

Intevac Photonics

INNOVATION AT THE SPEED OF LIGHT®

MOSIR® 950 Near-Infrared Spectroscopy



The MOSIR 950 stands alone as the world's first and exclusive NIR image intensified spectroscopy camera between 950 and 1650 nm. Based on Intevac's patented and exclusive transfer electron (TE) photocathode and electron bombarded (EB) gain technology, the MOSIR 950 is ideal for low light spectroscopy applications including Raman spectroscopy and nano-particle luminescence. The combination of high QE and low noise gain between 950 and 1650 nm provides far superior sensitivity than CCD's or InGaAs arrays. The MOSIR focal plane array has a spectroscopy format (1008X20, 26X26 μm pixel pitch), 16 bit dynamic range, USB 2.0 data port and interfaces to leading spectrometers and microscopes including Newport Oriel, Jobin-Yvon Horiba, and Acton Research Corporation. Dark charge is minimized for all sensors with a proprietary thermo-electric cooling and vacuum design. The MOSIR camera is extremely compact and does not require an external controller.

APPLICATIONS

- Low Light NIR Spectroscopy
- Raman Spectroscopy

FEATURE	BENEFIT
Patented and exclusive low noise near infrared image intensification	Breakthrough performance in low light NIR spectroscopy from 950-1650 nm
CCD with 26 μm pixel pitch	Ideal format for spectroscopy and imaging applications
Integrated Photocathode/CCD	Design does not require use of fiber optics which reduce image quality and throughput
16 bit digitization	High dynamic range provides high image contrast
USB 2.0	State-of-the-art connectivity that supports high resolution/high frame rate operation
Footprint	Breakthrough in reduced form factor ideal for laboratory and OEM applications
Smart Camera architecture	MOSIR's exclusive embedded processor performs many data processing functions independent of the host PC or application software
IVAPI™ for C, C++	Powerful API designed specifically for rapid integration with third party application software
Supported by popular application software	IVTK™ for LABVIEW™ IVTK™ for MATLAB™ VSPEC™ VSPEC PRO™

MOSIR[®] 950

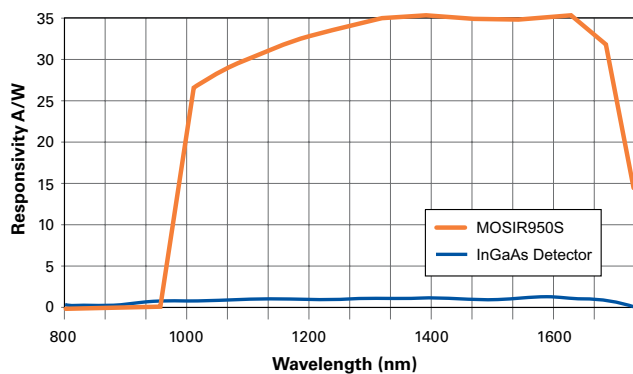
SPECIFICATIONS

CCD Sensor Format 1008 x 20 pixels; 26 x 26µm pixels; 100% fill factor

TYPICAL PERFORMANCE

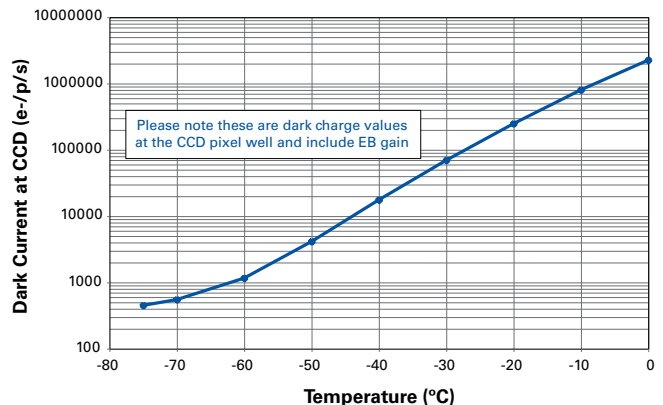
System Read Noise pe- rms @ Scan Rate	
100 kHz	< 1
1 MHz	< 1
Spectrometric Well Capacity	
Single Pixel	500 ke-
Binned	1 Me-
Minimum Photocathode Cooling Temperature	-55° C
Spectral Response	See responsivity curve
EB Gain	100
Excessive Noise Factor	1.1
Minimum Gate Width	10 µsec
Maximum Frame Rate, Full Frame	5 Hz
Software-selectable Gains	4 e-/count, 8 e-/count, 16 e-/count
Dynamic Range	16 bits
Nonlinearity	< 2%
Spectra/second, Full Vertical Binning	
100 kHz digitization	50
1 MHz digitization	105
Temperature Stability	+/- 0.1° C over entire temperature range
Ambient Operating Temperature	0° C to + 30° C

Comparative Responsivity Curves for MOSIR 950 and InGaAs Arrays



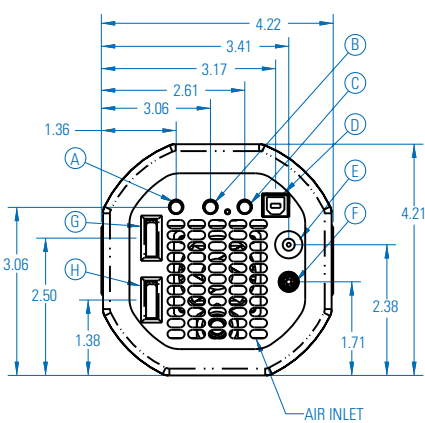
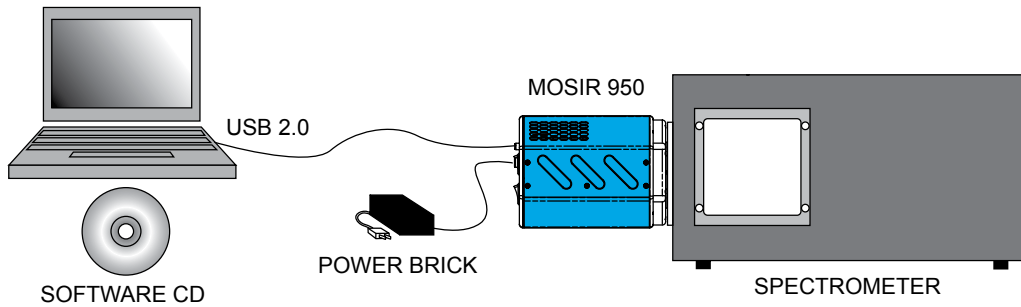
The Responsivity of the MOSIR 950 near-infrared sensor is typically X30 greater than InGaAs arrays because the signal is proportional to QE*GAIN. Typical gain for the MOSIR sensor is X100 and only X1 for InGaAs arrays. The MOSIR sensor also has superior performance in dark charge and read noise and the camera will have a significant SNR advantage over InGaAs arrays through a wide range in exposure times.

MOSIR 950 Dark Current @ X100 Gain and -10C Scene

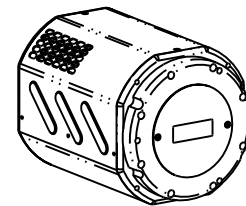
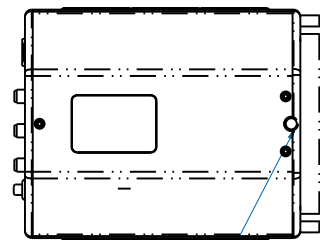
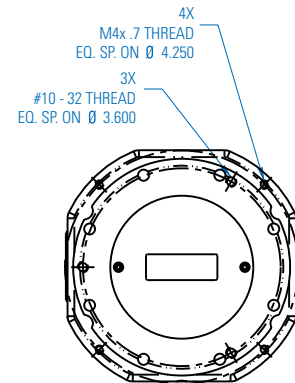
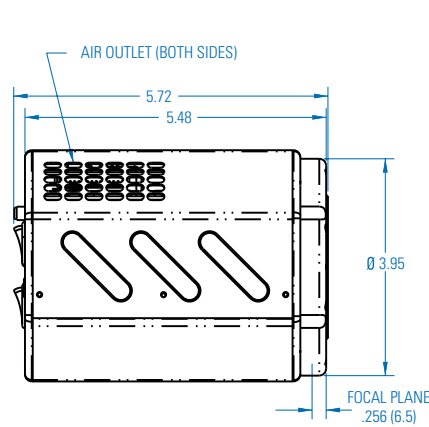


MOSIR® 950

SPECIFICATIONS



A	STATUS OUTPUT
B	EXPOSE OUTPUT
C	EXT SYNC INPUT
D	USB 2.0
E	DC POWER
F	CALIBRATION CONTROL
G	MAIN POWER SWITCH
H	HIGH VOLTAGE OVERRIDE



CAMERA WEIGHT 5.59 lbs (2.53 kg)