HORIBA Scientific

ELEMENTAL ANALYSIS
FLUORESCENCE
GRATINGS & OEM SPECTROMETERS
OPTICAL COMPONENTS
PARTICLE CHARACTERIZATION
RAMAN
SPECTROSCOPIC ELLIPSOMETRY
SPR IMAGING

High-efficiency UV-VIS detector for spectroscopic applications on small areas

Synapse® 512 × 512 Back-Illuminated UV-Sensitive CCD Detector

The superior quantum efficiency of the HORIBA Scientific Back-Illuminated UV-sensitive 512 × 512 CCD makes this detector ideal for acquisition of extremely low signals in UV and visible spectroscopy. Its 24 µm square pixel size offers a high full well capacity, a large dynamic range and an excellent signal-to-noise ratio. The large 12.3 mm height of this sensor makes it ideal for multi-track spectroscopy by filling the focal plane of HORIBA Scientific spectrometers.

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
Larger Sensor Height of 12.3 mm	Covers more of the spectrometer's focal plane for higher signal levels or multi-track imaging
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

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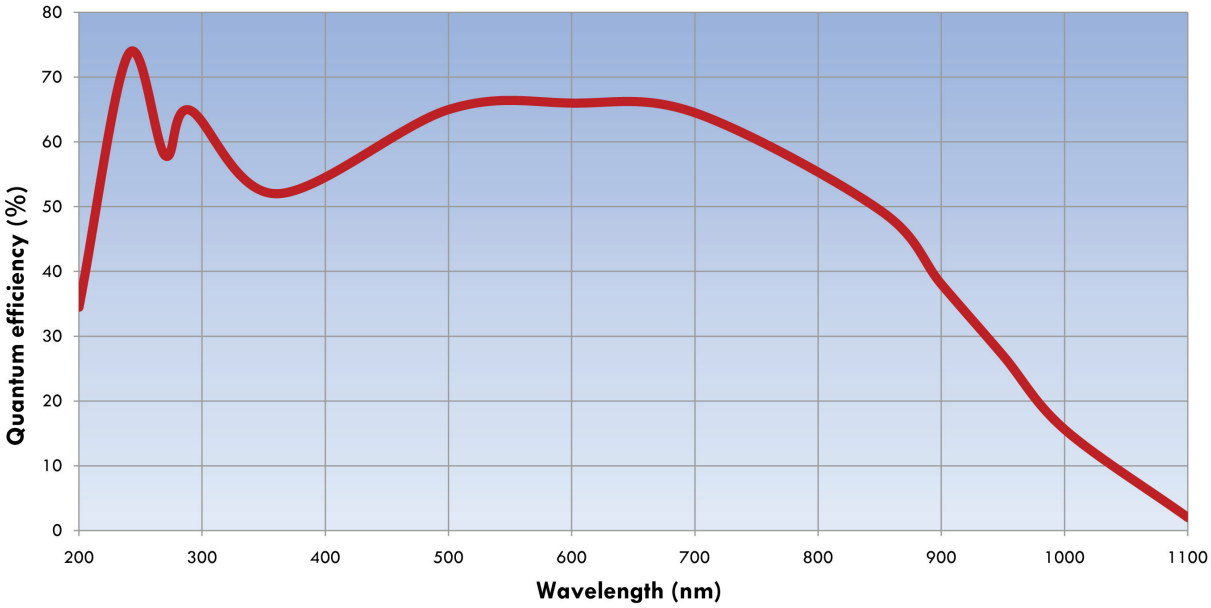
Specifications*

CCD Format		512 × 512, back-illuminated, UV-coated, Scientific Grade 1		
Pixel Size		24 µm × 24 µm		
Image Area		12.3 mm × 12.3 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		3.5 e^- rms	6 e^- rms
	1 MHz		15 e^- rms	20 e^- rms
Pixel Well Capacity		300 ke^-	350 ke^-	
Register Well Capacity			1000 ke^-	
Dark Current			0.004	0.01 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	18 Hz		
	1 MHz	49 Hz		

*Specifications subject to change without notice.

Typical Spectral Response



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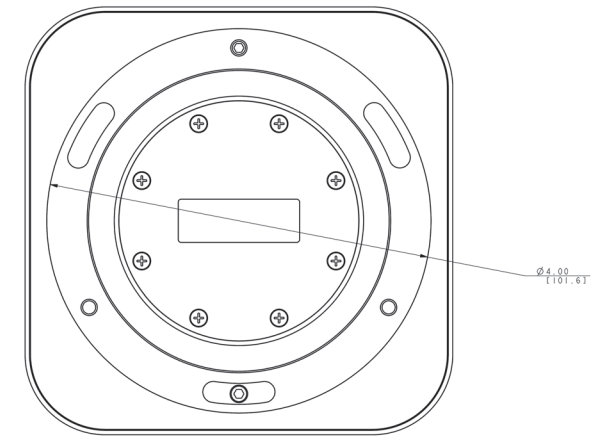
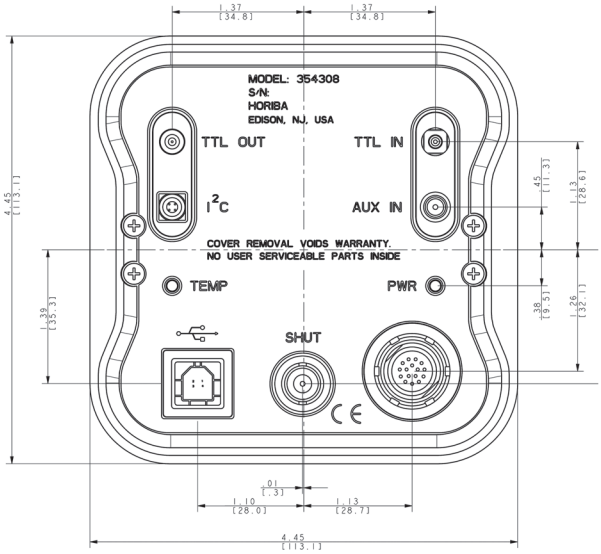
Ordering Information:

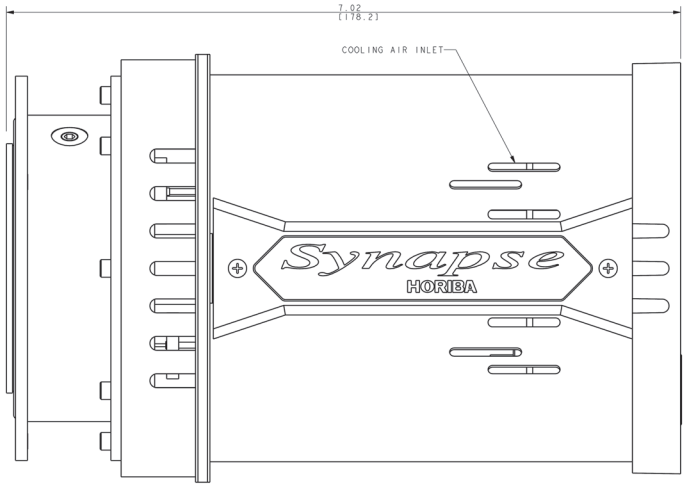
SYN-512x512-BU **Synapse Thermoelectric Cooled CCD System**

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

Mechanical Dimensions







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