

Spec-10:256

1024 x 256 imaging array | 26 x 26- μ m pixels



The Princeton Instruments/Acton Spec-10:256 utilizes a high-performance, industry-standard, front-illuminated, spectroscopic-format CCD with a special *open-electrode* architecture to enhance quantum efficiency. This detector provides excellent response from the vacuum ultraviolet to the near infrared for single- and multistripe spectroscopy applications. Liquid nitrogen cooling of the CCD effectively eliminates dark noise, even for long exposures.

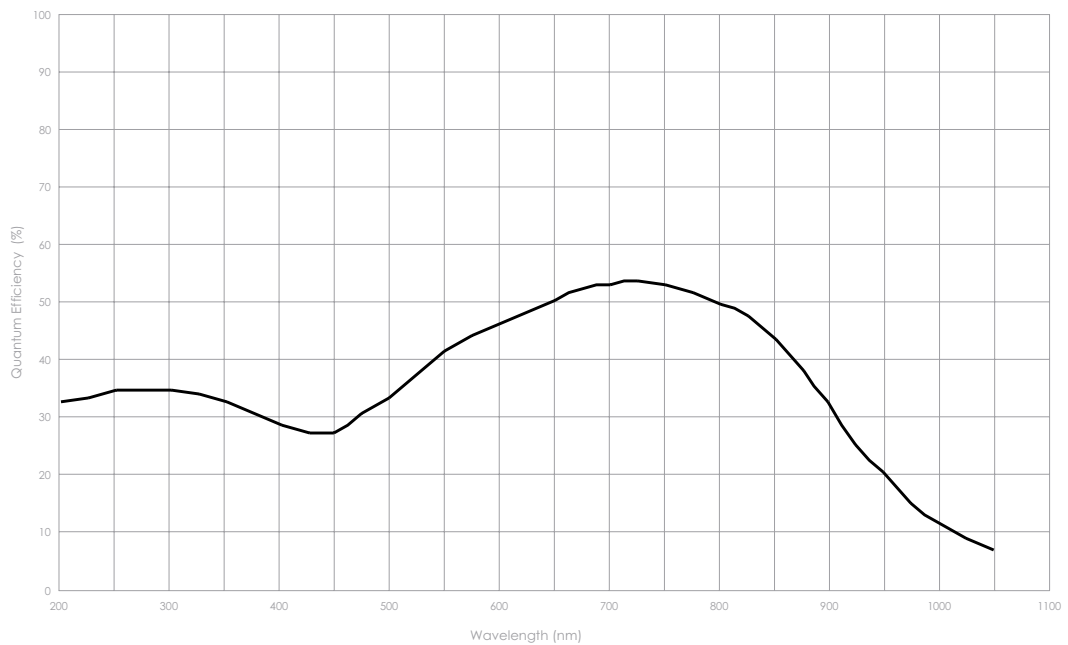
Features	Benefits
Open-electrode architecture	Special design for front-illuminated CCDs that provides high quantum efficiency from the vacuum UV to the NIR
Industry-standard 1024 x 256 imaging array	High performance at low cost
26 x 26-μm pixels	Large pixels provide large full well and high signal-to-noise ratio (SNR)
Front-illuminated CCD	High performance without etaloning
Cryogenic cooling	Eliminates dark noise even for long exposure times
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 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

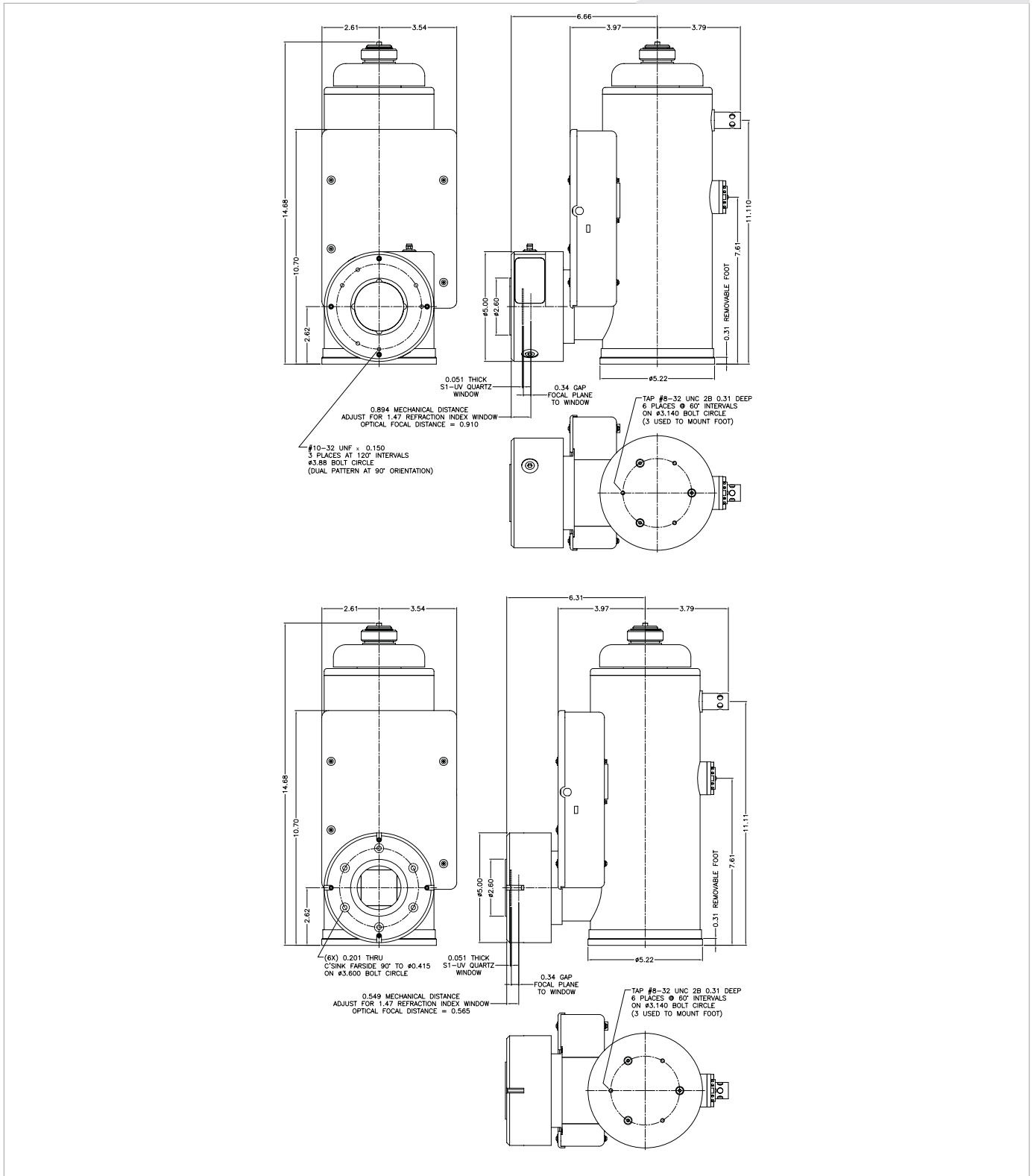
Spec-10:256 Specifications

Spec-10:256E			
CCD Image Sensor	E2V CCD30-11; scientific grade 1; AIMO; MPP		
CCD format	1024 x 256 imaging pixels; 26 x 26- μ m pixels; 100% fill factor; 26.6 x 6.7-mm imaging area		
	Typical	Maximum	
Dark Current @ -120°C operation	0.5 e-/p/hr	2 e-/p/hr	
System Read Noise			
@ 100 kHz readout	6 e- rms	8 e- rms	
@ 1 MHz readout	17 e- rms	20 e- rms	
@ 2 MHz readout	22 e- rms	28 e- rms	
Vertical shift rate (software adjustable)	30 μ sec/row		
Spectral Rate*			
@ 100 kHz	35 spectra/sec		
@ 1 MHz	60 spectra/sec		
@ 2 MHz	90 spectra/sec		
	Minimum	Typical	
Spectrometric Well Capacity			
Single pixel	200 ke-	300 ke-	
Binned	500 ke-	800 ke-	
Deepest Cooling Temperature	-120°C	-110°C	
Thermostat Precision	$\pm 0.05^\circ\text{C}$ across entire temperature range		
Software-selectable gains	High	Mid	Low
High Sensitivity	3 e-/ct	6 e-/ct	12 e-/ct
Dynamic Range	16 bits		
Nonlinearity			
@ 100 kHz readout	< 1%		
@ 1 MHz readout	< 2%		
@ 2 MHz readout	< 2%		

*Spectral rate measured with all rows vertically binned.

QE Curve





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