

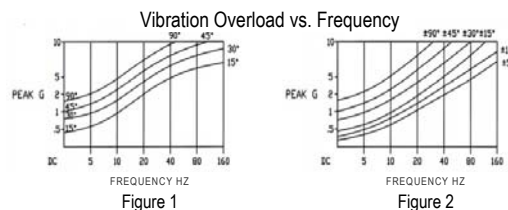
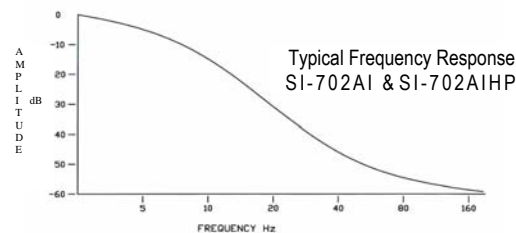
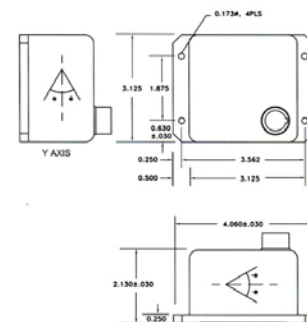
# Inclinometers

## SI-702AI, SI-702AIHP

Columbia Models SI-702AI and SI-702AIHP are biaxial force balance inclinometers 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. Special desensitization circuitry allows these devices to provide accurate tilt data while in substantial vibration environments. Models SI-702BI and SI-702BIHP Biaxial Inclinometers are similar configurations that provide voltage output in addition to current output. *Consult the factory for customized versions of these sensors.*

- \* Biaxial Tilt Sensor
- \* 4-20 mA Output
- \* Low Cost and High Performance



### Output Connector Pin Functions:

SI-702AI and SI-702AIHP			
Pin	Function	Pin	Function
A	+15 VDC Power	F	Spare
B	Power Ground	G	Spare
C	Current Return	H	Spare
D	$I_o - X$ Axis	J	Spare
E	$I_o - Y$ Axis	K	Spare

### Ordering Information:

**SI-702AI (+/- X Deg)**  
**SI-702AIHP (+/- X Deg)**  
 Standard Inclinometer  
 Range +/- X Deg (Required)

Optional Mating Connector

M  
M

### Specifications

	SI-702AI	SI-702AIHP
<b>Operational</b>		
Ranges Available	$\pm 15^\circ, \pm 30^\circ, \pm 45^\circ, \pm 90^\circ$	$\pm 5^\circ, \pm 15^\circ, \pm 30^\circ, \pm 45^\circ, \pm 90^\circ$
Output Current	4-20 mA	
Output Function	$I_o = 12 + K \sin \theta$ (mA) $\pm 0.5\%$ of Normal Into a Maximum Load of 600 Ohms	
Excitation	+15 $\pm 1$ VDC <50 mA	
Output Impedance	50 Megohm Typical	
Non-Linearity	$\pm 0.2\%$ F.R.	$\pm 0.1\%$ F.R.
Non-Repeatability	$\pm 0.1\%$ F.R.	
Scale Factor Tolerance	$\pm 1\%$	
Scale Factor Temp Coefficient	$\pm 0.02\%$ / Deg C	
Zero Bias	12 $\pm 0.02$ mA	
Zero Bias Temp. Coefficient	$\pm 0.002\%$ F.R. / Deg C	
Resolution	0.01% F.R.	0.001% F.R.
Bandwidth	0 To 3 Hz (-18 dB / Octave Rolloff)	
Orthogonal Sensitivity	<1%	
Case Alignment	$\pm 0.5$ Deg	
Vibration Overload vs. Frequency	See Figure 1	See Figure 2

### Environmental

Temperature, Operating	-40 To +85 Deg C	
Temperature, Storage	-40 To +85 Deg C	
Random Vibration (2 To 2,000 Hz)	5 G RMS, 0.25" Disp. D.A.	15 G RMS, 0.25" Disp. D.A.
Shock Survival	125 G, 5 mSec	1000 G, 1 mSec
Humidity	95% R.H.	

### Physical

Weight	12 Oz (340.2 Gm)	
Size	4.06 In L x 3.125 In W x 2.13 In H (10.31 cm L x 7.94 cm W x 5.41 cm H)	
Case Material	Anodized Aluminum	
Sealing	Environmental	
Electrical Interface	Connector MS3443412-10P or Equiv.	
Mating Connector (Optional)	PT06A-12-10S(SR) or Equiv.	

