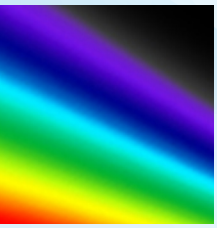
HORIBA Scientific



Syncerity BI UV–Vis

Scientific Deep-cooled Camera for OEM Industrial Applications

UV-enhanced Sensitivity with Ultra-high Spectral Resolution!

Key Features and Benefits

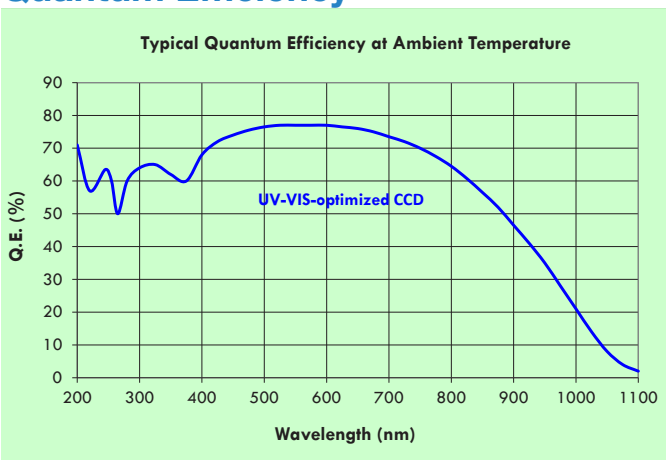
- **2048 × 70 back-illuminated sensor**
  Enable optimum spectral resolution
- **UV-Vis quantum efficiency enhancement**
  60% QE at 250 nm, and 75% QE at 550 nm
- **Deep thermoelectric cooling**
  –50°C for low dark current
- **Improved etaloning**
  Ideal for Raman applications
- **16-bit digitization**
  Provides wide dynamic range
- **Lifetime vacuum warranty**
  Metal-sealed technology for permanent vacuum

Sensor Size	2048 × 70
Deep-cooled	–50°C
Pixel Size	14 µm × 14 µm
Digitization	16 bit

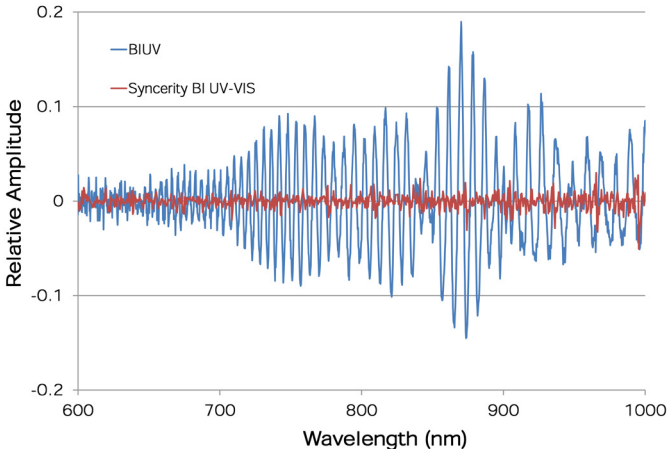
Sample Applications

- Raman spectroscopy
- Microspectroscopy
- Plasma analysis
- UV-VIS-NIR photoluminescence
- Diffuse reflectance spectroscopy

Quantum Efficiency



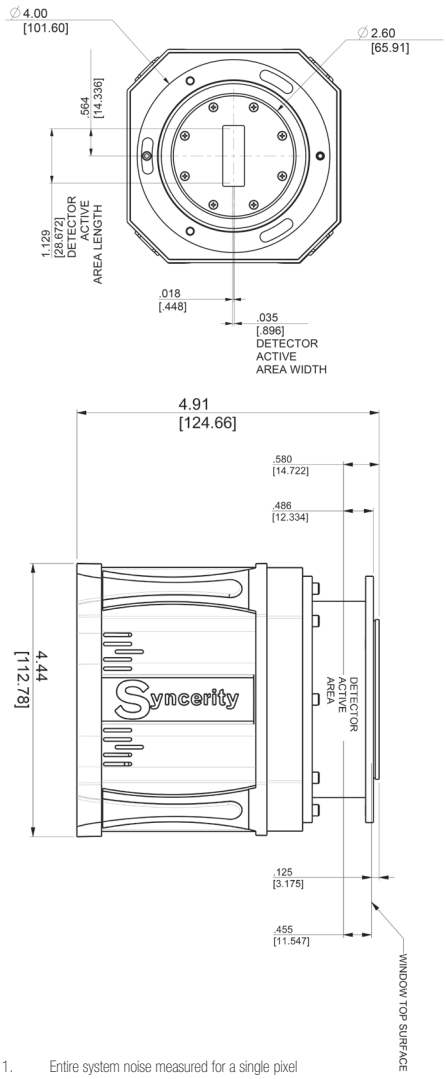
Suppressed Etaloning



JOBIN YVON Technology

Syncerity™ BI UV-Vis Specifications

CCD Sensor Format	2048 × 70
Quantum efficiency at 20°C	63% at 245 nm; 64% at 300 nm; 68% at 400 nm 76% at 500 nm; 77% at 700 nm; 64% at 800 nm
Pixel size	14 µm × 14 µm
Image area	28.7 mm × 0.98 mm, 100% fill factor
Deep thermoelectric cooling	–50°C at +25°C ambient (–60°C at +25°C ambient on request) Yields low dark current suitable for most OEM and some research applications
Single pixel well capacity	50 000 e^-/pixel (minimum); 60 000 e^-/pixel (typical)
Serial register full well capacity	250 000 e^-/pixel (minimum) 500 000 e^-/pixel (typical output register saturation)
Scan rates	45 kHz and 500 kHz
Readout noise (at 45 kHz and at –50°C)[1] **Readout noise (at 500 kHz and at –50°C)[1]**	9 e^- (typical) to 12 e^- (maximum) 20 e^- (typical) to 25 e^- (maximum)
Maximum spectral rate	20 Hz at 45 kHz scan rate 189 Hz at 500 kHz scan rate
Digitization	16-bit ADC
Dynamic range (typical for single pixel)[2]	55 500:1
Non-linearity (measured on each camera)	<0.15% (typical) at 45 kHz (0.4% maximum) <0.20% (typical) at 500 kHz (1% maximum)
Dark current at –50°C[3] (Note that pixel size = 14 µm)	0.05 e^-/pixel/s (typical)
Software-adjustable gains	2, 4, and 10 e^-/count at –50°C
Environmental conditions	• Operating temperature 0°C to 40°C ambient • Relative rumidity <70% (non-condensing) • Storage temperature –25°C to 50°C
Weight	1.769 kg (3.90 lb)
Dimensions	See mechanical drawings
Power requirements **AC/DC power supply (provided)** **Recommendation for OEM supplying camera to power directly:**	90–264 VAC, 47–63 Hz • Pin: +9 V, ± 5%, 6.44 A maximum • Regulation: +8.55 V_{min}, +9 Vtyp, +9.45 V_{max} • Ripple & Noise: 200 mV_{pp} maximum
Minimum computer requirements	• 3.0 GHz single core or 2.4 GHz multi-core processor • 2 GB RAM • 32-bit or 64-bit compatible • 500 MB free hard disk space (additional disk space may be required depending on data-storage needs) • USB 2.0 High-speed host controller capable of sustained rate of 40 MB/s • Windows® (XP, Vista and 7)



1. Entire system noise measured for a single pixel
2. Dynamic range is defined as Full Well/Readout Noise, measured at 45 kHz
3. Averaged over CCD area, but excluding any regions of blemishes.

Scientific Deep Cooled CCD, InGaAs and CMOS cameras

Syncerity®

Low Cost -50° C
Air-cooled OEM Camera

Synapse® Plus

Deep-cooled -80° C to -100° C
Air or Water-cooled Camera

Synapse® EM

EM CCD
Deep-cooled Camera

VUV Syncerity ®

TE-cooled to -50˚ C (Vacuum)
or -30˚ C with N2 purge

Synapse® InGaAs

Deep Cooled NIR Camera
to -75˚ C (Water-cooled)

Contact us in one of our centers of excellence	USA & Canada	Japan	Europe and Asia
	OEM.US@horiba.com	OEM.JAPAN@horiba.com	OEMSALES.JYFR@horiba.com
	+1 732 494 8660 Ext. 7733	+81 (75) 313 8121	+33 (0)1 69 74 72 00

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