**XEAST MHO14-200**

# XEAST Micsig MHO14-200 Tablet Oscilloscope with Multimeter User Manual

## 1. Introduction

This manual provides detailed instructions for the safe and effective use of the XEAST Micsig MHO14-200 Tablet Oscilloscope with Multimeter. The MHO14-200 is a high-performance, portable digital handheld device designed for various electrical testing and analysis applications. It integrates a 4-channel oscilloscope with a 12-bit vertical resolution and a 4½-digit multimeter, offering comprehensive measurement capabilities in a compact form factor.

### Key Features

- **Integrated Multimeter:** Built-in 4½-digit multimeter for voltage, current, resistance, capacitance, diode, and continuity tests.
- **Ultra-Portable Design:** Slim 3.1cm profile for easy transport in backpacks and field kits.
- **Lab-Grade Accuracy:** 12-bit ADC, 200MHz bandwidth, 4 analog channels, 1GSa/s real-time sampling, and 110Mpts memory depth.
- **8-Inch HD Touchscreen:** Anti-glare 1280×800 display with responsive touch, button, and hybrid control modes.
- **Extended Power:** Integrated 16000mAh lithium-ion battery with 1000+ charge cycle support and power bank charging capability.
- **Robust Protection:** Shock-absorbing rubber casing for impact resistance and a non-slip grip.
- **Remote Control & Storage:** Supports SCPI commands, mobile apps (Android/iOS), PC software, and HDMI output for external display. Features segmented storage for complex waveform analysis.

## 2. Package Contents

Verify that all items listed below are present and in good condition upon unpacking your Micsig MHO14-200 device:

- Micsig MHO1 Oscilloscope ×1
- Passive probes ×4

- Multimeter pen ×1 pair
- Power Adapter ×1
- Power Cable ×1
- Quick Guide Collection ×1


Figure 2.1: Micsig MHO14-200 Package Contents

## 3. Setup

### 3.1 Charging the Device

Before initial use, fully charge the MHO14-200. Connect the provided power adapter to the DC 12V input port on the device and plug it into a standard power outlet. The integrated 16000mAh lithium-ion battery supports extended runtime and can also be charged via a power bank for field portability.

### 3.2 Connecting Probes and Leads

For oscilloscope measurements, connect the passive probes to the BNC input channels (CH1, CH2, CH3, CH4) on the front panel. Ensure a secure connection by twisting the BNC connector until it locks. For multimeter functions, connect the multimeter leads to the dedicated input jacks (VΩmA, COM, 10A) on the front panel, matching the color coding (red for positive, black for common).

### 3.3 Powering On/Off

To power on the device, press and hold the power button located on the side or front panel until the display illuminates. To power off, press and hold the power button again until the shutdown prompt appears, then confirm. A short press typically puts the device into standby mode.

## 4. Operating Instructions

### 4.1 Oscilloscope Mode

The MHO14-200 functions as a 4-channel oscilloscope with a 200MHz bandwidth and 1GSa/s sampling rate. It features a 12-bit ADC for high vertical resolution, capturing subtle signal details with 4096 steps of signal quantization. The 110Mpts memory depth allows for extended waveform capture. Use the dedicated vertical and horizontal controls, along with the touchscreen, to adjust settings such as voltage per division, time base, and trigger levels.


Figure 4.1: Oscilloscope Display and Controls

## 4.2 Multimeter Mode

The integrated 4½-digit multimeter allows for precise measurements of voltage, current, resistance, capacitance, diode, and continuity. Switch to multimeter mode via the user interface. The device supports simultaneous oscilloscope and multimeter operation, allowing for efficient on-the-go testing without needing a separate device.


Figure 4.2: Multimeter Functionality

## 4.3 Touch Screen and Physical Controls

The 8-inch HD touchscreen features an anti-glare, anti-fingerprint, and scratch-resistant surface, providing sharp visuals and responsive interaction. Navigate menus, adjust settings, and analyze waveforms directly on the screen. The device also offers traditional button and knob controls, allowing users to switch seamlessly between touch, button, or hybrid operation modes based on preference and task requirements.


Figure 4.3: 8-Inch HD Touchscreen Interface

## 4.4 Connectivity and Remote Control

The MHO14-200 offers multiple connectivity options for enhanced functionality:

- **LAN Port:** Can be switched between a Square Wave Output and a Trigger Out.
- **USB 3.0:** For data transfer and connection to external devices.
- **Type-C Port:** For additional connectivity.
- **HDMI Output:** Connect to a larger screen for detailed analysis and presentations.
- **Remote Control:** Supports control via SCPI commands, mobile applications (Android/iOS), and PC software.


Figure 4.4: Universal Connectivity Hub

Figure 4.5: Intelligent Trigger Suite and Remote Control

## 4.5 Advanced Features

The MHO14-200 incorporates advanced software features to streamline analysis:

- **Smart Signal Conditioning:** Hardware digital filtering helps cut noise and preserve data integrity for clearer waveform analysis.
- **Intelligent Trigger Suite:** Offers various trigger modes for capturing specific events.

- **Bus Decoding:** Supports decoding of various serial bus protocols (e.g., UART).
- **Segmented Storage:** Efficiently captures multiple trigger events, simplifying the analysis of complex waveforms.

Figure 4.6: Smart Signal Conditioning

Figure 4.7: UART Bus Decoding Example

## 5. Maintenance

### 5.1 Battery Care

To maximize the lifespan of the integrated 16000mAh lithium-ion battery, avoid fully discharging it frequently. Recharge the device when the battery level is low. Store the device in a cool, dry place if not used for extended periods, ideally with a partial charge (around 50%). The battery is designed for 1000+ charge cycles.

### 5.2 Cleaning

Clean the device regularly with a soft, dry, lint-free cloth. For stubborn dirt, slightly dampen the cloth with water or a mild, non-abrasive cleaning solution. Do not use harsh chemicals, solvents, or abrasive cleaners, as these can damage the screen or casing. Ensure all ports are dry before use.

### 5.3 Storage

Store the MHO14-200 in a clean, dry environment away from extreme temperatures, direct sunlight, and high humidity. The shock-absorbing rubber casing provides impact resistance, but proper storage in a protective case is recommended when transporting the device.

Figure 5.1: Protective Design and Foldable Stand

## 6. Troubleshooting

This section addresses common issues you might encounter with your Micsig MHO14-200. If you experience problems not covered here, please contact customer support.

- **Device does not power on:** Ensure the battery is charged. Connect the power adapter and try again. If the issue persists, contact support.
- **No waveform displayed:** Check probe connections to the device and the circuit under test. Verify channel settings (e.g., vertical scale, offset) and trigger settings. Ensure the input signal is within the device's measurement range.
- **Inaccurate multimeter readings:** Ensure multimeter leads are correctly connected to the appropriate jacks for the measurement type. Check lead integrity. Calibrate the device if necessary (refer to advanced settings or contact support).
- **Touchscreen unresponsive:** Try restarting the device. If the issue persists, use physical buttons and knobs for control and contact support.
- **Connectivity issues (USB/LAN/HDMI):** Ensure cables are securely connected. Check device settings for correct output/input configurations. For network issues, verify network settings and firewall rules.

## 7. Specifications

Detailed technical specifications for the Micsig MHO14-200 Tablet Oscilloscope:

| Feature | Specification |
|---|---|
| Model Number | Micsig MHO14-200 |
| Bandwidth | 200 MHz |
| Analog Channels | 4 |
| Sampling Rate | 1 GSa/s |
| Memory Depth | 110 Mpts |
| Vertical Resolution | 12-bit |
| Display | 8-inch HD Touch Screen (1280×800) |
| Battery | 16000mAh Lithium Ion (included) |
| Product Dimensions | 10.4 x 6.8 x 1.2 inches |
| Item Weight | 7.7 pounds |
| Manufacturer | XEAST |


Figure 7.1: Model Comparison (MHO14-200 vs MHO14-100)

## 8. Warranty and Support

The XEAST Micsig MHO14-200 Tablet Oscilloscope is manufactured by XEAST. For specific warranty information, please refer to the documentation included with your purchase or contact XEAST customer support directly. XEAST is committed to providing quality products and support.

For technical assistance, troubleshooting, or warranty claims, please contact XEAST customer service through their official website or the contact information provided in your Quick Guide Collection.