

*High-efficiency UV-VIS detector for applications with small slit-heights*

## Synapse<sup>®</sup> 1024 × 128 Back-Illuminated UV-Sensitive CCD Detector

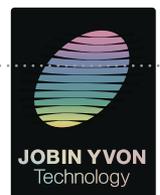
The exceptional quantum efficiency of the HORIBA Scientific Back-Illuminated UV-Sensitive 1024 × 128 CCD makes this detector ideal for acquisitions of extremely low level signals in UV, visible and near-IR spectroscopic applications. Better-suited for emission spectroscopy where peaks are narrow, this detector can show etaloning effects with broad spectral bands found in Raman and fluorescence applications. The quality of this chip is comparable to the 1024 × 256 BIUV in a smaller format and lower cost. This detector is the best choice for fast acquisitions with a maximum spectral rate of 450 Hz.



### 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	Provides automatic reference corrections or extends wavelength scanning ranges with near-IR detectors
Back-Illuminated CCD with UV-Enhanced Coating	Highest quantum efficiency for greatest sensitivity with enhanced UV response
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

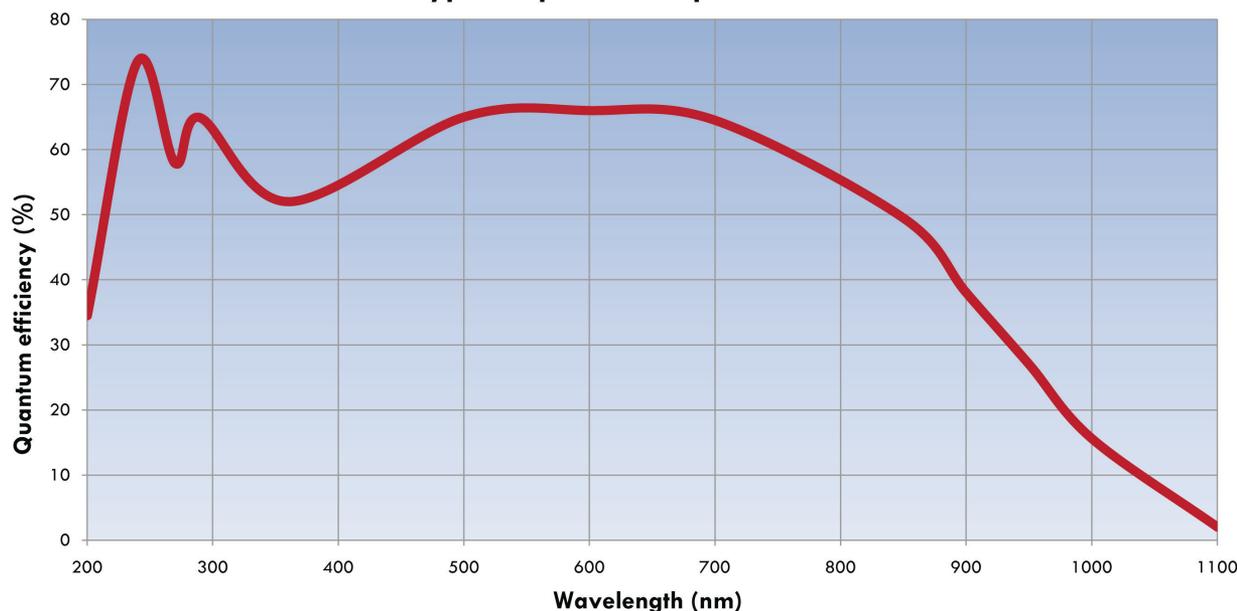


## Specifications\*

CCD Format	1024 × 128, back-illuminated, UV-coated, Scientific Grade 1			
Pixel Size	26 μm × 26 μm			
Image Area	26.6 mm × 3.3 mm, 100% fill factor			
Cooling System	Four-stage thermoelectric cooling, guaranteed to -75°C; optional -100°C (typical) external cooling available			
		Minimum	Typical	Maximum
Readout Noise	20 kHz		5 e <sup>-</sup> rms	8 e <sup>-</sup> rms
	1 MHz		15 e <sup>-</sup> rms	20 e <sup>-</sup> rms
Pixel Well Capacity		300 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 <sup>1</sup>			
Maximum Spectral Rate	20 kHz	17 Hz		
	1 MHz	450 Hz <sup>1,2</sup>		

\*Specifications subject to change without notice.

### Typical Spectral Response



# HORIBA

## Scientific

### Ordering Information:

### CCD-1024x128-BIUV-SYN Synapse Thermoelectric Cooled CCD System

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

### Notes:

<sup>1</sup>CCDs are guaranteed to have full charge transfer efficiency (CTE) at our standard shift rate of 36  $\mu$ s. At faster shift rates, a decrease in CTE may be observed.

<sup>2</sup>Highest spectral rates are achieved when using the 1 MHz ADC, a vertical transfer time of 9  $\mu$ s, with no mechanical shutter.

ELEMENTAL ANALYSIS

FLUORESCENCE

GRATINGS &  
OEM SPECTROMETERS

OPTICAL COMPONENTS

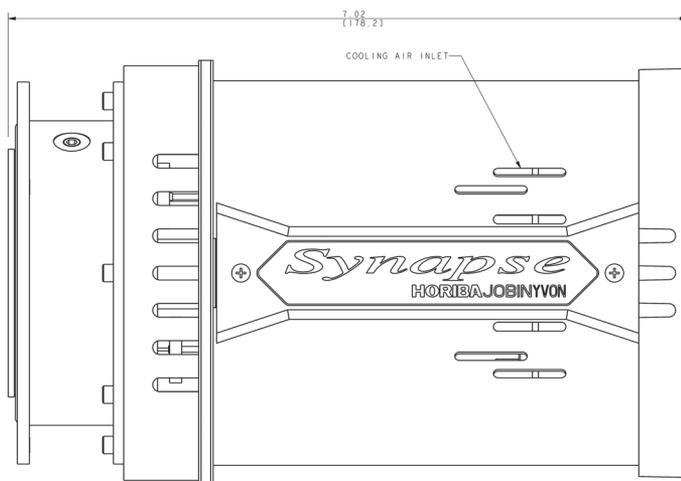
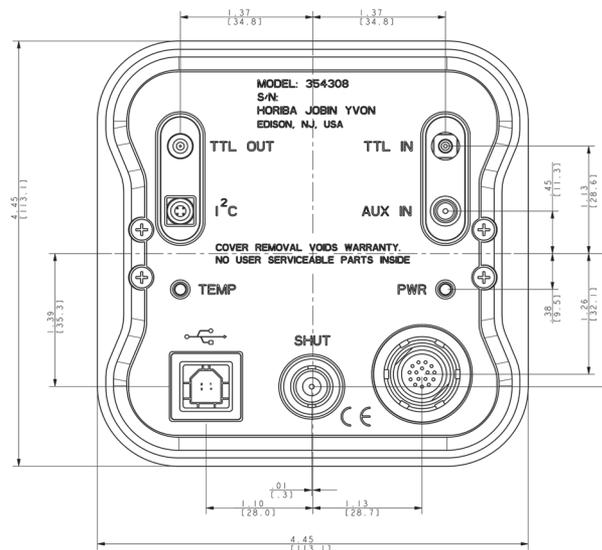
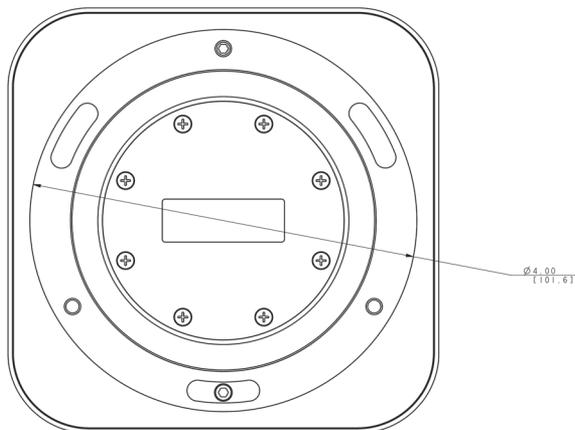
PARTICLE CHARACTERIZATION

RAMAN

SPECTROSCOPIC ELLIPSOMETRY

SPR IMAGING

## Mechanical Dimensions



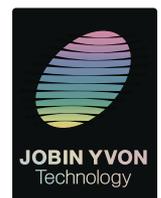
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