

# High Performance Cooled CCD Camera System ALTA U16000



The Alta U16000 has a 16-megapixel interline transfer sensor with high quantum efficiency. Low noise and small pixels are ideal for OEM applications, biological sciences, and fundus imaging.

- 4872 x 3248 array, 7.4 x 7.4 micron pixels
- 5 MHz 12-bit digitization and 1 MHz 16-bit digitization
- 32 Mbyte camera memory
- USB 2.0 interface: no plug in cards or external controllers
- Programmable, intelligent cooling to 40°C below ambient (D07 housing) / 60°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 near-IR pre-flash for residual bulk images
- 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 and MaxIm DL/CCD software included with every system
- Field upgradeable firmware
- Fused silica windows
- Runs from single 12V supply with input voltage monitor
- Programmable status indicators

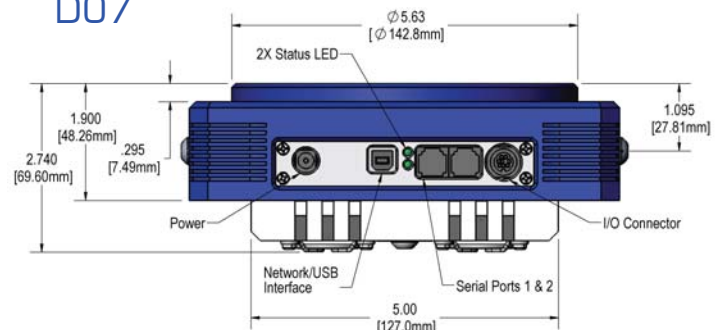
Imaging Area of CCD



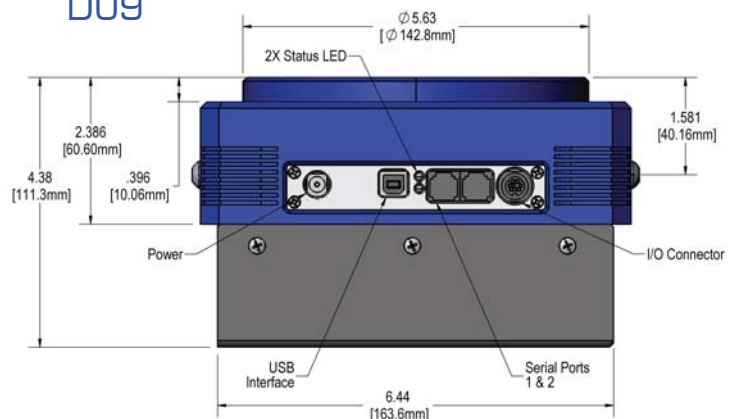
- Bioarray readers
- Fluorescence microscopy
- Fundus imaging



D07



D09



## CCD SPECIFICATIONS

CCD	Kodak KAI-16000M or MC
Array Size (pixels)	4872 x 3248
Pixel Size	7.4 x 7.4 microns
Imaging Area	36 x 24 mm (866 mm <sup>2</sup> )
Imaging Diagonal	43.3 mm
Video Imager Size	2.7"
Linear Full Well (typical)	30K electrons
Dynamic Range	73 dB
QE at 400 nm	39%
Peak QE (500 nm)	48%
Anti-blooming (nominal)	300X

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

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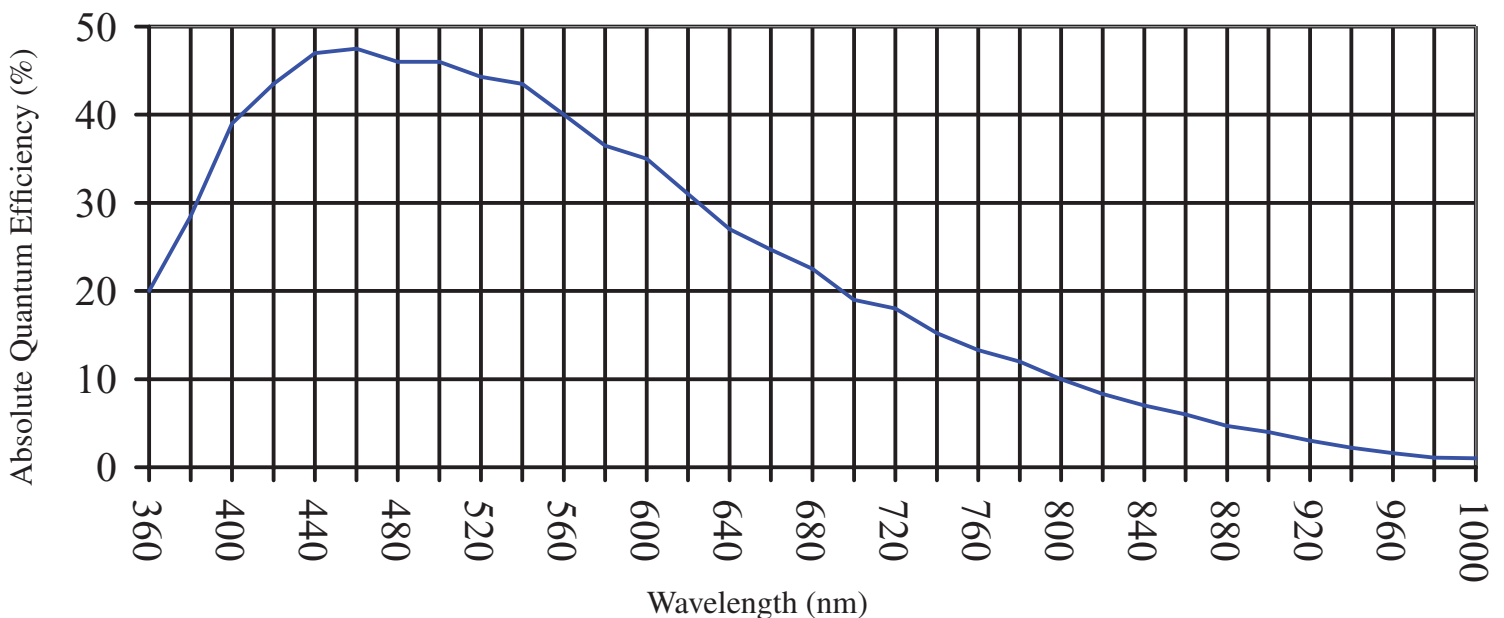


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PC Interface	USB 2.0
Max. Cable Length	5 meters between hubs; 5 hubs maximum (max. total of 30m)
Digital Resolution	16 bits at 1 MHz and 12 bits at 5 MHz
System Noise (typical)	7 e <sup>-</sup> RMS at 1 MHz and 2 counts at 5 MHz
Pixel Binning	1x1 to 8 x 4096 on-chip
Exposure Time	<1 msec (electronic shuttering) 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)	Standard: 0.2 e <sup>-</sup> /pixel/sec (-25°C). High Cooling (D09 housing): 0.02 eps.
Temperature Stability	± 0.1°C
Camera Head	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) Low profile: D11. High Cooling: D09.
Mounting	5.125" bolt circle. 2" 24 tpi thread. Optional Nikon F-mount or Canon FD mount.
Back Focal Distance	Standard: 1.142" (2.90cm) [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	Standard and Deep Cooling: Melles Griot 63mm. Low profile: no shutter.
Remote Triggering	LVTTL input allows exposure to start within 25 microseconds of rising edge of trigger

### CCD SENSITIVITY



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