TAKEME2SPACE

StarSense Lite

Technical Specifications



Description:

StarSense Lite is a compact, high-accuracy star tracker by TakeMe2Space for the CubeSat and small satellite class. Built ground-up in India, we design and fabricate the radiation-shielded lens assembly, electro-optical baffle, four-board read-out electronics, and precision opto-mechanical enclosure in-house — only the detector and select lenses are sourced externally. This depth of supply chain control eliminates the long lead times typical of traditional star trackers.

At its core is a hybrid attitude-determination pipeline that pairs classical, flight-proven algorithms with proprietary AI models running on a dedicated FPGA + AI-accelerator board. Deep-learning based star detection and sub-pixel centroiding increase usable stars per frame and sharpen centroid accuracy, while remaining fully deterministic at

runtime — fixed weights, bounded inference paths, suitable for spaceflight. The underlying four-board modular architecture — sensor, FPGA + AI accelerator, power, and spacecraft interface — isolates each function behind standardised interfaces, so detector upgrades or bus protocol changes (CAN, RS485, SpaceWire, LVDS) can be absorbed by modifying a single board rather than redesigning the unit.

Specifications:

	Parameter	Value
Performance	Interface	Full Duplex RS485, CAN
	FOV	19.4° x 10.6° half-angle
	Cross boresight	32 arcsec
	Around Boresight	45 arcsec
	Max slew rate	< 3 deg/s
	Lost in Space availability	2 sec
	Baffle sun rejection angle	34°
	Output Rate	10Hz
	Operating temperature	-20° to 65°
Electrical	Peak power consumption	10W
	Nominal power consumption	5W
	Operating Voltage	5V
Mechanical	Mass	200 g
	Dimensions	61x82x117.2 mm
	Radiation Shielded Lens	Yes
	Connectors	1x 6 pin Harwin Gecko screw lock for Full Duplex RS485 1x 6 pin Harwin Gecko screw lock for UART and CAN 1x 4pin 1mm pitch Molex Pico Lock for 5V power input 1x 2pin 1.5mm pitch Molex Pick Lock for Power Shutdown

Questions? Queries? Contact us at info@tm2.space