

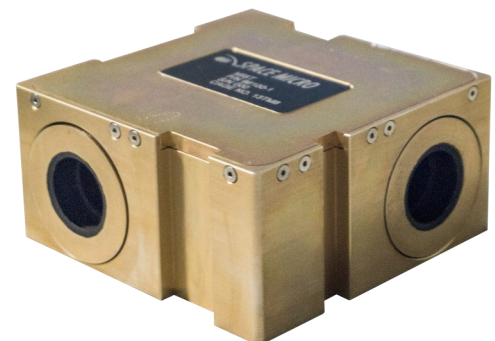
Miniature Integrated Star Tracker (MIST)

Space Micro celebrated its 13-year anniversary in 2015 and continues to support the Space Industry with innovative, affordable and high performance Digital/Image Processing, RF Communication and Attitude Determination Sensor Products.

Space Micro's new miniature integrated star tracker (MIST) implements our patented radiation hardened electronics with a radiation hard custom lens in a .5U form factor. The key electrical components have many years of heritage in LEO space environments. Sharing many features of our high performance μ STAR product, the unique software is flight demonstrated and provides superior robustness to false stars and accounts for imaging degradation over the unit lifetime. These features make the MIST the most advanced star tracker offered for CubeSat missions.

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)



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SPECIFICATIONS

Attitude Performance

Attitude Knowledge Error	30 arcsec (1 sigma)
Update Rate	10 Hz
Availability	>99%
Solar Exclusion Angle	45°
Slew Tolerance (no degradation)	1deg/sec
Slew Tolerance (w/degradation)	5deg/sec
Time to First Star ID	< 1 sec

Physical Performance

Mass w/Baffle	500 grams
Volume w/Baffle	< 10 X 10 X 5cm (0.5U)
Power Consumption	< 4 W
Optional - MEMS Gyro Integration	Systron-Donner QRS

Mission Performance

Mission Life	2-5 yrs
Scalable EEE Parts	Commercial to Hi Rel
TID Tolerance – Scalable	30 krads, up to 100krads optional
SEE Mitigation	SEL, SEFI and SEU

APPLICATIONS

- Satellite Attitude and Rate Determination
- GEO, MEO, LEO Orbits

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 P200K Single Board Computer
- Radiation Hardened and Fault Tolerant (capable of running with or without EDAC)
- DSP architecture, minimal software development time
- Flexible I/O
- Low Power consumption

10237 Flanders Court
San Diego, CA 92121
Tel: 858.332.0700
sales@spacemicro.com
www.spacemicro.com

