

Linear Displacement Sensor



FEATURES

- Infinite resolution
- True output linearity over the entire measurement range
- Low operating forces
- Excellent stability and temperature compensation

DESCRIPTION

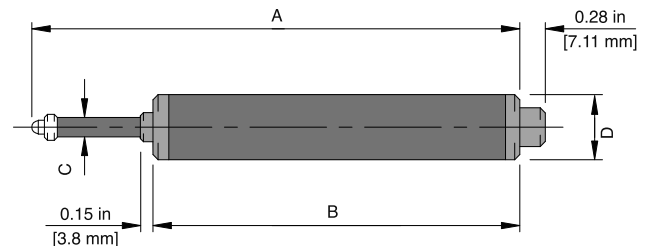
Micro-Measurements Linear Displacement Sensors use a fully active 350-ohm strain-gage bridge to sense spindle displacement, giving infinite resolution and excellent linearity. They are compatible with all standard strain-gage instrumentation with bridge excitation from 2 to 10 volts. With a selection of models having full-scale ranges from 1/4 in [5 mm] to 4 in [102 mm], Linear Displacement Sensors feature a unique design that produces maximum operating forces of less than 1 lb [4.4 N]. Available with specially designed mounting fixtures, these versatile sensors are ideally suited for use in research, manufacturing and process control applications.

Accuracy

Micro-Measurements Linear Displacement Sensors produce an output voltage proportional to a captive, guided spindle displacement by means of a 350-ohm strain gage bridge with four active arms. This arrangement provides excellent temperature compensation and linearity.

Compatibility

Micro-Measurements Linear Displacement Sensors exhibit the same inherent advantages for linearity, versatility and precision as many other strain-gage-based sensors. As such, they are systems-compatible with a wide range of commonly used sensors for pressure, load, acceleration, vibration, etc. and normally utilize the same instrumentation.



SPECIFICATIONS

MODEL HS		5	10	25	50	100
*Displacement Range		0.25 in [6.5 mm]	0.5 in [11.2 mm]	1 in [26 mm]	2 in [51.5 mm]	4 in [102 mm]
Dimensions	A	4.10 in [104.2 mm]	4.30 in [109.2 mm]	5.44 in [138.2 mm]	8.48 in [215.4 mm]	14.97 in [380.2 mm]
	B	3.49 in [88.6 mm]	3.49 in [88.6 mm]	4.08 in [103.6 mm]	6.11 in [155.2 mm]	10.47 in [266.0 mm]
	C $\varnothing$	0.19 in [4.8 mm]	0.19 in [4.8 mm]	0.19 in [4.8 mm]	0.19 in [4.8 mm]	0.24 in [6.0 mm]
	D $\varnothing$	0.69 in [17.4 mm]	0.69 in [17.4 mm]	0.69 in [17.4 mm]	0.69 in [17.4 mm]	1.0 in [25.4 mm]
Weight		0.31 lb [140 g]	0.31 lb [140 g]	0.33 lb [150 g]	0.44 lb [200 g]	1.10 lb [500 g]
Spring Force*		0.44 lb [200 g]	0.55 lb [250 g]	0.55 lb [250 g]	0.66 lb [300 g]	0.77 lb [350 g]
Excitation		2 to 10 V, ac or dc				
Frequency Response*		5-mm displacement: 100 Hz; 100-mm displacement: 10 Hz				
Rated (F.S.) Output*		4.5 mV/V	5.3 mV/V	7.0 mV/V	3.6 mV/V	5.2 mV/V
Nonlinearity (Best-Fit Method)*		0.35% FS	0.35% FS	0.35% FS	0.35% FS	0.35% FS
Resolution		Infinite				
Bridge Resistance (Nominal)		350 ohms Bridge, 100k ohms Zero Balance				
Temperature Range		+15 to +140°F [-10 to +60°C]				
Temperature Coefficient (%FS)*		Zero <0.006%/°F [<0.01%/°C]			Span <0.006%/°F [<0.01%/°C]	
Termination		0.18 in PVC 7/0.008 [4.5 mm PVC 7/0.2], 4-core shielded, 6.6 ft [2.2 m] long				
Electrical Connections		Input: Red+ Black– ; Output: Green+ White–				

*Typical figures: Actual values subject to calibration.

Linear Displacement Sensor

FATIGUE LIFE

Model	Displacement (in)				
	0.25	0.50	1.00	2.00	4.00
	Cycles to Failure (Nominal)				
HS5	5.00E+04				
HS10	5.00E+05	5.00E+04			
HS25	5.00E+06	5.00E+05	5.00E+04		
HS50	5.00E+06	5.00E+06	5.00E+06	5.00E+05	
HS100	5.00E+06	5.00E+06	5.00E+06	5.00E+05	5.00E+04
	Signal (mV/V)				
HS5	4.50				
HS10	2.65	5.30			
HS25	1.75	3.50	7.00		
HS50	0.45	0.90	1.80	3.60	
HS100	0.32	0.65	1.30	2.60	5.20

*Please note that recommended displacements are indicated by shading.

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