

# SDS2000X HD Digital Storage Oscilloscope release

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As digital speeds and device complexity continue to increase, signals under test are getting more complex, engineers are more challenged to isolate anomalies in their devices. Test tools for such applications require wide dynamic range measurements to look at very small signals in the presence of relatively large amplitudes. The new high-resolution SDS2000X HD series of oscilloscopes from SIGLENT are available in bandwidths of 100, 200, and 350 MHz. They are based on a new 2 GSa/s, 12-bit ADC front end that features an exceptionally low noise floor which provides more signal details and enables Engineers to get more accurate waveform measurements.

The vertical resolution of an oscilloscope refers to the ratio of the highest input signal the oscilloscope can handle to the smallest signal amplitude it can detect. With higher resolution measurements, waveform details become more visible, quantization noise is reduced, and measurement accuracy improve.

The Siglent SDS2000X HD series is a next-generation oscilloscope using a 12-bit ADC and low noise front-end, which has 16 times the signal resolution capability of a traditional 8-bit oscilloscope. The SDS2000X HD series displays signal details in finer detail, make more precise measurements, have higher voltage offsets, and better accuracy than traditional 8-bit oscilloscopes. (Figure 1 & 2)

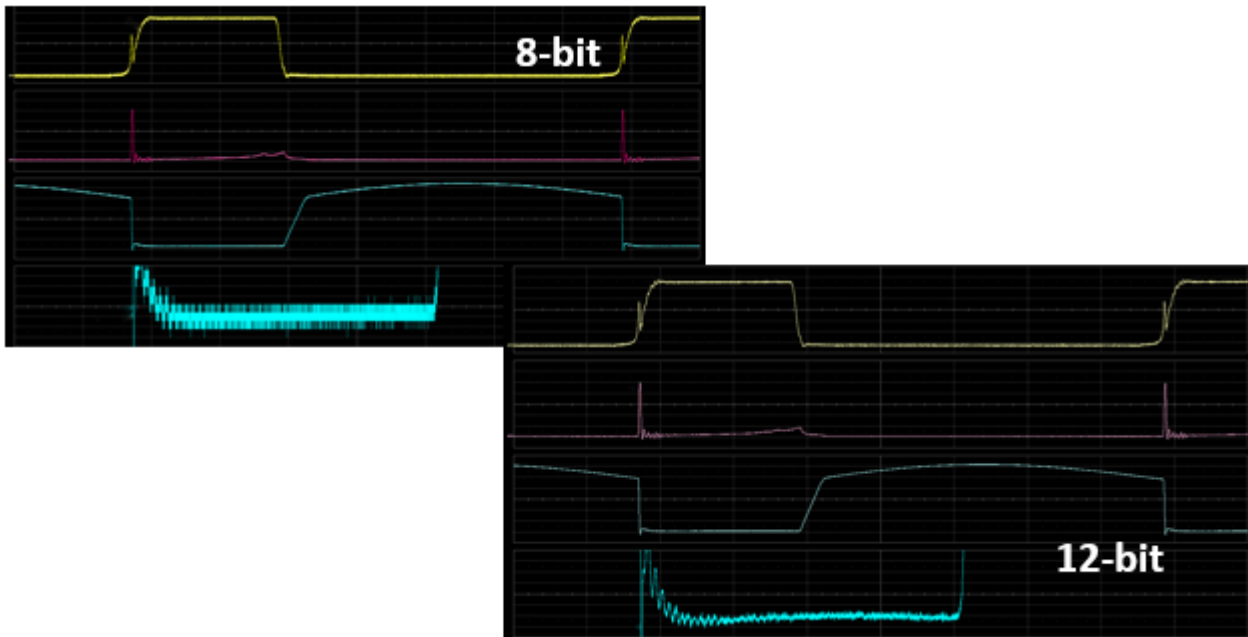


Figure 1: An 8-bit resolution acquisition shows a blurred saturation voltage trace with details buried in quantization noise but the 12-bit oscilloscope clearly shows details of the saturation voltage.

Full Scale	Smallest Voltage Step	
	8-bit	12-bit
80 V	312.5 mV	19.5 mV
40 V	156.2 mV	9.76 mV
20 V	78.1 mV	4.88 mV
8 V	31.3 mV	1.95 mV
4 V	15.6 mV	976 $\mu$ V
1.6 V	6.3 mV	390 $\mu$ V
800 mV	3.1 mV	195 $\mu$ V
400 mV	1.56 mV	97.6 $\mu$ V
160 mV	625 $\mu$ V	39 $\mu$ V
80 mV	313 $\mu$ V	19.5 $\mu$ V
40 mV	156 $\mu$ V	9.76 $\mu$ V
16 mV	62.5 $\mu$ V	3.9 $\mu$ V
8 mV	31.2 $\mu$ V	1.95 $\mu$ V

Figure 2: When measuring an 8 V signal, the smallest detectable voltage variation is 1.95 mV, compared with 31.3 mV on an 8-bit ADC.

The SDS2000X HD series also includes several time-saving features. They include deep memory with a



maximum record length of 200 Mpts/ch and display 4 analog channels and an optional 16 digital channels for mixed signal analysis. They employ Siglent's SPO technology with a maximum waveform capture rate of up to 100,000 wfm/s ( up to 500,000 wfm/s in Sequence mode), 256-level intensity grading display function plus a color temperature display mode.

SDS2000X HD also employs an innovative digital trigger system with high sensitivity and low jitter. The trigger system supports multiple powerful triggering modes including serial bus triggering. An impressive array of measurement and math capabilities, options for a 25 MHz arbitrary waveform generator, as well as serial decoding are also features of the SDS2000X HD.

If you are a power supply designer, medical device Engineer, or working on systems where accuracy and resolution are critical, the SIGLENT SDS2000X HD 12-bit oscilloscope is an ideal solution to your test needs.



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