

# STAR TRACKER

## ST-16HV Datasheet High-Volume Star Tracker

Version 2, 11 April 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.

<b>ABSOLUTE ACCURACY</b>	10 arcsecond cross-boresight (RMS) 100 arcsecond around boresight (RMS)
<b>MAXIMUM SLEW RATE</b>	2°/second
<b>LENS</b>	Commercial grade, 16 mm aperture, f/1.8
<b>DETECTOR</b>	2592 x 1944 CMOS active-pixel sensor, ~3 e- system noise
<b>OUTPUT SOLUTION</b>	Provides attitude quaternion and angular rates at 2 Hz with zero initial acquisition time. Option for 5Hz operation.
<b>PROCESSING</b>	Full lost-in-space solution each frame Processor and star catalog built into unit Internal corrections for proper motion and stellar aberration
<b>COMMAND / TELEMETRY</b>	Two half-duplex RS-485, ±70 V fault tolerant Can share data link with Sinclair Interplanetary by Rocket Lab reaction wheels
<b>SUPPLY VOLTAGE</b>	9V to 34V, redundant pins, reverse polarity protected
<b>PHYSICAL (NO BAFFLE)</b>	62 x 56 x 38mm, 158g
<b>POWER CONSUMPTION</b>	Average: < 0.5 W   Peak: 1.0 W
<b>ENVIRONMENT</b>	Thermal: -40°C to +50°C (operating), -40°C to +95°C (survival) Vibration: > 18.7 GRMS Lifetime: 7 years LEO (<900 km)
<b>SUN/MOON AVOIDANCE &amp; BAFFLES</b>	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.
<b>ALIGNMENT REFERENCES</b>	Reference surfaces not included. Mirrors can be added upon request for quantities >100
<b>INTEGRATION &amp; TEST SUPPORT</b>	Third-party starfield stimulators available for real-time hardware-in-the-loop testing.
<b>HERITAGE</b>	Electronics and mechanical design same as ST-16RT2 with >100 units on-orbit starting 2013.
<b>PRICING &amp; DELIVERY</b>	Please contact for pricing, lead times, minimum order quantity and delivery cadence.