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› FNIRSI DSO-TC3 Oscilloscope - 3-in-1 Handheld Oscilloscope & DDS Signal Generator & Transistor Tester, 500Khz Bandwidth 10MSa/s Sampling Rate, 6 Types of Waveforms, Transistors Measure

FNIRSI DSO-TC3

FNIRSI DSO-TC3 User Manual

3-IN-1 HANDHELD OSCILLOSCOPE, DDS SIGNAL GENERATOR & TRANSISTOR TESTER

1. INTRODUCTION

The FNIRSI DSO-TC3 is an ingeniously designed, multi-functional handheld instrument that combines the capabilities of a digital oscilloscope, an electronic component tester, and a function signal generator. Equipped with a clear 2.4-inch TFT display and a built-in rechargeable lithium battery, this device is an essential tool for electronics enthusiasts, students, and professionals alike. Its compact size and comprehensive features make it ideal for various applications, from DIY learning to appliance repair and on-site commissioning.



Figure 1.1: FNIIRSI DSO-TC3 and its accessories.



Figure 1.2: Overview of the 3-in-1 functionality.

2. SETUP

2.1. Charging the Device

The DSO-TC3 comes with a built-in rechargeable lithium battery. To charge the device, connect a standard USB Type-C cable to the charging port located on the side of the unit. A full charge ensures extended operation time.

2.2. Initial Power On

Press and hold the power button to turn on the device. The TFT display will illuminate, showing the main menu or the last used function. Ensure the device is adequately charged for optimal performance.

3. OPERATING INSTRUCTIONS

3.1. General Navigation

The device features intuitive controls for easy navigation:

- **OK/Menu Button:** Press to confirm selections or access the main menu.
- **Run Button:** Initiates a test or measurement.
- **Hold Button:** Pauses the current display or measurement.
- **Directional Buttons (Up/Down/Left/Right):** Navigate through menu options and adjust parameters.

3.2. Oscilloscope Function (DSO)

The digital oscilloscope mode allows for the visualization and analysis of electrical signals. It boasts a 10 MS/s real-time sampling rate and a 500 kHz analog bandwidth. The one-key AUTO function simplifies waveform display without complex

adjustments.

- **Real-time sampling rate:** 10MS/s
- **Analog Bandwidth:** 500KHz
- **Input resistance:** 1M Ω
- **Coupling:** AC/DC
- **Test voltage range:** 400V
- **Vertical Sensitivity (x1):** 10mV-10V
- **Horizontal time base range:** 1us-10s
- **Trigger mode:** Auto / Normal / Single
- **Trigger type:** Rising edge / Falling edge
- **Waveform Freeze:** Yes
- **Automatic measurement:** Yes



Figure 3.1: Digital Oscilloscope capabilities.

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Video 3.1: Demonstration of the FNIRSI DSO-TC3 Handheld Oscilloscope in use.

3.3. Transistor Tester Function (M-Tester)

The transistor tester mode is designed to identify and measure various electronic components automatically. It supports NPN and PNP transistors, N-channel and P-channel field-effect transistors (FETs), JFETs, IGBTs, diodes, double diodes, thyristors, resistors, inductors, and capacitors. It also features automatic detection of pin definitions and can analyze NEC protocol infrared codes.

- **Automatic Identification:** Recognizes various transistor types and passive components.
- **Pin Definition:** Automatically detects and displays pin configurations.
- **Component Testing:** Measures capacitance (25pF-100mF), resistance (0.01 Ω -50M Ω), and inductance (10uH-

1000uH).

- **Infrared Code Analysis:** Automatically analyzes NEC protocol infrared codes.

Function introduction of transistor detector

TRANSISTOR TESTER

- ▶ Automatically identify and measure various transistors, including NPN and PNP triode, N-channel and P-channel mosfet, JFET, diodes, double diodes, thyristors, as well as resistors, inductors, capacitors, etc. passive components.
- ▶ Automatic detection of pin definitions.

**CAPACITANCE
RESISTANCE
INDUCTANCE
DETECTION**



**TRIODE
DETECTION**



**DIODE
DETECTION**



**MOSFET
DETECTION**



Figure 3.2: Transistor Tester capabilities.

DETECT WHAT YOU DETECT

DETECT PROBLEM ACCURATELY

Basically meet the needs of all component detectors



Figure 3.3: Accurate component detection.

3.4. Function Signal Generator (DDS)

The DDS function allows the generation of various waveforms for testing and calibration purposes. It supports six types of waveforms with adjustable frequency, amplitude, and duty cycle.

- **Waveforms:** Sine, Square, Pulse, Triangle, Ramp, DC.
- **Output Frequency:** Adjustable from 1-100KHz.
- **Output Duty Ratio:** Adjustable from 0-100%.
- **Output Voltage:** Adjustable 3.3V.

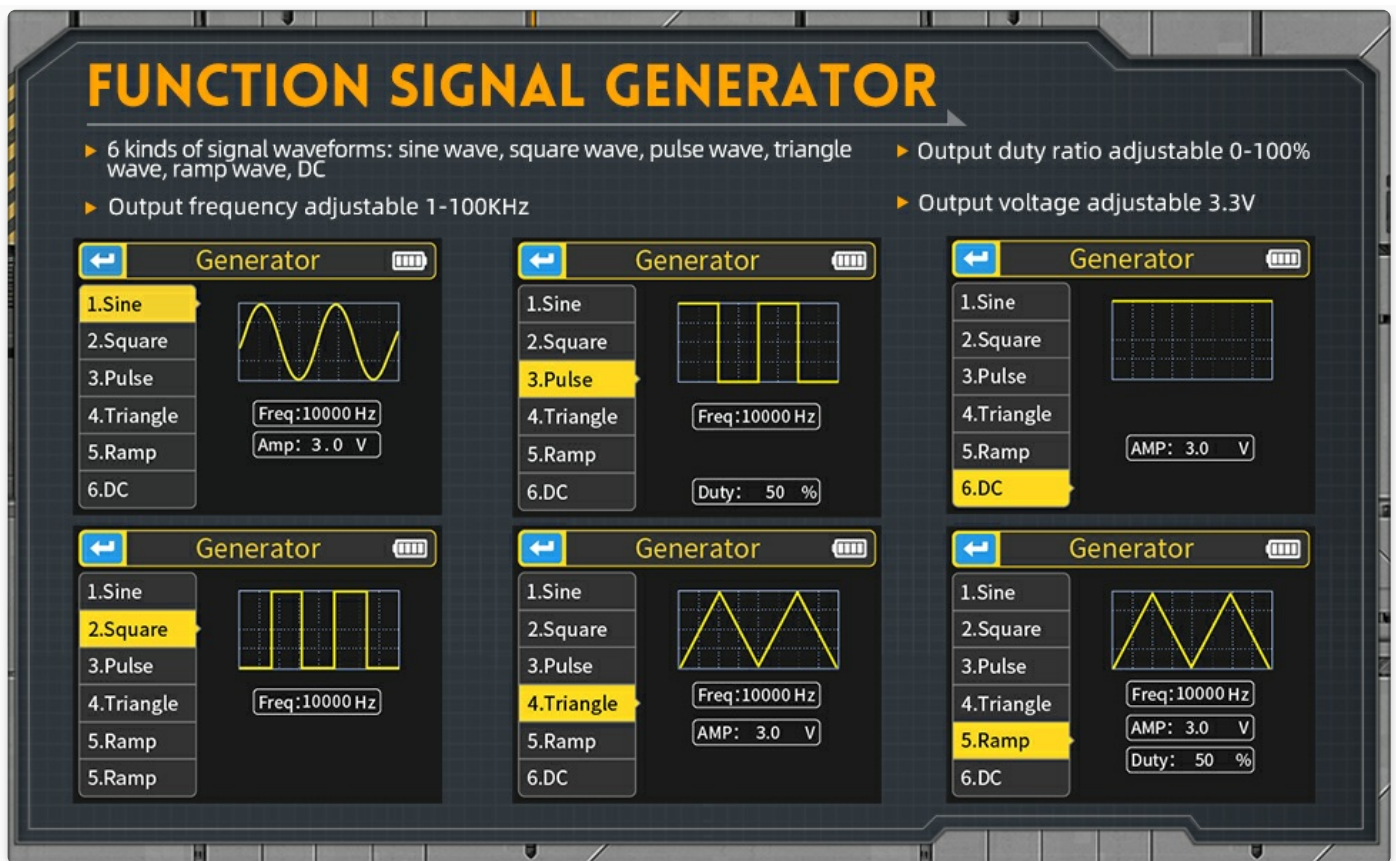


Figure 3.4: Function Signal Generator capabilities.

Your browser does not support the video tag.

Video 3.2: Demonstration of the DSO-TC3 oscilloscope's signal generation function.

3.5. Tool Box (Other Functions)

The DSO-TC3 includes a 'Tool Box' mode with several additional useful functions:

- **Circuit Continuity Test:** Checks for open or closed circuits.
- **0-40V Input Voltage Measurement:** Measures DC voltage within the specified range.
- **PWM Output:** Generates Pulse Width Modulation signals.
- **0-32V Regulated Diode Measurement:** Tests regulated diodes.
- **DS18B20 Temperature Sensor Measurement:** Reads temperature from DS18B20 sensors.
- **DHT11 Temperature and Humidity Sensor Measurement:** Reads temperature and humidity from DHT11 sensors.
- **IR Decode:** Automatically analyzes NEC protocol infrared codes.

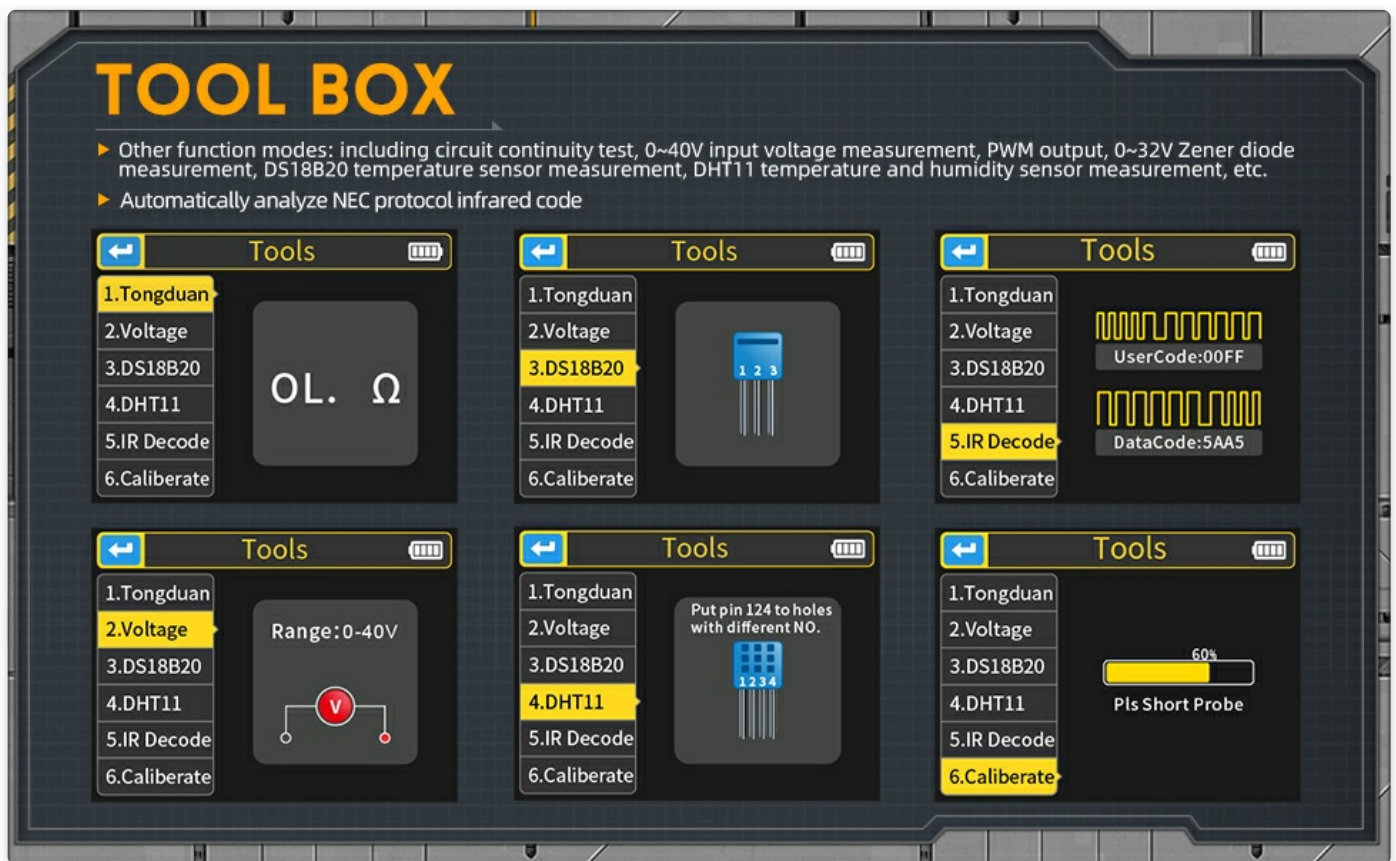


Figure 3.5: Tool Box functions.

4. MAINTENANCE

To ensure the longevity and optimal performance of your FNIRSI DSO-TC3, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the device. Avoid using abrasive cleaners or solvents that could damage the casing or screen.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.
- **Battery Care:** Recharge the built-in lithium battery regularly, even if the device is not in frequent use, to maintain battery health. Avoid fully discharging the battery for extended periods.
- **Handling:** Handle the device with care to prevent drops or impacts, which could damage internal components or the display.

5. TROUBLESHOOTING

If you encounter any issues with your DSO-TC3, consider the following common troubleshooting steps:

- **Device Not Powering On:** Ensure the battery is sufficiently charged. Connect the device to a power source using the USB Type-C cable and try again.
- **Inaccurate Measurements:** Verify that all connections are secure and correct for the function being used. Ensure probes are properly calibrated if applicable.
- **Display Issues:** If the screen is unresponsive or shows anomalies, try restarting the device. If the issue persists, contact customer support.
- **Component Not Recognized by Tester:** Ensure the component is correctly inserted into the test sockets. Some components may require specific pin configurations.
- **No Signal on Oscilloscope:** Check probe connections and ensure the signal source is active and within the device's measurement range. Adjust trigger settings if necessary.

For more complex issues or persistent problems, refer to the detailed user manual (PDF) or contact FNIRSI customer support.

6. SPECIFICATIONS

Feature	Value
Package Dimensions	7.87 x 5.79 x 4.17 inches; 15.84 ounces
Item Model Number	DSO-TC3
Batteries	1 Lithium Polymer batteries required (included)
Date First Available	February 9, 2023
Manufacturer	FNIRSI
ASIN	B0BV9X733J
Country of Origin	China
Display	2.4 Inch TFT display
Oscilloscope Sampling Rate	10 MS/s
Oscilloscope Bandwidth	500 kHz
Function Generator Waveforms	Sine, Square, Pulse, Triangle, Ramp, DC
Function Generator Output Frequency	1-100KHz
Function Generator Output Voltage	3.3V
Transistor Tester Capacitance Range	25pF - 100mF
Transistor Tester Resistance Range	0.01Ω - 50MΩ
Transistor Tester Inductance Range	10uH - 1000uH
Input Voltage Measurement	0-40V

7. WARRANTY AND SUPPORT

For detailed warranty information and technical support, please refer to the official User Manual (PDF) provided with your product. You can also find the digital version of the manual at the following link: [User Manual \(PDF\)](#).

For further assistance, please contact FNIRSI Technology customer service. Keep your purchase receipt and product model number (DSO-TC3) handy when seeking support.

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ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question

and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question