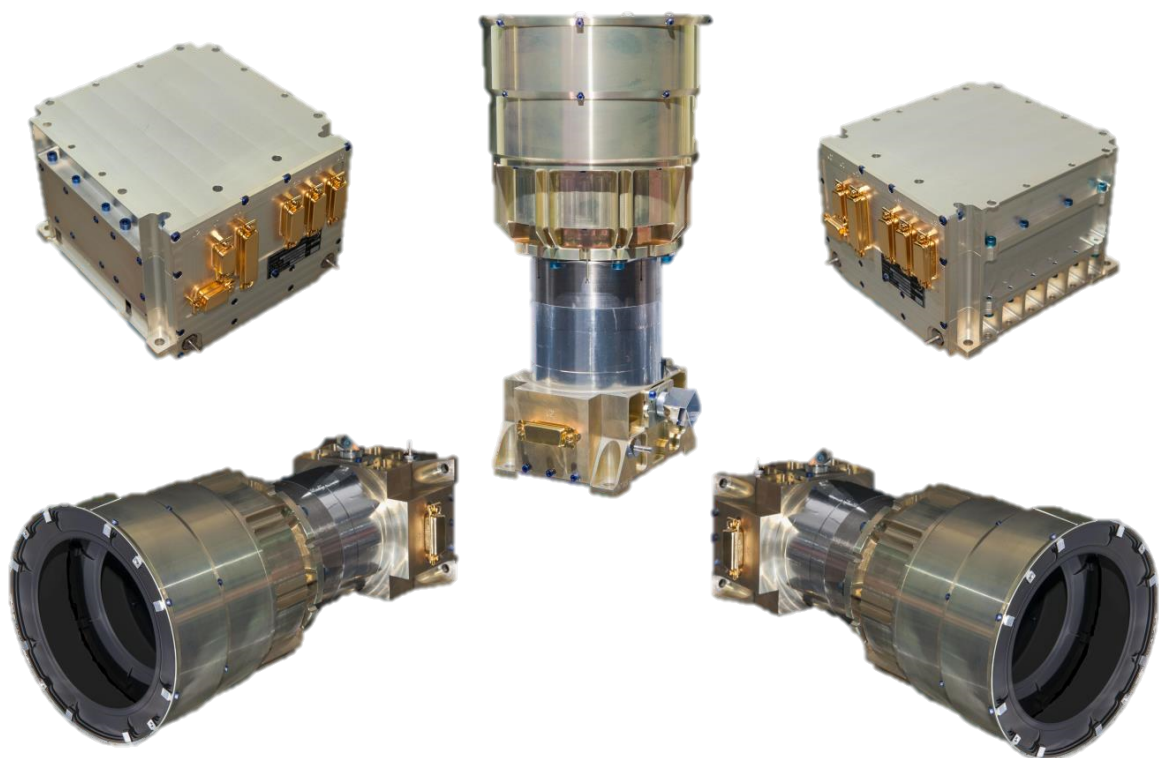


HYDRA



MULTIPLE HEADS STAR TRACKER WITH HIGH PERFORMANCE

- BEST IN CLASS PERFORMANCE, HIGHLY MODULAR SOLUTION
- VERSATILE, ROBUST, ACCURATE AND FLIGHT PROVEN SINCE 2012
- SEPARATE OPTICAL HEADS AND ELECTRONIC UNITS
- INHERITED FROM OUR 50 YEARS OF EXPERIENCES WITH STAR TRACKERS

MULTIPLE HEADS STAR TRACKER WITH HIGH PERFORMANCE

GENERAL DESCRIPTION			
OPTICAL HEAD (OH)			
Baffle protection for direct Sun and Earth illumination			
Up to 4 Optical Heads may be connected to 2 Electronic Units with up to 8 m length cable			
Lenses made of Rad-Hard glasses			
HAS-2 (CMOS) detector with 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 Star Tracker experiences			
Lifetime can be enhanced with additional shielding for GEO mission			
TECHNICAL SPECIFICATIONS			
ENVIRONMENTAL CHARACTERISTICS		PERFORMANCES AND ROBUSTNESS	
Operating temperature range (°C)	- 30 / + 60	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)	170 x 146 x 103 (height)		
OH mass (kg, including baffle)	1.4	High Frequency spatial (Pixel) error XY / Z @ 3σ	3.4 / 27 arcsec
EU mass (kg)	1.8		
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)	190 FIT (lvl 1), 241 FIT in option (lvl 2) @30°C		
Reliability for EU (MIL-HDBK-217F method)	585 FIT (lvl 1), 866 FIT in option (lvl 2) @30°C	Slew rate in Acquisition	5 deg/s
Lifetime (years)	10 in LEO / 18 in GEO	Slew rate in Tracking	8 deg/s
ELECTRICAL INTERFACES		Acceleration in Acquisition	2 deg/s ²
OH Power supply (V)	Supplied by EU	Acceleration in Tracking at 30 Hz	10 deg/s ²
EU Power supply (V)	21 to 52		
OH Power consumption (W, typ/max)	0.8 / 1	Full Moon in the Field of View	No performance degradation
EU Power consumption (W, typ/max)	6 / 7	Baffle Sun Exclusion Angle	26 deg
EU Output data	MIL1553B or RS422	Baffle Earth Exclusion Angle	18.5 deg
Output rate (Hz)	8, 10, 12, 16, 20 or 30	Solar flare Acquisition/Tracking	Robust

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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

SODERN

Email : sales-department@sodern.fr
Phone : + 33 1 45 95 70 00

SODERN

20 Avenue Descartes
94450 Limeil-Brévannes, France
www.sodern.com