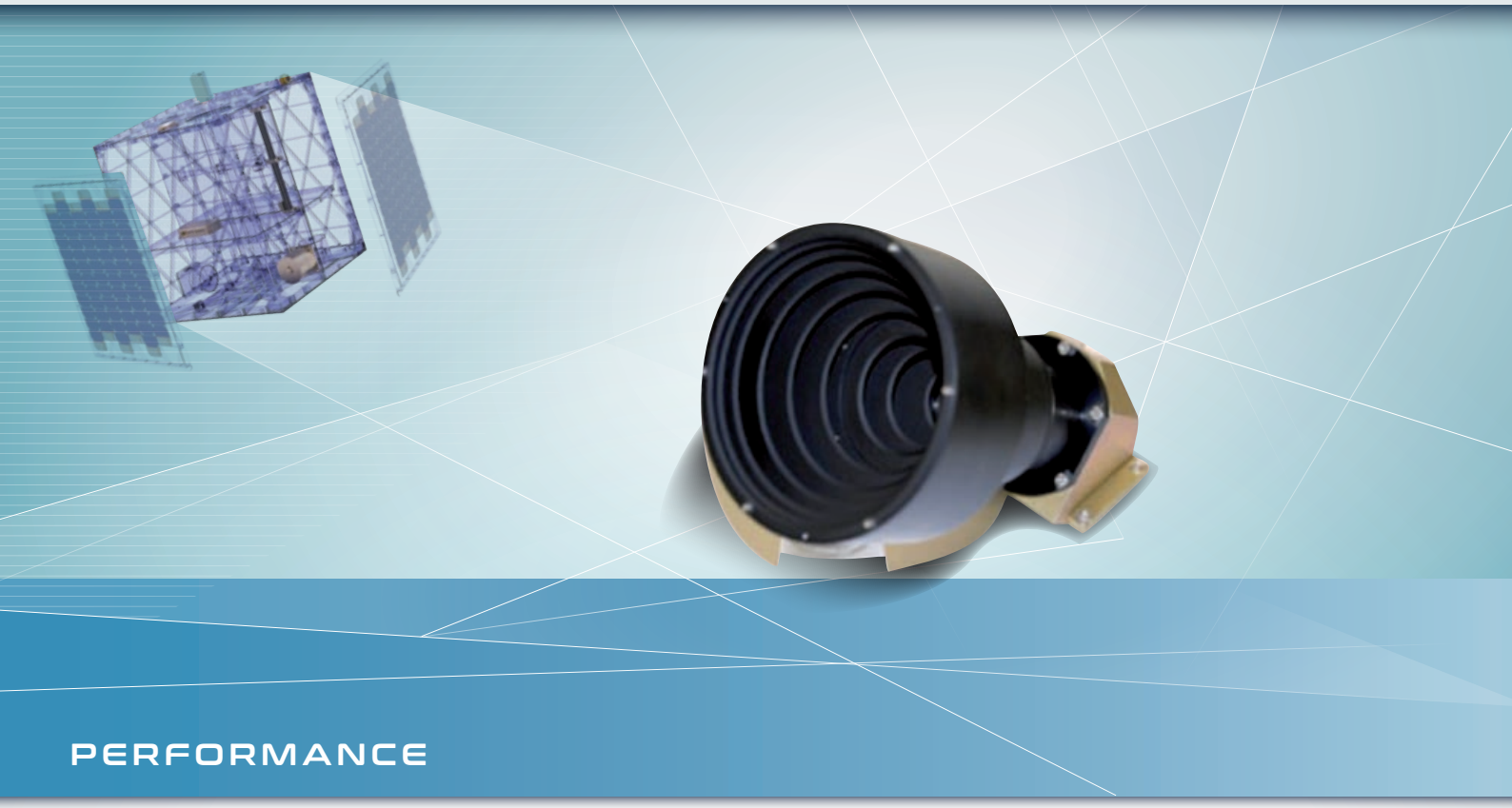
STAR MAPPER



PERFORMANCE

	Star Mapper
FUNCTIONAL CHARACTERISTICS	
Boresight pointing accuracy	16 arcsec
Stellar visible magnitude	-6 Mv
Maximum number of stars tracked	16
Maximum tracking output rate	0.5°/sec
Attitude update rate	>1 Hz
PHYSICAL CHARACTERISTICS	
Dimensions	136 x 136 x 280 mm (excluding baffle)
Mass	<800g (excluding baffle)
Power	<2W
ENVIRONMENTAL CHARACTERISTICS	
Thermal (operational)	-20°C to +55°C (Specification quoted up to +20°C)
Vibration (qualification)	14g rms random
INTERFACES	
Power supply	28V DC unregulated
Data	CAN or RS422

CONFIGURATION MANAGEMENT: *Specifications are subject to change. Please refer to latest version.*

NEWSPACE SYSTEMS

STAR MAPPER

FEATURES

- High performance processor
- Active pixel CMOS detector
- Fully autonomous operation (stars in, attitude out)
- Small Size and low Mass
- Low Power
- Simple to Interface

APPLICATIONS

- High performance 3-axis attitude sensor
- Full sky sensor for agile satellites
- Automatic lost in space attitude recovery
- Accurate attitude and rate solution with medium drift FOGs

QUALIFICATION

Although a new design, the architecture is based on several star mapper designs flown on four missions in the last decade.

UTILITY

The NewSpace Systems (NSS) star mapper is used for accurate 3-axis attitude information in real time and is the ideal high performance sensor for small satellites. The star mapper uses a sensitive matrix CMOS sensor to ensure detection of enough stars above the limiting visible magnitude and within the field of view, for 99% all-sky availability.

The NSS star mapper design achieves low cost, mass, volume and power. The built-in field-upgradeable star catalogue and star matching algorithm allows the star mapper to initialise and refresh a fast tracking mode for fully autonomous operation.

The outputs of the NSS star mapper matches between the measured and catalogue vector pairs to an ADCS processor, where the data can be blended with other attitude and rate sensors in a full state Kalman filter. Additionally, this star mapper can also output an attitude quaternion referenced to J2000 inertial coordinates.

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