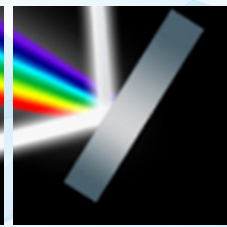
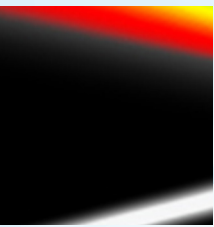
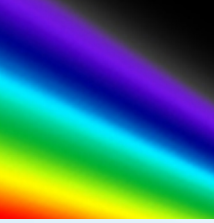


## Syncerity OE

Scientific Deep-cooled Camera for OEM Industrial Applications



Lowest Noise  
and Highest Range  
in its class

### Key Features and Benefits

*Lowest Noise and Highest Dynamic Range in its class!*

- **1024 x 256 Front Illuminated Open Electrode sensor**  
Broad spectral coverage with no etaloning effect
- **Deep Thermoelectric cooling**  
-60° C for low dark current
- **UV transmission with Fused Silica window**  
Spectral coverage from 200nm to 1050nm
- **16 bit Digitization**  
Provides wide dynamic range
- **> 58% Quantum Efficiency**  
Optimum Photon collection
- **> Lifetime Vacuum Warranty**  
Metal sealed technology for permanent vacuum

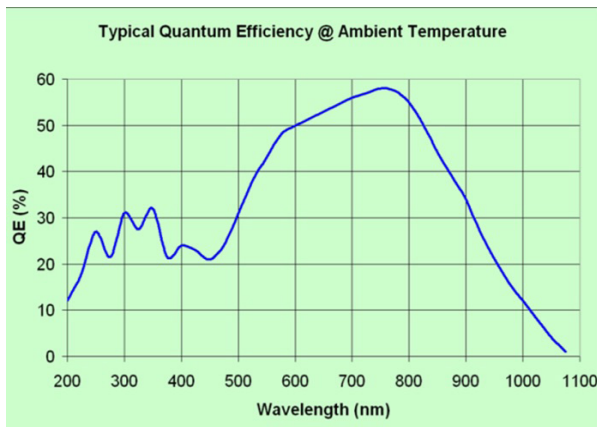
Sensor Size 1024 x 256

Deep-cooled -60°C

Pixel Size 26µm x 26µm

Digitization 16 bit

### Quantum Efficiency



### Sample Applications

- Plasma analysis
- Raman spectroscopy
- Fluorescence spectroscopy
- Spectral Flow cytometry
- Absorption/Transmission/Reflection
- Atomic emission spectroscopy
- UV-Vis-NIR spectroscopy

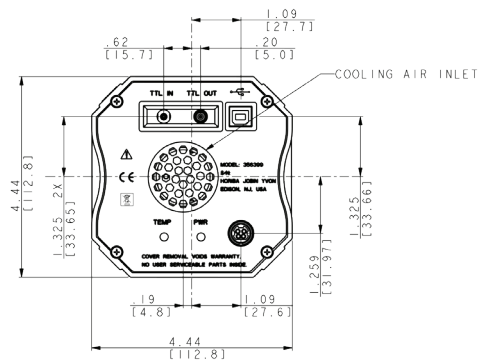
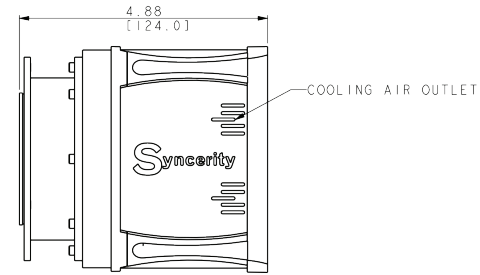


# Specifications for Sincerity

<b>CCD Sensor Format</b>	1024 × 256
<b>Quantum efficiency at 20°C</b>	27% at 250nm 31% at 300nm 42% at 550nm 58% at 750nm 55% at 800nm 12% at 1,000nm
<b>Pixel size</b>	26 μm × 26 μm
<b>Image area</b>	26.6mm × 6.7mm, 100% fill factor
<b>Deep thermoelectric cooling</b>	-60 °C @ +25 °C ambient or -50 °C @ +40 °C ambient Yields low dark current suitable for most OEM and some Research applications
<b>Single pixel well capacity</b>	5200,000 e <sup>-</sup> /pixel (Minimum)
<b>Serial register full well capacity</b>	1,000,000 e <sup>-</sup> /pixel (Typical Output Register Saturation)
<b>Scan rates</b>	45kHz and 1MHz
<b>Readout noise (at 45 kHz and at -60°C)<sup>1</sup></b>	4.7 e <sup>-</sup> (Typical) to 7e <sup>-</sup> (Maximum)
<b>Readout noise (at 1MHz and at -60°C)<sup>1</sup></b>	17 e <sup>-</sup> (Typical) to 20 e <sup>-</sup> (Maximum)
<b>Maximum spectral rate</b>	27Hz at 45 kHz scan rate 278Hz at 1 MHz scan rate
<b>Digitization</b>	16-bit ADC
<b>Dynamic range (typical for single pixel)<sup>2</sup></b>	42,550:1 (92.5dB providing >15 bit effective dynamic range)
<b>Non-linearity (measured on each camera)</b>	< 0.4% at 45kHz - Linearity better than 99.6% < 0.8% at 1MHz - Linearity better than 99.2%
<b>Dark current at -60°C<sup>3</sup></b> (Note that pixel size = 26 μm)	0.018 e <sup>-</sup> /pixel/sec (Typical) equivalent to 0.0068 e <sup>-</sup> /pixel/sec for a 16 μm pixel size equivalent to 0.0107 e <sup>-</sup> /pixel/sec for a 20 μm pixel size
<b>Software-adjustable gains</b>	1-12 e <sup>-</sup> /count
<b>Environmental conditions</b>	<ul style="list-style-type: none"> <li>Operating temperature 0°C to 40°C ambient</li> <li>Relative humidity &lt;70% (non-condensing)</li> <li>Storage temperature -25°C to 50°C</li> </ul>
<b>Weight</b>	1.769 kg (3.90 lb)
<b>Dimensions</b>	See mechanical drawings
<b>Power requirements</b> <b>AC/DC power supply (provided)</b> <b>Recommendation for OEM supplying camera to power directly:</b>	90-264 VAC, 47-63 Hz <ul style="list-style-type: none"> <li>Pin: +9 V, ± 5%, 6.44 A maximum</li> <li>Regulation: +8.55 V<sub>min</sub>, +9 V<sub>typ</sub>, +9.45 V<sub>max</sub></li> <li>Ripple &amp; Noise: 200 mV<sub>pp</sub> maximum</li> </ul>
<b>Minimum computer requirements</b>	<ul style="list-style-type: none"> <li>3.0 GHz single core or 2.4 GHz multi-core processor</li> <li>2 GB RAM</li> <li>32-bit or 64-bit compatible</li> <li>500 MB free hard disk space (additional disk space may be required depending on data-storage needs)</li> <li>USB 2.0 High-speed host controller capable of sustained rate of 40 MB/s</li> <li>Windows® (XP, Vista and 7)</li> </ul>

# Dimensions

Unit: [inch]mm



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

Sincerity®

Synapse® Plus

Synapse® EM

VUV Sincerity®

Synapse® InGaAs



Low Cost -50° C  
Air-cooled OEM Camera

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

EM CCD  
Deep-cooled Camera

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

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

Contact us in one of our centers of excellence	<b>USA &amp; Canada</b>	<b>Japan</b>	<b>Europe and Asia</b>
	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