

Hantek DSO2D10

Hantek DSO2D10 Digital Storage Oscilloscope User Manual

Model: DSO2D10 | Brand: Hantek

1. INTRODUCTION

This manual provides essential information for the safe and effective operation of your Hantek DSO2D10 Digital Storage Oscilloscope. Please read this manual thoroughly before using the device to ensure proper functionality and to prevent damage.



Figure 1: Hantek DSO2D10 Digital Storage Oscilloscope

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury and avoid damage to the instrument or any products connected to it.

- **Power Source:** Use only the power cord specified for this instrument. Ensure the power supply voltage is within the specified range.
- **Grounding:** The instrument must be properly grounded. Do not defeat the grounding conductor of the power cord.
- **Probe Safety:** Ensure probes are correctly connected and rated for the voltage being measured. Do not touch exposed connections or components when power is applied.
- **Environment:** Operate the instrument in a well-ventilated area. Do not operate in wet or damp conditions, or in explosive atmospheres.
- **Maintenance:** Refer all servicing to qualified service personnel. Do not attempt to service the instrument yourself.

3. PRODUCT OVERVIEW

3.1 Key Features

- Features 2 independent channels with dedicated knob control.
- 100 MHz analog bandwidth and 1 GSa/s real-time sampling rate.
- Equipped with a 7-inch TFT LCD screen, 800x480 pixels, displaying 16 million colors (24-bit true color).
- Integrated 25 MHz signal generator, supporting arbitrary waveform burst output and modulation waveform output.
- Capable of saving parameters, waveforms, reference waveforms, CSV, and images.
- Includes 5-digit digital voltmeter and 6-digit hardware frequency counter functions.
- Large storage depth of 8Mpts to minimize waveform distortion and restore real waveforms.

3.2 Physical Description

The Hantek DSO2D10 is designed for portability and ease of use. Below are various views of the device.



Figure 2: Front, Rear, and Side Views

The device measures approximately 318mm in width, 140mm in depth, and 150mm in height, making it compact for various applications.



Figure 3: Oscilloscope Dimensions

3.3 Component Identification

Familiarize yourself with the main components and controls of the oscilloscope.



Figure 4: Front Panel Layout

- **LCD Display:** 7-inch TFT screen for waveform display and menu navigation.
- **Option Buttons (F1-F6):** Context-sensitive function buttons.
- **Executive Control Buttons:** Buttons for various functions like Menu, Utility, Cursor, Display, Acquire, etc.
- **Vertical Controls:** VOLTS/DIV knobs and POSITION knobs for Channel 1 (CH1) and Channel 2 (CH2).
- **Horizontal Controls:** SEC/DIV knob and POSITION knob for time base adjustment.
- **Trigger Level:** Knob to adjust the trigger level.
- **Analog Channel Input (CH1, CH2):** BNC connectors for probe input.
- **External Trigger Input (EXT TRIG/GEN OUT):** BNC connector for external trigger or signal generator output.
- **USB Interface:** For data transfer and firmware updates.
- **Power Switch:** To turn the device on or off.

4. SETUP

4.1 Unpacking and Inspection

Carefully remove the oscilloscope from its packaging. Inspect the device for any signs of damage during transit. Retain the packaging for future storage or shipping.

4.2 Power Connection

1. Ensure the power switch is in the OFF position.
2. Connect the provided power cable to the power input on the rear panel of the oscilloscope.
3. Plug the other end of the power cable into a grounded AC power outlet.

4.3 Probe Compensation

Before taking measurements, it is crucial to compensate your oscilloscope probes to ensure accurate readings. This process adjusts the probe's capacitance to match the oscilloscope's input impedance.

1. Connect a probe to Channel 1 (CH1) input.
2. Connect the probe tip to the probe compensation output (usually a square wave test point on the front panel) and the ground clip to the ground terminal.
3. Turn on the oscilloscope. A square wave should appear on the screen.
4. Using a small screwdriver, adjust the compensation screw on the probe body until the square wave displayed on the screen has flat tops and bottoms with no overshoot or undershoot.
5. Repeat for other probes and channels as necessary.

5. OPERATING INSTRUCTIONS

5.1 Powering On/Off

Press the Power Switch located on the front panel to turn the oscilloscope ON or OFF.

5.2 Basic Waveform Display

1. Connect a signal source to CH1 using a compensated probe.
2. Adjust the **VOLTS/DIV** knob for CH1 to set the vertical scale.
3. Adjust the **SEC/DIV** knob to set the horizontal (time) scale.
4. Adjust the **POSITION** knobs (vertical and horizontal) to center the waveform on the screen.
5. Adjust the **TRIGGER LEVEL** knob until a stable waveform is displayed.

5.3 Automatic Measurements

The DSO2D10 supports 32 types of automatic measurements, simplifying waveform analysis.



Figure 5: Automatic Measurement Display

To access automatic measurements, press the **MEASURE** button and use the option buttons (F1-F6) to select desired parameters such as Frequency, Period, Peak-to-Peak Voltage, RMS Voltage, etc. The results will be displayed on the screen.

5.4 Signal Generator Function

The built-in 25 MHz signal generator can output various waveforms. Connect the EXT TRIG/GEN OUT BNC connector to your circuit under test.

1. Press the **BURST** button or navigate through the menu to access the signal generator settings.
2. Select the desired waveform type (e.g., sine, square, arbitrary).
3. Adjust parameters such as frequency, amplitude, and duty cycle using the corresponding controls or menu options.

5.5 Data Storage and Recall

The oscilloscope features an 8Mpts storage depth, allowing for detailed waveform capture and analysis. You can save and recall various data types.



Figure 6: Waveform Storage Depth

To save data, press the **SAVE/TO USB** button and follow the on-screen prompts to save parameters, waveforms, or screenshots to internal memory or a connected USB drive.

5.6 Digital Voltmeter and Frequency Counter

The DSO2D10 includes integrated 5-digit digital voltmeter (DVM) and 6-digit hardware frequency counter functions for precise measurements.



Figure 7: Dual DVM and Frequency Counter

These functions can be accessed via the **UTILITY** or **MEASURE** menus, providing real-time digital readouts of voltage and frequency.

6. MAINTENANCE

6.1 Cleaning

Clean the instrument regularly with a soft, damp cloth. Do not use abrasive cleaners or solvents that could damage the casing or screen. Ensure the device is powered off and unplugged before cleaning.

6.2 Calibration

The oscilloscope is factory calibrated. For continued accuracy, periodic calibration by qualified service personnel is recommended, especially after significant temperature changes or prolonged use.

6.3 Storage

When not in use, store the oscilloscope in a dry, dust-free environment, away from direct sunlight and extreme temperatures. Use the original packaging for long-term storage if available.

7. TROUBLESHOOTING

This section addresses common issues you might encounter with the Hantek DSO2D10.

Problem	Possible Cause	Solution
No display after powering on.	Power cable not connected, power outlet faulty, device fault.	Check power cable connection. Test power outlet. If problem persists, contact support.
Unstable or distorted waveform.	Incorrect trigger settings, uncompensated probe, signal too weak/strong.	Adjust trigger level. Perform probe compensation (see Section 4.3). Adjust VOLTS/DIV and SEC/DIV settings.

Problem	Possible Cause	Solution
No signal detected.	Probe not connected, faulty probe, no signal from source.	Ensure probe is securely connected. Test probe with known signal. Verify signal source is active.

8. SPECIFICATIONS

The following table details the technical specifications of the Hantek DSO2D10 Digital Storage Oscilloscope.

Specification	Value
Model	DSO2D10
Channels	2CH
Bandwidth	100MHz
Sample Rate	1GSa/S
Storage Depth	8Mpts
Built-in Signal Source	1CH (25MHz)
Rise Time at BNC (typical)	3.5NS
Display Type	7" TFT LCD, 800x480 pixels
Oscilloscope Size (L x W x H)	318 x 140 x 150 mm
Package Dimensions	36.6 x 22.6 x 20.4 cm
Weight	2.77 kg
Manufacturer	Hantek
Manufacturer Part Number	DSO2000
Power Source	Electric Cable
Color	Black
Minimum Operating Voltage	300 Volts
Compliant Specifications	CAT II, CE
GTIN / UPC	768461092407

For a comparison with other models, refer to the table below:



Figure 8: Model Comparison Table

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official Hantek website or contact your local distributor. Keep your purchase receipt as proof of purchase.

Manufacturer: Hantek

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