

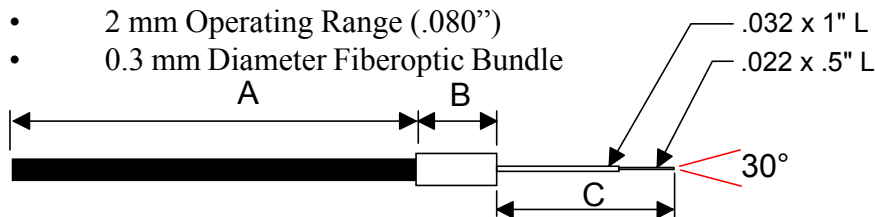
Model D12



Non-Contact Fiberoptic Displacement Sensor

Features

- Reflectance Dependent Output
- 2 mm Operating Range (.080")
- 0.3 mm Diameter Fiberoptic Bundle



FEATURE	DIMENSION	INCH	MM
Fiber Bundle Diameter	E	0.012	0.305
Tip Outer Diameter	D	0.022	0.56
Tip Length	C	1.5	38.1
Collar Length	B	0.5	12.7
Collar Diameter	B Dia.	0.25	6.35
Cable Length	A	36	914
Cable Diameter	A Dia.	0.205	5.2
Cable Minimum Bend Radius		0.5	12.7

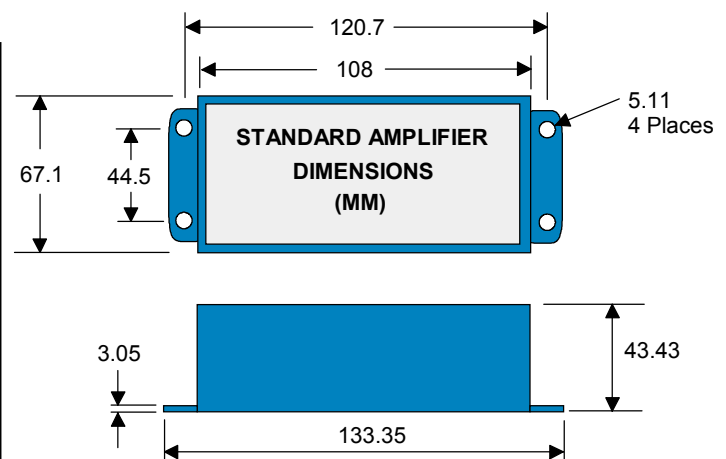
Standard off-the-shelf hardware is provided with dimensioning shown.

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

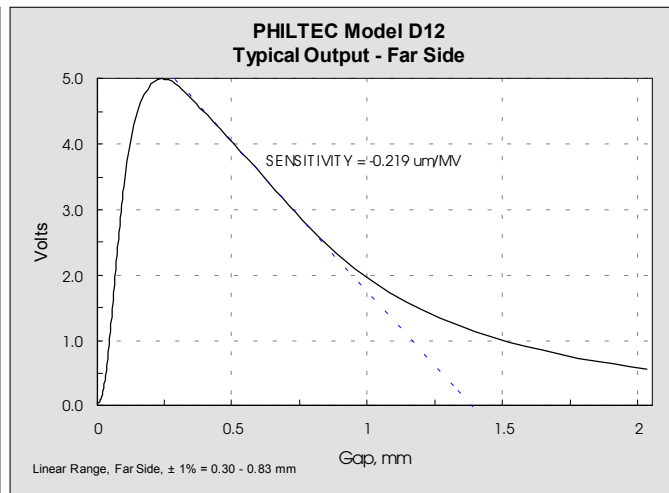
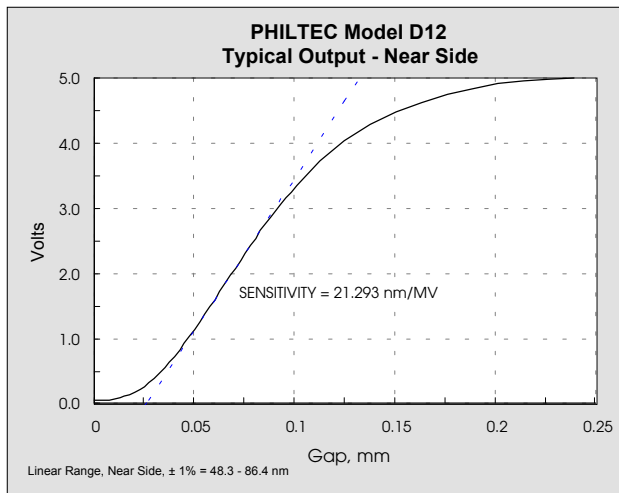
Contact the factory for design assistance: designhelp@philtec.com

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.



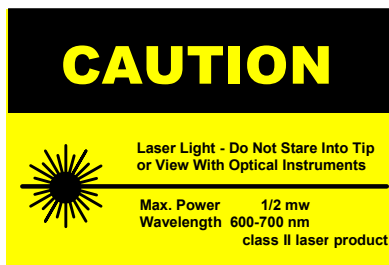
PHILTEC



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	Laser Diode, 670 nm	Tip Light Beam Spread	30 degrees	Total Range	80 mils	2 mm
Input Voltage	+12 to +30 VDC unregulated	Cable Sheathing Material	PVC Over Steel Monocoil Wrap	Far Side Linear Range	20 mils	0.508 mm
Input Current	125 ma maximum	Tip Housing Material	300 series stls stl	Near Side Linear Range	1.5 mil	0.038 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	25 mils	0.635 mm
Analog Output Current	5 ma max	Tip Operating Pressure	500 psig	Distance To Middle of Linear Range - Near Side	2.7 mils	0.069 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	10 mils	0.254 mm
Electronic Drift	<0.1% FS (5 mv)	Cable Operating Temperature	10 to 107°C	Far Side Sensitivity	11 μ m/MV	0.28 μ m/MV
Operating Temperature	0 to 70°C			Near Side Sensitivity	0.85 μ m/MV	22 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	
	μ inch	μ m	μ inch	μ m
DC - 100 Hz	0.2	0.004	3	0.08
DC - 20 KHz (Standard)	1.7	0.04	22	0.56
DC - 200 KHz	7.0	0.18	90	2.3



LASER SAFETY

The Philtec model D12 Fiber Optic Displacement Sensor emits visible light thru a circular fiber optic bundle whose diameter measures 0.012 inch. This light is generated by a semiconductor laser. The laser light emission is not collimated into a narrow beam. Rather, it is dispersed over the area of the fibre optic sensor tip. The wavelength of the laser is 670 nm and the maximum output power emitted from the fiber optic bundle at the tip of the sensor is 1/2 mw.

This equipment is thus equivalent to a Class II product according to ANSI Z136.1-1986. Class II lasers operate within the visible light range and therefore can be clearly seen. The laser light is unharmed to the skin if exposed. Eye protection is normally afforded by the aversion response including the blink reflex. However, care should be taken not to view the laser light directly or any reflections that may be present, e.g. reflection from a mirrored surface.

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