

## ARS-12A MHD Angular Rate Sensor

The ARS-12 is our most sensitive angular rate sensor. Designed to eliminate jitter from airborne and space borne mirrors, optical systems or lasers, and for accurate line-of-sight imaging platform stabilization, the ARS-12 can measure vibrations and angular motions as low as 50 nanoradians.

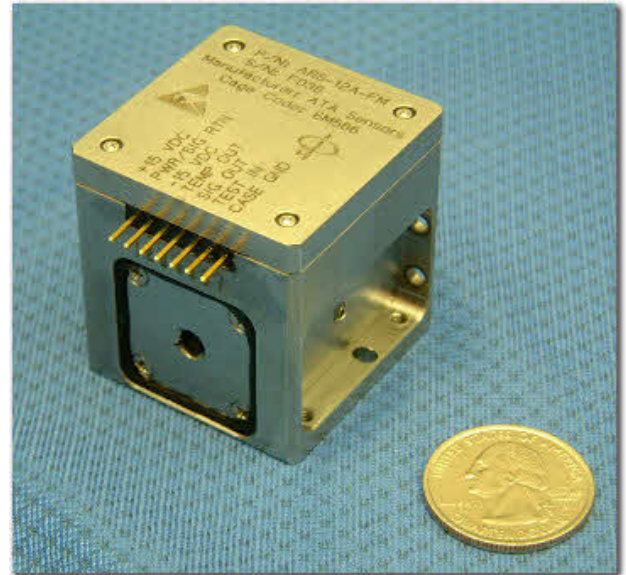
This product has very high sensitivity and a very low noise floor. The stainless steel housing and mounting plate make a rugged assembly, able to operate accurately after an 800g shock load. Its compact size and mass allow use in very small spaces. The ARS-12 has a wide, usable frequency range from less than 1 to more than 1,000 Hz. The ARS-12 is available in three standard ranges for angular rate measurement and three standard ranges for angular displacement measurement.

The ARS-12A has an optional test signal input and an optional temperature sensor.

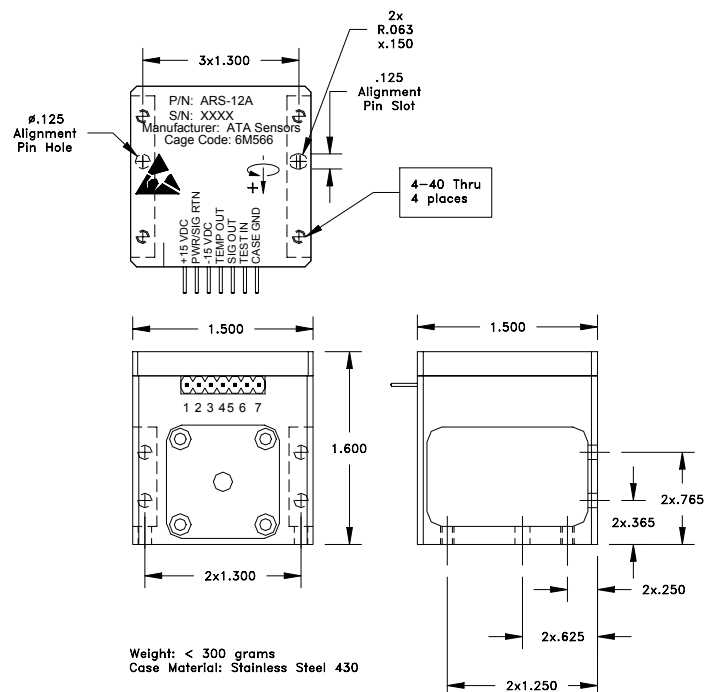
*Custom scale factors and ranges are available.*

The 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.



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# Product Specifications

## ARS-12A MHD Angular Rate Sensor

### Dynamic

ARS-12A Angular Rate Standard Ranges <sup>1</sup>	$\pm 1$ rad/sec	$\pm 100$ mrad/sec	$\pm 10$ mrad/sec
ARS-12A Angular Rate Standard Ranges <sup>1</sup>	$\pm 10$ mrad	$\pm 1$ mrad	$\pm 100$ $\mu$ rad
ARS-12A Angular Rate Standard Scale Factors <sup>2</sup>	10 V/rad/sec	100 V/rad/sec	1,000 V/rad/sec
ARS-12A Angular Displacement Standard Scale Factors <sup>2</sup>	1,000 V/rad	10,000 V/rad	100,000 V/rad
Bandwidth	1 to 1000 Hz		
Cross-axis Angular Error	< 2 %		
Linear Acceleration Sensitivity	< 5mrad/sec/g (Rate)		
Noise Equivalent Angle	< 100 nanoradians rms (1-1000 Hz)		
	< 50 nanoradians rms (2-1000 Hz)		
Noise Equivalent Rate	< 8 microradians/s (rms)		
Non-linearity	< 0.1 %		
Temperature Coefficient <sup>3</sup>	< 0.4 % Scale Factor / °C		

### Electrical

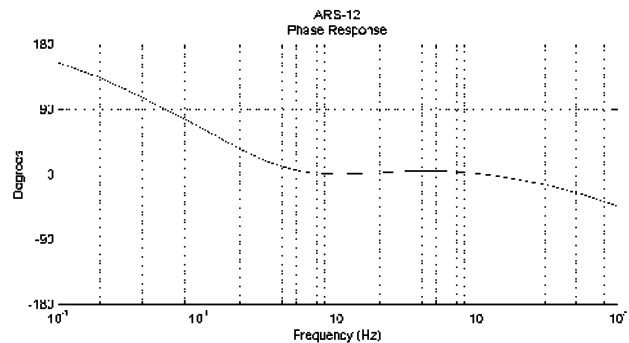
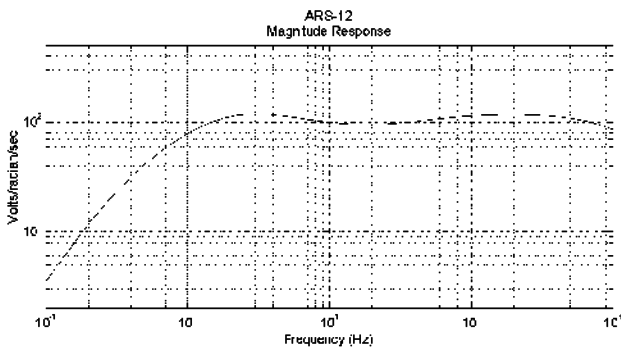
Power Dissipation	< 0.5 Watts
Output Impedance	< 100 Ohms
Grounding <sup>4</sup>	Case isolated from signal common by 1M $\Omega$ minimum

### Wiring

ARS-12A Pinout			
Pin	Connection	Pin	Connection
1	+Power (+5 Vdc to +15 Vdc)	5	Signal
2	Power and Signal Common (0 Vdc)	6	Test Signal Input
3	-Power (-5 Vdc to -15 Vdc)	7	Chassis Ground
4	Temperature		Output

### 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	500 g any axis
Linear Acceleration, Max. Survivable	800 g any axis



#### Notes:

1. Based on a +/- 10V output voltage swing.
2. Measured @ 10 Hz.
3. Percent change in Scale Factor per °C @ 10 Hz.
4. Signal common may be connected to case if required.