

Glossary of Terms

Accuracy: Stated as a limit tolerance which defines the average deviation between the actual output versus theoretical output. In practical transducer applications, the potential errors of nonlinearity, hysteresis, nonrepeatability and temperature effects do not normally occur simultaneously, nor are they necessarily additive. Therefore, accuracy is calculated based upon the RMS value of potential errors, assuming a temperature band of $\pm 10^{\circ}$ F, full rated load applied, and proper set up and calibration. Potential errors of the readout, crosstalk, or creep effects are not included.

Axial Load: A load applied along a line concentric with the Primary Axis .

Calibration: The comparison of transducer outputs against standard test loads.

Calibration Curve: A record of the comparison of the transducer outputs versus standard test loads. .

Compensated Temperature: The range of temperature over which the transducer is compensated to maintain Rated Output and Zero Balance within specified limits. .

Creep: The change in transducer output occurring with time, while under load, and with all environmental conditions and other variables remaining constant. Usually measured with Rated Load applied and expressed as a percent of Rated Output over a specific period of time. .

Crosstalk: With one component loaded to capacity, and the other unloaded, the output of the unloaded component will not exceed the percentage specified of its full scale capacity. .

Deflection: The change in length along the Primary Axis of the load cell between no-load and Rated Load conditions.

Drift: A random change in Output under constant Load conditions. .

Error: The algebraic difference between the indicated and true value of the load being measured. .

Excitation: The voltage or current applied to the input terminals of the transducer .

Hysteresis: The maximum difference between the transducer output readings for the same applied load; one reading obtained by increasing the load from zero and the other by decreasing the load from Rated Output. Usually measured at half Rated Output and expressed in percent of Rated Output. Measurements should be taken as rapidly as possible to minimize Creep. .

Load: The weight, torque, or force applied to the transducer. .

Load Cell: A device which produces an Output signal proportional to the applied weight or force. .

Natural Frequency: The frequency of free oscillation under no-load conditions. .

Non-linearity: The maximum Deviation of the Calibration Curve from a straight line drawn between the no-load and Rated Load outputs, expressed as a percentage of the Rated Output and measured on increasing load only. .

Non-repeatability: The maximum difference between transducer output readings for repeated loadings under identical loading and environment conditions. .

Operating Temperature: The extremes of temperature within which the transducer will operate without permanent adverse change to any of its performance characteristics. .

Primary Axis: The axis along which the transducer is designed to be loaded; normally its geometric centerline. .

Rated Load (Rated Capacity): The maximum Axial Load that the transducer is designed to measure within its specifications. .

Rated Output: The signal (voltage) produced by the transducer. Where the output is directly proportional to excitation, the signal is expressed in terms of millivolts / volt (mV/V) of excitation. .

Resolution: The smallest change in mechanical input which produces a detectable change in the output signal. .

Safe Overload: The maximum load in percent of Rated Capacity which can be applied without producing a permanent shift in performance characteristics beyond those specified. .

Shunt Calibration: Electrical simulation of transducer output by insertion of known shunt resistors between appropriate points within the circuitry. .

Temperature Shift Span: The change in Output due to a change in transducer temperature. Expressed as a percentage of load per degree Fahrenheit (Celsius) change temperature. .

Temperature Shift Zero: The change in Zero Balance due to a change in transducer temperature. Expressed as the change in Zero Balance in percent of Rated Output per degrees Fahrenheit (Celsius) (change in temperature). .

Zero Balance: The output signal of the transducer with rated Excitation and with no-load applied, usually expressed in percent of Rated Output. .

Zero Return: The difference in Zero Balance measured immediately before Rated Load application of specified duration and measured after removal of the load, and when the output has stabilized. .

Zero Stability: The degree to which the transducer maintains its Zero Balance with all environmental conditions and other variables remaining constant.