

# High Performance Cooled CCD Camera System ALTA U16



The Alta U16 uses a very large format 16-megapixel full frame sensor with microlenses, ideal for applications requiring large field of view, such as sky surveys and radiology.

## Imaging Area of CCD

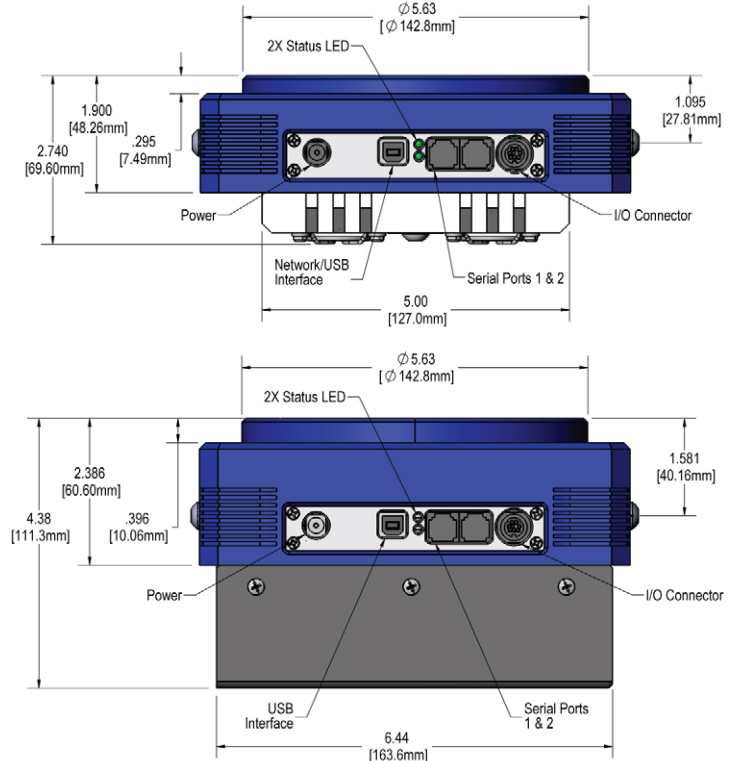
- Astronomy
- Radiology
- Optical testing
- Non-destructive testing

- 4096 x 4096 array, 9 x9 micron pixels
- 5 MHz 12-bit and 1 MHz 16-bit digitization
- 32Mbyte camera memory
- USB 2.0 interface: no plug in cards or external controllers
- Programmable, intelligent cooling to 45°C below ambient (D07 housing) / 60-65°C below ambient (D09 housing)
- Binning up to 8 Horizontal x 4096 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-16801E
Array Size (pixels)	4096 x 4096
Pixel Size	9 x 9 microns
Imaging Area	36.8 x 36.8 mm (1359 mm <sup>2</sup> )
Imaging Diagonal	52.1 mm
Video Imager Size	3.26"
Linear Full Well (typical)	100K electrons
Dynamic Range	76 dB
QE at 400 nm	31%
Peak QE (550 nm)	69%
Anti-blooming	none (see U16M)



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

©2010 Apogee Instruments Inc. Alta is a registered trademark of Apogee Instruments Inc. Specifications subject to change without notice.



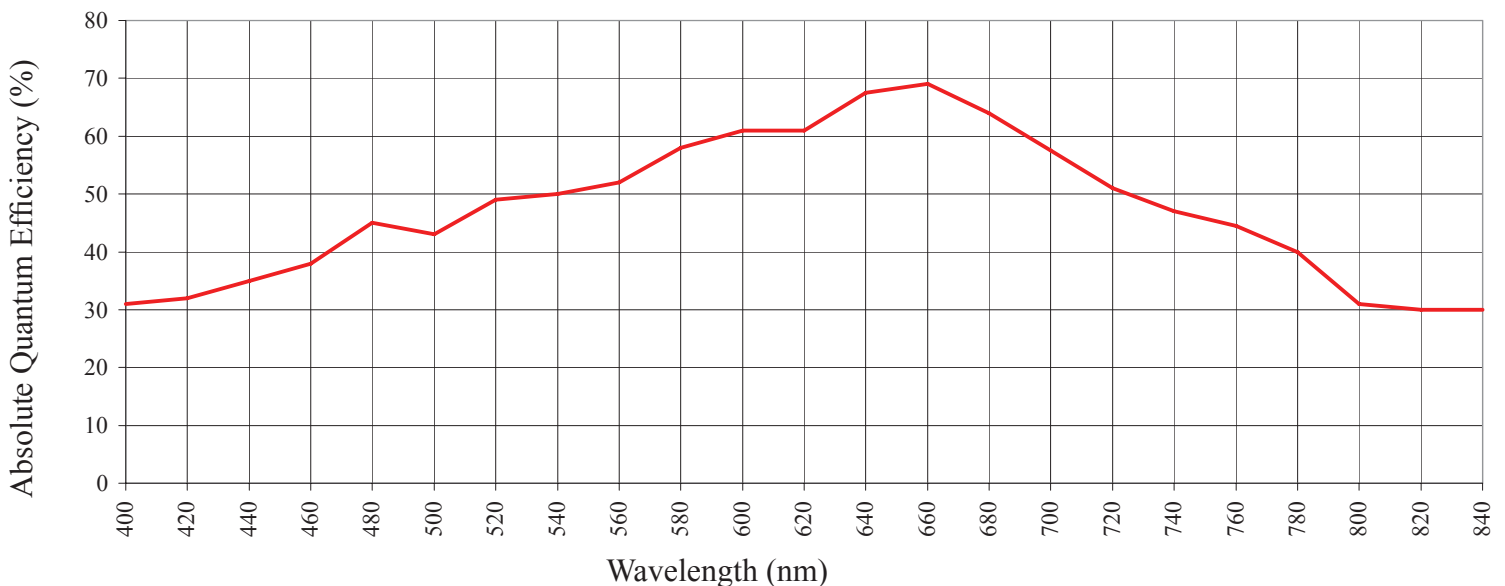
1020 Sundown Way, Ste 150  
Roseville CA 95661 USA  
tel 916-218-7450  
fax 916-218-7451  
<http://www.ccd.com>

# ALTA U16 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 MHz and 12 bits at 5 MHz
System Noise (typical)	8 e <sup>-</sup> RMS at 1 MHz and 2 counts at 5 MHz
Pixel Binning	1x1 to 8x4096 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 45°C below ambient temperature (D07 housing); >60°C below ambient temperature (D09 housing).
Dark Current (typical)	<0.1 e <sup>-</sup> /pixel/sec (-25°C). <0.02 eps for High Cooling D09 housing.
Temperature Stability	± 0.1°C
Camera Head Size	D07. 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. 2.5" 24 tpi thread. Optional Nikon F-mount or Canon EOS/EF or FD mount.
Back Focal Distance	D07: 1.005" (2.56 cm). D09: 1.363" (3.46 cm). [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



©2010 Apogee Instruments Inc. Alta is a registered trademark of Apogee Instruments Inc. Specifications subject to change without notice.