

HORUS



SINGLE BOX STANDALONE STAR TRACKER

- OPTIMAL FOR GEO MISSIONS
- OPTIMIZED MASS AND COST
- FIRST FLIGHT MODELS DELIVERED IN 2022
- 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 (24 deg available)			
Lens made of Rad-Hard glasses			
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			
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 2000 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 (MIL-HDBK-217F method @30°C)	430 FIT (Ml 1), 700 FIT (Ml 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 2022 Already selected by Airbus for its GEO satcom Eurostar NEO platform	

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