

HORUS



SINGLE BOX STANDALONE STAR TRACKER

- OPTIMAL FOR GEO MISSIONS
- OPTIMIZED MASS AND COST
- FIRST FLIGHT MODELS DELIVERED IN 2023
- INHERITED FROM OUR 50 YEARS OF EXPERIENCES WITH STAR TRACKERS

SINGLE BOX STANDALONE STAR TRACKER

GENERAL DESCRIPTION			
SINGLE BOX (OPTICAL HEAD + ELECTRONIC UNIT)			
Baffle protecting the lens from direct Sun and Earth illumination with very low SEA of 24°			
Lens made of Rad-Hard glasses			
ESA Qualified FaintStar CMOS detector with Thermo-Electric Cooler			
Embedded software processing data and computing the attitude			
Embedded Star Catalog and Algorithms inherited from 50 years of experiences and Hydra Star Tracker			
Export Control : EU Dual Use 7A004			
TECHNICAL SPECIFICATIONS			
ENVIRONMENTAL CHARACTERISTICS		PERFORMANCES AND ROBUSTNESS	
Operating temperature range (°C)	- 30 / + 50	Bias (worst case)	< 11 arcsec
Storage temperature (°C)	- 40 / + 70	Thermo-elastic Error (worst case)	< 0.055 arcsec/°C
Mechanical environment (in/out of plane)	Random 31 gRMS Shocks 1500 gSRS	Low Frequency spatial (FOV) error XY / Z @ 3σ	0.8 / 5.8 arcsec
OH size (mm, including baffle)	141 x 141 x 250 (height)	High Frequency spatial (Pixel) error XY / Z @ 3σ	3.5 / 25 arcsec
OH mass (kg, including baffle)	≈ 1.6	Temporal noise on XY / Z @ 3σ	3 / 22 arcsec
RELIABILITY, AVAILABILITY AND LIFETIME		Time from lost-in-space (typ)	2.9 s
EEE parts class for OH	Level 1 or level 2	Slew rate in Acquisition	2 deg/s
Reliability@30°C MIL-HDBK-217F method FIDES Method	430 FIT (lvl 1), 700 FIT (lvl 2) 158 FIT (lvl 1), 172 FIT (lvl 2)	Slew rate in Tracking	3 deg/s
Lifetime (years)	10 in LEO / 18 in GEO	Acceleration in Acquisition	1 deg/s ²
ELECTRICAL INTERFACES		Acceleration in Tracking at 10 Hz	2 deg/s ²
OH Power supply (V)	70-105 or 24-50	Full Moon in the Field of View	No performance degradation
OH Power consumption with all TM read at each ETR (W, typ/max)	< 9.5 / 12.5 (TEC OFF) < 11.5 / 14 (TEC ON)	Baffle Sun Exclusion Angle	24 deg
Output data	MIL-STD-1553B	Baffle Earth Exclusion Angle	18 deg
Output rate (Hz)	8 or 10 (lower output rates possible by averaging samples at 8 or 10Hz)	Solar flare Acquisition/Tracking	Robust to solar flares (CREME96 worst 5 minutes model)
EXCEPTIONAL ROBUSTNESS Horus can survive high mechanical loads and performs under very harsh conditions : High slew rates, temperature, protons, stray-light...		SINGLE BOX STAR TRACKER Horus is the optimal solution for GEO mission thanks to its optimized mass and cost.	
		FIRST FLIGHT DELIVERY IN 2023	

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