

Inclinometers

SI-702B, SI-702BHP

The Columbia Models SI-702B and SI-702BHP are biaxial electronic tilt sensors based upon force balance accelerometer technology. They produce a high-level low-impedance output proportional to the sine of the tilt angle. Unique electronic damping and desensitization circuitry allows tilt measurements in strong vibration and shock environments.

These inclinometers are self-contained requiring no additional signal conditioning in most applications. The Model SI-702B is well suited for many OEM and industrial applications requiring dual axis tilt measurements. The Model SI-702BHP uses the Columbia patented HP suspension system and provides added accuracy and ruggedness. These sensors are intended for applications such as platform stabilization, surface mapping and measuring tilt angles in remote locations. *Consult the factory for customized versions of these sensors.*

- * **Biaxial Sensors**
- * **+/-15 VDC Operation**
- * **Low Cost and High Performance**



Specifications

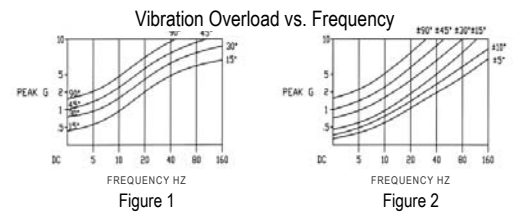
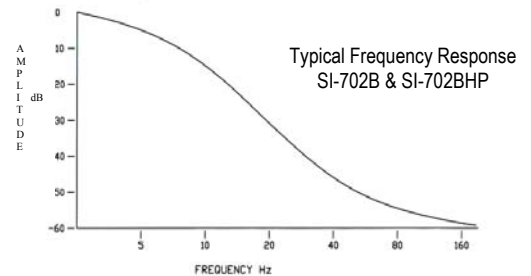
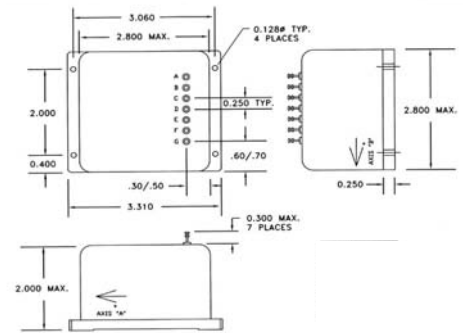
	SI-702B	SI-702BHP
Operational		
Ranges Available	$\pm 15^\circ, \pm 30^\circ, \pm 45^\circ, \pm 90^\circ$	$\pm 5^\circ, \pm 10^\circ, \pm 15^\circ, \pm 30^\circ, \pm 45^\circ, \pm 90^\circ$
Output Voltage	± 5 VDC at Full Range Output Proportional to the Sine of the Angle	
Recommended Load	100K Ohms or Greater	
Excitation	± 12 VDC to ± 15 VDC <30 mA Each Supply	
Output Impedance	<100 Ohms	
Output Noise	<3 mV RMS	
Non-Linearity	$\pm 0.2\%$ F.R.	$\pm 0.1\%$ F.R.
Non-Repeatability	$\pm 0.1\%$ F.R.	$\pm 0.05\%$ F.R.
Scale Factor	$\pm 1\%$	
Scale Factor Temp Coefficient	$\pm 0.02\%$ / Deg C	
Zero Bias	$\pm 0.2\%$ F.R.	$\pm 0.1\%$ F.R.
Zero Bias Temp. Coefficient	0.001% F.R. / Deg. C	
Resolution	0.001% F.R.	
Bandwidth	0 To 3 Hz (-18 dB / Octave Roll-off)	
Orthogonal Sensitivity	<1%	<0.5%
Case Alignment	$\pm 1^\circ$	$\pm 0.5^\circ$
Vibration Overload vs. Frequency	See Figure 1	See Figure 2

Environmental

Temperature, Operating	-50 To +85 Deg C	
Temperature, Storage	-50 To +100 Deg C	
Random Vibration (2 To 2,000 Hz)	5 G RMS, 0.5" Disp. D.A.	10 G RMS, 0.5" Disp. D.A.
Shock Survival	125 G, 1 mSec Half Sine	1000 G, 1 mSec Half Sine
Humidity	95% R.H.	

Physical

Weight	8 Oz (226.8 Gm)
Size	3.31 In L x 2.80 In W x 2.00 In H (84.1 cm L x 71.1 cm W x 50.8 cm H)
Case Material	Anodized Aluminum
Sealing	Environmental
Electrical Interface	7 Terminal Pins



Output Terminal Pin Functions:

SI-702B and SI-702BHP			
Pin	Function	Pin	Function
A	+15 VDC	E	Spare
B	Ground	F	E ₀ B
C	-15 VDC	G	Spare
D	E ₀ A		

Ordering Information:

SI-702B (+/- X Deg)
SI-702BHP (+/- X Deg)

Standard Inclinometer
Range +/- X Deg (Required)



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