newproducts

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Next-Gen Automated Circuit Board Test and Diagnostic Systems

Astronics Corporation has announced the launch of its ATS-AutoPoint Multi-Axis Robotic System (APMARS) and ATS-AutoPoint Desktop (APDT) which automatically diagnose circuit board assembly and component malfunctions. Providing greater speed and accuracy, the addition of flying probe technology fully automates the test and diagnostic capabilities of Astronics' PinPoint hardware and TestVue software. The solutions readily address demanding circuit card diagnostic and test requirements, obsolescence issues, and life cycle sustainment needs, in one integrated system.

Astronics' PinPoint hardware enables the maintenance and repair of electronic assemblies even without the availability of technical data, such as in the case of obsolete or aging systems that have little to no original equipment manufacturer (OEM) support. Fully automating the PinPoint system on ATS-APMARS and ATS-APDT eliminates human error associated with mis-probing while significantly reducing the probing process time and number of touches per pin.

The ATS-APDT is a desktop system with a single, robotic probe, delivering fast, accurate measurements. Should the application require more substantial fault coverage, the system can be scaled to include a second probe, similar to the ATS-APMARS. Either system can include an optional custom cabinet to contain the PinPoint hardware or selected 3rd party instrumentation.

To learn more about ATS-APMARS or ATS-APDT, please visit http://www.astronics.com/APMARS.

Test Workstation Supports LCR Meter

The latest test instrument to be supported by the Huntron Workstation is the Keysight E4980AL LCR meter. The E4980AL provides the best combination of accuracy, speed, and versatility for a wide range of component measurements. The E4980AL connects to your computer via USB. Most of the instruments measurement types are supported when setting up a test in Huntron Workstation.

Similar to other non-Huntron instrument integrations, measurements from the Keysight E4980AL can be sampled directly using the Workstation manual mode. You configure the LCR meter settings and use "Get Reading" to capture a measurement. These settings can be saved to a component in the test using the Set Range button.

Tests are created in Workstation similar to the other supported instruments. For more details on how to develop a test, download the Huntron Workstation LCR meter tutorial from the Huntron website.

Your test can use a nominal value when testing. You can perform your test on a working component or PCB first and set the value captured as a Reference. The Reference value is used as a comparison when scanning suspect components or PCBs. Comparison differences are presented in the Workstation Troublesheet display. The Workstation Troublesheet will display the failed measurements.

If you are interested in using Huntron Workstation to control and capture LCR meter measurements, please visit http://www.huntron.com.

Verify 5G Redcap Connectivity with One Box Tester (OBT)

Rohde & Schwarz and MediaTek have partnered to successfully verify MediaTek's 5G RedCap (reduced capability) test platform, as defined in 3GPP Release 17. RedCap will enable a

new range of 5G standalone devices such as industrial sensors for 5G smart factories, logistics, edge-AI and always connected wearables. Rohde & Schwarz has tailored the R&S CMX500 OBT wireless communications tester to support RedCap and other Release 17 features.

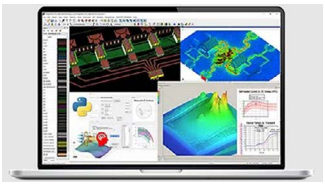
5G RedCap introduces true mid-tier, enhanced machine-type communication (eMTC) to the 5G ecosystem and will help launch a new wave of devices that bridge the capability and complexity gap between earlier low-speed narrowband internet of things (NB-IoT) standards and today's 5G with an optimized design for mid-tier use cases, such as sensors in industrial automation, smart cameras and wearables. 5G RedCap modems are less complex, use less spectrum bandwidth, consume much less power and work only in standalone (SA) mode, in contrast to 5G modems designed for eMBB use-cases.

Rohde & Schwarz has optimized the R&S CMX500 OBT for IoT testing. R&S CMX500 OBT enhancements let MediaTek verify the various RedCap aspects defined in 3GPP 5G Rel.17 for network access restrictions, bandwidth parts (BWP), bandwidth part switching, power saving and other RedCap-specific protocol signaling procedures.

The R&S CMX500 supports all relevant 5G frequencies up to 8 GHz via the intuitive and flexible web-based user interface R&S CMsquares. The signaling test solution is suitable for all 5G mobile devices and chipsets. The R&S CMX500 supports all possible 5G NR network deployments and frequency ranges; including the FR1, FR2 and LTE bands in a single instrument.

For more information about 5G RedCap test solutions from Rohde & Schwarz, visit: https://www.rohde-schwarz.com/redcap-testing.

Software Solution Accelerates 5G mmWave Design and Pioneer 6G Development



Keysight Technologies, Inc. has introduced PathWave Advanced Design System (ADS) 2024, an electronic design automation (EDA) software suite giving chip designers new millimeter wave (mmWave) and subterahertz (sub-THz) frequency capabilities that accelerate 5G mmWave product design and anticipate requirements for 6G wireless communications development.

Developers of 5G and non-terrestrial network components are creating next-generation radio front-end modules using mmWave frequency bands that present significant design and simulation challenges. These frequencies are prone to signal loss due to propagation characteristics, atmospheric attenuation, complex packaging issues, and noise and dynamic range problems. Designing for 6G poses even greater challenges with sub-THz signals operating at higher frequencies.

Monolithic microwave integrated circuits (MMIC) and module designers are combining multiple semiconductor and III-V processes at mmWave frequencies, which requires multiple die assembly, module level interconnection, and power considerations. mmWave power amplifiers are built separately from the rest of the design to mitigate heat, yield, and semiconductor performance issues. In addition, power amplifiers developed in gallium nitride processes handle higher current densities than silicon.

New semiconductor packaging techniques, such as flip chip bonding, achieve higher densities and performance. These packages also require co-design across multiple technologies and processes because they concentrate challenges with internal crosstalk, electromagnetic interference (EMI), stability, and operating temperature.

New PathWave ADS 2024 design capabilities include:

- Faster second-generation 3D-EM and 3D-Planar meshing and solvers—Delivers algorithm enhancements taking superior advantage of domain knowledge about microwave structures and processes. Mesh optimization and layout and connectivity improvements reduce problem sizes for faster simulations.
- Advanced layout and verification features—Enables design sign-off directly from ADS for LVS, LVL, DRC, and ERC for MMICs, as well as streamline productivity for module and multi-technology assembly. Wavetek is the latest foundry to fully support ADS for an end-to-end workflow.
- Electrothermal enhancements accelerate validation—Drives higher reliability and higher operating performance with validation of dynamic device operating temperatures under different bias and waveform conditions.
- Custom workflow support with expanded Python APIs—Increases flexibility and scalability. A load-pull data import utility, ANN modeling, and Python automation scripting for 5G power amplifier designers unlock new application potential to create targeted personalities of ADS.

Learn more at http://www.keysight.com.

Endress+Hauser Launches FieldGate SWG50

Endress+Hauser has announced the launch of FieldGate SWG50, a new WirelessHART gateway primed for secure communication with your field devices. FieldGate SWG50 is a compact and cost-effective ready for Netilion integration while providing an easy-to-use solution for multiple standard monitoring applications across various industries. Netilion is a cloud-based IIoT ecosystem designed for industrial processes,

connecting the physical and digital worlds to send information from the field straight to a phone, tablet or another device.

The WirelessHART gateway FieldGate SWG50 enables users to monitor measurements and health statuses using WirelessHART connectivity. This offering is an economical alternative to complex and costly cable installations, reducing expenditure for process automation by up to 30%. It is a cost-effective concept that adapts to the process plant, both in greenfield and brownfield applications, giving customers simple access to digital communication.

With the launch of FieldGate SWG50, Endress+Hauser expands its WirelessHART portfolio focused on straightforward implementation, set-up and management of different monitoring applications. Routinely used in monitoring applications, the WirelessHART network is a solution for standard level measurement, energy management or machinery performance monitoring.

As a gateway ready for digitalization, the integration of FieldGate SWG50 into Netilion is simple and transparent using EdgeDevice SGC500, which is only available for purchase by Netilion users and for those with WirelessHART networks. This launch is the first of many new features FieldGate SWG50 will receive.

To learn more, visit https://www.us.endress.com/.

Battery Simulator Application

Tektronix, Inc. has announced the launch of KickStart Software version 2.11.0, including enhancements to the Battery Simulator Application. With the ability to support the 2400 Graphical Touchscreen Series Source Measure Units (SMUs) and the 2600B Series SMUs, the Keithley KickStart Battery Simulator App provides users the ability to easily generate battery models, simulate batteries, and perform battery cycle tests for consumer wireless IoT devices, automotive, and industrial applications. The list of enhancements to this specialty app gives users robust functionality as part of a "one-box," no code solution. The enhanced app, which supports various Keithley SMUs, also negates the need for using a 2380 electronic load to create a battery model and a 2281S battery simulator—saving the time, effort and cost that would be required to write a SMU custom script.

Along with features included in past iterations, such as battery simulation and discharge model generation, the KickStart Battery Simulator App boasts the capacity for a maximum of eight total instruments that can be controlled simultaneously, enabling battery testing through multiple charge and discharge cycles with access to a myriad of test cutoff conditions. This groundbreaking iteration of the Keithley KickStart Software Battery Simulator App not only provides the ability to generate, edit and simulate custom battery models, it includes a responsive user interface, allowing changes to the simulated state of charge in real time.

Find more information at http://www.tek.com.

New 65 GHz 12-bit Oscilloscope Platform

Teledyne LeCroy has announced the launch of its new WaveMaster® 8000HD high-bandwidth, high-definition oscilloscope (HDO®) platform with models from 20 to 65 GHz of bandwidth, 12 bits of resolution, up to 320 GS/s of sample rate and 8 gigapoints (Gpts) of acquisition memory. The new WaveMaster 8000HD retains the unrivaled validation and debug capabilities of its predecessor while adding new SDA Expert serial data analysis software options for testing next-generation serial data technologies.

Serial data technologies are increasing in speed—PCI Express® (PCIe®) 6.0 delivers a 64 gigatransfers per second (GT/s) data rate while USB4® Specification v2.0 delivers 80 gigabits per second (Gbps). Both new standards use multi-level pulse-amplitude-modulation (PAM) signals. The increase in speed and the use of multi-level signaling requires both increased oscilloscope bandwidth and resolution. Serial data link complexity is also increasing through the use of dynamic link equalization, negotiation, training and handshaking operations to establish and maintain the highest transfer rates. Some of these operations are performed over parallel low-speed serial data links using a combination of physical layer signals and protocol communications.

The new WaveMaster 8000HD series high-bandwidth oscilloscopes provide exceptional signal characterization performance for next-generation serial data technologies, such as PCIe 6.0 and USB4 Specification v2.0. WaveMaster 8000HD more than doubles the bandwidth and sample rate of

its predecessor and provides four times more resolution and acquisition memory compared to competitive oscilloscopes. Teledyne LeCroy claims an industry-leading 12-bit resolution at full bandwidth and sample rate and up to 8 Gpts of acquisition memory. 12 bits of resolution provides exceptional signal characterization of the multi-level PAM3 and PAM4 signals used in USB4 Specification v2.0 and PCIe 6.0, respectively, and 8 Gpts significantly enhances debug of link negotiation problems.

For more information, visit http://www.teledynelecroy.com/wavemaster-hd.

PCB Relays Provide Industrial-Grade Power Handling in a Low-Profile Form Factor

IDEC Corporation has announced the release of their new RC Series printed circuit board (PCB) relays, with features supporting a wide range of industrial-grade applications. These relays come in several low-profile configurations, provide high-capacity power switching, and perform reliably even in challenging environments. The RC Series replaces and upgrades the proven RJxV Series PCB mount relays.

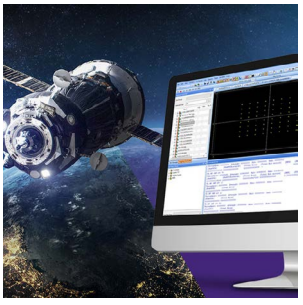
RC Series relays are designed to mount directly to a PCB using through-holes, and can be wave-, dip-, robotically-, or hand-soldered. Their configuration provides a low-profile height of 16.5 mm or less, with high voltage and current ratings in relation to their size and weight. Plug-in relays are often used for these and other types of industrial applications instead of PCB relays, but they require a mounting socket and a much larger space footprint.

Coil voltages are available in a range of 5/12/24/48/110 VDC, and contacts are rated at 24 VDC and 250 VAC. DPDT versions carry 8 A contact ratings, while SPDT versions are available as 12 A (standard) or 16 A (high capacity). The relays are designed to operate from -40 to +85°C, with a lifetime of 20 million operations (at 18,000 times per hour) unloaded, or at least 100,000 times at rated load. With an impulse withstand voltage of 10,000 V, these relays work well in electromagnetically problematic environments. Users in any global area will appreciate the flexibility offered by certification of the RC series with cUL, VDE, CQC, and CE agencies.

The RC Series provides industrial-grade service in the most efficient form factor possible, making them suitable for use in appliance electronics, audio-visual components, medical equipment, OEM machine automation, and many other commercial and industrial applications.

For additional information, visit www.IDEC.com/usa

VIAVI Introduces NTN and HAPs Network Testing For 5G and 6G Satellite Communication



Viavi Solutions Inc. has announced the availability of base station and end-to-end testing supporting Non-Terrestrial Networks (NTN) and High-Altitude Platforms (HAPs). Wireless technologies are increasingly augmenting traditional terrestrial communication networks, with satellite communications helping to provide near-complete coverage. The VIAVI TM500 and TeraVM test platforms validate the conformance, performance and reliability of gNodeBs and entire networks under the unique service link conditions of NTN and HAPs networks.

3GPP Release 17 specifications formally introduced support and guidelines for NTNs, with subsequent releases expected to continue to refine the standards. These specifications will help improve the performance of NTNs, allow them to converge with terrestrial telecoms networks and enable support across existing 5G mobile handsets and chipsets. A VIAVI analysis estimated that the growth in satellite communications will result in approximately 30,000 new satellites orbiting the Earth, significantly expanding the potential of NTNs to provide universal coverage.

Satellite communication in 5G brings another level of complexity for testing. NTNs need to be reliable to cope with the distance, speed and mobility of both satellite, HAPs and User Equipment (UE), while still delivering on performance. Test solutions are not only required to emulate different UE mobility and fading profiles, but they must also take the large doppler shifts from fast-moving satellites and airborne platforms into consideration.

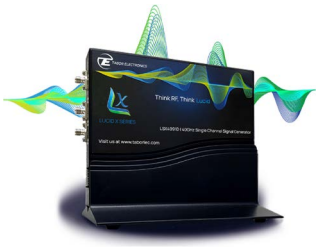
To validate the base station prior to non-terrestrial deployment, the TM500 can emulate a high volume of devices, new mobility patterns, signal propagation delays, and other conditions unique to NTN while TeraVM emulates the core network. This test scenario is ideal for early functional tests such as 3GPP protocol testing and can be applied to both regenerative and transparent architectures. Further test scenarios are focused on testing and optimizing the network end-to-end, using a real core to validate the performance and reliability of the entire network.

Find more information at http://www.viavisolutions.com.

Family of 40 GHz Analog Microwave Signal Generators

Tabor Electronics introduces the Lucid-X Series Microwave Signal Generators. The Lucid-X family of signal generators have 8 GHz, 20 GHz, and 40 GHz frequency ranges. With phase noise of -120 dBc/Hz at 1GHz (10 kHz offset), fast and

high-resolution frequency switching, with +15 dBm of standard output power. Tabor claims these instruments outperform some of the market's most challenging requirements.



Built on Tabor's modular technology platform, the LS-X family is available in PXIe, USB-module, rack, benchtop, and portable form factors. The unique modular multi-channel architecture of the LS-X series means that with one instrument, engineers can test mixers, RF A/D converters, amplifiers, and use it as a LO (Local Oscillator) to create microwave beams for electronic warfare and communication equipment testing.

Amplitude, frequency, and phase modulation outputs are all standard on Lucid-X signal generators. The signal generator's pulse modulator provides narrow pulsing capability with a high on/off ratio.

The multiple form factor Lucid-X microwave signal generators meet demanding requirements for research, design, test, and troubleshooting. On the bench, in the rack, embedded, or as part of a PXIe test system, the LS-X series elegantly solves many engineering problems.

For more information, visit http://www.taborelec.com.

Special Sensor Technology for Special Vehicles

Particularly in the booming sector of automated guided vehicles (AGV) and autonomous mobile robots (AMR), it is usually not the usual sensors (e.g., encoders for angle and speed measurement) that can be used. More specialized devices of the smallest possible size or devices with special features in terms of their function or with a specially designed communication profile within their interface are used here. Above all, however, they must be functionally safe in order to eliminate as far as possible any risk of malfunction. SIL2, PLd or SIL3 certifications are a prerequisite - sometimes together with UL®, ASIL D or ATEX for potentially explosive environments.

For many years, TWK has focused on functionally safe sensors. This applies not only to the compact design, but also to the firmware and interface software.

TWK equips their Vx vibration sensors, which are used among other things as devices for condition monitoring, with special functions and algorithms for signal processing. This makes machine monitoring much easier for the user—especially for AGVs that are always in motion.

In addition to Failsafe over EtherCAT (FSoE) and CANopen Safety, PROFIsafe over PROFINET, IO-Link and other interfaces are available. Further safety interfaces, such as CIP Safety or IO-Link Safety, are being planned. For these and many other features, TWK is available to its customers as an in-house development partner at any time.

Further information about can be found at: https://www.twk.de/en.

Flexible Building Blocks for 2.4 – 2.5 GHz ISM RF Energy up to 6 kW

Mini-Circuits' RF and microwave energy portfolio offers industry-leading flexibility and scalability, enabling users to configure building-block components for their system needs with plug-and-play ease of use.

The ZHL-2425-250X+ solid-state power amplifier combined with the ISC-2425-25+ signal generator controller serves as a complete energy source with precise frequency and power control from 2.4 to 2.5 GHz up to 300W at saturation. With the addition of the SPL-2G42G50W4+ 4-way splitter with phase and amplitude control, and the COM-2G42G51K0+ high-power combiner, users can operate up to 4x 250 W paths from a single interface and recombine those signals to build a single, 1.2 kW source.

The same hardware can be integrated into standard 19-inch rack-mount housing as a turnkey solution with a self-contained power supply and cooling. Additional amplifier stages may be added for output signals up to 6 kW.

Explore Mini-Circuits RF/Microwave Energy Portfolio by visiting https://www.minicircuits.com/ads/RF-and-Microwave-Energy.html.

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.