

High Performance Cooled CCD Camera System ALTA U47



The Alta U47 has a back-illuminated full frame megapixel CCD with exceptionally high quantum efficiency. The standard midband coating (U47-MB) has the highest peak in the visible; the optional broadband coating (U47-BB) has somewhat higher QE in the near UV but lower QE across the visible. The UV-enhanced version (U47-UV) has the highest QE in the UV (See the quantum efficiency curve on page 2.)

Imaging Area of CCD



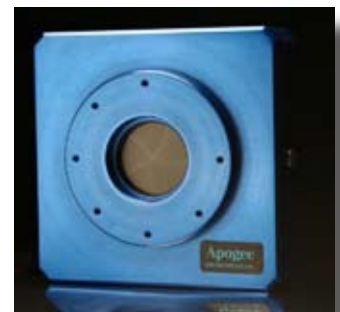
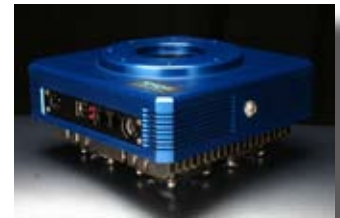
- 1024 x 1024 array, 13 x 13 micron pixels
- 2 MHz 12-bit and 700 kHz 16-bit digitization
- 32Mbyte camera memory
- USB 2.0 interface: no plug in cards or external controllers
- Programmable, intelligent cooling to 50-55°C below ambient (D02 housing)/ 70-75°C below ambient temperature (D09 housing).
- Binning up to 8 Horizontal x 1024 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

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

CCD SPECIFICATIONS

CCD	E2V CCD47-10
Array Size (pixels)	1024 x 1024
Pixel Size	13 x 13 microns
Imaging Area	13.3 x 13.3 mm (177 mm ²)
Imaging Diagonal	18.8 mm
Video Imager Size	1.2"
Linear Full Well (typical)	100K electrons
Dynamic Range	83 dB
QE at 400 nm	52% (MB); 75% (BB); 57% (UV)
Peak QE	96% (MB); 86% (BB); 65% (UV)
Anti-blooming	none

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



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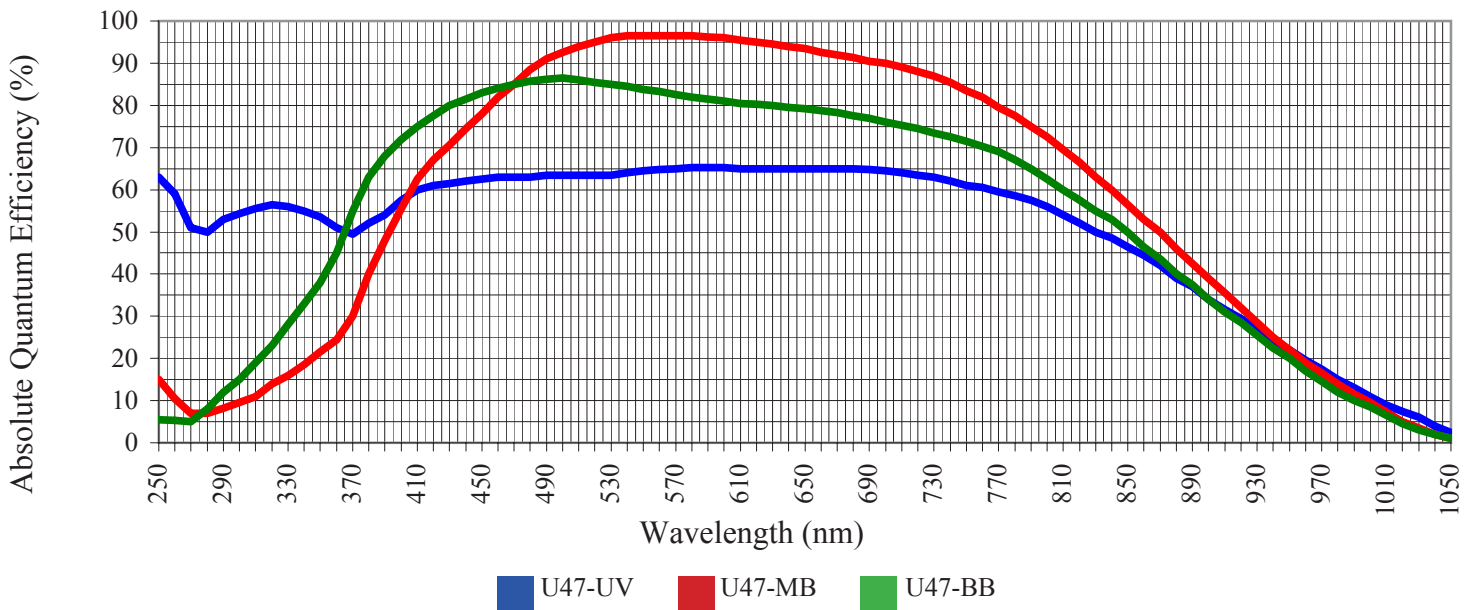
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Roseville CA 95661 USA
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ALTA U47 Camera System Performance



PC Interface	USB 2.0
Max. Cable Length	5 meters between hubs; 5 hubs maximum (max. total of 30m)
Digital Resolution	16 bits at 700 kHz and 12 bits at 2 MHz
System Noise (typical)	9 e ⁻ RMS at 700 kHz and 2 counts at 2 MHz
Pixel Binning	1x1 to 8 x 1024 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 50-55°C below ambient temperature (D02 housing); 70-75°C below ambient temperature (D09 housing).
Dark Current (typical)	0.2 e ⁻ /pixel/sec (-20°C). 0.02 eps for High Cooling D09 housing.
Temperature Stability	± 0.1°C
Camera Head Size	D02. Low profile: D06. Aluminum, hard blue anodized. 6" x 6" x 2.5" (15 x 15 x 6.35 cm) Weight: 3.1 lb. (1.4 kg). Wide Angle: D13. High Cooling: D09 (17.8 x 17.8 x 8.9 cm. 1.9 kg).
Mounting	3.5" bolt circle. 2" 24 tpi thread. Optional Nikon F-mount or Canon FD or EOS/EF mount.
Back Focal Distance	Standard: 1.025" (2.60cm). Low profile: 0.460" (1.17 cm). D09: 1.40" (3.56cm). [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: Melles Griot 43mm. Low profile: no shutter. D09: 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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