

# Linear Accelerometers

## SA-522PE, SA-522SE

Columbia Models SA-522PE and SA-522SE miniature force balance accelerometers are lightweight sensors designed to operate from a wide range of acceptable power variations with low current draw. These devices are ideal for battery-powered applications.

The sensors are designed with an output configuration comparable to strain gage accelerometers, but the superior force balance technology of Models SA-522PE/SE provides a higher level output as well as superior performance, ruggedness, and reliability when compared to strain gage technologies. Models SA-522PE and SA-522SE Accelerometers are identical except for their respective electrical interface. *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).

- \* Miniature Sensors
- \* +5 To +12 VDC Power
- \* High Shock and Vibration Survival



### Specifications

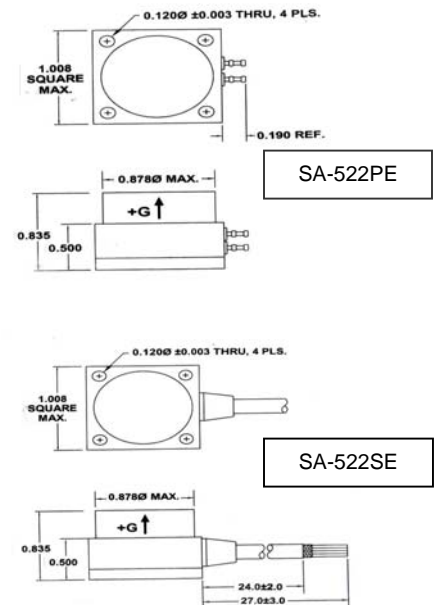
	SA-522PE	SA-522SE
<b>Operational</b>		
Ranges Available	$\pm 1$ G To $\pm 50$ G	
Output Voltage	$\pm 1$ VDC @ +5 Volt Excitation; Increases to $\pm 3$ VDC @ +12 Volt Excitation (Usable range expands by 3X @ +12 Volt Excitation)	
Excitation	+5 VDC To +12 VDC Less Than 15 mA @ +5 VDC Less Than 30 mA @ +12 VDC (Comparable to 350 Ohm Gage)	
Output Impedance	350 Ohms Max.	
Sensitive Axis Alignment	Less than 0.5 Deg.	
Scale Factor Tolerance	$\pm 2\%$ (Unit to Unit)	
Scale Factor Temp Coefficient	0.02% / Deg C Max.	
Zero Bias	$\pm 0.5\%$ F.R.	
Null Temp Sensitivity	$\pm 0.005\%$ F.R. / Deg C	
Natural Frequency	100 To 300 Hz Dependent Upon Range	
Damping	0.7 $\pm$ 0.2	
Cross Axis Sensitivity	2 mG/G	
Output Noise	Less than 2mV RMS (DC To 500 Hz)	
Non-Linearity	Less than 0.2% F.R.	
Hysteresis & Non-Repeatability	Less than 0.2% F.R.	
Threshold & Resolution	0.01% F.R.	

### Environmental

Temperature, Operating	-55 To +125 Deg C
Temperature, Storage	-60 To +130 Deg C
Vibration Survival (2 To 2,000 Hz)	15 G RMS, 0.5" Disp.
Shock Survival	100 G, 11 mSec 1,000 G, 1 mSec
Ambient Pressure	0 To 2 Atmospheres
Humidity	95% R.H.

### Physical

Weight	2.5 Oz ( 71 Gm) Max.	
Size (Exclusive of 24 In Cable)	1.008 In Sq x 0.835 In H (2.54 cm Sq x 21 cm H)	
Case Material	Nickel-Plated Aluminum	
Sealing	Environmental	
Electrical Interface	(4) Terminal Pins	(4) #28 AWG Leads, 24"L



### I/O Wire Lead / Pin Functions:

SA-522PE		SA-522SE	
Pin	Function	Lead	Function
A	+VDC Input	RED	+VDC Input
B	Power Return	BLACK	Power Return
C	Signal Return	WHITE	Signal Return
D	Signal Output	GREEN	Signal Output
			Shield Isolated from sensor case

### Ordering Information:

**SA-522PE (+/- X G )**  
Standard Accelerometer  
with (4) Terminal Pins

**SA-522SE (+/- X G )**  
Standard Accelerometer  
with (4) 24" Leads



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