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Materials Hold Secret to Better LED Performance Efficiency, Value

To achieve mass adoption, LEDs will require better materials that produce brighter, longer-life devices with improved color rendering. The price of LEDs has come down rapidly over the past three years, and this trend is expected to continue over the next couple of years until LED lamps reach mass adoption cost.

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Light Sources, Filters Enable 3-D Sensing Advances

Improving the manufacturability, reliability and size of hardware components for 3-D sensing systems opens up new applications for the technology. As the technology evolves, sensors are detecting ever-finer motions and characteristics. Modern sensors can not only detect a head nod, but also precisely identify to whom the head belongs. Besides identity, they can detect heartbeats and the subtle facial characteristics that communicate emotions. And 3-D sensing has moved outdoors to environments that previously were too bright or had complex lighting that precluded useful surveillance.

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QDs Up Display Color, Brightness with Less Power

Offering energy efficiency and a wide color gamut, the quantum dot could be the next big thing in display technology. After 25 years of research and development, quantum dots – man-made semiconducting crystals so tiny they are invisible to the naked eye – are ready for their close-up.

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LEDs, Other Optoelectronic Components Merging for Emerging Applications

A key trend in optoelectronics is the integration of light-based components into single multifunctional building blocks. Although LEDs are quite dominant in the market, the IHS report predicts that optocouplers – especially in gate-driver applications such as hybrid and electric vehicles, photovoltaic inverters and smart meters – will grow from $543 million in 2013 to $677 million in 2018, which represents 25 percent growth in five years.

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Engineering Makes Powerful Lasers Safer

Physical safeguards, along with software and training, help ensure that embedded lasers rate as Class 1 devices. Hiding your light under a bushel isn't always a bad thing, contrary to the advice in the old proverb. A case in point can be found in lasers, where low-cost systems are increasingly more powerful – and, therefore, potentially more dangerous.

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Products from this Issue

Fast Streaming Camera

AOS Technologies AG

The ultra-compact PROMON cameras by AOS offer 2 megapixels resolution at high frame rates.

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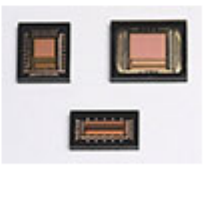

CMOS Distance Image Sensors

Hamamatsu Corporation

Hamamatsu Corp. has introduced three CMOS image sensors for real-time distance measurement using a time-of-flight method.

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Athermal MWIR Lens

LightWorks Optical Systems

LightWorks Optical Systems Inc. has added a series of athermal f/2 mid-wave infrared (MWIR) lenses to its Owl-IR line of fixed-focus objective lenses.

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Fiber Laser Sapphire Windows

Laser Research Optics

Laser Research Optics has released a series of protective fiber laser sapphire windows for use with 1-µm optics.

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