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Press Release

Vitrek Highlights Expanding Role of High-Speed Digitizers in Advanced Optical and Photonics Applications

Emerging applications in LiDAR, optical communications, medical imaging, and distributed fiber sensing are driving demand for higher-bandwidth waveform acquisition.

Lockport, IL—July 14, 2026— Vitrek, a leader in precision electronic test and measurement solutions, today highlighted the growing role of high-speed digitizers in advanced optical and photonics applications, where increasingly complex optical signals are driving demand for greater bandwidth, deeper acquisition memory, and precise timing accuracy.

As photonics technologies continue to advance across industries such as autonomous transportation, aerospace, semiconductor manufacturing, medical imaging, and optical communications, engineers are increasingly challenged to capture and analyze rapidly changing optical signals. While many optical characterization techniques rely on continuous-wave (CW) light sources and conventional measurement equipment, applications involving pulsed lasers or high-speed optical modulation often require waveform acquisition capabilities beyond those of traditional oscilloscopes.

Applications including LiDAR, Optical Coherence Tomography (OCT), distributed optical fiber sensing (DOFS), laser ultrasonics, cavity ring-down spectroscopy, and high-speed optical communications all depend on accurately capturing transient optical events to evaluate system performance. As these technologies evolve, high-speed digitizers are becoming an increasingly important tool for acquiring and analyzing detector outputs with high fidelity and repeatability.

"Photonics technologies continue to push measurement systems to higher speeds and greater levels of complexity," said Dr. Andrew Dawson, Sales Engineer at Vitrek. "Engineers developing today's optical systems need instrumentation capable of capturing fast transient events with exceptional timing accuracy while supporting automated analysis and repeatable testing."

Unlike conventional oscilloscopes designed primarily for interactive troubleshooting, dedicated digitizers provide sustained high-speed acquisition, deep onboard memory, deterministic triggering, multi-channel synchronization, and flexible software integration. These capabilities allow engineers to characterize laser pulses, analyze receiver performance, evaluate optical modulation quality, and capture complex transient events that are critical to system development and validation.

Vitrek's **GaGe** family of high-speed digitizers supports a broad range of optical and photonics applications through high sampling rates, flexible PCIe architectures, and extensive software support for automated test environments. From university research laboratories to commercial product development and manufacturing, high-performance digitizers help engineers acquire the waveform data needed to accelerate design, improve measurement confidence, and validate increasingly sophisticated optical systems.

"As optical technologies continue expanding into new commercial and industrial markets, selecting the right data acquisition architecture is becoming just as important as selecting the optical components themselves," Dawson added. "Engineers are looking for acquisition platforms that can keep pace with the performance demands of next-generation photonics systems."

Learn more about Vitrek's GaGe Digitizers at www.vitrek.com

About Vitrek

Vitrek products are widely used in the aerospace industries, electric vehicles, medical, research and development markets, as well as by a wide variety of manufacturing industries. Vitrek product lines include a broad line of precision voltage generators and analyzers as well as hipot testers and switches. The Vitrek family of brands also includes: the MTI lines of capacitive measurement solutions for semiconductor wafer and precision film testing as well as jet engine balancing products; the GaGe digitizer cards which are recognized worldwide for combining high speeds with high-resolution and application flexibility.