OWON HDS25

OWON HDS25 Dual Channel Handheld Digital Oscilloscope Multimeter User Manual

Model: HDS25 | Brand: OWON

1. Introduction

The OWON HDS25 is a portable 2-in-1 electronic test instrument combining a digital oscilloscope and a multimeter. This device is designed for field use, maintenance, and educational applications, offering a compact and lightweight solution for various electrical measurements.
Key features include:

- Dual Channel Oscilloscope with 25 MHz bandwidth and 250 MSa/s real-time sample rate.
- 20,000 count digital multimeter for precise measurements.
- 3.5-inch high-resolution LCD display.
- Built-in rechargeable lithium battery for portability.
- Support for cursor test, 7 types of automatic measurements, and auto-calibration.
- PC software support and SCPI compatibility for advanced control and data analysis.

Image 1.1: The OWON HDS25 highlighting its 2-in-1 oscilloscope and multimeter capabilities, including 25MHz bandwidth, 20,000 counts, and save function.

2. Safety Information

Before operating the device, please read and understand all safety instructions. Failure to follow these instructions may result in electric shock, fire, or damage to the device.

- Do not use the device if it appears damaged or is not operating correctly.
- Ensure the correct function and range are selected before making any measurements.
- Do not exceed the maximum input ratings for voltage and current.
- Use only the probes and accessories supplied or recommended by OWON.
- Avoid operating the device in wet or damp conditions.
- Disconnect power to the circuit under test before connecting or disconnecting probes.
- Refer to the warning label on the device for specific electrical shock prevention information.

3. Package Contents

Verify that all items are present and undamaged upon unpacking:

- OWON HDS25 Handheld Digital Oscilloscope Multimeter

- Oscilloscope Probe(s)
- Multimeter Test Leads (banana plug type)
- USB-A to USB-C Charging and Data Cable
- User Manual
- Calibration Tool (e.g., mini screwdriver for probe compensation)

4. Device Overview

The OWON HDS25 features a clear 3.5-inch LCD display and an intuitive control panel. Below is a diagram illustrating the main components and controls.

Image 4.1: Front view of the OWON HDS25 with key components labeled.

1. **Signal Input Connector (BNC):** For connecting oscilloscope probes.
2. **3.5-inch Display:** Shows waveform, measurement data, and menu options.
3. **Multifunction Channel Buttons (F1-F4):** Context-sensitive function keys.
4. **Mode Button:** Switches between Oscilloscope, Multimeter, and other modes.
5. **System Button:** Accesses system settings, including language and factory reset.
6. **Save Button:** Saves current settings, waveforms, or data.
7. **Power On/Off Button:** Turns the device on or off.
8. **Trig/Δ Button:** Accesses trigger menu or relative value function.

9. **DMM Input Terminals (A, mA, COM, VΩ+C):** For connecting multimeter test leads.
10. **Horizontal Adjustment (HOR) Button:** Adjusts horizontal scale/time base in oscilloscope mode.
11. **Return Button:** Navigates back in menus.
12. **Measure Range Button:** Selects measurement range in multimeter mode or accesses measurement options in oscilloscope mode.
13. **Arrow Keys:** Navigation within menus and waveform adjustments.
14. **Auto Button:** Auto-sets oscilloscope parameters or auto-ranges in multimeter mode.
15. **Stop/Run Button:** Pauses or resumes waveform acquisition.

5. Setup

5.1 Charging the Device

The OWON HDS25 is equipped with a built-in 2000mAh lithium battery. Before first use, fully charge the device using the provided USB-C cable and a compatible USB power adapter (not included).

- Connect the USB-C cable to the device's USB-C port (located under the rubber cover on the side).
- Connect the other end of the USB cable to a USB power source.
- The charging indicator on the device will show the charging status.

Image 5.1: The OWON HDS25 featuring a built-in 2000mAh lithium battery and a USB Type-C charging port.

5.2 Initial Power On

Press and hold the Power On/Off button to turn on the device. The device will typically start in the last used mode. You can change the language and other system settings via the 'System' button.

6. Operating the Oscilloscope

The oscilloscope function allows for visualization and analysis of electrical signals over time.

6.1 Connecting Probes

- Connect the oscilloscope probe(s) to the BNC input connector(s) on the top of the device.
- Ensure the probe's ground clip is securely connected to the circuit's ground.
- Connect the probe tip to the test point of the signal you wish to measure.

6.2 Basic Measurement

- Press the 'Mode' button to select the Oscilloscope function.
- Press the 'Auto' button. The device will automatically adjust the vertical and horizontal scales and trigger settings to display a stable waveform.
- Use the 'HOR' button and arrow keys to adjust the horizontal time base.
- Use the 'CH1/2' button (if applicable) and arrow keys to adjust the vertical scale (Volts/Div) for each channel.
- The 'Trig/Δ' button allows access to trigger settings for stable waveform capture.

6.3 Automatic Measurements and Cursor Test

The HDS25 supports 7 types of automatic measurements (e.g., Vpp, Vmax, Vmin, Freq, Period) and cursor tests for precise voltage and time readings on the waveform.

- Press the 'Measure Range' button to access automatic measurement options.
- Navigate through the options using the arrow keys and select desired measurements.
- For cursor tests, activate the cursor function and use arrow keys to position the cursors on the waveform.

7. Operating the Multimeter

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

7.1 Connecting Test Leads

- Connect the red test lead to the VΩ+C terminal and the black test lead to the COM terminal for voltage, resistance, capacitance, and diode measurements.
- For current measurements, connect the red test lead to the 'A' terminal (for high current) or 'mA' terminal (for low current) and the black test lead to the COM terminal.

7.2 Basic Multimeter Measurements

- Press the 'Mode' button to select the Multimeter function.
- Use the 'Measure Range' button to cycle through measurement types (Voltage, Current, Resistance, Capacitance, Continuity, Diode).
- The device supports Auto Range and True RMS for accurate readings.

- For continuity tests, the device will emit an audible tone if continuity is detected.

8. Data Management

The HDS25 allows for saving oscilloscope settings, reference waveforms, and measurement data.

8.1 Saving Data

- Press the 'Save' button to store current oscilloscope settings or waveforms.
- Follow the on-screen prompts to name and save the file.
- Saved data can be recalled for later analysis or comparison.

8.2 PC Connectivity

The device supports connection to a PC via the USB-C port for data transfer and remote control.

- Install the OWON PC software (available from the manufacturer's website) on your computer.
- Connect the HDS25 to your PC using the USB-C cable.
- Use the PC software to read and analyze stored data (CSV, images) or control the oscilloscope functions remotely.

9. Maintenance

9.1 Cleaning

- Wipe the device casing with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- Ensure no moisture enters the device through ports or openings.

9.2 Storage

- Store the device in a cool, dry place, away from direct sunlight and extreme temperatures.
- If storing for extended periods, ensure the battery is partially charged (around 50%) to prolong its lifespan.

10. Troubleshooting

If you encounter issues with your OWON HDS25, refer to the following common problems and solutions:

- **Device does not power on:** Ensure the battery is charged. Connect the device to a USB power source and try again.
- **No waveform displayed in oscilloscope mode:** Check probe connections. Ensure the 'Auto' button has been pressed or adjust vertical/horizontal scales and trigger settings manually. Verify the signal source is active.
- **Incorrect multimeter readings:** Ensure test leads are correctly connected to the appropriate terminals. Verify the correct measurement function and range are selected.
- **PC software not detecting device:** Ensure the USB-C cable is properly connected. Install the correct drivers and PC software from the OWON website.
- **Unstable waveform:** Adjust the trigger level and trigger mode (e.g., Edge, Auto, Normal) to stabilize the waveform.

For persistent issues, contact OWON customer support.

11. Specifications

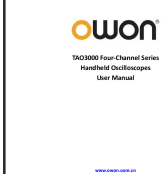
Feature	Specification
Model	HDS25
Oscilloscope Bandwidth	25 MHz
Oscilloscope Channels	2 Channels
Real-time Sample Rate	250 MSa/s
Multimeter Counts	20,000 Counts
Multimeter Functions	Voltage (AC/DC), Current (AC/DC), Resistance, Capacitance, Continuity, Diode
Max. AC Voltage Input	750 V
Max. DC Voltage Input	1000 V
Max. AC/DC Current Input	10 A
Display	3.5-inch High Resolution LCD
Battery	Built-in 2000 mAh Lithium Battery
Connectivity	USB Type-C (for charging and data)
Dimensions (L x W x H)	10 x 4 x 20 cm
Weight	600 grams
Language	English
Manufacturer	OWON
Country of Origin	China

12. Warranty and Support

OWON products are manufactured to high-quality standards. For warranty information, technical support, or service inquiries, please refer to the warranty card included with your product or visit the official OWON website. Keep your purchase receipt as proof of purchase for warranty claims.

Related Documents - HDS25

	Owon HDS20 Dual Channel Series Handheld Oscilloscope Quick Guide This quick guide provides essential information for the Owon HDS20 Dual Channel Series Handheld Oscilloscope (e.g., HDS25(S)). It covers safety, initial setup, oscilloscope and multimeter operation, waveform generation, PC connectivity, troubleshooting, and maintenance. Learn to use your Owon oscilloscope effectively.
	OWON HDS20 Series Handheld Oscilloscope Quick Guide Quick start guide for the OWON HDS20 Dual Channel Series handheld oscilloscopes, including models like HDS25(S). Learn about its features, operation, safety, and troubleshooting.
	OWON HDS200 Series Handheld Oscilloscope User Manual - Operation and Specifications This comprehensive user manual provides detailed instructions for operating the OWON HDS200 Dual Channel Series handheld oscilloscopes, including models HDS272(S) and HDS242(S). It covers safety information, general inspection, oscilloscope, multimeter, and optional waveform generator functions, along with technical specifications and maintenance guidelines.
	OWON HDS200 Series Handheld Oscilloscope Quick Guide This quick guide provides essential information for operating the OWON HDS200 Series Handheld Oscilloscope. It covers product certification, safety precautions, detailed instructions for using the oscilloscope and multimeter functions, waveform generator operation, troubleshooting common issues, and maintenance procedures.
	OWON FDS Dual-Channel Series Quick Guide: Oscilloscope, Function Generator, Power Supply, Multimeter This quick guide provides essential information for operating the OWON FDS Dual-Channel Series, a versatile instrument featuring an oscilloscope, arbitrary waveform/function generator, power supply, and multimeter. Learn about safety, basic functions, and operational tips from Fujian LILLIPUT Optoelectronics Technology Co., Ltd.



OWON TAO3000 Series Handheld Oscilloscopes User Manual

User manual for the OWON TAO3000 Four-Channel Series Handheld Oscilloscopes, detailing operation, features, technical specifications, and troubleshooting.