

Hantek 6254BD

Hantek 6254BD Digital USB Storage Oscilloscope User Manual

Model: 6254BD | Brand: Hantek

1. INTRODUCTION AND OVERVIEW

The Hantek 6254BD is a high-performance digital USB storage oscilloscope designed for various electronic measurement and analysis tasks. It features 4 independent analog channels, a 1GSa/s real-time sampling rate, 250MHz bandwidth, and an integrated arbitrary waveform generator. Its compact, USB-powered design makes it suitable for both desktop and portable applications, compatible with Windows 7, 8, and 10 operating systems.



Figure 1: Hantek 6254BD Digital USB Storage Oscilloscope with key performance indicators.

2. SAFETY INFORMATION

Before operating the Hantek 6254BD oscilloscope, please read and understand all safety instructions. Failure to follow these instructions may result in injury or damage to the device.

- **Electrical Safety:** Always connect the oscilloscope to a properly grounded USB port. Do not use the device in wet or damp conditions. Avoid contact with live circuits when connecting or disconnecting probes.
- **Probe Usage:** Use only probes supplied or recommended by Hantek. Ensure probes are correctly rated for the voltage and current being measured. Do not exceed the maximum input voltage specified for the device.
- **Ventilation:** Ensure adequate ventilation around the device to prevent overheating. Do not block ventilation openings.
- **Maintenance:** Refer to the maintenance section for cleaning instructions. Do not attempt to service the device yourself. Refer all servicing to qualified personnel.

3. PACKAGE CONTENTS

Verify that all items are present in the package:

- Hantek 6254BD Digital USB Storage Oscilloscope Unit
- USB Cable
- Oscilloscope Probes (x4)
- Software CD or Download Link
- User Manual (this document)

4. PRODUCT FEATURES

The Hantek 6254BD offers a robust set of features for advanced waveform analysis:

- **4 Independent Analog Channels:** Allows simultaneous measurement of multiple signals.
- **High Performance:** 1GSa/s real-time sampling rate and 250MHz bandwidth.
- **Wide Input Sensitivity:** 2mV-10V/DIV for diverse signal types.
- **Arbitrary Waveform Generator (AWG):** Integrated 1-channel, 25MHz AWG for signal generation.
- **USB 2.0 Interface:** Plug and play connectivity, powered directly via USB, eliminating the need for an external power supply.
- **Compact and Portable Design:** Small size and lightweight, making it easy to carry. The anodized aluminum casing provides durability and heat resistance.
- **Advanced Measurement Functions:** Includes pass/fail testing, resourceful trigger functions, dynamic cursor tracking, waveform record and replay.
- **FFT Spectrum Analyzer:** For frequency domain analysis.
- **Software Support:** Compatible with Windows 7, Windows 8, and Windows 10.



Hantek 6254BD
Multifunctional
Virtual Oscilloscope

-  **4 Independent Analog Channels**
-  **250MHz Bandwidth**
-  **1GSa/s Sample Rate**
-  **Arbitrary Waveform Generator**
-  **64K Memory Depth**

The image shows the Hantek 6254BD oscilloscope unit, a compact, rectangular device with a grey front panel and black side grips. The Hantek logo is prominently displayed on the front. The device is shown from a three-quarter perspective, highlighting its portability and design.

Figure 2: Key features of the Hantek 6254BD Oscilloscope.



Hantek 6254BD Multifunctional Virtual Oscilloscope Key Features



**200MSa/s DDS
Waveform Generator**



**Software Support:
Windows 10,8,7**



**Compact, Portable
and USB Powered**

FFT

FFT Spectrum Analyzer



**Resourceful
Trigger Function**



Pass/Fail Test



Dynamic Cursor Tracking

Figure 3: Additional key features and capabilities.

5. SETUP

Follow these steps to set up your Hantek 6254BD oscilloscope:

1. **Software Installation:** Insert the provided software CD into your computer or download the latest software from the official Hantek website. Follow the on-screen instructions to install the oscilloscope software and drivers. The software supports Windows 7, 8, and 10.
2. **Connect to Computer:** Connect the Hantek 6254BD unit to your computer using the supplied USB cable. The device is USB 2.0 compatible and will draw power directly from the USB port.
3. **Connect Probes:** Attach the oscilloscope probes to the BNC input connectors (CH1, CH2, CH3, CH4) on the front panel of the device. Ensure a secure connection.
4. **Grounding:** Connect the ground clip of the probe to the ground reference of the circuit under test. For accurate measurements, ensure proper grounding.
5. **Launch Software:** Once the device is connected and drivers are installed, launch the Hantek oscilloscope software on your computer. The software should automatically detect the connected device.



Figure 4: Rear and front panel connections.



Figure 5: Oscilloscope connected to a display device.

6. OPERATING INSTRUCTIONS

This section provides an overview of basic operating procedures. Refer to the software's built-in help for detailed instructions on advanced features.

6.1 Basic Waveform Display

- **Channel Selection:** In the software interface, enable the desired channels (CH1-CH4) for measurement.
- **Vertical Scale (Volts/Div):** Adjust the vertical scale to fit the signal amplitude on the screen.
- **Horizontal Scale (Time/Div):** Adjust the horizontal scale to view the desired number of signal cycles.
- **Trigger Settings:** Configure the trigger source, type (edge, pulse, video, etc.), and level to stabilize the waveform display.

6254BD Oscilloscope

- Real-time sampling rate: 1Gsa/s
- Vertical Resolution: 8Bit
- Memory depth: 64K
- Bandwidth: 250MHz
- Channels: 4CH

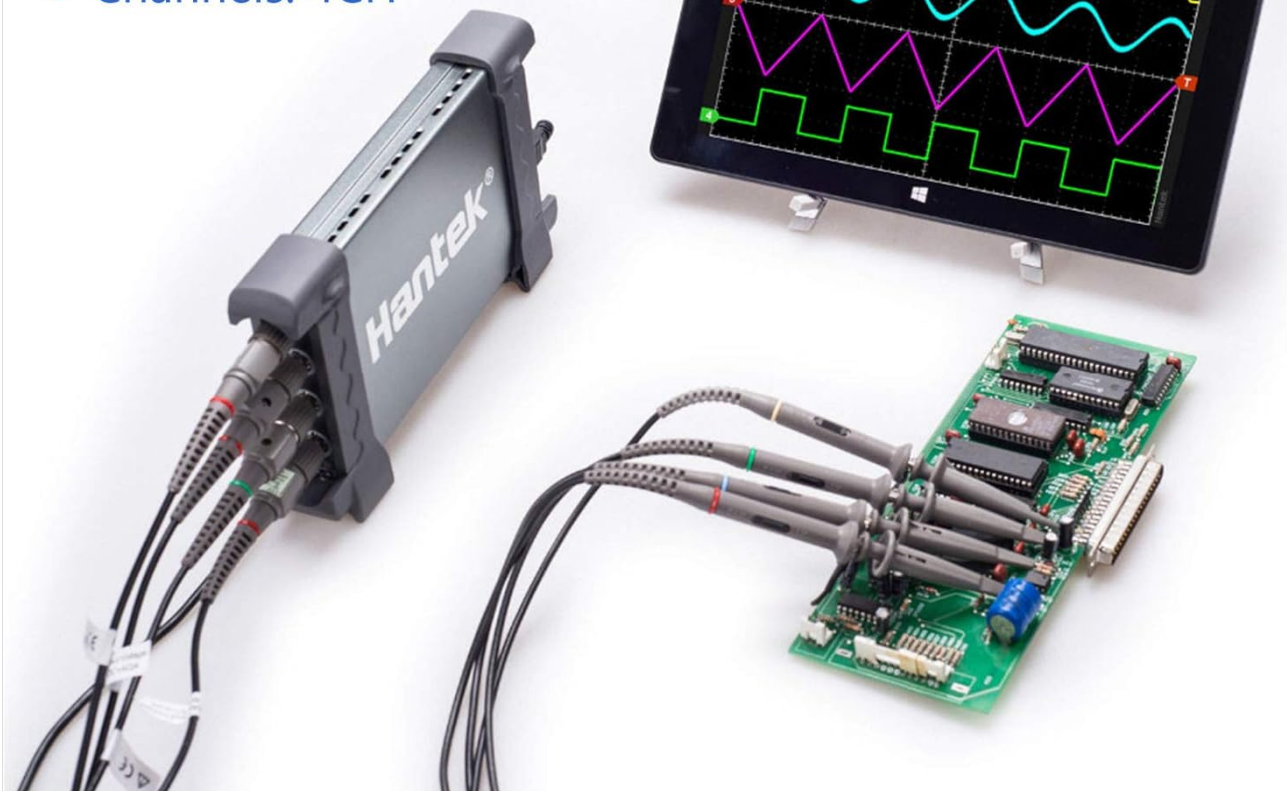


Figure 6: Multiple waveforms displayed on a connected device.

6.2 Arbitrary Waveform Generator (AWG)

- Connect a BNC cable from the 'GEN OUT' port on the oscilloscope to the input of the circuit requiring a signal.
- In the software, navigate to the AWG control panel.
- Select the desired waveform type (sine, square, triangle, arbitrary), frequency, amplitude, and offset.

- Enable the output to generate the signal.



Figure 7: Signal Generator output and USB port.

6.3 Advanced Functions

- **Pass/Fail Test:** Set up masks to automatically check if a waveform falls within defined limits.
- **Dynamic Cursor Tracking:** Use cursors to precisely measure voltage and time parameters on the waveform.
- **Waveform Record and Replay:** Capture and store long waveform sequences for later analysis.
- **FFT Analysis:** Access the FFT function in the software to view the frequency spectrum of your signals.

7. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your Hantek 6254BD oscilloscope.

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. For stubborn dirt, a slightly damp cloth with mild detergent can be used, ensuring no liquid enters the device. Do not use abrasive cleaners or solvents.
- **Storage:** Store the oscilloscope in a clean, dry environment away from direct sunlight, extreme temperatures, and high humidity. Disconnect all probes and cables before storage.
- **Probe Care:** Handle probes carefully. Avoid bending or kinking the cables. Store probes properly to prevent damage to the tips.
- **Software Updates:** Periodically check the Hantek official website for software and firmware updates to ensure optimal performance and access to new features.

8. TROUBLESHOOTING

If you encounter issues with your Hantek 6254BD, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Device not recognized by software	Drivers not installed or corrupted; USB connection issue	Reinstall drivers. Try a different USB port or cable. Restart computer.
No waveform displayed	Probe not connected; Channel disabled; Incorrect vertical/horizontal scale; Trigger not set	Check probe connections. Enable channel in software. Adjust Volts/Div and Time/Div. Adjust trigger level or set to Auto.

Problem	Possible Cause	Solution
Distorted or noisy waveform	Improper grounding; Probe compensation issue; External interference	Ensure proper grounding. Perform probe compensation. Minimize external electromagnetic interference.
Arbitrary Waveform Generator not outputting signal	Output disabled; Incorrect settings; Cable issue	Ensure AWG output is enabled in software. Verify waveform parameters. Check BNC cable connection.

If the problem persists, contact Hantek customer support for further assistance.

9. SPECIFICATIONS

Parameter	Value
Manufacturer	Hantek
Model Number	Hantek-6254BD
Part Number	6254BD
Analog Channels	4
Bandwidth	250MHz
Real-time Sampling Rate	1GSa/s
Input Sensitivity	2mV-10V/DIV
Arbitrary Waveform Generator	1 Channel, 25MHz
Interface	USB 2.0
Operating Voltage	USB Powered (5V)
Item Weight	998 g
Product Dimensions	17.78 x 10.67 x 3.05 cm
Batteries Included/Needed	No

10. WARRANTY AND SUPPORT

Hantek products typically come with a standard manufacturer's warranty. Please refer to the warranty card included with your product or visit the official Hantek website for specific warranty terms and conditions.

For technical support, software downloads, or further inquiries, please visit the official Hantek support page or contact their customer service department. Keep your product model number (6254BD) and purchase information readily available when seeking support.

