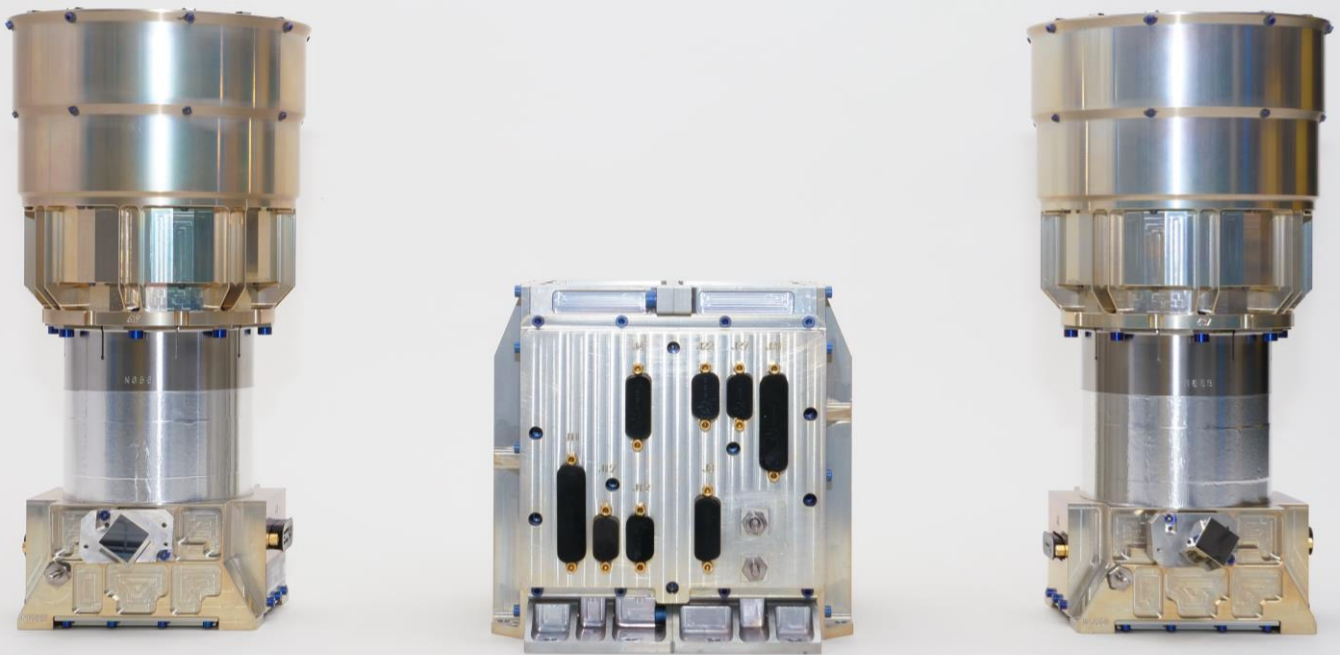


HYDRA TC



HIGH-END HYDRA STAR TRACKER OPTIMIZED FOR GEO MISSIONS

- BEST-IN-CLASS PERFORMANCE, ACCURACY AND ROBUSTNESS
- TWO OPTICAL HEADS CONNECTED TO ONE REDUNDANT ELECTRONICS UNIT
- FLIGHT-PROVEN (TRL9) SINCE 2015
- INHERITED FROM 50+ YEARS EXPERIENCE IN STAR TRACKERS

HYDRA TC

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KEY FEATURES

- 2 Optical Heads (OH) connected to 1 fully redundant Electronics Unit (EU) through SpaceWire interface (MIL 1355) with up to 8m-long cables
- HAS-2 CMOS sensor with 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 7A004

ACCURACY & PERFORMANCE (EOL)

Bias	<11 arcsec
Thermo-elastic error	<0.055 arcsec/°C
Low Frequency Spatial Error (LFSE) @ 3σ	0.6 arcsec (XY) 4.6 arcsec (Z)
High Frequency Spatial Error (HFSE) @ 3σ	3.4 arcsec (XY) 27 arcsec (Z)
Temporal noise @ 3σ	2.3 arcsec (XY) 18 arcsec (Z)
Slew rate	≤ 5 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 (SEA/EEA)	26 deg / 18.5 deg

No performance degradation with full moon in the field of view

RELIABILITY & LIFETIME

EEE parts class	Level 1 & Level 2
Reliability (MIL-HDBK-217F @ 30°C)	Level 1: 110FIT (OH) 465FIT (EU) Level 2: 190FIT (OH) 606FIT (EU)
Lifetime	10 years LEO 18 years GEO

Robust to solar flare in acquisition and tracking

MASS & VOLUME

Footprint	OH (incl. Baffle): $\varnothing 147$ mm x 283mm EU: 194mm x 166mm x 159mm
Mass	OH (incl. Baffle): 1.4 kg EU: 3.9 kg

INTERFACES

Power supply	23V to 55V
Power consumption @ 30°C, 28V, 30Hz	9.3W typ. (2 OH ON, TEC OFF)
Output data	MIL1553B (RS422 AS/CS16 option available)
Output rate	8Hz, 10Hz, 12Hz, 16Hz, 20Hz, 30Hz

ENVIRONMENTS

Temperature Range	-30°C / +60°C (Operation) -40°C / +70°C (Storage)
Random vibrations	OH: 30g RMS EU: 18g RMS (XY) / 28g RMS (Z)
Shocks	OH: 2000g SRS EU: 1600g SRS

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-head autonomous management

Product specifications are subject to change without notice or obligation

More information on www.sodern.com

Contact: sales-department@sodern.fr