Miniature Integrated Star Tracker

Features

- Radiation Hardened for extended missions (Optics and Electronics)
- Fully integrated solution
- High QE CMOS FPA
- Flight Proven Software and Electronics
- Quaternion and Rate Output
- Kalman Filtering Option
- Cubesat form factor (.5U)
- Applications: Satellite Attitude and Rate Determination
- GEO, MEO, LEO orbits

Specifications

Attitude Performance

- Attitude Knowledge Error: 10 arcsec (1 sigma)
- Update Rate: 10 Hz
- Availability: >99%
- Solar Exclusion Angle: 45°
- Slew Tolerance (no degradation): 1 deg/sec
- Slew Tolerance (w/degradation): 5 deg/sec
- Time to First Star ID: < 1 sec

Physical Performance

- Mass w/Baffle: 550 grams
- Volume w/Baffle: < 10 x 10 x 5 cm (0.5U)
- Power Consumption: < 4 W

Mission Performance

- Mission Life: 2-10 yrs
- Scalable EEE Parts: Commercial to Hi Rel
- TID Tolerance – Scalable: 30 krads, up to 100 krads optional
- SEE Mitigation: SEL, SEFI and SEU

Software Features

- Star Identification Based on Pyramid Code
- Integrated Systematic Error Correction Allows for High Accuracy
- Real-Time On-orbit Calibration Accounts for Degradation
- Extended Kalman Filter Produces Attitude and Rate Estimates
- Less Sensitive to Spurious Signals and Upsets

Supporting Electronics

- Flight Proven High Performance Processor
- Radiation Hardened and Fault Tolerant (capable of running with or without EDAC)
- RS-422, SpaceWire, CAN
- Flexible I/O
- Low Power consumption

Specifications Subject to Change Without Notice.

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