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› [MAXRIENY](#) /

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Model: O2 Digital Oscilloscope

Brand: MAXRIENY

1. INTRODUCTION

This manual provides comprehensive instructions for the operation, maintenance, and troubleshooting of the MAXRIENY O2 Digital Oscilloscope. This device is a versatile 2-in-1 tool, combining a dual-channel 50MHz oscilloscope with a signal generator, designed for accurate signal acquisition and waveform display.

Key Features:

- Dual Channel 50MHz Oscilloscope with 250MSa/s real-time sampling rate.
- Integrated Signal Generator capable of producing 7 types of waveforms.
- 3.98-inch TFT full-view angle touchscreen for intuitive operation.
- Supports Chinese and English language switching.
- Data transfer, storage, preview, and export capabilities.
- Long-lasting 3000mAh lithium battery.
- Compact, ultra-thin body with soft silicone cover for durability.

2. PACKAGE CONTENTS

Verify that all items listed below are included in your package:

- 1 × O2 Dual-Channel Oscilloscope
- 2 × Oscilloscope Probes
- 1 × USB Type-C Data Cable
- 1 × EVA Storage Bag
- 1 × User's Manual

- 1 × Regulating Rod
- 8 × Color Rings



Figure 2.1: O2 Digital Oscilloscope and its complete set of accessories, including probes, USB cable, storage bag, and user manual.

3. PRODUCT OVERVIEW

The O2 Digital Oscilloscope features a user-friendly design with a responsive touchscreen and intuitive controls.

3.1 Device Layout

50MHz dual-channel touch oscilloscope



Figure 3.1: The O2 Digital Oscilloscope in an operational setting, showcasing its 50MHz dual-channel touch display and compact form factor.



Figure 3.2: A detailed view of the 3.98-inch full-view TFT touchscreen, highlighting its touch-sensitive interface for easy navigation and data interaction.

3.2 Power and Charging

The device is powered by a built-in 3000 mAh lithium-ion battery, providing extended operational time. Charging is facilitated via the Type-C interface, which also supports data transfer.

Long-range battery life 3000 mAh Li-ion.battery



Figure 3.3: The oscilloscope connected to a power source via its Type-C port, illustrating its long-range battery life and convenient charging capability.

4. SETUP

4.1 Initial Charge

Before first use, fully charge the oscilloscope using the provided USB Type-C cable and a compatible power adapter (not included). The charging indicator will show progress.

4.2 Attaching Probes

Connect the oscilloscope probes to the BNC connectors labeled "OSC 1" and "OSC 2" on the top of the device. Ensure a secure connection by twisting the probe connector until it locks into place.

4.3 Powering On/Off

Press and hold the power button located on the side of the device to power on or power off the oscilloscope. A short press

will typically toggle the screen or enter/exit standby mode.

5. OPERATING INSTRUCTIONS

This section details the primary functions and modes of the O2 Digital Oscilloscope.

5.1 Basic Operation and Navigation

The device features a touchscreen interface for most operations. Use the function wheel on the side for fine adjustments or menu navigation where applicable.

Your browser does not support the video tag.

Video 5.1: Demonstrates various operational aspects of the O2 handheld oscilloscope, including power on/off, probe connection, waveform display, and menu navigation.

5.2 Oscilloscope Mode

The oscilloscope mode allows for real-time waveform display and analysis.

- **Automatic Measurement:** Press the **AUTO** button for one-button automatic setting of all parameters to display measured waveforms. Long press the AUTO button to quickly calibrate the baseline.
- **Trigger Function:** Utilize the full trigger function (Auto/Normal/Single) to capture specific waveform events.
- **Vertical Sensitivity:** Adjust the vertical sensitivity (20mV/div-10V/div) to scale the waveform vertically.
- **Horizontal Sampling Rate:** Adjust the horizontal sampling rate (1.5Sa/s-250MSa/s) to control the time base.
- **Display Mode:** Switch between XT, XY, and Scroll display modes as needed for different analysis requirements.
- **Afterglow Time:** Configure the afterglow time (min, 500ms, 1s, 10s, unlimited) to observe waveform persistence.

5.3 Signal Generator Mode

The built-in signal generator can output various waveforms.

- **Waveform Types:** Generate Sine, Square, Triangle, Half, Full, Ramp, and DC waveforms.
- **Frequency Range:** Set the frequency from 0Hz to 2MHz.
- **Output Amplitude:** Adjust the output amplitude from 0.1V to 3.0V.
- **Square Wave Duty Cycle:** For square waves, adjust the duty cycle from 1% to 99%.

5.4 Data Storage and Export

The oscilloscope supports storing previewed data and exporting it for further analysis.

Data storage and export



Figure 5.1: The oscilloscope connected to a laptop via its Type-C port, demonstrating its data storage and export capabilities for waveform analysis.

6. MAINTENANCE

6.1 Cleaning

To clean the device, use a soft, dry cloth. For stubborn dirt, a slightly damp cloth with mild soap can be used, ensuring no liquid enters the device openings. Do not use abrasive cleaners or solvents.

6.2 Storage

When not in use, store the oscilloscope in its EVA storage bag to protect it from dust, moisture, and physical damage. Store in a cool, dry place away from direct sunlight and extreme temperatures.



Figure 6.1: The compact design of the O2 Digital Oscilloscope, easily fitting into a pocket, emphasizes its portability and ease of storage.

7. TROUBLESHOOTING

If you encounter issues with your O2 Digital Oscilloscope, refer to the following common problems and solutions:

- **Device does not power on:**

- Ensure the battery is sufficiently charged. Connect the device to a power source using the USB Type-C cable.
- Press and hold the power button for at least 3 seconds.

- **No waveform displayed:**

- Check if probes are securely connected to the BNC inputs.
- Verify that the input signal is within the device's measurement range.
- Press the **AUTO** button to automatically adjust settings.

- Ensure the correct channel (CH1 or CH2) is enabled on the display.

- **Waveform is unstable or noisy:**

- Check probe connections for looseness.
- Ensure proper grounding of the circuit being tested.
- Adjust the trigger settings (level, mode) to stabilize the waveform.
- Consider the probe attenuation setting (x1 or x10) and ensure it matches the device setting.

- **Touchscreen is unresponsive:**

- Restart the device by powering it off and on again.
- Ensure the screen is clean and free of debris.

If the issue persists after attempting these solutions, please contact customer support.

8. SPECIFICATIONS

Feature	Specification
Display	3.98 inches with resistance touch TFT LCD screen
Bandwidth	50MHz dual-channel real-time sampling
Real-time Sampling Rate	250MSa/s
Number of Channels	2 channels DC AC
Input Impedance	1MΩ, @16pF
Probe Attenuation	×1, ×10
Maximum Input Voltage	×1 range <150V, ×10 range <300V (DC + AC peak)
Horizontal Sampling Rate Range	1.5Sa/s-250MSa/s
Vertical Sensitivity	20mV/div-10V/div
Automatic Measurement	Period, frequency, peak-to-peak, maximum value, minimum value, duty cycle, root mean square
Display Mode	XT, XY, Scroll
Afterglow Time	min, 500ms, 1s, 10s, unlimited
Signal Generator	
Waveform Type	Sine, Square, Triangle, Half, Full, Ramp, DC
Frequency Range	0Hz-2MHz
Output Channel	1

Feature	Specification
Output Amplitude	0.1V-3.0V
Minimum Resolution	1Hz
Square Wave Duty Cycle	1%-99%
Size	170.0 × 80.9 × 23.9mm
Weight	268g
Battery	3000 mAh Lithium-ion battery

9. WARRANTY AND SUPPORT

9.1 Warranty Information

This product comes with a standard manufacturer's warranty. Please refer to the warranty card included in your package or contact the seller for specific warranty terms and conditions.

9.2 Customer Support

For technical assistance, troubleshooting not covered in this manual, or warranty claims, please contact MAXRIENY customer support through the platform where you purchased the product. Provide your model number (O2 Digital Oscilloscope) and purchase details when contacting support.