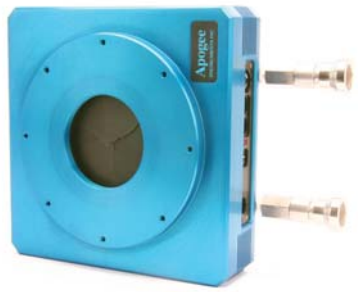
High Performance Cooled CCD Camera System
ALTA U16HC

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. The HC version increases cooling by 20C compared to the U16 and is available with liquid circulation only.

Imaging Area of CCD

- 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 60°C below ambient
- 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

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



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 mm2)
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.

With optional LR001 Liquid Recirculation Unit

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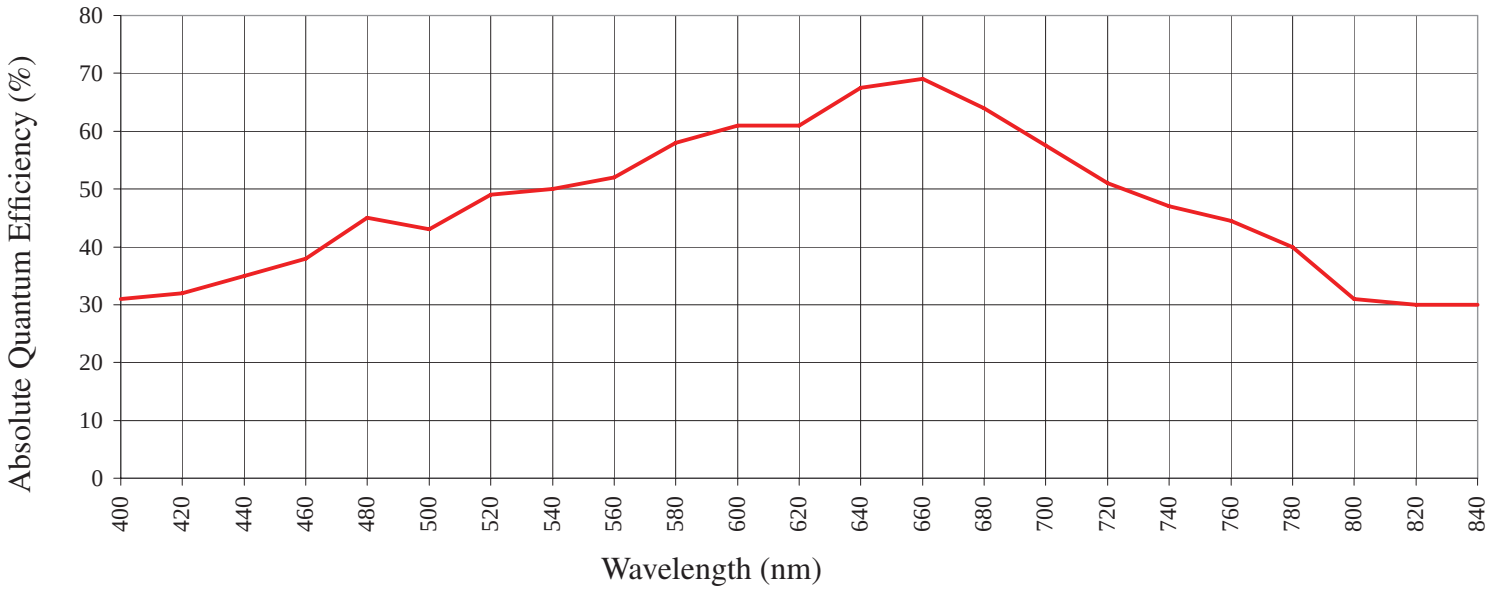
ALTA U16HC
Camera System Performance

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)	15 e^- 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 liquid recirculation. Maximum cooling 60°C below ambient temperature
Dark Current (typical)	<0.2 e^-/pixel/sec (-40°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	1.363" (34.62 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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