

USER MANUAL



# FIBER OPTIC DISPLACEMENT SENSORS

with Analog Output



**TYPE RC – REFLECTANCE COMPENSATED**

Model No. RC32-Q    Serial Nos. 4473

 **PHILTEC, INC.**

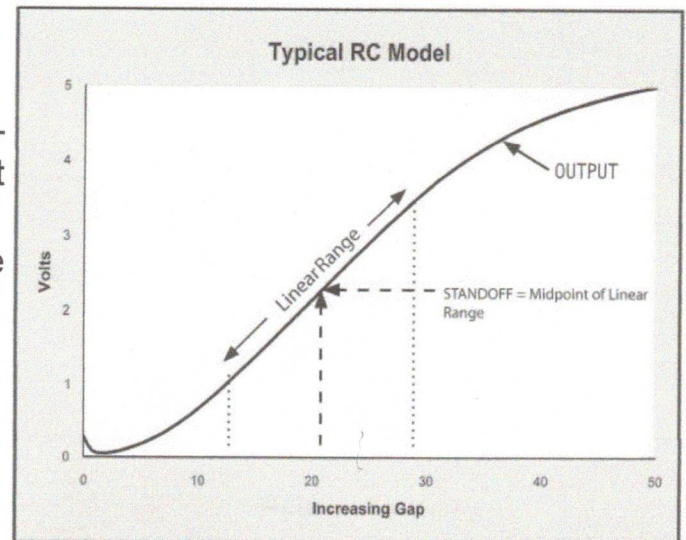
[www.philtec.com](http://www.philtec.com)

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*Precision Dynamic Measurements*

## Quick Start Guide for Analog RC Sensors

1. Power the sensor with +12 VDC, 300ma
2. **Check the SNR voltage**
  - While adjusting the sensor Gap-to-Target, read the SNR voltage and hold at the point of highest SNR volts.
  - Using the 22-turn SNR control, set the max SNR voltage between 2 - 5 volts



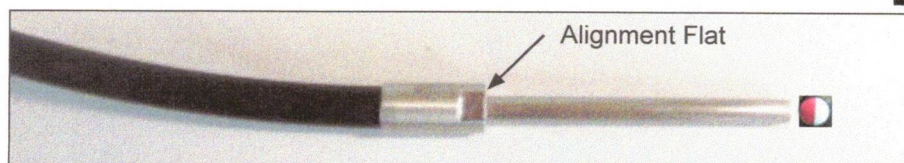
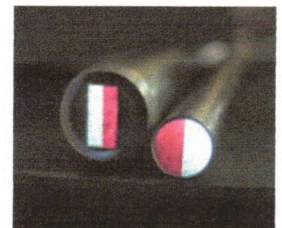
3. Set Gap to the desired operating distance
4. Take voltage readings.
5. Convert volts to distance using the factory supplied sensitivity. Within the bounds of the linear range, convert the change in voltage output as follows:

$$\text{Distance} = \Delta \text{ milliVolts} \div \text{Sensitivity} = \mu\text{m}$$

*Note: The XY calibration data points are made available upon request.*

### THE RC DESIGN

RC sensors have side-by-side fiber bundles where light is transmitted from just one side. An alignment flat found on the probe collar can be used as an aid to get proper alignment. The flat is ground parallel to the split between the adjacent fiber bundles.



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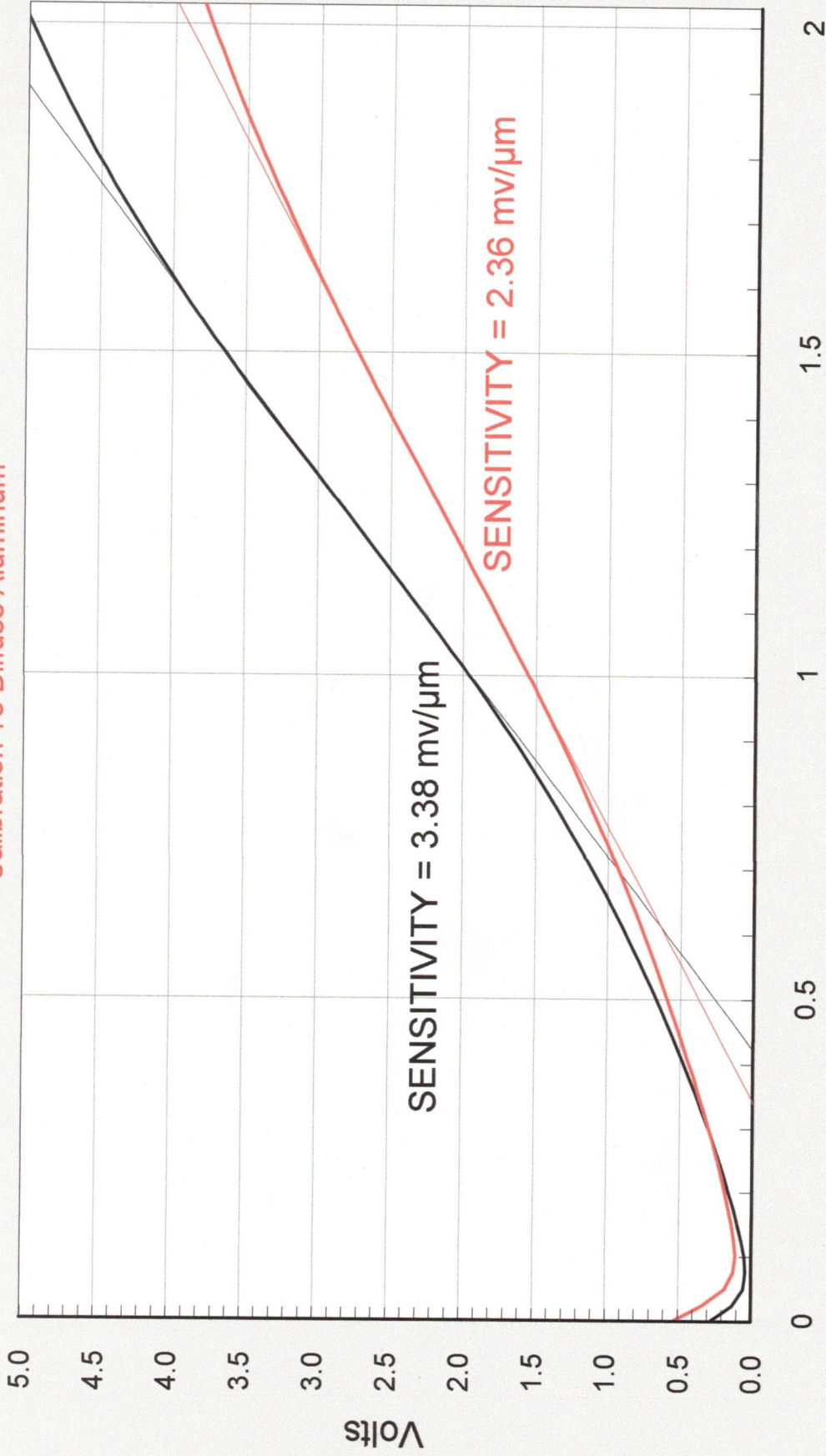
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*Fiberoptic Sensors for the Measurement of Distance, Displacement and Vibration*

# PHILTEC Model RC32-Q Serial No. 4473 6/23/2023

Calibration To Front Surface Mirror

Calibration To Diffuse Aluminum



Gap, mm

Mirror Linear Range  $\pm 1\%$  = 0.97 - 1.67 mm Dull Linear Range  $\pm 1\%$  = 0.9 - 1.7 mm

Noise Ripple @ 2 VDC (DC-20 KHz) = 6 mv pk-pk

Mirror Y Intercept = -1.428 Volts Dull Y Intercept = -0.808