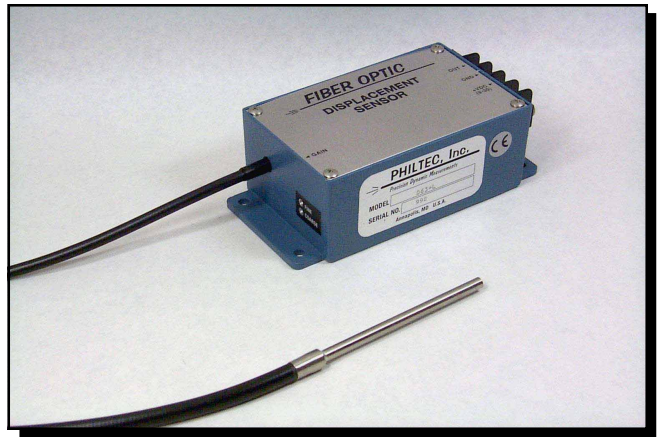


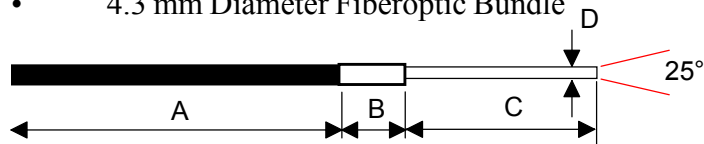
Model D170



Non-Contact Fiberoptic Displacement Sensor

Features

- Reflectance Dependent Output
- 30 mm Operating Range (1.2")
- 4.3 mm Diameter Fiberoptic Bundle



FEATURE	DIMENSION	INCH	MM
Fiber Bundle Diameter	E	0.170	4.29
Tip Outer Diameter	D	0.187	4.75
Tip Length	C	3.0	76.2
Collar Length	B	0.625	15.9
Collar Diameter	B Dia.	0.312	7.92
Cable Length	A	36	914
Cable Diameter	A Dia.	0.270	6.86
Cable Minimum Bend Radius		1.125	28.6

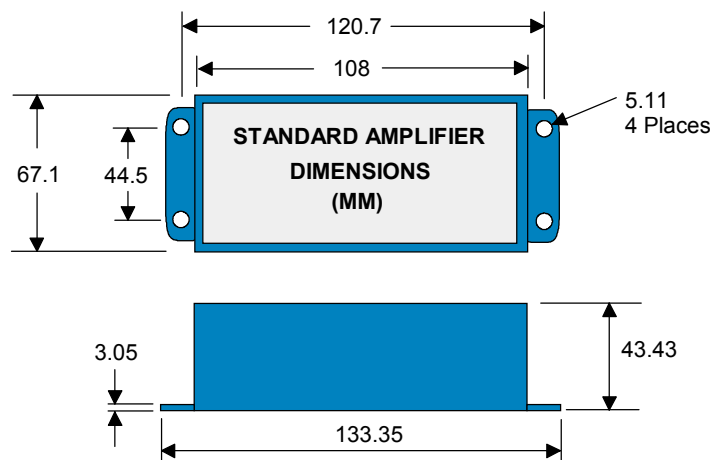
Standard off-the-shelf hardware is provided with dimensioning shown.

Custom hardware is encouraged to suit an application's requirements. Many variations are possible.

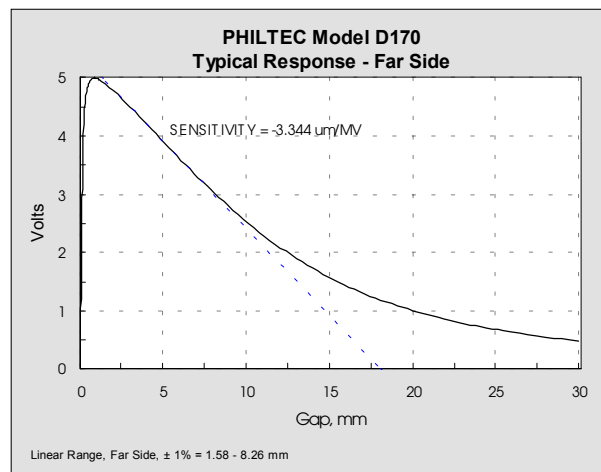
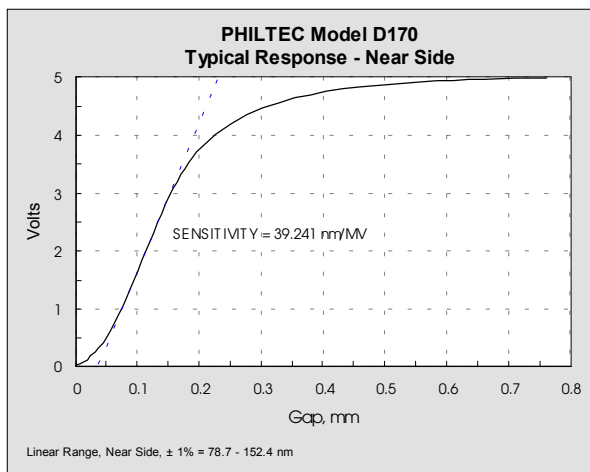
Contact the factory for design assistance: designhelp@philtec.com

Note: Target Spot Size = Fiber Bundle Diameter

DESCRIPTION. Bundled glass fibers transmit and receive light reflected from target surfaces. The intensity of the reflected light is processed to provide a reflectance dependent voltage output. Standard units include the fiberoptic cable, sensor tip and amplifier providing 0 - 5 volt analog outputs with DC - 20 KHz bandwidth. The amplifier requires user supplied DC power. The electronics and fiberoptic cable are set into the amplifier housing with an epoxy potting compound to provide a rugged and inert device.



PHILTEC



Conversions: 1 mil = .001 inch = 25.4 microns = .0254 mm

1 mm = 39.4 mils 1 micron = 39.4 microinch

Standard Specifications

Amplifier		Fiber Optics		Sensor		
Light Source	LED, 850 nm	Tip Light Beam Spread	25 degrees	Total Range	1200 mils	30 mm
Input Voltage	+12 to +30 VDC unregulated	Cable Sheathing Material	PVC Over Steel Monocoil Wrap	Linear Range - Far Side	200 mils	5.08 mm
Input Current	125 ma maximum	Tip Housing Material	300 series stls stl	Linear Range - Near Side	3.5 mil	0.089 mm
Analog Output Voltage	0 to + 5 VDC	Tip Epoxy Outgas	0.3% @ 200°C 1 hr; 2.4% @ 300°C	Distance To Middle of Linear Range - Far Side	165 mils	4.19 mm
Analog Output Current	5 ma max	Tip Operating Pressure	500 psig	Distance To Middle of Linear Range - Near Side	5.0 mils	0.127 mm
Frequency Response	DC - 20 KHz (3 db down)	Tip Operating Temperature	-55 to 175°C Continuous to 350°C intermittent 1-2 hrs	Optical Peak	38 mils	0.965 mm
Electronic Drift	<0.1% FS (5 mv)	Cable Operating Temperature	10 to 107°C	Sensitivity - Far Side	121 μin/MV	3.07 μm/MV
Operating Temperature	0 to 70°C			Sensitivity - Near Side	1.75 μin/MV	44.5 nm/MV
Weight	0.60 kg (1.3 lbs)			Noise Ripple @ 3.5 VDC In Passband DC - 20 KHz	2.0 mv pk-pk	

Resolutions (in the linear ranges)

	Near Side		Far Side	
	pinch	μm	pinch	μm
DC - 100 Hz	0.4	0.01	25	0.64
DC - 20 KHz (Standard)	3.5	0.089	245	6.22
DC - 200 KHz	21.0	0.53	1500	38.1

RESOLUTION

- Sensitivity** is measured in units of micron/millivolt.
- Noise Ripple** is defined as the pk-pk amplitude (millivolts) of sensor noise, in the time domain, over the sensor frequency passband; i.e., from DC - 20 KHz (standard).
- Resolution (microns) = Sensitivity x Noise Ripple**

Noise Ripple is proportional to the square root of the sensor DC Output Voltage. For D model sensors, Noise Ripple is measured at 3.5 VDC. Noise ripple can be minimized in any application by operating the sensor at as low a DC voltage level as possible.

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