VANTAGESTAR

OVERVIEW

VantageStar star trackers excel at star identification to determine satellite attitude. Suitable for all orbits, this high-reliability star tracker is radiation tolerant, with superior accuracy. VantageStar is manufactured in the USA and fully compliant with National Defense Authorization Act 2021 domestic sourcing specifications.

KEY FEATURES

- Spaceflight-proven hardware and software
- Star identification based on pyramid algorithm
- Real-time quaternion output
- Real-time on-orbit calibration
- Less sensitive to false stars
- Integrated systematic error correction

APPLICATIONS

- Satellite attitude
- Space Situational Awareness
- Long-duration, high-reliability missions
- Satellite orbits: LEO, MEO, GEO and beyond

PRODUCT SPECIFICATIONS

Detector	Scientific CMOS with very low read noise
Acquisition Time	< 1 sec from Lost in Space (without a priori knowledge)
Outputs	Quaternions RAW Images
Operation Modes	Standby Acquisition/Tracking Built-in Test Camera Mode: Full-frame RAW images, Attitude of captured images
Interfaces	SpaceWire, CameraLink, Options: RS-422, MIL-STD-1553

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PRODUCT SPECIFICATIONS

Imaging System		
Optics	85 mm focal length, F/1.7 refractive lens, radiation-hardened elements	
Field of View	14°	
Entrance Pupil Diameter	50 mm	
Lens Baffle Diameter	107 mm	
Exclusion Angles		
Sun	Solar Exclusion Angle: 34°	
Earth	Earth Exclusion Angle: 15°	
Moon	Lunar Exclusion Angle: n/a (full moon accepted in FoV)	
Attitude Performance		
Cross-Boresight Error	<0.4 arcsec (1-sigma)	
Around-Boresight Error (Roll)	<5.5 arcsec (1-sigma)	
Update Rate	10 Hz	
Slew Rate	≤ 5 deg/sec (with degradation)	
Sensitivity	6.8 limiting star magnitude	
General		
Environment		
Temperature Range	-30°C to +50°C (Operating), -40°C to +85°C (Storage)	
Vibration	14 gRMS Acceptance, 20 gRMS Qualification	
Parts Level Options	Commercial Space, NASA Level 2, 3	
Suitability	LEO: 10 years, MEO: 12+ years, GEO: 15 years	
	5V Version	**28V Version**
SWaP		
Dimensions	Length: 107 mm Width: 86 mm Height: 256 mm	Length: 125 mm Width: 96 mm Height: 286 mm
Mass	1.35 kg	1.9 kg
Input Voltage	5 V ± 0.5 V	28 V ± 8 V
Power	6.3 W (typ), 9 W (max)	8 W (typ), 12.5 W (max)