

New Professional-Grade EMCCD Cameras Available from Princeton Instruments

Trenton, NJ, January 2009 — Princeton Instruments is pleased to announce the arrival of the ProEM™, the highest performance EMCCD camera platform to be offered on the scientific imaging market to date. New ProEM cameras are designed to address challenging low-light applications associated with single-molecule fluorescence, astronomy, and ion imaging, as well as many other high-frame-rate, light-starved applications.

The Princeton Instruments ProEM uses 512x512 and 1024x1024 back-illuminated EMCCDs and supports both electron multiplication (EM) and traditional readout ports. The EM port is used when high frame rates are required under low-light conditions, while the traditional readout port is ideal for slow-scan applications. The cameras provide several highly innovative features, including a Bias Active Stability Engine (BASE™), Princeton Instruments Noise Suppression (PINS™) technology, and OptiCAL™ – on-demand EM gain calibration that produces a linearized EM gain map. A hardware-generated timestamp on each frame takes the guesswork out of time-resolved photometry.



The ProEM camera platform boasts an advanced, all-metal-seal vacuum design for deep cooling and the lowest dark current. Its vacuum performance is guaranteed for the entire lifetime of the camera – the only such guarantee in the industry. The new EMCCD camera platform can be cooled with air, liquid, or a combination thereof. In vibration-sensitive applications, the ProEM can achieve maximum cooling using just liquid, eliminating unwanted air turbulence. For the first time, the latest Gigabit Ethernet (GigE) interface is being offered with a cooled scientific camera, allowing the ProEM to be operated from distances greater than 50m away.

“The ProEM is a culmination of extensive discussions we had with researchers around the world. As a result, every aspect of the camera platform has been thoroughly redesigned or reinvented to achieve the highest performance possible,” comments Ravi Guntupalli, Product Manager for Princeton Instruments’ Imaging Group.

“While EMCCDs are an established technology for low-light imaging applications, the cameras on the market today leave much to be desired,” Guntupalli explains. “For example, they compromise cooling for vibration-free operation or sacrifice low-noise operation of a non-EM amplifier for low-noise EM operation. Our new EMCCD cameras, however, can deliver all of the performance needed without making any such compromises. For instance, the ProEM can achieve less than 1 e- rms read noise in EM mode as well as approximately 3 e- rms in non-EM mode, a hitherto unheard-of combination.”

Princeton Instruments, a pioneer in low-light imaging and spectroscopy cameras, is now the first to launch deep-cooled, professional-grade EMCCD cameras. Several years ago, the company (under the name Roper Scientific) received a prestigious 2002 Photonics Circle of Excellence Award for introducing the first commercially available EMCCD microscopy camera.

About Princeton Instruments

Princeton Instruments designs and manufactures high-performance CCD, ICCD, and EMCCD cameras; spectrographs; and optics-based solutions for the scientific research, industrial imaging, and OEM communities. We take pride in partnering with our customers to solve their most challenging problems in unique, innovative ways. For more information on Princeton Instruments products, please visit www.princetoninstruments.com.