new products

Focus on sensors and detectors

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. PHYSICS TODAY can assume no responsibility for their accuracy. For more information about a particular product, visit the website at the end of the product description.

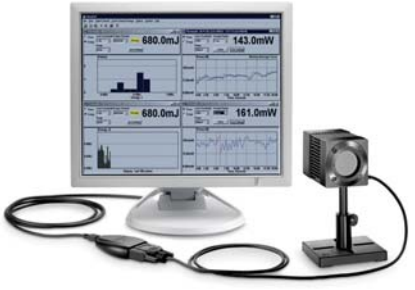
Andreas Mandelis

Optical engines for light energy detection

Newport Corp's new OptoFlash is a miniature multichannel spectrometer engine that detects light energy at multiple wavelengths. According to Newport, the demultiplexing optical engine is easy to customize and configure with as many as 10 wavelength channels. Users may select from 24 standard wavelength options ranging from 200 to 900 nm. The device is also available in 16 standard configurations commonly used in immunodiagnostic instrumentation. Originally developed for clinical chemical analyzers, the OptoFlash features high speed and high linearity with minimal stray light. Its delivery of simultaneous optical transmission information for each wavelength channel makes it a suitable solution for OEM applications that require a small, single-package device. It measures 51 × 16 × 25 mm and weighs 30 g. OptoFlash is suitable for spectroscopy instruments designed for applications such as immunodiagnostic testing, environmental monitoring, and colorimetry. *Newport Corporation, 1791 Deere Avenue, Irvine, CA 92606, http://www.newport.com*

Laser power measuring sensors

The StarLink series of laser measurement sensors from Ophir Photonics is a collection of Ophir's power or energy sensors bundled with Juno, a USB-based PC interface, and StarLab laser measurement software. Together, the sensor, interface, and software form a meterless laser measurement system that is flexible and portable. The StarLink series includes high-performance laser sensors ranging from the high-damage-threshold Pyro-C to the high-sensitivity, multifunction power, energy, or position sensor, BeamTrack 3A-Quad; photodiode sensors that can measure down to picowatts; and pyroelectric sensors that can record energy pulses at up to 10-kHz repetition rates. Among the graphic options are line plot, histogram, bar chart, and simulated analog needle. Data can be displayed graphically or saved in text format. *Ophir-Spiricon LLC, 3050 North 300 West, North Logan, UT 84341, http://www.ophiropt.com*



Diode array detector for liquid chromatography

According to Agilent Technologies, its new 1200 Infinity series high dynamic range diode array detector for liquid chromatography delivers a linear UV-range that is 30 times wider than previous detectors, with up to 30 times the sensitivity. Therefore the detector is suitable for analyzing mixtures that contain widely different concentration levels. Such work usually requires additional sample preparation (dilution or concentration) and a second injection, sometimes with recalibration. The 1200 Infinity series detector eliminates those time-consuming efforts; it acquires all sample information in a single run and increases productivity by reducing turnaround time. The technology extends the upper linearity level from two to typically six absorbance units and thereby allows injection of three times as much sample with one-tenth the detector noise. The result is simultaneous analysis and quantification of main compounds and impurities. *Agilent Technologies Inc, 5301 Stevens Creek Boulevard, Santa Clara, CA 95051, http://www.chem.agilent.com*

Radiation identification instrument

The Ortec Products Group of Ametek Advanced Measurement Technology has added the Detective-200 to its Detective series of high-purity germanium (HPGe) radioisotope identifiers. The new radiation identification instrument is designed to be compact, highly sensitive, and portable in nuclear security applications, including mobile and maritime nuclide identification and vehicular and pedestrian chokepoint monitoring. Compared with the other Ortec Detective family members, the larger HPGe detector element in the Detective-200 offers ultrahigh sensitivity, ease of use, a low number of false alarms, fast implementation, small portable packaging, and low-maintenance operations. The Detective-200 was developed to support a variety of wide-area search applications economically compared with current permanently installed radiation detection systems. In addition, the Detective-200 is claimed to offer the highest degree of resistance to shock, dust, and moisture of any instrument of its type and is designed for IP67 compatibility. *Ortec Products Group, 801 South Illinois Avenue, Oak Ridge, TN 37831-0895, http://www.ortec-online.com*

Low-light digital sensor

Photonis USA has introduced the Lynx CMOS sensor, a new low-light digital image sensor for high performance under both daylight and low-light conditions. It is suitable for applications where high-resolution detection across varying light conditions is critical.

The new sensor provides a consistent read noise below 4 e– at rates up to its full 100 fps, with superior signal-to-noise performance due to its large 9.7-μm^2 pixels and high fill factor. With a power consumption under 200 mW providing a direct digital output, the Lynx CMOS sensor is useful for portable systems and unmanned remote posts where continuous image availability is required. The new sensor provides a full super-extended graphics array resolution (1280 × 1024 pixels). It is designed for simple integration by either manufacturers or OEMs into a variety of camera platforms. *Photonis USA, 660 Main Street, Sturbridge Business Park, P.O. Box 1159, Sturbridge, MA 01518, http://www.photonis.com*

Energy-dispersive x-ray spectrometry detectors

Bruker Nano Analytics has introduced XFlash6 silicon drift detectors for energy-dispersive x-ray spectrometry on electron microscopes. With the availability of large detector sizes up to 100 mm^2, energy resolution down to 121 eV, and throughput up to 600 kcps, the XFlash6 series offers speed and sensitivity in EDS analysis and sufficient power for applications in nanotechnology and nano research. All detectors of the XFlash6 family provide the largest possible solid angle per active area for maximum collection efficiency, which is especially important at low electron beam currents. Combined with advanced hybrid pulse processing technology, XFlash6 detectors can accept input count rates in excess of 1500 kcps with throughput as high as 600 kcps and can maintain optimal energy resolution over the widest range of count rates. The energy resolution of the 10-mm^2 XFlash 6|10 detector is 121 eV at the Mn-Kα emission line and 38 eV for C-Kα. Those resolutions are essential especially for efficient and accurate analysis at low energies. *Bruker Nano Surfaces Division, 112 Robin Hill Road, Santa Barbara, CA 93117, http://www.bruker.com*

Water-resistant surface-temperature sensors

Omega Engineering's new range of Pt100 surface-temperature sensors features a water-resistant flexible silicon patch and molded lead wire. The patch has a strong silicon peel-and-stick adhesive backing for easy and secure mounting on flat or curved surfaces. The aluminum strip ensures a fast temperature response. One hour after application, the sensor and adhesive will

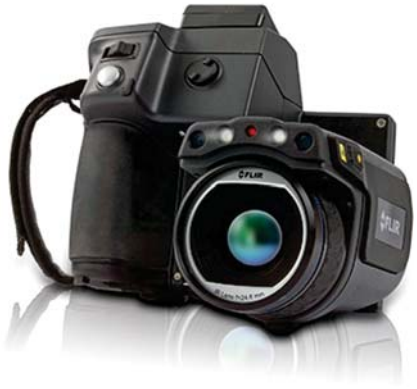
resist moisture to IP67 standards, which makes it suitable for many outdoor or wet environments. For use in temperature ranges from −30 to 150 °C with a 4-wire construction and precision 100 Ω class A platinum element, the sensors may be ordered in standard lengths from 1 to 5 m. Custom sizes are also available. Self-adhesive cable ties are available for long cable runs. *Omega Engineering Ltd, One Omega Drive, River Bend Technology Centre, Northbank, Irlam, Manchester, M44 5BD, UK, http://www.omega.co.uk*

Optical oxygen and pH sensors

Ocean Optics' optical oxygen and pH sensors are designed for accurate, real-time, in situ measurements in various media. The proprietary sensor coating materials do not consume the sample and can be applied to substrates such as probes, self-adhesive acrylic patches, and microtiter wells. Coating options are available for general laboratory use, food processing lines, and hydrocarbon-rich environments. Depending on the application, oxygen presence or pH can be visually determined by color change with a handheld LED, or a fluorometer can be used to make exact measurements. The principle of operation is to trap an oxygen-sensitive fluorophore or pH indicator dye in a sol–gel host matrix that can be applied to the tip of a fiber, an adhesive membrane such as a patch, or a flat substrate such as a cuvette. The indicator materials change optical properties in response to specific analytes in their immediate environment and electronics, then measure the response. For oxygen, the NeoFox phase fluorometer measures the partial pressure of dissolved or gaseous oxygen; for pH, a miniature fiber-optic spectrometer measures the colorimetric (absorbance) response of the pH dye. *Ocean Optics Inc, 830 Douglas Avenue, Dunedin, FL 34698, http://www.oceanopticssensors.com*

Thermal image enhancing cameras

FLIR Systems has launched the new FLIR T420 and T440 thermal imagers, high-performance IR cameras with high resolution and new imaging capabilities. Designed to help in nondestructive evaluation of materials, they feature



more gray levels than conventional IR cameras. In addition to sharp thermal resolution at 76 800 pixels (320 × 240) for accurate diagnostics even from a distance, the new T440 features FLIR's MSX multispectral dynamic imaging. To thermal spectrum images MSX adds the detail of real-time visible spectrum images captured by the built-in digital camera, providing sharpness, contrast, and clarity previously unavailable in thermal imaging, according to the company. Other imaging capabilities include scalable picture-in-picture and thermal fusion for easier image identification and added context. Thermographers can add voice and text comments to images or sketch circles and arrows on the touchscreen (T440). The T-series' ergonomic rotating optical block swivels vertically up to 120°, for easier aiming at targets without compromising the view of the large 3.5-inch (89-mm) color touchscreen. *FLIR Systems Inc, 25 Esquire Road, North Billerica, MA 01862, http://www.flir.com* ■