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Hantek DSO2D15

Hantek DSO2D15 Digital Storage Oscilloscope User Manual

Model: DSO2D15

1. Introduction

This manual provides essential information for the safe and effective operation of your Hantek DSO2D15 Digital Storage Oscilloscope. Please read this manual thoroughly before using the device to ensure proper setup, operation, and maintenance. The Hantek DSO2D15 is a versatile 2-channel oscilloscope featuring a 150MHz bandwidth, 1GSa/s real-time sampling rate, 8M memory depth, and a built-in 25MHz arbitrary waveform generator.

2. Safety Information

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

- **Power Source:** Ensure the oscilloscope is connected to a power source with the correct voltage and frequency as specified on the device.
- **Grounding:** Always use a properly grounded power cord. The oscilloscope chassis must be grounded to prevent electric shock.
- **Probes:** Use only probes supplied or recommended by Hantek. Ensure probes are correctly compensated before use. Do not exceed the maximum input voltage rating of the probes or the oscilloscope.
- **Environment:** Operate the oscilloscope in a dry, well-ventilated area. Avoid exposure to moisture, dust, direct sunlight, or extreme temperatures.
- **Maintenance:** Refer all servicing to qualified service personnel. Do not attempt to open the instrument casing.
- **Cleaning:** Disconnect power before cleaning. Use a soft, dry cloth. Do not use liquid or abrasive cleaners.

3. Product Overview

The Hantek DSO2D15 is designed for precision measurement and analysis of electronic signals. Below are key views and components of the device.



Figure 3.1: Front View of the Hantek DSO2D15 Oscilloscope. This image displays the front panel of the oscilloscope, showing the large TFT LCD screen, control knobs, function buttons, and input connectors for channels CH1 and CH2, along with the external trigger/signal generator output.



Figure 3.2: Hantek DSO2D15 with Key Dimensions. This image illustrates the physical dimensions of the oscilloscope, including its width (313mm), height (142mm), and depth (108mm), providing a clear understanding of its compact size. The rear view with handle is also shown.

3.1 Front Panel Controls

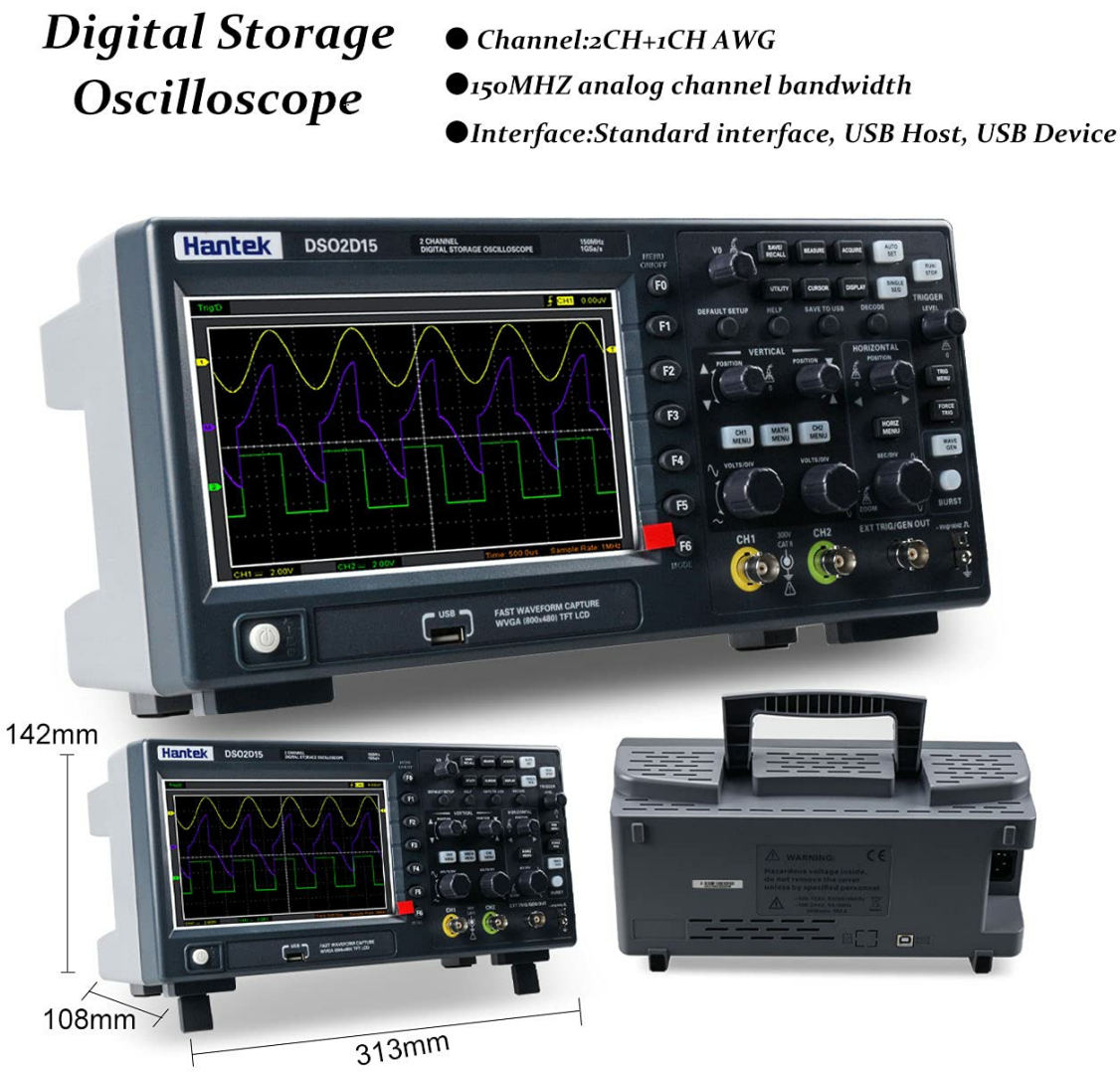


Figure 3.3: Detailed Front Panel Layout. This diagram highlights various controls and connectors on the front panel, including the Multifunctional knob, Menu Function Buttons, Operation mode hot keys (Run/Stop, Single, Auto Set), Trigger control system, Vertical control system, Horizontal control system, CH1/CH2 Input Channels, Signal Source Output, Probe Compensation Function Zone, Power button, USB interface, and Bracket.

3.2 Included Accessories



Figure 3.4: Standard Accessories. This image displays the various accessories included with the Hantek DSO2D15, such as two oscilloscope probes, a power cord, a USB cable, BNC to alligator clip cables, and other test leads and connectors necessary for operation.

4. Setup

1. **Unpacking:** Carefully remove the oscilloscope and all accessories from the packaging. Inspect for any signs of damage.
2. **Power Connection:** Connect the provided power cord to the AC input on the rear panel of the oscilloscope and then to a grounded AC power outlet.
3. **Probe Connection:** Connect the oscilloscope probes to the CH1 and/or CH2 input BNC connectors on the front panel. Ensure a secure connection.
4. **Probe Compensation:** Before taking measurements, it is crucial to compensate the probes.
    - Connect the probe tip to the probe compensation output (usually a square wave test point on the front panel, labeled "PROBE COMP").
    - Connect the probe ground clip to the ground terminal next to the compensation output.

- Press the **AUTOSET** button.
- Adjust the trimmer on the probe (using a non-metallic tool) until a perfect square wave is displayed on the screen (no overshoot or undershoot).

5. Operating Instructions

5.1 Power On/Off

Press the **Power** button located on the lower-left front panel to turn the oscilloscope on or off. The device will perform a self-test upon startup.

5.2 Basic Waveform Display

1. Connect the probe to the signal source you wish to measure.
2. Press the **CH1** or **CH2** button to enable the desired channel.
3. Press the **AUTOSET** button for automatic waveform display optimization.
4. Adjust the **VERTICAL POSITION** and **VOLTS/DIV** knobs to scale and position the waveform vertically.
5. Adjust the **HORIZONTAL POSITION** and **SEC/DIV** knobs to scale and position the waveform horizontally.

5.3 Trigger System

The trigger system stabilizes repetitive waveforms and captures single-shot events.

- Press the **TRIGGER MENU** button to access trigger settings.
- Use the multifunctional knob to select trigger type (Edge, Pulse, Video, Slope, Overtime, Window, Pattern, Interval, Under Amp, UART, I2C, SPI, CAN, LIN).
- Adjust the **TRIGGER LEVEL** knob to set the voltage level at which the trigger occurs.
- Select trigger mode (Auto, Normal, Single) using the dedicated buttons.

5.4 Waveform Generator (AWG)

The DSO2D15 includes a built-in 25MHz arbitrary waveform generator.

1. Connect a BNC cable from the **EXT TRIG/GEN OUT** port to the input of the device you wish to test.
2. Press the **AWG** button (often integrated with a function key or menu option) to access the waveform generator settings.
3. Select waveform type (Sine, Square, Ramp, Pulse, Noise, Arbitrary), frequency, amplitude, and offset using the menu and multifunctional knob.
4. Enable the output to generate the selected waveform.

5.5 Measurements

The oscilloscope offers various measurement functions.

- **Auto Measurements:** Press the **MEASURE** button to display a menu of automatic measurements (e.g., Vpp, Vmax, Vmin, Freq, Period, Rise Time, Fall Time). Select desired parameters.
- **Cursor Measurements:** Press the **CURSOR** button to activate cursors. Use the multifunctional knob to position voltage (horizontal) and time (vertical) cursors to manually measure waveform parameters.

5.6 Saving and Recalling Data

The DSO2D15 allows saving and recalling various data formats.

- Press the **SAVE/RECALL** button.
- Select the type of data to save (waveform, setup, reference waveform, CSV, picture) and the storage location (internal memory or USB drive).
- To recall, select the desired file and press the appropriate recall option.

5.7 USB Connectivity

The USB host port supports plug-and-play USB storage devices for data transfer. The USB device port allows connection to a computer for remote control and data acquisition using Hantek software.

6. Maintenance

6.1 Cleaning

Disconnect the power cord before cleaning. Use a soft, dry cloth to clean the exterior of the oscilloscope. For stubborn dirt, a cloth lightly dampened with water and mild detergent may be used, ensuring no liquid enters the device. Do not use abrasive cleaners or solvents.

6.2 Probe Care

Handle probes with care. Avoid bending the probe tip excessively. Store probes properly to prevent damage to the tip or cable. Regularly check probe cables for cuts or damage.

7. Troubleshooting

Problem	Possible Cause	Solution
No display after power on.	Power cord not connected, power outlet faulty, device fault.	Check power cord connection. Test power outlet. If problem persists, contact support.
No waveform displayed.	Probe not connected, channel off, signal too small/large, trigger not set correctly.	Check probe connection. Ensure channel is enabled. Adjust VOLTS/DIV. Press AUTOSET. Adjust trigger level.
Waveform is unstable or rolling.	Trigger level incorrect, trigger source incorrect, trigger mode incorrect.	Adjust trigger level. Ensure trigger source matches input channel. Use Normal or Single trigger mode for stable signals.
Incorrect measurements.	Probe compensation incorrect, probe attenuation setting incorrect.	Perform probe compensation. Ensure probe attenuation (e.g., 1X, 10X) matches the oscilloscope's probe setting.

8. Specifications

Parameter	Value
Bandwidth	150 MHz
Channels	2 Analog Channels + 1 AWG Channel
Real-time Sampling Rate	1 GSa/s
Memory Depth	8 Mpts

Parameter	Value
Vertical Resolution	8 bit
Display	7-inch 64K True Color TFT LCD, 800x480 resolution
Waveform Generator	1 Channel, 25 MHz, Arbitrary Waveform
Auto Measurements	32 types with statistics
Bus Decode & Analysis	RS232/UART, I2C, SPI, CAN, LIN
Connectivity	USB Host, USB Device
Product Dimensions	12.5 x 5.5 x 5.9 inches (approx. 31.75 x 13.97 x 14.99 cm)
Item Weight	5.5 pounds (approx. 2.5 kg)

9. Warranty and Support

Hantek products are designed for reliability and performance. For warranty information, please refer to the warranty card included with your product or visit the official Hantek website. For technical support, troubleshooting assistance, or service inquiries, please contact Hantek customer service through their official channels. Keep your purchase receipt as proof of purchase for warranty claims.
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