

## hybridNETBOX – multi-channel AWG and digitizer in one box

*A single instrument that simultaneously generates, acquires and analyzes electronic signals*

**Grosshansdorf, Germany – September 16<sup>th</sup>, 2020.** The hybridNETBOX is an exciting new instrumentation platform for applications that require simultaneous signal generation and acquisition. Six models are available offering the choice of two, four or eight pairs of matched AWG and digitizer channels, with output- and sampling-rates of 40, 80 and 125 Megasamples per second. With their ability to create and acquire electronic signals at the same time, these products are perfect for measurement systems that need to perform automated closed-loop or stimulus-response type testing. For example, they can reproduce and capture “echo” signals such as those found in Radar, Sonar, Lidar or Ultrasound. With their multi-channel capability, they can test these systems even when arrays of transmitters and receivers are used.

The hybridNETBOX is also suited to ATE applications where components and subassemblies need to be tested in a fast and automated way. They can quickly ascertain the functionality and tolerance of DUTs and UUTs (devices or units under test) by exercising them with numerous, easily adjusted, complex signals. This powerful testing process can be deployed in a host of applications like Bus testing, MIMO communications, circuit verification, mechatronics and robotics.

Oliver Rovini, Technical Director at Spectrum Instrumentation, says: “We’ve created the hybridNETBOX series for engineers and scientists that require precise, simultaneous waveform generation and signal acquisition in manual, automated or remotely controlled applications. With these portable LXI



instruments, we offer unique hardware and software capabilities allowing all users to match their specific testing requirements and also speed up their testing processes.”

For accurate, low-noise waveform generation and acquisition, the units all use the latest 16-bit digital to analog, and analog to digital, converter technology. All the channels are synchronized, sharing a common clock and trigger. The AWG channels can produce almost any waveform with signal amplitudes that go up to  $\pm 6$  V into 50 ohm, or  $\pm 12$  V into high impedance. Waveform output modes include Single-Shot, Loop, FIFO Streaming, Gated Replay and Sequence Replay. This permits the easy creation of test routines that can go from simple to complex. Meanwhile, the digitizer channels are designed to handle a wide range of input signals. They have variable input ranges that go from  $\pm 200$  mV up to  $\pm 10$  V, with fully programmable offset and selectable input impedance (50 ohm and 1 Megaohm). Both single ended and differential measurement modes are available. Like the AWG channels, they support a number of operating modes including Single-Shot, FIFO Streaming, Multiple Recording, Gated Sampling, and ABA (sample rate switching). This combines with a variety of flexible trigger modes (Channel, External, Software, Window, Pulse, Re-Arm, Spike, Logic and Delay) to make sure that an important event is never missed.

In addition to the digitizer and AWG channels, the front-panel of each hybridNETBOX includes multiple digital I/O connectors. These make it easy to integrate units into a test system. For example, synchronous marker outputs are available that can be used on the AWG channels to allow precise control of other devices

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or instruments. Similarly, it's possible to synchronize the unit with other equipment, by applying an external clock and triggers.

As the hybridNETBOX instruments are fully LXI compliant, they're easy to control and operate. Just connect the unit to a PC or a company network via the rear panel Gbit Ethernet port. The instruments come with all the tools needed to start generating waveforms and acquiring signals. Each hybridNETBOX includes Spectrum's own control software -- SBench 6 --



for signal generation, acquisition, display, signal processing, storage and reporting. SBench 6 allows waveforms to be created using standard functions and mathematical equations. Data can be acquired with the digitizer part and then being transferred to the AWG for replay. Data sharing with other programs or devices, such as oscilloscopes, is possible using built in import/export functions for transferring data in Binary, ASCII or Wave formats. Fully programmable, the hybridNETBOX comes with drivers for Windows and Linux operating systems, as well as programming examples for C++, LabVIEW, MATLAB, Visual Basic .NET, Python and other popular programming languages.

With over 30 years of knowledge in designing and building fast AWGs and digitizers, Spectrum offers an industry-leading 5-year warranty for customer's peace of mind. This includes free software and firmware updates for each unit's lifetime. Additionally, customers get support directly from Spectrum's hardware and software engineers. The hybridNETBOX is available now, with typical delivery being 2-3 weeks after the receipt of a purchase order.

### About Spectrum Instrumentation

Spectrum Instrumentation, founded in 1989, uses modular design to create a wide range of digitizer and generator products as PC-cards (PCIe and PXIe) and stand-alone Ethernet units (LXI). In 30 years, Spectrum has gained customers all around the world, including many A-brand industry-leaders and practically all prestigious universities. The company is headquartered near Hamburg, Germany, and known for its outstanding support that comes directly from the design engineers. More information about Spectrum can be found at [www.spectrum-instrumentation.com](http://www.spectrum-instrumentation.com)

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