

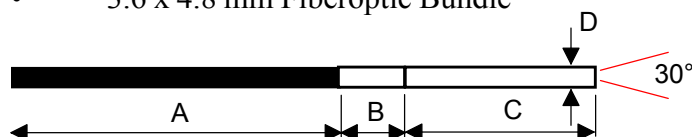
Model RC140



Features

Non-Contact Fiberoptic Displacement Sensor

- Reflectance Compensated Output
- Provides Large Standoff with High Sensitivity
- 7.6 mm Operating Range (0.3")
- 3.6 x 4.8 mm Fiberoptic Bundle



FEATURE	DIMENSION	INCH	MM
Fiber Bundle Area Width x Length		0.140 x 0.187	3.56 x 4.75
Tip Outer Diameter	D	0.312	7.925
Tip Length	C	1.0	25.4
Collar Length	B	0.5	12.7
Collar Diameter	B Dia.	0.312	7.925
Cable Length	A	36	91.44
Cable Diameter	A Dia.	0.270	6.858
Cable Minimum Bend Radius		1.00	25.4

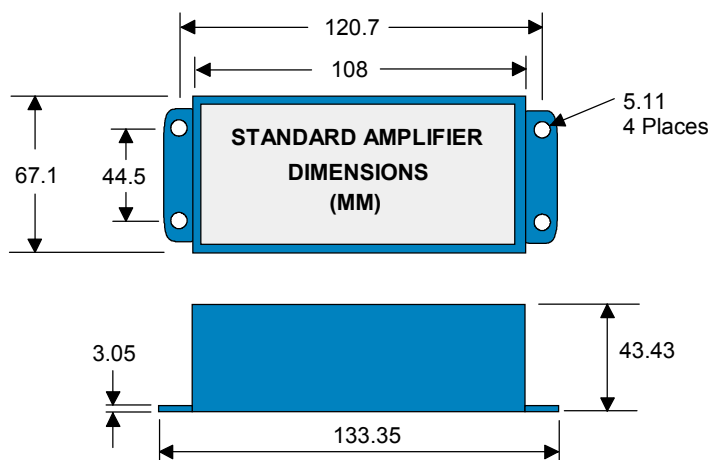
Note: Target Spot Size = Fiber Bundle Area

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

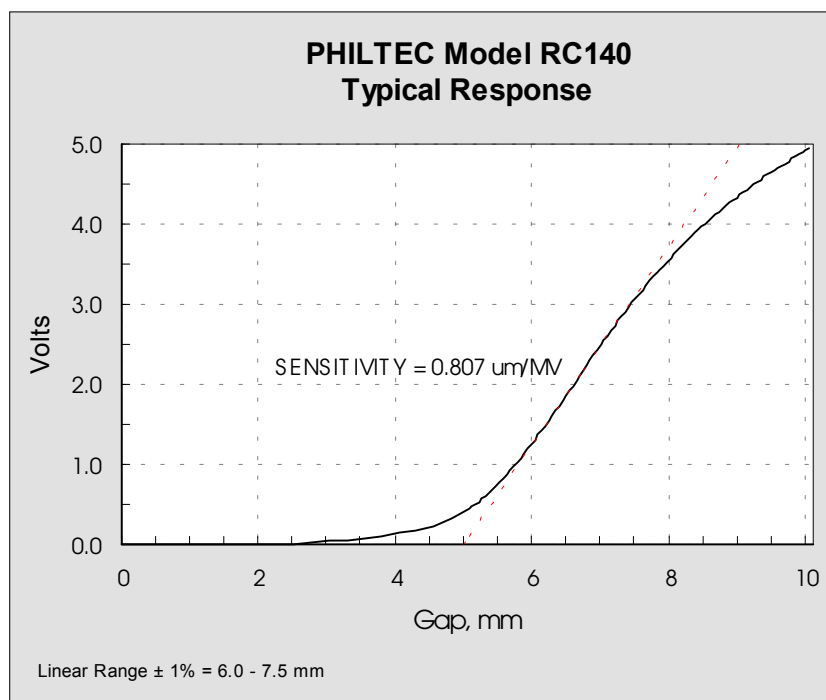
Custom hardware is encouraged to suit application requirements. Many variations are possible.

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 compensated 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	30 degrees	Total Range	400 mils	10.16 mm
Input Voltage	+12 to +30 VDC unregulated	Cable Sheathing Material	PVC Over Steel Monocoil Wrap	Operating Range	300 mils	7.6 mm
Input Current	125 ma maximum	Tip Housing Material	300 series stls stl	Linear Range	35 mils	0.889 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	230 mils	5.8 mm
Analog Output Current	5 ma max	Tip Operating Pressure	500 psig	Sensitivity	30 $\mu\text{in}/\text{MV}$	0.76 $\mu\text{m}/\text{MV}$
Frequency Response	DC - 20 KHz, 3 db down	Tip Operating Temperature	-55 to 140°C	Resolution, DC - 100 Hz	12 μin	0.3 μm
Electronic Drift	<0.1% FS (5 mv)	Cable Operating Temperature	10 to 107°C	Resolution, DC - 20 KHz	120 μin	3.0 μm
Operating Temperature	0 to 70°C			Resolution, DC - 200 KHz	500 μin	12.7 μm
Weight	0.60 kg (1.3 lbs)			Noise Ripple @ 2.0 VDC In Passband DC - 20 KHz	4.0 mv pk-pk	

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 RC model sensors, Noise Ripple is measured at 2.0 VDC. Noise ripple can be minimized in any application by operating the sensor at as low a DC voltage level as possible.