

STAR TRACKER

ST-16HV Datasheet High-Volume Star Tracker

Version 3, 13 Sep 2023



The ST-16HV is an attitude determination sensor based on the heritage, high-performance ST-16RT2 star tracker, but with component selection and manufacturing processes optimized for high-volume applications. The ST-16HV uses an off-the-shelf optical solution in place of a bespoke lens, enabling mass production and cost savings. Using the same concept of operations and electronics design as the ST-16RT2, the ST-16HV is drop-in compatible with the ST-16RT2 making bus customization trivial on a mission-by-mission basis. Minimum order quantities apply.

ABSOLUTE ACCURACY	10 arcsecond cross-boresight (RMS) 100 arcsecond around boresight (RMS)
MAXIMUM SLEW RATE	2°/second
LENS	Commercial grade, 16 mm aperture, f/1.8
DETECTOR	2592 x 1944 CMOS active-pixel sensor, ~3 e- system noise
OUTPUT SOLUTION	Provides attitude quaternion and angular rates at 2 Hz with zero initial acquisition time. Option for 5Hz operation.
PROCESSING	Full lost-in-space solution each frame Processor and star catalog built into unit Internal corrections for proper motion and stellar aberration
COMMAND / TELEMETRY	Two half-duplex RS-485, ±70 V fault tolerant Can share data link with Sinclair Interplanetary by Rocket Lab reaction wheels
SUPPLY VOLTAGE	9V to 34V, redundant pins, reverse polarity protected
PHYSICAL (NO BAFFLE)	62 x 56 x 38mm, 148g
POWER CONSUMPTION	Average: < 0.5 W Peak: 1.0 W
ENVIRONMENT	Thermal: -40°C to +50°C (operating), -40°C to +95°C (survival) Vibration: > 18.7 GRMS Lifetime: 7 years LEO (<900 km)
SUN/MOON AVOIDANCE & BAFFLES	Demonstrated orbital operation with full moon in FOV Standard baffle options having 22° or 34° sun exclusion angles available. Custom baffle designs available for quantities >100.
ALIGNMENT REFERENCES	Reference surfaces not included. Mirrors can be added upon request for quantities >100
INTEGRATION & TEST SUPPORT	Third-party starfield stimulators available for real-time hardware-in-the-loop testing.
HERITAGE	Electronics and mechanical design same as ST-16RT2 with >100 units on-orbit starting 2013.
PRICING & DELIVERY	Please contact for pricing, lead times, minimum order quantity and delivery cadence.