

# PRESSURE TRANSMITTERS



Reotemp Pressure Transmitters and Transducers all convert applied pressure to an electrical signal that can be interpreted by a computer or other interpretive device, where it can be used to display or control a process variable.

**Output:** Reotemp transmitters produce either a 4-20 mA signal (the most common output), or a variety of voltage outputs, such as 1-5 Vdc or 0-10 Vdc (3-wire).

**Sensors:** Piezoresistive diffused semiconductor technology is standard for pressures up to 300 psi. For higher pressures (up to 60,000 psi), sputtered thin film technology is used. These sensors are very stable, shock resistant, and durable. Our piezoresistive and thin-film sensors are made with no epoxies or bonding agents, virtually eliminating signal instability or drift.

**Unit Integrity:** Sensor durability, along with mechanical integrity of the stainless case and all-welded process connection, produce a rugged instrument designed to provide consistent performance under severe industrial conditions.

**Accuracy:** Accuracies from 0.5% to 0.1% are available. Each unit is temperature compensated to provide stable accuracy over large ambient variations and long periods of time.

**Ready-to-go:** Each Reotemp transmitter is inspected and calibrated prior to shipment to assure it is 100% "Ready-to-go," right out of the box!

**Large Transmitter Stock:** Reotemp stocks many transmitter models in a large variety of ranges. However, the most popular output is the 4-20 mA output.

**Transmitter or Transducer?** "Transmitter" is often used when referring to a pressure sensor with variable current (mA) output, whereas "Transducer" usually implies voltage output. For simplicity, we use the term "transmitter" for all sensors offered in this catalog.

## SELECTING A TRANSMITTER

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

### 1. Special Applications

Series **TG** (general purpose transmitter) is a good choice for general industrial applications. For special applications or circumstances, other models will be more suitable:

High Accuracy	<b>TH</b>	Choose series <b>TH</b> for up to 0.125% accuracy (BFSL). For reference, the standard TG accuracy is 0.5%.
Hazardous Environments	<b>TE</b>	Series <b>TE</b> for explosion proof environments and <b>THX</b> for intrinsically safe.
Total Submersion	<b>TL</b>	Choose series <b>TL</b> .
Clogging Media	<b>TG</b>	Consider series <b>TG</b> mounted to a diaphragm seal.
Sanitary Applications	<b>TS</b>	Choose series <b>TS</b> , which comes with a sanitary Tri-clamp connection.
Low Cost	<b>TM</b>	For OEM use or for applications where low cost is a necessity, consider series <b>TM</b> .

### 2. Pressure Range & Overpressure

Choose a range that places your working pressure at 50% to 90% of the transmitter pressure range. After exposure to pressures up to **proof pressure**, the transmitter should return to normal operating performance within specifications. After exposure to pressures **above proof pressure, but below burst pressure**, the transmitter may be damaged and not perform to specification after return to operating range. Exposure to **pressure beyond burst pressure** may cause rupture of the transmitter.

### 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.

**What is BFSL?** BFSL is "Best Fit Straight Line". It 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. This is because this output range 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

¼" NPT and ½" 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 **TS** series are available in several sizes, with 1-½" Tri-clamp the most common.

### 6. Electrical Connection

All Reotemp 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 sealed integral cable (with or without ½" NPT male conduit threads), Bendix 4- and 6-pin, and M12 types, as well as a Hirschmann with ½" NPT female conduit connection.

### 7. Severe Conditions

Reotemp 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:

<i>Problem</i>	<i>Solution</i>
High Process Temperature	Temperature at the instrument can be lowered by using a dead-leg extension. For high temperature with clogging media, a diaphragm seal with capillary or a cooling tower can also be used.
High Ambient Temperature	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.