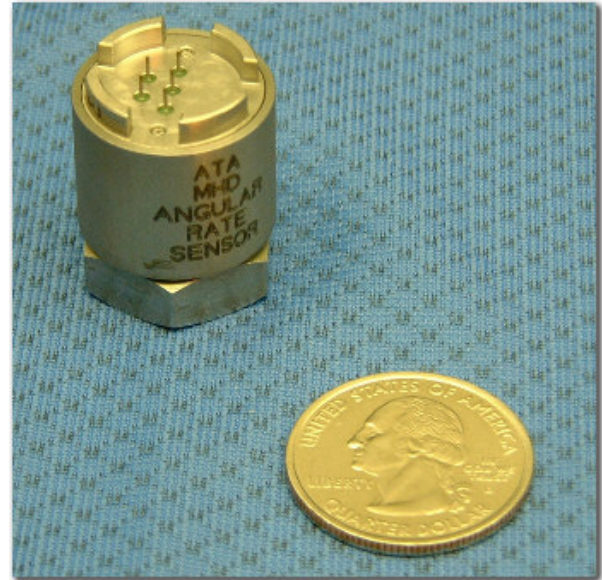


ARS-01 & 01S MHD Angular Rate Sensor

The **ARS-01** is our most rugged angular rate sensor. Originally designed for automobile crash and aircraft ejection testing, the ARS-01 has become a standard for the world's major automotive manufactures and test laboratories, and is equally versatile for use in torsional analysis, motion and vibration sensing and control, and aerospace applications. Durable enough to survive years of crash tests, it is available in two standard models: the **ARS-01** and the **ARS-01S**. The frequency response of the ARS-01 products comply with SAE J-211 Class 1000 frequency response specifications.

The ARS-01 and ARS-01S require use of the CA-01 cable assembly.

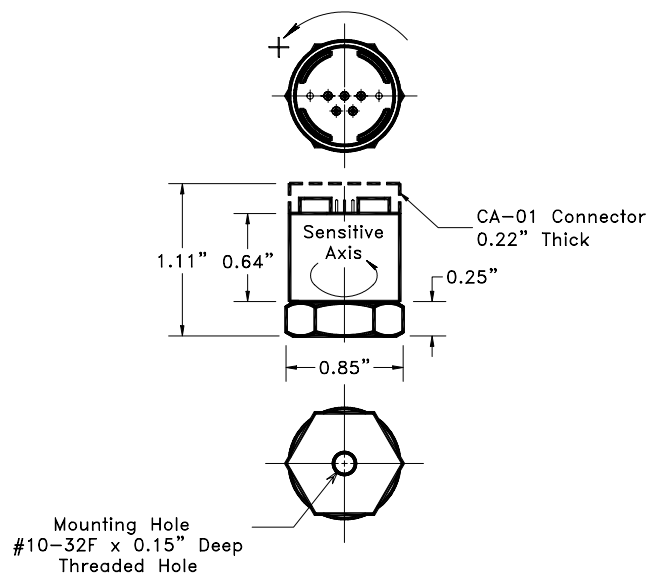
Custom scale factors and ranges are available.



ARS-01 & 01S MHD Angular Rate Sensor

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

- No moving parts
- Dynamic range > 100 dB
- 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.



Weight: < 50 grams
Case Material: Stainless Steel 430

Product Specifications

ARS-01 & 01S MHD Angular Rate Sensor

Dynamic

ARS-01 Range ¹	± 200 radian/sec (± 11,500 degree/sec)
ARS-01S Range ²	± 70 radian/sec (±5,000 degree/sec)
Scale Factor ³	50 mV/radian/sec (0.87 mV/degree/sec)
Bandwidth ⁴	0.3 to 1000 Hz
Cross-axis Angular Error	< 2 %
Linear Acceleration Sensitivity	< 0.005 radians/sec/g (<0.3 degrees/sec/g)
Voltage Noise PSD ⁵	1.1 x 10 ⁻¹⁰ V ² /Hz
Noise Equivalent Angle	< 80 microradians (rms)
Noise Equivalent Rate	<8 milliradians/s (rms)
Non-linearity	< 0.1 %
Temperature Coefficient ⁶	< 0.05 % Scale Factor / °C

Electrical

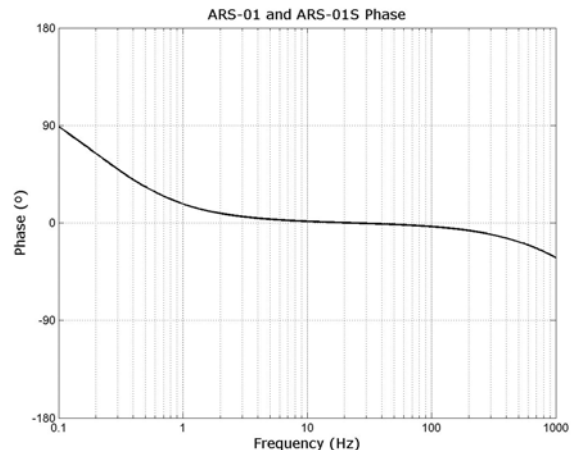
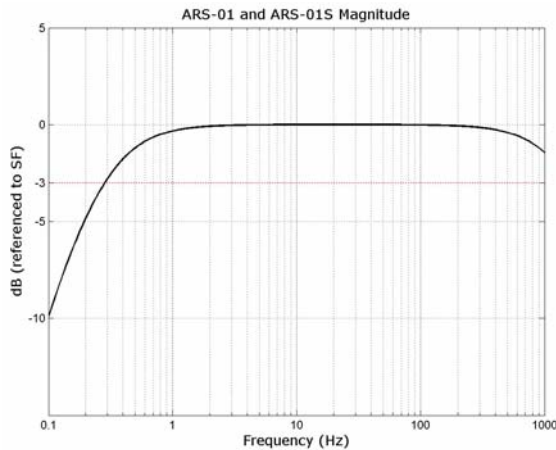
Power Dissipation	< 0.3 Watts
Output Impedance	< 100 Ohms
Grounding ⁷	Hex base isolated from signal return

Wiring

ARS-01 (requires CA-01 cable assembly)		ARS-01S (requires CA-01 cable assembly)	
Red Lead	+Power (+5 Vdc to +15 Vdc)	Red Lead	+Power (+10 Vdc)
White Lead	-Power (-5 Vdc to -15 Vdc)	White Lead	-Power (0 Vdc)
Yellow Lead	Signal	Yellow Lead	Signal
Black Lead	Power and Signal Common (0 Vdc)	Black Lead	Signal Common (+5 Vdc, internally generated reference voltage)

Environmental

Temperature – Operating	-35 to +60 °C (-31 to +140 °F)
Temperature - Non-operating	-40 to +85 °C (-40 to +185 °F)
Linear Acceleration, Max. Operating	1,000 g any axis
Linear Acceleration, Max. Survivable	10,000 g any axis



Notes:

1. Based on a ± 10V output voltage swing.
2. Based on a ± 3.5V output voltage swing.
3. Measured @ 10 Hz.
4. 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.
5. Power spectral density flat to angular velocity over specified bandwidth.
6. Percent change in Scale Factor per °C @ 10 Hz.
7. Signal return connected to case (isolated from hex base). Do not ground case to mounting fixture to avoid ground loops.