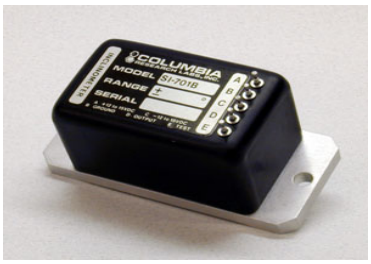
Inclinometers

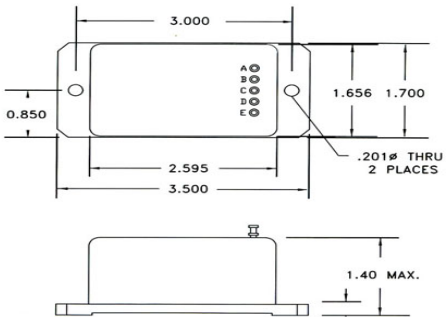
SI-701AI, SI-701AIHP

* 4-20 mA Output
* +15 VDC Operation
* Low Cost and High Performance

The Columbia Models SI-701AI and SI-701AIHP are 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.

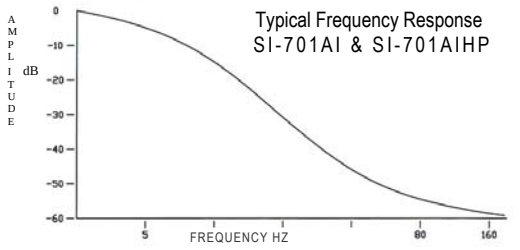
A single +15 volt supply powers both the sensor and 4-20 mA line driver. Special desensitization circuitry allows these devices to provide accurate tilt data while in substantial vibration environments. Both configurations are also available with a convenient 6-pin electrical interface – Refer to Columbia Models SI-701AIC and SI-701AIHPC. Models SI-701BI and SI-701BIHP Inclinometers are similar configurations that provide voltage output in addition to current output. ***Consult the factorv for customized versions of these sensors.***





Specifications

	SI-701AI	SI-701AIHP
Operational		
Ranges Available	±15°, ±30°, ±45°, ±90°	±5°, ±10°, ±15°, ±30°, ±45°, ±90°
Output Current	4-20 mA	
Output Function	I_O = 12 + K Sin θ (mA) ±0.5% of Normal Into a Maximum Load of 600 Ohms	
Excitation	+15 ±1 VDC <50 mA	
Output Impedance	50 Megohm Typical	
Non-Linearity	±0.2% F.R.	±0.1% F.R.
Non-Repeatability	±0.1% F.R.	
Scale Factor Tolerance	±1%	
Scale Factor Temp Coefficient	±0.02% / Deg C	
Zero Bias	12 ±0.02 mA	
Zero Bias Temp. Coefficient	±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	±0.5 Deg	±0.25 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	5 Oz (141.8 Gm)	
Size	3.50 In L x 1.70 In W x 1.40 In H (8.89 cm L x 4.32 cm W x 3.56 cm H)	
Case Material	Anodized Aluminum	
Sealing	Environmental	
Electrical Interface	5 Terminal Pins	



Vibration Overload vs. Frequency

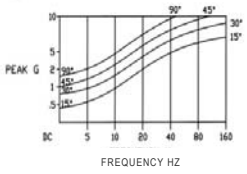


Figure 1

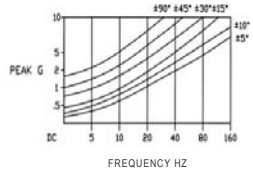


Figure 2

I/O Terminal Pin Functions:

SI-701AI and SI-701AIHP	
Pin	***Function***
A	+15 VDC Power
B	Power Ground / Current Return
C	Current Output
D	Spare
E	Spare

Ordering Information:

SI-701AI(+/- X Deg)
SI-701AIHP(+/- X Deg)
Standard Inclinometer
Range +/- X Deg (Required)

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