

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

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

Symphony[®] II 1024 × 256 Cryogenic Back-Illuminated Deep-Depletion CCD Detector

Based on QEXTRA quantum-efficiency enhancing and fringe-suppression technology, the Symphony II Back-Illuminated Deep-Depletion 1024 × 256 CCD from HORIBA Scientific is the best choice for low light level applications in the near-IR (300–1050 nm) including Raman, photoluminescence, and fluorescence spectroscopy. Features high-performance cryogenic cooling down to –133°C for ultimate sensitivity and extremely low dark signal and a new controller-less design. Exclusive auxiliary analog input for a voltage or current source. Superior linearity (>99.6% at 20 kHz) with up to 95% peak quantum efficiency, 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 with fringe suppression and greatly minimized 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 [®] 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 [™] 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

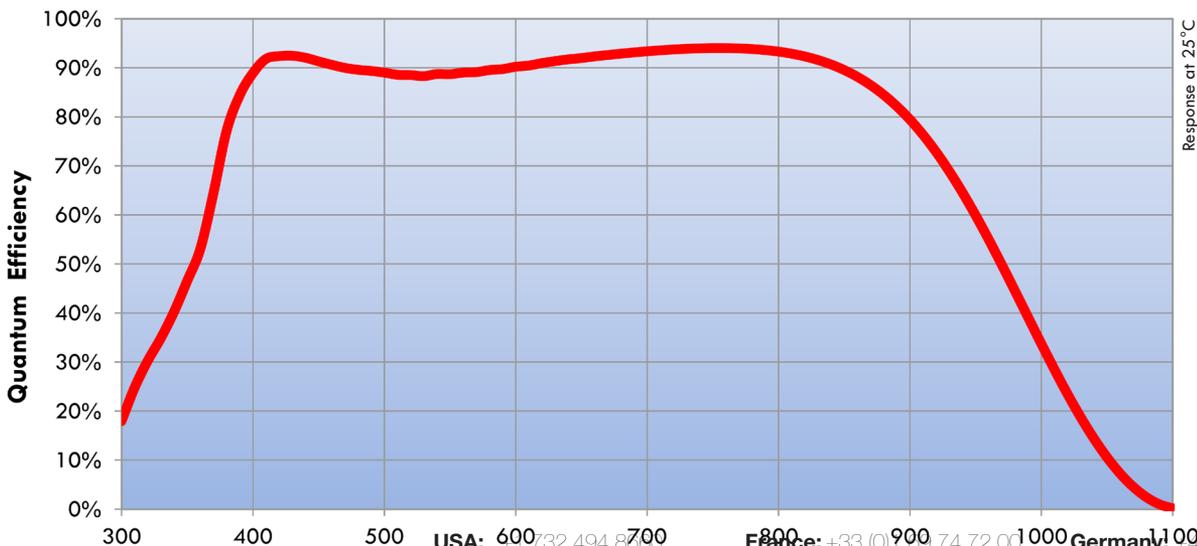
SPECTROSCOPIC ELLIPSOmetry

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 ⁻ rms	6 e ⁻ rms
	1 MHz		20 e ⁻ rms	25 e ⁻ rms
Pixel Well Capacity		400 ke ⁻	700 ke ⁻	
Register Well Capacity			1000 ke ⁻	
Dark Current			2 e ⁻ /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	20 kHz	13 Hz		
Spectral Rate	1 MHz	278 Hz		

*Specifications subject to change without notice.

Typical Spectral Response



USA: +1 (732) 494 8000 France: +33 (0) 3 74 72 00 Germany: +49 (0) 89 4623 17-0
 UK: +44 (0) 20 732 494 8000 Italy: +39 2 5760 3050 Japan: +81 (0) 3 6206 4717
 China: +86 (0) 21 6289 6000 Brazil: +55 (0) 11 5545 1500 Other: +33 (0) 69 74 72 00

HORIBA

Scientific

Ordering Information:

SII-1LS-256-BD Liquid Nitrogen Cooled CCD System with 1 Liter Side-Looking Dewar

SII-3LS-256-BD Liquid Nitrogen Cooled CCD System with 3 Liter Side-Looking Dewar

Our CCD packages include a CCD shutter for clean CCD charge transfer and background subtraction. To transfer liquid nitrogen to the CCD Dewar, we recommend our appropriately-sized funnel, part # G3200111328.

ELEMENTAL ANALYSIS

FLUORESCENCE

GRATINGS &
OEM SPECTROMETERS

OPTICAL COMPONENTS

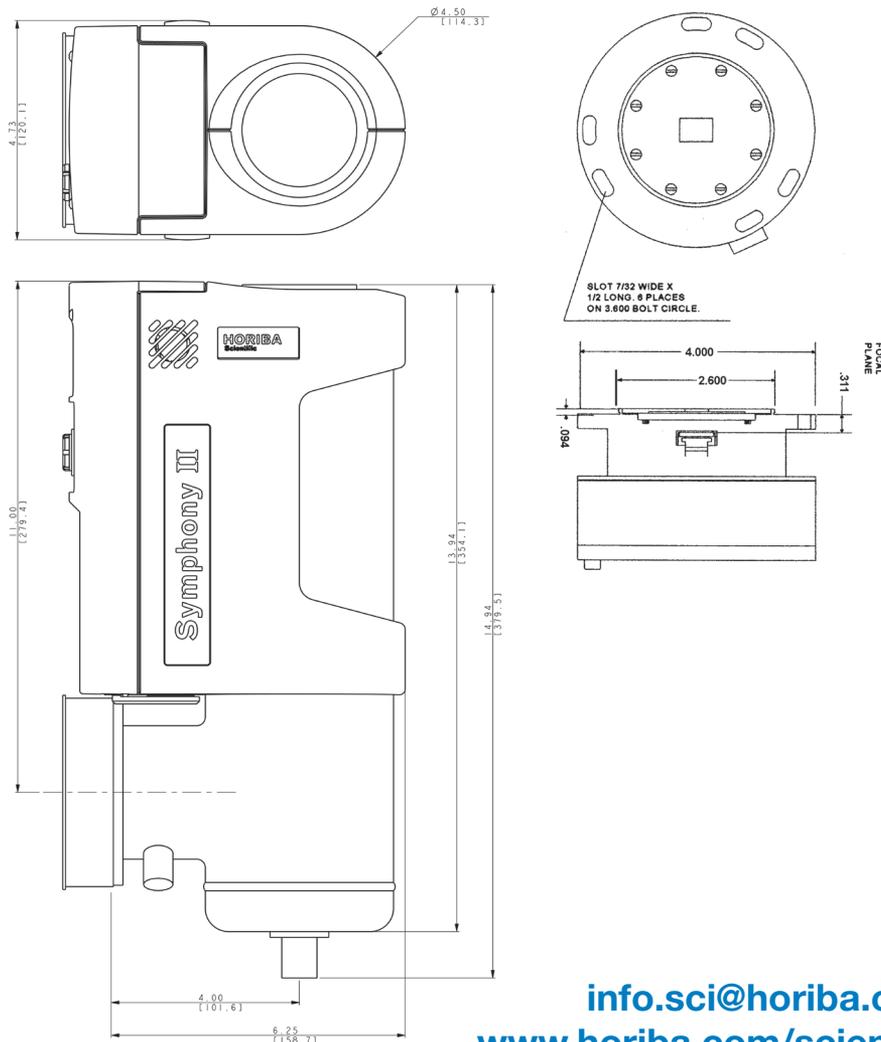
PARTICLE CHARACTERIZATION

RAMAN

SPECTROSCOPIC ELLIPSOMETRY

SPR IMAGING

Mechanical Dimensions



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

HORIBA
Scientific

USA: +1 732 494 8660
UK: +44 (0)20 8204 8142
China: +86 (0)21 6289 6060

France: +33 (0)1 69 74 72 00
Italy: +39 2 5760 3050
Brazil: +55 (0)11 5545 1500

Germany: +49 (0)89 4623 17-0
Japan: +81 (0)3 6206 4717
Other: +33 (0)69 74 72 00



This document is not contractually binding under any circumstances. P/N: OSD-0020 LN/Rev. K © HORIBA instruments incorporated 04/2013. LabVIEW is a trademark of National Instruments.