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> Hantek 6022BE Digital Oscilloscope Portable PC Based 2 Channels 20MHz USB Oscilloscopes User Manual

Hantek 6022BE

Hantek 6022BE Digital Oscilloscope User Manual

Model: 6022BE | Brand: Hantek

1. INTRODUCTION

The Hantek 6022BE is a portable, PC-based digital oscilloscope designed for a wide range of electrical measurement and analysis tasks. Utilizing a standard USB interface, it connects directly to your computer, transforming it into a powerful oscilloscope. This device is ideal for hobbyists, students, and professionals requiring a compact and versatile measurement tool for circuit debugging, signal analysis, and educational purposes.

Its design emphasizes ease of use and portability, making it suitable for both laboratory and field applications. The Hantek 6022BE offers essential oscilloscope functionalities, including waveform display, various measurement functions, and data logging capabilities, all managed through intuitive software on your PC.

2. KEY FEATURES

- Standard USBXITM interface for easy integration into combination instruments.
- Suitable for notebook computers, facilitating product line maintenance and business use.
- Features 23 automatic measurement functions, including PASS/FAIL Check, suitable for technical applications.
- Supports waveform average, persistence, intensity, invert, addition, subtraction, multiplication, division, and X-Y plot.
- USB 2.0 interface, requiring no external power supply.



Analog Bandwidth

20MHz

Storage Depth

1M

Real-time Sampling rate

48MSa/s

Image: The Hantek 6022BE oscilloscope unit, emphasizing its core specifications: 20MHz Analog Bandwidth, 1M Storage Depth, and 48MSa/s Real-time Sampling Rate.

3. PACKAGE CONTENTS

Upon opening the package, please verify that all the following items are included:

- Hantek 6022BE Digital Oscilloscope Unit
- USB Connection Cable
- Two (2) Oscilloscope Probes (typically 1X/10X switchable)
- Software Installation CD
- Basic User Guide / Quick Start Manual



Image: A complete view of the Hantek 6022BE package contents, including the oscilloscope unit, two probes, USB cable, software CD, and a small instruction manual.

4. SETUP GUIDE

Follow these steps to set up your Hantek 6022BE Digital Oscilloscope:

1. Software and Driver Installation:

Insert the provided software CD into your computer's optical drive. Follow the on-screen instructions to install the Hantek oscilloscope software and necessary drivers. If you encounter issues or are using Windows 10/11, it is highly recommended to download the latest software and unsigned drivers directly from the official Hantek website (<https://d.hantek.com/qE>). Ensure you have administrator privileges during installation. For Windows 10/11, you may need to temporarily disable driver signature enforcement if issues persist.

2. Connect the Oscilloscope to your PC:

Connect one end of the supplied USB cable to the USB socket on the Hantek 6022BE unit and the other end to an available USB port on your computer. The device is powered via USB, so no external power adapter is needed.



Image: A visual guide demonstrating the connection of the Hantek 6022BE oscilloscope to a laptop computer via USB, illustrating the PC-based nature of the device.

3. Connect Probes:

Attach the oscilloscope probes to the BNC connectors labeled 'CH1' and 'CH2' on the front of the Hantek 6022BE. Ensure a secure connection by twisting the BNC connector until it locks. Connect the probe's ground clip to the ground terminal on the device or the circuit under test.



Image: Detailed view of the Hantek 6022BE's input and output ports, including Channel 1 (CH1), Channel 2 (CH2) BNC connectors, Probe Compensation Output, Ground Terminal, USDXI interface, and USB socket.

4. Launch Software:

Once the drivers are installed and the device is connected, launch the Hantek oscilloscope application from your desktop or Start Menu. The software should automatically detect the connected oscilloscope.

5. Probe Compensation:

Before taking measurements, perform probe compensation. Connect the probe to CH1 and its tip to the 'Probe compensation output' terminal. Adjust the trimmer on the probe until a perfect square wave is displayed on the software interface. Repeat for CH2 if necessary.

5. OPERATING INSTRUCTIONS

The Hantek 6022BE operates through its dedicated PC software, providing a graphical user interface for controlling the

oscilloscope and analyzing waveforms. Familiarize yourself with the software layout, which typically includes controls for:

- **Vertical Controls:** Adjusting voltage per division (Volts/Div) for each channel, vertical position, and AC/DC coupling.
- **Horizontal Controls:** Setting time per division (Time/Div) to control the sweep speed and horizontal position.
- **Trigger Controls:** Defining the trigger level, slope (rising/falling edge), and mode (Auto, Normal, Single) to stabilize waveforms.
- **Measurement Functions:** Accessing automatic measurements (e.g., Vpp, Vmax, Vmin, Frequency, Period, RMS) and cursor measurements. The 6022BE supports 23 automatic measurement functions.
- **Math Functions:** Performing operations like addition, subtraction, multiplication, division, invert, and X-Y plot.
- **Display Settings:** Adjusting waveform color, grid, and persistence.

Refer to the software's built-in help documentation for detailed instructions on specific functions and advanced features.



Image: A composite image showing the Hantek 6022BE unit alongside multiple screenshots of the oscilloscope software interface, demonstrating its capability to display various types of electrical waveforms and measurement results.

6. MAINTENANCE

To ensure the longevity and accurate performance of your Hantek 6022BE oscilloscope, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the unit. For stubborn dirt, a slightly damp cloth with mild detergent can be used, but ensure no liquid enters the device. Do not use abrasive cleaners or solvents.
- **Storage:** Store the oscilloscope and its accessories in a cool, dry place, away from direct sunlight, extreme temperatures, and high humidity. Protect it from dust and physical impact.
- **Probe Care:** Handle probes with care. Avoid bending the cables sharply or subjecting the probe tips to excessive force. Keep the probe tips clean.
- **Software Updates:** Periodically check the official Hantek website for software and driver updates to ensure optimal performance and compatibility with your operating system.

7. TROUBLESHOOTING

If you encounter issues with your Hantek 6022BE, refer to the following common problems and their solutions:

Problem	Possible Cause / Solution
Device not recognized by PC / Software	<ul style="list-style-type: none">• Ensure USB cable is securely connected.• Verify that drivers are correctly installed. Download the latest drivers from the official Hantek website (https://d.hantek.com/qE).• For Windows 10/11, check Device Manager for unrecognized devices and manually update drivers, potentially disabling driver signature enforcement temporarily.• Try a different USB port or a different USB cable.
Software freezes or crashes	<ul style="list-style-type: none">• Restart the Hantek software application.• Disconnect and reconnect the USB cable from the oscilloscope.• Ensure your operating system is up to date and meets minimum requirements.
No waveform displayed / Flat line	<ul style="list-style-type: none">• Check if probes are correctly connected to the oscilloscope and the circuit under test.• Ensure the probe's ground clip is connected to the circuit's ground.• Verify the input channel is enabled in the software.• Adjust the vertical scale (Volts/Div) and horizontal scale (Time/Div).• Check the trigger settings; try 'Auto' trigger mode.
Waveform appears clipped or distorted	<ul style="list-style-type: none">• The input signal voltage may exceed the selected vertical range. Increase the Volts/Div setting.• Ensure the probe's attenuation switch (1X/10X) matches the setting in the software. For higher voltages, use the 10X setting on the probe. Note that the maximum input voltage is 35V (DC+AC peak) with a 10X probe.
Slow timing events not fully displayed	This device may show limitations when displaying very slow events (time base greater than 1 second per division) where only a partial trace is visible. This is a known characteristic for certain very long time base settings.

8. SPECIFICATIONS

Detailed technical specifications for the Hantek 6022BE Digital Oscilloscope:

Parameter	Value
Model Number	6022BE
Analog Bandwidth	20 MHz
Channels	2 Channels
Real-time Sample Rate	48 MSa/s
Memory Depth	1 M
Rise Time	17.5 ns
Measurement Functions	23 automatic measurement functions
Interface	USB 2.0 (USBXITM)
Dimensions (L x W x H)	200 x 120 x 35 mm (approx. 7.87 x 4.72 x 1.38 inches)
Weight	0.3 kg (approx. 0.66 lbs)
Supported Operating Systems	Windows 10, Windows 8, Windows 7, Windows NT, Windows XP, VISTA

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please contact Hantek customer support through their official website. It is recommended to register your product if such an option is available. Always refer to the official Hantek website (<https://d.hantek.com/qE>) for the most current drivers, software, and support resources.