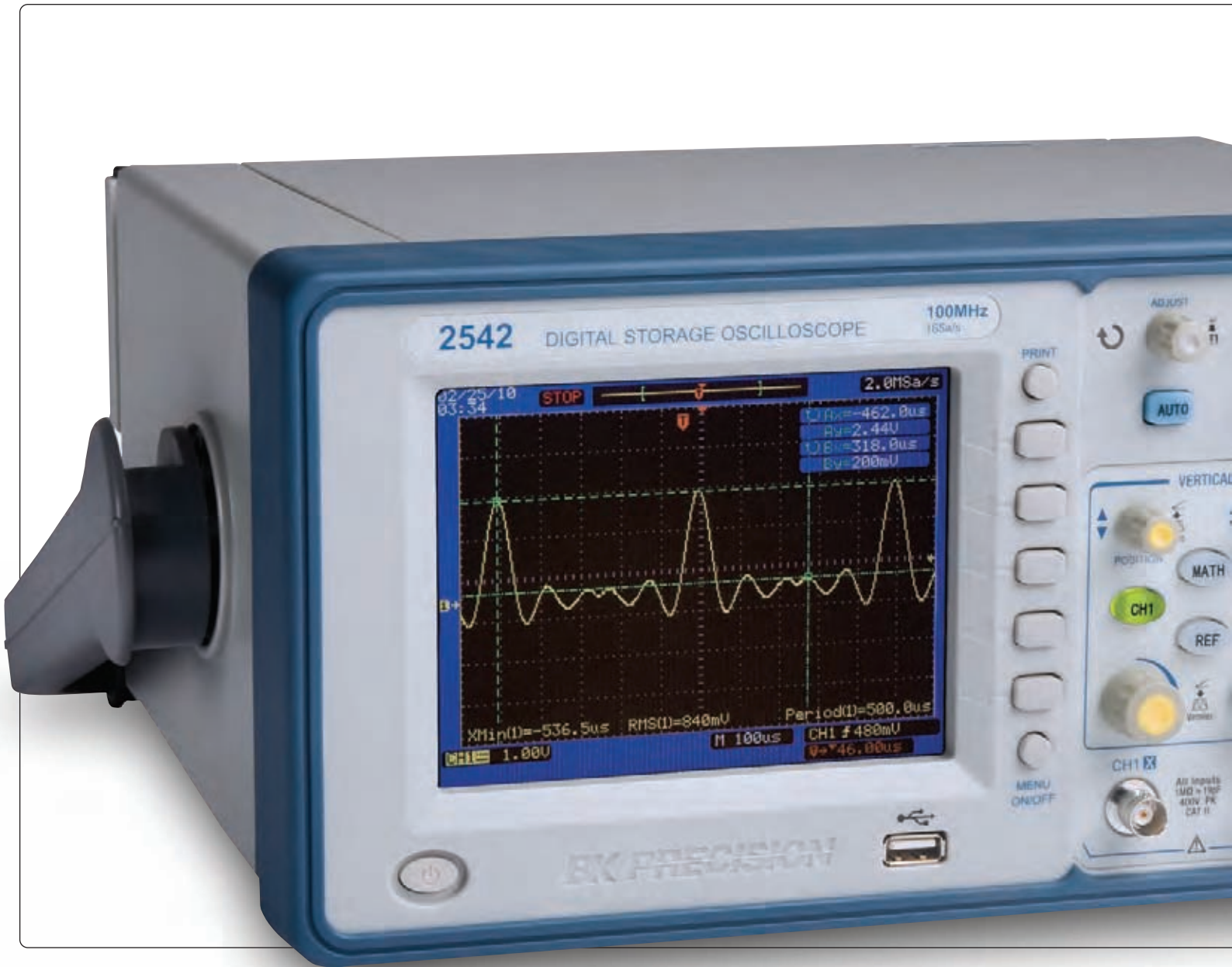


# OSCILLOSCOPES



**Applications:** Oscilloscopes display a signal or waveform by plotting a graph of voltage (y-axis) versus time (x-axis). Oscilloscopes can also plot the relationship between 2 different voltages applied to channels 1 and 2 which is called XY mode.



**Oscilloscopes** are essential tools in today's electronic world. Used in a wide variety of applications such as education, design, service, and manufacturing, B&K Precision's broad line of digital and analog oscilloscopes help engineers, technicians, and scientists solve their measurement challenges quickly and accurately.

Oscilloscopes are versatile and indispensable engineering tools which can help:

- Measure the rise time of a logic gate
- Determine the bandwidth of an amplifier
- Characterize the frequency domain of your input signal using a DSO's built-in FFT function



Model 2540



Model 2120B



# OSCILLOSCOPES

## Selection Guide

Digital Storage Oscilloscopes							
	Sample Rate	Memory Depth	PC Interface	USB host port	Display	Model	Page
25 MHz	250 MSa/s	4000 points	USB device	No	Mono-chrome	2530	33
40 MHz	500 MSa/s	4000 points	USB device	No	Color	2532	33
60 MHz	400 MSa/s	4000 points	USB device	Yes	Color	2534	34
60 MHz	1 GSa/s	4000 points	USB device	Yes	Color	2540	34
100 MHz	1 GSa/s	4000 points	USB device	Yes	Color	2542	34

Analog Oscilloscopes								
Bandwidth	Vertical Sensitivity	Max. Sweep Rate	Delayed Dual/Sweep TimeBase	Signal Delay Line	Component Tester	Z-Axis	Model	Page
20 MHz	5 mV/div to 5 V/Div	0.1 $\mu$ s/div	NO	NO	NO	NO	2522C**	35
30 MHz	5 mV/div	0.1 $\mu$ s/div	NO	NO	NO	NO	2121*	35
30 MHz	5 mV/div	0.1 $\mu$ s/div	NO	NO	NO	NO	2120B	35
30 MHz	5 mV/div	0.1 $\mu$ s/div	YES	NO	YES	NO	2125A	35
40 MHz	5 mV/div	10 ns/div	NO	NO	NO	NO	1541D	35
60 MHz	5 mV/div	0.1 $\mu$ s/div	YES	NO	YES	YES	2160A	35
100 MHz	5 mV/div	20 ns/div	YES	YES	NO	YES	2190B	35

All B&K Precision analog oscilloscopes are dual channel and have Video Sync (TV-V and TV-H).

\*= built-in 50 MHz frequency counter    \*\*= digital section features 40 MS/s sampling rate, 2 K memory per channel

### Glossary of terms

#### Bandwidth:

The bandwidth is one of the most important specifications when defining an oscilloscope as it represents the range in which an oscilloscope can display frequency accurately. The bandwidth is defined by the frequency response curve when the attenuation is at the -3 dB mark. As a general rule of thumb, the oscilloscope's bandwidth should be at least five times the highest frequency of the signal under test.

#### Delayed Time Base:

A feature in some oscilloscopes that allows a single signal to be viewed at two different time bases with the second time base expanding a portion of the waveform and starting at some point after the main time base begins. This is often useful for magnifying display.

#### Sampling Rate:

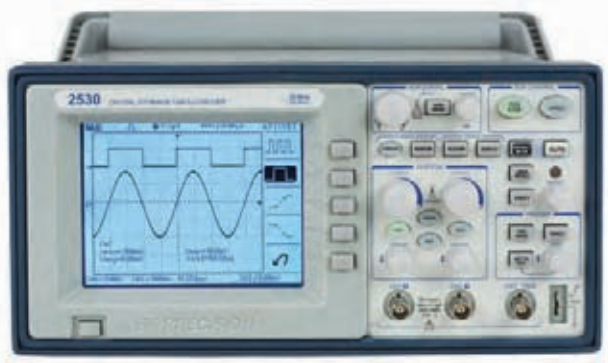
Specifies the rate at which a waveform or signal is sampled. It is one of the main specifications typically defined for oscilloscopes to demonstrate the number of data samples they can display, often measured in the units of samples per second.

#### Sweep Rate:

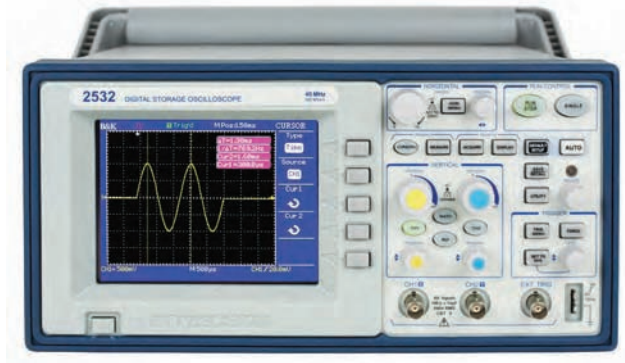
Rate at which a sweep generator repeats a sweep cycle.

# OSCILLOSCOPES

## Digital Storage Oscilloscopes



Model 2530



Model 2532

The 2530 and 2532 digital storage oscilloscopes (DSO) deliver essential features and reliable performance at an affordable price. Analog style controls combined with Auto functions make these oscilloscopes easy to use.

### Security loop

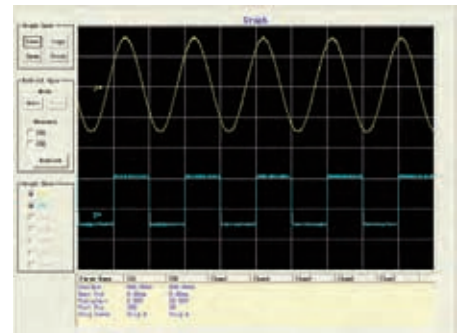


Use the built-in cable channel to secure your oscilloscope to your location

### Features & Benefits

- One-touch automatic setup for ease of use
- 4000 point record length for each channel
- Eleven automatic measurements
- FFT standard plus 4 additional math functions
- Extensive trigger capabilities including pulse width and line-selectable video trigger
- Save/Recall settings and waveform data
- Multiple language interface

### Simple Documentation and Analysis



The included **EasyScope** software provides seamless integration between the oscilloscope and PC. Capture and transfer waveforms, screen images, setups, and measurement results to a Windows PC via the USB device port on the back of the instrument.

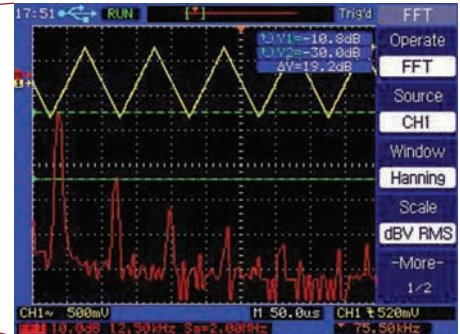
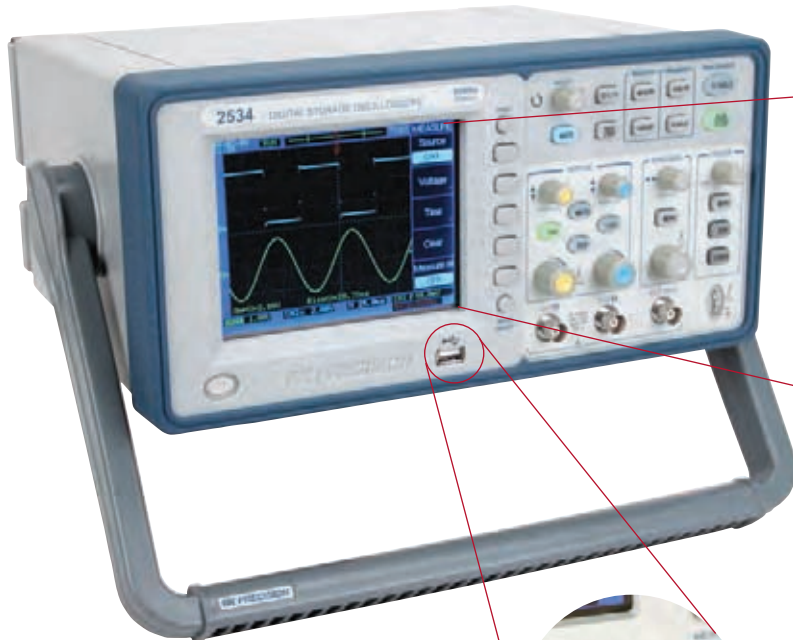
### Features & Benefits

- Save waveform data in csv (Microsoft Excel) format for post acquisition analysis
- Document your results: print, save, or copy/paste waveform data and measurement results. Save and print bitmap images and setups
- Capture waveforms and measurement results manually or automatically at user-defined intervals
- Auto mode with fast refresh rate of 0.5 seconds, allowing for virtually real time waveform capture

Specifications	2530	2532
Bandwidth	25 MHz	40 MHz
Sample Rate	250 MSa/s	500 MSa/s
Channels	2	2
Display	Monochrome LCD	Color LCD
Record Length	4000 points	4000 points
I/O interface	USB device port for connection to PC	
Vertical Resolution	8 bits	
Vertical Sensitivity	2 mV - 5 V/div	
Weight	10 lbs (4.6 kg)	8 lbs (3.6 kg)
Dimensions (W x H x D)	11.4" x 5.9" x 11.8" (290 x 150 x 300) mm	

# OSCILLOSCOPES

## Digital Storage Oscilloscopes



FFT spectrum analysis screen



**Models 2534, 2540, and 2542** dual channel DSOs deliver an unmatched combination of performance and value. Advanced features such as FFT function, digital filtering, waveform recorder, delayed sweep, mask testing, and automatic measurements provide you with powerful tools to debug your circuits.

These DSOs come with PC software that lets you easily capture, save, and analyze waveforms and measurement results. Unlike many other DSOs in this price category, they also include two 150 MHz high performance passive probes that will not limit the bandwidth of your measurement system.

### Common Features & Benefits

- 4000 point record length for each channel
- Color LCD display
- USB front panel host port and device connectivity standard
- Digital filter with adjustable limits
- Mask testing
- Waveform recorder mode
- 24 automatic measurements
- FFT standard plus 3 additional math functions
- Extensive trigger capabilities including pulse width and line-selectable video trigger
- Multiple language interface

Specifications	2534	2540	2542
Bandwidth	60 MHz	60 MHz	100 MHz
Sample Rate	400 MSa/s	1 GSa/s	1 GSa/s
Channels	2	2	2
Display	Color LCD	Color LCD	Color LCD
Record Length	4000 points		
I/O interface	Front panel USB host port, USB device port for connection to PC		
Vertical Resolution	8 bits		
Vertical Sensitivity	2 mV - 5 V/div		
Weight	8 lbs (3.6 kg)		
Dimensions (W x H x D)	12.2" x 5.8" x 10.6" (310 x 147 x 269) mm		

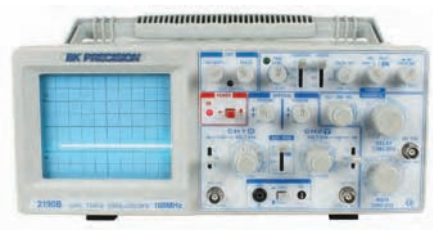
# OSCILLOSCOPES

## Analog Oscilloscopes

**B&K Precision** offers a wide selection of analog oscilloscopes. From entry-level to high performance, these oscilloscopes provide many features at a low cost.

### Common Features & Benefits

- Dual or single trace operation
- 5 mV/div sensitivity
- Calibrated 23-step time base with X10 magnifier
- Video sync trigger
- Alternate/chop sweep
- Sum and difference capability



Model 2190B



Model 2121



Model 2522C

### Features & Benefits

- Built-in component tester (2125A and 2160A only)
- Bandwidth limiter (2190B only)
- Built-in 50 MHz frequency counter (2121 only)
- Delayed time base\*
- Main, Mix, Delay, X-Y sweep modes\*

\*2125A, 2160A, and 2190B only

**The 2522C** is one of the lowest cost digital storage/analog oscilloscopes in the industry and includes basic features needed by most technicians and engineers.

### Features & Benefits

- Digital storage function (2 kB/ch with direct sampling, 1 kB/ch with equivalent time sampling)
- 1 GHz equivalent time sampling (at 0.1 us/div)
- Pretrigger capture
- USB host port for saving screen images to USB flash drive
- 40 MS/s sampling rate

Specifications	2522C <sup>o</sup>	2121	2120B	2125A <sup>o</sup>	1541D <sup>o</sup>	2160A <sup>o</sup>	2190B <sup>o</sup>
Bandwidth	20 MHz	30 MHz	30 MHz	30 MHz	40 MHz	60 MHz	100 MHz
Vertical Sensitivity	5 mV/div to 5 V/div, 1 mV/div to 1 V/div at X5 MAG						
Attenuator	10 calibrated steps in 1-2-5 sequence. Vernier. Control provides fully adjustable sensitivity between steps; range 1/1 to at least 1/3.						
Vertical Accuracy	±3%, 5 mV to 5 V/div; ±5% at X5 MAG						
Rise Time	18 ns *	12 ns *	12 ns *	12 ns *	8.8 ns *	5.8 ns *	3.5 ns *
Sweep Modes			Main	Main, Mix, Delay, X-Y	Main	Main, Mix, Delay, X-Y	Main, Mix, Delay, X-Y
Sweep Time	0.1 s/div to 0.5 s/div			0.1 s/div to 2 s/div			20 ns/div to 0.5 s/div
Sweep Magnification	X10 ±10%						
Weight	18.7 lbs (8.5 kg)		16.8 lbs (7.6 kg)			16.75 lbs (7.6 kg)	18.7 lbs (8.5 kg)
Dimensions	12.8" x 5.2" x 15.7" (324 x 132 x 398) mm						

\* = (Overshoot < 5%)

