

LASER®

Multi-Function Automotive Tester

With colour screen and power probe functions



An innovative and useful multi-function tool that tests for voltage, current, resistance, continuity, short circuits, signal frequency and bad earths.

It is also a power-probe, suitable for energizing components on or off the vehicle. Powers up components prior to fitting: relays and bulbs, etc.

Tests continuity in switches, relays, fuses and wiring looms; tests polarity on cables and sockets.

Powered by the vehicle's own 12-24 volt DC power supply and complete with 2.0m cable. Kit also includes 6.0m extension cable.

Accessories include extra-long probe, wire-piercing probe and thermocouple for measuring temperature.



Components

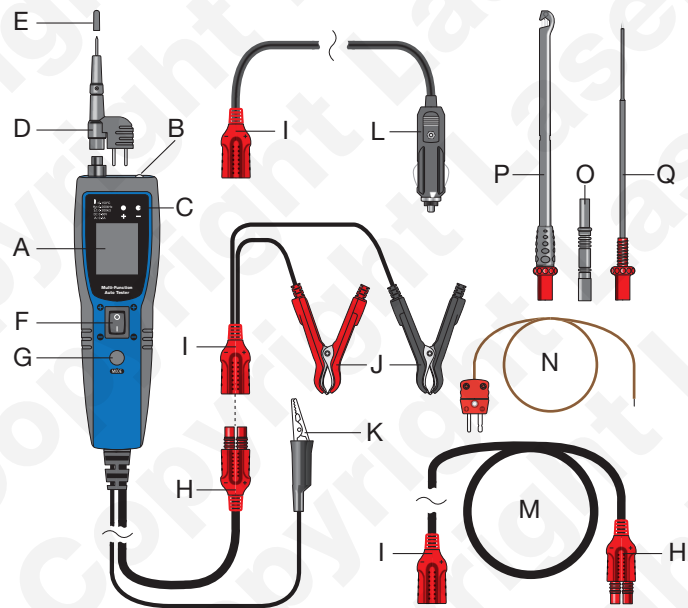


Fig:1

Ref:	Description	Ref:	Description
A	Display screen	K	Auxiliary ground (earth) clip
B	Torch / light	L	12V power socket plug
C	Polarity indication lights	M	Power extension cable (6 metre)
D	Test probe / thermocouple (detachable)	N	Thermocouple
E	Probe safety cap	O	Probe adaptor
F	Power-probe supply switch	P	Wire-piercing probe
G	Mode button	Q	Long test probe
H	Power connector (male)	R	Fuse compartment screw
I	Power connector (female)	S	Fuse compartment lid
J	Power clips	T	Fuse (10 amp)

The following instructions are for guidance only. Please refer to OEM derived data such as the vehicles manufactures own data or Autodata.

The use of this Tool is purely down to the user’s discretion and The Tool Connection Ltd. cannot be held responsible for any damage caused whatsoever.



FUSE ACCESS:

Refer to Fig 2: the tester is fitted with two fuses. The internal auto-recover fuse/circuit-breaker (not replaceable) is rated at 5A; the replaceable fuse (T) is rated at 20A and is accessed by removing screw (R) and fuse compartment lid (S).

The internal auto-recover fuse/circuit-breaker will protect the tester against short circuit and/or high current. It will restore the connection after approximately 60 seconds. Do not touch the metal end of the probe in this situation as it will be very hot. If protection lower than 5A (internal auto-recover fuse/circuit-breaker rating) is required, fit a lower rated (1A or 2A for example) replaceable fuse (T).

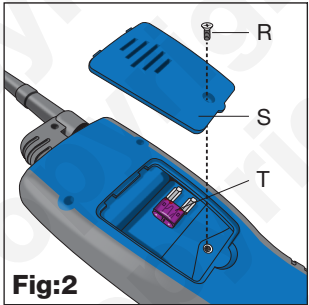


Fig:2

Specifications

Power source:	12 - 24V DC (vehicle battery)
DC voltage measurement range:	0 - 70V
DC current measurement range:	0 - 5A
Frequency measurement range:	0 - 300 KHz (square wave)
Resistance measurement range:	0 - 200KΩ
Working temperature:	0 - 50°C
Storage temperature:	-10°- 60°C
Measured temperature range:	-50°- 500°C (-58°- 932°F)
Test probe / thermocouple (D) range:	0° - 150°C (32° - 302°F)
Thermocouple (N) range:	-50°- 205°C (-58°- 401°F)

ACCURACY:

DC voltage:	0 - 70V ± (2% + 2 digits)
Frequency:	0 - 300KHz ± (1% + 1 digits)
Resistance:	0 - 200KΩ ± (5% + 3 digits)
Current:	0 - 5A ± (3% + 10 digits)

TEMPERATURE:

Celsius:	-50°C ~ 500°C
-50°C ~ -20°C:	± 1.5 + 4 digits
-20°C ~ 500°C:	± 1.5 + 3 digits
Fahrenheit:	-58°F ~ 932°F
-58°F ~ -4°F:	± 1.5 + 6 digits
-4°F ~ 932°F:	± 1.5 + 5 digits

Instructions

OPERATION:

- Refer to Figure 1: Connect the power clips (J) to the tester via the connectors (H & I). If necessary, use the 6 metre extension cable M (if, for example, the vehicle battery is located in the boot/trunk area).
- Connect the black clip to the negative (ground) terminal of the battery, then connect the red clip to the positive terminal.
- The auxiliary ground connector (K) is used to connect to the negative side of the test object for certain test operations.
- Press the MODE button (G) to select desired test function: voltage, signal frequency and voltage, resistance or DC current. (Short press of the MODE button selects function — long press switches between Celsius and Fahrenheit temperature measurements.)

1) DC VOLTAGE MEASUREMENT — EXTERNAL VOLTAGE TEST

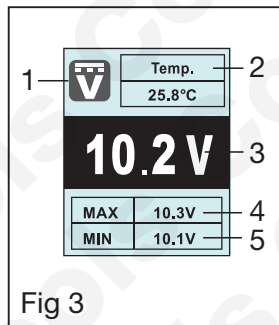


Fig 3

Ref:	Description
1	DC voltage measurement symbol
2	Temperature measurement
3	DC voltage value
4	Maximum voltage value
5	Minimum voltage value

Note: Do not press the power-probe supply switch (F) during DC measurement.

- Press the **MODE** button (G) to switch function to DC measurement (refer to Figure 3 — DC voltage measurement symbol (1) is displayed).
- Connect the test probe to the positive and the auxiliary ground (earth) clip (K) to the negative of the test object or circuit.
- Read the voltage value (3) from the screen.
- Test probe (D) includes a built-in thermocouple for temperature testing.
- Temperature of object can also be read by fitting the thermocouple accessory (N).

2) SIGNAL FREQUENCY AND MAX/MIN VOLTAGE MEASUREMENT

- Press the **MODE** button (G) to switch function to frequency & voltage measurement (refer to Figure 4).
- Connect the test probe to the positive and the auxiliary ground (earth) clip (K) to the negative of the test object or circuit.
- Read the frequency value (2) from the screen.
- Average voltage value (3) is displayed.
- Maximum voltage (4) and minimum voltage (5) are displayed.

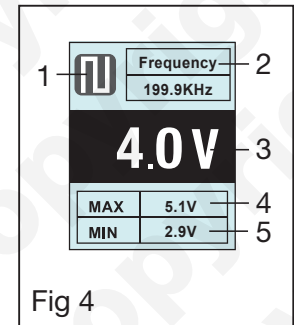


Fig 4

Ref:	Description
1	Frequency measurement symbol
2	Frequency measurement
3	Average voltage value
4	Maximum voltage value
5	Minimum voltage value

3) RESISTANCE MEASUREMENT & CONTINUITY TEST

- In order to prevent an electrical hazard, disconnect the resistor or component to be measured from any power source.
- Press the MODE button (G) to switch function to resistance measurement (refer to Figure 5).
- Connect the test probe and the auxiliary ground (earth) clip (K) to both sides of the test object, and read the value (3) from the screen.
- Continuity test: if the resistance is less than 30Ω, the buzzer will sound.

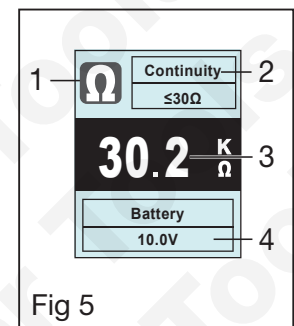


Fig 5

Ref:	Description
1	Resistance measurement symbol
2	Maximum continuity value
3	Resistance value
4	Battery voltage

4) POWER-PROBE TESTING & MEASUREMENT

- 1. Refer to Figure 1: Press the power-probe supply switch (F) forward (+) to supply positive voltage to the test probe; the positive polarity indication light (C) will light red.
- 2. Press the power-probe supply switch (F) backward (-) to supply negative voltage to the test probe; the negative polarity indication light (C) will light green.
- 3. The provided voltage depends on the supply voltage level. A 12V battery will provide 12V; a 24V battery will provide 24V.

5) DC CURRENT MEASUREMENT

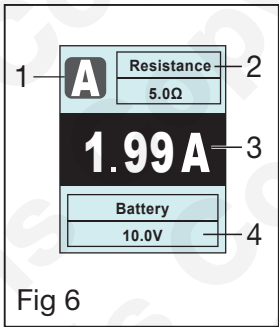


Fig 6

Ref:	Description
1	Current measurement symbol
2	Resistance of test object
3	Current value
4	Battery voltage

Providing Current:

- 1. Press the MODE button (G) to switch function to DC current measurement (refer to Figure 6).
- 2. Refer to Figure 7: Connect the test probe to the positive and the auxiliary ground (earth) clip (K) to the negative of the test load. Press the power-probe supply switch (F) forward.
- 3. Refer to Figure 6: Read the current value (3), the resistance (2) and the battery value (4).

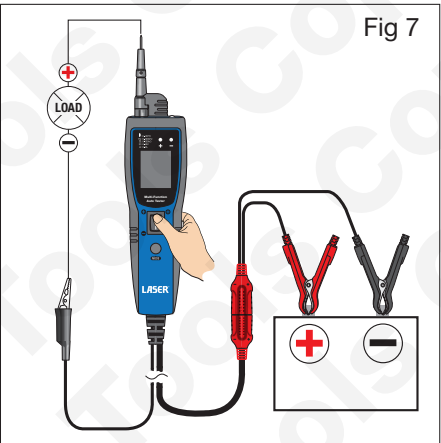


Fig 7

Providing Ground (Earth):

- 1. Refer to Figure 8: Connect the test probe to the negative of the test load and the auxiliary ground (earth) clip (K) to ground (earth) of the circuit. Press the power-probe supply switch (F) backward.
- 2. Refer to Figure 6: Read the current value (3) from the screen.

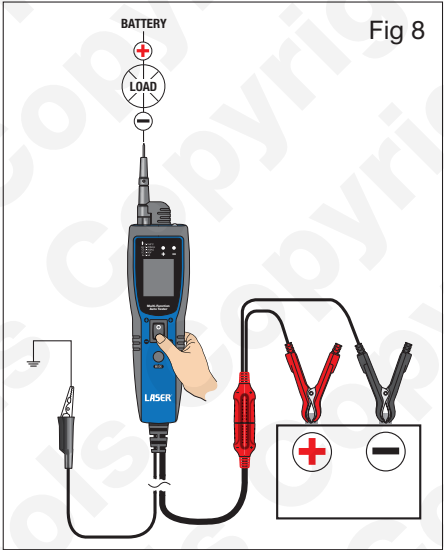


Fig 8

Accessories

Refer to Figure 9: As well as the standard test probe / thermocouple (D), the set is supplied with a wire-piercing probe (P) a long test probe (Q) and a separate thermocouple with flexible probe (N).

The wire-piercing probe (P) and long test probe (Q) are connected to the tester via the probe adaptor (O).

To fit the thermocouple with flexible probe (N), first remove the standard test probe / thermocouple (D).

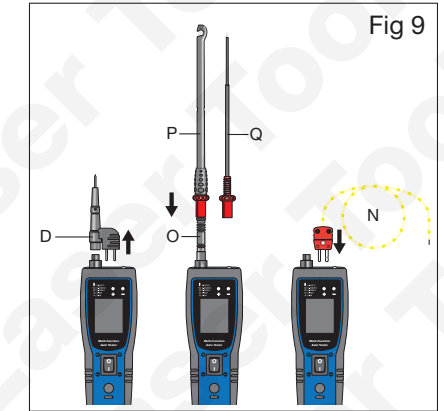


Fig 9

Precautions

- Always refer to instructions before use.
- When using the tester, please observe all normal safety precautions concerning protection against the dangers of electrical current.
- Do not use the test leads if they are damaged or the insulation or wires are bared in any way.
- Do not use the tester in a potentially explosive atmosphere or where flammable gases or material are present.
- Do not perform resistance or continuity tests on live circuits. Always disconnect the power when making resistance or continuity tests.
- Never apply voltage or current to the tester that exceeds the specified maximum as shown in the tables above.
- Always refit the test probe cover when finished with tester.
- Observe standard workshop safety procedures when using the tester.
- Do not let the tester get wet or use in damp or wet conditions.
- Dispose of device according to relevant local authority guidelines.



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If applicable, the applications database and any instructional information provided has been designed to offer general guidance for a particular tool's use and while all attention is given to the accuracy of the data no project should be attempted without referring first to the manufacturer's technical documentation (workshop or instruction manual) or the use of a recognised authority such as Autodata.

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