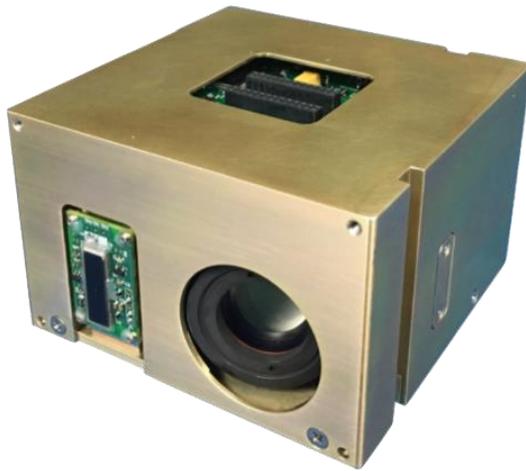


MAI-500

0.6U CubeSat ADACS+Star Tracker



This 0.6U Attitude Determination and Control System features two Star Trackers, three reaction wheels, three electromagnets, a 3-axis magnetometer, and an ADACS computer for a stand-alone, Plug-and-Play attitude control system for small satellites. The configuration is compatible with the CubeSat standard. The Star Trackers are oriented either 180 or 90 degrees apart, and angled upward at 24 degrees. Other mounting angles are available.

Specifications

Performance Item	Specification
Dimensions	10 x 10 x 6.23 cm
Mass	1049 g
Momentum Storage @10000 RPM	11.076 mNms
Max Torque	0.635 mNm
Magnetic Dipole Moment	0.14 (0.15 @94% Duty Cycle) Am ²
Magnetometer	+/- 900 μ T
Operating Voltage	5.0 V
Power Consumption	
Minimum Power	1.82 W (0.164 A)
Avg. Power Use in Nadir Pointing	2.13 W (0.226 A)
1 RW Low Speed Max Torque Power Use	3.05 W (0.41 A)
1 RW High Speed Max Torque Power Use	2.10 W (0.22 A)
Max Instantaneous Current	1.603 A
Star Tracker	
Accuracy (cross boresight)	6 / 30 as
Max Acquisition Time	250 msec
Max Slew Rate ($P_{acq}=0.5$)	1.0 ^o /sec
Star Catalog	6.0 VM
Pointing	0.1 deg LVLH / 0.008 deg ECI
Command/TLM Interface	RS232, SCI/UART (3.3 V)
Sun Sensor Interface	6 Analog Channels (0 – 3.3 V)
Operating Temperature	-20 to 60 $^{\circ}$ C
Launch Environment Vibration Spec	14 G rms (GEVS)

In accordance the SBA Policy Directive Sec 4 (c) (2), any procurement by US Government Entities is an SBIR Phase III award that is derived from, extends, or completes efforts made under prior SBIR funding agreements and is authorized under 10 U.S.C. 2304(b)(2) or 41 U.S.C.

3303(b) with no further competition pursuant to FAR 6.302-5.

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