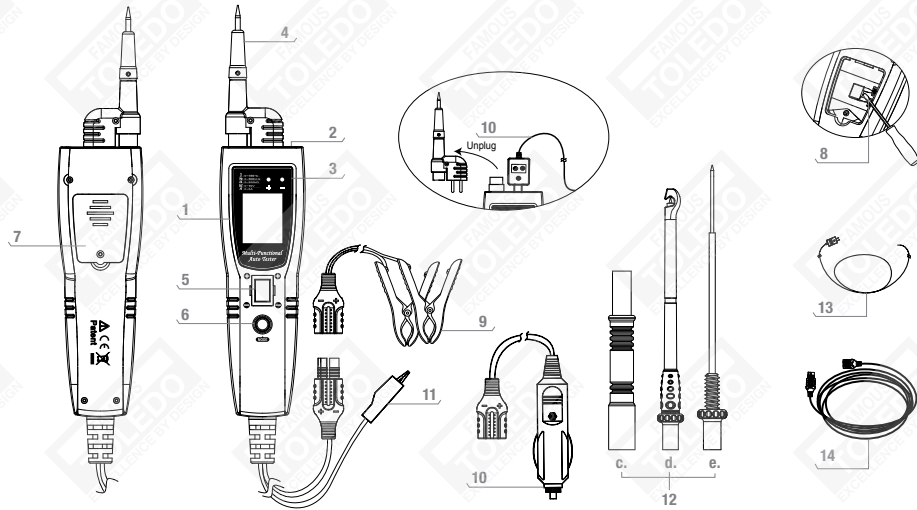


Product Description



Ref	Description	Function	Qty
1	LCD screen display	Main large LCD screen displays values	1
2	LED torch	Bright LED torch to assist in low light situations	1
3	Polarity indication light	Indicates polarity connectivity Red: Positive Green: Negative	1
4	Probe	Testing probe	1
5	Power button switch	When pressed it supplies either positive or negative current to the probe	1
6	Mode button	a. Short press: Switch measurement function b. Long press: Switch between °C and °F	1
7	Fuse cover	Remove cover to access fuse	1
8	Fuse	Fuse is supplied with 5A from factory Replace the fuse to your requirements if necessary The tester will use the minimum value to protect the circuit For Example. If the fixed auto recover fuse is 5A and the replaceable fuse is 10A, the current limitation will be 5A If the fixed auto recover fuse is 5A and the replaceable fuse is 1A, the current limitation will be 1A	1
9	Power supply clamps	Connect to 12v power supply terminals (550mm)	1
10	12v socket plug	Adaptor for connecting to 12v power supply socket (550mm)	1
11	Auxiliary ground connector	When connected to ground, this will allow you to use the probe in a positive state	1
12	Accessory	c. Extension (75mm) d. Wire piercing probe (200mm) e. Long testing probe (185mm)	1
13	K-Type thermocouple	Remove probe to connect thermocouple (1000mm)	1
14	Extension cable 6m	Connects between the unit and the power supply	1

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FAMOUS
TOLEDO
EXCELLENCE BY DESIGN

302193

Professional Multi-Function Circuit Tester 12-24 Volt User Guide

FAMOUS
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EXCELLENCE BY DESIGN

- The purpose of this multi-function tool is to assist in diagnosing electrical faults
- Professional circuit tester suitable for 12-24 volt electrical systems
- Suitable for voltage and polarity testing, continuity testing
- Supplies power and ground for function testing components
- Large LCD display
- Accessories included



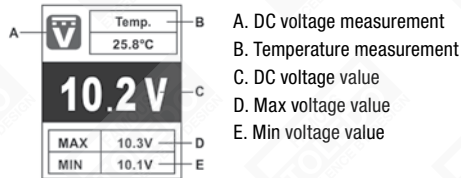
Important

- **WARNING!** Ensure all health and safety, local authority and general workshop practice regulations are adhered to when using these tools.
- **DO NOT** use tools if seals or threads are damaged. This may incur false readings and personal injury.
- Any defective seals **MUST** be replaced before use to avoid incorrect readings.
- Maintain the tools in good, clean condition for optimum performance.
- Ensure that a vehicle that has been jacked up is adequately supported with axle stands.
- Wear approved eye protection.
- Wear suitable clothing to avoid snagging, tie back long hair and **DO NOT** wear jewellery.
- Ensure fuel supply is isolated to prevent fire whilst engine is being tested.
- Ensure that the correct connector is used for the engine/ vehicle being tested.
- Always release the pressure from the gauge before disconnecting the quick release coupling.
- Account for all tools and parts being used and **DO NOT** leave them in or near the engine.
- **WARNING!** Select neutral or 'park' if automatic transmission and keep hands clear of the rotating engine.
- **IMPORTANT:** Always refer to the vehicle manufacturer's workshop manual, or a proprietary manual, to establish the current procedure and data.
- These instructions are provided as a guide only.
- When not in use, return all parts in the supplied case and store this in a safe, dry, childproof location.
- **WARNING!** The warnings, cautions and instructions referred to in this manual cannot cover all possible conditions and situations that may occur.
- It must be understood that common sense and caution are factors which cannot be built into this product, but must be applied by the operator.

How to use

- A short press of the MODE button will cycle through the functions menu between Voltage, Resistance, Current, AC Voltage and Frequency
- It is possible to use a power source directly from the vehicles battery terminals or battery terminal posts located in the engine bay on some vehicles when using the clamps
- Ensure the power supply has sufficient charge and is in a healthy state to avoid false results during testing
- Connect the red clamp to the positive terminal and black clamp to the negative terminal
- The auxiliary ground connector is used to connect directly on the terminal of the component or direct to ground when testing
- Be aware of the surroundings and safety of others, keep fingers, cables and tools away from moving parts when active testing components
- Always refer to the vehicle manufacturer's workshop manual for specific procedures and specifications

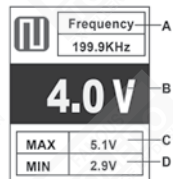
1. DC voltage measurement - external voltage test



1. Short press the mode button to cycle through the functions to DC voltage measurement
2. Connect the testing probe and auxiliary ground connector to the two polarity of the component to be tested
3. Read the voltage value from the screen
4. Read the max and min value
5. When the external K-type thermocouple sensor is connected to the unit, the temperature will be displayed on the LCD, It can also display the temperature via the probe (fig.1)

CAUTION: Do not press "Power supply activation switch" during DC measurement

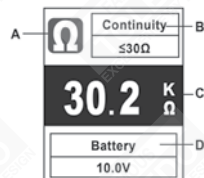
2. Signal frequency min/max voltage measurement



- A. Frequency measurement
- B. Average voltage value
- C. Max voltage value
- D. Min voltage value

1. Short press the mode button to cycle through the functions to frequency and voltage measurement
2. Connect the auxiliary ground connector to the negative terminal or ground, and probe the positive terminal
3. The average voltage value will be displayed on the screen
4. The min/max value will be displayed
5. The frequency value of current testing signal will be displayed

3. Resistance measurement



- A. Resistance measurement
- B. Max continuity value
- C. Resistance value
- D. Battery voltage

Note: In order to avoid an electrical hazard, completely disconnect the power connection and resistor

1. Short press the mode button to cycle through the functions to resistance measurement
2. Connect the testing probe and auxiliary ground connector to the two sides of the resistor, and read the value on the screen
3. Continuity Test: If the resistance is less than 30 ohms, a buzz will be audible and the negative polarity indicator will illuminate (green colour)
4. The battery voltage is displayed

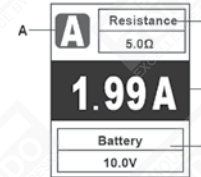
4. Component testing with power supply

This function can be activated any time when the power button switch is pressed (5)

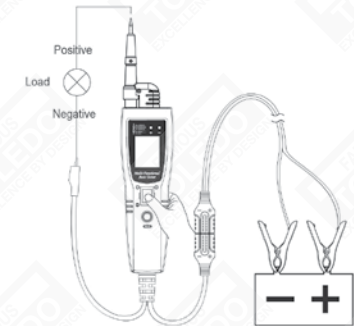
1. When the power button switch (5) is pressed to the positive (+) side, positive voltage will be sent to the probe and the LED will illuminate red
2. When the power button switch (5) is pressed to the negative (-) side, negative voltage will be sent to the probe and the LED will illuminate green

Note: The voltage output will depend on the voltage supplied to the unit. If the battery is 11.8v it will output 11.8v to the probe

5. DC current measurement



- A. Current measurement
- B. Resistance of testing object
- C. Current value
- D. Battery voltage



5.1 Component testing off vehicle

1. Short press mode button to cycle through the function to DC current measurement
2. Probe the positive terminal of the component being tested and connect the ground auxiliary cable to the negative terminal of the component. Press the power button switch to positive (+) to activate component
3. Read the current value on the screen
4. Read the resistance of testing object
5. Read the battery value

5.2 Component testing in vehicle

Note: Positive (+) power supply must be available to the component when testing in vehicle

1. Probe to the negative terminal on the component being tested, and connect the auxiliary ground connector to ground (within the same circuit). Press the power button switch to negative (-)
2. Read the current value on the screen



CAUTION

- If the short circuit protection has been activated, the PPC fuse will activate and reset
- It will self recover in 60 seconds
- Do not use the unit when the short circuit protection is activated as high temperatures may occur

TEMPERATURE MEASUREMENT

Temp. sensor	Testing temp.
Testing probe 4	$\le 150^{\circ}\text{C} / 302^{\circ}\text{F}$
Thermocouple 13	$\le 500^{\circ}\text{C} / 932^{\circ}\text{F}$

SPECIFICATIONS

Power source	12-24V DC
DC voltage measurement range	0-70V
DC current measurement range	0-5A
Frequency measurement range	0-300KHz (SQUARE WAVE)
Resistance measurement range	0-200K Ω
Working temperature	0-50 $^{\circ}\text{C}$
Storage temperature	-10-60 $^{\circ}\text{C}$
Working humidity	$\le 85\%$
Measured temperature range	-50-500 $^{\circ}\text{C} / -58-932^{\circ}\text{F}$

(ERROR will be displayed when tester is not connected with temperature probe)