ATA Sensors

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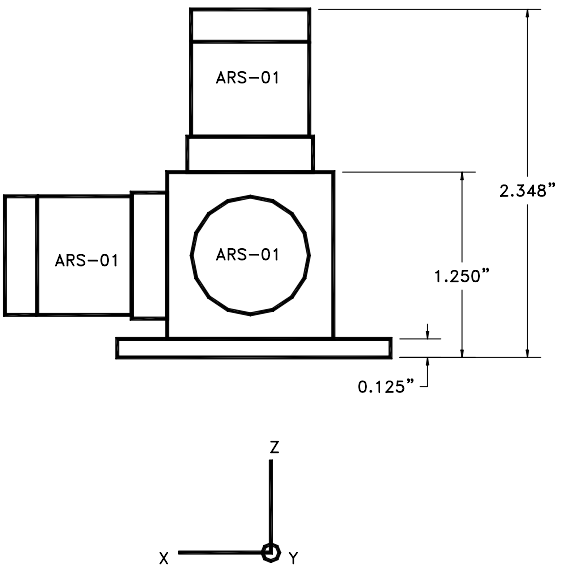
ARS-01 & 01S Triaxial MHD Angular Rate Sensor Arrays

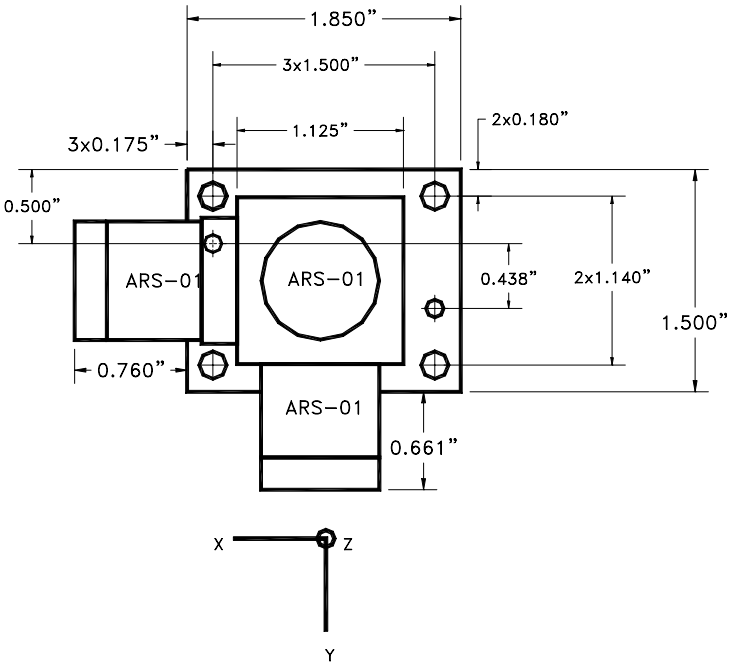
ARS-01 & 01S Triaxial MHD Angular Rate Sensor

The triaxial kit includes (3) **ARS-01** or **ARS-01S** sensors, (3) CA-01 cable assemblies, and a triaxial mounting block, which becomes a 6 degree-of-freedom measurement system with (3) optional linear accelerometers added to its mounting surfaces.

The type of linear accelerometers to be mounted must be specified at time of order to ensure correct mounting holes are included in the triaxial block. If none is specified, the block will be supplied predrilled for use with the Endevco Model 7264A/7265 series accelerometers.

Custom scale factors and ranges are available.





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Product Specifications

ARS-01 & 01S Triaxial MHD Angular Rate Sensor Arrays

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 / ºC

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)

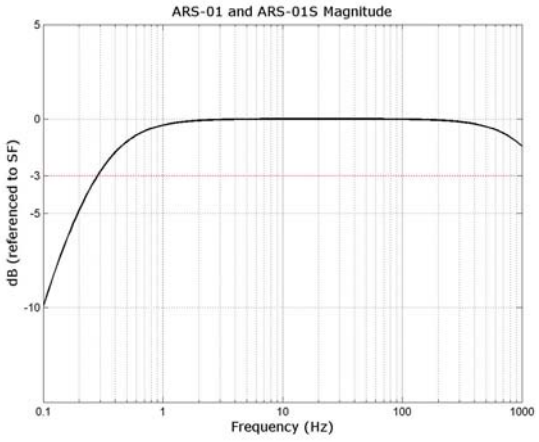
Red Lead	+Power (+5 Vdc to +15 Vdc)
White Lead	-Power (-5 Vdc to -15 Vdc)
Yellow Lead	Signal
Black Lead	Power and Signal Common (0 Vdc)

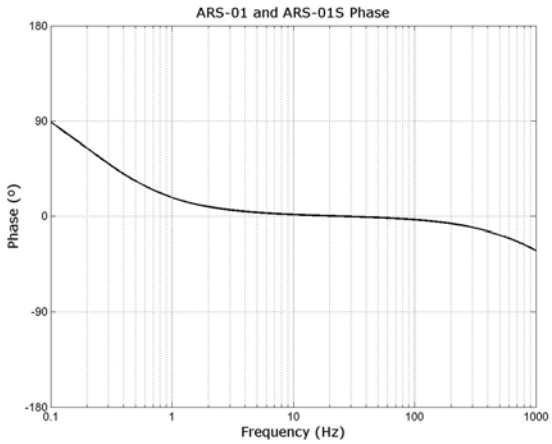
ARS-01S (requires CA-01 cable assembly)

Red Lead	+Power (+10 Vdc)
White Lead	-Power (0 Vdc)
Yellow Lead	Signal
Black Lead	Signal Common (+5 Vdc, internally generated reference voltage)

Environmental

Temperature - operating	-35 to +60 ºC (-31 to +140 ºF)
Temperature - Non-operating	-40 to +85 ºC (-40 to +185 ºF)
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 ºC @ 10 Hz.
7. Signal return connected to case (isolated from hex base). Do not ground case to mounting fixture to avoid ground loops.

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