



Sincerity™ VUV Camera

Back-illuminated Deep-cooled CCD

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

OEM
Cameras

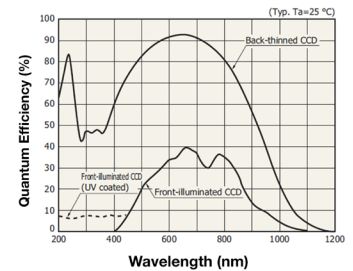
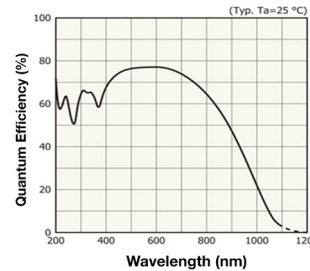
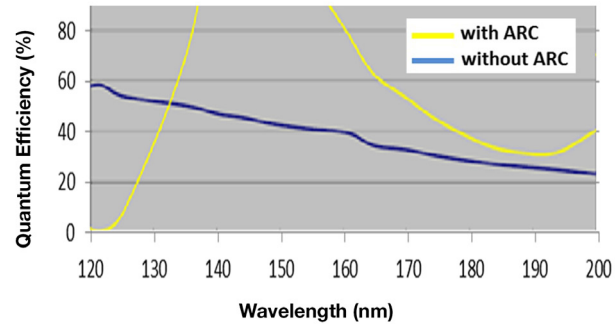


VUV Optimized Scientific Camera



Up to
2048 x 512
Pixels

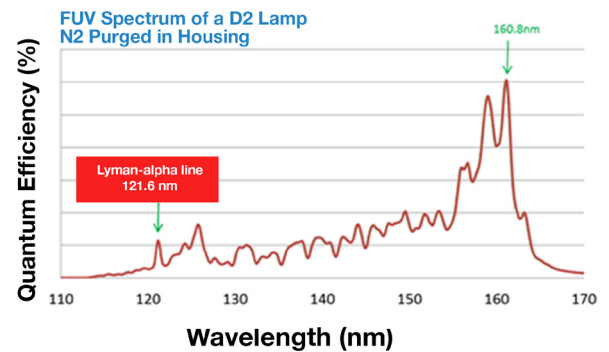
- High QE in VUV Range
58% @120 nm (no ARC)
- Attachable to High Vacuum Chamber
with Viton® O-Ring, down to $< 10^{-6}$ Torr
- TE-cooled to -50°C (Vacuum) or -30°C with N2 Purge
Low Dark Current, Low Noise



*This data is reference data only and is not guaranteed.

*Cameras provided without window have no warranty on CCD and need special handling under N2

Q.E.	Standard Type-A	Special Type-B	Special Type-B
CCD pixel format	2048 x 70	2048 x 256 2048 x 512	1024 x 128
CCD pixel size	14 x 14 μm	12 x 12 μm	24 x 24 μm
CCD height	1 mm	3 mm / 6 mm	3 mm
CCD AR coating	Without AR coating for 115 nm - 200 nm With AR coating for 135 nm - 1100 nm		
Window	No window or with MgF2 window		
Flange	Special flange for vacuum chamber with Viton O-ring (Standard Sincerity cap + MgF2 window is also available)		



D2 Spectrum on a VUV Spectrograph

Syncerity™ Specifications (Syncerity VUV 2048 x 70 Back-illuminated - Standard)

CCD sensor format	2048 × 70
Quantum efficiency at 20°C	See type A curve for VUV and UV-VIS QE responses
Pixel size	14 μm × 14 μm
Image area	28.7 mm × 0.98 mm; 100% fill factor
Deep thermoelectric cooling	-50°C under vacuum (10 ⁻⁶ mbar) with +25°C ambient or -30°C under N2 purging
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 humidity <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)	90-264 VAC, 47–63 Hz
Recommendation for OEM supplying camera to power directly:	• Pin: +9 V, ± 5%, 6.44 A maximum • Regulation: +8.55 V_{min}, +9 V_{typ}, +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)

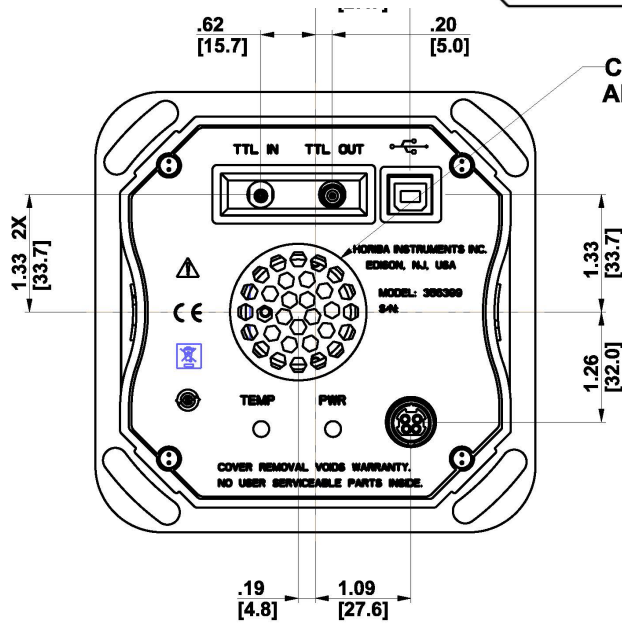
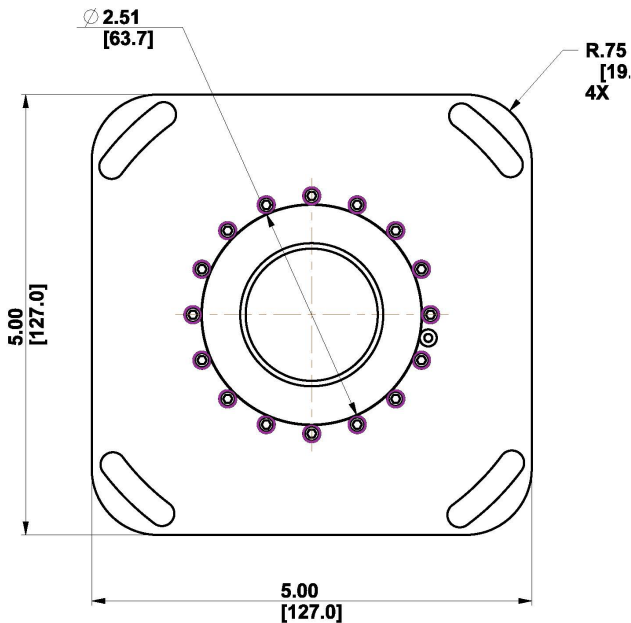
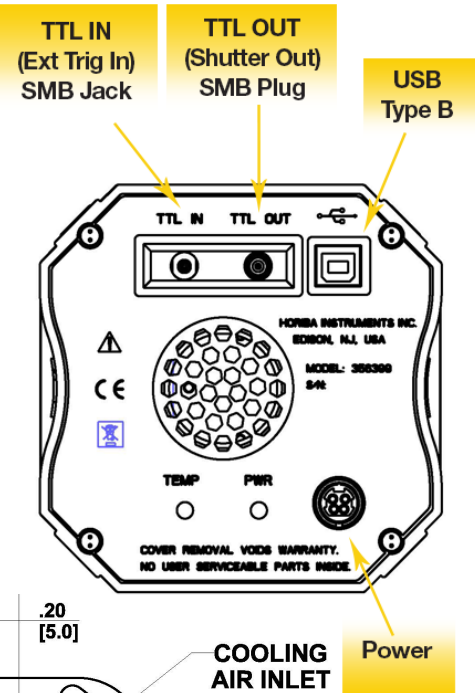
Syncerity - Other CCD Format Specifications: Contact us

2048 x 256	2048 x 512	1024 x 128
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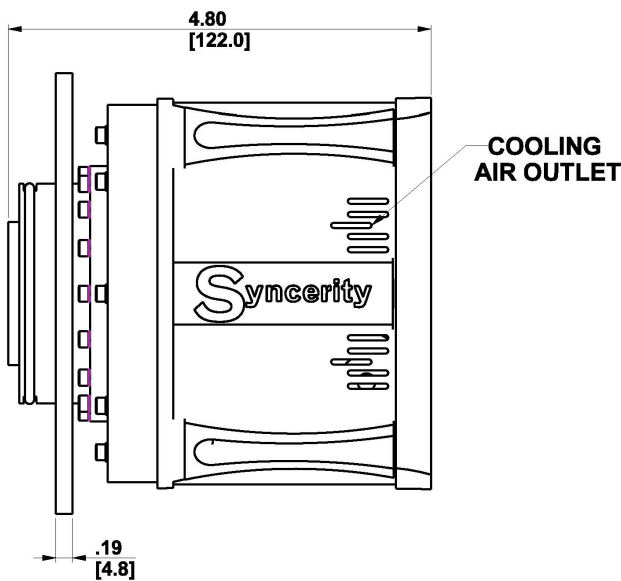
*1. Entire system noise measured for a single pixel *2. Dynamic range is defined as Full Well/Readout Noise, measured at 45 kHz *3. Averaged over CCD area, but excluding any regions of blemishes All specifications subject to change without notice.

Connecting to Sincerity

- Power Interface:**
Connector Type: PDP-40, Mini PWR DIN, 4-Position, STR Plug
- Camera Interface:**
Connector Type: USB Standard Type B
- Sync I/O Connectors:**
Connector Type: SMB
Input Jack: TTL IN (EXT TRIG In)
Output Plug: TTL OUT (SHUTTER Out)



DIMENSIONS IN INCHES [MM]



O-RING SIZE = #141
ID X 2.506 [63.65] OD X .103 [2.62] CS

Ordering Information

- SYNCER-2048x70-VUV**
Sincerity TE-cooled CCD Camera includes:
- USB 2.0 Camera Head
 - AC-DC Power Supply
 - USB Cable
 - CD Manual
- Specify:**
- With/without ARC
 - With/without Vacuum Flange
 - With/without MgF2 Window

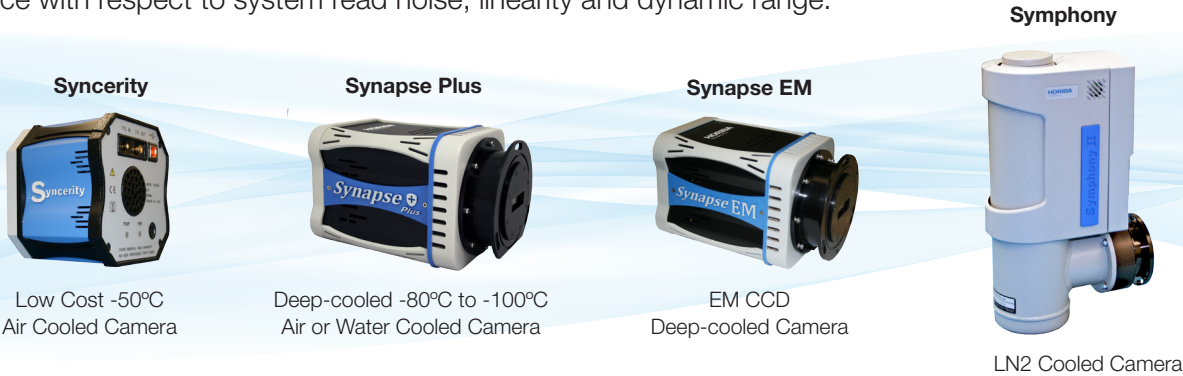
Other CCD Formats up to 2048 x 512: Contact us

- Optional:**
- UV-VIS CCD or VIS-NIR CCD (See Q.E. Curve)
 - Shutter Driver (SDrive-500 Shutter Control Unit with Cable)
 - CCD Shutter
 - TTL IN Trigger Cable
 - Printed Manual

VUV Sincerity

Latest Addition to our Growing Family of Scientific Cameras

HORIBA Scientific provides a wide variety of deep-cooled CCD cameras...offering “Best-in-Class” performance with respect to system read noise, linearity and dynamic range.



Family of Vacuum Monochromators and CCD Spectrometers

Most popular models: H20UVL, H30UVL and TGS300

Typical applications: High Harmonic Generation, Plasma Characterization

HORIBA Scientific provides a wide variety of vacuum monochromators, spectrographs and VUV cameras. We can customize these VUV designs for OEM volume applications.

We cover a large spectral range from few nanometers to a few hundred nanometers. Based on toroidal, spherical or plane diffraction gratings, our systems provide unequaled throughput with competitive spectral resolution for Soft X-Ray, EUV, FUV and DUV applications.



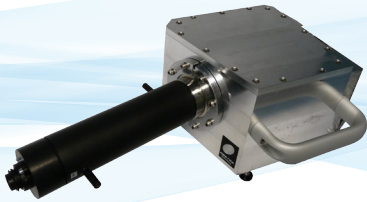
Spectral range (nm)		Energy range (eV)		Model	Focal length (mm)	Grating Rotation	Single channel detector	Array Detector	Replica Available	VLS grating correction
Min	Max	Min	Max						X	
9.5	110	11.3	135.5	TGS300	300			X	X	X
50	300	4.1	24.8	H30-UVL	300	X	X	X	X	X
100	300	4.1	12.4	H20-UVL	200	X	X	X	X	X



VUV Monochromators



VUV Systems



VUV Accessories



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Scientific

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