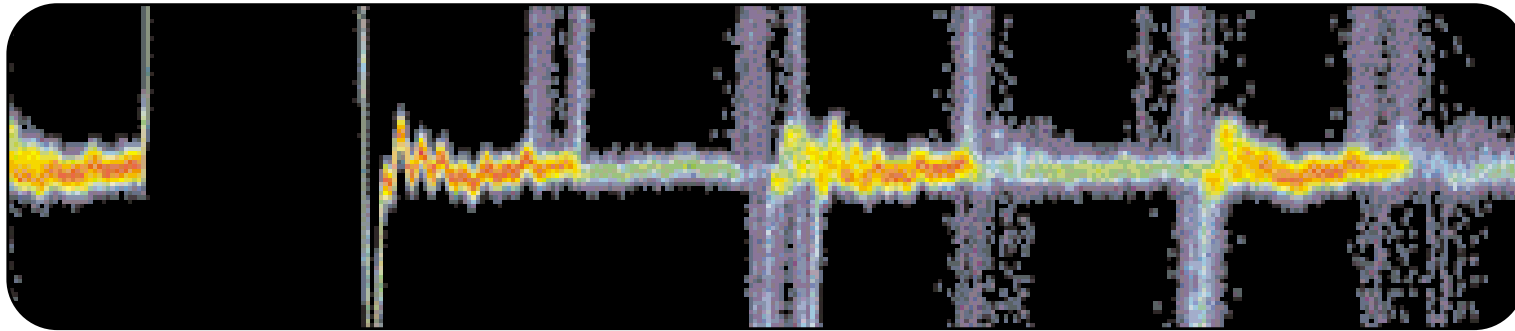


▶ Bandwidth

If I could
...be sure I have enough...



Higher Speeds Demand Greater Bandwidth

Bandwidth is the most important single criterion in choosing an oscilloscope.

It determines an oscilloscope's fundamental ability to measure a signal.

Without adequate bandwidth, your oscilloscope will not be able to resolve high-frequency changes. Amplitude will be distorted. Edges will vanish. Details will be lost. Without adequate bandwidth, all the features, bells and whistles will mean nothing.

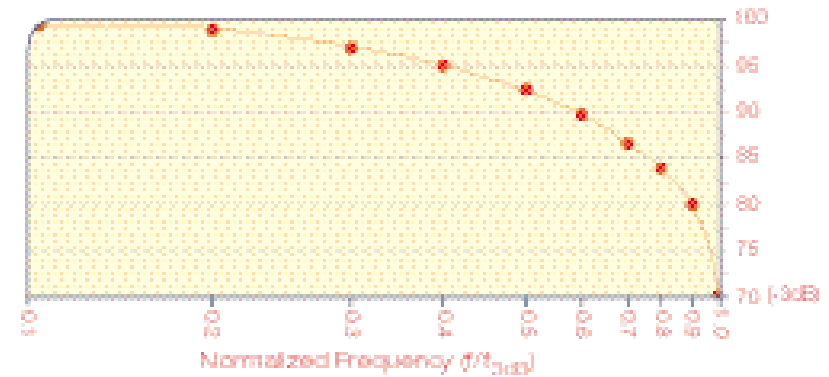
Oscilloscope bandwidth is specified as the lowest frequency at which a sinusoidal input signal is attenuated to 70.7% of the signal's true amplitude.

To determine the oscilloscope bandwidth required to accurately characterize signal amplitude in your specific application, apply the "5 Times Rule."

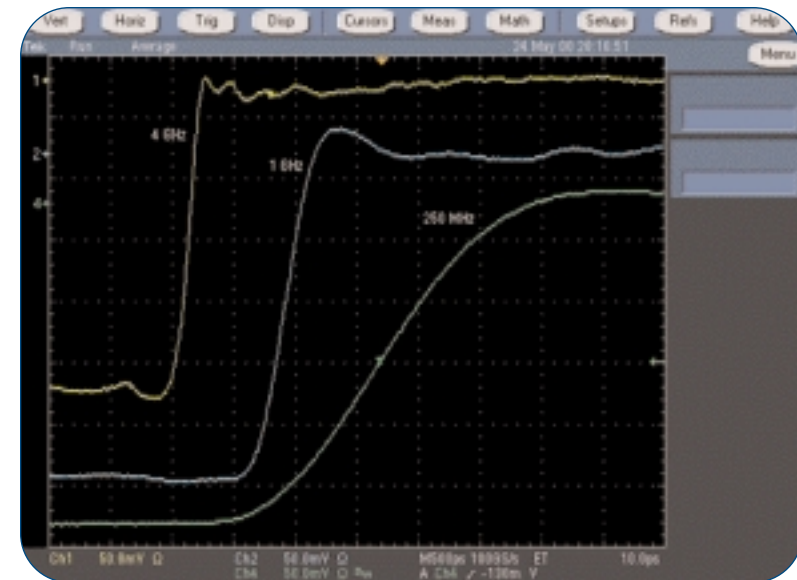
► **The 5 Times Rule**
Oscilloscope Bandwidth Required =
Highest Frequency Component of Measured Signal x 5

An oscilloscope selected using the 5 Times Rule will give you greater than $\pm 2\%$ accuracy in your measurements – typically sufficient for today's applications. However, as signal speeds increase, it may not be possible to achieve this rule of thumb. Always keep in mind that the higher the instrument bandwidth, the more accurate the reproduction of your signal... and the longer the useful life of the oscilloscope. When it comes to bandwidth, you can never have too much!

Tektronix offers the widest selection of oscilloscopes available, offering bandwidths from 60 MHz up to 70 GHz and beyond. Check the Selection Guide at the right for the oscilloscopes that meet your bandwidth requirement.



► Oscilloscope bandwidth is the frequency at which a sinusoidal input signal is attenuated to 70.7% of the signal's true amplitude, known as the -3 dB point.



► The higher the bandwidth, the more accurate the reproduction of your signal, as illustrated with a signal captured at 250 MHz, 1 GHz and 4 GHz bandwidth levels.