

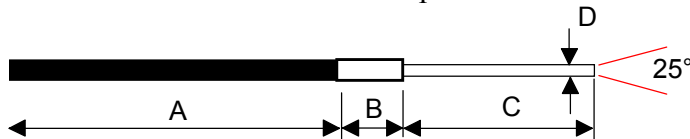
Model RC171



Non-Contact Fiberoptic Displacement Sensor

Features

- Reflectance Compensated Output with Small Diameter Tip
- 12.7 mm Operating Range (0.5")
- 4.3 mm Diameter Fiberoptic Bundle



FEATURE	DIMENSION	INCH	MM
Fiber Bundle Diameter	E	0.171	4.34
Tip Outer Diameter	D	0.187	4.75
Tip Length	C	1.5	38.1
Collar Length	B	0.625	15.9
Collar Diameter	B Dia.	0.312	7.92
Cable Length	A	36	915
Cable Diameter	A Dia.	0.270	6.86
Cable Minimum Bend Radius		1.125	28.6

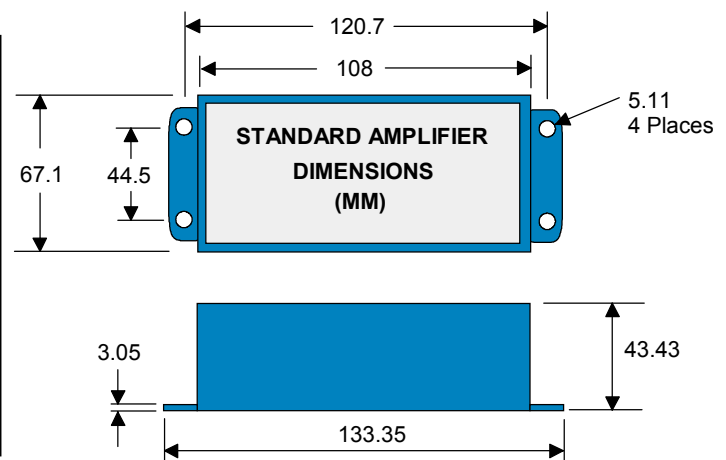
Note: Target Spot Size = Fiber Bundle Diameter

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

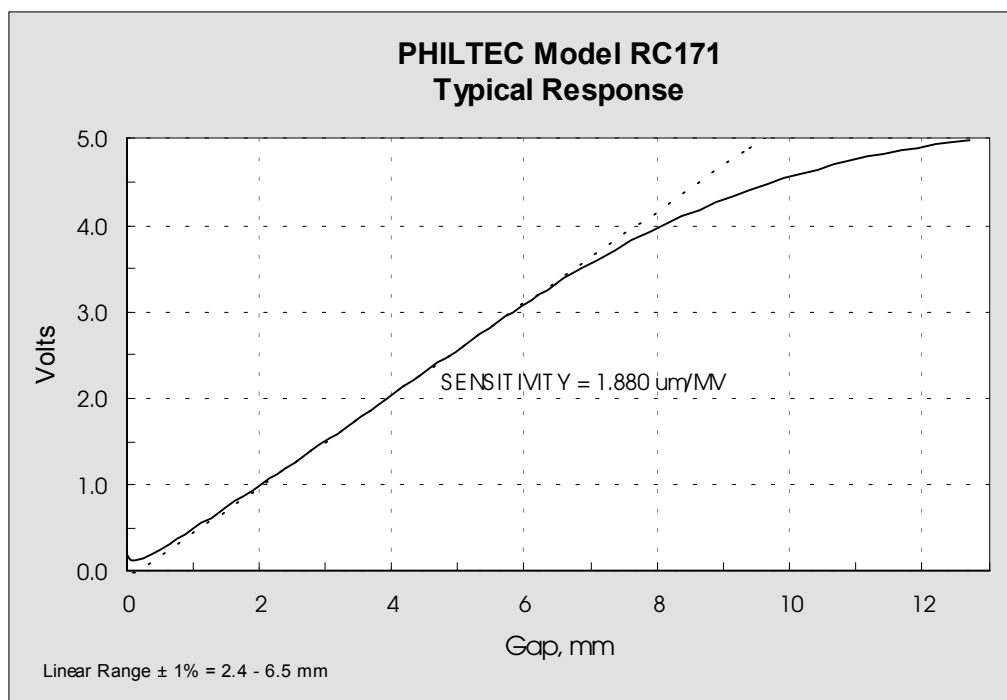
Custom hardware is encouraged to suit an application's requirements. Many variations are possible.

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 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.



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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	500 mils	12.7 mm
Input Voltage	+12 to +30 VDC unregulated	Cable Sheathing Material	PVC Over Steel Monocoil Wrap	Linear Range	160 mils	4.1 mm
Input Current	125 ma maximum	Tip Housing Material	300 series stls stl	Distance To Middle of Linear Range	175 mils	4.44 mm
Analog Output Voltage	0 to + 5 VDC	Tip Epoxy Outgas	0.3% @ 200°C 1 hr; 2.4% @ 300°C	Sensitivity	74 µin/MV	1.9 µm/MV
Analog Output Current	5 ma max	Tip Operating Pressure	500 psig	Resolution, DC - 100 Hz	15 µIN	0.38 µm
Frequency Response	DC - 20 KHz (3 db down)	Tip Operating Temperature	-55 to 175°C Continuous to 350°C intermittent 1-2 hrs	Resolution, DC - 20 KHz (Standard Bandwidth)	300 µIN	7.6 µm
Electronic Drift	<0.1% FS (5 mv)	Cable Operating Temperature	10 to 107°C	Resolution, DC - 200 KHz	1200 µin	30.5 µm
Operating Temperature	0 to 70°C			Noise Ripple @ 2 VDC In Passband DC - 20 KHz	4 MV	
Weight	0.60 kg (1.3 lbs)					

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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