

*The best quantum efficiency for low-intensity VIS-NIR spectroscopic signals*

## Synapse<sup>®</sup> 1024 × 256 Back-Illuminated CCD Detector

The exceptional quantum efficiency of the HORIBA Scientific Back-Illuminated 1024 × 256 CCD makes this detector ideal for extremely low-level signals within visible and near-IR spectroscopic applications. This detector is better-suited for emission spectroscopy where peaks are narrow.



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
Back-Illuminated CCD	Highest quantum efficiency for greatest sensitivity
Scientific Grade 1 CCD	Ideally suited for low light level detection in a variety of spectroscopic applications
HORIBA Scientific's SynerJY <sup>®</sup> 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

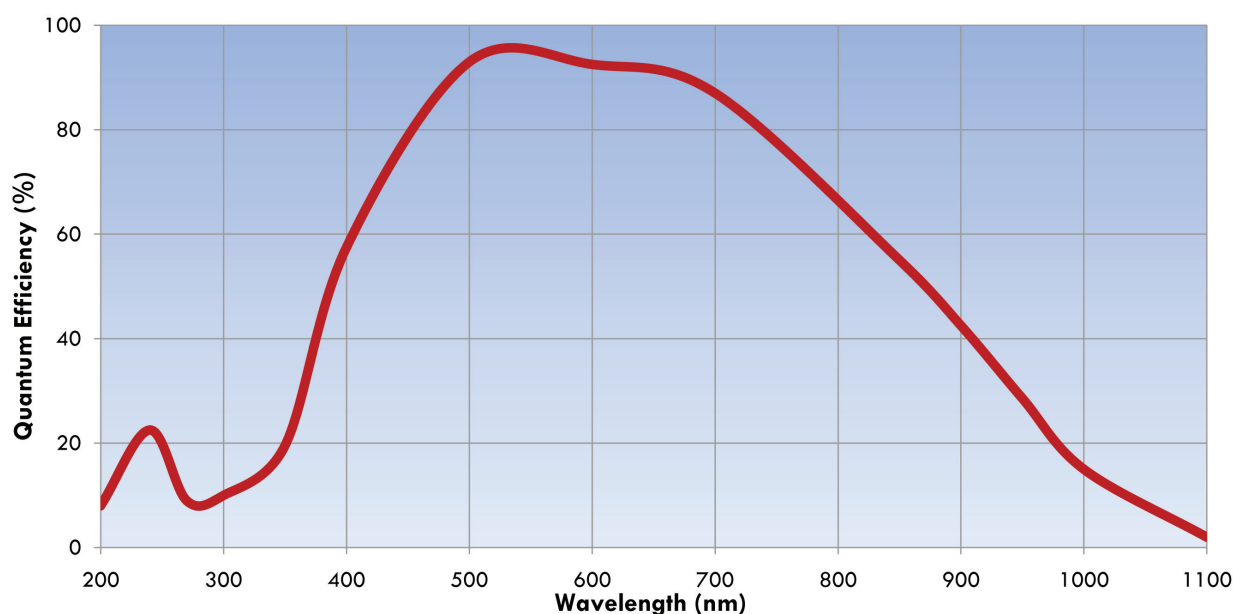


## Specifications\*

CCD Format		1024 × 256, back-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		5 e <sup>−</sup> rms	8 e <sup>−</sup> rms
	1 MHz		20 e <sup>−</sup> rms	25 e <sup>−</sup> rms
Pixel Well Capacity		350 ke <sup>−</sup>	500 ke <sup>−</sup>	
Register Well Capacity			1000 ke <sup>−</sup>	
Dark Current			0.004 e <sup>−</sup> /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	20 kHz	13 Hz		
Spectral Rate	1 MHz	278 Hz		

\*Specifications subject to change without notice.

### Typical Spectral Response



# HORIBA

## Scientific

### Ordering Information:

**CCD-1024x256-BIVS-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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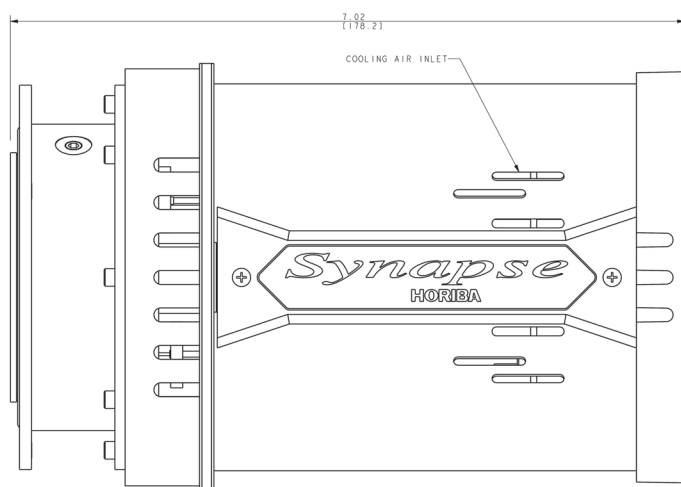
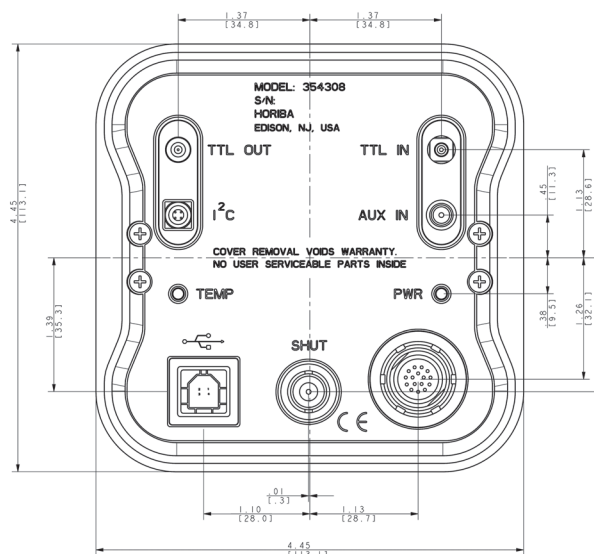
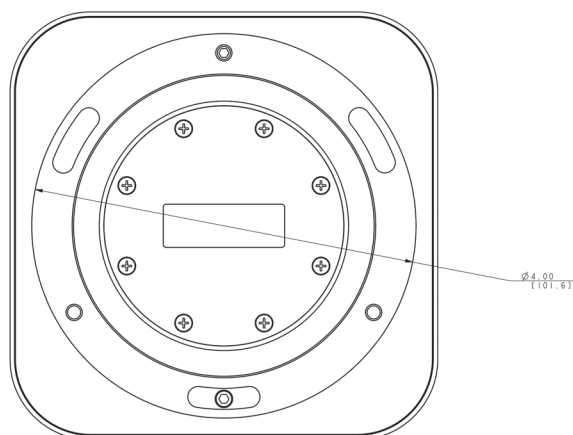
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## Mechanical Dimensions



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Scientific

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