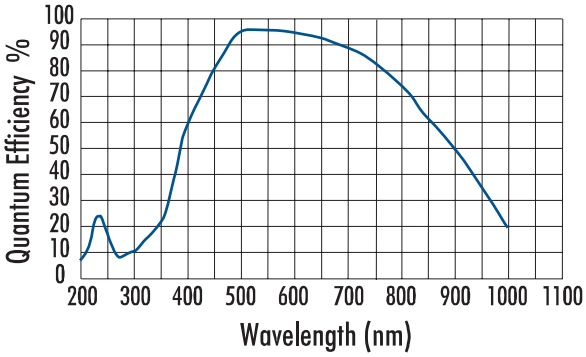
DATASHEET

VERSARRAY SYSTEM



VersArray:2048B
Princeton Instruments
2048 x 2048 imaging array
13.5 x 13.5-µm pixels

The Princeton Instruments VersArray:2048B is a high-performance, full-frame digital camera system that utilizes a back-illuminated, scientific-grade device. With a 2048 x 2048 imaging array, 100% fill factor, and 13.5 x 13.5-micron 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, high quantum efficiency, low readout noise, and low binning noise make this camera ideal for a variety of low-light imaging applications, including macro-imaging of chemiluminescence.

FEATURES	BENEFITS
2048 x 2048 imaging array 13.5 x 13.5-µm pixels	Provides highest resolution available in a large-format, back-illuminated camera
Back-illuminated CCD	Offers the highest sensitivity from the ultraviolet to the near infrared
Scientific-grade CCD	Low noise, few defects, linear response
Flexible, user-selectable binning and subarray readout	Increases frame rate and signal-to-noise ratio (SNR)
High intrascenic dynamic range	Quantifies both strong and weak signals in the same image
Dual-digitizer option	Slow speed for low noise and highest SNR High speed for rapid image acquisition
Thermoelectric or liquid nitrogen cooling	Allows you to match cooling to your application Significantly reduces dark current for long integration times
PCI interface	Industry standard Fast, reliable data transfer
WinView and PVCAM®	Offers easy-yet-sophisticated Windows® GUI controls Automates data acquisition, analysis, and display

VersArray® Princeton Instruments

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SPECIFICATIONS

CCD image sensor	Marconi CCD42-40; scientific grade; MPP; back-illuminated; available with UV-enhancement coating					
CCD format	2048 x 2048 imaging pixels; 13.5 x 13.5-µm pixels; 100% fill factor; 27.6 x 27.6-mm imaging area (optically centered)					
Grade	Grade 1					
	Minimum		Typical		Maximum	
CCD read noise			3 e- rms	6 e- rms	4.5 e- rms	
System read noise			low noise	high capacity	low noise	high capacity
@ 50 kHz @ 100 kHz @ 1 MHz			3.5 e- rms 5.5 e- rms 9 e- rms	11 e- rms 13 e- rms 25 e- rms	5.5 e- rms 7 e- rms 12 e- rms	13 e- rms 15 e- rms 30 e- rms
Single-pixel full well	80 ke-		100 ke-			
Output amplifier	low noise	high capacity	low noise	high capacity		
	200 ke-	700 ke-	250 ke-	800 ke-		
Dark current @ -40°C @ -110°C			0.1 e-/p/s 0.5 e-/p/hr		0.2 e-/p/s 1 e-/p/hr	
Operating temperature TE cooling (air) TE cooling (chilled liquid) LN cooling (liquid nitrogen)	-35°C -45°C -80°C		-40°C -55°C -110°C			
Outputs	Low-noise (high-sensitivity) or high-capacity amplifier; user selectable*					
Software-selectable gains	1/2x, 1x, 2x (low-noise mode); 1x, 2x, 4x (high-capacity mode)					
Nonlinearity @ 100 kHz	<2%					
Dynamic range	16 bits					
Scan rates	"100 kHz / 1 MHz" or "50 kHz / 1 MHz"					
Frame readouts @ 1 MHz @ 100 kHz @ 50 kHz	 < 4.5 seconds for full frame < 41 seconds for full frame < 81 seconds for full frame					
Thermostating precision	±0.05°C over entire temperature range					
LN hold time	>25 hours					

*Thermoelectric head only.

Note: Specifications are subject to change.

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