

## ARS-12A MHD Angular Rate Sensor

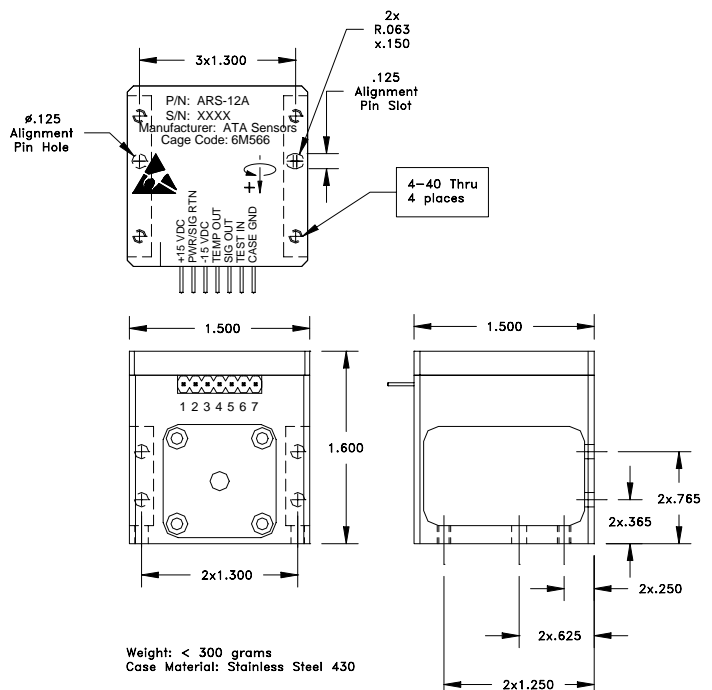
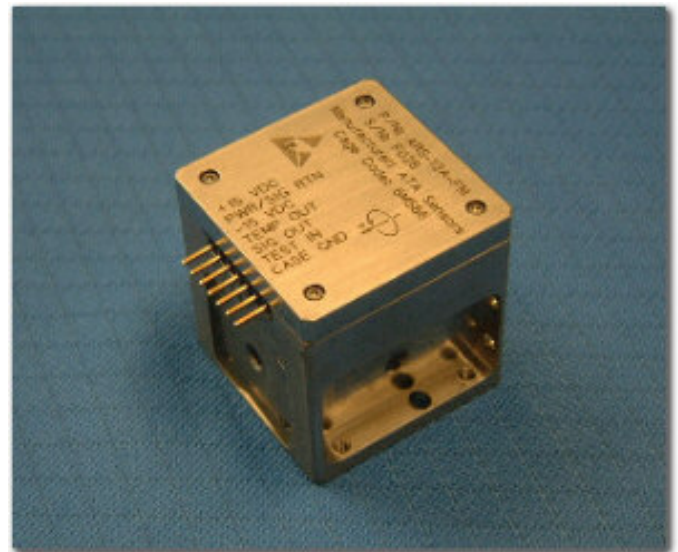
The ARS-12 is our most sensitive angular rate sensor. Designed to eliminate jitter from airborne and space borne mirrors, optical systems or lasers, and for accurate line-of-sight imaging platform stabilization, the ARS-12 can measure vibrations and angular motions as low as 50 nanoradians.

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.

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.*



# 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 Displacement 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), <10 $\mu$ rad/g (Displacement)		
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 / $^{\circ}$ C		

### Electrical

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

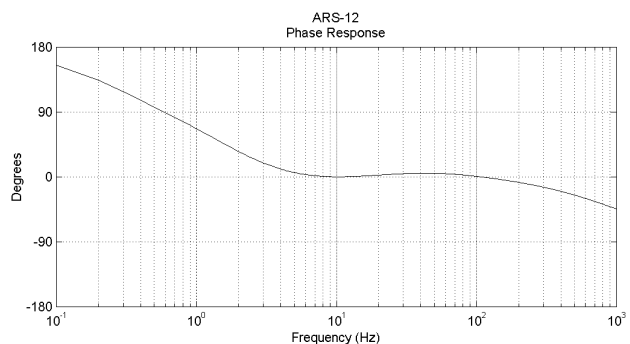
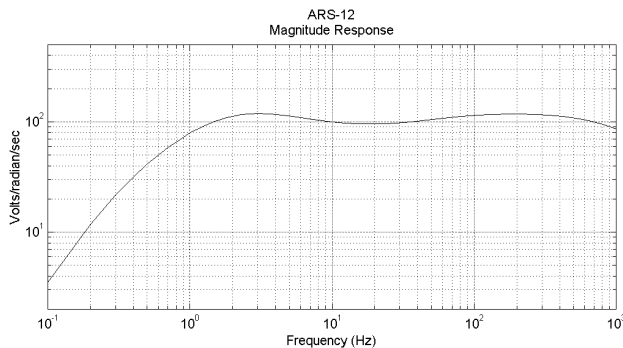
### Wiring

#### ARS-12A

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

### Environmental

Temperature - operating . . . . .	-35 to +60 $^{\circ}$ C (-31 to +140 $^{\circ}$ F)
Temperature - Non-operating . . . . .	-40 to +85 $^{\circ}$ C (-40 to +185 $^{\circ}$ 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  $^{\circ}$ C @ 10 Hz.
4. Signal common may be connected to case if required.