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DEWIN DSO510

DEWIN DSO510 Portable Oscilloscope and Signal Generator Instruction Manual

Model: DSO510

1. Introduction

The DEWIN DSO510 is an advanced 2-in-1 portable oscilloscope and signal generator, designed for a wide range of applications including electronic repair, automotive diagnostics, DIY learning, and outdoor electrical testing. It features a 10 MHz bandwidth and a 48 MSa/s sampling rate, capable of measuring voltages up to 400V. This device is an upgraded version of the DSO152, offering enhanced performance and user-friendly features.

2. Product Overview

The DSO510 combines the functionalities of an oscilloscope and a signal generator in a compact, handheld design. It features a 2.8-inch high-definition LCD screen with a 320 x 240 resolution for clear waveform display.

Key Features:

- **High Performance:** 10 MHz bandwidth and 48 MSa/s sampling rate.
- **Wide Voltage Range:** Measures up to 400V.
- **Signal Generator:** Outputs 13 types of waveforms with a maximum frequency of 50 KHz.
- **Intuitive Display:** 2.8-inch TFT LCD screen (320x240 resolution).
- **Comprehensive Trigger Functions:** Single, Normal, and Automatic modes.
- **One-Button AUTO Function:** Automatically optimizes measurement parameters.
- **Long Battery Life:** Built-in 1000 mAh rechargeable lithium battery provides approximately 4 hours of continuous use.
- **Data Management:** Supports horizontal display, infinite persistence, zoom, pause, shift, and waveform image saving/export.
- **Type-C Interface:** For charging and firmware updates.

Components:

The device includes the main unit, probes, a Type-C charging cable, and a user manual.



Figure 1: The DEWIN DSO510 Oscilloscope, showcasing its compact size and clear display while being held.

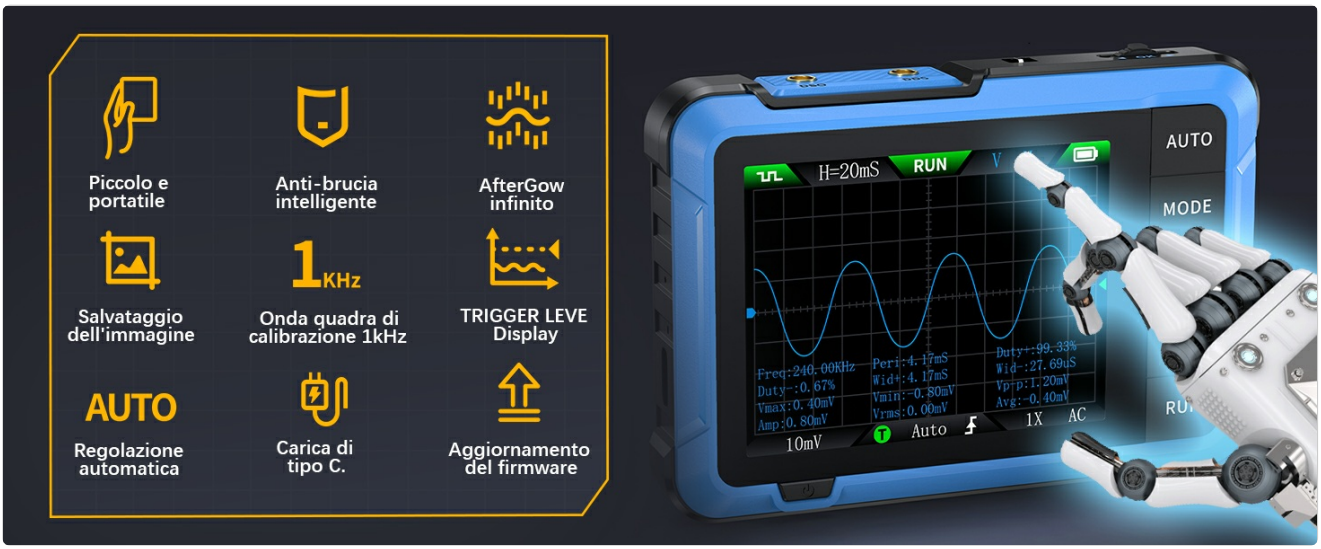


Figure 2: An overview of the DSO510's features, including its small size, anti-burn protection, infinite afterglow, image saving, 1kHz

square wave output, trigger level display, automatic adjustment, Type-C charging, and firmware update capability.

3. Setup

1. **Charging:** Before first use, fully charge the device using the provided Type-C USB cable and a 5V/1A power adapter. The charging indicator will show the charging status.
2. **Connecting Probes:** For oscilloscope measurements, connect the oscilloscope probe to the BNC connector on the device. For signal generation, connect the appropriate leads to the signal generator output.
3. **Power On/Off:** Press and hold the power button to turn the device on or off.



Figure 3: Illustrates the 1000mAh rechargeable battery and the DDS signal generator's capability to produce 13 types of waveforms.

4. Operating Instructions

The DSO510 features a user-friendly interface with dedicated buttons for various functions. The main controls include:

- **AUTO Button:** Automatically optimizes measurement parameters for quick setup.
- **MODE Button:** Switches between different modes or settings.
- **Up/Down Arrows:** Navigates menus and adjusts values.
- **RUN Button:** Starts or pauses waveform acquisition.
- **Function Wheel:** For fine-tuning parameters.

Video 1: A demonstration of the DEWIN 2C53T Oscilloscope, showcasing its various functions and button operations. This video provides a visual guide to navigating the device's interface and utilizing its features for measurement and analysis.

5. Signal Generator Function

The built-in signal generator can produce 13 types of waveforms, including sine, square, sawtooth, half-wave, full-wave, step wave, anti-step wave, noise wave, exponential rise, exponential drop, DC signal, multi-tone, Sink pulse, and Lorentz wave. This allows for diverse signal simulation requirements.

- **Waveform Selection:** Use the menu to select the desired waveform type.
- **Frequency Adjustment:** Adjust the output frequency up to 50 KHz.
- **Amplitude and Duty Cycle:** Fine-tune the amplitude (0.1-3.3V) and duty cycle (0-100% for rectangular and sawtooth waves) as needed.



Figure 4: Highlights the precise control capabilities for signal generation and the device's exquisite, portable design that fits in hand.

6. Oscilloscope Function

The oscilloscope mode allows for detailed analysis of electrical signals. It supports various trigger functions and display options.

- **Trigger Modes:** Choose between Single, Normal, or Automatic trigger modes to capture periodic analog signals and non-periodic digital signals effectively.
- **Coupling:** Select AC or DC coupling based on your measurement needs.
- **Vertical Sensitivity:** Adjust the vertical scale (10mV/Div-10V/Div) to fit the signal on the screen.
- **Time Base Range:** Adjust the horizontal scale (50ns-20s) to view different time durations of the waveform.
- **Waveform Analysis:** Utilize features like zoom, pause, shift, and infinite persistence to accurately capture and analyze signal characteristics.



Figure 5: Provides insights into waveform analysis, showing detection of mains voltage, pulse signals, power ripple, and other waveform measurements.

Video 2: A detailed demonstration of the DEWIN 2C53P Oscilloscope, highlighting its oscilloscope and multimeter functions, including how to adjust settings and interpret readings.

7. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the device. Avoid using abrasive cleaners or solvents.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.
- **Battery Care:** Recharge the battery regularly, even if not in use, to maintain its lifespan. Avoid fully discharging the battery for extended periods.
- **Firmware Updates:** Periodically check the manufacturer's website for firmware updates to ensure optimal performance and access to new features.

8. Troubleshooting

- **Device not powering on:** Ensure the battery is sufficiently charged. Connect the device to a power source using the Type-C cable.
- **No waveform displayed:** Check probe connections. Ensure the trigger mode and sensitivity settings are appropriate for the signal being measured. Use the AUTO function to quickly adjust parameters.
- **Inaccurate readings:** Verify probe calibration. Ensure correct coupling (AC/DC) and voltage range settings.
- **Difficulty with operation:** Refer to the button functions and panel introduction sections of this manual. For complex issues, contact DEWIN customer support.

9. Specifications

Feature	Specification
Brand	DEWIN
Model	DSO510
Bandwidth	10 MHz
Sampling Rate	48 MSa/s
Time Base Range	50 ns - 20 s
Max Input Voltage	400V
Display	2.8-inch TFT LCD (320 x 240)
Battery Capacity	1000 mAh (approx. 4 hours continuous use)
Charging Interface	Type-C (5V/1A)
Signal Generator Waveforms	13 types
Signal Generator Max Frequency	50 KHz
Dimensions	9.9 x 6.9 x 2 cm
Weight	290 grams

10. Warranty and Support

For warranty information, technical support, or any quality issues, please contact DEWIN customer service. Keep your purchase receipt as proof of purchase. Do not attempt to repair the device yourself, as this may void the warranty.

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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.

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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.

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