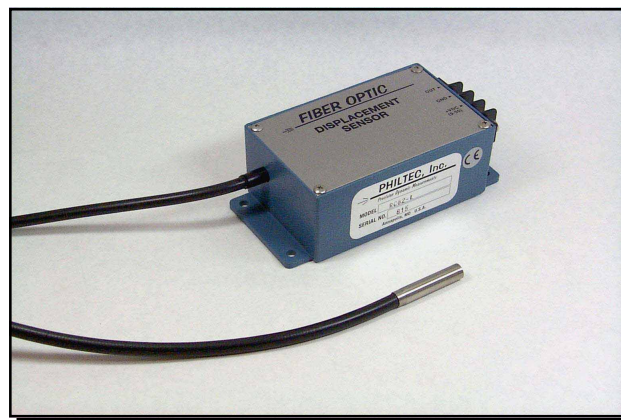


Model RC90



Non-Contact Fiber Optic Displacement Sensor

Features

- Reflectance Compensated Output
- 9 mm Operating Range (0.35")
- 2.3 x 4.8 mm Fiber optic Bundle



FEATURE	DIMENSION	INCH	MM
Fiber Bundle Area Width x Length		0.090 x 0.187	2.286 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

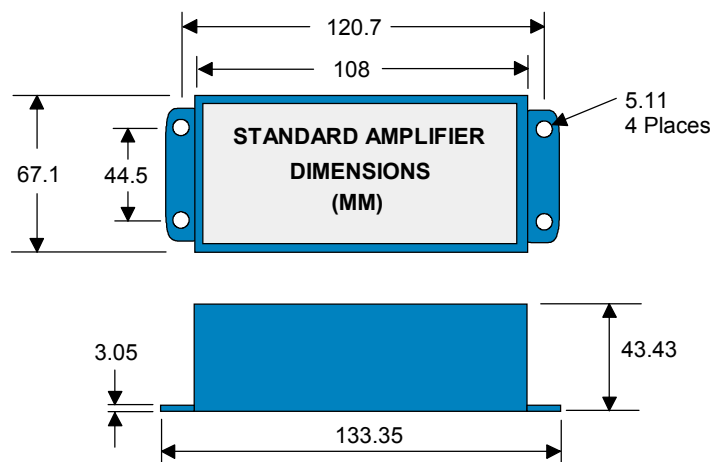
Note: Target Spot Size = Fiber Bundle Area

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

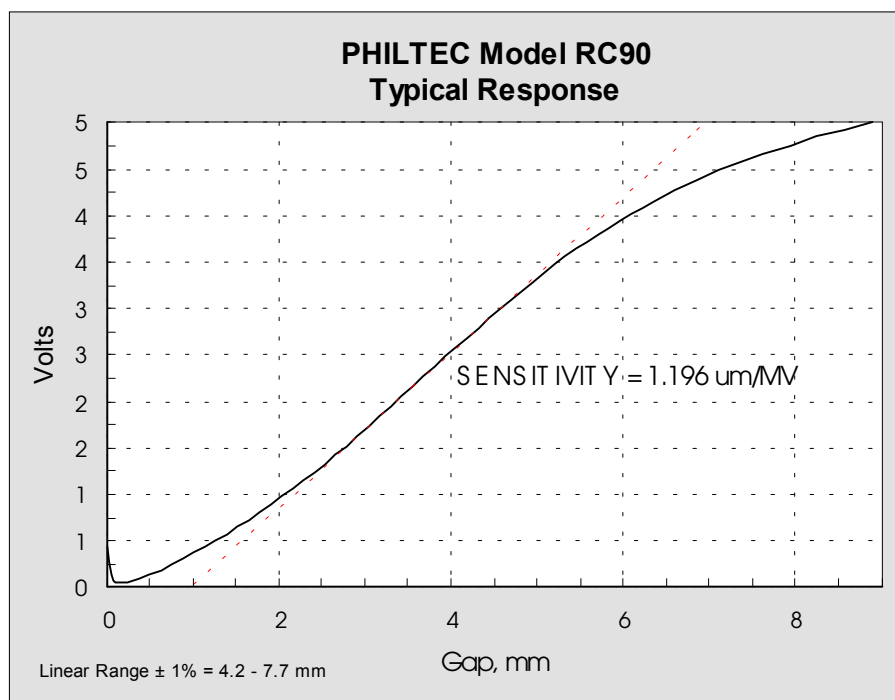
Custom hardware is encouraged to suit application requirements. Many variations are possible.

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 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, 850 nm	Tip Light Beam Spread	25 degrees	Total Range	350 mils	8.9 mm
Input Voltage	+12 to +30 VDC unregulated	Cable Sheathing Material	PVC Over Steel Monocoil Wrap	Linear Range	90 mils	2.3 mm
Input Current	125 ma maximum	Tip Housing Material	300 series stls stl	Distance To Middle of Linear Range	160 mils	4.06 mm
Analog Output Voltage	0 to + 5 VDC	Tip Epoxy Outgas	0.3% @ 200°C 1 hr; 2.4% @ 300°C	Sensitivity	50 $\mu\text{in}/\text{MV}$	1.3 $\mu\text{m}/\text{MV}$
Analog Output Current	5 ma max	Tip Operating Pressure	500 psig	Resolution, DC - 100 Hz	10 μin	0.254 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)	200 μin	5.08 μm
Electronic Drift	<0.1% FS (5 mv)	Cable Operating Temperature	10 to 107°C	Resolution, DC - 200 KHz	600 μin	15.24 μm
Operating Temperature	0 to 70°C			Noise Ripple @ 2.0 VDC In Passband DC - 20 KHz	3.0 mv pk-pk	
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 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.