



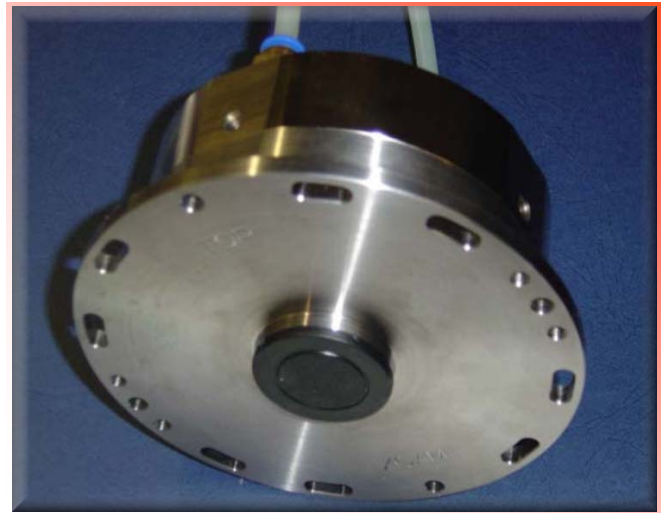
SCIENTIFIC CCD CAMERA

OS 57 BI Specification Notes

Optical Imaging

Dispersed Optical Spectroscopy

High Frame Rate Spectroscopy



- *Back-illumination CCD* for high sensitivity to photons over extended wavelength range
- Two node readout for faster frame times
- Vacuum compatible
- Cryogen-free thermoelectric cooling, with supplementary water-cooling
- 12, 14 or 16 bit digitisation
- <5 electrons rms noise, depending on CCD type and operating mode
- Frame Transfer architecture
- Full software control of your system including, readout parameters, binning and windowing modes
- High-speed readout for rapid spectral acquisition or slow-speed readout for highest sensitivity and greatest dynamic range

CCD specifications

Architecture	Frame Transfer
Active pixels	512 x 512
Pixel Size	13 x 13 μm
Image Area	6.7 x 6.7 mm
Full Well Capacity ^a	100,000 e ⁻
Dark Current @ 293K ^b	100 e ⁻ /pixel/s
Dark Current @ 243K ^b	1 e ⁻ /pixel/s
Readout Noise @ 253K ^a	3 rms e ⁻ /pixel

Notes

^a Manufacturer's data measured at 20KHz using correlated double sampling

^b Typical values for AIMO option

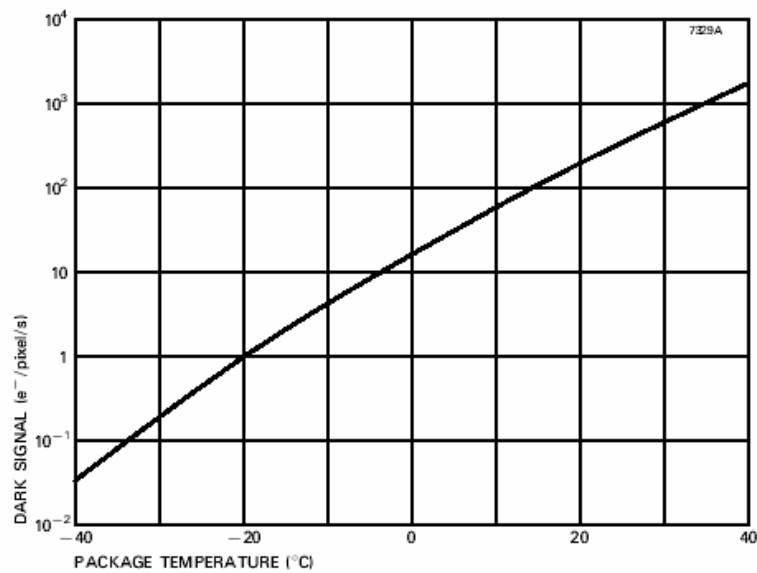
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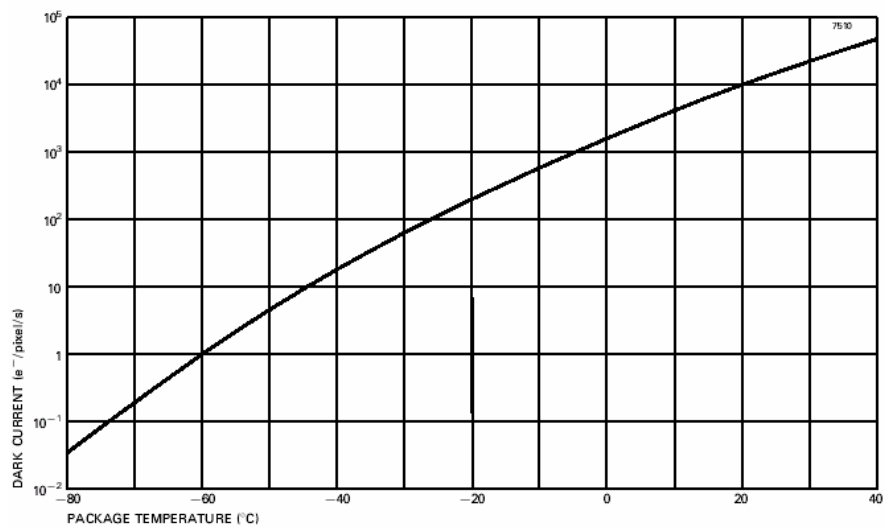
Leakage Current

Detectors can be supplied in either NIMO or AIMO variants, and AIMO CCDs can be operated in NIMO mode. Whilst the AIMO variant offers reduced leakage current, the image transfer times are longer and this option reduces the maximum transfer speed for high rate spectroscopy.

AIMO Operation



NIMO Operation

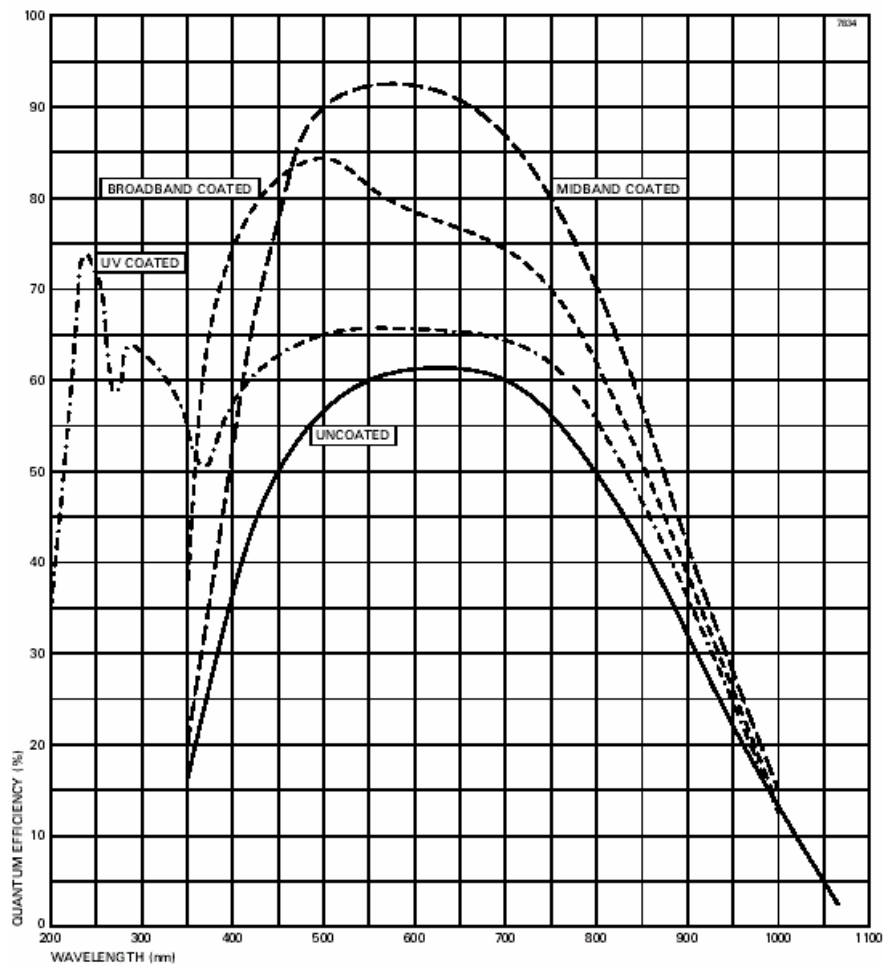


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Quantum Efficiency

Detectors can be supplied with any of the coatings specified below, although midband and broadband coatings are standard. In addition, the camera housing has an optical window with $\frac{1}{4} \lambda$ AR coating with typically 99% transmission.



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System Specifications

System noise @ 200KHz ^b	< 5 e ⁻
System noise @ 800KHz ^b	< 15 e ⁻
Blank pixels (underscan/overscan)	Minimum 24 each side of 512, but user programmable
Frame rate ^c (2 node readout)	5.3 per second @ 800KHz

Computer and Power Requirements

Recommended PC Requirements	-
Minimum PC requirements	500 MHz, 512 Mb RAM
TE cooler power @ -20°C (vacuum) ²	4 W
TE cooler power @ -50°C (vacuum) ²	15 W

Accessories

The OS 57 BI requires the following components to function:

CCDREM2/USB (1 node - 12, 16 bit)
or *CCDREM2/HiP (2 node 12, 14 bit) controller unit*

The camera head is provided with a standard C-mount but can also be provided with either

(a) custom vacuum interface, or
(b) a vacuum feedthrough kit

The OS 57 BI also requires software to enable image display:

Either (a) Xcam Image Display software, or
(b) Xcam Software Developers Kit, consisting of dll drivers and a manual, allowing you to write your own software to control the camera

Additionally, the following accessories are available:

Temperature controller
Water Chiller

Notes

^c Much faster frame rates can be achieved if reading out vertically binned, windowed spectra, as the unwanted rows can then be dumped fast, and the vertically binned spectra constitute few pixels. Please enquire with details of your application for more information

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Mechanical Specifications

