Key Features and Benefits

- **2048 × 70 back-illuminated sensor**
  Enable optimum spectral resolution
- **UV-Vis quantum efficiency enhancement**
  60% QE at 250 nm, and 75% QE at 550 nm
- **Deep thermoelectric cooling**
  –50°C for low dark current
- **Improved etaloning**
  Ideal for Raman applications
- **16-bit digitization**
  Provides wide dynamic range
- **Lifetime vacuum warranty**
  Metal-sealed technology for permanent vacuum

**Quantum Efficiency**

Typical Quantum Efficiency at Ambient Temperature

- **Sensor Size** 2048 × 70
- **Deep-cooled** –50°C
- **Pixel Size** 14 µm × 14 µm
- **Digitization** 16 bit

**Sample Applications**

- Raman spectroscopy
- Microspectroscopy
- Plasma analysis
- UV-VIS-NIR photoluminescence
- Diffuse reflectance spectroscopy

**Suppressed Etaloning**

Explore the future
Syncerity™ BI UV-Vis Specifications

CCD Sensor Format
2048 x 70

Quantum efficiency at 20°C
- 63% at 245 nm; 64% at 300 nm; 68% at 400 nm
- 76% at 500 nm; 77% at 700 nm; 64% at 800 nm

Pixel size
14 μm x 14 μm

Image area
28.7 mm x 0.98 mm, 100% fill factor

Deep thermolectric cooling
-50°C at +25°C ambient (+60°C at +25°C ambient on request)
Yields low dark current suitable for most OEM and some research applications

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,*)
9 e− (typical) to 12 e− (maximum)

Readout noise (at 500 kHz and at –50°C,*)
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,*)
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
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

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)

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Scientific Deep Cooled CCD, InGaAs and CMOS cameras