

ARS-06 & 06S MHD Angular Rate Sensor

The ARS-06 is a popular addition to our lineup of angular rate sensors. The ARS-06 is designed to give performance similar to the ARS-01 in a smaller and less expensive package. The ARS-06 is available in two standard models: the ARS-06 and the ARS-06S. The ARS-06S uses a single-sided power supply commonly used in automotive crash testing. The frequency response of the ARS-06 products comply with SAE J-211 Class 1000 frequency response specifications.

Multi axis packages are available.

The ARS-06 and ARS-06S require use of the CA-06 cable assembly.

Custom scale factors and ranges are available.

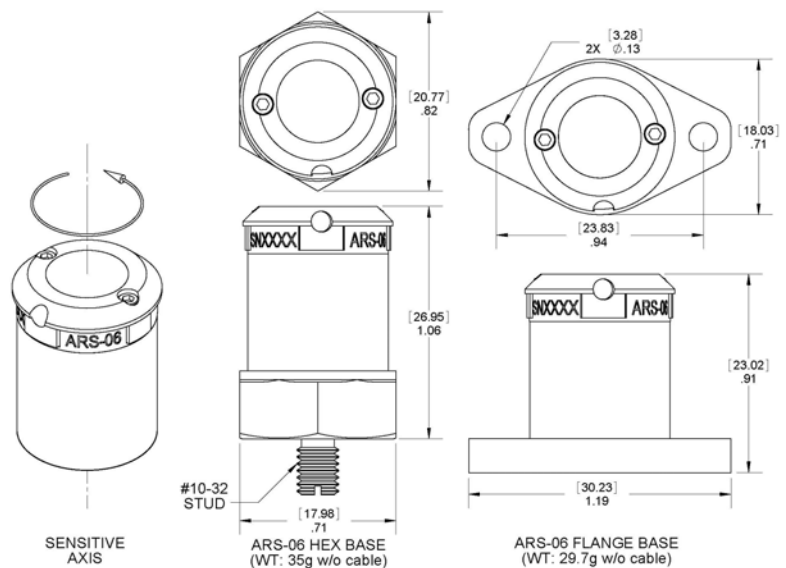
ATA's patented MHD angular motion sensors utilize the finest materials and workmanship combined in durable packages that feature:

- 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.

This product is subject to U.S. Government approval as required in accordance with the U.S. Government Arms Export Control Act, Title 22, U.S.C., Sec 2751, et seq., or Export Administration Act of 1979, as amended, Title 50, U.S.C., Sec 2401, et seq.



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Product Specifications

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Dynamic

ARS-06 Range ¹	± 200 radian/sec (± 11,500 degree/sec)
ARS-06S Range ²	± 200 radian/sec (± 11,500 degree/sec)
ARS-06 Scale Factor ³	50 mV/radian/sec (0.87 mV/degree/sec)
ARS-06S Scale Factor ³	6.5 mV/radian/sec (0.11 mV/degree/sec)
Bandwidth ⁴	0.38 to 1000 Hz
Cross-axis Angular Error	< 2 %
Linear Acceleration Sensitivity	< 0.005 radians/sec/g (<0.3 degrees/sec/g)
ARS-06 Voltage Noise PSD ⁵	$1.1 \times 10^{-10} \text{ V}^2/\text{Hz}$
ARS-06S Voltage Noise PSD ⁵	$1.5 \times 10^{-9} \text{ V}^2/\text{Hz}$
ARS-06 Noise Equivalent Angle	< 80 microradians (rms)
ARS-06S Noise Equivalent Angle	< 2.5 milliradians (rms)
Non-linearity	< 0.1 %
Temperature Coefficient ⁶	< 0.05 % Scale Factor / °C

Electrical

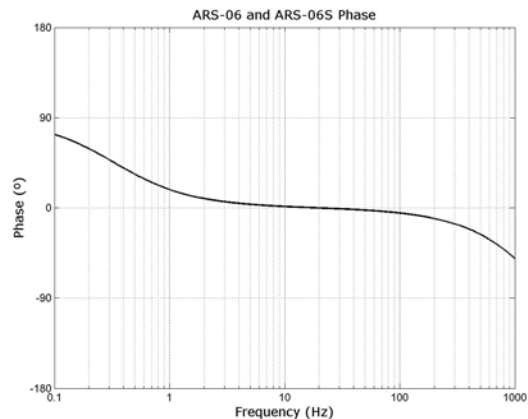
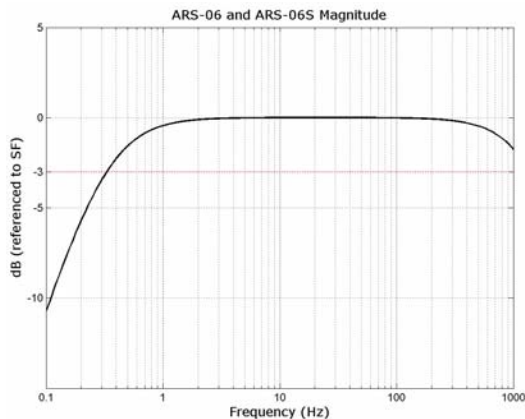
Power Dissipation	< 0.3 Watts
Output Impedance	< 100 Ohms
Grounding	Base isolated from signal return

Wiring

ARS-06 (Requires CA-06 Cable Assembly)		ARS-06S (Requires CA-06 Cable Assembly)	
Red Lead	+Power (+5 Vdc to +15 Vdc)	Red Lead	+Power (+5 Vdc to +20 Vdc)
Black Lead	Power and Signal Common (0 Vdc)	Black Lead	Power and Signal Common
White Lead	-Power (-5 Vdc to -15 Vdc)	White Lead	Power and Signal Common
Yellow Lead	Signal	Yellow Lead	Signal

Environmental

Temperature – Operating	-20 to +50 °C (-4 to +122 °F)
Temperature - Non-operating	-20 to +50 °C (-4 to +122 °F)
Linear Acceleration, Max. Operating ⁷	250 g any axis
Linear Acceleration, Max. Survivable ⁷	250 g any axis



Notes:

1. Based on a ± 10V output voltage swing.
2. Based on a ± 1.3V 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's Application Note AN-01.
5. Power spectral density flat to angular velocity over specified bandwidth.
6. Percent change in Scale Factor per °C @ 100 Hz.
7. Peak, 100 Hz half sine.

Automobile Motion & Crash Testing • Aircraft Ejection Testing • Modal Analysis • Aerospace Controls • Machinery Monitoring • Human Motion Analysis
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