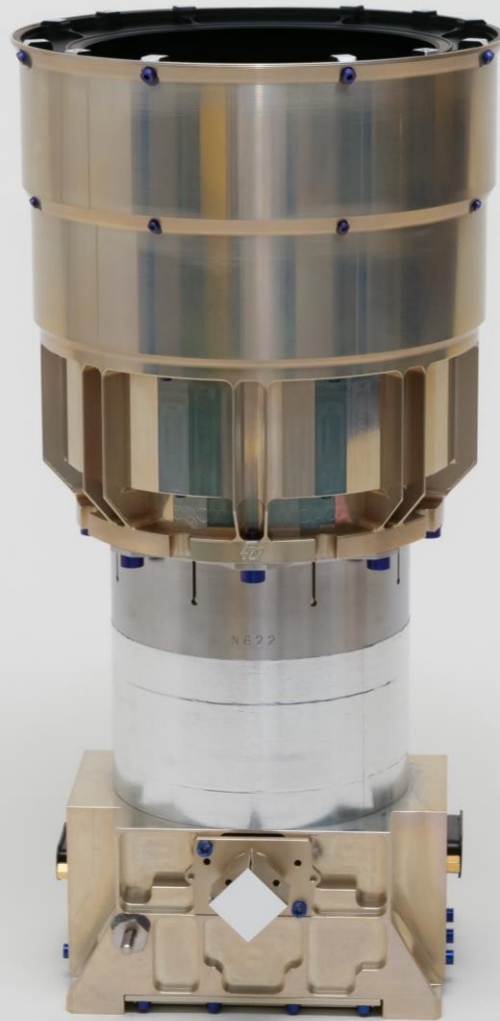


HYDRA CP



HIGH-END HYDRA STAR TRACKER IN CENTRALIZED PROCESSING (CP)

- BEST-IN-CLASS PERFORMANCE, ACCURACY AND ROBUSTNESS
- HYDRA OPTICAL HEAD ALONG WITH DEDICATED SOFTWARE HOSTED IN SPACECRAFT'S ON-BOARD COMPUTER
- EXTRA MASS & COST OPTIMIZATION AT SYSTEM LEVEL
- FLIGHT-PROVEN (TRL9) SINCE 2014
- INHERITED FROM 50+ YEARS EXPERIENCE IN STAR TRACKERS

HYDRA CP

HIGH-END HYDRA STAR TRACKER IN CENTRALIZED PROCESSING (CP)

KEY FEATURES

- Up to 4 Optical Heads (OH) connected to spacecraft's on-board computer through SpaceWire interface (MIL 1355) with up to 8m-long cables
- HAS-2 CMOS sensor with Thermo-Electric Cooler (TEC)
- Software integrated in the spacecraft processor processes multiple OH data and can be made available for any processor
- Optics made of rad-hard materials
- 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 ≤ 3 deg/s ² in Tracking (10Hz)
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) Level 2: 190FIT (OH)
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
Mass	OH (incl. Baffle): 1.4 kg

INTERFACES

Power supply	5V \pm 10%
Power consumption @ 30°C, 5V	OH: 0.7W typ (TEC OFF)
Output data	SpaceWire (MIL 1355)
Output rate	8Hz (10Hz option available)

ENVIRONMENTS

Temperature Range	-30°C / +60°C (Operation) -40°C / +70°C (Storage)
Random vibrations	OH: 30g RMS
Shocks	OH: 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