

SED 16

STAR TRACKER



The SED 16 is a multi-purpose, fully autonomous star tracker for the attitude control of low Earth orbit missions, low Earth satellite constellations, Geostationary orbit satellites as well as deep space exploration.

This equipment is for providing the attitude control sub-system with 3-axis attitude as well as the motion rate of the satellite with complete autonomy of the star tracker.

The SED 16 product range has a high operational flexibility and features a fully programmable operation capability.

Frame rate, output format, operational protocol, automatic in-flight calibration, can be tailored to meet the requirements of specific missions by implementing simple software changes.

**Multi-purpose
and fully autonomous**

The SED 16 features ultimate detection and electronic technologies to achieve outstanding tracking performances:

- An optronic sensor comprising a lens and the detector with its cooling device.
 - Electronic functions for operating the detector.
 - Digital processing.
- A mechanical structure to maintain the required stability of the lens and the detector.
 - A baffle to protect the star tracker against straylight.
 - A software enabling the 3-axis attitude restitution, thanks to embedded star catalogues.

the software incorporates star catalogues as well as recognition and tracking algorithms.



PERFORMANCES

Three-axis attitude and angular velocity determination whatever the orbit is.
Autonomous attitude acquisition (lost in space function).

Autonomous tracking of 10 stars simultaneously.

Automatic exclusion of polluting objects (debris, satellite, Moon,...).

Relativist correction of the satellite linear velocity and star precession.

High tracking robustness under proton flux (solar flares, South Atlantic anomaly).

Output data rate : up to 10 Hz

Attitude restitution (3σ worst case) : - bias : < 15 arcsec

noise (X and Y axes) : < 10 arcsec - noise (Z axis) : < 55 arcsec

Initial acquisition performance : 99,9% in less than 3 sec.

Maximum angular velocity : up to 20 degrees/sec.

with standard baffles : - Sun rejection angle : 35 degrees / 25 degrees.



ENVIRONMENTAL CHARACTERISTICS

Operating temperature : -30 deg.C, +60 deg.C

Storage temperature : -40 deg.C, +70 deg.C

Vibration : 25 g.rms

MECHANICAL INTERFACES

Dimensions with standard baffle 35 deg :

- height : 170 mm - width : 160 mm - length : 290 mm

Mass without baffle : < 2.7 kg - With baffle : < 3.0 kg

Mounting plane parallel or perpendicular
to line of sight available in standard.

ELECTRICAL INTERFACES

Typical consumption : 7.5 W

Power supply : 16 - 55 V or 50 - 100 V

Output Data : RS 422 or 1553

RELIABILITY

In the range of 1 000 to 2 700 fit according
to parts quality level and interface.

The SED 16 withstands a total irradiation dose equivalent to more
than 25 years in GEO orbit.

Electronic parts: latch-up free and immune to single-event-effect.

OPTION

Customised baffle.



Because of constant improvement
to our product, specifications are
subject to change without notice.

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