

Alta[®] U47

High Performance Cooled CCD Camera System



The Alta U47 has a midband or broadband coated back-illuminated full frame megapixel sensor with very high quantum efficiency. (See the U47UV data sheet for the UV enhanced version.) Low noise and large field-of-view are ideal for spectroscopy and astronomy.

- 1024 x 1024 array, 13 x 13 micron pixels
- 2 MHz 12-bit and 700 kHz 16-bit digitization
- 32Mbyte camera memory
- USB 2.0 interface: no plug in cards or external controllers
- Programmable, intelligent cooling to 55C below ambient
- Binning up to 10 Horizontal x 1024 Vertical
- Subarray readout and fast sequencing modes
- Precision time delayed integration 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 and MaxIm DL/CCD software included with every system
- Field upgradeable firmware
- Fused silica windows
- Runs from single 12V supply with input voltage monitor
- Compact enclosure
- Programmable status indicators

Imaging area
(actual size)



- Spectroscopy
- Star Tracking
- Medical Imaging

CCD Specifications

CCD	E2V CCD47-10 Back-illuminated
Array Size (pixels)	1024 x 1024
Pixel size	13 x 13 microns
Imaging area	13.3 x 13.3 mm (177.2 mm ²)
Imaging diagonal	18.83 mm
Linear Full Well (typ.)	100,000 e ⁻
Dynamic Range	>83 dB

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



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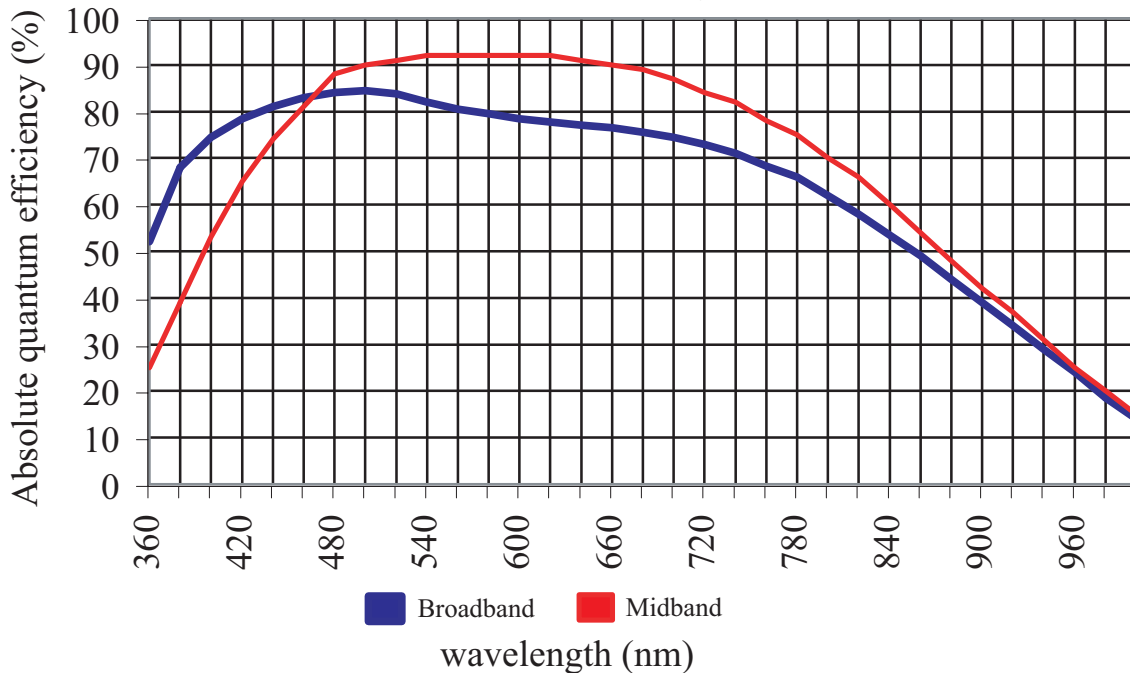
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Camera System Performance

PC Interface	USB 2.0
Max. Cable length	5 meters between hubs; 5 hubs maximum (max. total of 30m)
Digital resolution	12 bits at 2 MHz and 16 bits at 700 kHz
System Noise (typ.)	2 counts at 2 MHz; 10 e ⁻ RMS at 700 kHz
Pixel Binning	1x1 to 10x1024 on-chip
Exposure Time	20 milliseconds to 183 minutes (2.56 microsecond increments)
Image Sequencing	1-65535 image sequences under software control
Frame Sizes	Full frame, subframe, focus mode
Cooling	Thermoelectric cooler with forced air. Maximum cooling 55° C below ambient temperature
Temperature Stability	±0.1° C
Dark Current (typ.)	<0.1 e ⁻ /pixel/sec (-35° C)
Camera Head	Standard: D2; Low profile: D6. Aluminum, hard blue and black anodized. 6" x 6" x 2.5" (15 x 15 x 6.35 cm). Weight: 3.1 lb. (1.4 kg)
Mounting	3.5" bolt circle, 8-32 thread. 2" 24 threads per inch. Optional Nikon or Canon lens mount.
Back focal distance	Standard: 1.025" (2.60 cm); Low profile: 0.460" (1.17 cm). [optical]
Operating Environment	Temperature: -22° to 27°C. Relative humidity: 10 to 90% noncondensing
Cable length	Standard: 15 ft. (4.5m)
Power	40W maximum power with shutter open and cooling maximum. Power supplied by AC/DC "brick" supply with international AC input plug. Alternate 12V input for user's source.
Shutter	Standard: Melles Griot 43 mm. Low profile: no shutter.
Remote Triggering	LVTTL input to camera allows exposure start within 25 microseconds of rising edge of trigger.



CCD Sensitivity



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