

Angular Accelerometer

SR-107VFR

The Columbia Model SR-107VFR Angular Accelerometer is a selectable range sensor that allows the user to easily change the scale factor and range to obtain optimum accuracy and readout match. This accelerometer incorporates the force balance fluid rotor technology, which produces high level output with excellent accuracy, stability and linear acceleration rejection without additional costly signal conditioning.

Full measurement range is adjusted from +/-1 to +/-100 radians per second squared with a single external resistor change. In addition, since virtually all angular acceleration measurements are either transitory or periodic, the user also has the ability to select a DC blocking option and define the associated cutoff frequency. This accelerometer can be used for a variety of applications previously requiring many fixed-range configurations.

Note: Exports of accelerometers from the United States are subject to the licensing requirements of the Export Administration Regulations (EAR) and/or the International Traffic in Arms Regulations (ITAR).

Specifications

Operational	SR-107VFR
Full Ranges (User Selectable)	± 1.0 To ± 100 Rad/Sec ²
Output Voltage	± 5 Volts into 100K Load
Excitation	± 15 VDC <30 mA
Output Impedance	<100 Ohms
Sensitive Axis Alignment	0.5 Deg
Scale Factor Tolerance	$\pm 1\%$
Scale Factor Temp Coefficient	0.07% / Deg C Max.
Zero Bias	< ± 20 mRad / Sec ² DC Mode < ± 10 mV AC Mode
Null Temp Sensitivity	± 0.4 mV / Deg C
Natural Frequency	20 Hz Min.
Damping	1.0 ± 0.3
Linear Acceleration Sensitivity	< 25 mRad / Sec ² / G
Cross Axis Sensitivity	1% Max.
Output Noise	-60 dB Below F.R. Output
Non-Linearity	$\pm 0.01\%$ F.R.
Hysteresis & Non-Repeatability	$\pm 0.2\%$ F.R.
Threshold & Resolution	0.005% F.R.

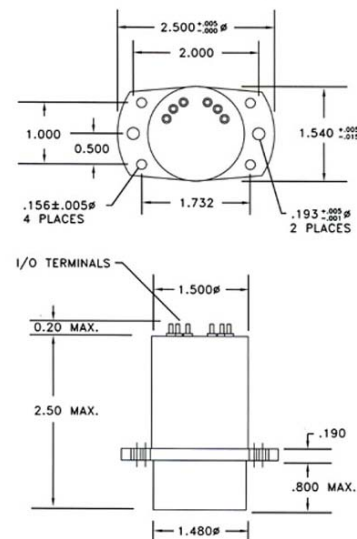
Environmental

Temperature, Operating	-40 To +80 Deg C
Temperature, Storage	-40 To +80 Deg C
Vibration Survival (2 To 2,000 Hz)	10 G RMS, 1.0" Disp D.A.
Linear Acceleration Survival	100 G
Shock Survival	500 G, 1 mSec
Ambient Pressure	0 To 5 Atmospheres
Humidity	95% R.H.

Physical

Weight	10 Oz (283 Gm)
Size	1.48 In. Dia. (Excluding Mtg Flange) x 2.5 In. H (3.6 cm Dia. Excluding Mtg Flange x 6.3 cm H)
Case Material	Anodized Aluminum
Sealing	Environmental
Electrical Interface	Solder Pins

- * Variable Range Sensor
- * High Performance Fluid Rotor Design



I/O Terminal Pin Functions:

Pin	Function	Pin	Function
A	+15 VDC Input	D	Gain Adj. Output
B	-15 VDC Input	E	Eo (Voltage Out)
C	Gain Return	F	Sig & Pwr Ground

Note: The low end response is adjustable from DC to f_c (-3 dB). The values in Column 2 represent DC attenuation obtained when the DC cutoff facility is used.

Rs = Range Selection Resistor
C = Capacitor in series with Rs
C should be non-polarized.

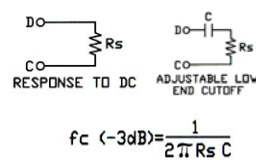


TABLE 1		
Range	RS Selection Resistor	DC Rejection
± 1	10K	-36 dB
± 2	20K	-30 dB
± 5	52.3K	-24 dB
± 10	110K	-18 dB
± 20	243K	-12 dB
± 50	1 MEG	-6 dB
± 100	OPEN	0 dB

Ordering Information:

SR-107VFR (Preset Range +/- X Rad/Sec²)
Standard Variable Range Accelerometer
Default Preset Range is +/-2 Rad/Sec² unless otherwise specified.



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