

Pressure Classify

Absolute pressure is zero-referenced against a perfect vacuum, so it is equal to gauge pressure plus atmospheric pressure.

Gauge pressure is zero-referenced against ambient air pressure, so it is equal to absolute pressure minus atmospheric pressure. Negative signs are usually omitted.

Differential pressure is the difference in pressure between two points.

Pressure terminology

Span - The algebraic difference between the limits of the range from the zero to full scale.

Stability – The quality of an instrument or sensor to maintain a consistent output when a constant input is applied.

Storage Temperature - The temperature range in which a device may be stored

Strain Gauge – A measuring element for converting force, pressure, tension, etc. into an electrical signal.

Temperature Compensation – The utilization of supplementary devices, materials, or components within the bridge to minimize sources of error caused by changing temperature.

Temperature, Compensated – The range of temperature over which a transducer can operate up to a full scale and still meet all specifications

Pressure terminology

Full Scale Pressure – The maximum rated operating pressure.

Hysteresis – The maximum difference between output readings for the same measured point, one point obtained while increasing from zero and the other while decreasing from full scale. The points are taken on the same continuous cycle. The deviation is expressed as a percent of full scale.

Linearity - The maximum deviation of the calibration curve from a straight line between zero and full scale, expressed as a percent of full scale output and measured on increasing measured only.

NEMA-4 - A standard from the National Electrical Manufacturers Association, which defines enclosures intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose-directed water.

Operating Temperature - The temperature at which an instrument or sensor can be safely operated.

Pressure terminology

Proof Pressure - The specified pressure which may be applied to the sensing element of a transducer without causing a permanent change in the output characteristics

Repeatability – The ability to produce the same output with consecutive applications of the same pressure

Resolution - The smallest signal increment that can be detected by a measurement system, expressed as percentage of full scale reading.

Sensing Element – The part of the transducer which reacts directly in response to the measurand.

Sensitivity – The ratio of change in transducer output to a change in the value of the measurand.

Pressure terminology

Piezoresistive - Resistance that changes with stress.

PressureProof Pressure - The maximum allowable pressure difference between the rated pressure and the over pressure, without affecting in subsequent operation, the performance requirements over the rated pressure range. The sensor should continue to operate as normal upon removal of the over pressure condition.

Pressure Range (Rated Pressure) - The algebraic difference between the maximum pressure and the minimum pressure over which the device is calibrated.

Pressure Reference (Operational Pressure) - The reference pressure against which the input pressure is measured in-

Vented Gauge: ambient atmospheric pressure.

Sealed Gauge: internal sealed atmospheric reference pressure.

Absolute: internal sealed vacuum.

Differential Gauge: difference of two (unknown) pressures.

Pressure terminology

Temperature, Operating - The range of temperature over which a transducer may be safely operated up to full scale without causing failure, but specification may not be met.

Temporal Drift – The change in accuracy of an instrument over time. This effect may be due to aging of the instrument's components or calibration changes

Transducer – A device (or medium) that converts energy from one form to another. The term is generally applied to devices that take physical phenomenon (pressure, temperature, humidity, flow, etc.) and convert it to an electrical signal

Transmitter - A transducer that has a 4-20 mA two wire output

Pressure terminology

Vacuum – Any pressure less than atmospheric pressure

Wetted Parts – The diaphragm and pressure port material that comes in direct contact with the medium (gas, liquid)

Zero Adjustments – Used when “setting up” a transducer to adjust the output signal to zero when zero load/pressure is applied.

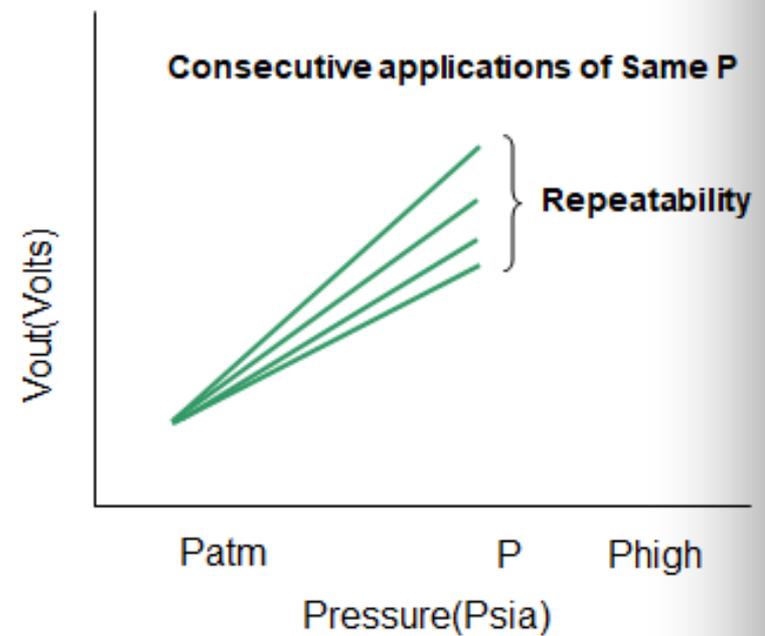
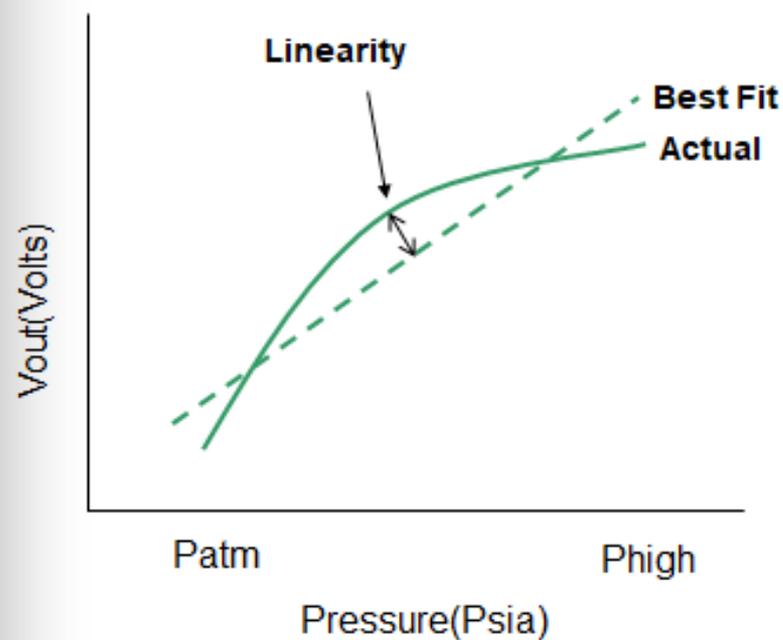
Zero Offset – Difference between true zero and an indication given by a measuring instrument.

TCO and TCS

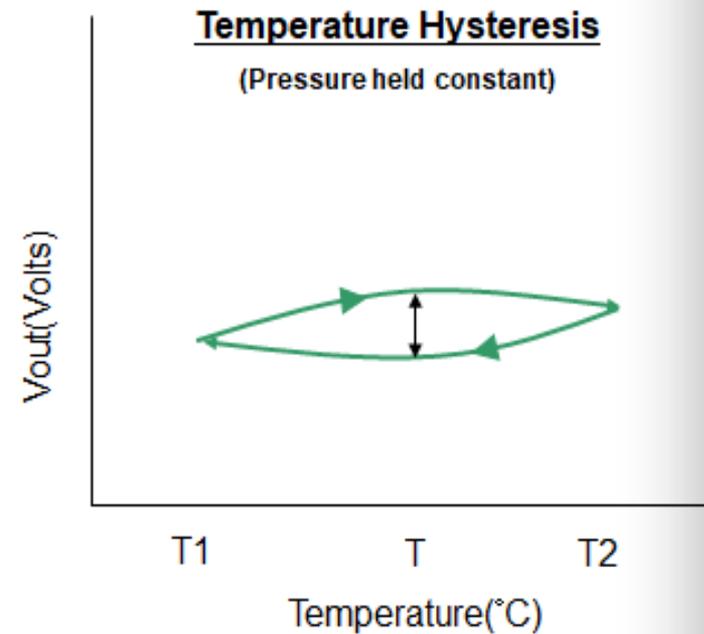
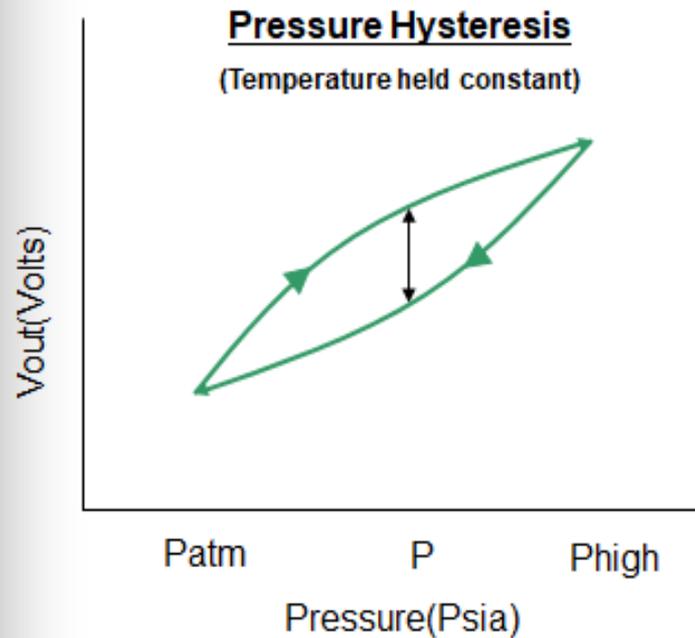
Temperature Coefficient of Offset: The error band defined by the maximum deviation in offset voltage as the temperature is varied from 25°C to any other temperature within the specified range.

Temperature Coefficient of Span: The error band defined by the maximum deviation of the span as the temperature is varied from 25°C to any other temperature within the specified range.

Pressure terminology--Linearity

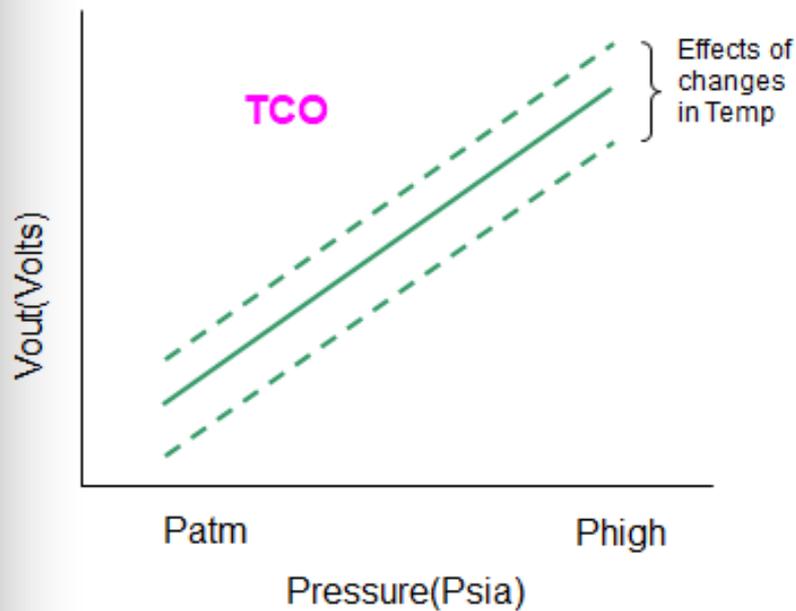


Pressure and Temperature Hysteresis



TCO and TCS

Temperature Coefficient of the Offset



Temperature Coefficient of the Span

