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› BSIDE OT3 Handheld Digital Oscilloscope User Manual

## BSIDE OT3

# BSIDE OT3 Handheld Digital Oscilloscope User Manual

Model: OT3

## 1. INTRODUCTION

Thank you for choosing the BSIDE OT3 Handheld Digital Oscilloscope. This compact and portable device is designed for basic waveform measurements in various applications, including automotive, audio, and general electronics. With its 10MHz bandwidth, 48MSa/s real-time sampling rate, and intuitive interface, the OT3 provides clear and detailed waveform analysis. This manual will guide you through the features, setup, operation, and maintenance of your new oscilloscope.

## 2. SAFETY INFORMATION

Please read and understand all safety instructions before operating the device. Failure to follow these instructions may result in electric shock, fire, or damage to the device or other property.

- Do not exceed the maximum input voltage of  $\pm 400V$  (DC+AC peak) for X10 probe setting, or  $\pm 40V$  for X1 probe setting.
- Ensure probes are correctly connected and rated for the voltage being measured.
- Do not operate the device in wet or damp conditions.
- Avoid exposing the device to extreme temperatures or direct sunlight.
- Do not attempt to disassemble or modify the device. Refer all servicing to qualified personnel.
- Use only the provided charging cable and accessories.

## 3. PACKAGE CONTENTS

Verify that all items listed below are included in your package. If any items are missing or damaged, please contact your retailer.

- BSIDE OT3 Handheld Digital Oscilloscope
- BNC Oscilloscope Probe (x1)
- BNC to Crocodile Clip Probe (x1)
- USB C Charging Cable

- Colour Ring (x4)
- Alignment Screwdriver
- Carrying Case
- English User Manual



Figure 3.1: BSIDE OT3 Oscilloscope and its complete set of accessories, including probes, cables, and carrying case.

## 4. PRODUCT FEATURES

The BSIDE OT3 is equipped with features designed for efficiency and ease of use:

- **High Performance:** 10MHz bandwidth and 48MSa/s real-time sampling rate for accurate measurements.
- **Clear Display:** 3.2-inch full-viewing color TFT LCD for bright and easy-to-read waveforms.
- **User-Friendly Interface:** Intuitive navigation with only 4 main buttons and a side wheel for quick operation.
- **Portable Design:** Ultra-slim and compact (12.9 x 6.3 x 2.2 cm, 138g) for easy portability and on-site use. Includes a

pull-out support stand.

- **Wide Measurement Range:** Up to  $\pm 400\text{V}$  input voltage (with X10 probe).
- **Automatic & Manual Modes:** Fast automatic trace capture and easy setup for automatic or manual triggers.
- **Data Management:** Waveforms can be saved with a single click and viewed on the unit or transferred to a PC.
- **Long Battery Life:** Built-in 1200mAh rechargeable Li-ion battery provides over 8 hours of continuous operation.
- **Safety Protection:** Intelligent anti-burn and anti-overload protection.



Figure 4.1: The 3.2-inch full-viewing color LCD provides a clear and detailed display of waveforms, enhancing readability from various angles.

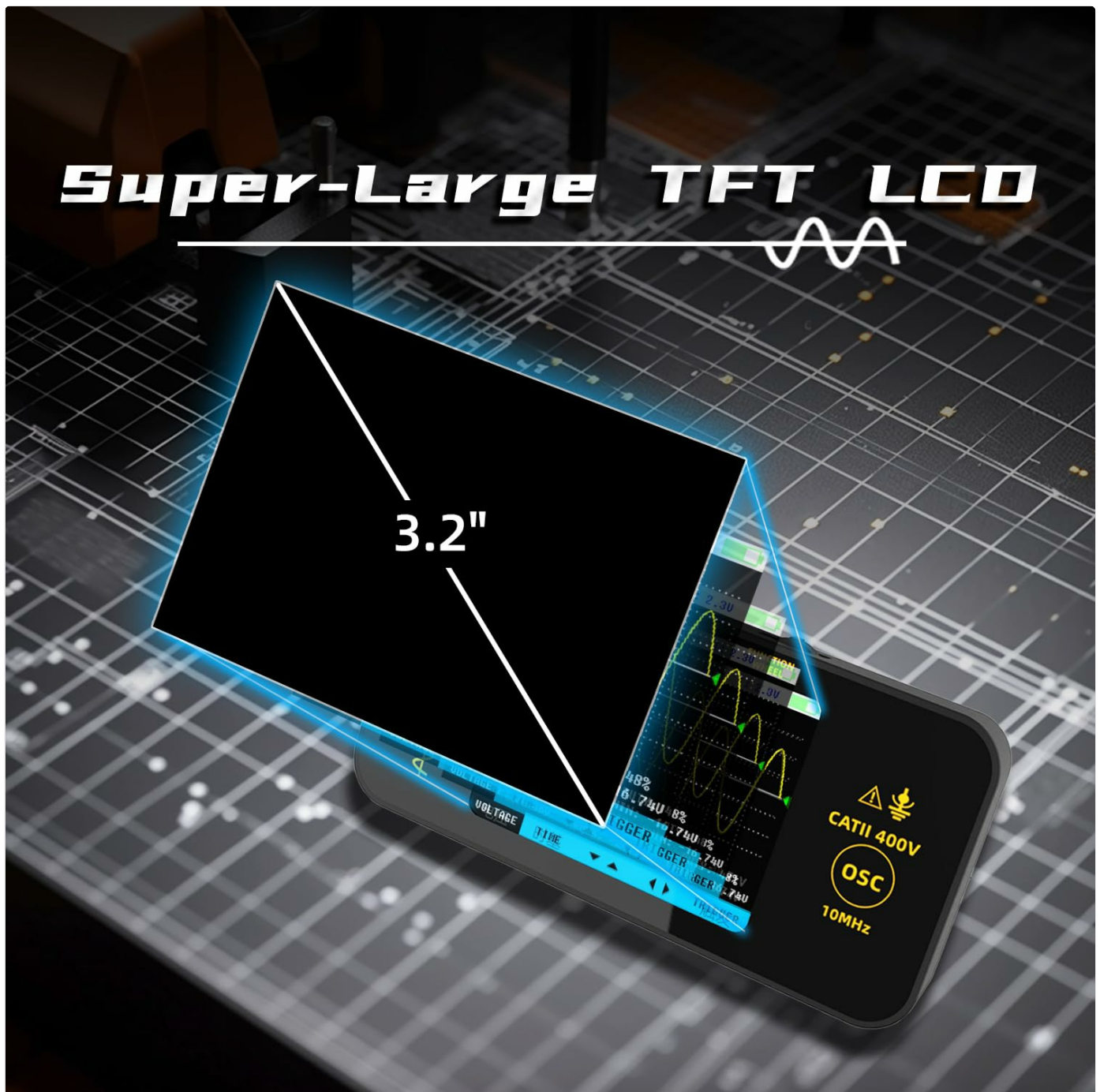


Figure 4.2: A detailed view of the super-large 3.2-inch TFT LCD screen, highlighting its size and clarity for waveform analysis.

## 5. DEVICE LAYOUT

Familiarize yourself with the main components and controls of the BSIDE OT3:

- **Display Screen:** 3.2-inch TFT LCD for waveform display and menu navigation.
- **Power Button:** Located on the top left, used to turn the device on/off.
- **Function Buttons:** Four primary buttons for various operations (e.g., RUN/PAUSE, SAVE, AUTO, FUNCTION WHEEL).
- **Side Wheel:** For fine adjustments and menu navigation.
- **BNC Connector:** Input port for connecting oscilloscope probes.
- **USB-C Port:** For charging the device and data transfer.
- **Kickstand:** Integrated at the back for hands-free viewing.

# Handheld Oscilloscope



Figure 5.1: The BSIDE OT3 in handheld use, demonstrating its compact size and clear display of a square wave.

## 6. GETTING STARTED

### 6.1 Initial Charging

Before first use, fully charge the oscilloscope. Connect the provided USB-C charging cable to the device's USB-C port and a compatible USB power adapter (not included).

- A charging indicator will typically appear on the screen.
- Charging takes approximately 2-3 hours for a full charge.
- The device can be used while charging.



Figure 6.1: The BSIDE OT3 being charged via its USB-C port, illustrating its rechargeable capability.

## 6.2 Power On/Off

- **To Power On:** Press and hold the Power button ( ) on the top left for a few seconds until the screen illuminates.
- **To Power Off:** Press and hold the Power button ( ) again until the screen turns off.

## 7. BASIC OPERATION

### 7.1 Connecting Probes

Select the appropriate probe for your measurement. For general use, the BNC Oscilloscope Probe is suitable. For connecting to test points with clips, use the BNC to Crocodile Clip Probe.

- Connect the BNC connector of the probe to the BNC input port on the oscilloscope.
- Ensure the probe is securely twisted into place.
- Set the probe attenuation switch (if present on your probe) to X1 or X10 as required. Remember to adjust the

oscilloscope's settings to match the probe's attenuation for accurate readings.

## 7.2 Automatic Measurement (AUTO Function)

The AUTO function attempts to automatically adjust the time base and vertical sensitivity to display a stable waveform.

- Connect the probe to the circuit you wish to measure.
- Press the **AUTO** button. The oscilloscope will attempt to detect and display the waveform.
- If the AUTO function does not yield a stable waveform (e.g., a flat line), manual adjustments may be necessary.

## 7.3 Manual Adjustments

For precise control or when AUTO fails, use the side wheel and function buttons to manually adjust settings.

- **Vertical Sensitivity (VOL):** Use the side wheel to adjust the Volts per Division (V/div) setting. This controls the vertical scale of the waveform.
- **Horizontal Time Base (TIME):** Use the side wheel to adjust the Seconds per Division (s/div) setting. This controls the horizontal scale of the waveform.
- **Trigger Level (TRIGGER):** Adjust the trigger level to stabilize the waveform. The trigger point determines where the waveform display begins.

## 7.4 Trigger Modes

The OT3 supports Auto, Single, and Normal trigger modes.

- **Auto:** Attempts to trigger on a stable signal; if no signal is found, it will display a free-running trace.
- **Normal:** Displays a waveform only when a trigger condition is met. If no trigger occurs, the display remains blank.
- **Single:** Captures and displays a single waveform when the trigger condition is met, then stops. Useful for capturing transient events.

Use the appropriate function button or menu option to cycle through trigger modes and select the trigger edge (rising or falling).

## 7.5 Data Hold and Transfer

- **Data Hold:** Press the **RUN/PAUSE** button to freeze the current waveform on the screen. Press again to resume live measurement.
- **Saving Waveforms:** Press the **SAVE** button to store the current waveform data. Saved waveforms can be reviewed on the device.
- **Data Transfer:** Connect the oscilloscope to a PC using the USB-C cable. The device should appear as a mass storage device, allowing you to transfer saved waveform images or data files.



Figure 7.1: The BSIDE OT3 being used for automotive maintenance, demonstrating its application in vehicle diagnostics and its ability to connect to a PC for data review.

## 8. MAINTENANCE AND CARE

### 8.1 Cleaning

- Wipe the device with a soft, dry cloth.
- Do not use abrasive cleaners, solvents, or harsh chemicals.
- Ensure no liquids enter the device's ports or openings.

### 8.2 Battery Care

- To prolong battery life, avoid fully discharging the battery frequently.
- If storing the device for an extended period, charge it to approximately 50% and recharge every few months.
- Do not expose the battery to extreme heat or cold.

### 8.3 Firmware Updates

BSIDE may release firmware updates to improve performance or add new features. Please contact BSIDE customer support for information on available firmware updates and instructions on how to perform them.

## 9. TROUBLESHOOTING

If you encounter issues with your BSIDE OT3, refer to the following common problems and solutions:

- **Device does not power on:**
  - Ensure the battery is charged. Connect the USB-C cable and try powering on again.
  - If the device has been stored for a long time, it may require a longer charge before powering on.
- **Screen is blank or frozen:**
  - Perform a hard reset by holding down the Power button for 10-15 seconds until the device powers off. Then, power it on normally.
- **AUTO function displays a flat line or unstable waveform:**
  - Ensure the probe is correctly connected to the circuit and making good contact.
  - Verify the probe attenuation setting (X1/X10) matches the oscilloscope's setting.
  - Manually adjust the Vertical Sensitivity (VOL) and Horizontal Time Base (TIME) settings using the side wheel to find the signal.
  - Adjust the Trigger Level to stabilize the waveform.
  - Check the input signal itself; ensure it is within the oscilloscope's measurement range.
- **No waveform displayed:**
  - Check probe connections.
  - Ensure the input signal is present and within the device's voltage range.
  - Try adjusting the time base and vertical sensitivity.
  - If in Normal trigger mode, ensure a trigger event is occurring. Switch to Auto mode to see if any signal is present.
- **Cannot transfer data to PC:**
  - Ensure the USB-C cable is securely connected to both the oscilloscope and the PC.
  - Try a different USB port on your PC.
  - Ensure the device is powered on when connected to the PC.

## 10. TECHNICAL SPECIFICATIONS

| Parameter             | Specification    |
|-----------------------|------------------|
| Display               | 3.2 inch TFT LCD |
| Bandwidth             | 10MHz            |
| Real-time Sample Rate | 48MSa/s          |
| Storage Depth         | 128kb            |

| Parameter               | Specification                                                                |
|-------------------------|------------------------------------------------------------------------------|
| Input Impedance         | 1MΩ, @16pf                                                                   |
| Coupling                | AC/DC                                                                        |
| Horizontal Time Base    | 100ns/div - 20s/div                                                          |
| Time Base Accuracy      | 20ppm                                                                        |
| Vertical Sensitivity    | 20mV/div - 10V/div                                                           |
| Maximum Input Voltage   | X1: ±40V; X10: ±400V (DC+AC peak)                                            |
| Auto Testing Parameters | Period, Frequency, Amplitude, Maximum, Minimum, Duty Cycle, Root Mean Square |
| Trigger Mode            | Auto, Single, Normal                                                         |
| Trigger Edge            | Rising/Falling                                                               |
| Power Source            | 1200mAh Rechargeable Li-ion battery                                          |
| Battery Life            | Approx. 8 hours continuous use                                               |
| Dimensions (L x W x H)  | 129.2 x 63 x 22.3 mm (5.09 x 2.48 x 0.88 inches)                             |
| Weight                  | 138g (4.87 oz)                                                               |

## 11. WARRANTY AND SUPPORT

The BSIDE OT3 Handheld Digital Oscilloscope comes with a standard manufacturer's warranty. Please refer to the warranty card included in your package or contact your point of purchase for specific warranty terms and conditions. For technical support, firmware updates, or any inquiries regarding your device, please contact BSIDE customer service. Contact information can typically be found on the product packaging or the official BSIDE website.

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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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