

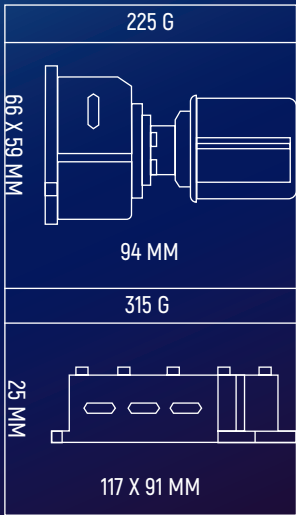
AURIGA SA

STAR TRACKERS OPTICAL HEAD AND ELECTRONIC UNIT
FOR PLUG-AND-PLAY INTEGRATION



- SPECIFICALLY DESIGNED FOR SMALL SATELLITES MISSIONS
- LOW COST, HIGH PRODUCTION RATE, REDUCED WEIGHT AND VOLUME
- GUARANTEED FOR 10 YEARS LIFETIME IN LEO ORBIT
- IN ORBIT DEMONSTRATION SINCE 2019
- SIMPLE ARCHITECTURE USING VALIDATED COTS
- HIGH ACCURACY AND EXCELLENT ROBUSTNESS
- 500+ OPTICAL HEAD IN ORBIT

GENERAL DESCRIPTION



- Fast acquisition and arcsec tracking • Excellent robustness especially at End Of life and for high detector temperatures conditions in both acquisition and tracking modes • EU Dual Use 7A104 – ITAR Free

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

ELECTRONIC UNIT (EU)

Embedded software processing OH's data and computing the attitude

- Can perform OH FDIR through autonomous individual OH switch ON/OFF
- Operating frequency is assumed to be 10 Hz operating refresh rate • Embedded Star Catalog and Algorithms

END OF LIFE WORST CONDITIONS DATA

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

RELIABILITY, AVAILABILITY AND LIFETIME

EEE parts class for OH	ECSS Class 3 equivalent and Automotive
EEE parts class for EU	ECSS Class 3 equivalent and Automotive
Reliability for OH	230 FIT (FIDES method @20°C)
Reliability for EU	470 FIT (FIDES method @20°C)
Lifetime (years)	10 in LEO 400-1200km / 15 in GEO with EOR

ELECTRICAL INTERFACES

OH Power supply (V)	Supplied by EU
EU Power supply (V)	5 V (±5%)
OH Power consumption (W, typ/max)	0.8 / 1.1
EU Power consumption (W, typ/max)	2.5 / 3.4
Output data	EU : RS422 UART (115200 baud)
Output rate (Hz)	8 or 10

PERFORMANCES AND ROBUSTNESS

Bias (worst case)	0.017 deg
Thermo-elastic Error (worst case)	1.5 arcsec/°C
Low Frequency spatial (FOV) error XY / Z @ 3σ	9 / 51 arcsec
High Frequency spatial (Pixel) error XY / Z @ 3σ	6.6 / 38 arcsec
Temporal noise on XY / Z @ 3σ	11 / 70 arcsec
Time from lost-in-space (typ)	3.8s
Slew rate in Acquisition	0.3 deg/s in baseline Up to 2 deg/s
Slew rate in Tracking	Up to 3 deg/s
Acceleration in Acquisition	Up to 1 deg/s ²
Acceleration in Tracking at 10Hz	Up to 2.5 deg/s ²
Full Moon in the Field of View	No performance degradation
Baffle Sun Exclusion Angle	35 deg
Baffle Earth Exclusion Angle	22 deg
Solar flare Acqu/Tracking	Robust

Product specifications are subject to change without notice or obligation