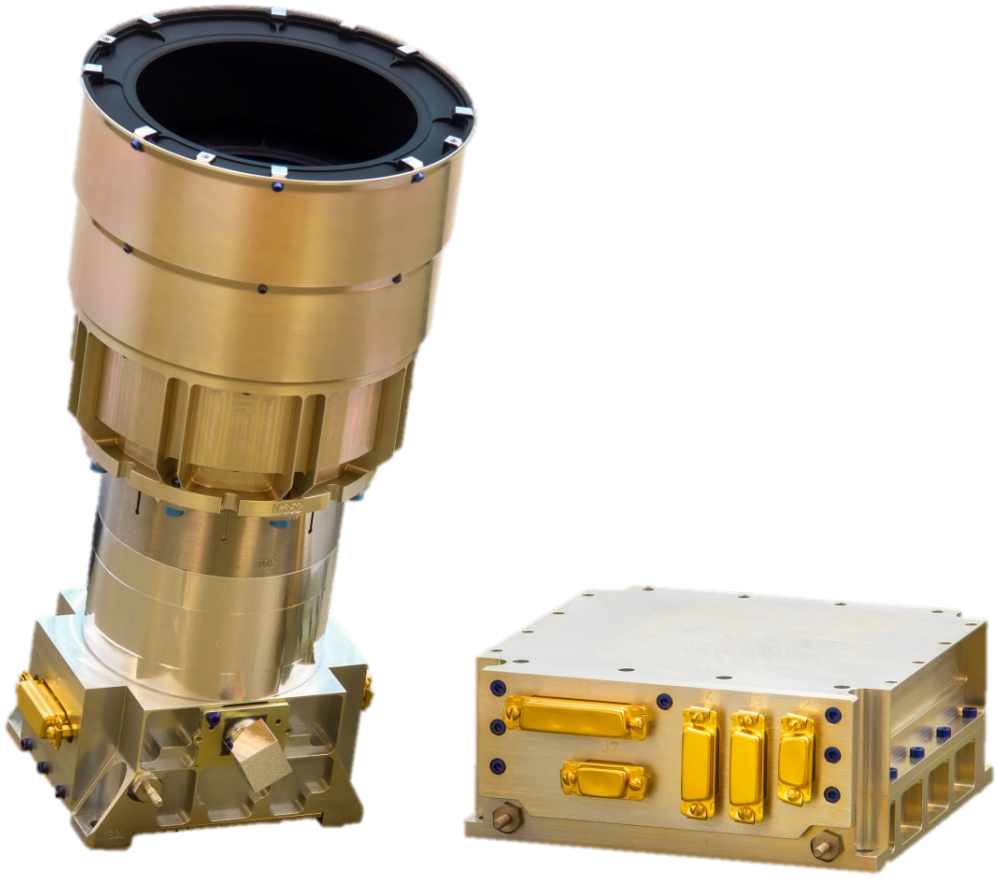
HYDRA-M



Hydra-M means Minimal power

MULTIPLE HEADS STAR TRACKER WITH OPTIMIZED MASS & POWER COMSUPTION

- BEST IN CLASS PERFORMANCE
- LOW POWER DISSIPATION, LOW MASS & OPTIMIZED COST
- VERSATILE, ROBUST, ACCURATE AND FLIGHT PROVEN SINCE 2019
- INHERITED FROM OUR 50 YEARS OF EXPERIENCES WITH STAR TRACKERS

HYDRA-M

MULTIPLE HEADS STAR TRACKER WITH OPTIMIZED MASS & POWER COMSUPTION

GENERAL DESCRIPTION
OPTICAL HEAD (OH)
Baffle protection for direct Sun and Earth illumination
Up to 2 Optical Heads may be connected to 1 Electronic Units with up to 8 m length cable
Lenses made of Rad-Hard glasses
HAS-2 (CMOS) detector without Thermo-Electric Cooler
Connected to the Electronic Unit (EU) through SpaceWire interface (MIL 1355)
ELECTRONIC UNIT (EU)
Embedded software processing OH's data and computing the attitude
Embedded Star Catalog and Algorithms inherited from 50 years of experiences and Hydra Star Tracker

TECHNICAL SPECIFICATIONS

ENVIRONMENTAL CHARACTERISTICS			PERFORMANCES AND ROBUSTNESS	
Operating temperature range (°C)	- 30 / + 50		Bias (worst case)	< 11 arcsec
Storage temperature (°C)	- 40 / + 70		Thermo-elastic Error (worst case)	< 0.055 arcsec/°C
Mechanical environment (in/out of plane)	Random 28 gRMS	Shocks 2000 gSRS		
OH size (mm, including baffle)	166 x 160 x 283 (height)		Low Frequency spatial (FOV) error XY / Z @ 3σ	0.6 / 4.6 arcsec
EU size (mm)	171 x 156 x 65 (height)			
OH mass (kg, including baffle)	1.4		High Frequency spatial (Pixel) error XY / Z @ 3σ	3.6 / 28 arcsec
EU mass (kg)	1.35			
RELIABILITY, AVAILABILITY AND LIFETIME			Temporal noise on XY / Z @ 3σ	2.3 / 18 arcsec
EEE parts class for OH	Level 1, level 2 in option			
EEE parts class for EU	Level 1, level 2 in option		Time from lost-in-space (typ)	2.2 s
Reliability for OH (MIL-HDBK-217F method)	166 FIT (lvl 1), 205 FIT in option (lvl 2) @30°C			
Reliability for EU (MIL-HDBK-217F method)	540 FIT (lvl 1), 657 FIT in option (lvl 2) @30°C		Slew rate in Acquisition	5 deg/s
Lifetime (years)	10 in LEO or GEO		Slew rate in Tracking	8 deg/s
ELECTRICAL INTERFACES			Acceleration in Acquisition	2 deg/s²
OH Power supply (V)	Supplied by EU		Acceleration in Tracking at 16 Hz	7 deg/s²
EU Power supply (V)	21 to 52		Full Moon in the Field of View	No performance degradation
OH Power consumption (W, typ/max)	0.8 / 1			
EU Power consumption (W, typ/max)	6 / 7		Baffle Sun Exclusion Angle	26 deg
EU Output data	MIL1553B		Baffle Earth Exclusion Angle	18.5 deg
Output rate (Hz)	8, 10, 12 or 16		Solar flare Acquisition/Tracking	Robust

EXCEPTIONAL ROBUSTNESS
Hydra can survive high mechanical loads and performs under very harsh conditions : High slew rates, temperature, protons, stray-light…

EMBEDDED FDIR FUNCTIONS
Hydra Star Tracker delivers accurate attitude in any situations thanks to multiple heads autonomous management

CONTACT

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