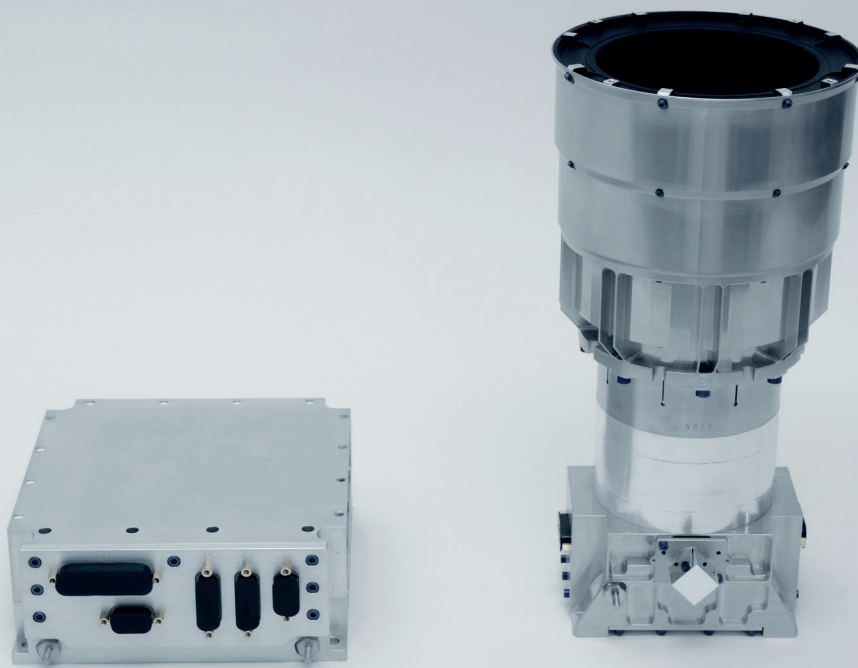
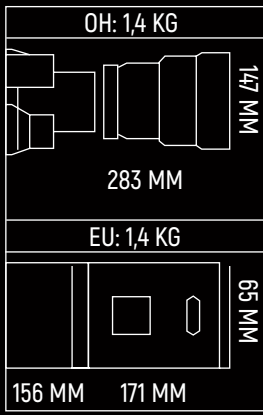


HYDRA M

HIGH-END HYDRA STAR TRACKER OPTIMIZED FOR MASS AND POWER



- PROVEN PERFORMANCE, ACCURACY AND ROBUSTNESS
- EMBEDDED FDIR FUNCTIONS
- LOW POWER DISSIPATION, LOW MASS & OPTIMIZED COST
- FLIGHT-PROVEN (TRL9) SINCE 2019
- 500+ OPTICAL HEAD IN ORBIT



ACCURACY AND PERFORMANCES

KEY FEATURES

- Up to 2 Optical Heads (OH) connected to 1 Electronics Unit (EU) through SpaceWire interface (MIL 1355) with up to 8m-long cables
- HAS-2 CMOS sensor without Thermo-Electric Cooler (TEC)
- Electronics unit embedded software processes multiple OH data and delivers a fused quaternion
- Optics made of rad-hard material
- Export control EU Dual Use 7A004a - ITAR Free

END OF LIFE WORST CONDITIONS DATA

Bias	<11 arcsec
Thermo-elastic error	<0.055 arcsec/°C
Low Frequency Spatial Error @ 3σ	0.6 arcsec (XY) 4.6 arcsec (Z)
High Frequency Spatial Error @ 3σ	3.4 arcsec (XY) 27 arcsec (Z)
Temporal noise @ 3σ	2.3 arcsec (XY) 18 arcsec (Z)
Slew rate	≤6 deg/s in Acquisition ≤8 deg/s in Tracking
Acceleration	≤2 deg/s ² in Acquisition ≤10 deg/s ² in Tracking (30Hz)
Time from lost-in-space	2.2s typ
Sun/Earth Exclusion Angle	26 deg / 18.5 deg

No performance degradation with full moon in the field of view

EEE parts class	Level 1 & Level 2
Reliability (MIL-HDBK-217F @ 30°C)	Level 1: 45FIT (OH) 513FIT (EU) Level 2: 125FIT (OH) 707FIT (EU)
Lifetime	10 years LEO / 5 years GEO

Robust to solar flare in acquisition and tracking

Power supply	21V to 52V
Power consumption @30°C 28V 30Hz	6.5W typ. (2 OH ON)
Output data	MIL1553B (RS422 AS/CS16 option available)
Output rate	8Hz, 10Hz, 12Hz, 16Hz, 20Hz, 30Hz

ENVIRONMENTS

Temperature Range	-30°C / +50°C (Operation) -40°C / +70°C (Storage)
Random vibrations	OH: 30g RMS EU: 28g RMS
Shocks	OH: 2000g SRS EU: 2000g SRS

RELIABILITY AND LIFETIME