Princeton Instruments

VersArray: 1300

The Princeton Instruments VersArray: 1300 is a high-performance, full-frame digital camera system that utilizes a front- or back-illuminated, scientific-grade CCD. With a 1340 x 1300 imaging array, 100% fill factor, and 20 x 20 µm pixels, this system provides a very large imaging area with very high spatial resolution. Dark current is reduced through a thermoelectrically cooled option for easy maintenance or a liquid-nitrogen cooled option for long exposures. The large field of view, exceptionally high quantum efficiency, low readout noise, and low binning noise make this camera ideal for a variety of low-light applications.

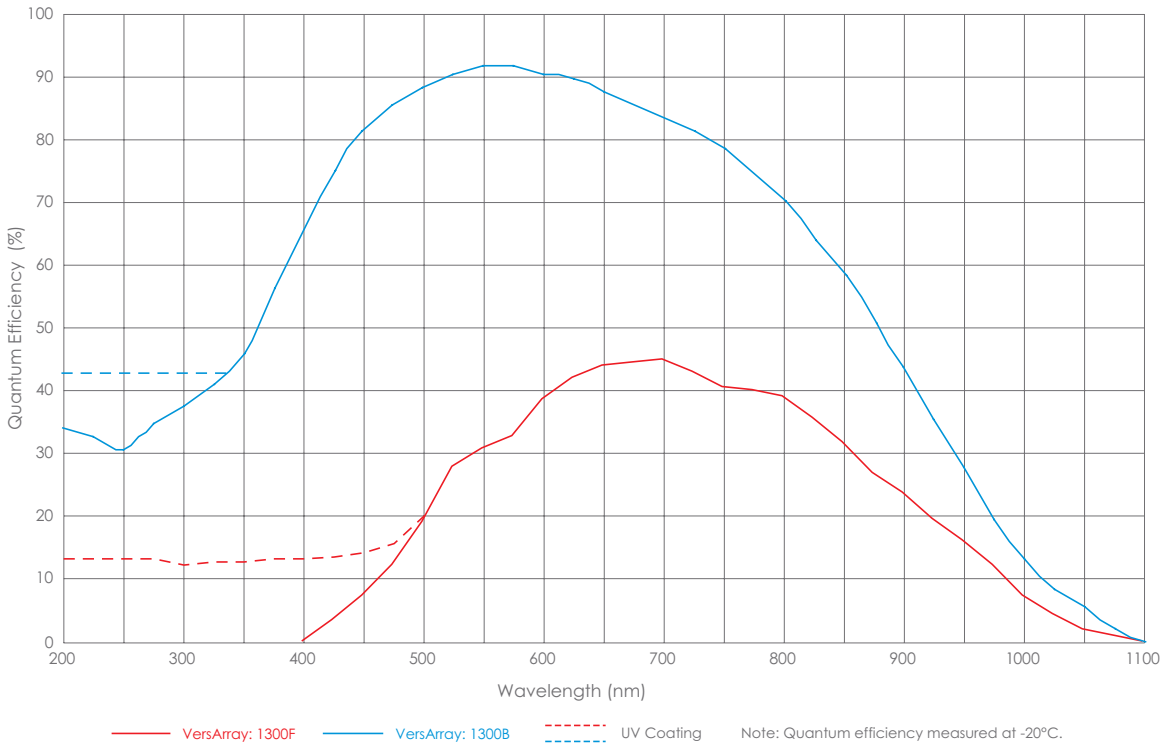
Applications: Astronomy, Large format imaging, Macro-imaging of chemiluminescence

Features	Benefits
1340 x 1300 imaging array	No out-gassing that compromises vacuum performance
Front-illumination Back-illumination	No etaloning; suitable for NIR applications Highest QE (>90%) possible
Large 20 µm pixel	True 16-bit dynamic range and large field of view
Low-noise readout	Able to measure smaller signals
Flexible binning and readout	Increases light sensitivity while increasing the frame rate
100 kHz/1MHz readout speed	Selectable readout to optimize for low noise or high speed operation
16-bit digitization	Quantifies both bright and dim signals in the same image
Kinetics (optional)	Allows faster frame rates when only partial number of rows are shifted
Thermoelectric cooling Liquid-nitrogen cooling	Long integration times for higher sensitivity Very long integration times with minimal dark current
F-mount	Easily attaches to standard lenses or optical equipment
USB2.0 PCI interface	Plug-n-play interface for easy setup Works with PC
Fiber optic interface (optional)	For remote operation Available for USB2.0 and PCI
Video output	Compatible with standard video equipment

VersArray: 1300 Specifications

		VersArray 1300F	VersArray1300B
CCD Image Sensor		Princeton Instruments proprietary Full frame, front-illuminated CCD	Princeton Instruments proprietary Full frame, back-illuminated CCD
CCD format		1340 x 1300 imaging pixels 20 x 20 µm pixels 26.8 x 26.0 mm imaging area (optically centered)	
Linear full well	single pixel 2 x 2 binned pixel	> 200,000 e- > 800,000 e-	
Read noise	1-MHz digitization 100-kHz digitization	8 e- rms (typical) 2.8 e- rms (typical)	
Cooling Temperature @ +20°C ambient		-40°C (TE), -110°C (LN) with +/-0.05°C thermostating precision	
Dark Current	-40°C -110°C	<0.1 e-/p/s <1 e-/p/hr	0.3 e-/p/s 1 e-/p/hr
Nonlinearity		<2%	
Readout bits/speed		16 bits @ 1 MHz; 16 bits @ 100 kHz	
Frame readout		1.8 seconds for full frame @ 1 MHz 18 seconds for full frame @ 100kHz	
Operating environment		0 to 30°C ambient, 0 to 50% relative humidity noncondensing	

QE Curve



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