

## Syncerity

Scientific Deep-cooled Camera

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

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

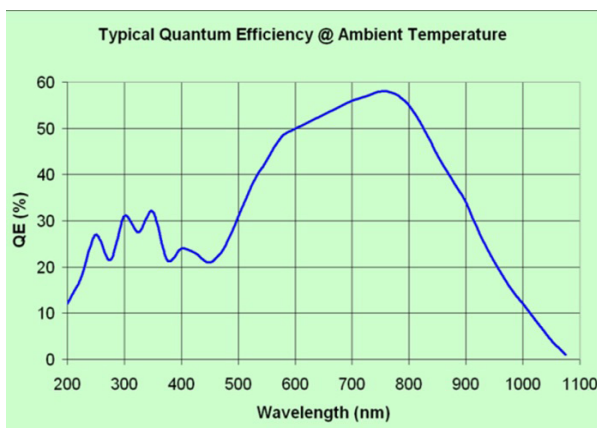
Sensor Size 1024 x 256

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

CCD Sensor Format	1024 × 256
Quantum Efficiency at 20 °C (See QE curve below)	27% at 250nm 31% at 300nm 42% at 550nm 58% at 750nm 55% at 800nm 12% at 1,000nm
Pixel Size	26µm × 26µm
Image Area	26.6mm × 6.7mm, 100% fill factor
Deep Thermoelectric Cooling	-60 °C @ +25 °C ambient or -50 °C @ +40 °C ambient Yields low dark current suitable for most OEM and some Research applications
Single Pixel Well Capacity	200,000 e <sup>-</sup> /pixel (Minimum)
Serial Register Full Well Capacity	1,000,000 e <sup>-</sup> /pixel (Typical Output Register Saturation)
Scan Rates	45kHz and 1MHz
Readout Noise (at 45 kHz and at -60 °C) <sup>1</sup>	4.7 e <sup>-</sup> (Typical) to 7e <sup>-</sup> (Maximum)
Readout Noise (at 1 MHz and at -60 °C) <sup>1</sup>	17 e <sup>-</sup> (Typical) to 20 e <sup>-</sup> (Maximum)
Maximum Spectral Rate	27Hz at 45 kHz scan rate 278Hz at 1 MHz scan rate
Digitization	16 bit ADC
Dynamic Range (Typical for Single Pixel) <sup>2</sup>	42,550:1 (92.5dB providing >15 bit effective dynamic range)
Non Linearity (Measured on Each Camera)	< 0.4% at 45kHz - Linearity better than 99.6% < 0.8% at 1MHz - Linearity better than 99.2%
Dark Current at -60 °C <sup>3</sup> (Note that pixel size = 26 µm)	0.0052 e <sup>-</sup> /pixel/sec (Typical) equivalent to 0.0020 e <sup>-</sup> /pixel/sec for a 16 µm pixel size equivalent to 0.0031 e <sup>-</sup> /pixel/sec for a 20 µm pixel size
Software-Adjustable Gains	1-12 e <sup>-</sup> /count
Environmental Conditions	o Operating Temperature 0 °C to 40 °C ambient o Relative Humidity < 70% (non-condensing) o Storage Temperature -25 °C to 50 °C
Weight	1.769 kg (3.90 lb)
Dimensions	Refer to mechanical drawings
Power Requirements	
AC-DC Power Supply (Provided)	90-264 VAC, 47-63 Hz
Recommendation for OEM Supplying Camera Power Directly:	• Pin: +9 V, ± 5%, 6.44 A maximum • Regulation: +8.55 V <sub>min</sub> , +9 V <sub>typ</sub> , +9.45 V <sub>max</sub> • Ripple & Noise: 200 mV <sub>pp</sub> maximum
Minimum Computer Requirements:	• 3.0GHz single core or 2.4 GHz multi-core processor • 2GB RAM • 32 bit or 64 bit compatible • 500MB 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 40MB/s • Windows (XP, Vista and 7)

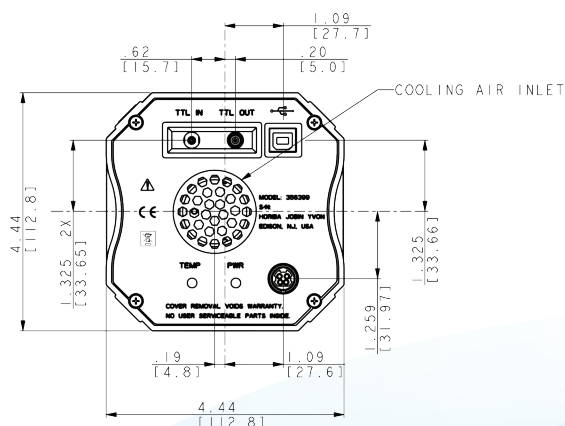
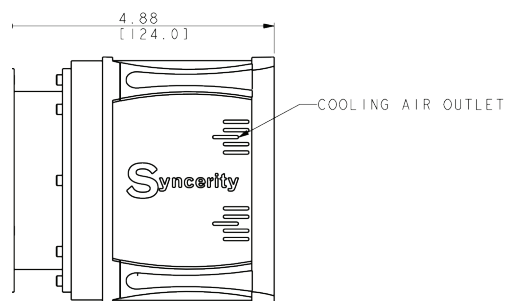
• All specifications subject to change without notice.

#### Footnotes:

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

# Dimensions

Unit: [inch]mm

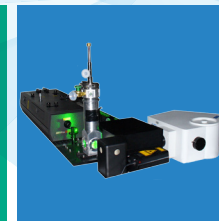
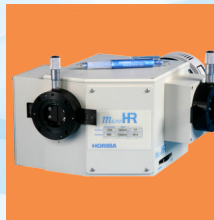


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