

Transducer

Choosing a pressure transducer to best fit your measurement requirements is as simple as knowing what you are working to accomplish.

A transducer is an electronic device that converts energy from one form to another. Some of the more common examples include microphones, loudspeakers, thermometers, position and pressure sensors. Although not generally thought of as transducers, photocells, LEDs (light-emitting diodes), and even common light bulbs are transducers. Since I am assuming we are not looking for audio or lighting equipment we can concentrate on pressure transducers, which are valuable when monitoring a process requiring remote indication either from a process control system or a safety aspect.

Select the instrument:

Knowing the process that is being measured is an absolute must. First select a pressure range, look at normal operation from vacuum 0-5 psi to 10,000 psi and worst case scenario called burst pressure. Temperature of the process as well as ambient will need to be specified. Look over the type of materials used to construct the instrument versus the media being measured by using a chemical compatibility chart available from a number of sources such as Cole Palmer's web site www.coleparmer.com/TechInfo/ChemComp. Now select the required performance specifications for acceptable accuracy class, ranging from .25% to 1.0% relating to linearity of T.P. (terminal point) and B.F.S.L. (best fit straight line) also Hysteresis and Nonrepeatability. Next some instruments account for temperature errors, which are the maximum change in output at any input within the range from room temperature to specified extremes. You can select electrical requirements from output signals, milli-amperes to voltage, to terminations on the instrument itself that are wide-ranging from the manufacture. When determining output signals keep in mind that transducers with a milli-amp output are usually lower in cost but are limited to short distances up to around 200 feet and can be disturbed by electrical noise; amplified voltage can travel farther and are less susceptible to electrical interference. Transducers are available with variety of enclosure options ranging from basic with access to calibration terminals either externally or internally to welded with out access and explosion proof.

Transducers are much like a gauge, ranging from a pressure indicator to a process monitor, and this is dictated by the requirements of the process.

David Simmons
Sales Engineer
I&M Industrials, Inc.
Greenville SC
<http://www.iandmindustrials.com>