

Interrogation monitor has subpicometre resolution



IBSEN

www.ibsenphotonics.com

The Danish firm Ibsen Photonics has released a 1,310-nm version of its interrogation monitor (I-MON) for monitoring fibre Bragg grating sensors. The latest I-MON builds on Ibsen's high-resolution spectrometer technology and uses the company's fused silica transmission gratings. The design allegedly enables a fast measurement frequency and compact size, as well as low power consumption. Ibsen says that the latest product operates with a wavelength range from 1,275 nm to 1,345 nm and suits use not only with fibre Bragg grating sensing, but also high-resolution spectrometer applications. The company also offers the I-MON E series — high-resolution versions designed as stand-alone monitors with a USB interface for easy set up with a laptop. The I-MON E series is compatible with the wavelength range 1,520–1,585 nm, offers high sensitivity, subpicometre resolution and is easy to use.

Portable interrogator has broadband tuning capability

www.fibresensing.com

FibreSensing and Micron Optics have collaborated to release a portable measurement unit for sensors based on fibre Bragg gratings. The unit combines Micron Optics' robust, wide-scanning, high-power, low-noise swept laser source with FibreSensing's integrated and portable instrument platform.

The instrument is particularly well suited for measurements in remote civil, downhole-oil, and pipeline applications, where both high accuracy and portability are required.

Some of the interrogator's important features include its broadband tuning capability, battery operation, a built-in NIST traceable wavelength reference, data-logging functions for automated sampling, archiving and transmission, a local database for managing multiple sensor configurations and datasets, and an optical-spectrum analyser function.

Temperature sensor for harsh environments

www.lumasenseinc.com

LumaSense Technologies has released its Luxtron 800 series fibre-optic systems for temperature monitoring in harsh environments prone to electromagnetic noise, high voltages and microwaves.

The Luxtron 800 series instruments are industrial-grade and configurable with either one or two measurement channels at frequencies of 4 Hz or 10 Hz. The table-top Luxtron 812 version features an easy to read two-line LED display and is encased in a tamper-proof metal enclosure. The systems have RS-232 or analog output ports for downloading data and integration into industrial control schemes. The 800 Series board-level systems suit integration into OEM products where accuracy, low or no drift and fast measurement speed are required.

The Luxtron 800 series systems are compatible with all of Luxtron's Fluoroptic (FOT) probes, which are entirely non-metallic and are immune to electromagnetic interference.

Sensor system has multichannel selector functionality

www.advantest.co.jp

Over recent years, optical-fibre strain-sensing systems have been used in disaster prevention to monitor signs of impending landslides or structural collapse following natural disasters. With this application in mind, Advantest has launched a multichannel optical-fibre strain-sensing system, the N8511. The system enables the early detection of ground movement and structural strains, and according to Advantest, it is the industry's first system with multichannel-selector functionality, enabling strain sensing in up to 16 optical fibres. Advantest says that this feature offers a larger operating area and makes the system more cost-effective, as it does not require the optical switches and special software needed by conventional systems to measure multiple fibres.

Sensing system maps fibre position and shape in medical applications

www.lunainnovations.com

Luna Innovations has developed a distributed sensing technology for fibre-optic mapping of position and shape in medical and ocean surveillance applications.

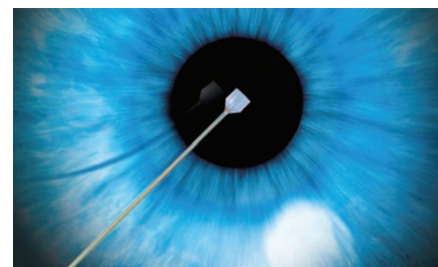
Using Luna's fibre-optic cable during minimally invasive surgery gives surgeons real-time feedback on the position of

the instruments used. The fibre, when embedded or surface-attached to surgical tools or other devices, will monitor the three-dimensional shape of its environment with measurements that are dynamic and independent of the temperature.

In ocean surveillance the technology can be used to gather underwater acoustic data in a variety of applications, including submarine hunting patrols and deep-water search and rescue. The system uses optical-frequency-domain reflectometry, which permits tens of thousands of sensors, with the same nominal reflected wavelength, to be read with very high spatial resolution.

Luma's special optical fibre consists of high-density linear arrays of fibre Bragg grating strain sensors, which are fabricated in multiple fibre cores and packaged as a monolithic structure. Using advanced algorithms, the strain differential as seen by the fibre-optic sensors is used to calculate the bends at every discrete element along the length. Because of the sensor density, each individual sensing element can be integrated to reconstruct the shape of the fibre.

Medical pressure sensor



OPSENS

www.opsens.com

Canadian company Opsens claims that its MEMS-based optical-fibre pressure sensor is the smallest available on the market. Aimed at medical applications and with a diameter of just 400 µm, it permits the reduction of catheter size and enables less invasive catheterization practices.

The company claims that the sensor's design resolves two important issues facing the industry — temperature and moisture-induced signal drift. Opsens says that its sensor experiences no hysteresis, motion artefacts, bend effects or signal drift in time. Designed as a catheter-tip sensor, the OPP-M sensor provides a high-frequency response and accurate pressure readings.

The OPP-M sensor has a pressure measurement range from -50 mm Hg to +300 mm Hg and a resolution of 0.5 mm Hg. Combined with Opsens's White Light Polarization Interferometric, this new blood-pressure transducer delivers high-fidelity and artefact-free pressure measurement in harsh environments.