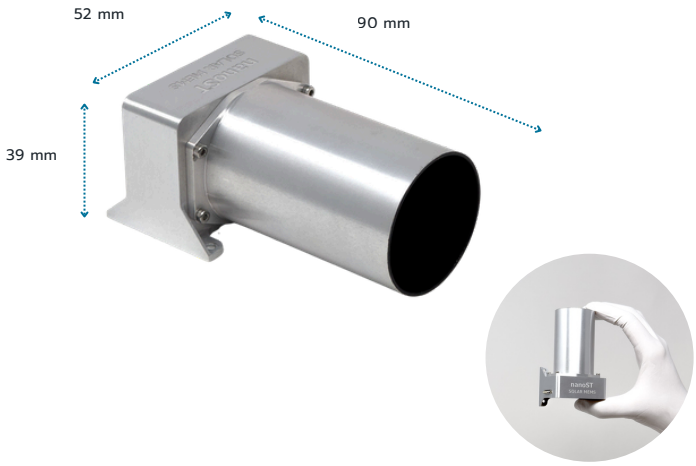
SOLARMEMS TECHNOLOGIES

nanoST

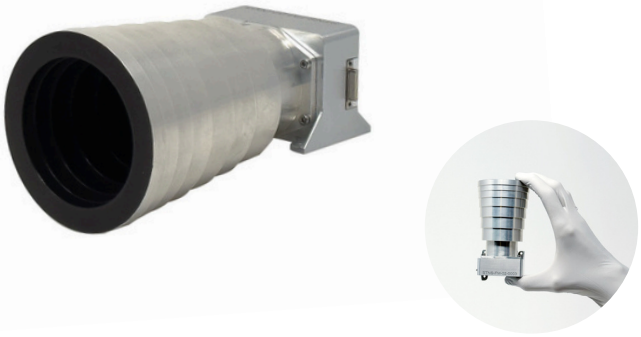
Star Tracker for nano satellites

ITAR FREE & SPACE QUALIFIED (TRL 9)

Cubesat baffle version



EA+ baffle version (Enhanced Sun Exclusion Angle)



Description

nanoST of SOLAR MEMS is an accurate device for attitude determination of Satellites. This sensor **captures images of a Star Field** with an internal CMOS device and identifies stars and constellations to determine pointing and attitude of the satellite with high accuracy.

Its robustness is based on highly used COTS devices together with space grade parts, **and it is plug & play,** so it does not need any additional electronic support or module for operating.

Technical Characteristics

Type	Autonomous Star Tracker for cubesat (standalone)
Full Field of View	15°
Attitude Accuracy	XY (3σ): 30 arcsec Z (3σ): 200 arcsec
Adquisition Time	< 3 s
Slew rate	Nominal: 0.2 °/s Max. : 1 °/s
Update Rate	> 1.5 Hz
Moon in Field of View	No degradation
Magnitude Limit	6.2 mi
Sky coverage	Full
Output	Attitude Quaternion, Photos and HK Telemetry

Mechanical and Electrical Interfaces

Envelope volume	90 x 52 x 39 mm
Sun exclusion angle	45° - Cubesat (<30° on demand)
Mounting interface	(x4) M2.5 Bolts
Mass	150 g
Power supply	5 V
Power consumption	1.2 W
Communication	RS422 / TTL

Qualification Data & Flight Heritage

Qualification Temperature Range	-30 °C to 70 °C
Operational Temperature Range	-20 °C to 50 °C (Nominal performance)
Survival Temperature Range	-45 °C to 85 °C
EMC tests	MIL-STD 461G: RE, CS, RS, CE and ESD
Sine vibration	20g at 10-100 Hz
Random vibration	20.1 gRMS
SRS	1500g at 10kHz
Radiation hardness	>5 years in LEO (up to 8 years without additional shielding)

SOLAR MEMS Technologies S.L. • Spain • Tel: +34-95-4460113 • E-mail: smt@solar-mems.com • www.solar-mems.com