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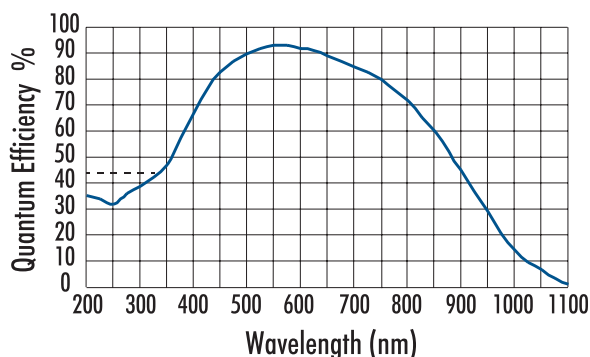
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Spec-10:400B
Princeton Instruments
Thermoelectric (TE) Cooling
1340 x 400 imaging array
20 x 20- μ m pixels

The Princeton Instruments Spec-10:400B utilizes a high-performance, back-illuminated, spectroscopic-format CCD designed exclusively for Princeton Instruments. The 1340 x 400 imaging array with an 8-mm chip height is ideal for single- and multistripe spectroscopy applications. This detector delivers much higher resolution and sensitivity than industry-standard "1024 pixel" sensors. A second exclusive feature is the integration of software-selectable amplifiers that offer an easy choice of high sensitivity or high signal-to-noise ratio (SNR).

F E A T U R E S

B E N E F I T S

1340 x 400 imaging array	Exclusive feature that provides superior resolution over industry-standard "1024 pixel" format
Exclusive CCD architecture	Provides industry's lowest-noise CCD system
20 x 20- μ m pixels	Optimum pixel size for full well and high resolution
8-mm-tall imaging area	Ideal for rapid, multistripe spectroscopy
Software-selectable amplifiers	Exclusive feature provides choice of superior sensitivity or superior SNR
Back-illuminated CCD	Highest sensitivity available for low-light spectroscopy applications
Thermoelectric cooling	Low-cost reduction of dark noise
Standard spectrometer interface	Will interface with most spectrometers
Optional dual digitizers	High speed provides fast data acquisition Low noise provides best SNR
Princeton Instruments WinSpec	Powerful and user-friendly "GUI" Windows® software completely integrates CCD and spectrometer control Fully automated data acquisition, control, and post-processing capabilities





DATASHHEET

SPECIFICATIONS

CCD image sensor	Princeton Instruments exclusive; scientific grade 1; MPP; back-illuminated; available with UV-enhancement coating			
CCD format	1340 x 400 imaging pixels; 20 x 20- μ m pixels; 100% fill factor; 26.8 x 8.0-mm imaging area			
	Minimum		Typical	Maximum
System read noise @ 50-kHz digitization @ 100-kHz digitization @ 1-MHz digitization			2.5 e ⁻ rms 3.5 e ⁻ rms 8 e ⁻ rms	3 e ⁻ rms 5 e ⁻ rms 10 e ⁻ rms
Spectrometric well capacity	high sensitivity	high capacity	high sensitivity	high capacity
	250 ke ⁻	800 ke ⁻	300 ke ⁻	1 Me ⁻
Dark current @ -40°C operation			.1 e ⁻ /p/s	.3 e ⁻ /p/s
Software-selectable gains	1/2x, 1x, 2x (high-sensitivity mode) 1x, 2x, 4x (high-capacity mode)			
Dynamic range	16 bits			
Nonlinearity	<2%			
Scan rates	"100 kHz / 1 MHz" or "50 kHz / 1 MHz"			
Vertical shift time	30 μ s			
Spectral rates (full vertical binning) @ 100-kHz digitization @ 1-MHz digitization	40 Hz 75 Hz			
Operating temperature	+20 to -45°C			
Thermostating precision	$\pm 0.05^\circ\text{C}$ over entire temperature range			

Note: Specifications are subject to change.



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Spec-10:400B (TE) Rev C0