MICRO MEASUREMENTS
A VPG Brand

Special Use Sensors—Linear Displacement Sensors

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 5mm (0.2 in) to 100mm (4 in), Linear Displacement Sensors feature a unique design that produces maximum operating forces of less than 4N (0.9 lb). 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.

Characteristics		HS-A XX					Units
Model		HS-A5	HS-A10	HS-A25	HS-A50	HS-A100	
Displacement		5.5	11	26	51	101	mm
		0.2	0.4	1.0	2.0	4.0	inch
Weight (Ex Cable)		125/135	130/140	140/150	180/200	320	grams
Spindle Force		50-250	50-250	50-250	50-250	90-380	gf
Sensitivity (nominal)		4.2/4.6	2.5/2.8	1.3/1.5	0.75/0.8	0.38	mV/mm
Output FS (nominal)		4.2/4.6	5.1/5.6	6.7/7.2	9.0/9.6	7.5	mV/V
Non-Linearity, Hysteresis, Repeatability (total error)		<0.1				<0.2	%FS
Bridge Resistance		350					Ohms
Excitation:		10 recommended (2-10 acceptable)					Volts AC or DC
Current Consumption:		<30 @ 10Vdc					mA
Insulation Resistance:		>2000					MΩ
Resolution		Infinite					
Operation Temperature		-10 to +70 (14 to +158)					°C (°F)
Temperature Effect	Zero	<0.01					% / °C
	Output	<0.01					% / °C
Construction:		Stainless Steel/Aluminium					
Environmental Protection:		IP54					
Cable:		2 Metre 4 Core Screened, bend radius 10mm					

Operational Notes:
1. The outer case must not be distorted when clamping the sensor. A full diameter clamp is advised.
2. The sensor is not recommended for use is hostile environments without additional protection.
3. Special tools are required to remove the plunger tip (anvil) to avoid damage to the spindle.
4. With the plunger tip (anvil) attached this forms a positive overload protection stop. If the anvil is removed, the threaded end of the plunger must not be allowed to enter the case.

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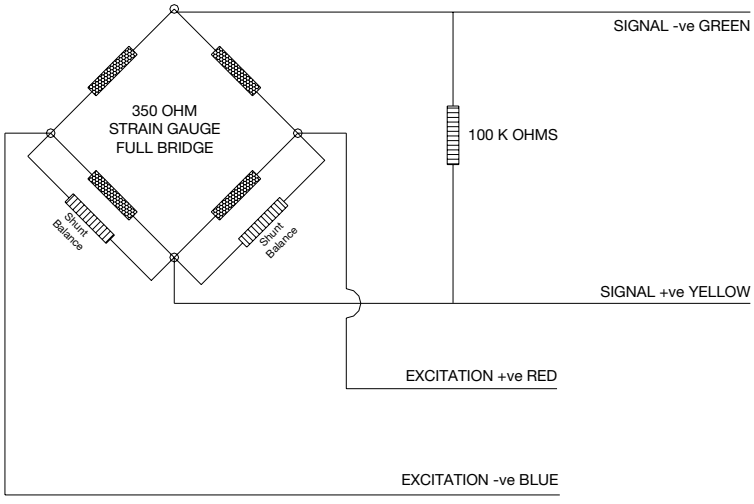
CONNECTIONS:

Wire	Designation
RED	+ve excitation
BLUE	-ve excitation
GREEN	+ve signal
YELLOW	-ve signal
SCREEN	GND – Not connected to body

Outline Dimensions in mm

Dimensions mm (inch)	Model				
	HS-A5	HS-A10	HS-A25	HS-A50	HS-A100
ØA	17.4 (0.685)	17.4 (0.685)	17.4 (0.685)	17.4 (0.685)	25.4 (1)
B	89 (3.504)	89 (3.504)	104 (4.094)	155 (6.1)	264 (10.39)
C	5 (0.197)	5 (0.197)	26 (1.023)	51 (2)	102 (4.016)
ØD	4.8 (0.189)	4.8 (0.189)	4.8 (0.189)	4.8 (0.189)	4.8 (0.189)

Wiring Schematic



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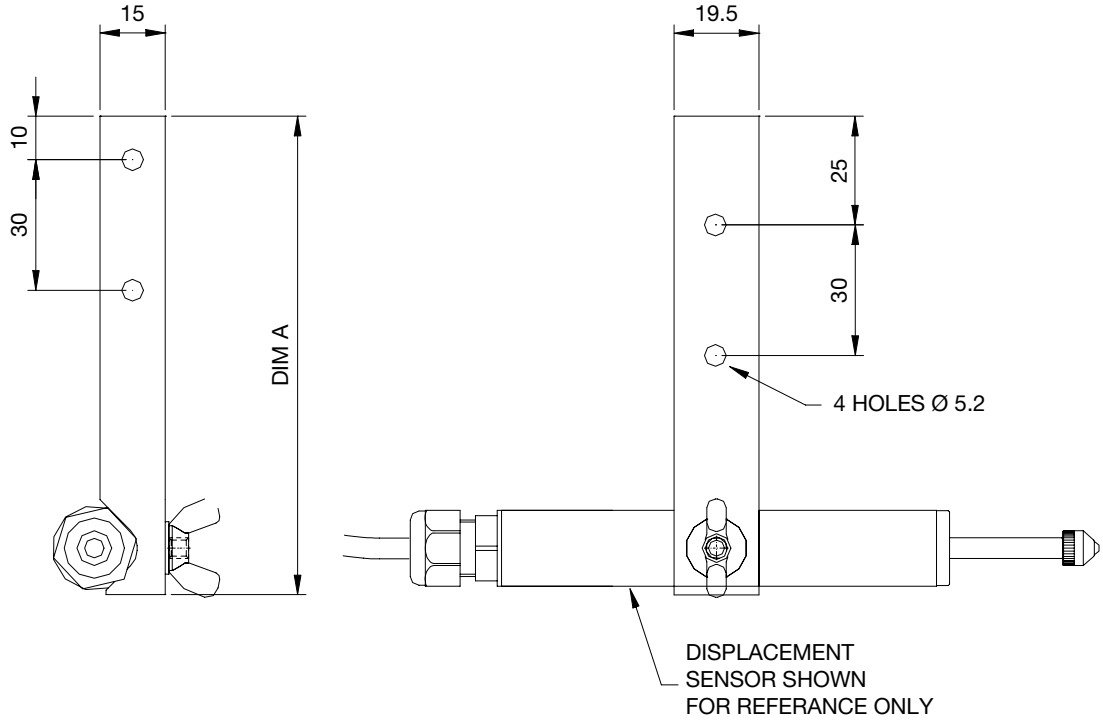
DISPLACEMENT SENSOR ACCESSORY

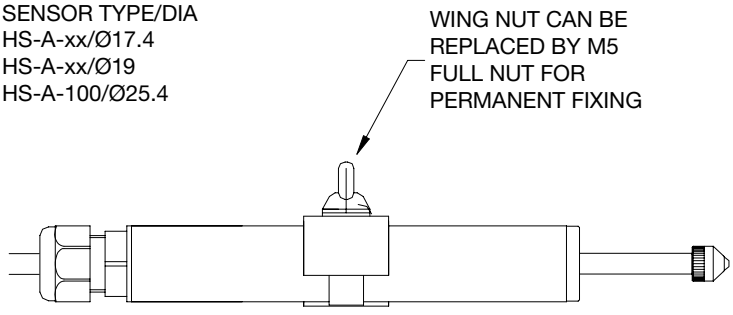
Single End Clamp Types SHC 17
SHC 20
SHC 25

Materials: Clamp Bar Anodised Aluminium
Ring & Fixings Stainless Steel

Note: Clamp bar can be machined to suit applications



TYPE	DIM A	SENSOR TYPE/DIA
SHC-17	110	HS-A-xx/Ø17.4
SHC-19	110	HS-A-xx/Ø19
SHC-25	115	HS-A-100/Ø25.4



Special Use Sensors—Linear Displacement Sensors

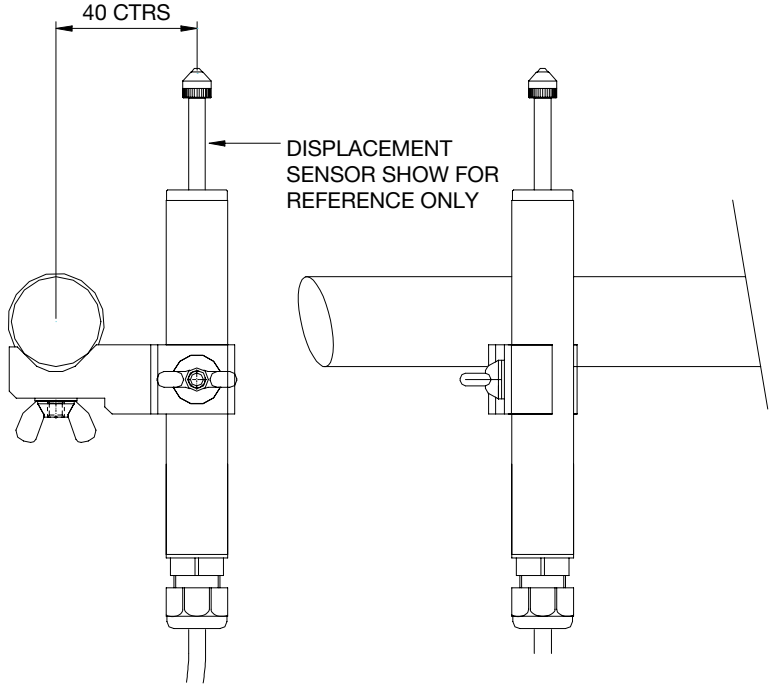
DISPLACEMENT SENSOR ACCESSORY

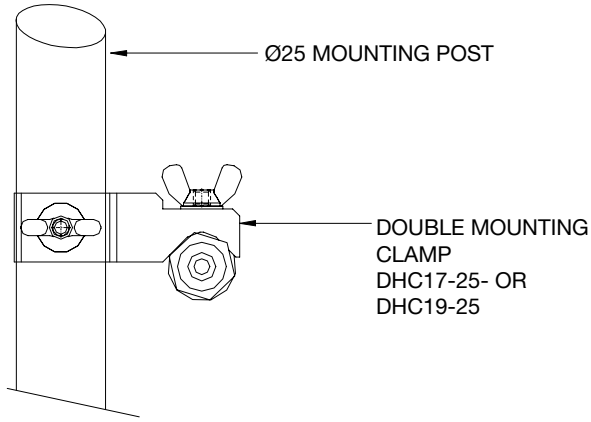
Double End Clamp Types DHC 17-25

DHC 19-25

Materials: Clamp Bar Anodised Aluminium

Ring fixing Stainless Steel





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