

ABOUT US

JDiag Electronics Technology Co.,Ltd.

Email: info@jdiag.org

Tel: +86-755-21005135

Web: www.jdiag.org

Add: 3rd Floor,B2.Jindida Science Park, Langkou
Community, Dalang Street,Longhua
District, Shenzhen, China



Proline GmbH
Breitenstr. 56, 40239 Düsseldorf
Germany

TopDiag®



USER'S MANUAL

New type multifunctional electric tester

P50

ABOUT THE PRODUCT

The new multifunctional electric tester makes up for the various shortcomings of the existing car maintenance electric tester. It integrates functions such as voltage measurement, bulb measurement, load voltage measurement with bulb, pulse signal measurement, load equipment measurement, power supply polarity display and other functions, and the design is novel, Exquisite workmanship, easy to use, practical and durable.

- Voltage measurement: pure voltage measurement, the function is the same as multimeter voltage measurement.
- Bulb measurement: Using a 5W car bulb as a load, it can quickly determine the power supply failure of the line. Compared with a diode tester, it can find some invisible failures of poor contact and virtual voltage.
- Load voltage measurement with bulb. By measuring the brightness and darkness of the electric pen bulb, the line voltage fault can only be roughly judged. With the voltmeter function of the electric pen, more accurate measurement can be achieved, thereby improving the fault diagnosis.
- Pulse signals such as Hall sensor, ignition pulse, fuel injector pulse, fuel carbon canister solenoid valve, etc. can be measured conveniently and quickly through the diode of the electrometer.
- For the load plug, you can use the probe attached to the clip, combined with the probe of the electric test pen, to directly measure, which is convenient for fault diagnosis.
- Voltage polarity display function. In the measurement, the red and green light-emitting diodes are used to distinguish the positive and negative polarity of the measurement power supply, which is intuitive and fast.

APPEARANCE AND COMPOSITION

1. Exterior

The appearance accords with the ergonomic design, small and convenient, and the appearance is carefully designed according to the actual use scene.

2. The main body and composition of the electric pen

- 1) Common end clip line with extension cord
- 2) Voltage display digital tube
- 3) Red and green two-color forward and reverse indicator lights
- 4) A physical button is used to change the working mode
- 5) One detachable luminous lamp bead



START USING

1. Mode switching:

There are 3 modes in total. The mode switch is operated by the physical buttons of the electric pen body. Press and release the button to cycle through the three working modes.

1 Mode 1: Digital tube display: --0



2 Mode 2: Digital tube display: --1



3 Mode 3: Digital tube display: --2



2. Mode introduction:

1 Mode 1: The digital tube and the light-emitting lamp bead work at the same time



2 Mode 2: The LED does not work when the LED is working



3 Mode 3: The digital tube does not work and the light-emitting lamp beads work normally



3. Voltage measurement:

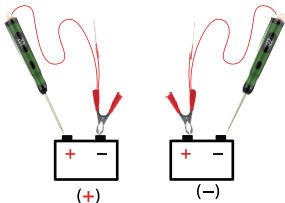
The clamp is clamped into the car to strike iron or the public ground is out, and the probe is connected to the tested place for testing. The nixie tube displays the current voltage value, and at the same time, the strength of the voltage can be judged by the brightness of the light-emitting lamp beads.

4. Positive and negative direction detection:

Two LED light-emitting tubes on the top of the digital tube of the electric pen indicate the positive and negative directions.

Red light on: The ground probe of the electric pen clip is connected to the forward voltage.

Green light on: The electric pen probe is connected to the vehicle ground wire, and the clip is connected to the positive pole.



5. Frequency prediction :

Can be used to measure fuel injector signals, spark plugs, crankshaft sensor signals, etc.

When the electric pen is connected to an AC signal (5~30V), the frequency range can be estimated through the display of the digital tube. The following measurement indicators are measured by a square wave of $V_{PP}=12V$ with a duty cycle of 50%.

Input signal frequency $> 55Hz$:

The digital tube does not display, the indicator light will be on.



$55Hz \geq$ Input signal $> 50Hz$:

A bar, the indicator light will light up



$50Hz \geq$ Input signal $> 38Hz$:

2 bars, the indicator light will be on



Input signal $\leq 38Hz$:

3 bars and the indicator light will keep flashing at the same time. The flashing frequency depends on the frequency of the input signal.



PRECAUTIONS

- 1) The probe lamp can be replaced, choose 12V5W.
- 2) The working voltage range of the equipment is 5V~30V. If it exceeds 30V, the electric pen may be burnt out.

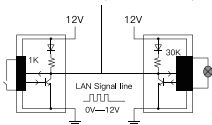
PRODUCT FEATURES

- (1) Check whether the fuse is blown: clip the battery negative pole or the body ground, turn on the power switch, and the main probe testThe left and right two points of the fuse, both of which are on, indicate that the fuse is not blown, and only one point is blown.
- (2) Check whether the battery is leaking: first turn off all electrical appliances in the vehicle that is losing electricity, and then close and lock the door.After waiting for ten seconds, the circuit enters the dormant state, and then ground the clamp, and the main probe touches the root of the negative battery column.Do not leave, and finally loosen and remove the negative battery chuck of the original car. At this time, if the light does not turn on after the pen is detected, say It is not the leakage of the circuit but the leakage of the battery. If the light is dim or bright after the probe, it means the leakage of the circuit. It is not battery leakage.
- (3) Detect whether the high-voltage package and high-voltage line have broken down and leaked electricity: After driving, the clamp is grounded, and the main probe touches the battery. After confirming that the light of the probe will be on, then the main probe will move along the high-voltage line and the high-voltage package, and there will be a high-voltage fire jump.The point where the main probe enters is the leakage point.

- (4) Check whether the positive and negative power supply of the electrical appliance is normal: pull out the plug of the electrical appliance, turn on the power switch, and the clip clamp Ground the iron, test the plug with a pen to see if the power cord has electricity (red LED and rear light are on), clamp the positive pole or Insert the auxiliary probe into the positive power cord that has been found, and check whether the negative power cord in the plug is properly grounded (this When the green LED and the rear light are on).
- (5) Detect the LAN local area network circuit: Turn on the ignition switch, ground the clamp, and take Down the pen back light, the main probe measures the system electricity The LIN signal line behind the brain plug, red The color LED lights should flash at a fixed frequency, When the computer issues a command, it should be a short time The flashing becomes faster.

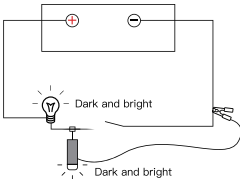
LAN Principle

Connect to other computers from the system

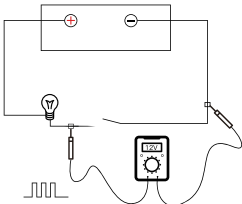


- (6) Detect the internal signal of the computer: the clamp is grounded, the rear lamp is removed, and the probe can measure the power triode and the internal power of the computer. Relay control signals, etc.

- (7) Distinguish between real electricity, virtual electricity, series electricity and poor grounding: multimeters and oscilloscopes have very large internal resistances during measurement. Therefore, it is impossible to distinguish between real electricity and virtual electricity, and the probe lamp itself is a 5W electrical appliance with low internal resistance and can be used. According to the dimming degree of the rear light, real electricity and virtual electricity are distinguished (bright is real electricity, and dark is virtual electricity).



After the pen was probed, the light was dimmed, telling us that this is a passing appliance or Please be careful of virtual electricity with poor contact!

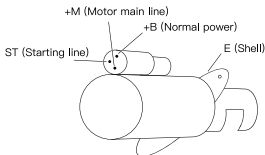


The multimeter or oscilloscope cannot distinguish the nature of the wire at this time

- (8) After the pen is detected, the lamp burns out and there is a reminder function: LED is a long-life luminous body, which is not easy to break, so when the LED light is on, the probe The back light of the pen does not light up, indicating that the back light is burned out and should be replaced.
- (9) Awl function: The main and auxiliary probes are made of pure steel and are very hard. Adjust the mechanical kilometer, pull out the bald head of the CD player, etc. (The main probe can be sharpened according to individual needs, and the When the factory is rough)
- (10) Jump function: insert the main and auxiliary probes into the two jacks to be bridged (closer distance), such as relay Sockets, ignition switch plugs, etc., and then the two probes can be cross-contacted.
- (11) Torch lighting function: When inspecting and repairing in the dark place in the instrument panel, the positive pole can be clamped by the clip, and the probe pen touches the instrument panel The metal inside is grounded, and the light after the pen is lit can be illuminated.
- (12) Short circuit detection function: When the fuse is inserted and blown immediately, the main and auxiliary probes can be inserted into the fuse respectively In the two fuse sockets on the wire seat, the light is bright after the pen probe at this time, and then shake the wire harness or unplug it Use the electrical plug method to turn off the light of the probe pen to find the short-circuit point.
- (13) Fault code reading function: the rear light of the probe pen can be removed to bridge the vehicle diagnostic socket to read the LED flash code.

- (14) Detect engine Hall-type speed sensor and camshaft position sensor, detect Hall speed of automatic gearbox Sensor: Unplug the three-wire plug of the sensor, turn on the ignition switch, ground the clamp, and use the Probe the pen, measure the three wires in the plug one by one, and then you can read the current voltage in real time through the digital tube value.
- (15) Detection of vehicle speed sensor: a two-wire vehicle speed sensor consists of a ground wire and a signal wire, and a clamp Iron, use the probe pen with the rear light to measure the signal line, and the red LED inside the probe pen should flash when the wheel is turned; The detection method of the three-wire vehicle speed sensor is the same as that of the engine speed sensor. Try to remove the pen back light.
- (16) Detect idle speed motor
- (17) Detection of ABS circuit
- (18) Detect airbag circuit
- (19) Exhaust gas recirculation circuit detection
- (20) The output signal of the analog computer: the clamp is grounded, and the probe pen can be simulated on the side of the engine computer plug. Drive: oil Pump relay pull-in, fuel injector injection, high-voltage package ignition, main relay pull-in, etc. to determine the relevant electrical Whether the road is normal.
- (21) No-car test
- (22) Check the starting circuit (generally set the probe to work mode three first): When the starter does not turn, you should be alone Always turn on the ignition switch in the car Start gear, the other person is out Edge, clamp the battery negative pole, probe +B, +M, ST, pen test motor Four points E: when measuring ST line, probe pen The back light is not bright or dim, it is the line Or the

ignition switch is damaged. Test + B line Does not light up because the battery clamp is loose or started The main insurance of the machine is blown out. Test E line is bright Bad grounding for the engine. Test ST Bright, +B bright, E not bright, +M not Bright, it is the big touch in the magnetic switch Point ablation, ST bright, +B bright, E is not bright, +M is bright, it means that the carbon brushes in the motor are seriously worn. (Note that the starting time is not easy to be too long).



(23) Ignition circuit detection

(24) Install an anti-theft device (the following test can try to switch the different working modes of the probe to achieve the best use Effect)

- 1) (The red power cord of the anti-theft device is connected to the normal power supply of the vehicle): Find the central door lock control box under the steering wheel, and unplug it. The plug and the clip are grounded, and the thick wire that is often charged in the plug is the normal power source.
- 2) (The black ground wire of the anti-theft device is connected to the body ground): Find the fixed bolt on the fixed iron frame of the instrument panel as a car Take the iron.

- 3) (Brown direction light wire of the anti-theft device is connected to the left and right direction light wires of the vehicle): Turn on the emergency light switch, and the measurement group Turn on the main plug of the switch, there are three wires with flashing power, turn off the ignition switch and then test these three wires, There is a line that flashes quickly after the pen is detected during measurement. This line does not need to be connected, and the remaining two lines are left and right direction indicator lines.
- 4) (The blue door side line of the anti-theft device is connected to the side line of the vehicle door): the positive pole of the clip clip, the probe to detect the door side switch plug, only When the door is open, the bright side line of the vehicle door is after the pen is detected.
- 5) (The white unlocking and closing lock wire of the anti-theft device is connected to the vehicle switch lock wire): ground the clip and insert it back into the central door lock control box Measured one by one from behind the plug. During the measurement, the automatic door unlocking line is the vehicle unlocking line. During the measurement, the automatic door lock line is the vehicle lock line.
- 6) (The yellow broken wire of the anti-theft device is connected to the yellow wire of the installed breaker): the clamp is grounded, and the ignition switch harness is plugged in. The ignition power source is the ignition power source only in the ON and ST positions. After cutting it off, the wire on the side of the ignition switch Connect with the white wire of the green wire of the breaker, and connect the remaining wire end of the ignition power cord to the green wire of the breaker. Wire, the last remaining is the yellow wire of the breaker.
- 7) Fix the anti-theft speaker, tie up the wire harness and anti-theft device, and complete the work.

In addition to the above, this product is also widely used in automotive air conditioning circuits, automatic gearbox circuits, charging circuits, rain Brush circuit, horn circuit, lighting circuit, audio circuit, anti-theft circuit, instrument circuit, cruise circuit, antenna Window circuits, fan circuits, multiple communication circuits, rearview mirror circuits, defogging circuits, seat circuits, and various circuits on motorcycles and excavators are not introduced here.

PRECAUTIONS WHEN USING

- 1) When the lamp is removed or burned out after the probe, the probe should not be close to the high-voltage line to avoid the LED light Breakdown by high voltage.
- 2) When testing 24V vehicles, the 24V probe light should be replaced, and each auto repair shop has stocks.
- 3) Do not measure the input and output signal lines of the computer without removing the back light of the pen, otherwise there will be trouble Can damage the internal components of the computer.
- 4) When measuring the plug terminal, do not force the probe into the terminal to avoid deformation of the terminal shrapnel.

PRODUCT DECLARATION

- 1) This product is a vulnerable product and is not covered by our company's warranty.
- 2) The company is not responsible for any consequences caused by improper use.