

# SELECTING A TRANSMITTER

*Consider the following issues to help you to choose the best pressure transmitter for your application:*

1. **Special Needs:** Series **TG** (general purpose transmitter) is a good choice for general industrial applications. For special needs or circumstances, other models will be more suitable:
  - High Accuracy:** Choose series **TH** for up to 0.1% accuracy (BFSL). For reference, the standard TG accuracy is 0.5%.)
  - Hazardous Environments:** Consider series **TX** (intrinsically safe) or series **TE** (Explosion proof transmitters.)
  - Total Submersion:** Choose series **TS**.
  - Clogging Media:** Consider series **TG** mounted to a diaphragm seal, or series **THF**, which comes with flush diaphragm.
  - Sanitary Applications:** Choose series **THS**, which comes with sanitary Tri-clamp connection.
  - Low Cost:** For OEM use, or for applications where low cost is a necessity, consider series **TM**.
  - Local Indication:** Consider **DM3** digital meter, or **XTDM-1** piggy-back display.
2. **Pressure Range:** Choose a range that places your working pressure at 50% to 90% of the transmitter pressure range. Pressure spikes up to proof pressure will not harm the transmitter but may affect calibration; pressures beyond burst pressure will cause damage.
3. **Accuracy:** Series **TG**, with 0.5% BFSL accuracy, and with 0.05% repeatability, suits many industrial applications. Higher accuracies (0.25% and 0.1%) are available, generally at higher cost.
  - \*BFSL (Best Fit Straight Line) expresses maximum deviation from a straight line positioned to minimize maximum deviation.*
4. **Output:** Current output (4 mA to 20 mA) is the most popular for industrial use because it is less susceptible to electrical noise and can be transmitted through copper wires up to thousands of feet with little signal loss. Several voltage outputs are also available, and are suitable for shorter distances. Typical voltage outputs include 0-5 VDC, 1-5 VDC, and 0-10 VDC.
5. **Process Connection:** 1/4" NPT and 1/2" NPT are the most common connections in industrial process applications. In hydraulic applications, 7/16-20 UNF SAE male with o-ring seal is commonly used. For sanitary applications, Tri-Clamp connections on the **THS** series are available in several sizes, with 1 1/2" triclamp the most common. Other process connections, such as G1/2, G1, and 1/4"NPT female are available as well.
6. **Electrical Connection:** All Trans-P series transmitters require wire hookup for both power and output. 4-20 mA output uses 2 wires, which carry both loop power and output signal (loop current). Voltage output usually uses three wires, with 4 wires available. The standard Hirschmann connector (Din 43650) in standard or mini size allows easy connection to 2, 3, or 4 wires, with internal screw terminals and cable gland. Also available are integral cable (with or without 1/2"NPT male conduit threads), bendix 4- and 6-pin, and M12 types, as well as a Hirschmann with 1/2"NPT female conduit connection.
7. **Severe Conditions:** Reotemp Trans-P transmitters are rugged instruments intended for industrial use. However, temperatures, corrosion, vibration, or pulsation beyond operational limits should be addressed to prolong the life of the instrument:
  - High process temperatures:** Temperature at the instrument can be lowered by using a dead-leg extension. Using 1/4" stainless tubing, each 2 inches of extension will lower the process temperature about 100F. For high temperature with clogging media, a diaphragm seal with capillary can be used.
  - High Ambient temperatures:** The instrument can be removed from the hot zone using piping, tubing, or capillary with a diaphragm seal.
  - Corrosive media:** A chemically compatible diaphragm seal can isolate the transmitter from the corrosive media.
  - Pulsation:** Pressure fluctuations in an incompressible fluid can cause damaging pulsation (such as water hammer). This is a common cause of failure in pressure transducers, and measures should be taken to avoid this condition. Use of a snubber or restrictor screw (threaded orifice) should be considered.