

PIXIS: 256

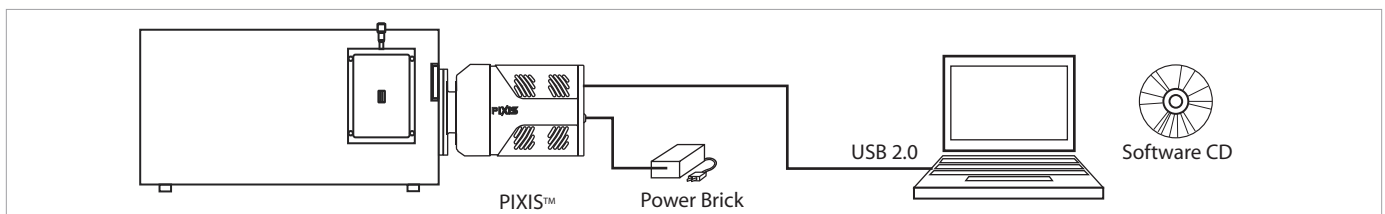
1024 x 256 CCD array | 26 x 26- μ m pixels



The Princeton Instruments PIXIS: 256 is a fully integrated system with permanent vacuum / deep cooling. It uses high-performance, spectroscopic-format industry standard CCDs. These devices are thermoelectrically cooled (air) down to -75°C to provide the lowest dark charge. The 1024 x 256 array with 6.7-mm chip height and 26-mm spectral coverage is ideal for multistriple spectroscopy and maximum light collecting area. This detector provides excellent response from the vacuum UV to the NIR. The high system reliability is ideal for OEM and laboratory applications.

Applications: multistriple Raman, LIBS, multistriple absorbance, emission, reflectance

Features	Benefits
Permanent vacuum	Guaranteed temperature performance and worry free operation with all metal seals
Deep thermoelectric cooling / air	Operate without the need for circulating liquid or an additional power supply
Compact design	Complete system integrated into a small footprint Ideal for integration into applications where space is at a premium
Industry-standard 1024 x 256 imaging array"	High performance at low cost
6.7-mm chip height	Ideal for rapid spectral acquisition
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 spectral acquisition
Single optical window	No losses due to multiple optical surfaces
Standard spectrometer mount	Easily interfaces with most spectrometers
TTL input and output	External trigger input with programmable polarity TTL output with exposure or readout monitor
USB 2.0 interface	Seamless, plug-n-play connection to PC notebooks and desktops, no need for external control box or installing PCI cards Easy OEM integration
Renowned WinSpec software	Offers easy-yet-sophisticated Windows® GUI controls Automates data acquisition, analysis and display
PICAM® for VB, C, C++ and Scientific Imaging Toolkit for LabVIEW™	Respected application program interface provides a universal interface to all Princeton Instruments hardware

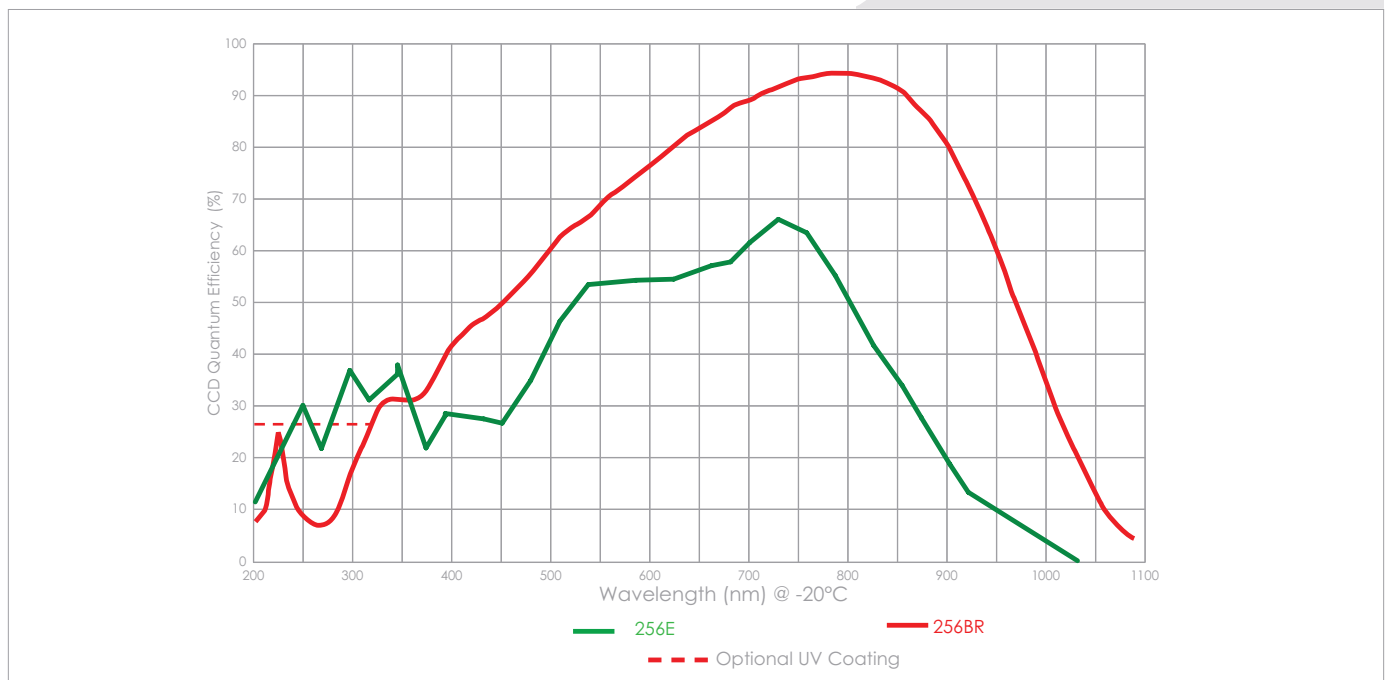


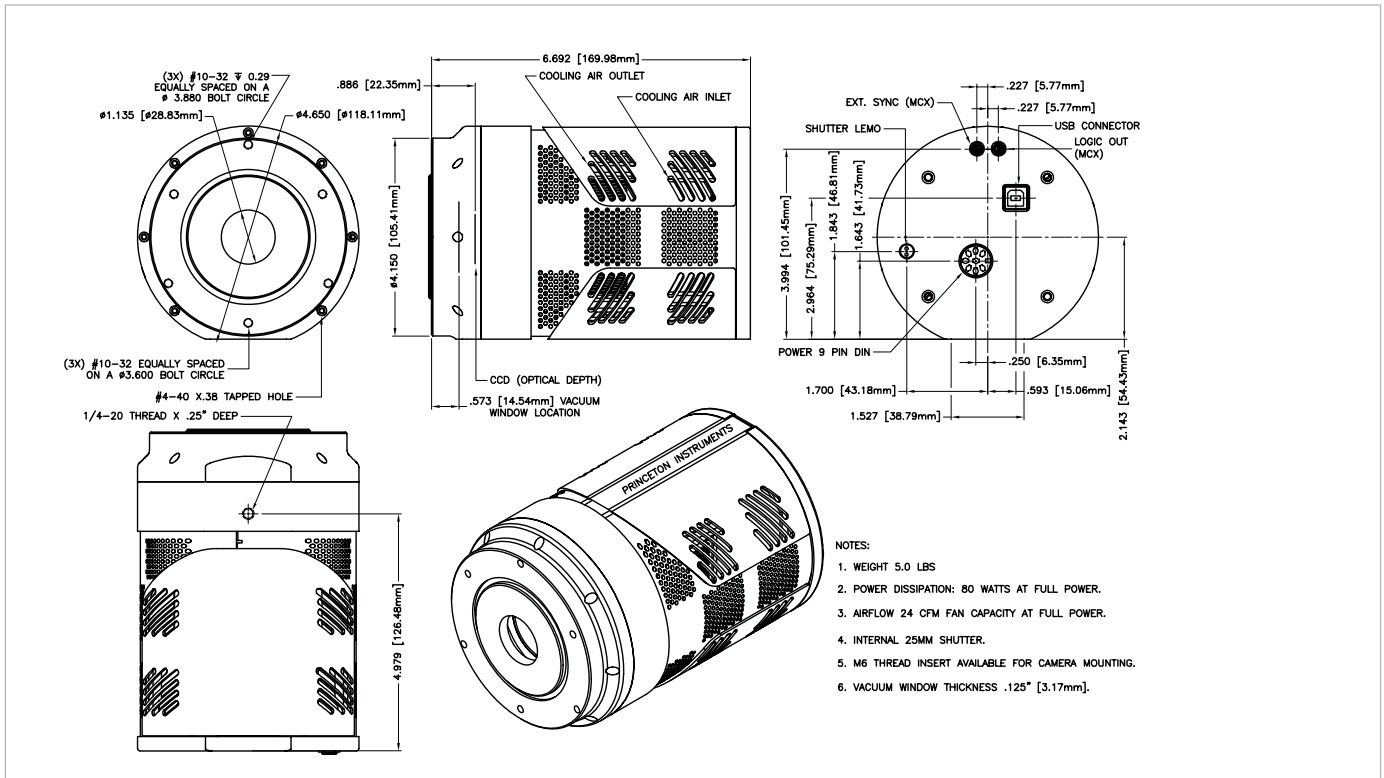
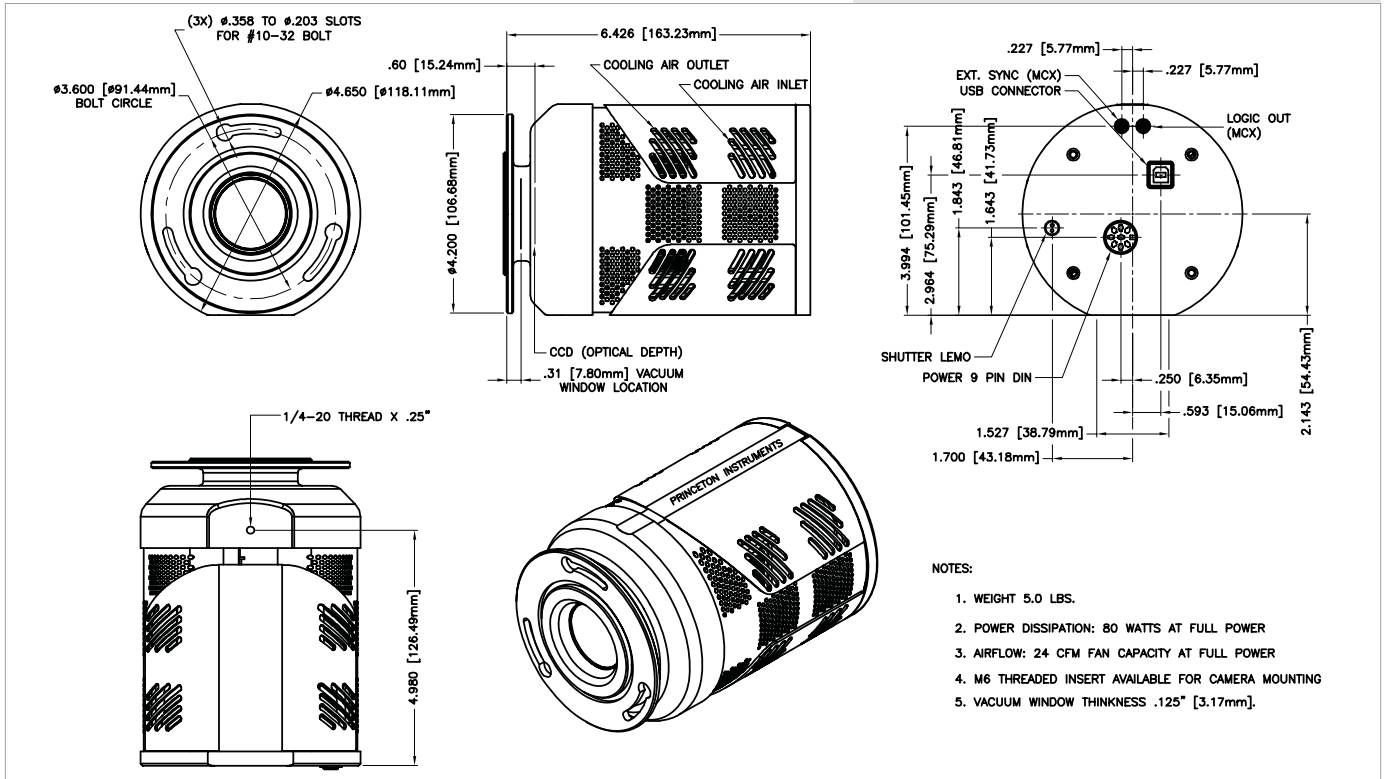
PIXIS: 256 Specifications

	PIXIS: 256E		PIXIS: 256BR	
CCD Image Sensor	E2V CCD30-11; scientific grade 1; AIMO; MPP Open-electrode		E2V CCD30-11; scientific grade 1; NIMO; back-illuminated deep depletion with anti-etaloning technology	
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	Typical	Maximum
Dark Current @ -75°C operation	0.003 e/p/s	0.006 e/p/s	0.3 e/p/s	0.5 e/p/s
System Read Noise				
@ 100 kHz readout	6 e- rms	8 e- rms	6 e- rms	8 e- rms
@ 2 MHz readout	22 e- rms	28 e- rms	22 e- rms	35 e- rms
Vertical shift rate (software adjustable)	30 μ sec/row		15 μ sec/row	
Spectral Rate*				
@ 100 kHz	35 spectra/sec		70 spectra/sec	
@ 2 MHz	90 spectra/sec		220 spectra/sec	
Output saturation** (e-, typical)	1,000,000		1,400,000	
	Minimum	Typical	Minimum	Typical
Spectrometric Well Capacity				
Single pixel	200 ke-	300 ke-	400 ke-	500 ke-
Binned	500 ke-	800 ke-	900 ke-	1100 ke-
Deepest Cooling Temperature	-75°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.
**As per CCD manufacturer datasheet.

QE Curve





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