HORIBA Scientific

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

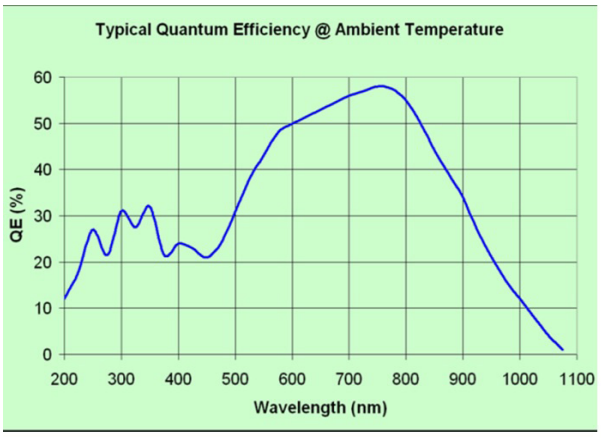
Key Features and Benefits

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**
  -60º 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	-60ºC
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

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Specifications for Syncerity

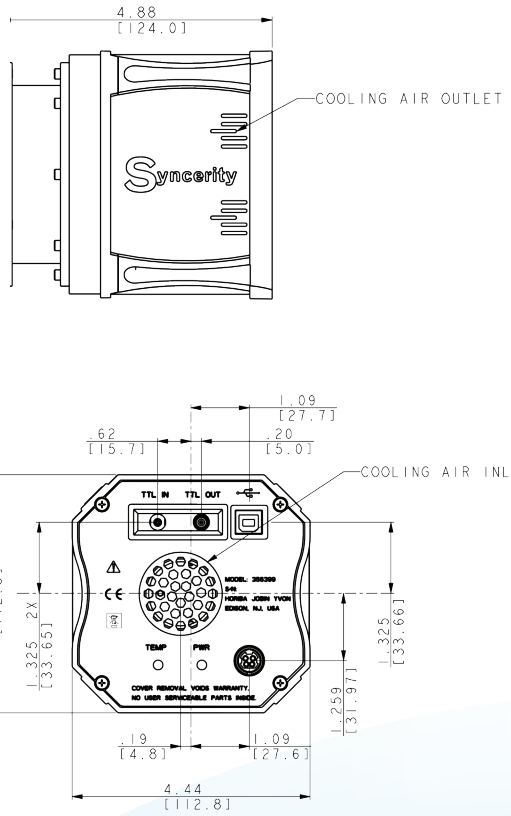
CCD Sensor Format	1024 × 256
Quantum Efficiency at 20 °C (See QE curve below)	27% at 250nm 31% at 300nm 42% at 550nm 58% at 750nm 55% at 800nm 12% at 1,000nm
Pixel Size	26µm × 26µm
Image Area	26.6mm × 6.7mm, 100% fill factor
Deep Thermoelectric Cooling	–60 °C @ +25 °C ambient or –50 °C @ +40 °C ambient 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 °C *3 **(Note that pixel size = 26 µm)**	0.0052 e^-/pixel/sec (Typical) equivalent to 0.0020 e^-/pixel/sec for a 16 µm pixel size equivalent to 0.0031 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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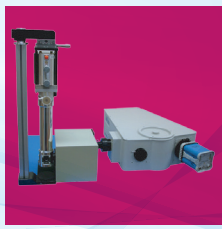



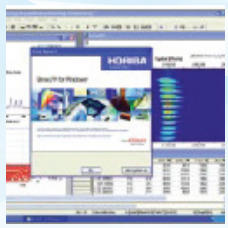


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