

## Advantages of Peak Detect

Unless a sweep speed (timebase) is selected that requires the fastest sample rate of the ADC, sample points are thrown away. Peak Detect takes advantage of those „extra“ samples by repeatedly extracting the highest and lowest data values between the sample intervals and using them as waveform points to build the display waveform.

This results in a waveform that looks like an envelope and contains high frequency information that would have otherwise been missed due to lower sampling rates, thus making Peak Detect a solution for the aliasing problem .

Peak Detect provides the most value at slower sweep speeds because it enables the user to identify high frequency information (noise, glitches) in low frequency signals.

For example:

If the ADC's maximum rate is 1GS/s and the oscilloscope is currently set to 1 $\mu$ s/div, then each pair of waveform points drawn on the screen represent the high and low vertical (voltage) values between the sample intervals , each containing 20 sample points.

The number of sample points in one interval can be seen in the W2000A Programmers Reference using the timebase table row „factor“.

For searching glitches it might be useful to combine Peak Detect with the persistent display mode.

## Disadvantages of Peak Detect

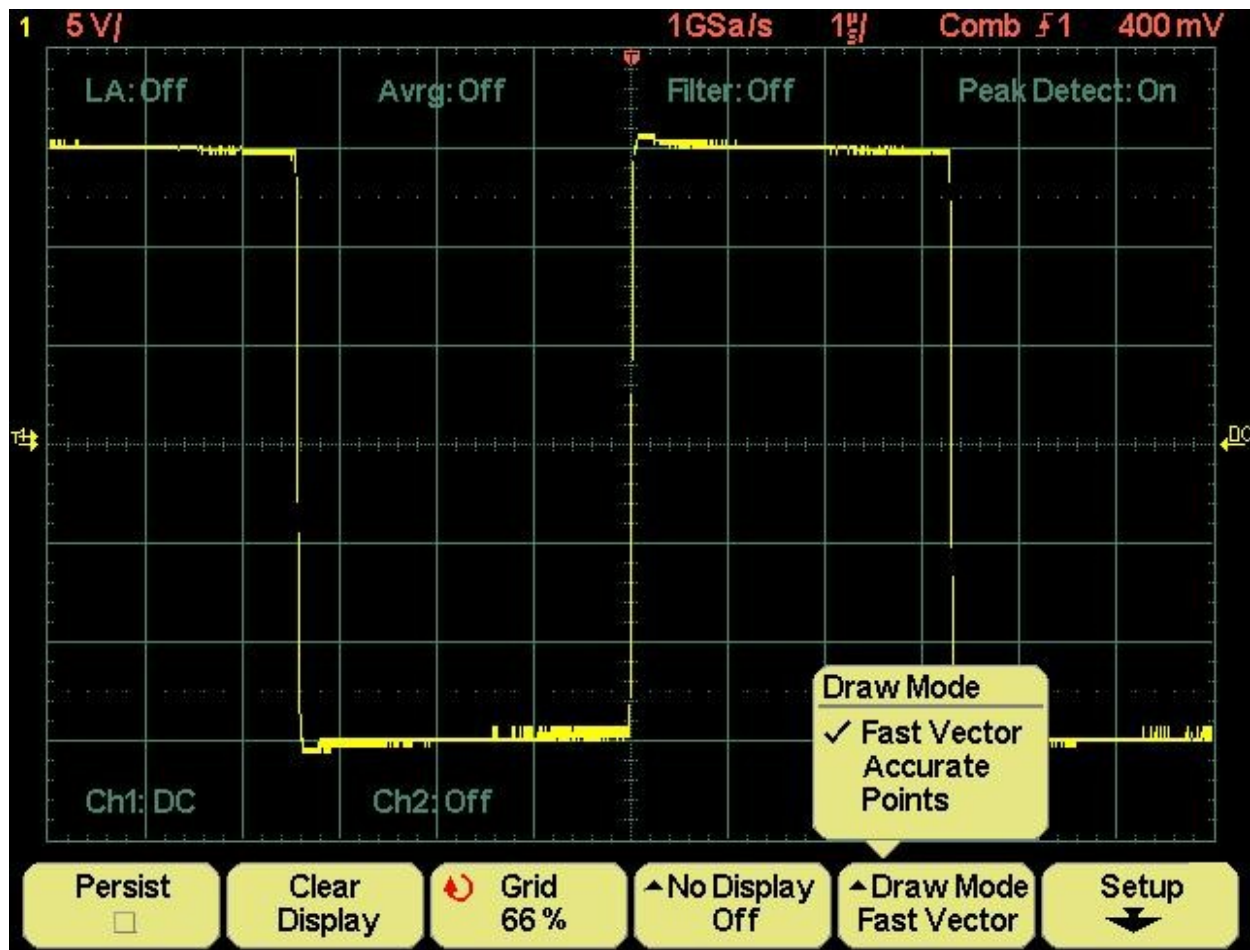
One peak detection disadvantage is the apparent noise on the oscilloscope display. The storage of only maximum and minimum voltage levels has the effect of making the input waveform appear to contain more noise or signal aberrations than are actually present.

This is because the peak detection algorithm stores only these peak values, and not normal signal voltage levels. Traditional digital oscilloscope peak detection gives the user a biased view of the input signal by over emphasizing the signal's infrequent amplitude deviations.

## Display Modes

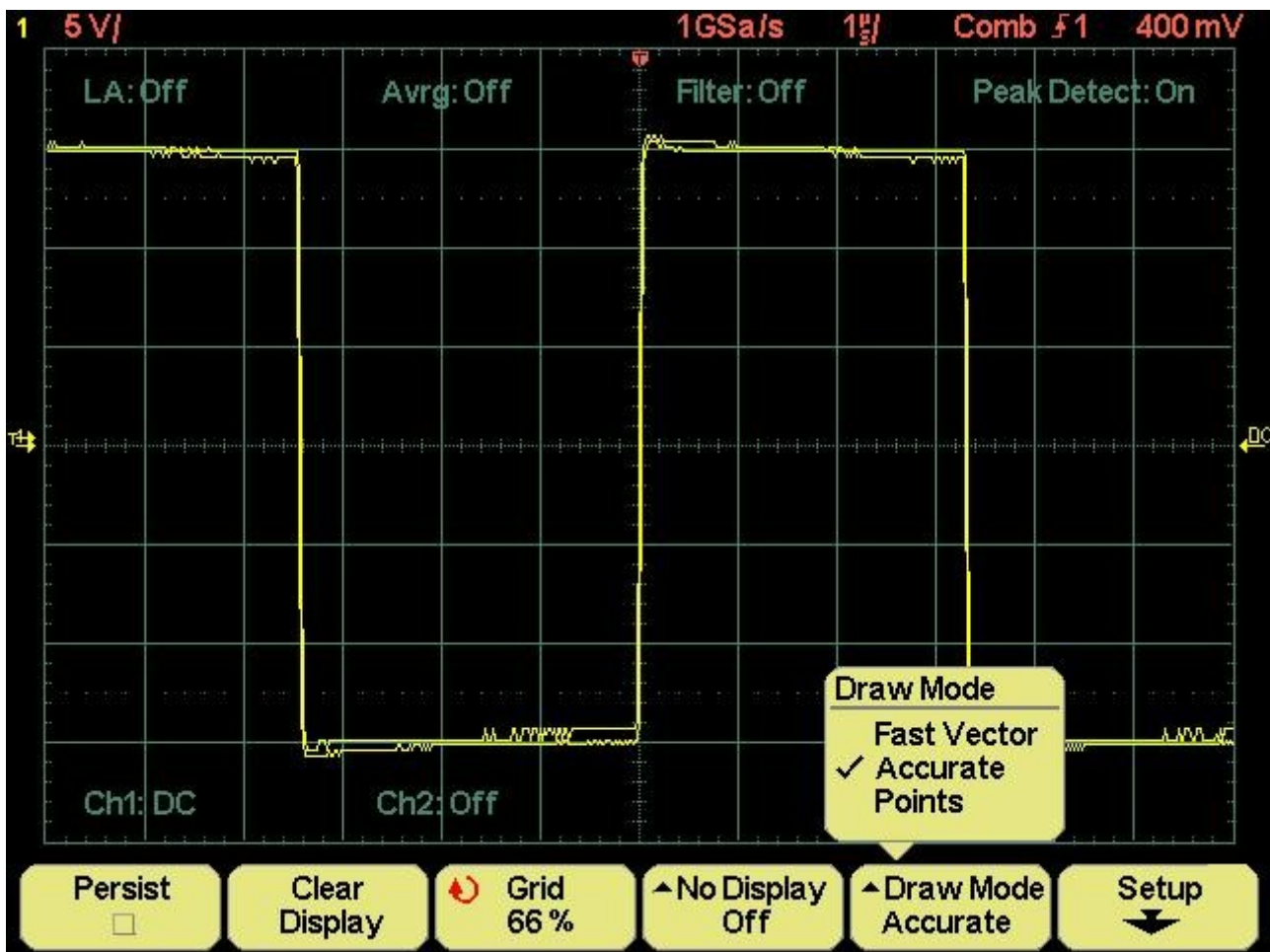
There are three display options available for Peak Detect.

1. **Fast Vector**
2. The pairs of minimum / maximum points are connected by vertical lines. This creates a solid signal line. The thickness depends on the noise level of the signal.



### 3. Accurate

The minimum / maximum points are drawn as separate lines. This creates an envelope like signal.



#### 4. Points

Only the minimum / maximum points are drawn.

