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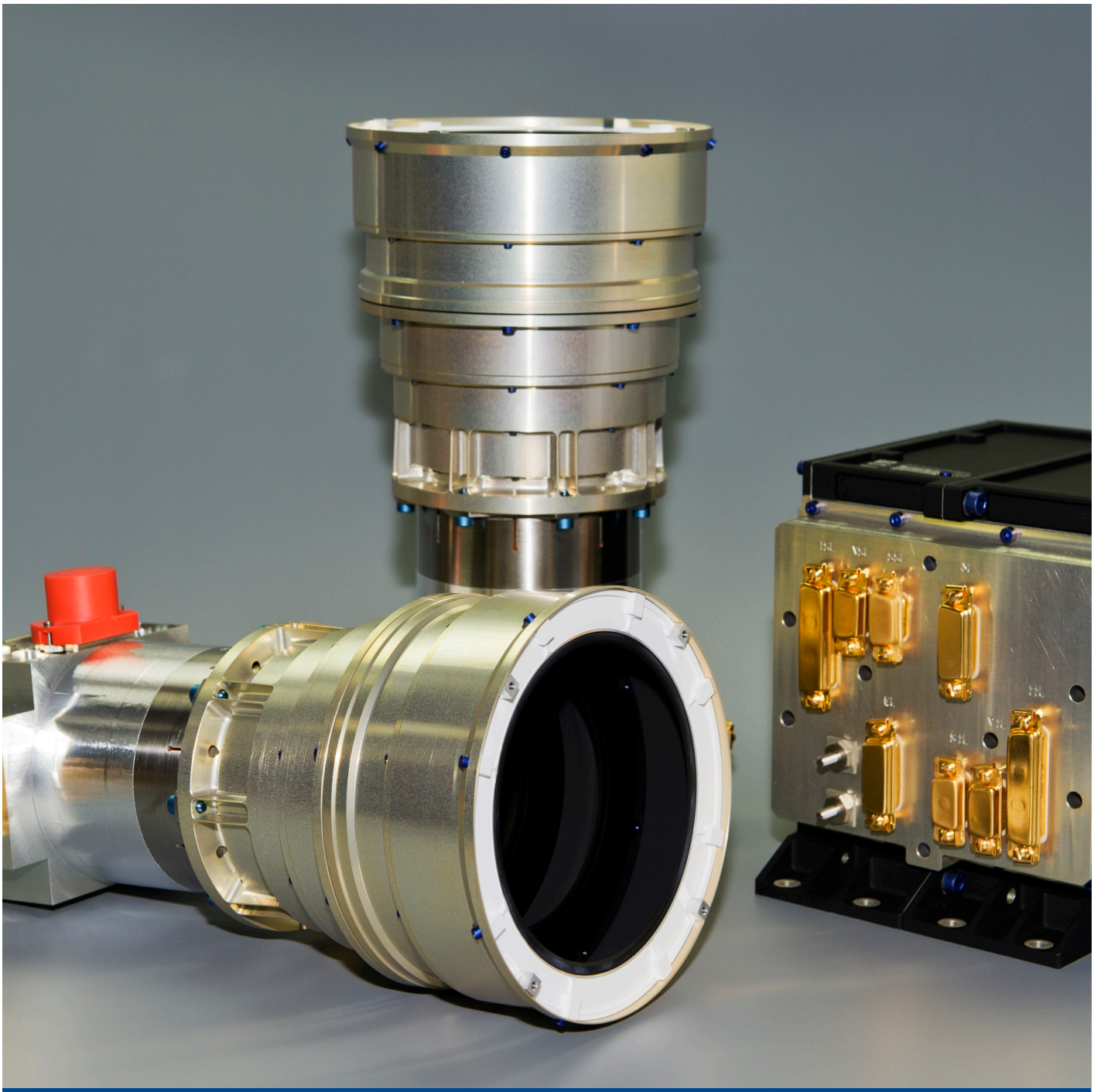


HYDRA-TC

TWO HEADS STAR TRACKER

- SEPARATE OPTICAL HEADS AND ELECTRONIC UNITS
- VERSATILE, ROBUST, ACCURATE AND FLIGHT PROVEN
- FULLY REDONDANT ELECTRONICS
- DESIGNED FOR 18-YEAR GEO SATCOM

HYDRA-TC
TWO HEADS STAR TRACKER

TECHNICAL SPECIFICATIONS			
Optical Heads (OH)			
Baffle protecting the lens from direct Sun and Earth illumination			
Lens made of Rad-Hard glasses			
HAS-2 APS (CMOS) detector and its Thermo-Electric Cooler			
Spacewire interface (MIL 1355) with Electronic Unit			
Electronic Unit (EU)			
Fully redondant architecture with internal cross-strapping			
Power Converter supplying the OH and the Processing Unit			
Embedded software processing OH's data and computing the attitude			
Embedded Star Catalog			
Typical Attitude accuracy in 2-head blended solution (EOL 15 years in GEO)			
BIAS	< 11 arcsec		
Thermo-elastic Error	<0.055 arcsec/°C		
FOV spatial error @ 20°C ± 3°C	<0.6 arcsec @ 3σ three axes		
Pixel spatial error	<3.1 arcsec @ 3σ three axes		
Temporal NEA	<0.8 arcsec/vHz @ 3σ three axes		
Additional Performance Features			
Autonomous Attitude Acquisition in less than 2.5 seconds			
Attitude tracking up to 2 heads simultaneously	15 Stars per OH		
	Update rate up to 16Hz		
Robustness			
Acquisition from lost in space	Up to 8 deg/s		
Tracking	7 deg/s and 2.3 deg/s2 @10Hz		
Sun Exclusion Angle	26 deg		
Earth limb Exclusion Angle	18.5 deg		
No performance degradation with full Moon in FOV			
Robust to Sun and Earth blooming on one head with two heads operating			
Robust to peak Solar Flare in acquisition and tracking			

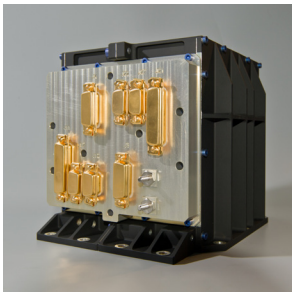
Environmental Characteristics			
Temperatures			
Full performance	-20°C to +60°C		
Operating range	-30°C to +60°C		
Storage	-40°C to +70°C		
Mechanical loads	Random 30 gRMS	Shocks 2350 gSRS	
Mechanical Interfaces			
1 Optical Head	Mass 1.4 kg - Dimensions Ø146.5 mm x H283 mm		
1 Electronic Unit	Mass 3.9 kg - Dimensions 194 x 166 x 159 mm^3		
Electrical Interfaces			
Typical power consumption	8 W for 1 EU and 2 OH @ 20°C		
Electrical Consumption	< 1 W per OH @ 20°C		
Head dissipation	0.9W @20°C (no Sun)		
Power supply	21 to 52 Volts		
Output data	MIL1553B or RS422 (AC/CS16 protocol)		
Reliability and Lifetime			
1 Optical Head	Level 1: 190 FIT	Level 2: 241 FIT	
1 Electronic Unit	Level 1: 512 FIT	Level 2: 736 FIT	
GEO 18 years	GTO 6 months		
Qualified Options			
Enhanced shielding for GEO mission			
Baffle with 35 deg Sun Exclusion Angle			
HYDRA-M: light LEO version for 1 or 2 OH without Thermo-Electric Cooler			
HYDRA-CP: software hosted into On-Board Computer			
2 OH may be connected to a fully redondant EU with up to 8m length cable. Single FOV and blended solution attitude data both available.			

EXCEPTIONAL ROBUSTNESS

› Hydra can survive high mechanical loads and performs under very harsh conditions: dynamic, protons, stray-light...

EMBEDDED FDIR FUNCTIONS

› Hydra autonomously manages any situation and the sensor always delivers accurate attitude data in operating domains with selectable update rates up to 16Hz.



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