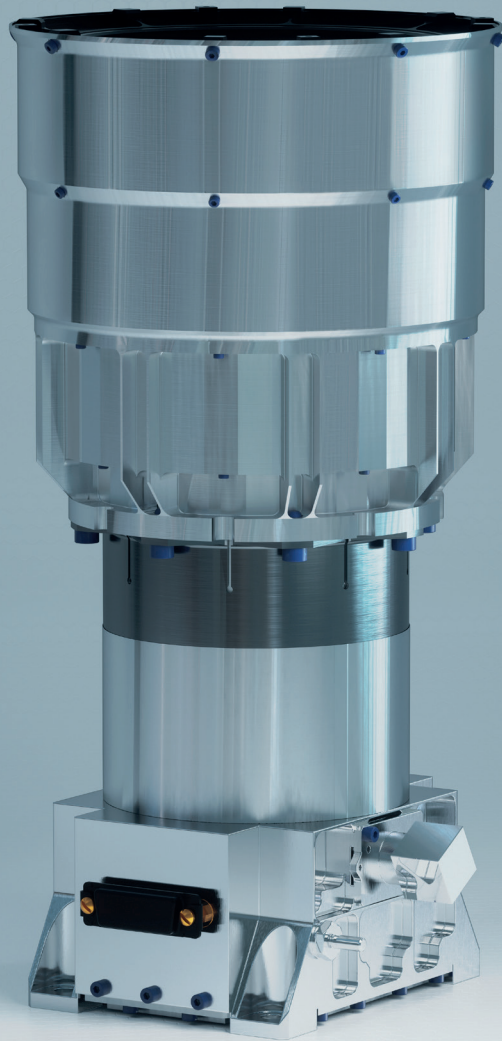
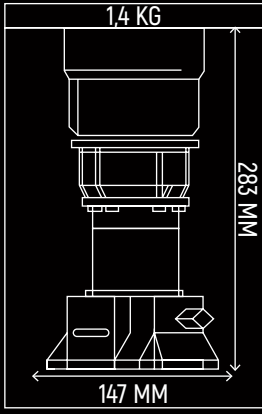


# HYDRA CP

## HIGH-END HYDRA STAR TRACKER IN CENTRALIZED PROCESSING



- PROVEN PERFORMANCES, ACCURACY AND ROBUSTNESS
- EMBEDDED FDIR FUNCTIONS
- 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
- 500+ OPTICAL HEAD IN ORBIT



## ACCURACY AND PERFORMANCES

## RELIABILITY AND LIFETIME

## INTERFACES

## ENVIRONMENTS

## 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 7A004a - ITAR Free

## END OF LIFE WORST CONDITIONS DATA

<b>Bias</b>	<11 arcsec
<b>Thermo-elastic error</b>	<0.055 arcsec/°C
<b>Low Frequency Spatial Error @ 3σ</b>	0.6 arcsec (XY)   4.6 arcsec (Z)
<b>High Frequency Spatial Error @ 3σ</b>	3.4 arcsec (XY)   27 arcsec (Z)
<b>Temporal noise @ 3σ</b>	2.3 arcsec (XY)   18 arcsec (Z)
<b>Slew rate</b>	≤5 deg/s in Acquisition   ≤8 deg/s in Tracking
<b>Acceleration</b>	≤2 deg/s <sup>2</sup> in Acquisition   ≤3 deg/s <sup>2</sup> in Tracking (10Hz)
<b>Time from lost-in-space</b>	2.2s typ
<b>Sun/Earth Exclusion Angle</b>	26 deg / 18.5 deg

No performance degradation with full moon in the field of view

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

Robust to solar flare in acquisition and tracking

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

<b>Temperature Range</b>	-30°C / +60°C (Operation)   -40°C / +70°C (Storage)
<b>Random vibrations</b>	OH: 30g RMS
<b>Shocks</b>	OH: 2000g SRS