

DYNACUBE™

2-Axis Angular Rate Sensor Array



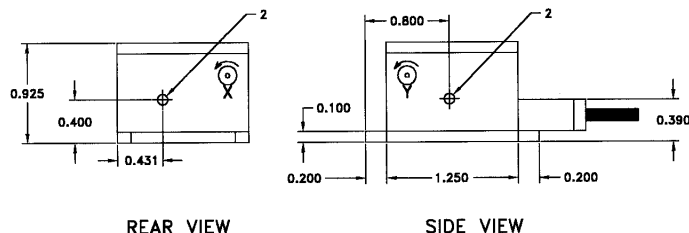
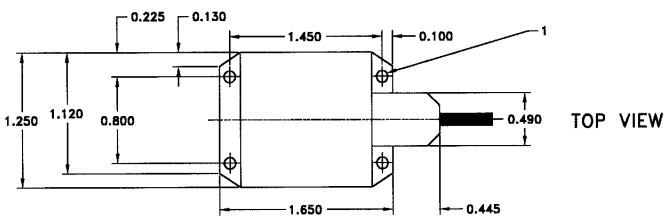
The Dynacube™ two-axis is a rugged angular rate sensor 2-axis array designed for use in aerospace inertial navigation, test and control systems. The Dynacube™ has two ARS-04 sensors mounted on an aluminum block and combined with electronics fully encapsulated within a durable external 6063-T6 aluminum cube. Cable connections use mil spec AirBorn® M series connectors in machined aluminum housings. The Dynacube™ is durable enough to survive high speed rocket flights or years of motion measurements in severe environments.

The standard frequency response of MHD sensors can be extended significantly by the use of digital filtering in post processing of signal data as covered in ATA Sensors' application note AN-01. Typical digital processed frequency responses allow use of these sensors to measure to frequencies below 0.1 Hz. A sample MATLAB program is available without charge.

The Dynacube two-axis array may be equipped with 3 optional linear accelerometers added to the cube surfaces to allow both angular and linear motion measurements in a compact space. The type of linear accelerometers to be mounted must be specified at time of order to insure correct mounting holes are included on the Dynacube. If none is specified, the Dynacube 2-axis sensor array will be supplied predrilled on three surfaces for use with the Silicon Design SD-2210 series accelerometers.

Custom range and scale factors can be supplied.

The Dynacube™ two-axis requires use of a CA-04 cable for direct connection to power and data analysis systems. Refer to the Product Order Guide for cables and compatibilities.



Automobile Motion Testing

Platform Stabilization

Crash Testing

Aircraft Ejection Testing

Modal Analysis

Aerospace Controls

Machinery Monitoring

ATA *Sensors*

"Sensing ways to make the world better."

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Specifications

ATA Sensors' patented MHD angular motion sensors utilize the finest materials and workmanship combined in durable packages that feature:

- No moving parts
- Dynamic range > 100dB
- Hermetically sealed units
- Low power consumption
- Low cross axis angular sensitivity
- Low linear acceleration sensitivity
- Integral electronics / low noise
- High survivable shock limits
- Superior applications support
- One-year warranty against defects in materials and workmanship on sensors, 90 days on cables.

All data is believed correct at time of publication. Specifications are subject to change without notice. Requires interface cable CA-04. Dynacube2ds/8.98

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Dynamic

Dynacube-2 Range ¹	±100 radian/sec (±5,700 degrees/sec)
Sensitivity ²	100 mV/radian/sec (1.7 mV/degree/sec)
Bandwidth	0.5 to 1000 Hz
Cross-axis Angular Error	< 3%
Linear Acceleration Sensitivity	< 0.005 radians/sec/g (<0.3 degrees/sec/g)
Voltage Noise PSD ³	1.1 x 10 ⁻⁸ V ² /Hz
Noise Equivalent Angle	< 400 microradians (rms)
Non-linearity	< 0.1%
Temperature Coefficient ⁴	< 0.05% Scale Factor / °C

Electrical

Excitation Voltage	±5.0 to ±15.0 Vdc
Power Dissipation	< 0.6 Watts
Output Impedence	< 100 Ohms
Grounding ⁵	Case (isolated from signal return)

Mechanical

Length	31.8 mm (1.25 inches)
Width	31.8 mm (1.25 inches)
Height	23.0 mm (0.9 inches)
Weight	61 gm (2.1 oz.)
Case material	Aluminum 6063T6
Mounting	#4-40 x 1/4" screw (4)

Environmental

Temperature - operating	-35 to +60°C (-31 to +140°F)
Temperature - non-operating	-60 to 100°C (-51 to +212°F)
Humidity	Unaffected - Hermetically sealed unit
Linear Acceleration ⁶ , Max operating	.500 g any axis
Linear Acceleration ⁶ , Max survivable	.800 g any axis

Notes:

1. Peak-to-peak @ ±15Vdc dual power supply
2. Measured @ 10 Hz
3. Power spectral density flat to angular velocity over specified bandwidth.
4. Percent change in Scale Factor per °C @ 100 Hz
5. Signal return isolated internally from case to prevent ground loops
6. Peak, 100Hz half sine

