



Press Release

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Zurich
Instruments

New Zurich Instruments Arbitrary Waveform Generator for quantum research, spectroscopy applications, and component testing

The new HDAWG offers the highest channel density and the lowest trigger latency available. With its 16-bit vertical resolution, internal oscillators, and industry-leading software it delivers high signal fidelity and efficient workflows at competitive pricing.

Hardware & Pricing

Zurich Instruments, a leading innovator in scientific test & measurement solutions, introduced today a new arbitrary waveform generator (AWG). The HDAWG is a high-density multi-channel AWG featuring the highest channel density and the lowest trigger latency (< 50 ns) available. Both the 4 and 8 channel models offer 16 bits of vertical resolution at a sampling rate of up to 2.4 GSa/s and a signal bandwidth of 750 MHz. The maximum output amplitude is ± 5 V. Prices start at USD 5,500 per channel, making the total cost of ownership highly competitive.

Software, Work Efficiency, and Scaling

"The most exciting part of the HDAWG is how LabOne, the innovative software package included with all our instruments, enables efficient workflows. It has browser-based instrument control and APIs for the most important software environments. The LabOne sequencer combines waveform and sequence definition in a single editor and enables the use of parametrized control sequence and internal oscillators," says Bruno K ung, Chief AWG Evangelist of Zurich Instruments. "It reduces a lot the sample-based waveform definition from third party software and so minimizes the waveform transfer times. In addition, the C-like sequencer language makes it easy to define branching conditions so the user will find it much easier to stay on top of the signal generation complexity required for demanding multichannel applications."

LabOne also contains Multi-Device Synchronization (MDS) supporting a user-friendly way to scale up to 64 channels on eight automatically synchronized instruments at the picosecond level. With MDS the waveforms are defined in a single editor, then compiled and distributed across all the instruments. The software also integrates with other measurement devices like the Zurich Instruments UHFIL comprising lock-in amplifier, digitizer, boxcar average, scope and spectrum analyzer functionality.

Quantum Computing, Spectroscopy & Component Testing

The HDAWG targets all multi-channel applications that demand high signal fidelity. Quantum computing is an example. Many channels have to run with full synchronicity but be able to break out quickly new branch sequences based on measurement results. Also, pairing two channels for I/Q mixing is naturally supported for implementations where frequency up-conversion is needed. NMR and other spectroscopy applications benefit from the advanced modulation schemes based on internal oscillators, variable sampling rates and parametric sweeping. Nested sequencing, waveform iteration, and dynamic sequencing with DIO control are ideal for high-throughput device testing. Multiplying or adding the AWG signal with a function generator signal extends the possibilities and helps simplify and speed up daily measurement routines.

To learn more about the new multi-channel HDAWG visit our website (www.zhinst.com) and schedule a demo: info@zhinst.com.

About Zurich Instruments

Zurich Instruments makes AWGs, lock-in amplifiers, and impedance analyzers that are revolutionizing the way medium-frequency (MF) and ultra-high-frequency (UHF) measurements are being made. Frequency-domain tools and time-domain tools and powerful software are integrated into each product, reducing the complexity of laboratory setup, cutting out steps that generate errors, and enabling new measurement approaches that advance the progress of science and research.

Resources

Zurich Instruments HDAWG product website: www.zhinst.com/products/hdawg

Zurich Instruments website: www.zhinst.com

Keywords: AWG, arbitrary waveform generation, quantum computing, radar, lidar, NMR, Spectroscopy, device testing, component testing

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