

Opus I is a high-resolution digital color camera for microscope and scientific research applications that exclusively uses the new Foveon X3® Pro 10M Direct Image CMOS Sensor. This breakthrough in sensor technology provides the user with significantly better performance over other cameras, including:

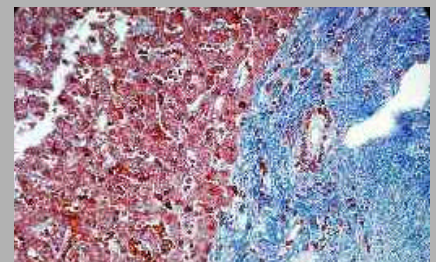
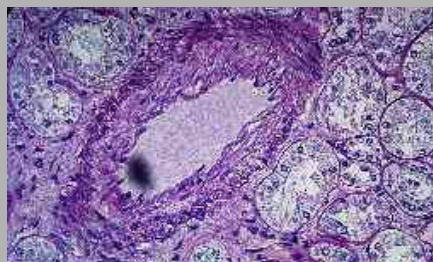
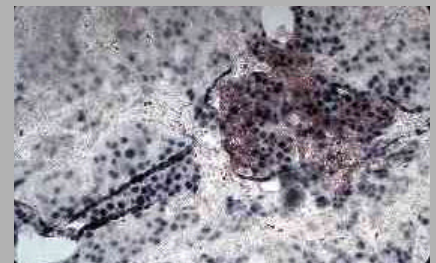
- ◆ Virtually eliminates spatial sampling artifacts causing Moiré patterns.
- ◆ Greatly improves image sharpness.
- ◆ Significantly improves color detail and accuracy.
- ◆ Collects three colors simultaneously per shot.

The new "Foveon inside" technology provides full dynamic color at every pixel for each shot. Three stacked layers of photo-detectors enable each pixel location to have full color detection. There is **no lost light** and **no holes** created in the image. And since twice as much green light is captured (as mosaic sensors), which is critical in defining image detail, the Opus I images are **sharper**. The result is a **high resolution/ large format** digital color camera that produces sharp **photocopy** quality and **brilliant** color imagery at an **attractive price**.



OPUS I FEATURES

- ◆ Brilliant, high resolution, photocopy color imaging, featuring the new Foveon X3® Pro 10M Direct Image CMOS Sensor, containing 10.2 million photodetectors in a 2268 x 1512 x 3 matrix (1" diagonal), 9.12 micron square pixels, each responsive to full color spectrum (every pixel samples RGB). This gives full spatial sampling and uses all light energy that isn't possible with color filter mosaic sensors.
- ◆ 14 bit digital color output for each channel.
- ◆ USB 2.0 interface enabling "plug and play" compatibility with most computers.
- ◆ Comes standard with a visible bandpass window, or can be ordered with a clear window that allows optional spectral sampling for the 3 color channels.
- ◆ Camera control / imaging software that is intuitive and user friendly.



OPUS I APPLICATIONS

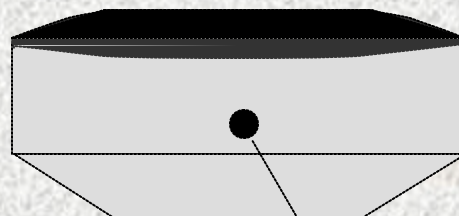
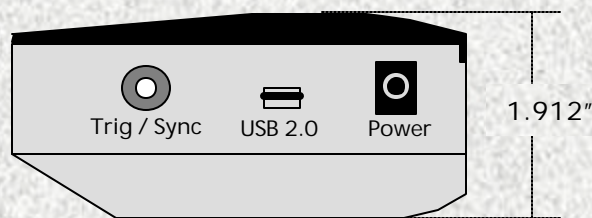
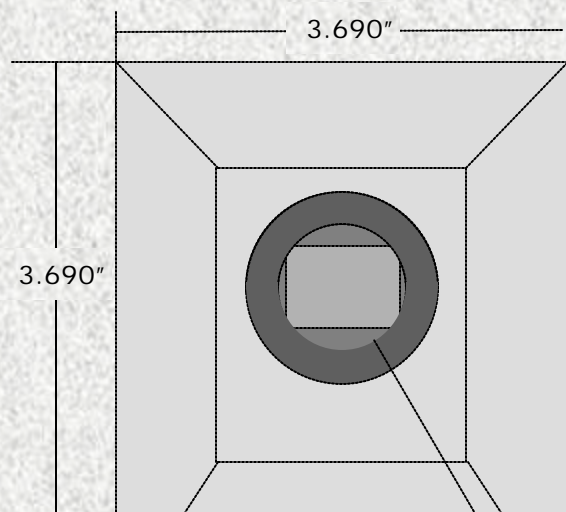
- ◆ Fluorescence Microscopy
- ◆ FRET
- ◆ Live Cell Imaging
- ◆ Brightfield/DIC
- ◆ Machine Vision/Industrial
- ◆ Bioluminescence
- ◆ Chemiluminescence
- ◆ High Resolution Microscopy
- ◆ High Resolution Color Surveillance
- ◆ Spectral Discrimination (requires some source info.)

CAMERA ACCESSORIES

- ◆ USB cable, 3m length.
- ◆ Power Supply, wall mount.
- ◆ CD, GUI capture / display software (incl. drivers & source for custom apps.).
- ◆ Digital Optics V++, imaging software for windows (opt.).
- ◆ F-Mount or Custom adapters (optional).
- ◆ Custom bandpass windows (optional)
- ◆ Lenses (optional)

Interfaces	Description
Data / Control	USB 2.0 (other interfaces are possible)
Frame Sync	50 ohm SMB plug receptacle, sync and trigger
Power	6Vdc +/- 5%, 2.5 watts peak
LED	Power / Status / Communication
Lens / Microscope Mount	C-Mount (others available, including custom)
Tripod Mount	¼ - 20 THD
Opus I BP	Sensor with visible filter bandpass window
Opus I AR	Sensor with clear bandpass window and visible filter
Sensor Characteristics	Description
Well Capacity	Maximum 77,000 e ⁻ / diode, 231,000 e ⁻ / pixel (3 diodes / pixel) Typical 45,000 e ⁻ / diode, 135,000 e ⁻ / pixel
Effective Pixels	2268 x 1512 = 3.4 million x 3 (3 channels / pixel)
Effective Photodiodes	10.2 million
Pixel Pitch	9.12 µm
Effective Image Area	20.68 mm x 13.79 mm
Effective Diagonal	24.86 mm
Peak Total QE (625nm)	0.62 e ⁻ / photon
Window Transmissivity	96%
Fill Factor	70% with micro lens
Anti-Blooming	3x - 100x
Camera Characteristics	Description
Frame Rate	1.5 fps, full frame capture mode Selectable to >30 fps, search mode (binning)
Capture Control	Single shot and auto continuous at selectable intervals
Exposure Control	Auto / Manual
Color Balance Control	Auto / Manual
ROI Control	1/2", 2/3", or 1" presets (others possible)
Binning Control	Selectable
File size	20.6MB, full frame capture mode
Fixed Pattern Noise	<± 1%
Environmental	Description
Operating Temperature	0 - 40C
Storage Temperature	-30C - 80C in a non-condensing environment
Humidity	10 - 90%
Warranty	1 year limited warranty, workmanship & parts

Mechanical Outline



C-mount Adapter

1/4-20 Mount

