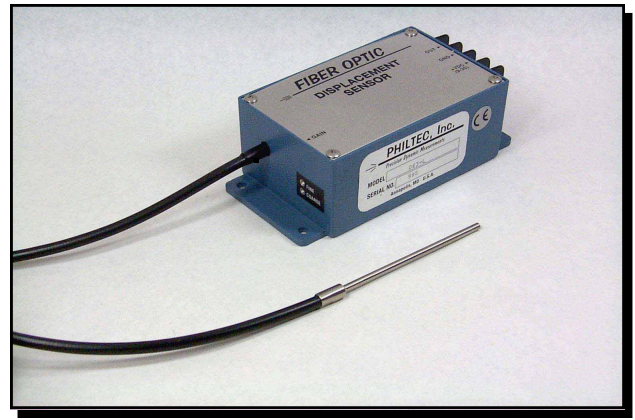
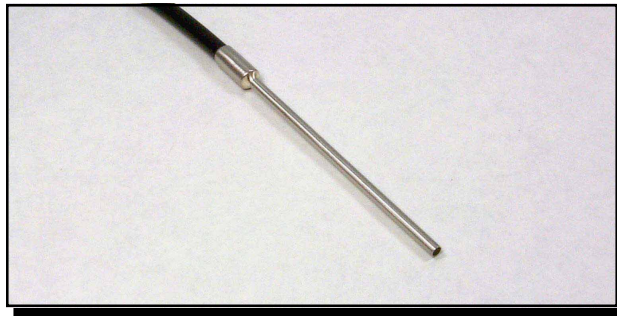


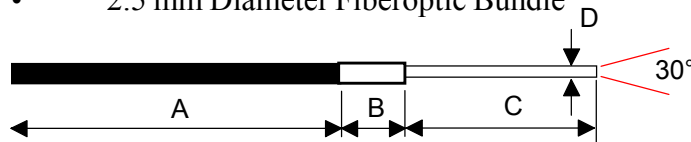
Model D100



Non-Contact Fiber optic Displacement Sensor

Features

- Reflectance Dependent Output
- 10 mm Operating Range (0.40")
- 2.5 mm Diameter Fiber optic Bundle



FEATURE	DIMENSION	INCH	MM
Fiber Bundle Diameter	E	0.100	2.54
Tip Outer Diameter	D	0.125	3.18
Tip Length	C	3.0	76.2
Collar Length	B	0.5	12.7
Collar Diameter	B Dia.	0.25	6.35
Cable Length	A	36	915
Cable Diameter	A Dia.	0.225	5.7
Cable Minimum Bend Radius		0.75	19.0

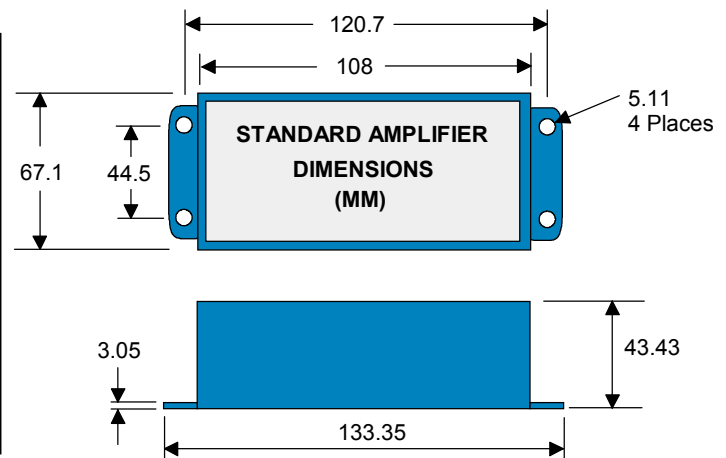
Note: Target Spot Size = Fiber Bundle Diameter

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

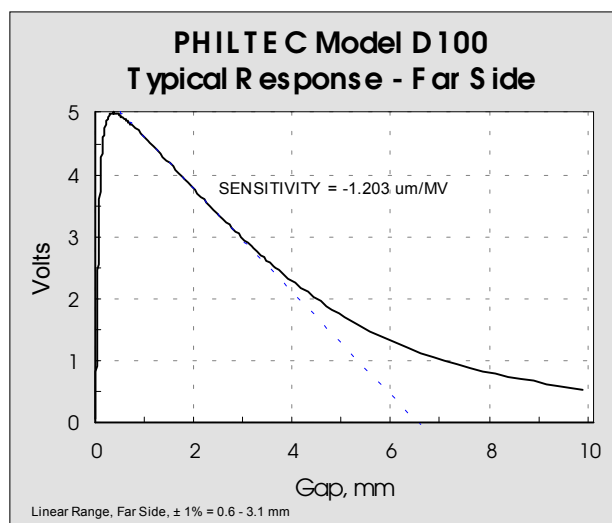
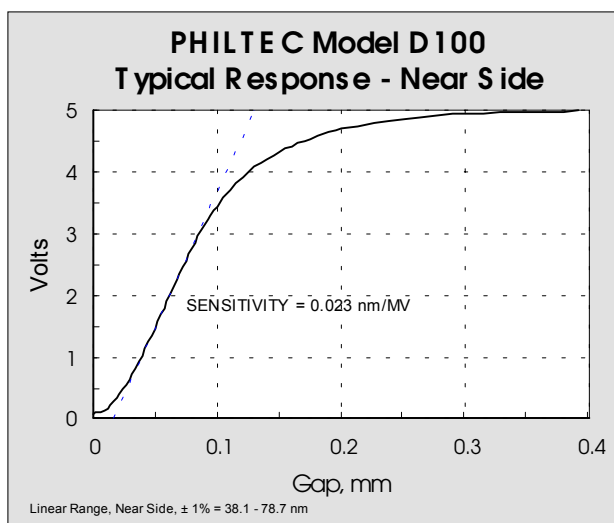
Custom hardware is encouraged to suit an application's requirements. Many variations are possible.

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

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 fiber optic 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 fiber optic 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, 880 nm	Tip Light Beam Spread	30 degrees	Total Range	400 mils	10 mm
Input Voltage	+12 to +30 VDC unregulated	Cable Sheathing Material	PVC Over Steel Monocoil Wrap	Far Side Linear Range	80 mils	2 mm
Input Current	125 ma maximum	Tip Housing Material	300 series stls stl	Near Side Linear Range	1.75 mil	0.04 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	80 mils	2.0 mm
Analog Output Current	5 ma max	Tip Operating Pressure	500 psig	Distance To Middle of Linear Range - Near Side	2.2 mils	0.05 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	17 mils	0.43 mm
Electronic Drift	<0.1% FS (5 mv)	Cable Operating Temperature	10 to 107°C	Far Side Sensitivity	47 μin/MV	1.2 μm/MV
Operating Temperature	0 to 70°C			Near Side Sensitivity	0.9 μin/MV	25.4 nm/MV
Weight	0.60 kg (1.3 lbs)			Noise Ripple @ 3.5 VDC In Passband DC - 20 KHz	1 mv pk-pk	

Resolutions (in the linear ranges)				
	Near Side		Far Side	
	μinch	μm	μinch	μm
DC - 100 Hz	0.2	0.005	6.0	0.15
DC - 20 KHz (Standard)	1.25	0.032	70.0	1.8
DC - 200 KHz	6.0	0.15	280	7.1

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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