



**New QEXTRA  
QE-Enhancing and  
Fringe-Suppression  
Technology**

## Symphony<sup>®</sup> II 1024 × 256 Cryogenic Back-Illuminated Deep-Depletion CCD Detector SII-1024X256-BD

Based on QEXTRA quantum-efficiency enhancing and fringe-suppression technology, The HORIBA Scientific Back-Illuminated Deep-Depletion 1024 × 256 CCD is the best choice for low light level applications in the near-IR (500–1000 nm) including Raman, photoluminescence, and fluorescence spectroscopy, with a new controller-less design. Features high performance cryogenic cooling down to –133°C for ultimate sensitivity and extremely low dark signal. Exclusive auxiliary analog input for a voltage or current source. 278 spectra/second in 1 MHz mode. Superior linearity (>99.6% at 20 kHz), which is crucial for absorption, reflectance, chemometrics, quantum yield, and radiometric measurements. Applications include Raman, fluorescence, and other low-light applications.



Feature	Spectroscopy Benefits
Scientific Grade 1 CCD	Ideally suited for low light level detection in a variety of spectroscopic applications
Back-illuminated Deep-Depletion Technology	Enhanced near-IR response and reduced etaloning
Liquid-nitrogen Cooling	Extremely low dark signal for extended integration times required with low signals
Excellent Linearity	Increased accuracy of data over the full dynamic range
Software-selectable Scan Rates	Optimize an experiment for the best combination of speed and sensitivity
USB 2.0 Interface	Standard connection to PC notebooks and desktops with 100% data integrity
HORIBA Scientific's SynerJY <sup>®</sup> Software	Complete control of a Symphony II CCD and HORIBA Scientific Spectrograph system with full analysis capabilities
Auxiliary Signal Input	Unique ability to add measurements from single-channel detectors without additional electronics.
LabVIEW <sup>™</sup> VIs and SDK Available	Flexible software to integrate a Symphony II CCD into existing apparatus or as an OEM component



# HORIBA

Scientific

## Specifications\*

ELEMENTAL ANALYSIS

FLUORESCENCE

GRATINGS & OEM SPECTROMETERS

OPTICAL COMPONENTS

PARTICLE CHARACTERIZATION

RAMAN

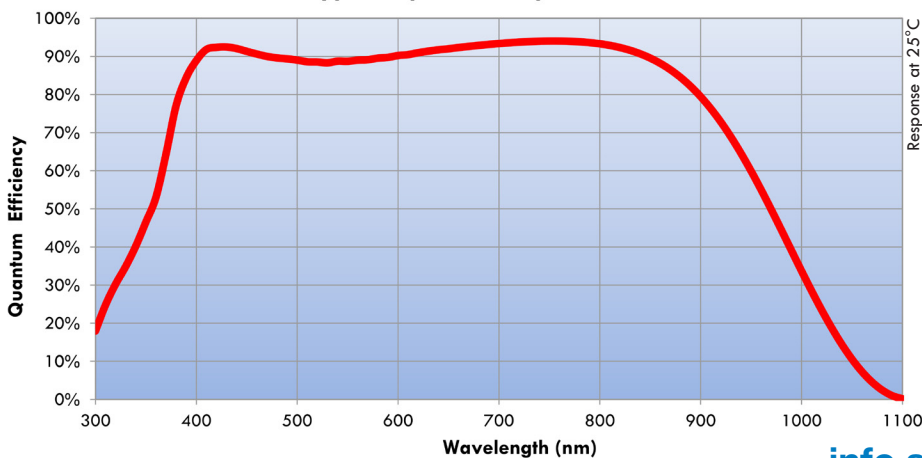
SPECTROSCOPIC ELLIPSOMETRY

SPR IMAGING

CCD Format	1024 × 256, back-illuminated, deep-depletion, Scientific Grade 1			
Pixel Size	26 μm × 26 μm			
Image Area	26.6 mm × 6.7 mm, 100% fill factor			
Cooling System	Liquid nitrogen			
Hold Time	1LS Model	24 hours with 1 L Dewar		
	3LS Model	72 hours with 3 L Dewar		
		Minimum	Typical	Maximum
Readout Noise	20 kHz		4 e <sup>-</sup> rms	6 e <sup>-</sup> rms
	1 MHz		20 e <sup>-</sup> rms	25 e <sup>-</sup> rms
Pixel Well Capacity		400 ke <sup>-</sup>	700 ke <sup>-</sup>	
Register Well Capacity			1000 ke <sup>-</sup>	
Dark Current		2 e <sup>-</sup> /pixel/h		
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



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