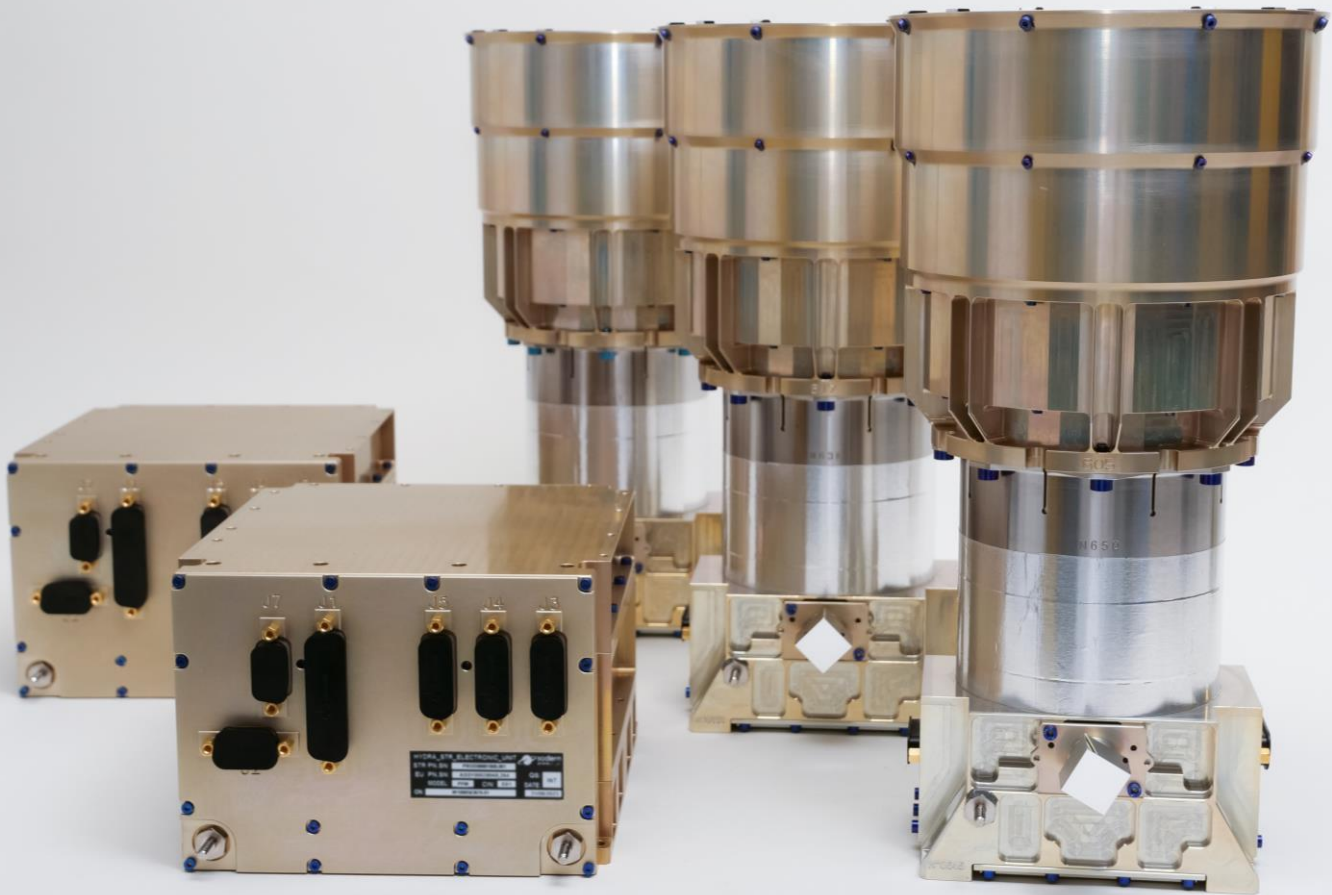


HYDRA BASELINE



THE MOST VERSATILE HIGH-END HYDRA STAR TRACKER

- BEST-IN-CLASS PERFORMANCE, ACCURACY AND ROBUSTNESS
- HIGHLY MODULAR SOLUTION: 1 TO 4 OPTICAL HEADS CONNECTED TO 1 OR 2 ELECTRONICS UNITS
- FLIGHT-PROVEN (TRL9) SINCE 2012
- INHERITED FROM 50+ YEARS EXPERIENCE IN STAR TRACKERS

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KEY FEATURES

- Up to 4 Optical Heads (OH) connected to 1 or 2 Electronics Units (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
- EU available in option with additional shielding for GEO missions
- 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) 585FIT (EU) Level 2: 190FIT (OH) 866FIT (EU)
Lifetime	10 years LEO 18 years GEO

Robust to solar flare in acquisition and tracking

MASS & VOLUME

Footprint	OH (incl. Baffle): Ø147mm x 283mm EU: 170mm x 146mm x 103mm
Mass	OH (incl. Baffle): 1.4 kg EU: 1.8 kg

INTERFACES

Power supply	21V to 52V
Power consumption @30°C, 28V, 30Hz	7.7W typ. (2 OH ON, TEC OFF)
Output data	MIL1553B or RS422 (AS/CS16)
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: 28g RMS
Shocks	OH: 2000g SRS EU: 2000g 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