

used to power the acquisition systems, which are located inside vaults along the pipeline.

Data from the monitoring feed the GMRA risk management system, which helps prioritize repairs along the pipeline.

KVH announces \$3.8 million in new orders for FOGs

KVH Industries Inc. announced that it has received a total of \$3.8 million in new orders for its precision fiber-optic gyro (FOG) systems. A total of \$2.9 million in new orders was received for KVH's DSP-3100 FOGs from a major remote weapons station manufacturer. In addition, a \$0.9 million order was placed for KVH's CNS-5000 continuous navigation system for use in commercial applications.

"These new orders emphasize the growing strategic value of our fiber-optic gyro technology to KVH's long-term growth," said Jay Napoli, KVH's vice president of sales for FOG and OEM products.

"Thanks to our digital signal processing technology and end-to-end control of our FOG development and manufacturing process, we are able to offer military and commercial systems integrators an outstanding combination of precision performance, field-proven reliability, and affordability."

KVH's fiber-optic guidance and sensor systems are used in an array of commercial and defense-related stabilization, navigation, autonomous vehicle, and precision guidance applications.

Visit <http://fiberopticgyro.com> for more information, including technical details and customer case studies

KVH receives \$1 million order for its CNS-5000 GPS/IMU continuous navigation system

KVH Industries Inc. announced that it has received a new \$1 million order for its CNS-5000, a self-contained navigation system that combines fiber-optic gyro (FOG)-based inertial

measurement technology from KVH with global positioning system (GPS) technology from NovAtel. This rugged navigation solution affordably provides the precise position and orientation of a host platform on a continuous basis, even during periods where GPS signals are blocked by natural or manmade obstructions or conditions.

"This latest order, following on the heels of another \$900,000 order a month ago, is evidence of the rapid acceptance of the CNS-5000 and the demand for a self-contained, commercial navigation solution," said Dan Conway, KVH's vice president of business development. "The CNS-5000's precision navigation and easy integration with a wide range of other systems make it an ideal solution for demanding commercial applications, such as dynamic surveying, precision agriculture, container terminal management, and autonomous vehicle navigation."

The CNS-5000 offers seamless integration of KVH's FOG-based IMU with NovAtel's OEMV GPS precision receiver technology. The tight coupling of these technologies within the CNS-5000 optimizes the raw GPS and IMU data, delivering position data accurate to one inch along with superior velocity and attitude information. Composed entirely of commercial components and designed to meet COTS requirements, the CNS-5000 also minimizes the operational complexities for customers whose products cross international boundaries.

Luna's fiber-optic sensing used in railway test in France

Luna Technologies' fiber-optic sensing system, the Optical Backscatter Reflectometer (OBR) 4400 device with distributed Rayleigh sensing, was used in an experiment by the French Public Works Research Laboratory in conjunction with the French National Railway for the possible use as a cavity detection or sinkhole warning system on railway track beds

and tunnels. Embedded cavities, or sinkholes that may induce soil collapse present a major risk to the French railway system. Current technologies such as ground penetrating radar, seismic analysis, or infrared thermography are increasing in use to locate cavities, but do not offer continuous embedded cavity monitoring, a major concern for rail companies and a key benefit of Luna's solution.

These findings were published in Measurement Science and Technology in an article titled "Soil-embedded optical fiber sensing cable interrogated by Brillouin optical time-domain reflectometry (B-OTDR) and optical frequency-domain reflectometry (OFDR) for embedded cavity detection and sinkhole warning system." Measurement Science and Technology is an international journal published by the Institute of Physics that is devoted to the theory, practice and application of measurement in physics, chemistry, engineering and the environmental and life sciences from inception to commercial exploitation.

Luna's OBR 4400 is the industry's only ultra high-resolution OTDR with backscatter-level sensitivity designed for component- and module-level reflectometry.

The instrument has a small, easily transportable platform and can measure reflections over lengths up to 2 kilometers with no dead zone and sub-millimeter resolution. The integrated temperature and strain sensing capability makes the OBR4400 the industry's highest resolution distributed sensing system. For more information, visit www.lunatechnologies.com.

Tessera offers DigitalOptics lens array technology for parallel optics

Tessera Technologies Inc. announced it is now offering its innovative laser monitoring technology in its customized DigitalOptics parallel optics lens array designs for next-generation transmit and transceiver modules that enable high-speed networks that run at

higher data rates, and which can support 100GB Ethernet.

As consumer demand for network bandwidth continues to grow and traffic over data routers increases, there is an emerging need for 100Gbps Ethernet. These requirements impact data routing centers, which are clusters of network servers with multiple parallel connections transmitting data at extremely high speeds. These data rates can be achieved and maintained by in-line monitoring and adjustment of the power supplied to the laser sources as source characteristics or system demands change. Tessera now offers DigitalOptics lens modules that enable this in-line monitoring function.

"As data rates continue to rise, it becomes increasingly important to put a monitoring system in each network channel to better manage the increasing traffic in data routing centers," said Kevin Drehmer, general manager, Wafer Level-Optics, Tessera. "Tessera's patented laser monitoring technology we offer in our customized DigitalOptics parallel optics lens array designs enables active laser feedback at high data rates for more efficient use and enhanced transceiver performance for our customers."

Tessera's unique DigitalOptics parallel optics lens arrays couple the beams from an array of lasers into fiber arrays of various designs used in 1x12 transmitters and 4+4 transceivers. The source monitoring technology taps off a small part of each individual laser signal and sends it to a detector to monitor power levels. This enables the driver circuitry to actively adjust the current supplied to the laser to compensate for any observed changes in the laser output. This helps to ensure optimal laser performance in high data rate systems.

DigitalOptics parallel optics lens arrays that incorporate the source monitoring technology are field tested and commercially available, in volume, from Tessera now. Pricing varies depending on the type of lens array.