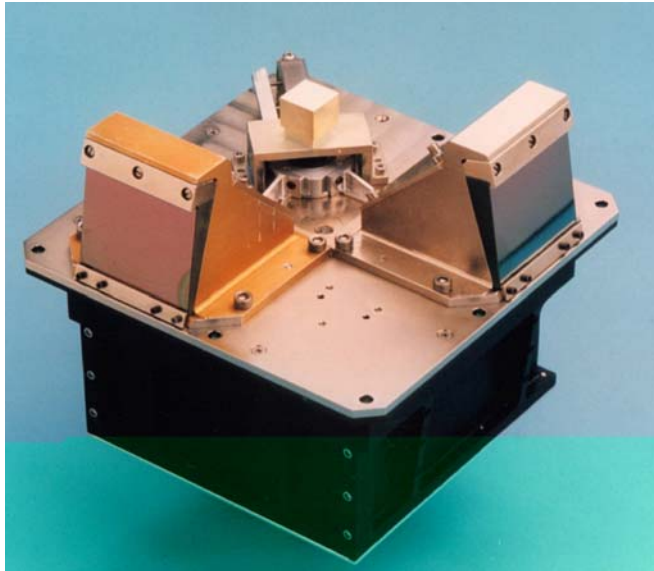
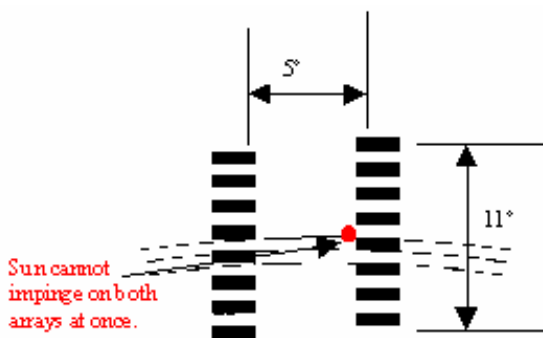


MiDES



Description:

The MiDES (Mini Dual Earth Sensor) is specifically designed to provide horizon position in both Pitch and Roll for Earth orbiting unmanned LEO satellites. The MiDES derives its information through the use of two pairs of 16 element pyroelectric detectors positioned 90 degrees apart, combining to provide 32 pixels that view the horizon. Each 16 element array is spatially separated into two 8 element staggered columns shown below to provide for sun/moon rejection and for radiance compensation. Covering a FOV of 11 degrees, the pixels detect the temperature difference between the reference chopper, Earth and Space through measurement of the CO₂ band thermal gradient. An algorithm calculates the position of the horizon based on the voltages obtained from the pixels that subtend the horizon. Earth and Space looking pixels are used to reduce radiance errors.



Features: Small, light weight, low power, high accuracy. Built-in partial redundancy. Patented Sun-Moon Rejection scheme. Patented automatic radiance compensation. No motor, bearings or lubrication required. Modern design allows low recurring price

Contact Information

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Specifications

- FOV: +/- 5.5°
- Accuracy: 0.04° (3σ)
- Supply Voltage: 28 (+7 -6) VDC
- Supply Power: <800 mW
- Output: Digital (RS 422)
- Detector: Proprietary LTO
- Optical Pass Band: 14.6-15.8μ

Environmental

- Random Vibration: 28 Grms
- Shock: 1000 Gs @ 10Khz
- Temperature: -30 to + 60°C
- Radiation: As Required
- EMC: Mil-Std 462

Physical

- Mass: 1.5 KG
- Dimensions: 5.25 x 5.25 x 5.07 in.
- Mounting Surface: Flat (flange)

Electronics

- Hybridized detector assembly
- 80C552 microprocessor
- 10 bit quantification of pixel data
- Opto-isolated digital interface
- Circuit watchdog timer resets the fuse link prom in the event of a SEU
- Built-in test

Flight Heritage

- Astro Spas - Astrium (DASA)
- UOSAT 12 - SSTL
- QuikToms - Orbital