

Inclinometers

SI-701BC, SI-701BHPC

The Columbia Models SI-701BC and SI-701BHPC 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-701BC is well suited for many OEM and industrial applications. The Model SI-701BHPC uses the Columbia patented HP suspension system and provides added accuracy and ruggedness. Both sensors incorporate a convenient 4-pin connector and 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

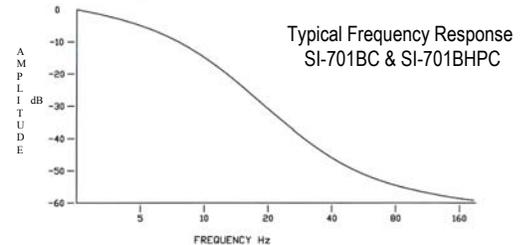
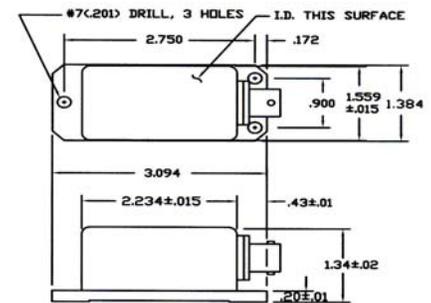
	SI-701BC	SI-701BHPC
Operational		
Ranges Available	$\pm 15^\circ, \pm 30^\circ, \pm 45^\circ, \pm 90^\circ$	$\pm 5^\circ, \pm 10^\circ, \pm 15^\circ, \pm 30^\circ, \pm 45^\circ, \pm 90^\circ$
Output Voltage	± 5 VDC at Full Range Output Proportional to the Sine of the Angle	
Recommended Load	100K Ohms 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

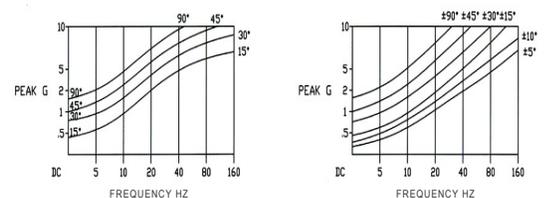
Temperature, Operating	-50 To +85 Deg C	
Temperature, Storage	-50 To +100 Deg C	
Random Vibration (2 To 2,000 Hz)	10 G P/P	30 G P/P
Shock Survival	125 G, 1 mSec Half Sine	1000 G, 0.5 mSec Half Sine
Humidity	95% R.H.	

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	Connector PT02A-8-4P or Equivalent
Mating Connector (Optional)	PT06A-8-4S(SR)



Vibration Overload vs. Frequency

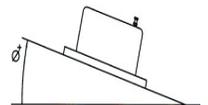


I/O Connector Pin Functions:

SI-701BC and SI-701BHPC

Pin	Function
A	+15 VDC
B	Ground
C	-15 VDC
D	Output

Sensitive Axis:



Ordering Information:

SI-701BC (+/- X Deg)

SI-701BHPC (+/- X Deg)

Standard Inclinometer

Range +/- X Deg (Required)

Optional Mating Connector

M
M



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