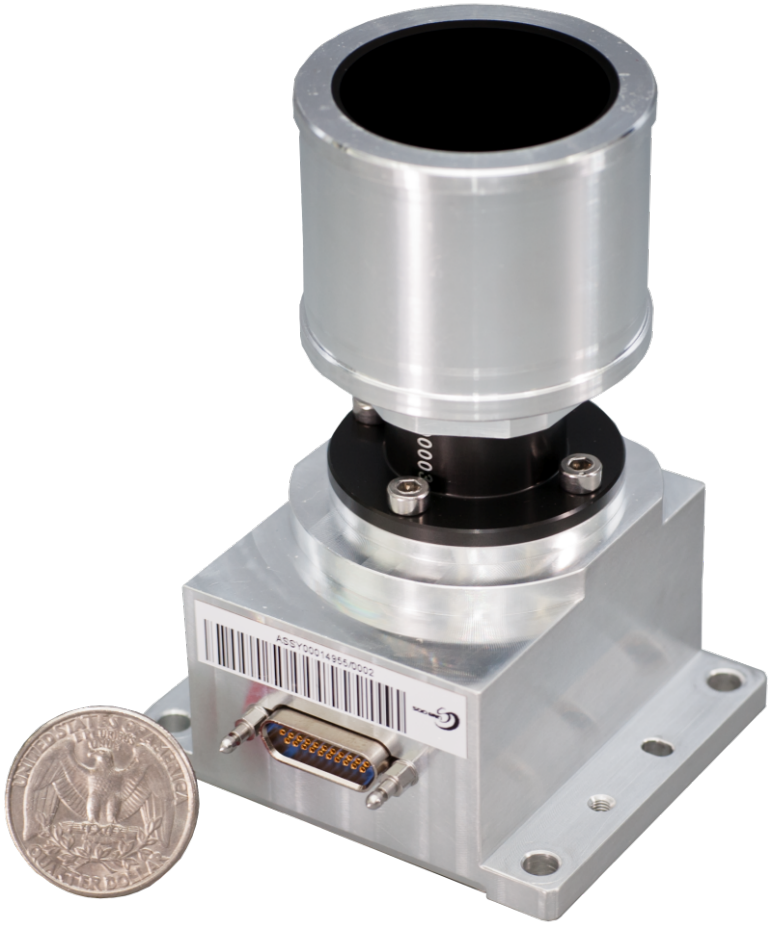
AURIGA-CP



Auriga-CP means Centralized Processing

STAR TRACKER OPTICAL HEAD WITH SOFTWARE HOSTED IN SPACECRAFT'S ON BOARD COMPUTER

- SPECIFICALLY DESIGNED FOR SMALL SATELLITES MISSIONS
- LOW COST, HIGH PRODUCTION RATE, REDUCED WEIGHT AND VOLUME
- GUARANTEED FOR 10 YEARS LIFETIME IN LEO ORBIT
- FLIGHT PROVEN SINCE 2019 WITH ONEWEB MEGA-CONSTELLATION
- INHERITED FROM OUR 50 YEARS OF EXPERIENCES WITH STAR TRACKERS

AURIGA-CP

STAR TRACKER OPTICAL HEAD WITH SOFTWARE HOSTED IN SPACECRAFT'S ON BOARD COMPUTER

GENERAL DESCRIPTION
OPTICAL HEAD (OH)
Baffle protection for direct Sun and Earth illumination
Up to 3 Optical Heads may be connected to the spacecraft On Board Computer
Connected to the spacecraft's processor through SpaceWire interface with Power Converter Supplying
Lifetime can be up to 10 years in LEO and GEO orbit with additional shielding
CENTRALIZED SOFTWARE
Software integrated in the spacecraft processor. Can be made available for any processor
Operating frequency up to 10 Hz according to host processor performances
Embedded Star Catalog, Algorithms and Software library inherited from 50 years of experiences and Hydra Star Tracker

TECHNICAL SPECIFICATIONS

ENVIRONMENTAL CHARACTERISTICS		
Operating temperature range (°C)	- 20 / + 40	
Storage temperature (°C)	- 30 / + 70	
Mechanical environment (in/out of plane)	14 / 22 gRMS	2000gSRS @2000 Hz
OH size (mm, including baffle)	66 x 56 x 94 (height)	
EU size (mm)	No Electronic Unit, centralized software	
OH mass (g, including baffle)	205	
EU mass (g)	No Electronic Unit, centralized software	
RELIABILITY, AVAILABILITY AND LIFETIME		
EEE parts class for OH	ECSS Class 3 equivalent and Automotive	
EEE parts class for EU	No Electronic Unit, centralized software	
Reliability for OH	230 FIT (FIDES method @20°C)	
Reliability for EU	No Electronic Unit, centralized software	
Lifetime (years)	10 in LEO 400-850km; 6 in LEO 1200km	
ELECTRICAL INTERFACES		
OH Power supply (V)	5 (±10%)	
EU Power supply (V)	No Electronic Unit, centralized software	
OH Power consumption (W, typ/max)	0.8 / 1.1	
EU Power consumption (W, typ/max)	No Electronic Unit, centralized software	
Output data	OH : SpaceWire (50 Mbps signaling rate)	
Output rate (Hz)	10 (5 Hz possible to relax CPU load)	

PERFORMANCES AND ROBUSTNESS	
Bias (worst case)	0.017 deg
Thermo-elastic Error (worst case)	1 arcsec/°C
Low Frequency spatial (FOV) error XY / Z @ 3σ	9 / 51 arcsec
High Frequency spatial (Pixel) error XY / Z @ 3σ	6.6 / 37 arcsec
Temporal noise on XY / Z @ 3σ	11 / 69 arcsec
Time from lost-in-space (typ)	4 s
Slew rate in Acquisition	0.3 deg/s
Slew rate in Tracking	Up to 3 deg/s
Acceleration in Acquisition	Up to 1 deg/s²
Acceleration in Tracking at 10 Hz	Up to 2.5 deg/s²
Full Moon in the Field of View	No performance degradation
Baffle Sun Exclusion Angle	35 deg
Baffle Earth Exclusion Angle	22 deg
Solar flare Acquisition/Tracking	Robust

BEST IN CLASS
Over 50 years of experiences with high quality Star Trackers underlies this small low cost product

SMART DESIGN
Simple architecture using validated COTS
For high volume production

HIGH ACCURACY AND EXCELLENT ROBUSTNESS
- Fast acquisition and arcsec tracking
- Excellent robustness especially at End Of life and for high detector temperatures conditions in both acquisition and tracking modes
- Auriga-CP Flight proven since 2019

CONTACT

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