



The **ASTRO 15** is Jena-Optronik's most advanced star sensor product. Its design reflects more than 15 years experience in star sensor development. **ASTRO 15** is a space qualified, autonomous star tracking system for 3-axis attitude determination for long-term GEO and LEO missions for telecom, science and Earth observation.

ASTRO 15 sensors have been ordered for Geostationary Communication / Earth Observation satellites for Japan and the US. **ASTRO 15** has been sold e.g. for Boeing's 702 platform.

Key Features

- high accuracy, full autonomy and state-of-the-art technology
- modular composition of functional sensor units for flexible construction and application
- radiation-hard electronic components plus very efficient radiation shielding
- high robustness of identification algorithms
- high slew rate capability
- life time more than 15 years

Technical Data

Dimensions:	Ø 192 mm height 440 mm (incl. baffle) single box design
Mass:	4.3 kg (without baffle)
Standard Sun Shades:	25° Sun Exclusion Angle (mass 1.6 kg) 30° Sun Exclusion Angle (mass 1.5 kg) (other angles optional)
Power:	Star Tracker < 9.0 W Autonomous Sensor < 10.0 W Peltier Cooler < 5.0 W
Temperature:	Operational: -20°C...+55°C Non-operational: -40°C...+75°C
Lens system:	refractive Focal Length: 55.0 mm Aperture: Ø 50 mm
CCD Resolution:	1024(h) x 1024(v)
CCD-Cooling:	active Peltier cooler passive radiator cooling possible (option)
Sensor Performance:	Field of View: 13.8° x 13.8° (phys.); 13.25° x 13.25° (eff.) Star Accuracy (BOL): bias: ≤ 2.5 arcsec (1σ) noise: ≤ 2.5 arcsec (1σ) (6.0 m _i star) LOS Accuracy (BOL): ≤ 1 arcsec (1σ), pitch/yaw ≤ 10 arcsec (1σ), roll Sensitivity: 6.5 m _i G0-star (at t _i =250ms) Slew Rate: 0.0 ... 0.3°s ⁻¹ with full accuracy 0.3 ... 2.0°s ⁻¹ with reduced accuracy Update rate: 4 Hz, tracking & attitude determination (quaternion output)
Operating Modes:	Stand-by, Search & Track 3-Axis Attitude Determination Load/Dump Mode, Self Test Mode
Data Interface:	MIL 1553 B, RS 422

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