

1.1 Introduction

- 160x128 TFT display
- Multi function key
- Transistor test area
- Zener Diode test area
- IR receiver window
- Micro USB Charging Interface
- Charge indicator LED

1.1 Features

TC-V2.12k is a TFT graphic display Multifunction Tester.

I Transistor Tester

- Automatic detection of zener diode 0.01-30V
- Self test with automatic calibration

I IR decoder

- Support Hitachi IR coding
- IR waveform display
- Infrared receiving instruction

I Other

- Measurement results using TFT graphic display(160x128)
- One key operation
- Auto Power Off(Timeout Settable)
- Built-in high capacity rechargeable Li-ion Battery
- Li-ion Battery voltage detection
- Support Chinese and English

Warning: Built-in Li-ion Battery, it is strictly prohibited the tester immersed in water, or near a heat source!

Warning: For your personal safety, please strictly comply with the use of Li-ion Battery specifications and precautions!

1 Operating

Instructions

1.1 Key operational definitions

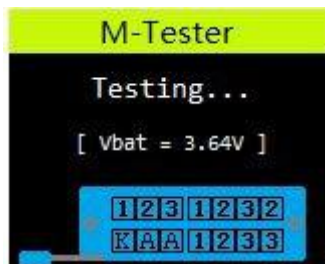
Multi-function key has two actions:

- | Short press: Press the key and not less than 10 ms, release key within 1.5 seconds
- | Long press: Press the key more than 1.5 seconds

1.2 Power on

In the power off state, short press the multifunction key, the tester is turned on and automatically measured.

- | Power on & measurement interface



1.3 Detect transistor

In the power off state or the test is completed, put the test element into the transistor test area of test seat, and press the locking handle, short press the multifunction key, the tester automatically measure, graphical display of measurement results when testing is complete.

Warning: Always be sure to **DISCHARGE** capacitors before connecting them to the tester! The tester may be damaged before you have switched it on!

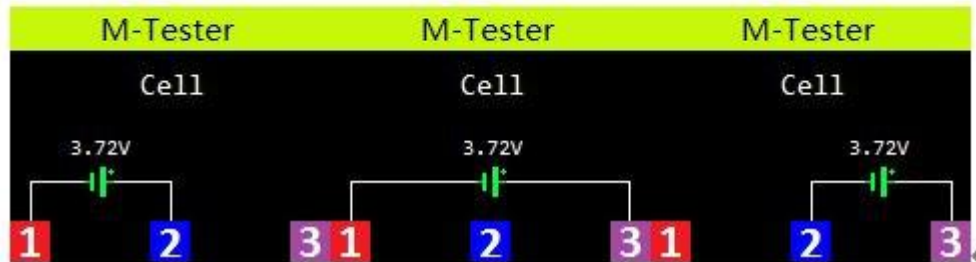
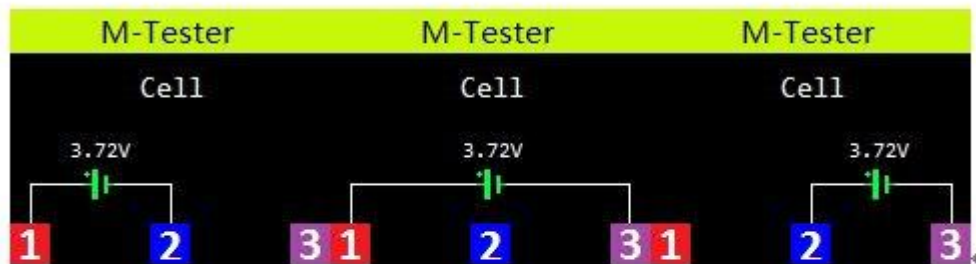
Warning: We do not recommend using the tester to measure the battery! The battery voltage must be less than 4.5V, otherwise the tester may be damaged!

- | Component placement

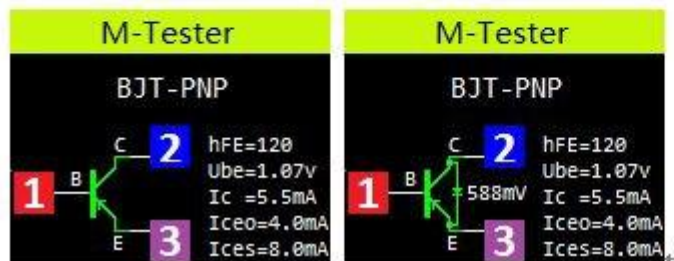
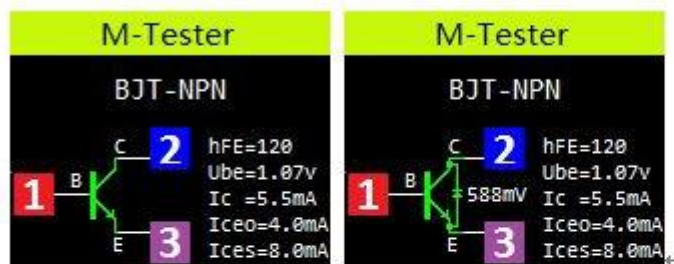
Test seat are divided into transistors and zener diode test area, detailed in 1.1 Description.

- | No, unknown, or damaged part

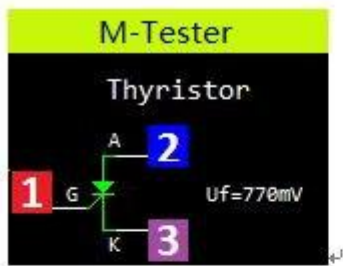
Battery



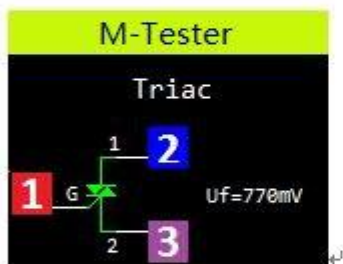
BJT(Bipolar Junction Transistor)



Thyristor↵



Triac↵



Capacitor↵



2.8 Built-in Li-ion Battery voltage measurement

The built-in Li-ion Battery voltage is measured before detection, when the battery voltage is less than 3.0V will force shutdown, then please charging.



2.9 Charging the Battery

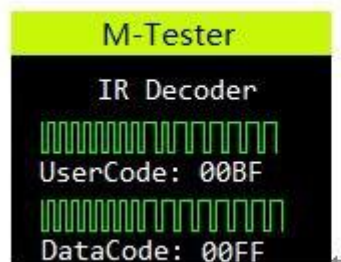
The tester has a standard Micro USB interface, please use an external 5V power supply or USB power charging.

2.6 IR decoder

After the component detection is completed, the infrared remote control at the tester "IR" test hole, press the remote control key, the tester will be display the user code & data code and the corresponding infrared waveform after the successful decoding.

If decoding failure, the tester cannot display the user code and data code.

The dot at the top right corner to indicate whether it has received the remote control infrared data, red represents infrared data is being received, blue represents decoding success.



The main performance parameters are as follows:

Component	Range	Parameter Description
BJT	-	hFE(DC Current Gain), Ube(Base-Emitter Voltage), Ic(Collector Current), Iceo(Collector Cut-off Current (IB=0)), Ices(Collector short Current), Uf(Forward Voltage of protecting diode) ③
Diode	Forward Voltage <4.50V	Forward Voltage, Diode Capacitance, Ir(Reverse Current) ②
Double Diodes		Forward Voltage
Zener Diode	0.01-4.50V (Transistor test area)	Forward Voltage, Reverse Voltage
	0.01-30V (Zener Diode test area)	Reverse Voltage
MOSFET	JFET	Cg(Gate Capacitance), Id(Drain Current) at Vgs(Gate to Source Threshold Voltag), Uf(Forward Voltage of protecting diode) ④
	IGBT	Id(Drain Current) at Vgs(Gate to Source Threshold Voltage), Uf(Forward Voltage of protecting diode) ④
	MOSFET	Vt(Gate to Source Threshold Voltage), Cg(Gate Capacitance), Rds(Drain to Source On Resistance), Uf(Forward Voltage of protecting diode) ④
Thyristor	Igt(Gate trigger current)<6mA	Gate trigger voltage
Triac		
Capacitor	25pF-100mF	Capacitance, ESR(Equivalent Series Resistance), Vloss ①
Resistor	0.01-50MΩ	Resistance
Inductor	0.01mH-20H	Inductance, DC Resistance ⑤
Battery	0.1-4.5V	Voltage, Battery Polarity