

# High Performance Cooled CCD Camera System ALTA U9000X



The Alta U9000X uses a very large format 9-megapixel full frame sensor with anti-blooming gates, ideal for applications requiring large field of view, such as astrophotography, sky surveys, and radiology. The X version has a 16-bit digitization rate of 1.8 megapixels/second, compared to the 1 MHz for the U9000.

Imaging Area of CCD

- Astronomy
- Radiology
- Optical testing
- Non-destructive testing

- 3056 x 3056 array, 12 x 12 micron pixels
- 5 MHz 12-bit and 1.8 MHz 16-bit digitization
- 32Mbyte camera memory
- USB 2.0 interface: no plug in cards or external controllers
- Programmable, intelligent cooling to 40°C below ambient
- Binning up to 8 Horizontal x 3056 Vertical
- Subarray readout and fast sequencing modes
- Precision time delayed integration (TDI) and kinetics mode readout
- Programmable fan speed for low / zero vibration
- Two serial port outputs for control of peripheral devices
- General purpose programmable I/O port
- External triggering and strobe controls
- ActiveX drivers included with every system
- Field upgradeable firmware
- Fused silica windows
- Runs from single 12V supply with input voltage monitor
- Compact enclosure
- Programmable status indicators



## CCD SPECIFICATIONS

CCD	Kodak KAF-09000
Array Size (pixels)	3056 x 3056
Pixel Size	12 x 12 microns
Imaging Area	36.7 x 36.7 mm (1345 mm <sup>2</sup> )
Imaging Diagonal	51.9 mm
Video Imager Size	3.24"
Linear Full Well (typical)	110K electrons
Dynamic Range	84 dB
QE at 400 nm	37%
Peak QE (550 nm)	64%
Anti-blooming	>100X



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

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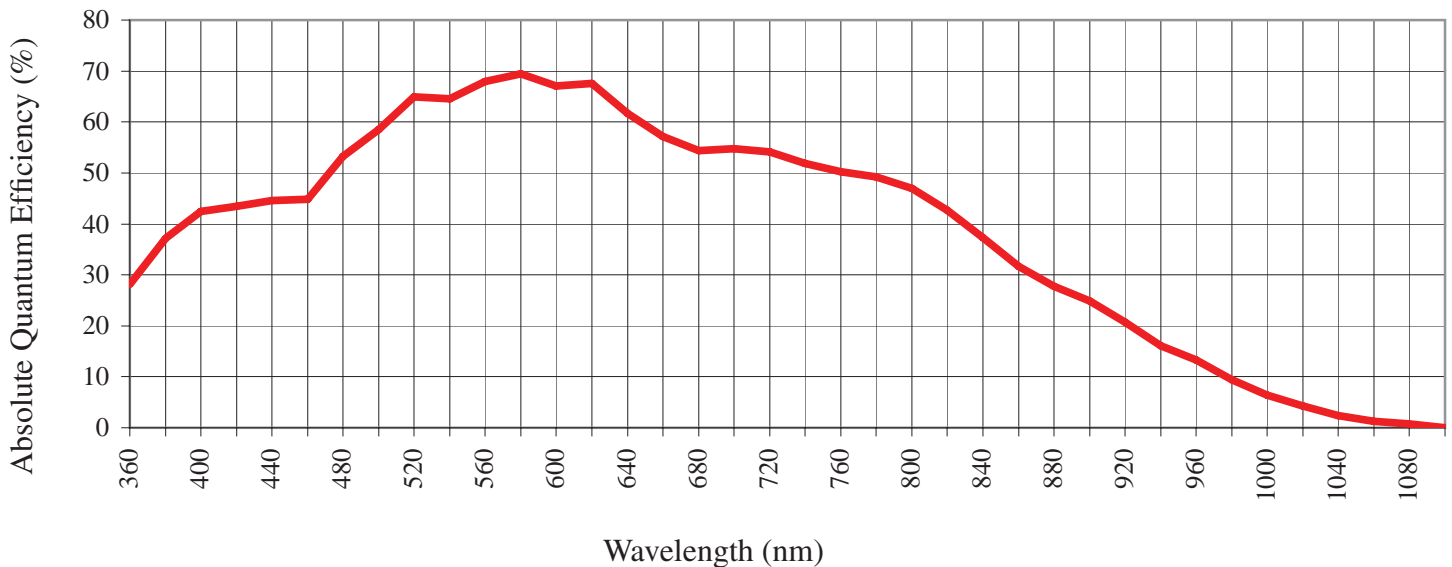
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## Camera System Performance



PC Interface	USB 2.0
Max. Cable Length	5 meters between hubs; 5 hubs maximum (max. total of 30m)
Digital Resolution	16 bits at 1.8 MHz and 12 bits at 5 MHz
System Noise (typical)	10 e <sup>-</sup> RMS at 1.8 MHz and 2 counts at 5 MHz
Pixel Binning	1x1 to 8x3058 on-chip
Exposure Time	30 milliseconds to 183 minutes (2.56 microsecond increments)
Image Sequencing	1 to 65535 image sequences under software control
Frame Sizes	Full frame, subframe, focus mode
Cooling (typical)	Thermoelectric cooler with forced air. Maximum cooling 40°C below ambient temperature
Dark Current (typical)	0.3 e <sup>-</sup> /pixel/sec (-20°C)
Temperature Stability	± 0.1°C
Camera Head Size	D7. Aluminum, hard blue anodized. 7" x 7" x 2.55" (17.8 x 17.8 x 6.48 cm) Weight: 4.2 lb. (1.9 kg)
Mounting	5,125" bolt circle. Optional Nikon F-mount or Canon FD mount.
Back Focal Distance	1.008" (25.60 mm) [optical]
Operating Environment	-22° to 27°C. Relative humidity: 10 to 90% non-condensing.
Cable Length	Standard: 15 ft (4.5m)
Power	40W maximum power with shutter open and cooling maximum. AC/DC "brick" supply with int'l AC input plug (100-240V, 50-60 Hz). Alternate 12V input from user's source.
Shutter	Melles Griot 63mm.
Remote Triggering	LVTTL input allows exposure to start within 25 microseconds of rising edge of trigger

### CCD SENSITIVITY



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