ASCENT

Apogee Instruments Inc.

PRELIMINARY

High Performance Cooled CCD Camera System
ASCENT A105

The Ascent A105 has a Kodak full frame color sensor with high resolution and small pixels. Low noise and large field-of-view are ideal for OEMs, fundus imaging, and astrophotography.

- Astrophotography
- Fundus imaging

- 3970 x 2546 array, 6.8 x 6.8 micron pixels
- 32 Mbyte SDRAM image buffer
- Programmable dual channel 16-bit digitization speeds up to 10 Mpixels/sec per channel
- USB 2.0 interface: no plug in cards or external controllers
- Programmable, intelligent cooling to 30°C below ambient
- Binning up to 4 Horizontal x CCD height
- Subarray readout and fast sequencing modes
- Precision time delayed integration (TDI) and kinetics mode readout
- 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 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

Imaging Area of CCD

Actual Size of Camera

CCD SPECIFICATIONS

CCD	Kodak KAF-10500 (color)
Array Size (pixels)	3970 x 2546
Pixel Size	6.8 x 6.8 microns
Imaging Area	27 x 18 mm (485 mm^2)
Imaging Diagonal	32.4 mm
Video Imager Size	2.0”
Linear Full Well (typical)	60K electrons
Dynamic Range	71 dB
QE at 400 nm (RGB)	2.5%, 2.2%, 12%
Peak QE (RGB)	17%, 40%, 32%
Peak QE (RGB)	17%, 40%, 32%
Anti-blooming	1000X

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

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Specifications subject to change without notice.

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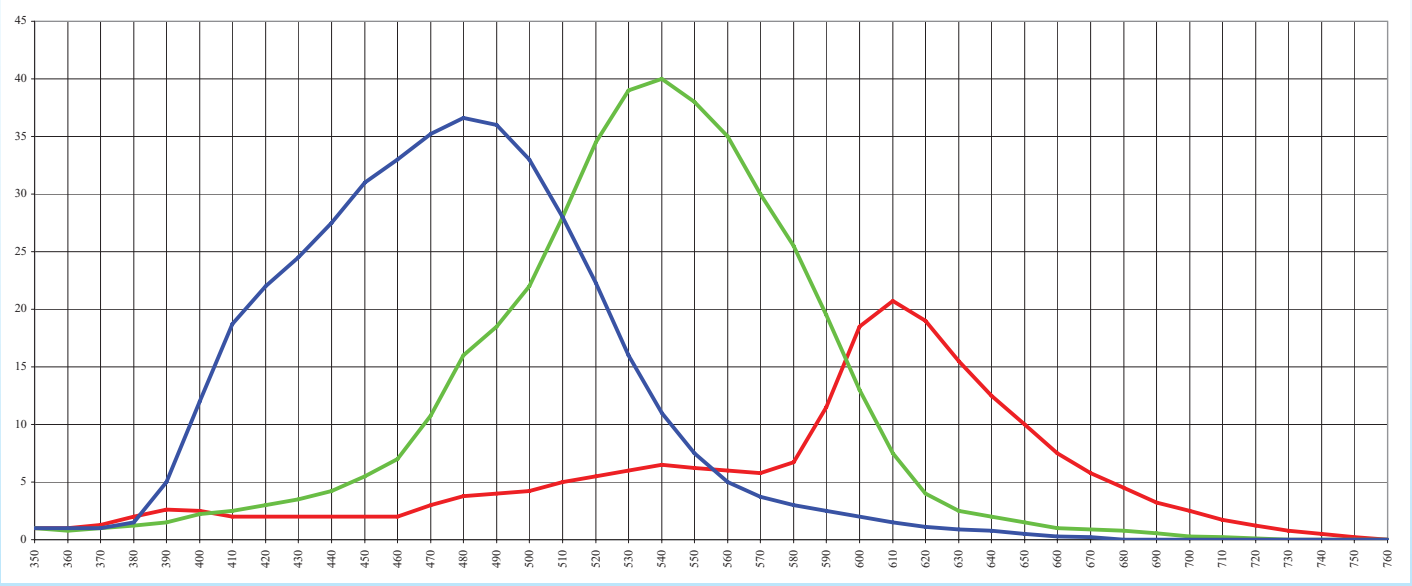
Camera System Performance

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	Dual channel 16 bit at up to 10 Mpixels/sec per channel
System Noise (typical)	15 e^- RMS at 1.5 MHz
Pixel Binning	Not applicable (color matrix CCD)
Exposure Time	Minimum 100 milliseconds using 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 30°C below ambient temperature.
Dark Current (typical)	1.5 e^-/pixel/sec (-10°C)
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 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: Electromechanical vane shutter. Optional external electromechanical shutter.
Remote Triggering	LVTTL input allows exposure to start within 25 microseconds of rising edge of trigger

CCD SENSITIVITY



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