

# STAR TRACKER

## ST-16RT2 Datasheet High-Performance Star Tracker

Version 3, 11 April 2023



<b>ABSOLUTE ACCURACY</b>	5 arcsecond cross-boresight (RMS) 55 arcsecond around boresight (RMS) (Demonstrated on-orbit, including thermal effects)
<b>MAXIMUM SLEW RATE</b>	3°/second
<b>LENS</b>	Full-custom 16 mm f/1.6 4-element glass, designed for shock and vacuum
<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>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: > 29.6 gRMS vibration Shock: 2000G Lifetime: 13 years LEO (800 km) or 9 years GEO
<b>HERITAGE</b>	3 first generation units on-orbit, first launch November 2013 40 second generation units on-orbit, first launch June 2016

<b>BAFFLE OPTIONS</b>	<b>NO BAFFLE</b>	<b>SHORT BAFFLE</b>	<b>LARGE BAFFLE</b>
Field of View	7.5° x 10° half-angle	8° half-angle	7.5° x 10° half-angle
Sun-Avoidance	N/A	34° sun-to-boresight	22° sun-to-boresight
Moon-Avoidance	Demonstrated orbital operation with full moon in FOV		
Dimensions	62 x 56 x 38 mm	62 x 56 x 68 mm	99 Ø x 120 mm
Total Mass	158 g	185 g	235 g
Heritage	30 units on-orbit	13 units on-orbit	10 units on-orbit
Price	US \$120,000 each	US \$140,000 each	US \$140,000 each

**Integration and Test Support.** Third-party optical stimulators available for realtime hardware-in-the-loop testing. Ask for pricing.