...SEE the Future

Princeton Instruments

Spec-10:2K

2048 x 512 imaging array | 13.5 x 13.5-µm pixels

The Spec-10:2K from Princeton Instruments utilizes a high-performance, back-illuminated CCD with a format ideal for high-resolution spectroscopy applications. The UV/AR-coated detector offers excellent sensitivity in the ultraviolet. A "Princeton Instruments exclusive" CCD feature provides software-selectable amplifiers that permit operation in either high-capacity mode (absorbance spectroscopy) or high-sensitivity mode (Raman or fluorescence spectroscopy). This feature delivers sensitivity and dynamic range unmatched by industry-standard "1024 pixel" CCDs. Cooling the CCD to cryogenic temperatures effectively eliminates dark noise, even for long exposure times.

Features	Benefits
2048 x 512 imaging array	Provides highest level of resolution for demanding applications
13.5 x 13.5-µm pixels	Small pixel size supports high resolution
Back-illuminated, UV/AR-coated CCD	High quantum efficiency for low-light applications in the ultraviolet
Cryogenic cooling	Effective elimination of dark noise, even for long exposure times
Software-selectable amplifiers	Exclusive feature provides highest level of sensitivity and dynamic range for absorbance, Raman, and fluorescence applications
Standard spectrometer interface	Will interface with most spectrometers
Dual-digitizer option	Multiple-speed digitization allows complete freedom to select between "slow operation" for low noise and highest SNR (signal-to-noise ratio) or "fast operation" for rapid image acquisition
"USB 2.0 interface" configuration	Seamless, plug-and-play connection to PC notebooks and desktops Easy OEM integration
"PCI interface" configuration	Industry standard for fast, reliable data transfer
WinSpec and PVCAM®	Offers easy-yet-sophisticated Windows® GUI controls Automates data acquisition, analysis and display
Linux® drivers and SITK™ plug-in for National Instruments' LabVIEW™	Extends system utility

Spec-10:2K Specifications

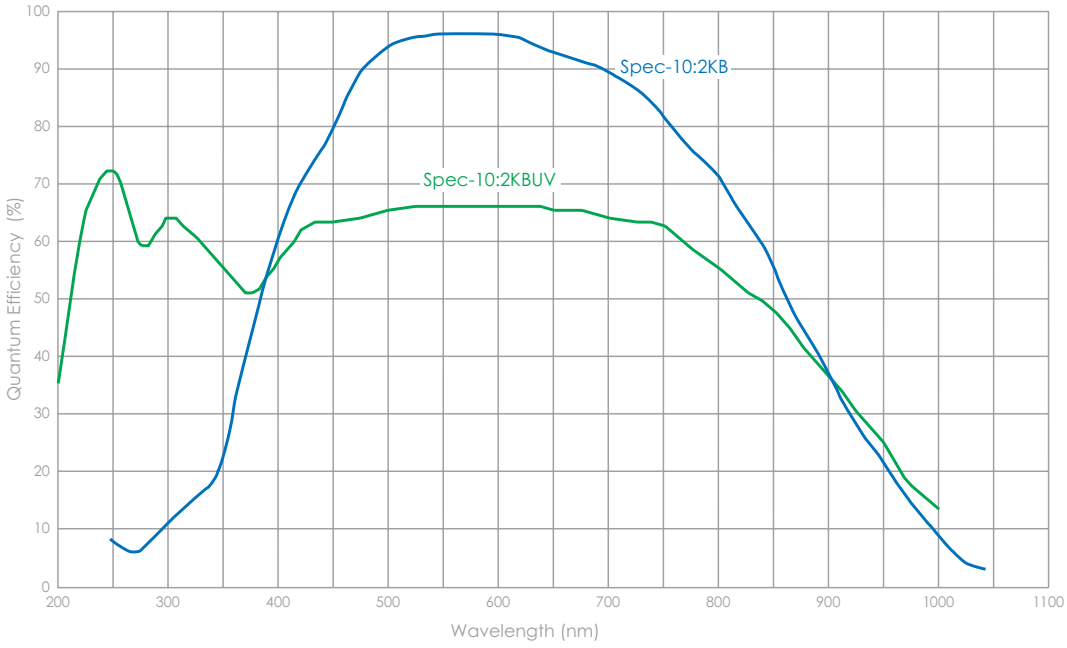
	Spec-10:2KB	Spec-10:2KBUV
CCD Image Sensor	back-illuminated	back-illuminated, enhanced UV
	All Spec-10:2Ks	
	e2v CCD42-10, scientific grade 1, MPP device	
	2048 x 512, 13.5 x 13.5 µm pixels, 27.6 x 6.9 mm imaging area	
	Typical	**Maximum**
Dark Current @ -120°C	0.3 e/p/hr	1 e/p/hr
System Read Noise		
@ 100 kHz readout	3.5 e-rms	5 e-rms
@ 1 MHz readout	8 e-rms	10 e-rms
@ 2 MHz readout	13 e-rms	18 e-rms
Vertical shift rate (software adjustable)	15.2 µsec/row	
Spectral rate*		
@ 100 kHz	35 spectra/sec	
@ 1 MHz	60 spectra/sec	
@ 2 MHz	90 spectra/sec	
	Minimum	**Typical**
Spectrometric Well Capacity		
High Sensitivity	150 ke-	250 ke-
High Capacity	600 ke-	800 ke-
Deepest Cooling Temperature	-120°C	-110°C
Thermostat Precision	±0.05°C across entire temperature range	

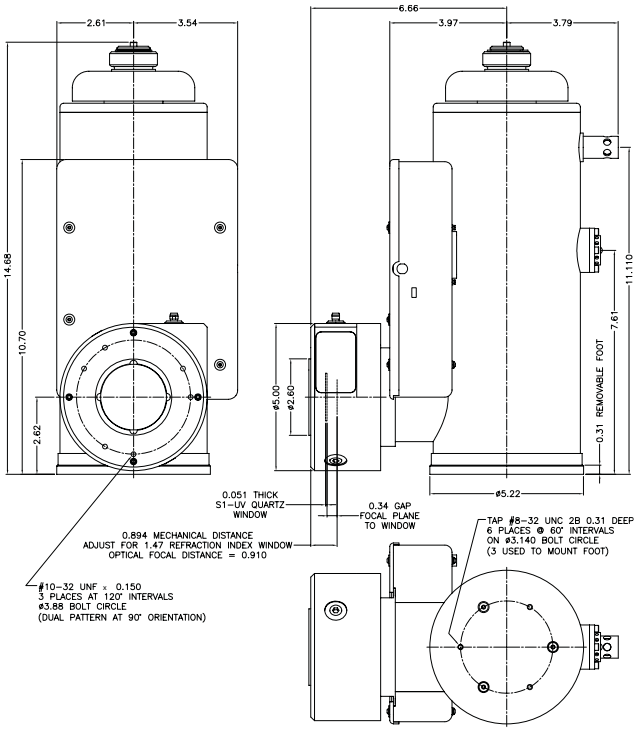
Software-selectable gains	High	Mid	Low
High Sensitivity	1.5 e-/ct	3 e-/ct	6 e-/ct
High Capacity	6 e-/ct	12 e-/ct	24 e-/ct

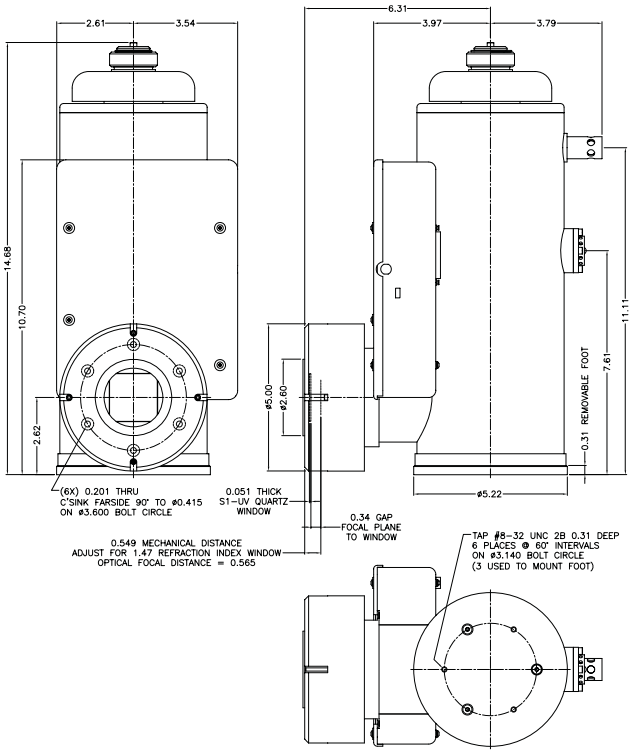
Dynamic Range	16 bits
Nonlinearity	
@ 100 kHz readout	< 1%
@ 1 MHz readout	< 2%
@ 2 MHz readout	< 2%

*Spectral rates measured with all rows vertically binned.

QE Curves







Princeton Instruments

www.piacton.com
email: moreinfo@piacton.com
USA +1.877.4 PIACTON | Benelux +31 (347) 324989
France +33 (1) 60.86.03.65 | Germany +49 (0) 89.660.779.3
UK +44 (0) 28.38310171 | Asia/Pacific +65.6293.3130
China +86 135 0122 8135 | Japan +81.3.5639.2741