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› BSIDE OT9 Portable Oscilloscope Multimeter DDS Signal Generator User Manual

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Model: OT9

1. INTRODUCTION

The BSIDE OT9 is a versatile 3-in-1 handheld device combining a digital oscilloscope, a 20000-count multimeter, and a DDS signal generator. Designed for electrical testing and measurement, it features a 4.3-inch touch screen and a rechargeable battery, making it suitable for both benchtop and field use.

Handheld Tablet oscilloscope multimeter



Figure 1.1: The BSIDE OT9 device, showcasing its multimeter, oscilloscope, and DDS generator functions.

2. SAFETY INFORMATION

Please read all safety warnings and operating instructions carefully before using this product. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Always use the correct input terminals, function, and range for measurements.
- Do not apply voltage or current that exceeds the maximum rated values for the device.
- Ensure test leads are in good condition and properly connected before making measurements.
- Avoid using the device in wet environments or during electrical storms.
- Do not operate the device if it appears damaged or is not functioning correctly.
- Refer to the maximum input voltage specifications for each function to prevent damage to the device or personal injury.
- The device is equipped with intelligent burn and overload protection. However, always exercise caution.

3. PACKAGE CONTENTS

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

- 1 × BSIDE OT9 Oscilloscope Multimeter
- 2 × BNC Oscilloscope Probes
- 1 × BNC to Alligator Clip Probe
- 1 Set × Multimeter Test Leads
- 4 × Color Rings (for probe identification)
- 1 × Thermocouple
- 1 × Charging Cable
- 1 × Protective Case
- 1 × Alignment Screwdriver
- 1 × User Manual (English)



Figure 3.1: All components included in the BSIDE OT9 package.

4. DEVICE OVERVIEW

4.1. Physical Components

The BSIDE OT9 features a compact design with a 4.3-inch touch screen. Key physical interfaces include:

- **BNC Connectors:** Two channels (CH1, CH2) for oscilloscope probes and one for DDS signal output.
- **Multimeter Input Jacks:** For test leads (Voltage, Current, Common).
- **USB-C Port:** For charging and data transfer.
- **Power Button:** To turn the device on/off.
- **Kickstand:** Integrated at the back for hands-free operation.



Figure 4.1: Rear view of the BSIDE OT9 showing CH1, CH2, and DDS BNC connectors.



Figure 4.2: The adjustable back bracket for convenient viewing angles.

4.2. Display and User Interface

The 4.3-inch touch screen provides a clear and intuitive interface. It supports 7 languages (including English, Spanish, German, French, Italian) and allows for easy navigation between functions and settings.

4.3" Touch LCD



Figure 4.3: The 4.3-inch touch screen displaying oscilloscope waveforms and touch interaction.

5. SETUP

5.1. Charging the Device

The BSIDE OT9 includes a built-in 3000 mAh rechargeable lithium-ion battery. Before first use, fully charge the device using the provided charging cable and a standard USB power adapter (not included).

1. Connect the charging cable to the USB-C port on the device.
2. Connect the other end of the cable to a USB power source.
3. The charging indicator on the screen will show the charging status.

Back Bracket



Figure 5.1: The BSIDE OT9 connected to a charging cable.

5.2. Initial Power On and Language Selection

1. Press and hold the power button to turn on the device.
2. Upon first power-on, you may be prompted to select a language. Use the touch screen to select your preferred language (e.g., English).
3. The device will then boot into the main menu or the last used function.

5.3. Probe Connection

Connect the appropriate probes for your desired measurement:

- **Oscilloscope Probes:** Connect BNC oscilloscope probes to the CH1 or CH2 BNC connectors. Ensure the probe's attenuation setting (X1, X10, X100) matches the setting configured on the device.
- **Multimeter Test Leads:** Insert the red test lead into the VΩmA input jack and the black test lead into the COM input jack for voltage, resistance, and low current measurements. For high current (up to 10A), insert the red lead into the

10A input jack.

- **DDS Signal Output:** Connect the BNC to alligator clip probe or another suitable BNC cable to the DDS BNC connector for signal generation.

6. OPERATING INSTRUCTIONS

6.1. Oscilloscope Function

The oscilloscope function allows for waveform visualization and analysis.

1. From the main menu, select the Oscilloscope mode.
2. Connect the oscilloscope probe to the circuit under test and to the CH1 or CH2 input.
3. Adjust the vertical sensitivity (V/div) and horizontal time base (s/div) using the touch screen controls to get a stable waveform display.
4. Use the trigger settings (Auto, Single, Normal) and trigger level to stabilize the waveform.
5. The device supports automatic measurements (Period, Frequency, Amplitude, Max, Min, Duty Cycle, RMS) and cursor measurements for specific waveform segments.
6. Advanced features include FFT (Fast Fourier Transform) for frequency domain analysis, high-resolution sampling, and peak detection.

6.2. Multimeter Function

The multimeter function provides precise digital measurements for various electrical parameters.

1. From the main menu, select the Multimeter mode.
2. Connect the test leads to the appropriate input jacks and to the circuit under test.
3. Select the desired measurement function (e.g., DC Voltage, AC Current, Resistance, Capacitance, Temperature, Diode, Continuity) using the touch screen.
4. The device will display the digital reading and, for some functions, a graphical waveform.
5. Use the REL (Relative Measurement) function for high-precision testing by zeroing out lead resistance or other offsets.



Figure 6.1: The multimeter display showing digital readings and a graphical representation.

6.3. DDS Signal Generator Function

The DDS signal generator can output various waveforms for testing and calibration purposes.

1. From the main menu, select the Signal Generator mode.
2. Connect the DDS output to the circuit or device you wish to test.
3. Select the desired waveform type (e.g., Sine, Square, Triangle, Sawtooth, DC).
4. Adjust the frequency (1 Hz to 2 MHz) and amplitude (0.1 V to 3 V) using the touch screen controls.
5. For square waves, the duty cycle can be adjusted from 1% to 99%.

7. MAINTENANCE

7.1. Cleaning

To clean the device, wipe it with a soft, damp cloth. Do not use abrasive cleaners or solvents. Ensure the device is powered off and disconnected from any power source before cleaning.

7.2. Battery Care

To prolong battery life:

- Avoid fully discharging the battery frequently.
- Charge the device regularly, even if not in use, to maintain battery health.
- Store the device in a cool, dry place when not in use for extended periods.

7.3. Firmware Updates

Firmware updates may be available periodically to improve performance or add new features. Refer to the manufacturer's official website or support channels for information on how to check for and install updates.

8. TROUBLESHOOTING

- **Device does not power on:** Ensure the battery is charged. Connect the charging cable and try again.
- **No waveform displayed on oscilloscope:**
 - Check probe connections to the device and the circuit.
 - Verify the probe attenuation setting matches the device setting.
 - Adjust vertical sensitivity (V/div) and horizontal time base (s/div).
 - Check trigger settings; try 'Auto' trigger mode.
- **Multimeter readings are inaccurate:**
 - Ensure test leads are correctly inserted into the appropriate input jacks.
 - Verify the correct function and range are selected.
 - Use the REL function to compensate for lead resistance if necessary.
- **Touch screen unresponsive:** Try restarting the device. If the issue persists, contact support.

9. SPECIFICATIONS

9.1. Oscilloscope Specifications

Parameter	Value
Channels	2
Bandwidth	50 MHz
Real-time Sample Rate	250 MSa/s
Storage Depth	128 kb
Input Impedance	1 MΩ, @16 pF
Coupling	AC/DC
Horizontal Time Base	10 ns/div - 20 s/div (Precision: 20 ppm)

Vertical Sensitivity	20 mV/div - 10 V/div
Max Input Voltage	X1: ± 40 V; X10: ± 400 V; X100: ± 4000 V (DC + peak AC)
Auto Test Measurements	Period, Frequency, Amplitude, Max Value, Min Value, Duty Cycle, RMS Value
Trigger Mode	Auto, Single, Normal
Trigger Edge	Rising / Falling
Display Modes	YT, XY, Roll
Persistence Time	Min, 500 ms, 1 s, 10 s, Unlimited

9.2. Multimeter Specifications

Parameter	Range / Resolution / Accuracy
Display	20000 Counts
DC Voltage (mV)	20.000 mV / 200.00 mV (0.001 mV / 0.01 mV, $\pm(0.1\% + 3)$)
DC Voltage (V)	2.0000 V / 20.000 V / 200.00 V / 1000 V (0.0001 V / 0.001 V / 0.01 V / 0.1 V, $\pm(0.1\% + 3)$)
AC Voltage (mV)	20.000 mV / 200.00 mV (0.001 mV / 0.01 mV, $\pm(0.5\% + 3)$)
AC Voltage (V)	2.0000 V / 20.000 V / 200.00 V / 750 V (0.0001 V / 0.001 V / 0.01 V / 0.1 V, $\pm(0.5\% + 3)$)
DC Current (mA)	20.000 mA / 200.00 mA (0.001 mA / 0.01 mA, $\pm(0.5\% + 3)$)
DC Current (A)	2.0000 A / 10.000 A (0.0001 A / 0.001 A, $\pm(0.8\% + 3)$)
AC Current (mA)	20.000 mA / 200.00 mA (0.001 mA / 0.01 mA, $\pm(0.8\% + 3)$)
AC Current (A)	2.0000 A / 10.000 A (0.0001 A / 0.001 A, $\pm(0.8\% + 3)$)
Resistance	0.01 Ω - 200 M Ω (0.01 Ω , $\pm(0.5\% + 3)$)
Capacitance	0.01 nF - 99.999 mF (0.01 nF, $\pm(2.0\% + 5)$)
Temperature	-20 $^{\circ}\text{C}$ ~ 1300 $^{\circ}\text{C}$ / -4 $^{\circ}\text{F}$ ~ 2372 $^{\circ}\text{F}$ (1 $^{\circ}\text{C}$ / 1 $^{\circ}\text{F}$, $\pm(2.0\% + 5)$)
Diode Test	Yes
Continuity Test	Yes

9.3. Signal Generator Specifications

Parameter	Value
Waveform Types	Sine, Square, Triangle, Half-wave, Full-wave, Sawtooth, Step, DC
Frequency Range	1 Hz ~ 2 MHz
Amplitude	0.1 V ~ 3 V
Minimum Resolution	1 Hz
Square Wave Duty Cycle	1 % ~ 99 %

9.4. General Specifications

Parameter	Value
Dimensions	13.8 x 10.2 x 3.5 cm
Weight	299 g
Battery	1 x 3000 mAh Lithium Ion (included)
Display Size	4.3 inches

10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the official BSIDE website or contact your local distributor. Keep your purchase receipt for warranty claims.

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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

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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.

Submit question