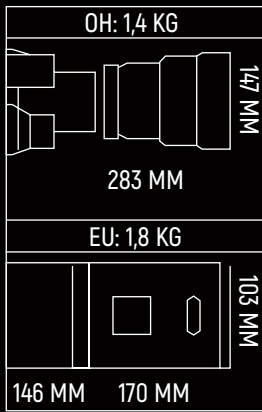


HYDRA BASELINE

THE MOST VERSATILE HIGH-END HYDRA STAR TRACKER



- PROVEN PERFORMANCE, ACCURACY AND ROBUSTNESS
- FLIGHT-PROVEN (TRL9) SINCE 2012 · EMBEDDED FDIR FUNCTIONS
- HIGHLY MODULAR SOLUTION: 1 TO 4 OPTICAL HEADS CONNECTED TO 1 OR 2 ELECTRONICS UNITS
- EXTRA MASS & COST OPTIMIZATION AT SYSTEM LEVEL
- 500+ OPTICAL HEAD IN ORBIT



ACCURACY AND PERFORMANCES

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)
- Electronics unit embedded software processes multiple OH data and delivers a fused quaternion • Optics made of rad-hard materials
- Export control EU Dual Use 7A004a - ITAR Free
- EU available in option with additional shielding for GEO missions

END OF LIFE WORST CONDITIONS DATA

| | |
|--|---|
| Bias | <11 arcsec |
| Thermo-elastic error | <0.055 arcsec/°C |
| Low Frequency Spatial Error @ 3σ | 0.6 arcsec (XY) 4.6 arcsec (Z) |
| High Frequency Spatial Error @ 3σ | 3.4 arcsec (XY) 27 arcsec (Z) |
| Temporal noise @ 3σ | 2.3 arcsec (XY) 18 arcsec (Z) |
| Slew rate | ≤6 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 | 26 deg / 18.5 deg |

No performance degradation with full moon in the field of view

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|---|--|
| 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

| | |
|-------------------------------------|-----------------------------------|
| Power supply | 21V to 52V |
| Power consumption @ 30°C, 5V | 7.7W typ. (2 OH ON, TEC OFF) |
| Output data | IL1553B 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 |

RELIABILITY AND LIFETIME