HORIBA Scientific

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

High-efficiency VIS-NIR detector for applications with small slit-heights

Synapse® 1024 × 128 Back-Illuminated CCD Detector

The exceptional quantum efficiency of the HORIBA Scientific Back-Illuminated 1024 × 128 CCD makes this detector ideal for extremely low level signals in 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 BIVS 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	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® 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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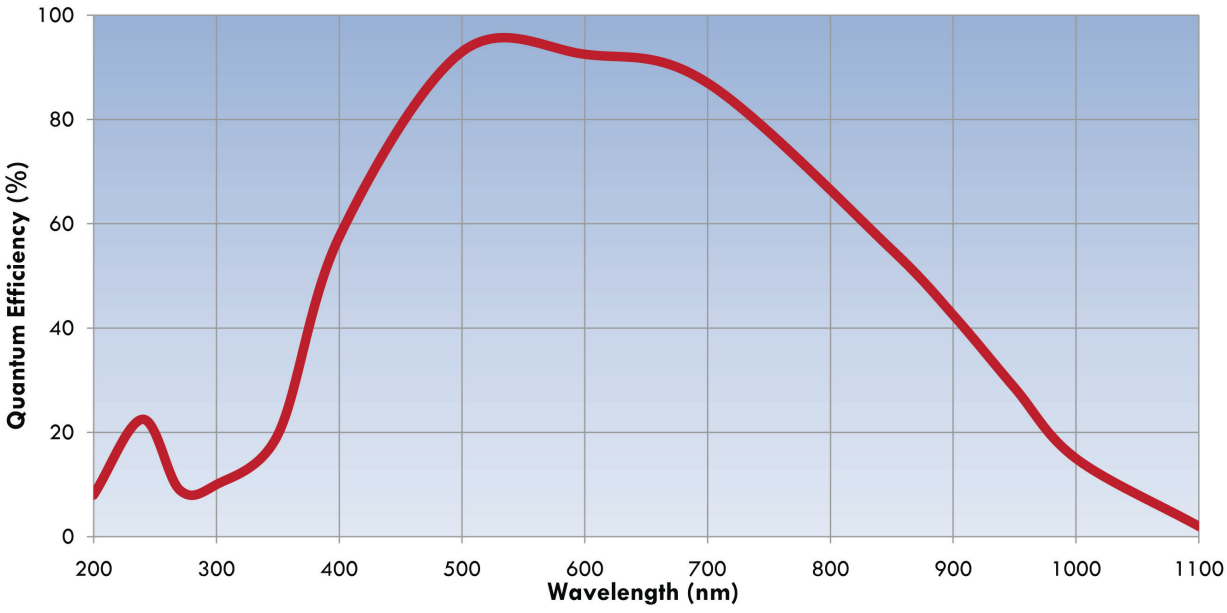
Specifications*

		Minimum	Typical	Maximum
CCD Format			1024 × 128, back-illuminated, 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	
Readout Noise	20 kHz		5 e^- rms	8 e^- rms
	1 MHz		15 e^- rms	20 e^- rms
Pixel Well Capacity		300 ke^-	500 ke^-	
Register Well Capacity			1000 ke^-	
Dark Current			0.004 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[1]	
Maximum Spectral Rate	20 kHz		17 Hz	
	1 MHz		450 Hz[1,2]	

*Specifications subject to change without notice.

Typical Spectral Response



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Ordering Information:

CCD-1024x128-BIVS-SYN **Synapse Thermoelectric Cooled CCD System**

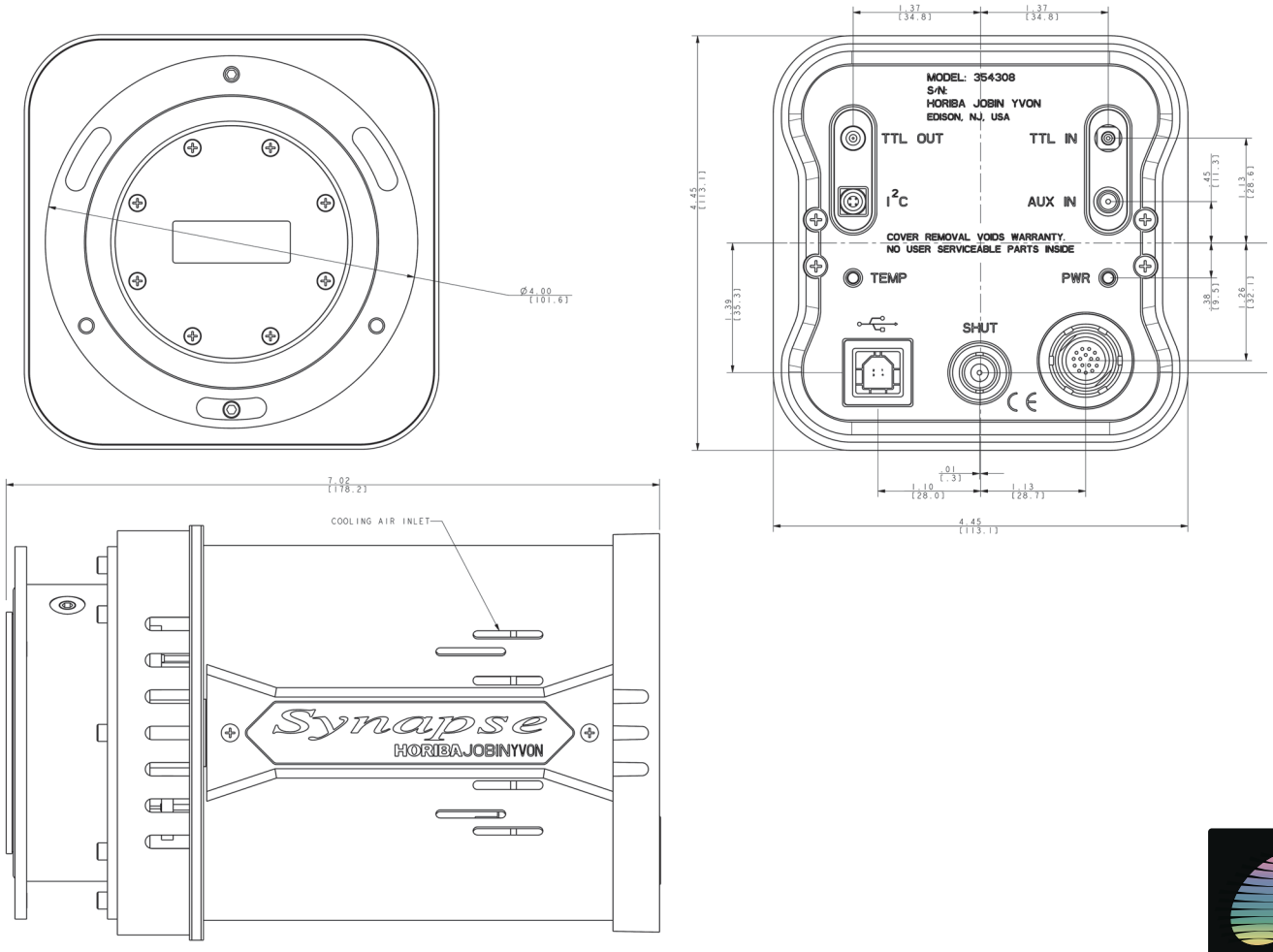
Our CCD packages include a CCD shutter for clean CCD charge transfer and background subtraction.

Notes:

[1]CCDs are guaranteed to have full charge transfer efficiency (CTE) at our standard shift rate of 36 µs. At faster shift rates, a decrease in CTE may be observed.

[2]Highest spectral rates are achieved when using the 1 MHz ADC, a vertical transfer time of 9 µs, with no mechanical shutter.

Mechanical Dimensions



info-sci@horiba.com
www.horiba.com/scientific

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USA: +1 732 494 8660 **France:** +33 (0)1 64 54 13 00 **Germany:** +49 (0)89 4623 17-0
UK: +44 (0)20 8204 8142 **Italy:** +39 0 2 5760 3050 **Japan:** +81 (0)3 38618231
Spain: +34 91 490 23 34 **China:** +86 (0)10 8567 9966 **Brazil:** +55 11 5545 1540
Other Countries: +33 (0)1 64 54 13 00