SIGLENT presents its first oscilloscope series with 12-bit vertical resolution

Applications from power electronics, medical technology, or the IoT often require fine vertical resolution to analyze signal anomalies. The 8-bit resolution of oscilloscopes commonly available on the market is generally insufficient to record these details. A device with 12-bit analog-to-digital conversion provides 16x more resolution and is therefore very well suited for these tasks. The maximum benefit of 12-bit resolution can only be achieved with a low-noise front end. The new SIGLENT SDS2000X HD delivers low noise, high resolution, and many standard functions to give Engineers the tools they need to succeed.

June 09, 2022: SIGLENT Technologies has introduced a new 12-bit oscilloscope series. Compared to 8-bit ADCs, 12-bit systems have 16x higher vertical resolution which provides significantly lower quantization error. This improvement in resolution is valuable when analyzing the smallest signal details, and is especially useful when the zoom function is used. The analog-to-digital converters have a maximum sampling rate of 2 GS/s and all models in the series come with 4 analog input channels. All oscilloscopes are equipped with two AD converters and 2 x 200 Mpt acquisition memory. With four activated channels, this results in a minimum sampling rate of 1GS/s and a memory depth of 100 MPkt at each channel. The devices are available in bandwidths of 100, 200, and 350 MHz. If more bandwidth is required, a bandwidth upgrade option is available to expand two independent channels to 500

MHz.

The further integrated functions and features of the new series are identical to those developed for our very successful SDS2000X Plus series. The following functions are included: Zone trigger, counter, totalizer, mask test, history with search function, FFT analysis with up to 2 million points, serial bus triggering and decoding for I2C, UART, SPI, LIN, CAN.

Optional decoding protocols that are available include I2S, CAN FD, FlexRay, MIL1553, SENT, and Manchester. For MSO/digital logic functionality, users can easily add the SPL2016 hardware and the appropriate software to add 16 digital measurement channels.

The sequence mode increases the waveform capture rate up to 500,000 wfm/s. This reduces the dead time of the oscilloscope by a factor of approx. 5 compared to "normal mode" and enables the developer to find rare signal anomalies more quickly.

The integrated Bode plot function, together with the optional 25 MHz function generator, enables convenient, space-saving, and cost-effective frequency analysis without additional investment in external instruments. In the development of switched-mode power supplies (SMPS), Bode plots are regularly used to measure the phase and gain margin of feedback systems to determine the stability of the design.

Like the X-Plus series, the X-HD series has a power analysis option. This enables the user to perform the most important measurements automatically and helps to determine the required power supply properties. The higher resolution increases the accuracy of the power analysis measurement and thus the analysis capability. Along with Siglent's range of current clamps and differential voltage probes, this option is a must for optimizing your SMPS designs.

The intuitive operating concept known from the previous series is also implemented. The oscilloscopes are equipped with a 10.1-inch touch screen and the operation via mouse and keyboard are supported. Remote control can be done via the built-in web server.

In summary, the SDS2000X HD series is one of the most powerful oscilloscopes on the market. The high resolution enables deeper insights into many applications and will speed your time to market. The 12-bit resolution makes this series particularly suitable for use in the areas of power electronics, medical technology, and the IoT.