

The standard for spectroscopy

Synapse[®] 1024 × 256 Front-Illuminated CCD Detector

The HORIBA Scientific Front-Illuminated 1024 × 256 CCD is ideal for low-noise acquisitions required in a wide variety of spectroscopic applications. Its 26 μm × 26 μm pixel size offers a high full well capacity, a large dynamic range and an excellent signal-to-noise ratio. The height of this chip makes it the best choice for multi-tracking measurements or full 6.7 mm binning in the visible to near-IR spectral regions for an increased signal-to-noise ratio.



ELEMENTAL ANALYSIS

FLUORESCENCE

GRATINGS &
OEM SPECTROMETERS

OPTICAL COMPONENTS

PARTICLE CHARACTERIZATION

RAMAN

SPECTROSCOPIC ELLIPSOMETRY

SPR IMAGING

Feature

Spectroscopy Benefits

Deep Thermoelectric Cooling	Low dark signal with no need for liquid nitrogen
Lifetime Vacuum Warranty	All-metal sealed technology allows a permanent vacuum, letting us offer a lifetime warranty
Excellent Linearity	Increased accuracy of data over the full dynamic range
USB 2.0 Interface	Standard connection to PC notebooks and desktops with 100% data integrity
Auxiliary Signal Input	Unique ability to add measurements from single-channel detectors without additional electronics
Front-Illuminated CCD	Good spectral response from 400–1000 nm with no etaloning
Scientific Grade 1 CCD	Ideally suited for low light level detection in a variety of spectroscopic applications
HORIBA Scientific's SynerJY [®] Software	Complete control of a Synapse CCD and HORIBA Scientific Spectrograph system with full analysis capabilities
LabVIEW VIs and SDK Available	Flexible software to integrate a Synapse CCD into existing apparatus or as an OEM component

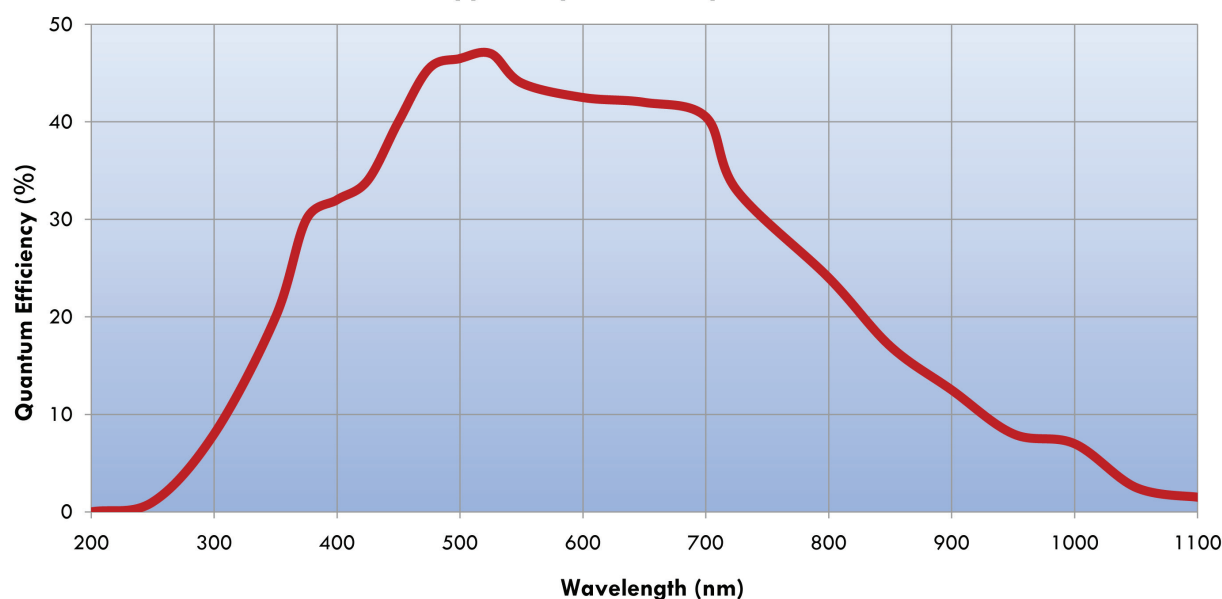


Specifications*

CCD Format		1024 × 256, front-illuminated, Scientific Grade 1		
Pixel Size		26 μm × 26 μm		
Image Area		26.6 mm × 6.7 mm, 100% fill factor		
Cooling System		Four-stage thermoelectric cooling. Typical operating temperature −80°C, guaranteed to −75°C. External cooling option available (−95°C typical).		
		Minimum	Typical	Maximum
Readout Noise	20 kHz		3.4 e [−] rms	5 e [−] rms
	1 MHz		15 e [−] rms	20 e [−] rms
Pixel Well Capacity		350 ke [−]	500 ke [−]	
Register Well Capacity			1000 ke [−]	
Dark Current			0.002 e [−] /pixel/s	
Nonlinearity		< 0.4% at 20 kHz < 1% at 1 MHz		
Scan Rates		20 kHz and 1 MHz, software-selectable		
Software-Selectable Gains		3 software-selectable gains		
Dynamic Range		16 bits		
Vertical Shift Rates		36 μs, 9 μs		
Maximum Spectral Rate	20 kHz	13 Hz		
	1 MHz	278 Hz		

*Specifications subject to change without notice.

Typical Spectral Response



Ordering Information:

CCD-1024x256-FIVS-SYN Synapse Thermoelectric Cooled CCD System

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

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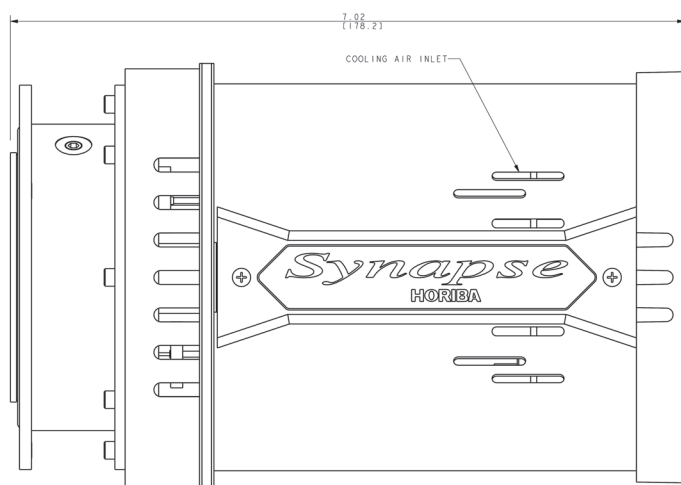
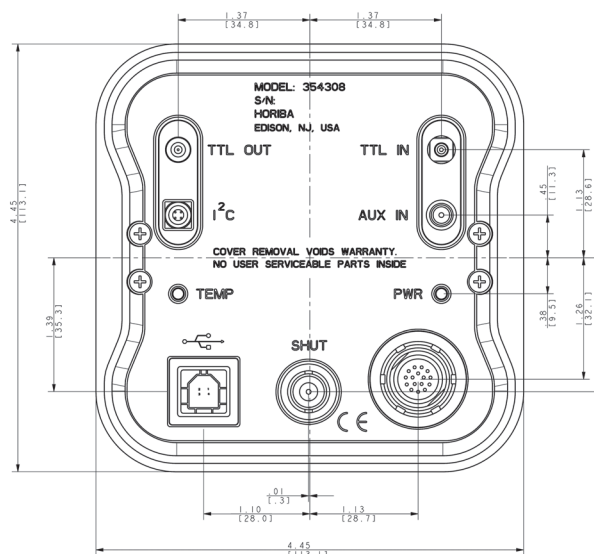
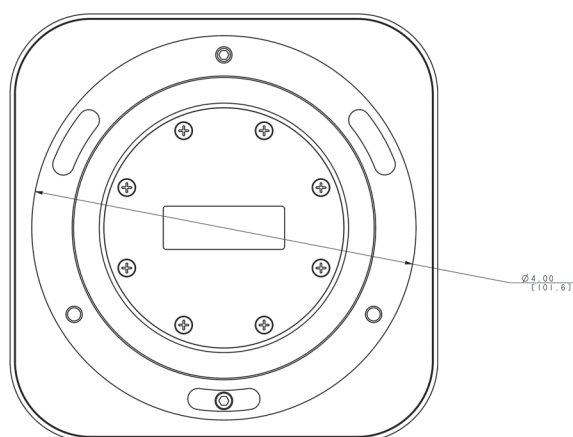
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SPECTROSCOPIC ELLIPSOMETRY

SPR IMAGING

Mechanical Dimensions



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HORIBA
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