

Linear Accelerometers

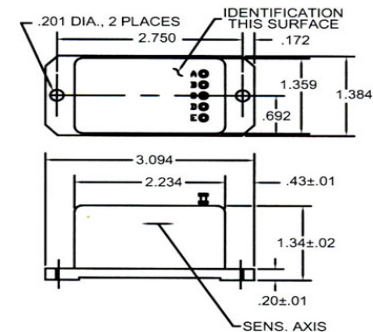
SA-107AI, SA-107AIHP

The Columbia Models SA-107AI and SA-107AIHP Force Balance Accelerometers are designed with an output circuit configuration made for use in 4-20 mA data transmission systems. The 4-20 mA system is used extensively in industrial installations in order to transmit data over long distances in environments where interference from nearby electrical power lines could be a problem. A single +15 volt supply powers both the sensor and 4-20 mA line driver.

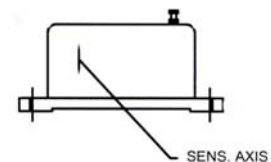
The Model SA-107AI is a low cost device, while the SA-107AIHP incorporates Columbia's patented HP torquer design providing improved accuracy and repeatability in adverse shock environments. Models SA-107BI and SA-107BIHP are similar configurations that provide voltage output in addition to current output. *Consult the factory for customized versions of these sensors.*

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).

- * 4 To 20 mA Output
- * +15 VDC Operation
- * Low Cost and High Performance



Z Option – Alternate Sensitive Axis



I/O Terminal Pin Functions:

SA-107AI and SA-107AIHP	
Pin	Function
A	+15 VDC Power
B	Power Ground / Current Return
C	Current Output
D	Spare
E	Spare

Ordering Information:

SA-107AI (+/- X G)

SA-107AIHP (+/- X G)

Standard Accelerometer
Range +/- X G (Required)

1G Counterbias Option (Ranges ±1G & higher) I_o

Z Option (See Above)

Y Z
Y Z

Specifications

Operational

	SA-107AI	SA-107AIHP
Ranges Available	±1 G To ±10 G	±0.25 G To ±10 G
Current Output	4 To 20 mA Corresponding to F.S. Range into a Maximum Load of 600 Ohms	
Excitation	+15 ±1 VDC 50 mA Max.	
Output Impedance	50 Megohm Typical	
Sensitive Axis Alignment	<0.5°	
Scale Factor Tolerance	±1%	
Scale Factor Temp Coefficient	±0.02% / Deg C	
Zero Bias	12 ±0.05 mA	
Null Temp Sensitivity	±0.002% F.R./ Deg C	±0.001% F.R./ Deg C
Frequency Response	DC To 50 Hz, ±5%	
Damping	0.7 ±0.2	
Cross Axis Sensitivity	0.002 G/G	
Non-Linearity	±0.1% F.R.	±0.05% F.R.
Hysteresis & Non-Repeatability	±0.1% F.R.	±0.05% F.R.
Threshold & Resolution	±0.01% F.R.	±0.001% F.R.

Environmental

Temperature, Operating	-40 To +85 Deg C	
Temperature, Storage	-40 To +85 Deg C	
Vibration Survival (2 To 2,000 Hz)	5 G RMS, 0.5" Disp D.A.	15 G RMS, 0.5" Disp D.A.
Shock Survival	125 G, 5 mSec	1500 G, 1 mSec
Ambient Pressure	0 To 5 Atmospheres	
Humidity	95% R.H.	

Physical

Weight	5 Oz (141.8 Gm)
Size	3.50 In L x 1.70 In W x 1.40 In H (8.89 cm L x 4.32 cm W x 3.56 cm H)
Case Material	Anodized Aluminum
Sealing	Environmental
Electrical Interface	5 Terminal Pins



Columbia Research Laboratories, Inc. 1925 Mac Dade Blvd. Woodlyn, PA 19094 USA

Phone: 1.800.813.8471 / Fax: 610.872.3882 / email: sales@columbiaresearchlab.com