

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

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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 15 years in GEO orbit with EOR			
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		PERFORMANCES AND ROBUSTNESS	
Operating temperature range (°C)	- 20 / + 40	Bias (worst case)	0.017 deg
Storage temperature (°C)	- 30 / + 70	Thermo-elastic Error (worst case)	< 1.5 arcsec/°C
Mechanical environment (in/out of plane)	33 gRMS 2000gSRS @2000 Hz		
OH size (mm, including baffle)	66 x 59 x 94 (height)		Low Frequency spatial (FOV) error XY / Z @ 3σ
EU size (mm)	No Electronic Unit, centralized software		
OH mass (g, including baffle)	225		High Frequency spatial (Pixel) error XY / Z @ 3σ
EU mass (g)	No Electronic Unit, centralized software		
RELIABILITY, AVAILABILITY AND LIFETIME		Temporal noise on XY / Z @ 3σ	11 / 70 arcsec
EEE parts class for OH	ECSS Class 3 equivalent and Automotive		
EEE parts class for EU	No Electronic Unit, centralized software		Time from lost-in-space (typ)
Reliability for OH	230 FIT (FIDES method @20°C)		
Reliability for EU	No Electronic Unit, centralized software		Slew rate in Acquisition
Lifetime (years)	10 in LEO 400-1200km; 15 in GEO with EOR		Slew rate in Tracking
ELECTRICAL INTERFACES		Acceleration in Acquisition	Up to 1 deg/s ²
OH Power supply (V)	5 (±10%)		Acceleration in Tracking at 10 Hz
EU Power supply (V)	No Electronic Unit, centralized software		Full Moon in the Field of View
OH Power consumption (W, typ/max)	0.8 / 1.1		
EU Power consumption (W, typ/max)	No Electronic Unit, centralized software		Baffle Sun Exclusion Angle
Output data	OH : SpaceWire (50 Mbps signaling rate)		Baffle Earth Exclusion Angle
Output rate (Hz)	10 (5 Hz possible to relax CPU load)		Solar flare Acquisition/Tracking
			Robust

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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

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