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Oscilloscope Technology

Keysight Technologies, Inc. has announced the new Infiniium 8-channel oscilloscope technology, which is now available via both distribution and direct channels.

Powerful and intuitive to use, the new Infiniium EXR-Series extends the power of Keysight's Infiniium MXR oscilloscope family to users who want to buy through the company's global network of distributors.

The Infiniium MXR-Series and EXR-Series feature multiple instruments integrated into a single platform for higher engineering productivity and ease-of-use.

Designs are growing more complex, and the benchmark for professional mainstream bench debug and analysis continues to rise. The new Infiniium EXR-Series mixed signal oscilloscope (EXR-Series) is the professional engineer's ultimate tool for general purpose debug. The Infiniium-EXR and -MXR families feature a state-of-the-art ASIC which powers 7 integrated applications, including oscilloscope, digital voltmeter (DVM), waveform generator, Bode plotter, counters, protocol analyzer and logic analyzer. The EXR-Series offers up to 8 analog channels that operate simultaneously at 2.5 GHz with 16 independent digital channels.

Professional engineers need tools that keep up with the complexity of their designs. Infiniium EXR and MXR deliver advanced applications and features on a 15.6-in high-definition touchscreen, enabling users to access both built-in applications and powerful advanced applications.

The 15.6-in high-definition touchscreen display of the EXR-Series is complemented by the ability to duplicate or extend the scope's screen to another monitor, improving overall productivity. A built-in



Fault Hunter feature automatically analyzes the normal signal for 30 seconds and initiates advanced triggers to find rare or random signal faults. The EXR-Series' automatic, one-button launch to find physical layer signal anomalies speeds design and troubleshooting efforts, adding efficiency and expertise. Infiniium users can analyze data anywhere with the advanced Infiniium Offline software.

Key features of the Infiniium EXR-Series:

- Enables designers to work with higher bandwidth signals simultaneously across more analog and digital channels.
- Fully upgradeable from 4 to 8 channels, from 500 MHz to 2.5 GHz, and up to 7 total instruments in one lightweight, bench-top device.
- Reduces troubleshooting time for random errors and dramatically improves test workflow, enhanced by remote team collaboration for engineers to quickly move from symptom, to root cause, to solution, speeding time-to-market and reducing labor cost.
- Simultaneous 8 analog channels and 16 digital channels allow users to perform no-compromise monitoring and analysis of complex signal interactions, opening a wide and insightful window into designs.
- Powerful remote collaboration with PathWave Infiniium Offline Analysis software enables design teams to do extensive analysis and data manipulation after bench measurements are complete, enhancing both the efficiency and effectiveness of their test bench.

More information about the Keysight Infiniium EXR Series real-time oscilloscopes is available at <https://www.keysight.com/find/exr-faq>.

System Amplifier Supports Microwave Device Manufacturers

As the industry for mobile radio, IoT, satellite and radar applications grow, Rohde & Schwarz has introduced a new approach to the system amplifier challenge. It features unprecedented output power, bandwidth and market-leading noise performance. Designed R&S®SAM100, the microwave amplifier sets new standards in ease of operation, robust design and super-compact footprint within the 2 – 20 GHz range with up to 20 W output power.



SAM100 supports manufacturers of passive and active microwave components and microwave devices for mobile radio (UMTS, LTE, 4G & 5 G), IoT (WLAN, Bluetooth), satellite and radar applications. Rohde & Schwarz has focused on the professional requirements of R&D engineers using system amplifiers for design validation testing (DVT), system integrators and test engineers using system amplifiers for setting up automatic test systems for product validation tests (PVT) as well as for production validation of RF products. Another target group is EMC test lab engineers with a need to test up to 18 GHz.

SAM100 represents an ultra-broadband amplifier for a variety of test setups and system configurations in the 2–20 GHz range. Featuring high gain with low noise at superior linearity makes the unit highly suited to AM, FM, PM, and OFDM applications.

Find more information at <http://www.rohde-schwarz.com>.

Ruggedized Pressure Transducers Withstand Radiation, Fatigue and High Pressures in Harsh Environments



Sigma-Netics, Inc. offers durable pressure transducers that can withstand radiation, fatigue, submersion in underwater vehicles and high pressures in excess of 30,000 PSI.

Available models include:

- ▶ A general industrial pressure transducer with wetted material alternatives, extended thermals and pressure ranges to 25,000 PSI.
- ▶ A radiation-tolerant MV/V pressure transducer, which features custom ATP, NDE traceability and low mass for tight installations.
- ▶ A high-pressure, fatigue-rated transducer for pressures in excess of 100,000 PSI. Units are available with extended temperature compensation ranges, high-level analog and digital outputs and $\pm 0.25\%$ FSO accuracy.
- ▶ A multi-purpose aerospace pressure transducer, which features shunt calibration, multi-temperature thermal sensor characterization and cryogenic options.
- ▶ A miniaturized aerospace pressure transducer. This low-mass, highly accurate unit weighs in at less than 90 grams. Units feature a .75-inch outer diameter, pressure ranges up to 10,000 PSI and a variety of wetted material options.
- ▶ A submersible vehicle depth transducer. This compact, 90-gram model features shallow diaphragm sensors and a configurable flange design for outboard or inboard bulkhead installation. Units include an all-welded hermetic construction that resists shock and vibration.

Due to their ruggedized design, these pressure transducers meet the requirements of demanding industrial and aerospace applications—including deep space missions. Other notable features include combined temperature and pressure measurement, remote electronics modules, wide standard temperature ranges (-65° to $+250^{\circ}$ F) and more.

For further information, please visit <http://www.sigmanetics.com/products/pressure-transducers>.

Predefined Test Systems Enable Quick, Accurate, and Easy Testing to Common EMC and Wireless Component Standards

AR RF/Microwave Instrumentation now offers a complete range of predefined systems for testing to the latest EMC military, commercial, and automotive standards as well as wireless component testing. These new systems, powered by AR amplifiers, make testing faster and easier with accuracy and reliability that comes from using AR equipment.

AR now offers systems that test to the following EMC standards:

- ▶ IEC 61000-4-3
- ▶ ISO 11451-2
- ▶ ISO 11452-2
- ▶ MIL-STD-461

Additionally, to increase support for wireless component manufacturers, AR has developed a line of predefined RF Distribution test systems. AR offers these RF test systems to satisfy applications such as wireless component reliability testing, including High-Temperature Operating Life (HTOL). For each standard and test within the EMC and Wireless component markets, a variety of predefined systems are available.

To learn more, visit <https://www.arworld.us/html/predefined-systems.asp>.

Software Solution Allows for Instant Data Sharing and Recall Directly On An Oscilloscope

Tektronix, Inc. has announced the availability of TekDrive™, claiming it as the first native oscilloscope-to-cloud software solution to facilitate global data collaboration directly on an oscilloscope, PC, phone or tablet. Created to enable ultimate ease and accuracy in data accessibility and collaboration, TekDrive provides engineers with the ability to instantaneously share and recall data directly on an oscilloscope, eliminating the



need for cumbersome data-sharing practices. TekDrive allows for data to automatically become accessible, usable and shareable across teams and partners, making remote work easier—all with strong security practices built in.



In addition, TekDrive is the first general purpose test and measurement file system with scope-like data visualizations. The software provides ultra-smooth visualization and analysis capabilities that support any modern browser, including options to view, zoom, pan, measure, decode and analyze full test and measurement data on any device without the need for any additional software.

TekDrive was built with the engineer in mind, and boasts a clean, easy-to-use interface for file organization, management, search, upload and download. It's also architected for ease-of-integration with secure vendor-agnostic REST APIs for scripting, automation and analysis. Tektronix provides SDKs and examples in multiple languages, such as Python, Matlab and LabVIEW. The TekCloud Developer Program also provides a secure way for third party developers to add native TekDrive capability to their devices, instruments and software applications. With a quick integration, any vendor of hardware or software can unleash the ecosystem of TekCloud storage, streaming, visualization and analysis into their products.

For more information, visit <https://uk.tek.com/software/tekdrive>.

New, Enhanced, Workflow Modelling Tools Reduces Time to Market and Developer Costs

The problem with assembling IP blocks onto a chip is that it can be hard to work out how they will interact with one another and the memory. While the IP blocks will have been pre-verified individually by the vendors, the key questions are how well they work together and, more importantly, how to optimize this. Sondrel has developed new enhanced workflow modelling tools for this purpose that reduce time to market, cut developer costs and optimize architectural design.

The benefit of these enhanced models is that the design can be fine-tuned and optimized for timing without having to run many different simulations in RTL, and the enhanced visibility reduces

the iterations required to meet the functional coverage requirements when generating functional verification simulations. Now, just the final functional



verification simulation has to be run in RTL as a double check. As a result, verification time is significantly reduced from weeks to days, providing reduced costs for developers as well as faster time to market.

Sondrel claims to be the first company to have created these workflow-based, modelling techniques. The enhancements form part of their Performance Verification Environment (PVE) and are exclusively available to customers as part of their design service.

Simulation allows detailed analysis of performance bottlenecks, for example, two IP blocks could be trying to access the same memory page at the same time causing 'thrashing,' creating a bottleneck and slowing the chip down significantly. Big chips have many subsystems moving massive amounts of data around, often with significant latency, so eliminating any bottleneck during the architectural design process is vital.

For more information, visit <http://www.sondrel.com>.

Portable Clamp-On Ultrasonic Flowmeter

VorTek Instruments has released the SonoPro® Portable clamp-on ultrasonic flowmeter. This flowmeter offers high-accuracy transit-time ultrasonic technology to deliver accurate and reliable flow metering in a portable design. The design incorporates matched precision transducers and signal processing circuitry to accurately measure the flow of most liquids over a wide range of velocities. Clamp-on transducers create no wear, zero pressure loss, and do not require process interruptions to install them since they are attached to the outside of the pipe. With the addition of external temperature inputs, SonoPro Portable can provide a reliable (BTU) energy or mass flow measurement.



SonoConfig™ Instrument Interface Software works in conjunction with SonoPro Portable to provide valuable setup, diagnostic, and data logging tools. SonoConfig is available for free download and works on most Android® phones and tablets. It can also be provided preloaded on a tablet from VorTek Instruments.

Portable ultrasonic flow metering requires knowing the thickness of the pipe for which the transducers are mounted. VorTek Instruments' MT160 ultrasonic thickness gauge is a compact handheld device that can measure the thickness of various materials with a high degree of accuracy. This makes the MT160 an exceptionally useful companion to the SonoPro Portable flowmeter.

For more information, visit www.vortekinst.com/news/introducing-sonopro-portable-clamp-on-ultrasonic-flowmeter.

Shock Data Logger Monitors Transports for Over 2 Years

The MSR175 data logger from MSR Electronics, which has been optimized for shock and impact measurements up to ± 200 g, is now also available in a version with a replaceable Li-SOCI2 battery, which allows an even longer operating time compared to the standard Li-Po battery: This enables transport and storage monitoring of sensitive goods over a period of more than two years.



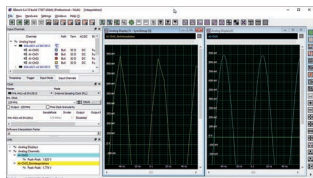
Despite appropriate packaging and careful selection of means and routes of transport, freight is exposed to a variety of risks on its way to the customer. Excessively hard impacts during loading, transshipment or unloading, excessively high temperatures or impermissible humidity levels are among the most frequent causes of damage.

The Swiss technology company MSR Electronics GmbH, which specializes in the development of modular data loggers and wireless data logger systems, presents a further development of the MSR175 transportation data logger that is already successfully used worldwide, namely the MSR175B54 type variant, which, depending on the setting of the recording parameters, allows a considerably longer monitoring operating life of over two years. The data logger records and documents shocks in the measuring ranges of ± 15 g and ± 200 g with a measuring rate of up to 6,400 measurements per second. In addition, the tamper-proof data logger measures and stores temperature curves from -20 °C to $+65$ °C; depending on the type variant also humidity, pressure and light. The simple operation of the MSR175 and the user-friendly PC software ensure smooth operation in transport and logistics.

Find more information at <https://www.msr.ch/en/product/transportation-shock-data-logger-msr175/>.

New Functions for Measurement Software

Spectrum Instrumentation adds customization, automation and interpolation capabilities to its SBench 6 software that is used for controlling Spectrum Instrumentation's 130 different high-performance digitizers, 55 different Arbitrary Waveform Generators and 5 Digital I/O products. SBench 6 provides an easy-to-use graphical interface for instrumentation control as well as data acquisition, generation, display, analysis



and documentation. The new features, most of them free of charge, expand the versatility of the software by adding functionality for automation as well as

increasing the software's capabilities for signal processing and measurement precision.

For users who want a simple way to utilize SBench6 in an automated sequence of operations, a scripting tool is now available. Scripting allows basic commands to be arranged via a plain ASCII file that is called by the SBench 6 program. For example, SBench 6 can be instructed to load specific configurations, start and stop acquisitions, wait or loop, export data and even call external programs.

Another useful addition to the SBench 6-Professional software is data interpolation. This powerful feature can be used to dramatically improve parameter measurements in situations where the sampling rate of a digitizer is limiting measurement precision.

SBench 6-Professional has an extensive array of data processing tools (e.g., FFT analysis, math functions, filtering, averaging, parameter measurements, etc.) that can now be complemented by a new plug-in option which enables users to create their own customized calculations as a self-compiled plug-in that is automatically linked into the SBench 6 calculation pool. The plug-in option includes an SDK as well as a number of examples based on the C++ programming language. It allows programmers to develop their own plug-ins by combining advanced calculations on the acquired signals. Any calculation that can be realized with standard development methods is possible.

With the exception of the Plug-in tool for customized calculations, which is an option, customers already using SBench 6-Professional can access the new capabilities (Scripting, Single Value Formula, Input Channel Preview and Interpolation) for free. A free trial version of SBench 6-Professional is also available for anyone wishing to test the program's capabilities.

More information about Spectrum can be found at <http://www.spectrum-instrumentation.com>.

Robot Operating System Drivers

The Robot Operating System (ROS) by ROS.org is a flexible framework for robotics software development. PI's release of ROS drivers is the company's latest addition to its H-811 high performance hexapod 6-axis miniature robot, allowing fast, seamless integration into a ROS environment, with comfortable control using their well-known mechanisms. With an included URDF model in the driver package, the H-811.i2 hexapod can also be simulated and visualized.

From first-ever astronomical discoveries and precise production line optics and photonics automation to bio-medical microsurgery research and



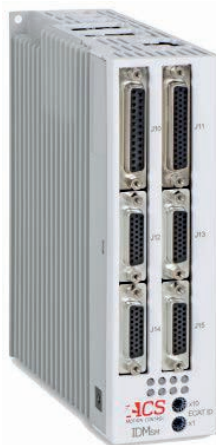
perfecting cellphone image quality, PI's multi-axis hexapods perform 6D movements in a compact space based on parallel kinematics, ensuring accuracy for all degrees of freedom.

With a large basis of standard piezo components and materials as well as precision motion products, PI is can quickly modify existing designs or provide a fully customized OEM solution to fit the exact requirements of your application from sensors and transducers to microscope auto-focus units, fast positioning stages to multi-axis automation systems.

Find more information at <https://www.pi-usa.us/en>.

Intelligent Drive Module High-Performance Multi-Axis Ethercat® DS402 Drive for OEM Machine Builders

ACS launches a new line of high-performance Intelligent Drive Module products. The IDMs is a 2- or 4-axis EtherCAT® DS402 universal servo drive featuring unique control algorithms and processing technologies that enhance the performance of high-precision motion stages. Certified as EtherCAT Conformance Tested®, the IDMs provides up to 5 A continuous and 10 A peak per axis with 12-48 VDC drive supply.



Product Highlights:

- ▶ Powerful tuning and performance analysis software tools for stage performance optimization
- ▶ Advanced servo control algorithms for gantries and other multi-axis stage configurations
- ▶ Intuitive ACSPL+ real time programming with up to 4 simultaneous threads for maximum application flexibility
- ▶ Standard DS402/CiA402 CoE EtherCAT interface provides connectivity to any EtherCAT master controller -Flexibility to interface with multiple motor types for best technology fit on each axis: brushless, brush, voice coil or stepper
- ▶ Integral Safe Torque Off (STO), SS1 functional safety capabilities -Certified EtherCAT Conformance Tested®

For more product details, contact sales@acsmotioncontrol.com.

Artificial Intelligence Vision Apps Available to Factory Automation

The recently released software update for the IDS NXT platform provides users of the all-in-one AI solution IDS NXT ocean with many new features. It extends the system's AI capabilities

to include object detection, offers turnkey solutions with vision apps and, with a new development environment, ensures that users can program their own image processing tasks and execute them as vision

apps on their cameras. Using OPC UA, AI-based image processing can also be integrated directly into factory automation without writing a single line of code. The update is free and can be used with all IDS NXT cameras.

IDS NXT ocean makes image processing with artificial intelligence as simple as possible. Users without deep learning or programming skills are supported by precisely coordinated workflows and tools. They can now use the new vision apps "Classifier" and "Object Detector", for example, to classify image components or identify specific objects based on artificial intelligence with their cameras.

IDS provides the new development environment "IDS NXT Vision App Creator." Developers and AI specialists can now dive even deeper into the system, create individual vision apps and adjust IDS NXT cameras even more effectively to their needs. This also allows the combination of classifications or object recognition with classic image processing, such as measurement tasks, to be realized in one device.

Another major improvement is the integration of the industry-standard protocol OPC UA. IDS NXT cameras can now communicate with machines and controllers in the same language and exchange tasks or results directly. The use of this key technology enables the integration of intelligent cameras into factory automation without additional hardware or programming effort.

Further information can be found at <http://www.ids-nxt.com>.

Robert Goldberg (r.goldberg@ieee.org) has over 35 years' experience with over 25 years in management of the design and development of hardware and software for a broad range of military electronic products involving digital, RF/Microwave, electro-optical and electromechanical systems. He is retired from ITT Aerospace Communications Division in Clifton, NJ, where he was responsible for Sensor Communication programs utilizing the application of sensor radios developed by ITT as a result of work with DARPA on the Small Unit Operations Situation Awareness System (SUOSAS). Prior to joining ITT, he held positions in systems test and systems engineering with Northrop Grumman in programs related to RF and IR electronic warfare systems. He is a Fellow of the IEEE and is currently chairman of the Fellows Evaluation Committee of the IEEE Instrumentation and Measurement Society.

