

This Multifunctional tester and meter, can be used as school teaching objects!

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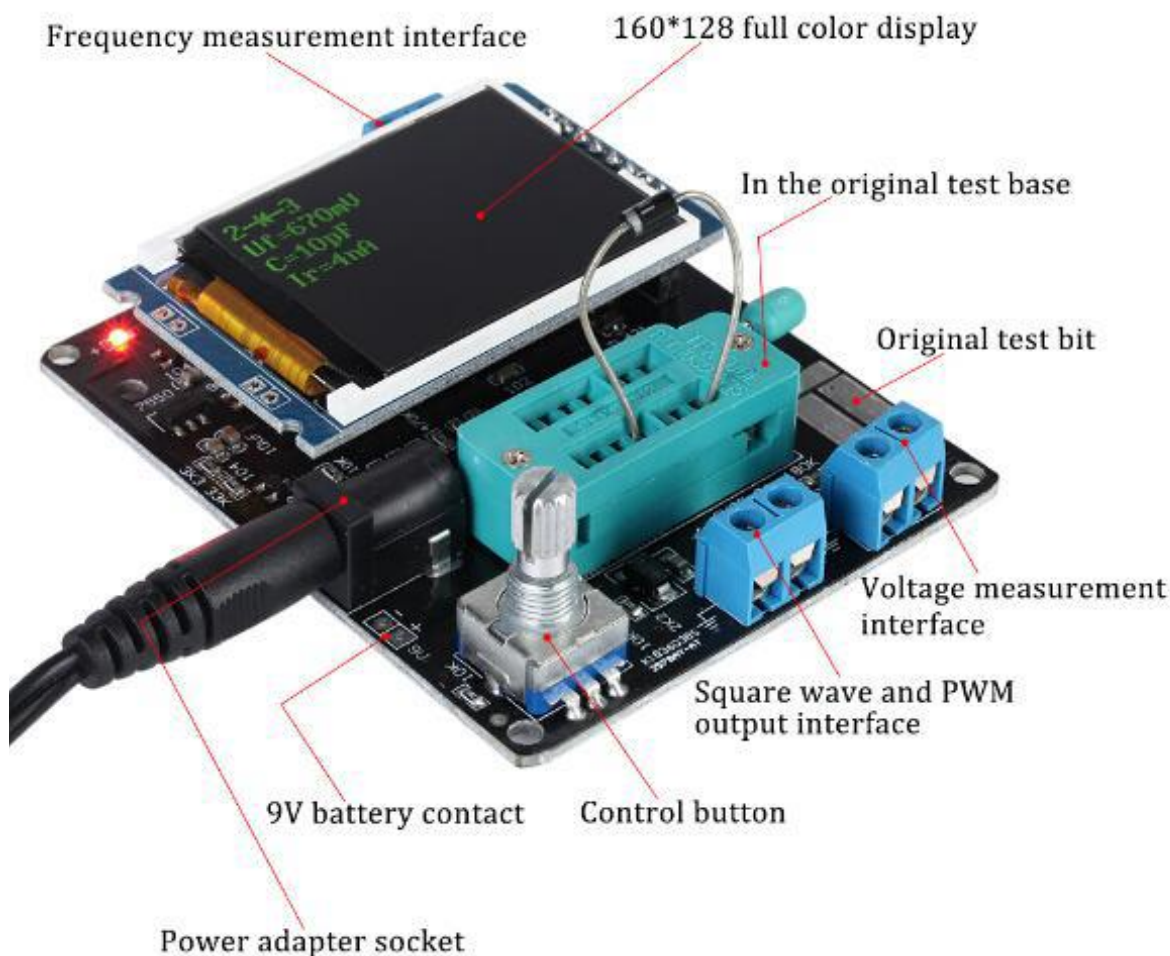
1.1 The Transistor Tester instructions:

Input voltage: DC6.8V-12V (Recommended power supply is 9Vdc)

The operating current is about 30mA, input a minimum of 7.5V DC voltage to start the actual measurements.

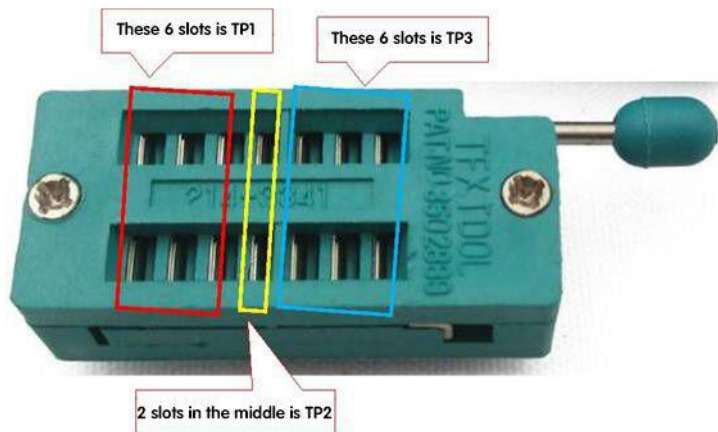
1.1.1 Transistor tester control

The tester is controlled by a rotary encoder switch. The rotary-encoder-switch has 4 kinds of Operation; short press, long press, left rotation and right rotation. Short press once to turn on the power and start a test. Long press the switch or left and right rotary enters the function menu. Rotate left or right switch selects menu items up or down. Enter a certain function through short press the button. Long press the button when you need to exit.



1.1.2 Test the devices

Test bench has a total of 3 test points TP1,TP2,TP3. The Bench layout is as follows:



The test positions TP1,TP2,TP3 are used to test diodes, capacitors, resistors, transistors, fets, etc..

For 2 lead components, use TP1 and TP3, for 3 lead components use TP1, TP2, TP3. The consecution of the leads of a component does not matter. The Tester automatically detects the pins and shows it on the display.

Note:

Discharge Capacitors before testing, if not, the single chip microcomputer is likely to be damaged.

1.1.3 Calibration

Tester calibration is used to eliminate the error of their components to make the final test result more accurate. Calibration can be done as: fast calibration or full function calibration.

Fast calibration method of operation:

Three test points TP1, TP2 and TP3 should be connected by a wire, then press the test button and watched the screen at the same time. Screen color will become black and white word, after the prompt message appears "Selftest mode..?", click the test button to enter into the rapid calibration process.

After the prompt message appears "Selftest mode..?", a normal test procedure is carried out if no buttons action for about 2 seconds. The last show resistance value of wire where short connect TP1, TP2, TP3 three test point. After entering the rapid calibration process, there are will be some data on the screen, you don't have to deal with it. Wait until the flashing string appears on the screen "Probes isolate!", remove the short connect TP1, TP2, TP3. Until a string appears on the screen "End Test", quick calibration has finished.

Please use full function calibration method for the first time calibration.

Full function calibration needs to be entered from the menu and also need to prepare a 220nf capacitor. Full function calibration is to perform a more comprehensive calibration process and will take longer. After entering the function menu, rotate the test button into the menu item "Selftest", then press the test button to enter the full function calibration process.

First thing appeared on the display flashing string "short Probes!", three test points are

Connected again by a wire, and wait the calibration process is carried out. When the display flashes the string "isolate Probes!", remove the short wires connected to the three test points, continue to wait for the calibration process to carry out. When the screen appears "1-||-3 > 100nF", 220nf capacitors are installed in the test point TP1 and TP3. Until a string appears on the screen "End Test", quick calibration has finished.

1.1.4 Function menu

- 1. Switch off;**
- 2. Transistor;** Transistor test, which is the default function after booting.
- 3. Frequency:** Measuring frequency
- 4. f-Generator:** Square wave generator, there are multiple square wave frequency's that can be selected. Switch the different square wave frequency by left- or right rotation on the button. Long press the button to exit the square wave generator.
- 5. 10-bit PWM:** Pulse signal generator, adjust pulse duty cycle by the left- or right rotation button, from 1% to 99%. Long press the button to exit the pulse signal generator.
- 6. C+ESR@TP1-3:** Capacitance measurement function on line, two wires can be drawn from TP1 and TP3. Inline measurement of the capacitance value and ESR for the 2uF-50mF capacitor. Note that capacitors to be measured, must be fully discharged before the test, if it is a measurement inline, the measured circuit needs to be cut off power!
- 7. 1-||-3:** Continuous measurement of resistance. Constant testing that the resistance and inductance values installed on TP1 and TP3. The inductance will be measured when the measured resistance is less than 2100 ohm, Inductance measurement range from 0.01mH to 20H. Long press the button to exit.
- 8. 1-||-3:** Continuous measurement of capacitance. Constant testing of capacitance value on TP1 and TP3. For small capacity capacitors, we can get the measured capacitance value only in this way. For capacitor with greater than 90nF, measuring its equivalent series resistance (ESR), ESR resolution 0.01Ω. The capacitor is above in 5000pF shows the voltage drop rate.
- 9. Rotary encoder:** Rotary encoder detection, can test the coding value of the three wire rotary encoder switch.
- 10. Self-Test:** Full function calibration function.
- 11. Voltage:** DC voltage measurement, the maximum voltage is 50V.
- 12. Front Color:** Set foreground characters color with left- or right rotation of button can change the value of the corresponding color component. Short press the button to change the red, green and blue three base colors. After the setup is complete, press the button to save and exit. Be careful not to set the foreground color and background color to the same color! If this happens, shut down immediately and then perform a quick calibration, display-colors will turn into a black background with white foreground.
- 13. Back Color:** The method is same as set foreground, just this is the background color modified.
- 14. Show date:** Display internal date of the tester.

Happy Testing!