

Inclinometers

SI-701B, SI-701BHP

The Columbia Models SI-701B and SI-701BHP are 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-701B is well suited for many OEM and industrial applications. The Model SI-701BHP 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.*

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



Specifications

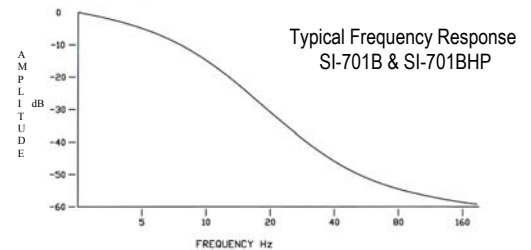
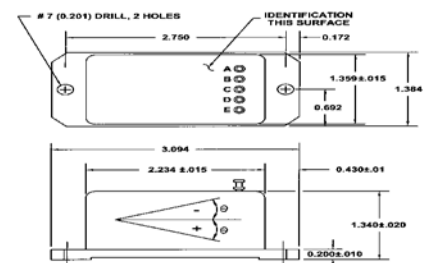
	SI-701B	SI-701BHP
Operational		
Ranges Available	$\pm 15^\circ, \pm 30^\circ, \pm 45^\circ, \pm 90^\circ$	$\pm 5^\circ, \pm 10^\circ, \pm 15^\circ, \pm 30^\circ, \pm 45^\circ, \pm 90^\circ$
Output Voltage	± 5 VDC at Full Range Output Proportional to the Sine of the Angle	
Recommended Load	100K Ohms or Greater	
Excitation	± 12 VDC to ± 15 VDC <15 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 Tolerance	$\pm 1\%$	
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	$\pm 0.5^\circ$	$\pm 0.25^\circ$
Vibration Overload vs. Frequency	See Figure 1	See Figure 2

Environmental

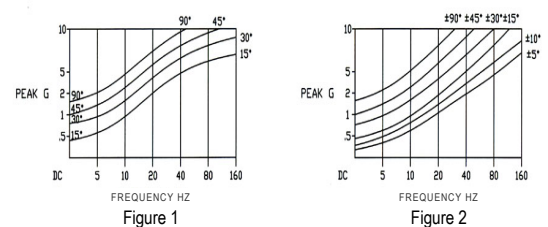
Temperature, Operating	-50 To +85 Deg C	
Temperature, Storage	-50 To +100 Deg C	
Random Vibration (2 To 2,000 Hz)	10 G P/P	30 G P/P
Shock Survival	125 G, 1 mSec Half Sine	1000 G, 0.5 mSec Half Sine
Humidity	95% R.H.	

Physical

Weight	4 Oz (113.4 Gm)
Size	3.09 In L x 1.38 In W x 1.34 In H (78.5 cm L x 35.1 cm W x 34.1 cm H)
Case Material	Anodized Aluminum
Sealing	Environmental
Electrical Interface	5 Terminal Pins



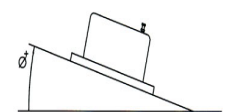
Vibration Overload vs. Frequency



I/O Terminal Pin Functions:

SI-701B and SI-701BHP	
Pin	Function
A	+15 VDC
B	Ground
C	-15 VDC
D	Output
E	Test

Sensitive Axis:



Ordering Information:

SI-701B (+/- X Deg)
 SI-701BHP (+/- X Deg)
 Standard Inclinometer
 Range +/- X Deg (Required)



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