POLYNOMIAL CURVE FITS

Linear ranges of Philtec's fiberoptic sensors vary from approximately 10% to 30% of the total operating ranges. **Option P** can extend the range of calibrated operation beyond the bounds of the linear ranges via polynomial curve fitting.

The accuracy of the curve fit is dependent upon the degree of curvature that is included in the range of data that is selected for the polynomial calculation.

For example, linear ranges can be doubled or even tripled and the resulting curve fit will be very accurate; i.e., to about ±0.1%.

Or, an equation can be calculated to cover a sensor's total operating range and the curve fit will be accurate to no worse than ±3%, and that is only in the region of the output where there is sharp curvature.

To request this option, specify **Option P**, and state the displacement range desired for the curve fitting calculations.

PHILTEC   Model RC90

POLYNOMIAL EQUATION
Calculation From 0 - 14 mm
Y = Displacement   X = Volts

5th Degree Polynomial Fit: $y = a + bx + cx^2 + dx^3...$
Coefficient Data:
a =   -0.046602198
b =   3.2787366
c =   -1.8438509
d =   0.97215686
e =   -0.24725086
f =   0.02407498

Standard Error: 0.0641668
Correlation Coefficient: 0.9998577

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Precision Dynamic Measurements