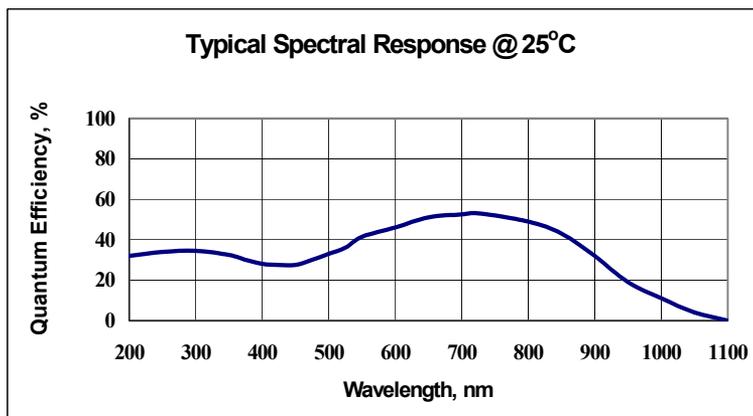


Symphony

1024 x 256 Cryogenic Open Electrode CCD Detector

The Most Versatile Front Illuminated Open Electrode Camera for Spectroscopy

The Front Illuminated Open Electrode 1024 x 256 CCD has the best value of all CCD detectors on the market today. With an average quantum efficiency of 40% from 200 nm to 900 nm and its relatively flat response, this detector is the optimal choice for general purpose spectroscopic measurements. The Open Electrode technology allows for an increased response in the UV over standard front illuminated CCDs. In the NIR, this detector is a lower cost alternative to the Deep Depletion CCDs with no etaloning due to its front illuminated design and similar signal-to-noise performance.

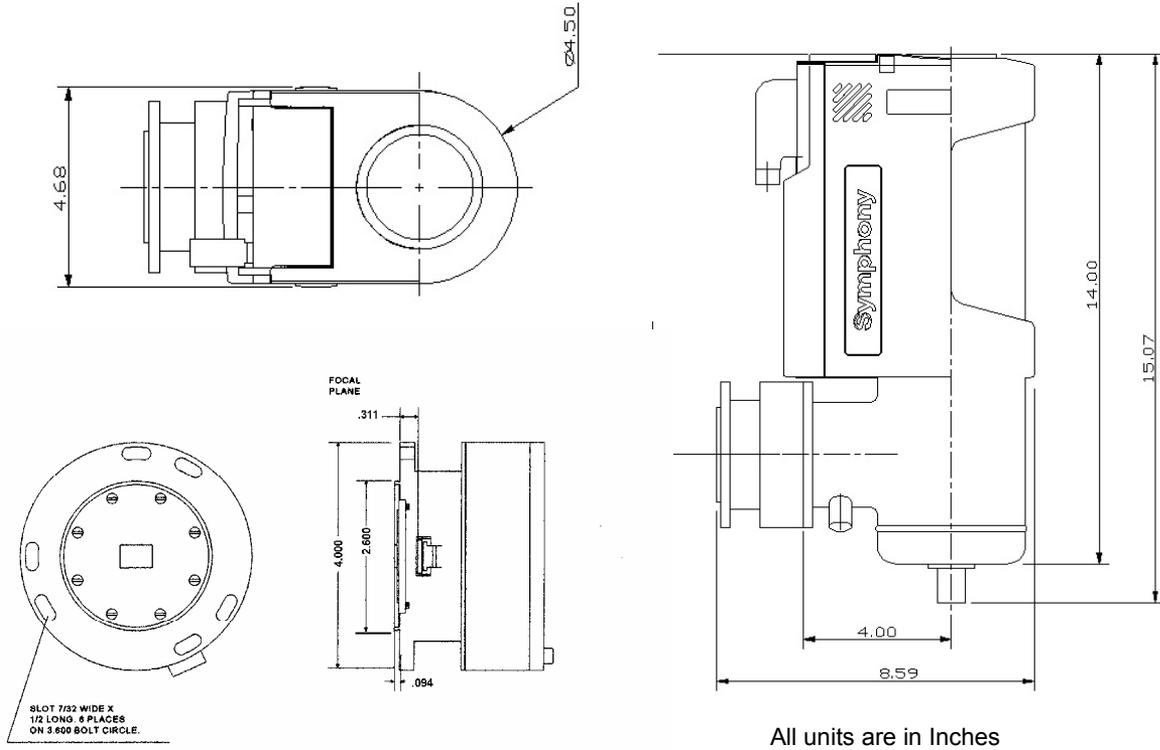


Features	Benefits
Scientific Grade 1 CCD	Ideally suited for low light level detection in a variety of spectroscopic applications
Open Electrode Technology	Relatively flat spectral response from 200 nm – 900 nm with no etaloning
Liquid Nitrogen Cooling	Extremely low dark signal operation for extended integration times required with low signal levels
Excellent Linearity	Increased accuracy of data over the full dynamic range
Software Selectable Scan Rates	Optimize an experiment for the best combination of speed and sensitivity
Ethernet Connection to Host PC	Standard, easy to use interface with 100% data integrity
HORIBA Jobin Yvon's SynerJY™ Software	Complete control of a Symphony CCD and HORIBA Jobin Yvon Spectrograph system with full analysis capabilities
LabVIEW VIs and SDK Available	Flexible software to integrate a Symphony CCD into existing apparatus or as an OEM component

Specifications				
CCD Format		1024 x 256, Front Illuminated Open Electrode, Scientific Grade 1		
Pixel Size		26 μm x 26 μm		
Image Area		26.6 mm x 6.7 mm, 100% Fill Factor		
Cooling System		Liquid Nitrogen		
Liquid Nitrogen Hold Time	1LS Model	24 hours with 1 Liter Dewar		
	3LS Model	72 hours with 3 liter Dewar		
		Minimum	Typical	Maximum
Readout Noise	20 kHz		3.4 e ⁻ rms	5 e ⁻ rms
	500 kHz		12 e ⁻ rms	15 e ⁻ rms
	750 kHz		13 e ⁻ rms	17 e ⁻ rms
	1 MHz		15 e ⁻ rms	20 e ⁻ rms
Pixel Well Capacity		200 ke ⁻	450 ke ⁻	
Register Well Capacity			1000 ke ⁻	
Dark Current			0.5 e ⁻ /pixel/hr	1 e ⁻ /pixel/hr
Nonlinearity		< 0.4 % at 20 kHz scan rate < 1 % at all other scan rates		
Scan Rates		Software Selectable from 20 kHz to 1 MHz		
Software Selectable Gains		5 Software Selectable Gains		
Dynamic Range		16 bits		
Vertical Shift Rate per row		48 μs , 24 μs , 8 μs ¹		
Maximum Spectral Rate	20 kHz	14 Hz		
	1 MHz	182 Hz ^{1,2}		

Specifications subject to change without notice.

Mechanical Dimensions



All units are in Inches

Ordering Information:

- CCD-1024x256-OPEN-1LS Liquid Nitrogen Cooled CCD System with 1 Liter Side Looking Dewar
- CCD-1024x256-OPEN-3LS Liquid Nitrogen Cooled CCD System with 3 Liter Side Looking Dewar
- CCD-1024x256-OPEN-1LD Liquid Nitrogen Cooled CCD System with 1 Liter Down Looking Dewar
- CCD-1024x256-OPEN-3LD Liquid Nitrogen Cooled CCD System with 3 Liter Down Looking Dewar

Our CCD packages include a CCD shutter for clean CCD charge transfer and background subtraction

Notes:

- 1 Open Electrode CCDs are guaranteed to have full Charge Transfer Efficiency (CTE) at our standard shift rate of 48 μ s. At faster shift rates, a decrease in CTE may be observed
- 2 Highest Spectral rates are achieved when using the 1MHz ADC, a Vertical Transfer Time of 8 μ s, with no mechanical shutter