# USB Oscilloscope

## Nov@tek Oscilloscope and Spectrum Analyzer

**NOV@TEK**

## Introduction

The 4-channel digital storage oscilloscope at an outstanding price! When connected to PC with USB2.0 interface, you get a fully-featured storage oscilloscope with the extra advantage of being able to easily store data for later processing. This device has **4** independent analog channels with **1GSa/s** real-time sampling rate on which you can record signals up to **250 MHz**. The program screen emulates a conventional oscilloscope. The Auto Set function adjusts the settings automatically to the current signal, and the extensive trigger functions make it very simple to operate.

The expanded spectrum analyzer windows including the FFT analysis and the multi-kinds of measurements are more powerful tools in data analysis. Simply press a button to transfer the on-screen data to an Excel file for further processing and the waveform can be recalled as a reference for comparison with the new one.

## Model Selection

| Product | Channels | Bandwidth | Sampling Rate | Memory | Resolution |
|---------|----------|-----------|---------------|--------|------------|
| DSO-6074BC | 4CH | 70 MHz | 1 GSa/s | 64 KB | 8 bits |
| DSO-6104BC | 4CH | 100 MHz | 1 GSa/s | 64 KB | 8 bits |
| DSO-6204BC | 4CH | 200 MHz | 1 GSa/s | 64 KB | 8 bits |
| DSO-6254BC | 4CH | 250 MHz | 1 GSa/s | 64 KB | 8 bits |
| DSO-6074BD | 4CH + 1CH Arb. Generator | 70 MHz | 1 GSa/s | 64 KB | 8 bits |
| DSO-6104BD | 4CH + 1CH Arb. Generator | 100 MHz | 1 GSa/s | 64 KB | 8 bits |
| DSO-6204BD | 4CH + 1CH Arb. Generator | 200 MHz | 1 GSa/s | 64 KB | 8 bits |
| DSO-6254BD | 4CH + 1CH Arb. Generator | 250 MHz | 1 GSa/s | 64 KB | 8 bits |

## Features

**4CH oscilloscope** & **1CH** function/Arb. **waveform generator**.

4CH Oscilloscope

1CH AWG & USB port
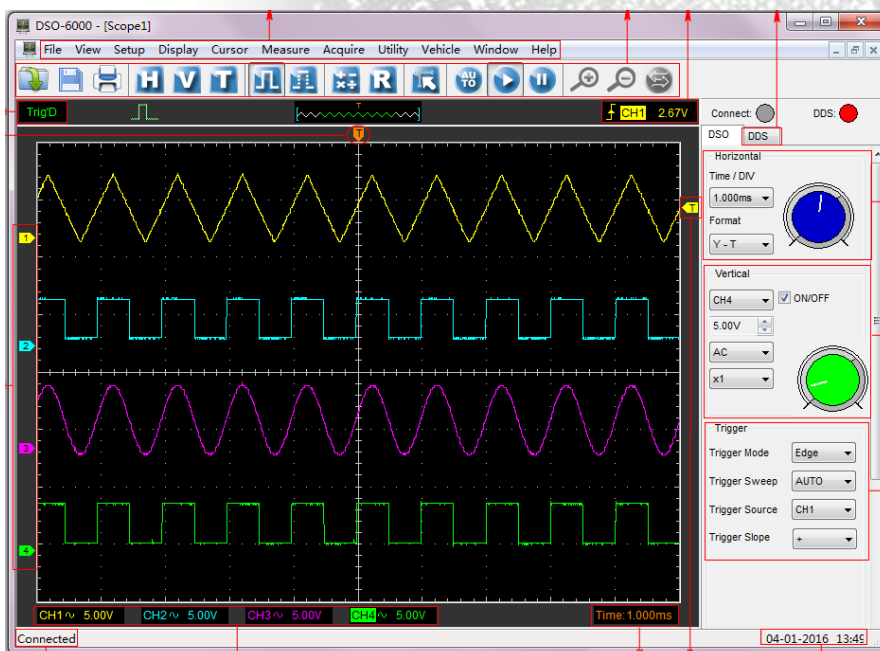
# USB Oscilloscope

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- **The performance** of this model could even better than the performance of benchtop oscilloscope.
- It has 4 independent analog channels, **1GSa/s real-time sampling rate, 2mV-10V/DIV input sensitivity, and 250MHz bandwidth.**
- Function/**Arbitrary Waveform Generator: 200MSa/s DDS, 12bits** of vertical resolution, built-in variety of standard waveforms, arbitrary waveform easy to edit, which is convenient to reappear sensor and other irregular signal.
- **Pass/fail** test, **powerful trigger** function, dynamic **cursor tracking**, waveform record and replay function. The operation interface is similar to benchtop oscilloscope, easy to operate with high cost performance.
- **USB2.0** PC Interface, **plug and play** device.
- Beautiful and Strong **Aluminum housing**.
- Software support: **Windows10, Windows 8, Windows 7 64bits and 32bits**
- The waveform **data could be exported** to EXCEL,BMP,JPG as time and voltage category.
- More than **20 kinds of automatic measurement** function
- Waveform averaging, afterglow, lightness control, reverse, add, subtract, multiply, divide, X-Y display.
- **FFT** spectrum analyzer
- One computer can connect with multiple oscilloscopes, expand the channel number easily.
- Provide secondary development **(SDK)** library **DLL;Labview\VB\VC** examples.
- **Portable** for travel: Small size(mm):175(L)x105(W)x25(H) , light weight: 900g , easy to carry.
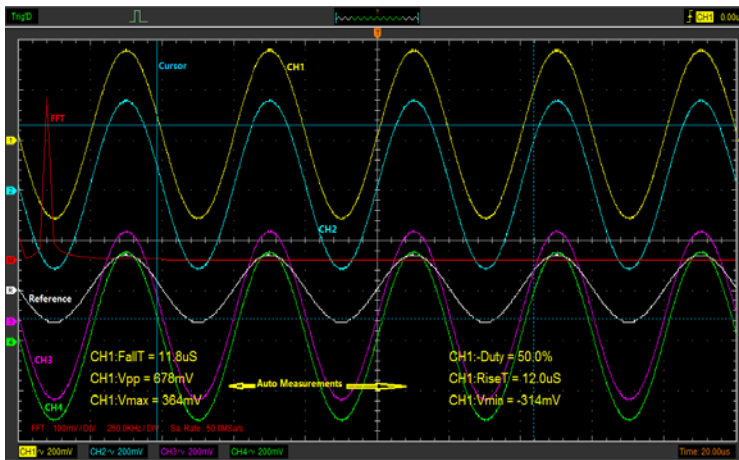
## Software

### Easy control Panel

Easy Control and Cursor Measurement emulates the conventional bench type oscilloscopes and is very intuitionistic and convenient.
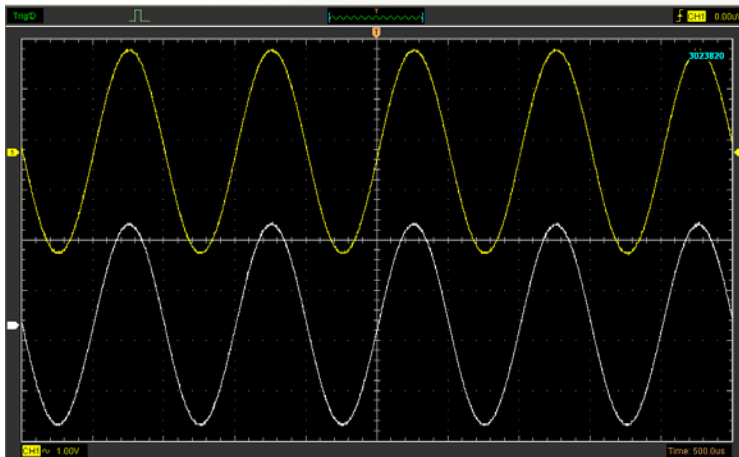
## Compact Observe and Measure Interface

You will see Cross Cursor, CH1~CH4, FFT and Reference waveforms, Auto Measurements values in below.
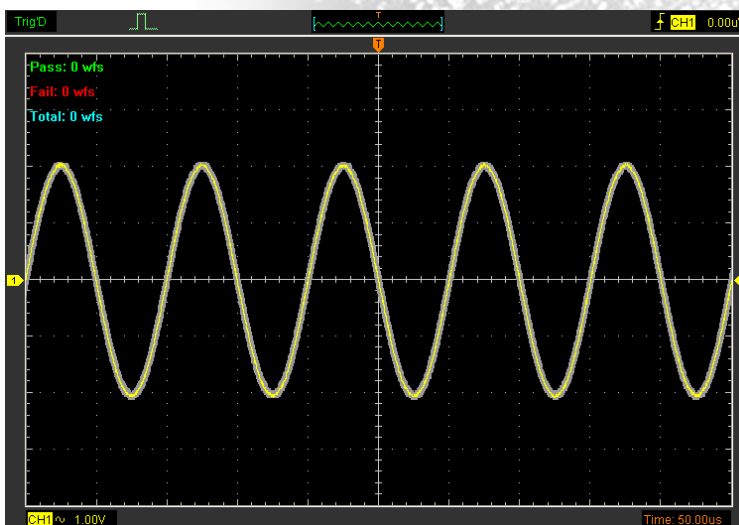


## Reference Waveform, Recorder, Pass/Fail Test



## Waveform recall as a reference waveform and to do the Pass/Fail check

The Pass/Fail function is very useful in checking if the error of a new waveform is beyond the preset limit from an original saved waveform.



**The 23kinds measurements**: Vp-p, Vmax, Vmin, Vmean, Vrms, Vamp, Vhigh, Vlow, positive overshoot, negative overshoot, cycle mean, cycle rms, period, frequency, positive pluse width, negative pulse width, rise time(10% ~ 90%), fall time(10% ~ 90%), positive duty cycle, negative duty cycle

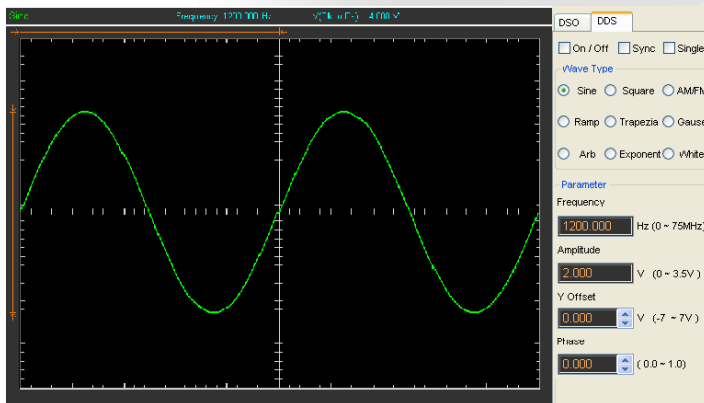**Waveform output into Excel / Word/ Txt / Jpg/ Bmp format.**

| | A | B | C | D |
|---|---|---|---|---|
| 1 | #CLOCK=0.000040000 | | **CSV File** | |
| 2 | #SIZE=10240 | | | |
| 3 | -2 | 0 | 0 | |
| 4 | -2 | 0 | 0 | |
| 5 | -2 | 0 | 0 | |
| 6 | -2 | 0 | 0 | |
| 7 | -2 | 0 | 0 | |
| 8 | -2 | 0 | 0 | |
| 9 | -2 | 0 | 0 | |
| 10 | -2 | 0 | 0 | |
| 11 | -2 | 0 | 0 | |
| 12 | -2 | 0 | 0 | |
| 13 | -2 | 0 | 0 | |
| 14 | -1.9375 | 0 | 0 | |
| 15 | -2 | 0 | 0 | |
| 16 | -2 | 0 | 0 | |

**Waveform Generator**

## Specification

| | | DSO-6074 BC/BD | DSO-6104 BC/BD | DSO-6204 BC/BD | DSO-6254 BC/BD |
|---|---|---|---|---|---|
| **Horizontal** | **Channels** | 4 | | | |
| | **Bandwidth** | 70MHz(-3dB) | 100MHz(-3dB) | 200MHz(-3dB) | 250MHz(-3dB) |
| | **Rise Time** | <=5ns | <=3.5ns | <=1.7ns | <=1.4ns |
| | **Real-time sampling Rate** | 1GSa/s | | | |
| | **Timebase range** | 2ns/div ~ 1000s/div( 1-2-4 sequence) | | | |
| | **Range** | 10 divisions | | | |
| | **Time Base Precision** | +/-50ppm | | | |
| **Vertical** | **Impedance** | 1M ohm // 25pF | | | |
| | **Vertical Mode** | CH1, CH2, DUAL, ADD | | | |

# USB Oscilloscope

| | | |
|---|---|---|
| | **Input Sensitivity** | 2mV/div to 10V/div |
| | **Input Coupling** | AC, DC, GND |
| | **Resolution** | 8Bit |
| | **Memory Depth** | 64K |
| | **Offset level** | +/-4 divisions |
| | **Voltage Range** | 2mV ~ 10V/div @ x1 probe |
| | | Supported Probe Attenuation Factor: 1X, 10X, 100X, 1000X |
| | **Range** | 8divs |
| | **Accuracy** | ±3% |
| | **Vertical Position Variable** | Yes |
| | **Input protection** | Diode clamping. 35Vpk(DC + peak AC , without external attenuation) |
| **Trigger** | **Trigger Mode** | Auto, Normal and Single |
| | **Trigger TYPE** | Edge, Pulse Width,Video, Alternative |
| | **Pre/Post trigger** | 0% ~ 100% |
| | **Trigger Source** | CH1,CH2,CH3,CH4 |
| | **Trigger level** | adjustable: +/-4 divisions |
| **X-Y** | **X-Axis Input** | Channel 1 |
| | **Y-Axis Input** | Channel 2 |
| | **Phase Shift** | Max. 3 degree |
| **Cursors and Measurement** | **Voltage Measurement** | Vpp, Vamp, Vmax, Vmin, Vtop, Vmid, Vbase, Vavg, Vrms, Vcrms, Preshoot, Overshoot |
| | **Time Measurement** | Frequency, Period, Rise Time, Fall Time, Positive Width, Negative Width, Duty Cycle |
| | **Cursors Measurement** | Horizontal, Vertical, Track, Crosss |
| | **Waveform Signal Process** | Addition, subtraction, multiplication, division, FFT, Invert |
| **Others** | **Autoset** | Yes |
| | **Cursor** | Time/frequency difference, voltage difference |
| | **Math** | Addition, subtraction, multiplication, division |
| | **Pass/Fail Check** | Yes |
| | **FFT** | Rectangular, Hanning, Hamming, Blackman Window |
| | **Interface** | Universal Serial Bus(USB2.0) |
| | | USB XI for Multi_Instrument Platform |
| | **File management** | Image save: BMP, JPG |
| | | Data save:dso |
| | | OLE(Object Linking and Embedding) automation: Data generation for Microsoft Excel |
| | | Setting save/load |
| | **Print** | Print in color/black&white |
| | **Waveform Display** | Point/Line , Average Waveform, Persistance, Intensity Adjustment |

# USB Oscilloscope



| | Grid | On/Off | | | |
|---|---|---|---|---|---|
| | Power | No external power source required. | | | |
| | | * Bus-powered from USB | | | |
| | Calibration Signal Ouput | 2V, 1kHz, Square Wave | | | |
| | S/W compatiablity | Windows XP/7/8/10 | | | |
| | SDK | LabView , VB, VC, | | | |
| | | **DSO-6074 BD** | **DSO-6104 BD** | **DSO-6204 BD** | **DSO-6254 BD** |
| FG and AWG (for 6000BD series only) | Waveform Range | DC~25MHz | | | |
| | DAC Clock | 2K~200MHz adjustable | | | |
| | Memory Depth | 2K | | | |
| | Fequency Resolution | 0.10% | | | |
| | Channel | 1CH waveform output | | | |
| | Vertical Resolution | 12bits | | | |
| | Frequency Stability | <30ppm | | | |
| | Wave Amplitude | 3.5V Max | | | |
| | Ouput Impedance | 50ohm | | | |
| | output Current | 50mApeak | | | |
| | System BW | 25MHz | | | |
| | Harmonic Distortion | -50dB(1KHz), -40dB(10KHz) | | | |
| Mechanics | Dimension | 205 x 125 x 38 mm | | | |
| | Net Weight | 430g | | | |

## Order info

| | |
|---|---|
| **DSO-6000BC** | USB Oscilloscope x 1, Oscillo-Probes x 2, BNC-Aligator Clips x 2, software CD x1 |
| **DSO-6000BD** | USB Oscilloscope x1, Oscillo-Probes x 2, BNC-Aligator Clips x 2, BNC-BNC cable x 1, software CD x 1 |