



ASCENT

Apogee Instruments Inc.

PRELIMINARY

High Performance Cooled CCD Camera System ASCENT A205

The Ascent A205 has a 1.3-megapixel interline transfer sensor with small pixels ideal for low magnification microscopy. The camera is available with a monochrome or color sensor.

- Fluorescence microscopy

- 1360 x 1024 array, 4.65 x 4.65 micron pixels
- 32 Mbyte SDRAM image buffer
- Programmable 16-bit digitization speeds up to 10 Mpixels/sec
- USB 2.0 interface: no plug in cards or external controllers
- Programmable, intelligent cooling to 40°C below ambient
- Binning up to 4 Horizontal x CCD height
- Subarray readout and fast sequencing modes
- Programmable offset and gain
- External triggering and strobe controls
- ActiveX drivers included with every system
- Field upgradeable firmware
- BK7 windows (optional fused silica)
- Optional internal vane or external electromechanical shutter
- Optional C-mount, Nikon F-mount, or 2" slip fit adapter
- Single 6V supply with input voltage protection system
- Compact enclosure: 23 oz. (0.65 kg)
- Programmable status indicators

CCD SPECIFICATIONS

CCD	Sony ICX205
Array Size (pixels)	1360 x 1024
Pixel Size	4.65 x 4.65 microns
Imaging Area	6.3 x 4.8 mm (30.1 mm ²)
Imaging Diagonal	7.9 mm
Video Imager Size	0.50"
Linear Full Well (typical)	10K electrons
Dynamic Range	62 dB
QE at 400 nm	30%
Peak QE (480 nm)	42%
Anti-blooming	Yes

For complete CCD specifications, including cosmetic grading, see data sheet from manufacturer.

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Imaging Area of CCD



Actual Size of Camera



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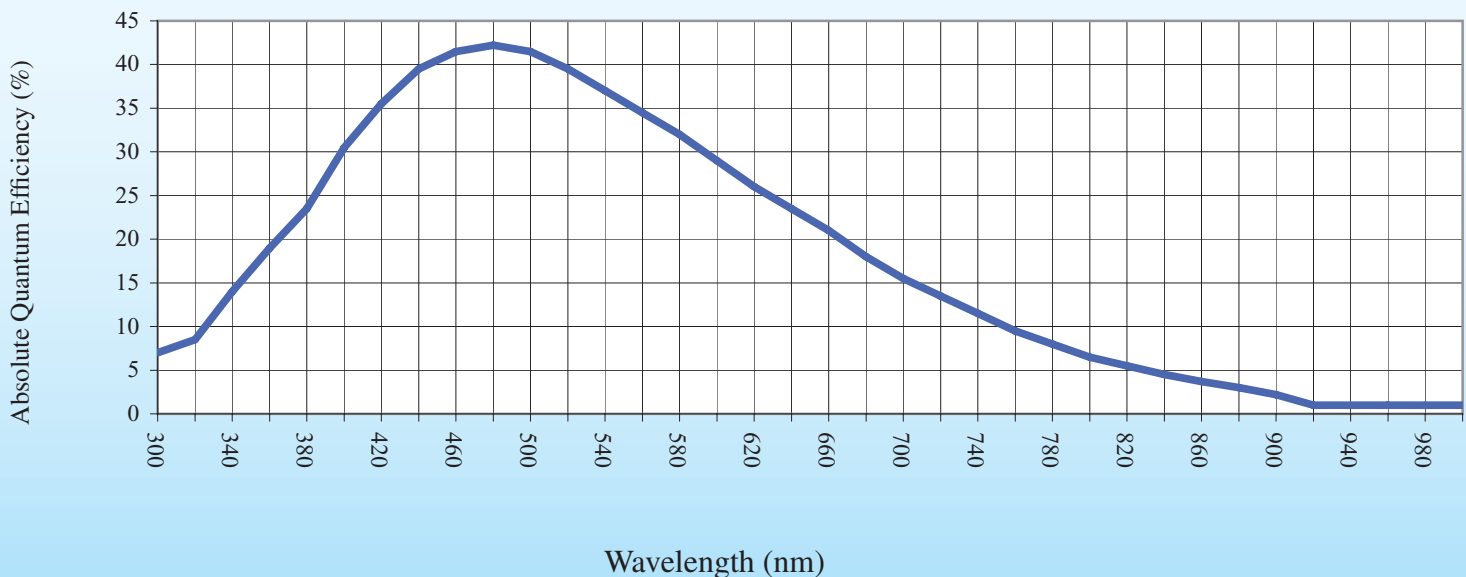
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ASCENT A205 Camera System Performance



PC Interface	USB 2.0
USB2 Cable	Std.: 5m. Extensions: 5 meters between hubs; 5 hubs maximum (max. total of 30m) Wide variety of extenders available, including fiber optics to 10 km.
Digital Resolution	16 bits at up to 10 Mpixels/sec
System Noise (typical)	8 e ⁻ RMS at 1.5 MHz
Pixel Binning	1 x 1 to 4 x 1024 on-chip
Exposure Time	Minimum 100 microseconds (no vane shutter); max.183 minutes
Image Sequencing	1 to 65535 image sequences under software control
Frame Sizes	Full frame, subframe, focus mode
Cooling (typical)	Thermoelectric cooler. Maximum forced air cooling 40°C below ambient temperature.
Dark Current (typical)	0.1 e ⁻ /pixel/sec
Temperature Stability	± 0.1°C
Camera Head Size	Aluminum. 3.2" x 5.7" x 1.3" (8.1 x 14.5 x 3.3 cm) Weight: 1.4 lb. (0.65 kg)
Mounting	1.5" x 2.5" bolt pattern, 6-32 thread. Optional C-mount (1" 32 tpi thread), Nikon F-mount, or 2" slip-fit adapters.
Back Focal Distance	Standard: 0.32" (0.81 cm). [optical]
Operating Environment	-30°C to 35°C. Relative humidity: 10 to 90% non-condensing.
Op.Sys.Support	Windows, Linux, Mac OSX
Power	20W maximum power with internal shutter open and cooling maximum. AC/DC "brick" supply with int'l AC input plug (100-240V, 50-60 Hz). Alternate 6V input from user's source.
Shutter	Standard: Electronic. Optional internal vane or external electromechanical shutter.
Remote Triggering	LVTTTL input allows exposure to start within 25 microseconds of rising edge of trigger

CCD SENSITIVITY



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