

High Performance Cooled CCD Camera System ALTA U4000



The Alta U4000 has a 4-megapixel interline transfer sensor with high quantum efficiency and twice the dynamic range of similar Sony sensors. Low noise and small pixels are ideal for OEM applications, biological sciences, and fundus imaging.

Imaging Area of CCD



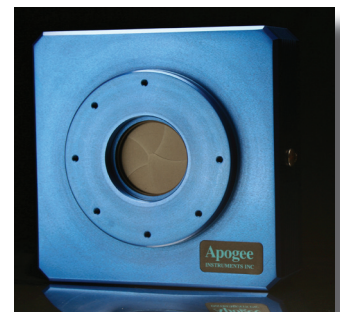
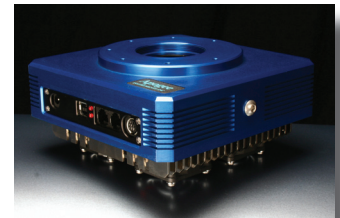
- 2048 x 2048 array, 7.4 x 7.4 micron pixels
- 5 MHz 12-bit digitization and 1 MHz 16-bit digitization
- 32 Mbyte camera memory
- USB 2.0 interface: no plug in cards or external controllers
- Programmable, intelligent cooling to 45°C below ambient
- Binning up to 8 Horizontal x 2048 Vertical
- Subarray 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 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

- Bioarray readers
- Fluorescence microscopy
- Fundus imaging

CCD SPECIFICATIONS

| | |
|----------------------------|---------------------------------------|
| CCD | Kodak KAI-4022M or CM |
| Array Size (pixels) | 2048 x 2048 |
| Pixel Size | 7.4 x 7.4 microns |
| Imaging Area | 15.2 x 15.2 mm (230 mm ²) |
| Imaging Diagonal | 21.4 mm |
| Video Imager Size | 1.34" |
| Linear Full Well (typical) | 40K electrons |
| Dynamic Range | 77 dB |
| QE at 400 nm | 45% |
| Peak QE (500 nm) | 55% |
| Anti-blooming (nominal) | 300X |

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



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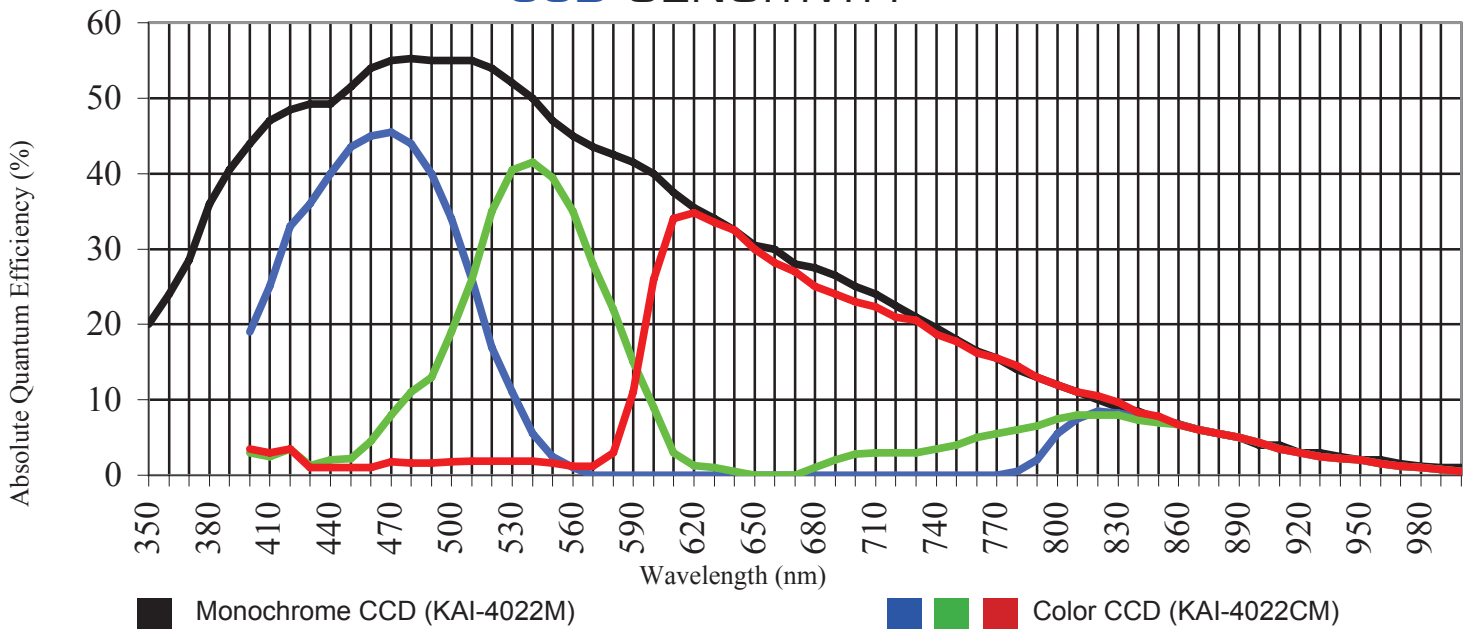
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Roseville CA 95661 USA
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fax 916-218-7451
<http://www.ccd.com>

ALTA U4000 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 8 x 2048 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 |
| Dark Current (typical) | 0.2 e ⁻ /pixel/sec (-25°C) |
| Temperature Stability | ± 0.1°C |
| Camera Head Size | D2 without shutter. Low profile: D6. Aluminum, hard blue 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. 2" 24 tpi thread. Optional Nikon F-mount or Canon FD mount. |
| Back Focal Distance | Standard: 1.025" (2.60cm). Low profile: 0.460" (1.17 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 | Standard: no shutter (optional). 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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