect the vacuum pump to M.A.P. sensor.
- 3 Touch the Probe Tip to the positive terminal of the M.A.P. sensor and observe the LCD screen. Generally it should be with a Sine Waveform in good condition.
- 4 Apply vacuum pump.
- 5 Release the vacuum pump and observe the reading on the LCD screen.



Activating Components in Your Hand

For Example: Test a Bulb Working Condition

- 1) Hook up the Battery Clip to power supply
- 2) Enter into Component Activation , Select MOMENT mode function.
- 3) Connect the auxiliary ground lead to the negative terminal of the component being tested, Connect the Probe Tip to the positive terminal of the component, Press “UP” button to trigger activation test.
Tip to the positive terminal of the component, Press “UP” button to trigger activation test.
- 4) The LCD screen will display the value of VDC, AMP, and VCC.

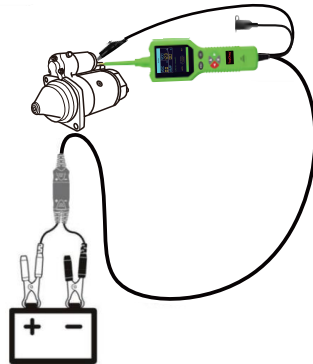
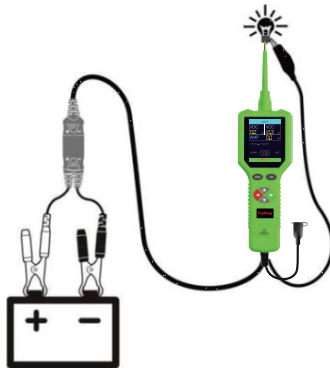


If the Probe restart for the circuit breaker tripped or the displayed message OVERLOADED on LCD screen, You can adjust the overload current value and repeat the above operation to further activation.

(To Avoid burning out the component, Please refer to the specification and parameter of component and then Set the OVERLOAD CURRENT VALUE)

If the Probe circuit breaker tripped, it means the probe is overloaded. This could happened by the following reasons:

- You have connected the Probe Tip to the direct ground or Negative voltage.
- The component you are testing is short circuited.
- The component is a very high current component (such as STARTER MOTOR).



Activating Components in Vehicle

Warning

- The activation mode is only designed for supply powers, and cannot be used for any sensitive electronics equipment (such as ECU, sensor module), otherwise there is a risk of burning out components.
- Do not perform any tests on any ECU module ,SRS (air bag) system before the system is completely disabled or unplugged.
- Supply Power to electrical system will cause damage to the vehicle's sensitive electronic components, so we strongly recommend that you refer to the vehicle manufacturer's schematic diagram and diagnostic process .

Test Procedure

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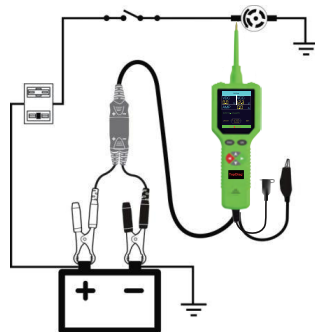
- 1) Hook up the Battery Clip to power supply.
- 2) Enter into Component Activation , Select MOMENT mode function.
- 3) if needed, Connect the auxiliary ground lead to the negative terminal of the component being tested.
- 4) Connect the Probe Tip to the positive terminal of the component, Press “UP” button to trigger activation test.
- 5) The LCD screen will display the value of VDC, AMP, and VCC.

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- You have connected the Probe Tip to the direct ground or Negative voltage.
- The component you are testing is short circuited.
- The component is a very high current component (such as STARTER MOTOR)



Checking for Bad Ground Contacts

Use the Probe Tip to find the suspected ground wire.

- 1) Enter into Component Activation interface. Select MOMENT mode function, Set the overload current to 1A.
- 2) Connect Probe Tip to a suspected wire.
- 3) Press “OK” button to trigger power supply

LCD screen will display values of VDC , AMP and VCC, if the VDC value is almost the same as VCC and AMP value is minimum approach to 0A. it means this is not, if Probe circuit breaker tripped or Display OVERLOADED, It probably the ground.

Note: Keep in mind that high current components such as starter motor will also trip the circuit breaker.

Following & Locating Short Circuits

In most cases, a short circuit will appear as a blown fuse or a tripping of an electrical protection device (such as a circuit breaker tripping).

This is the best place to start check the short circuit.

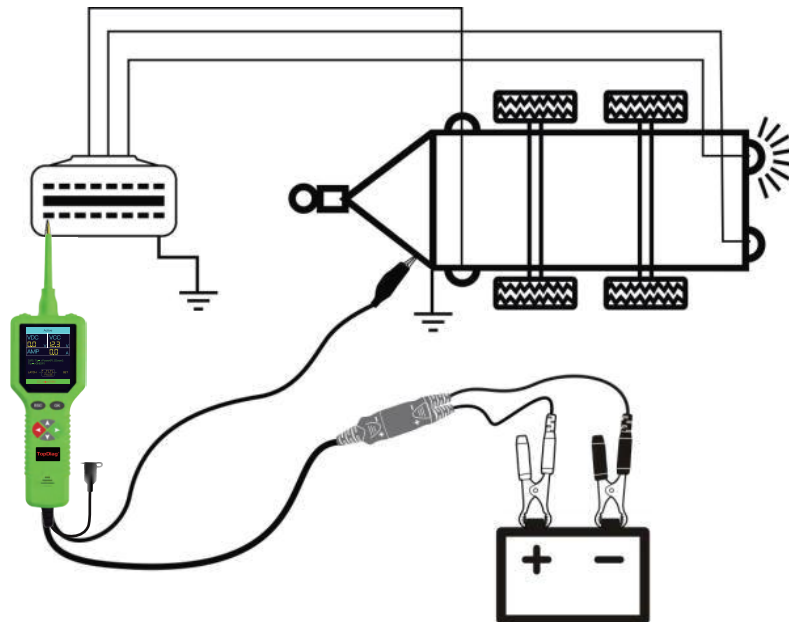
- Remove the blown fuse from the fuse box.
- Use the Probe Tip to activate each of the fuse contacts.
- While the circuit breaker trips is a short circuit. Record the number or color of the wire.
- Trace the wire as far as possible.

Here is an example for this application.

- If you are tracing a short circuit in the brake light circuit, you will know that the wiring harness must pass through the wire at the door sill, Locate the color-coded wire in the harness and expose it .
- While in Component Activation interface Select MOMENT mode. Use the Probe Tip to contact the marked wire, Press the “UP” button to trigger power supply.
- If the circuit breaker tripped , you have verified the shorted wire. Cut the wire and power supply each end with Probe Tip again.
- Follow the wire in the shorted direction and repeat this process until the short is located.

Trailer Lights and Connection Test

When the Probe is in 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. With this method you can check the function and direction of the connector and trailer lights. If you find the trailer light connection correctly, you can use the “Component Activation” function to test whether the trailer light is working or not working.



WARRANTY AND SERVICE

One year warranty

JDIA Technology promises to provide warranty service for 1 year from the date of original purchase, if this product is purchased from an official channel, which must meet the following conditions:

- 1) The warranty are limited to repairing or replacing new equipment, without additional cost, but need to mention for regular sales invoices or copies of invoices.
- 2) The warranty does not cover the unauthorized disassembly of this product due to flooding, lightning strikes, or outside repair shops not authorized by the company ,The personnel have repaired it and considered damage caused by improper use.
- 3) JDIA Technology is not responsible for any damages caused by use, misuse or installation and testing. Some countries limitations on the duration of implied warranties are not allowed, so the above limitations may not apply to you.
- 4) All information in this manual is based on the latest and effective information at the time of publication, and there is no guarantee of its accuracy or completeness. JDIA Technology reserves the right to make changes at any time without notice.

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Service Process

If you have any questions in the process of using this product, please contact your local authorized dealer directly, or visit our official website for consultation.

If you need to repair or return the goods, please contact the distributor or the sales reps who contacted you directly.