ATA Sensors

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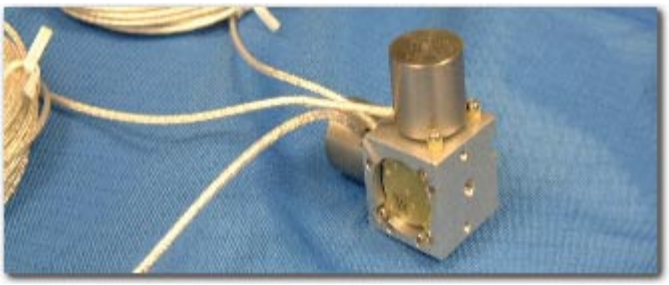
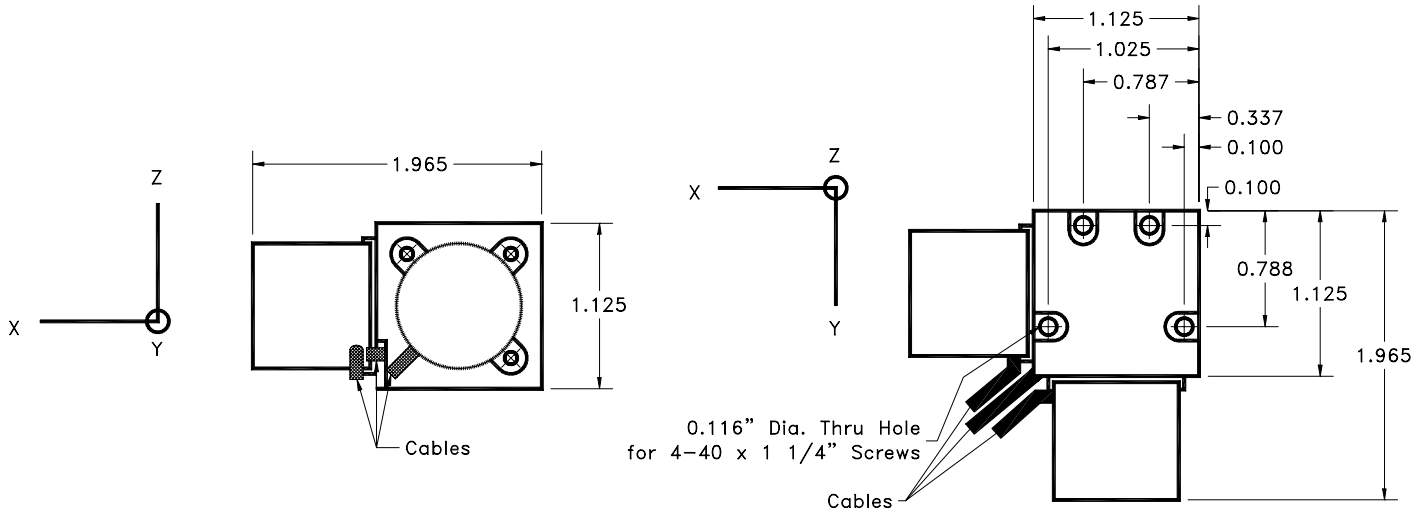
ARS-09 & 09S Triaxial

MHD Angular Rate Sensor Arrays

The triaxial kit includes three ARS-09 or ARS-09S sensors 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 mount.

Custom scale factors and ranges are available.





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Specifications

ARS-09 & 09S Triaxial

MHD Angular Rate Sensor Arrays

Dynamic

ARS-09 Range[1]	± 1.75 radian/sec (± 100 degree/sec)
ARS-09S Range[2]	± 0.60 radian/sec (±35 degree/sec)
Scale Factor[3]	5700 mV/radian/sec (100 mV/degree/sec)
Bandwidth[4]	0.3 to 1000 Hz
Cross-axis Angular Error	< 2 %
Linear Acceleration Sensitivity	< 0.009 radians/sec/g (<0.5 degrees/sec/g)
Voltage Noise PSD[5]	1.1 x 10^{-6} V^2/Hz
Noise Equivalent Angle	< 80 microradians (rms)
Non-linearity	< 0.1 %
Temperature Coefficient[6]	< 0.1 % Scale Factor / ºC

Electrical

Power Dissipation	< 0.3 Watts
Output Impedence	< 100 Ohms
Grounding[7]	Mounting flange isolated from signal return

Wiring

ARS-09

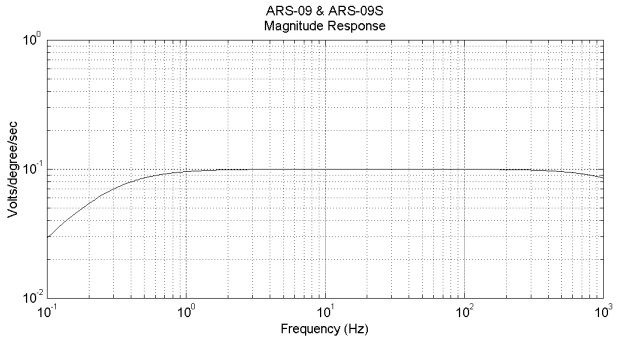
Red Lead	+Power (+5 Vdc to +15 Vdc)
White Lead	-Power (-5 Vdc to -15 Vdc)
Black Lead	Power and Signal Common (0 Vdc)
Yellow Lead	Signal

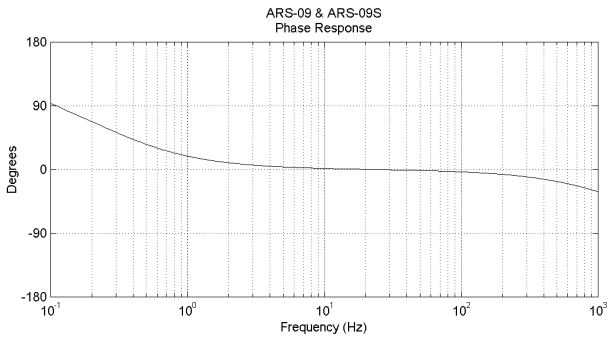
ARS-09S

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

Environmental

Temperature - operating	-35 to +60 ºC (-31 to +140 ºF)
Temperature - Non-operating	-40 to +85 ºC (-40 to +185 ºF)
Humidity	Unaffected - Epoxy sealed unit
Linear Acceleration[8], Max. Operating	200 g any axis
Linear Acceleration[8], Max. Survivable	200 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 @ 100 Hz.
7. Signal return connected to case (isolated from mounting flange). Do not ground case to mounting fixture to avoid ground loops.
8. Peak, 100 Hz half sine.

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