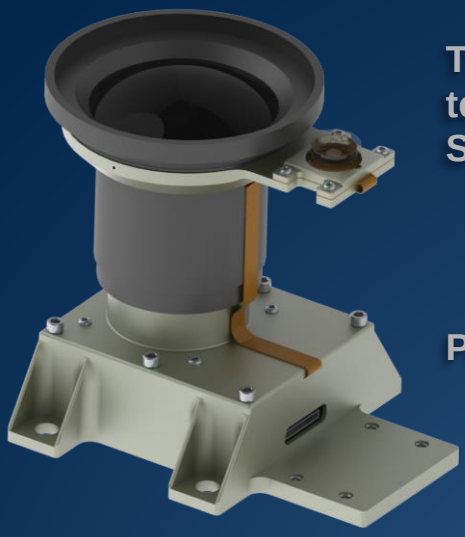
DSS 03-01-WRA-00-501 / 03-01-WRA-00-901



The Deep Space Systems WRA50X cameras are derived from a terrestrial machine vision camera.

Size, Weight and Power:

- Size: 3.2 x 2.7 x 3.1 in. (W x D x H)
- Weight ≤ 0.67 lbs.
- 5 VDC, Power: 8.8 W Peak Heater Mode, 5 W Avg Camera Streaming (No LED), 3.5 W Avg Camera Idle (No LED), 1 W LED

Performance:

- 5.3 Megapixel (2592 x 2048) CMOS Image Sensor
- 75 fps at Full Resolution with 8 bit pixel format
- In Flight Commandable Controls
- USB 3.0 Interface

The capabilities added by Deep Space Systems' installation of a Heater-Illumination-Power (HIP) board include:

- Built In Closed Loop Heater Control (enabled upon command)
- Over-temperature shutdown protection
- 60 Lumens LED Illuminator with beam focusing lens
- Power supply diodes for over-voltage and electro-static discharge (ESD) protection

Environmental Qualification

- Qualified operational baseplate temperature range in vacuum: -69°F to 187°F (-56°C to 86.1°C)
- Radiation Tolerant (proton and heavy ion radiation tested)
- Random Vibration: 17.26 G_{rms} Qual for 735 seconds
- Shock: 2937 Gs, Qual Peak Gs
- Aluminum-to-aluminum and connector body to aluminum bonding < 2.5 milliohms

Lenses

- Lenses are ruggedized and space qualified (other custom optics are available upon request)
  - AZURE Photonics AZURE-06520ML5M (6.5mm, F2.0 - 22, FOV = 88.7 x 72.9°)

Other Specifications

- Pixel Size: 4.8 x 4.8 microns
- Optical Format: 1 in
- Peak Quantum Efficiency (QE): 53% at 550 nm
- Fixed-Pattern Noise (FPN) < 1% of signal
- Photo Response Non-Uniformity (PRNU) < 2% of signal
- Dynamic Range: 53 dB
- Bit depth: 8- or 10-bit
- Responsivity at 550 nm: 24 LSB10 /nJ/cm2, 4.6 V/lux.s
- Pipelined and Triggered Global Shutter
- Flexible Region of Interest
- Linux API available
- High Dynamic Range (HDR)
- Auto & Manual Exposure
- Auto & Manual White Balance
- Monochrome or Color
- Manual control of:
  - Color Temperature
  - Gain
  - Gamma
  - Saturation
  - Binning and Decimation
  - Image Flip and Rotate