FACULTY OF ENGINEERING & TECHNOLOGY

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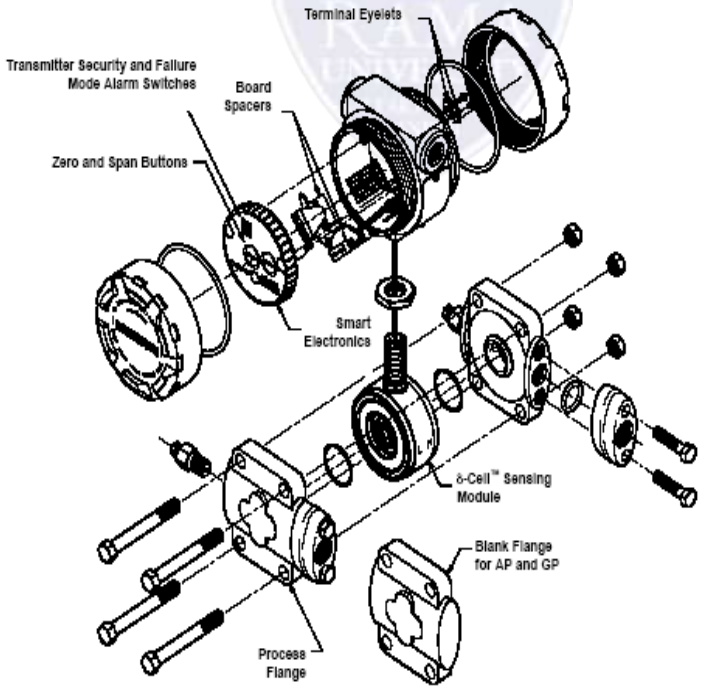
Pressure Gauge Selection Guideline

When selecting a Pressure Gauge, care should be given to a number of parameters which have an effect on the gauge's accuracy, safety, and cost.

- Accuracy required
- Dial size
- Operating pressure range
- Chemical compatibility with gauge construction materials
- Operating temperature range
- Vibration, pulsation, and shock
- Pressure fluid composition
- Mounting requirement

Pressure Transmitter



TRANSDUCERS

- A Pressure Transmitter is used where indication and/or record of pressure is required at a location not adjacent to the primary element.
- A Pressure Transmitter is used for both indication and control of a process.
- A Pressure Transmitter is used where overall high performance is mandatory.
- Both Electronic and Pneumatic Transmitters are used.
- These can be either Gauge, Absolute or Differential Pressure Transmitters.

Transmitter Measuring Principle

- The diagram shows an electronic differential pressure sensor. This particular type utilizes a two-wire capacitance technique.
- Another common measuring technique is a strain gauge.
- Process pressure is transmitted through isolating diaphragms and silicone oil fill fluid to a sensing diaphragm.
- The sensing diaphragm is a stretched spring element that deflects in response to the differential pressure across it.
- The displacement of the sensing diaphragm is proportional to the differential pressure.
- The position of the sensing diaphragm is detected by capacitor plates on both sides of the sensing diaphragm.
- The differential capacitance between the sensing diaphragm and the capacitor plates is converted electronically to a 4–20 mA or 1-5 VDC signal.
- For a gauge pressure transmitter, the low pressure side is referenced to atmospheric pressure.