

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

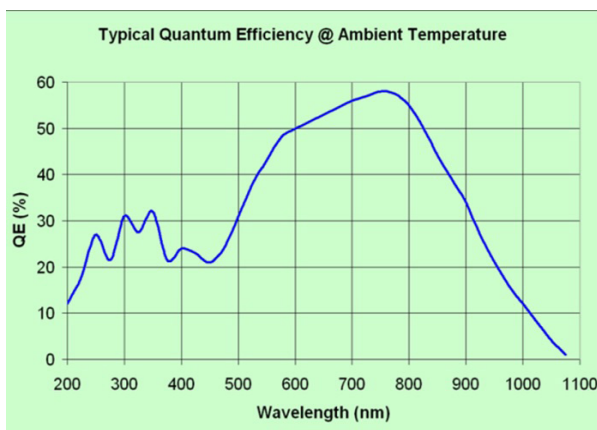
Sensor Size 1024 x 256

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 ⁻ /pixel (Minimum) |
| Serial Register Full Well Capacity | 1,000,000 e ⁻ /pixel (Typical Output Register Saturation) |
| Scan Rates | 45kHz and 1MHz |
| Readout Noise (at 45 kHz and at -60 °C)¹ | 4.7 e ⁻ (Typical) to 7e ⁻ (Maximum) |
| Readout Noise (at 1 MHz and at -60 °C)¹ | 17 e ⁻ (Typical) to 20 e ⁻ (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)² | 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 °C³ (Note that pixel size = 26 µm) | 0.018 e ⁻ /pixel/sec (Typical) Equivalent to 0.0068 e ⁻ /pixel/sec for a 16 µm pixel size Equivalent to 0.0107 e ⁻ /pixel/sec for a 20 µm pixel size |
| Software-Adjustable Gains | 1-12 e ⁻ /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 _{min} , +9 V _{typ} , +9.45 V _{max} • Ripple & Noise: 200 mV _{pp} 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) |

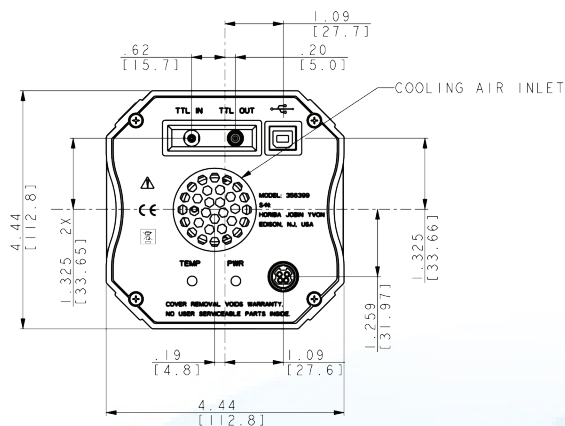
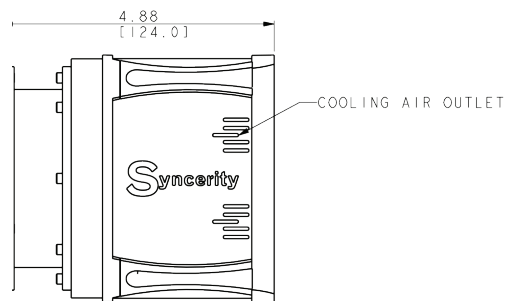
• All specifications subject to change without notice.

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

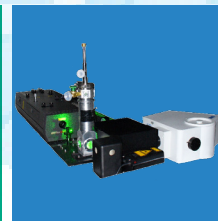
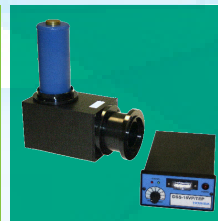


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