

## ST 3000 Smart Transmitter Series 900 Differential Pressure Models

34-ST-03-65

10/99

## Specification and Model Selection Guide

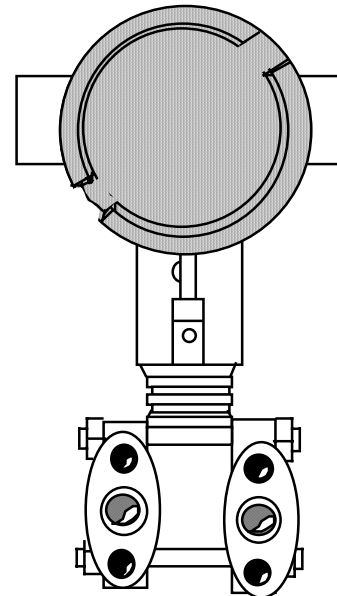
|        |                             |                   |
|--------|-----------------------------|-------------------|
| STD924 | 0 to 400 inH <sub>2</sub> O | 0 to 1,000 mbar   |
| STD930 | 0 to 100 psi                | 0 to 7,000 mbar   |
| STD974 | 0 to 3000 psi               | 0 to 210,000 mbar |

### Function

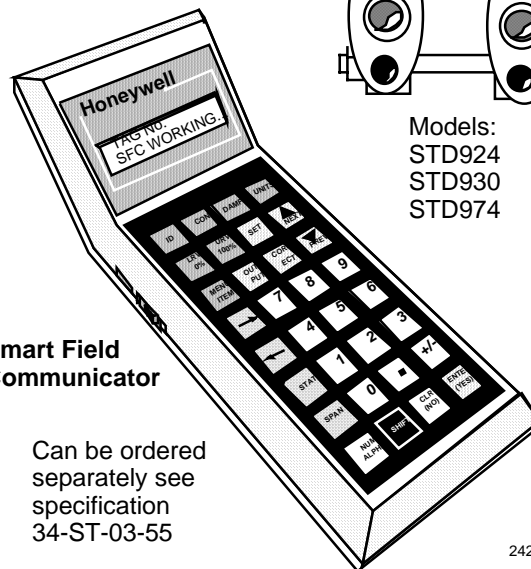
Honeywell's ST 3000<sup>®</sup> Series 900 Differential Pressure Transmitters bring proven "smart" technology to a wide spectrum of pressure measurement applications including flow and liquid level. They transmit an output signal proportional to the measured variable in either an analog 4 to 20 milliampere format or in a digital DE protocol format for direct digital integration with our TDC 3000<sup>®X</sup> control system. Additional protocol options available for the ST 3000 Series 900 transmitters include FOUNDATION<sup>™</sup> Fieldbus<sup>1</sup> and HART<sup>®</sup><sup>2</sup>. See the Model Selection Guide for help in selecting the correct ordering code for the desired protocol.

In the standard transmitter you easily select the analog or digital transmission format through the Smart Field Communicator (SFC<sup>®</sup>) which is the common hand-held operator interface for our DE-based Smartline<sup>®</sup> Transmitters. All configuration, operation, and communications functions are under the control of the ST 3000 Smart Transmitter's microprocessor and are accessible through the SFC.

ST 3000  
Differential Pressure Transmitter



Models:  
STD924  
STD930  
STD974



Smart Field  
Communicator

Can be ordered  
separately see  
specification  
34-ST-03-55

24256

<sup>1</sup> FOUNDATION<sup>™</sup> Fieldbus is a trademark of the Fieldbus Foundation.

<sup>2</sup> HART is a registered trademark of the Hart Communication Foundation

**Figure 1** —Series 900 Differential Pressure Transmitters feature proven "smart" technology and come in several models to meet varying application needs.

| Features  | Description   |   |
|---|---|---|
| <ul style="list-style-type: none"><li>• Choice of linear or square root output conformity is a simple configuration selection.</li><li>• Direct digital integration with TDC 3000<sup>X</sup> system provides local measurement accuracy to the system level without adding typical A/D and D/A converter inaccuracies.</li><li>• Unique piezoresistive sensor automatically compensates input for temperature and static pressure.</li><li>• Added “smart” features include configuring lower and upper range values, simulating accurate analog output, and selecting preprogrammed engineering units for display.</li><li>• Smart transmitter capabilities with local or remote interfacing means significant manpower efficiency improvements in commissioning, start-up, and ongoing maintenance functions.</li><li>• Local zero and span adjustments are available for alternate adjustment method, if desired.</li></ul> | <p>The ST 3000 transmitter can replace any 4 to 20 milliampere output transmitter in use today, and operates over a standard two-wire system.</p>   | <p>Like other Smartline Transmitters, the ST 3000 features two-way communication between the operator and the transmitter through our SFC. You can connect the SFC anywhere that you can access the transmitter signal lines, and it provides the capabilities of transmitter adjustments and diagnostics from remote locations, such as the control room.</p>                      |
|   | <p>The measuring means is a piezoresistive sensor which actually contains three sensors in one. It contains a differential pressure sensor, a temperature sensor, and a static pressure sensor. Microprocessor-based electronics provide higher span-turndown ratio, improved temperature and pressure compensation, and improved accuracy.</p> | <p>The transmitter’s meter body and electronics housing resist shock, vibration, corrosion, and moisture. The electronics housing contains a compartment for the single-board electronics, which is isolated from an integral junction box. The single-board electronics is replaceable and interchangeable with any other ST 3000 Series 900 or Series 100e model transmitter.</p> |

Specifications

Operating Conditions – All Models

| Parameter  | Reference Condition<br>(at zero static)  |       | Rated Condition |             | Operative Limits                   |            | Transportation and Storage |            |
|--|--|-------|-----------------|-------------|------------------------------------|------------|----------------------------|------------|
|  | °C   | °F    | °C              | °F          | °C                                 | °F         | °C                         | °F         |
| Ambient Temperature  | 25 ±1  | 77 ±2 | -40 to 85       | -40 to 185  | -40 to 85                          | -40 to 185 | -55 to 125                 | -67 to 257 |
| Meter Body Temperature   | 25 ±1  | 77 ±2 | -40 to 110*     | -40 to 230* | -40 to 125                         | -40 to 257 | -55 to 125                 | -67 to 257 |
| Humidity %RH   | 10 to 55   |       | 0 to 100        |             | 0 to 100                           |            | 0 to 100                   |            |
| Overpressure psi<br>bar  | 0<br>0   |       | 3000**<br>210** |             | 3000**<br>210**                    |            |                            |            |
| Vacuum Region - Minimum Pressure<br>mmHg absolute<br>inH <sub>2</sub> O absolute | Atmospheric<br>Atmospheric   |       | 25<br>13        |             | 2 (short term†)<br>1 (short term†) |            |                            |            |
| Supply Voltage, Current, and Load Resistance                                     | <b>Voltage Range:</b> 10.8 to 42.4 Vdc at terminals<br><b>Current Range:</b> 3.0 to 21.8 mA<br><b>Load Resistance:</b> 0 to 1440 ohms (as shown in Figure 2) |       |                 |             |                                    |            |                            |            |

\* For CTFE fill fluid, the rating is -15 to 70°C (5 to 158°F)

\*\* For models STD924 and STD930, static limit is 2000 psi (140 bar) for temperatures below -15°C (5°F). Overpressure is 3K.

† Short term equals 2 hours at 70°C (158°F)

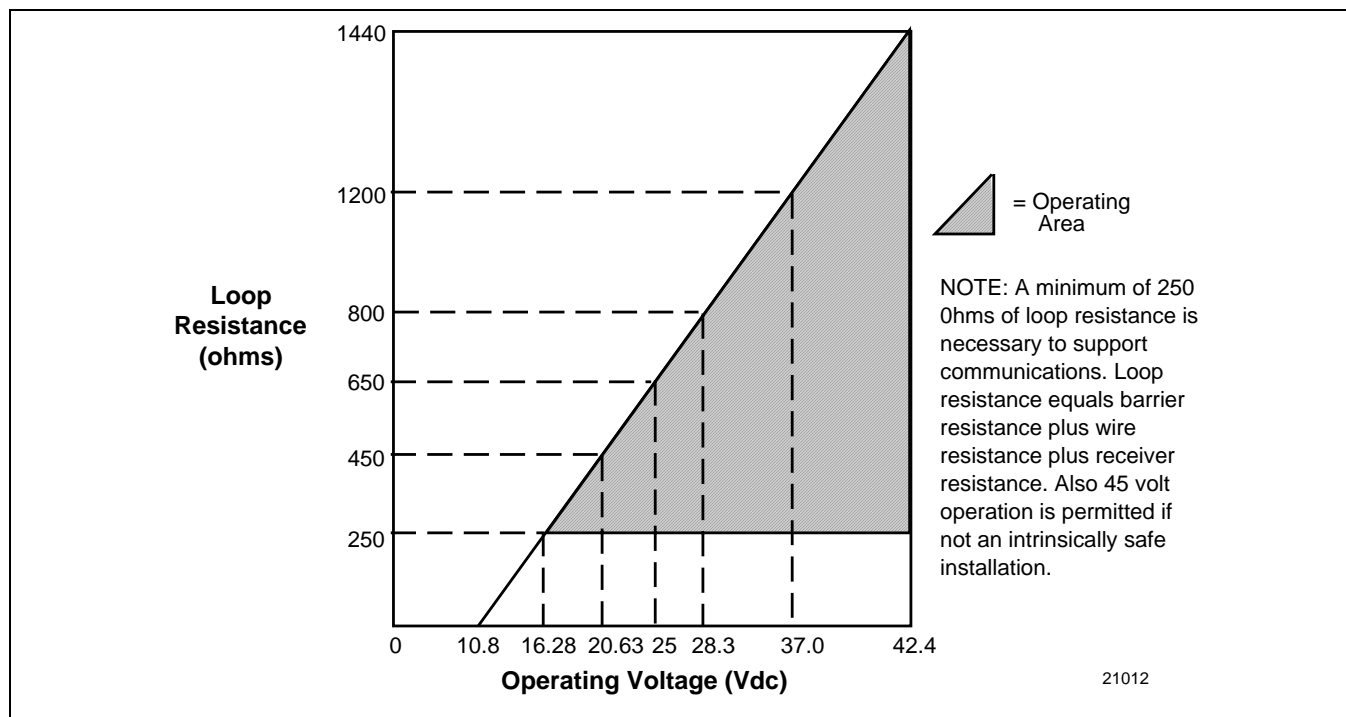


Figure 2—Supply voltage and loop resistance chart

**Performance Under Rated Conditions\* - Model STD924 (0 to 400 inH<sub>2</sub>O/1000 mbar)**

| Parameter   | Description   |
|---|---|
| <b>Upper Range Limit</b> inH <sub>2</sub> O<br>mbar   | 400 (39.2°F/4°C is standard reference temperature for inH <sub>2</sub> O range.)<br>1000  |
| <b>Minimum Span</b> inH <sub>2</sub> O<br>mbar  | 10    Note: Recommended minimum span in square root mode is 20 inH <sub>2</sub> O (50 mbar).<br>25  |
| <b>Turndown Ratio</b>   | 40 to 1   |
| <b>Zero Elevation and Suppression</b>   | -5 to +100% URL.  |
| <b>Accuracy</b> (Reference – Includes combined effects of linearity, hysteresis, and repeatability)<br><br><ul style="list-style-type: none"> <li>• Accuracy includes residual error after averaging successive readings.</li> <li>• For FOUNDATION Fieldbus use Digital Mode specifications. For HART use Analog Mode specifications.</li> </ul> | <b>In Analog Mode:</b> ±0.10% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (25 inH <sub>2</sub> O), accuracy equals:<br><br>$\pm 0.05 + 0.05 \left( \frac{25 \text{ inH}_2\text{O}}{\text{span inH}_2\text{O}} \right) \text{ or } \pm 0.05 + 0.05 \left( \frac{62 \text{ mbar}}{\text{span mbar}} \right) \text{ in } \% \text{ span}$ <b>In Digital Mode:</b> ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (25 inH <sub>2</sub> O), accuracy equals:<br><br>$\pm 0.025 + 0.05 \left( \frac{25 \text{ inH}_2\text{O}}{\text{span inH}_2\text{O}} \right) \text{ or } \pm 0.025 + 0.05 \left( \frac{62 \text{ mbar}}{\text{span mbar}} \right) \text{ in } \% \text{ span}$ |
| <b>Zero Temperature Effect per 28°C (50°F)</b>  | <b>In Analog Mode:</b> ±0.1625% of span.<br>For URV below reference point (50 inH <sub>2</sub> O), effect equals:<br><br>$\pm 0.0125 + 0.15 \left( \frac{50 \text{ inH}_2\text{O}}{\text{span inH}_2\text{O}} \right) \text{ or } \pm 0.0125 + 0.15 \left( \frac{125 \text{ mbar}}{\text{span mbar}} \right) \text{ in } \% \text{ span}$ <b>In Digital Mode:</b> ±0.15% of span.<br>For URV below reference point (50 inH <sub>2</sub> O), effect equals:<br><br>$\pm 0.15 \left( \frac{50 \text{ inH}_2\text{O}}{\text{span inH}_2\text{O}} \right) \text{ or } \pm 0.15 \left( \frac{125 \text{ mbar}}{\text{span mbar}} \right) \text{ in } \% \text{ span}$  |
| <b>Combined Zero and Span Temperature Effect per 28°C (50°F)</b>  | <b>In Analog Mode:</b> ±0.25% of span.<br>For URV below reference point (50 inH <sub>2</sub> O), effect equals:<br><br>$\pm 0.10 + 0.15 \left( \frac{50 \text{ inH}_2\text{O}}{\text{span inH}_2\text{O}} \right) \text{ or } \pm 0.10 + 0.15 \left( \frac{125 \text{ mbar}}{\text{span mbar}} \right) \text{ in } \% \text{ span}$ <b>In Digital Mode:</b> ±0.225% of span.<br>For URV below reference point (50 inH <sub>2</sub> O), effect equals:<br><br>$\pm 0.075 + 0.15 \left( \frac{50 \text{ inH}_2\text{O}}{\text{span inH}_2\text{O}} \right) \text{ or } \pm 0.075 + 0.15 \left( \frac{125 \text{ mbar}}{\text{span mbar}} \right) \text{ in } \% \text{ span}$   |
| <b>Zero Static Pressure Effect per 1000 psi (70 bar)</b>  | ±0.1625% of span.<br>For URV below reference point (50 inH <sub>2</sub> O), effect equals:<br><br>$\pm 0.0125 + 0.15 \left( \frac{50 \text{ inH}_2\text{O}}{\text{span inH}_2\text{O}} \right) \text{ or } \pm 0.0125 + 0.15 \left( \frac{125 \text{ mbar}}{\text{span mbar}} \right) \text{ in } \% \text{ span}$  |
| <b>Combined Zero and Span Static Pressure Effect per 1000 psi (70 bar)</b>  | ±0.30% of span.<br>For URV below reference point (50 inH <sub>2</sub> O), effect equals:<br><br>$\pm 0.15 + 0.15 \left( \frac{50 \text{ inH}_2\text{O}}{\text{span inH}_2\text{O}} \right) \text{ or } \pm 0.15 + 0.15 \left( \frac{125 \text{ mbar}}{\text{span mbar}} \right) \text{ in } \% \text{ span}$  |
| <b>Stability</b>  | ±0.03% of URL per year  |

\* Performance specifications are based on reference conditions of 25°C (77°F), zero (0) static pressure, 10 to 55% RH, and 316L Stainless Steel barrier diaphragm.

**Performance Under Rated Conditions\* - Model STD930 (0 to 100 psi/7000 mbar)**

| Parameter   | Description  |
|---|--|
| <b>Upper Range Limit</b> <b>psi</b><br><b>bar</b>   | 100<br>7   |
| <b>Minimum Span</b> <b>psi</b><br><b>bar</b>  | 5<br>0.35  |
| <b>Turndown Ratio</b>   | 20 to 1  |
| <b>Zero Elevation and Suppression</b>   | -5 to +100% URL.   |
| <b>Accuracy</b> (Reference – Includes combined effects of linearity, hysteresis, and repeatability)<br><br>•<br>• | <b>In Analog Mode:</b> ±0.10% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (20 psi), accuracy equals:<br>$\pm 0.05 + 0.05 \left( \frac{20 \text{ psi}}{\text{span psi}} \right)$ or $\pm 0.05 + 0.05 \left( \frac{1.4 \text{ bar}}{\text{span bar}} \right)$ in % span<br><br><b>In Digital Mode:</b> ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (20 psi), accuracy equals:<br>$\pm 0.025 + 0.05 \left( \frac{20 \text{ psi}}{\text{span psi}} \right)$ or $\pm 0.025 + 0.05 \left( \frac{1.4 \text{ bar}}{\text{span bar}} \right)$ in % span |
| <b>Zero Temperature Effect per 28°C (50°F)</b>  | <b>In Analog Mode:</b> ±0.1625% of span.<br>For URV below reference point (30 psi), effect equals:<br>$\pm 0.0125 + 0.15 \left( \frac{30 \text{ psi}}{\text{span psi}} \right)$ or $\pm 0.0125 + 0.15 \left( \frac{2 \text{ bar}}{\text{span bar}} \right)$ in % span<br><br><b>In Digital Mode:</b> ±0.15% of span.<br>For URV below reference point (30 psi), effect equals:<br>$\pm 0.15 \left( \frac{30 \text{ psi}}{\text{span psi}} \right)$ or $\pm 0.15 \left( \frac{2 \text{ bar}}{\text{span bar}} \right)$ in % span  |
| <b>Combined Zero and Span Temperature Effect per 28°C (50°F)</b>  | <b>In Analog Mode:</b> ±0.25% of span.<br>For URV below reference point (30 psi), effect equals:<br>$\pm 0.10 + 0.15 \left( \frac{30 \text{ psi}}{\text{span psi}} \right)$ or $\pm 0.10 + 0.15 \left( \frac{2 \text{ bar}}{\text{span bar}} \right)$ in % span<br><br><b>In Digital Mode:</b> ±0.225% of span.<br>For URV below reference point (30 psi), effect equals:<br>$\pm 0.075 + 0.15 \left( \frac{30 \text{ psi}}{\text{span psi}} \right)$ or $\pm 0.075 + 0.15 \left( \frac{2 \text{ bar}}{\text{span bar}} \right)$ in % span   |
| <b>Zero Static Pressure Effect per 1000 psi (70 bar)</b>  | ±0.1625% of span.<br>For URV below reference point (30 psi), effect equals:<br>$\pm 0.0125 + 0.15 \left( \frac{30 \text{ psi}}{\text{span psi}} \right)$ or $\pm 0.0125 + 0.15 \left( \frac{2 \text{ bar}}{\text{span bar}} \right)$ in % span   |
| <b>Combined Zero and Span Static Pressure Effect per 1000 psi (70 bar)</b>  | ±0.30% of span.<br>For URV below reference point (30 psi), effect equals:<br>$\pm 0.15 + 0.15 \left( \frac{30 \text{ psi}}{\text{span psi}} \right)$ or $\pm 0.15 + 0.15 \left( \frac{2 \text{ bar}}{\text{span bar}} \right)$ in % span   |
| <b>Stability</b>  | ±0.04% of URL per year   |

\* Performance specifications are based on reference conditions of 25°C (77°F), zero (0) static pressure, 10 to 55% RH, and 316L Stainless Steel barrier diaphragm.

**Performance Under Rated Conditions\* - Model STD974 (0 to 3000 psi/210 bar)**

| Parameter   | Description  |
|---|--|
| Upper Range Limit      psi<br>bar   | 3000<br>210  |
| Minimum Span            psi<br>bar  | 100<br>7   |
| Turndown Ratio  | 30 to 1  |
| Zero Elevation and Suppression  | -0.6 and +100% URL.  |
| <p><b>Accuracy</b> (Reference – Includes combined effects of linearity, hysteresis, and repeatability)</p> <ul style="list-style-type: none"> <li>Accuracy includes residual error after averaging successive readings.</li> <li>For FOUNDATION Fieldbus use Digital Mode specifications. For HART use Analog Mode specifications.</li> </ul> | <p><b>In Analog Mode:</b> ±0.2% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br/>For URV below reference point (300 psi), accuracy equals:<br/> <math display="block">\pm 0.05 + 0.15 \left( \frac{300 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.05 + 0.15 \left( \frac{21 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ span}</math></p> <p><b>In Digital Mode:</b> ±0.175% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br/>For URV below reference point (300 psi), accuracy equals:<br/> <math display="block">\pm 0.025 + 0.15 \left( \frac{300 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.025 + 0.15 \left( \frac{21 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ span}</math></p> |
| Zero Temperature Effect per 28°C (50°F)   | <p><b>In Analog Mode:</b> ±0.2125% of span.<br/>For URV below reference point (500 psi), effect equals:<br/> <math display="block">\pm 0.0125 + 0.20 \left( \frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.20 \left( \frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ span}</math></p> <p><b>In Digital Mode:</b> ±0.20% of span.<br/>For URV below reference point (500 psi), effect equals:<br/> <math display="block">\pm 0.20 \left( \frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.20 \left( \frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ span}</math></p>   |
| Combined Zero and Span Temperature Effect per 28°C (50°F)   | <p><b>In Analog Mode:</b> ±0.325% of span.<br/>For URV below reference point (500 psi), effect equals:<br/> <math display="block">\pm 0.125 + 0.20 \left( \frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.125 + 0.20 \left( \frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ span}</math></p> <p><b>In Digital Mode:</b> ±0.30% of span.<br/>For URV below reference point (500 psi), effect equals:<br/> <math display="block">\pm 0.10 + 0.20 \left( \frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.10 + 0.20 \left( \frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ span}</math></p>  |
| Zero Static Pressure Effect per 1000 psi (70 bar)   | <p>±0.1625% of span.<br/>For URV below reference point (500 psi), effect equals:<br/> <math display="block">\pm 0.0125 + 0.15 \left( \frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.15 \left( \frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ span}</math></p>  |
| Combined Zero and Span Static Pressure Effect per 1000 psi (70 bar)   | <p>±0.30% of span.<br/>For URV below reference point (500 psi), effect equals:<br/> <math display="block">\pm 0.15 + 0.15 \left( \frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.15 + 0.15 \left( \frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ span}</math></p>  |
| Stability   | ±0.03% of URL per year   |

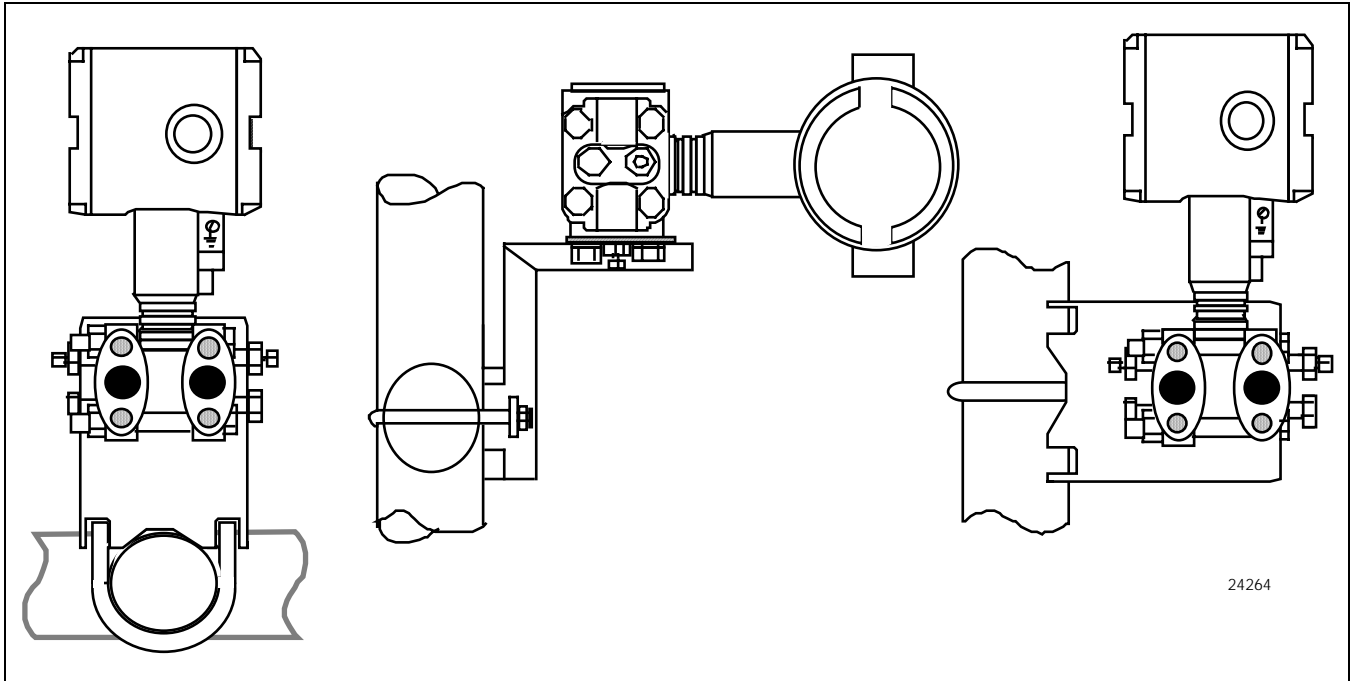
\* Performance specifications are based on reference conditions of 25°C (77°F), zero (0) static pressure, 10 to 55% RH, and 316L Stainless Steel barrier diaphragm.

### Performance Under Rated Conditions - General for all Models

| Parameter  | Description  |
|--|--|
| <b>Output (two-wire)</b>                           | Analog 4 to 20 mA or DE digital communications mode. Options available for FOUNDATION Fieldbus and HART protocol.  |
| <b>Supply Voltage Effect</b>                       | 0.005% span per volt.  |
| <b>Damping Time Constant</b>                       | Adjustable from 0 to 32 seconds digital damping.   |
| <b>CE Conformity (Europe)</b>                      | 89/336/EEC, Electromagnetic Compatibility (EMC) Directive.   |
| <b>Lightning Protection Option<br/>(Code "LP")</b> | Leakage Current: 10 microamps max. @ 42.4 VDC, 93°C<br>Impulse Rating: 10/20 μ sec. 5,000 Amps (50 strikes) 10,000 Amps (20 strikes)<br>(rise/decay) 10/1000 μ sec. 250 Amps (1000 strikes) 500 Amps (400 strikes) |

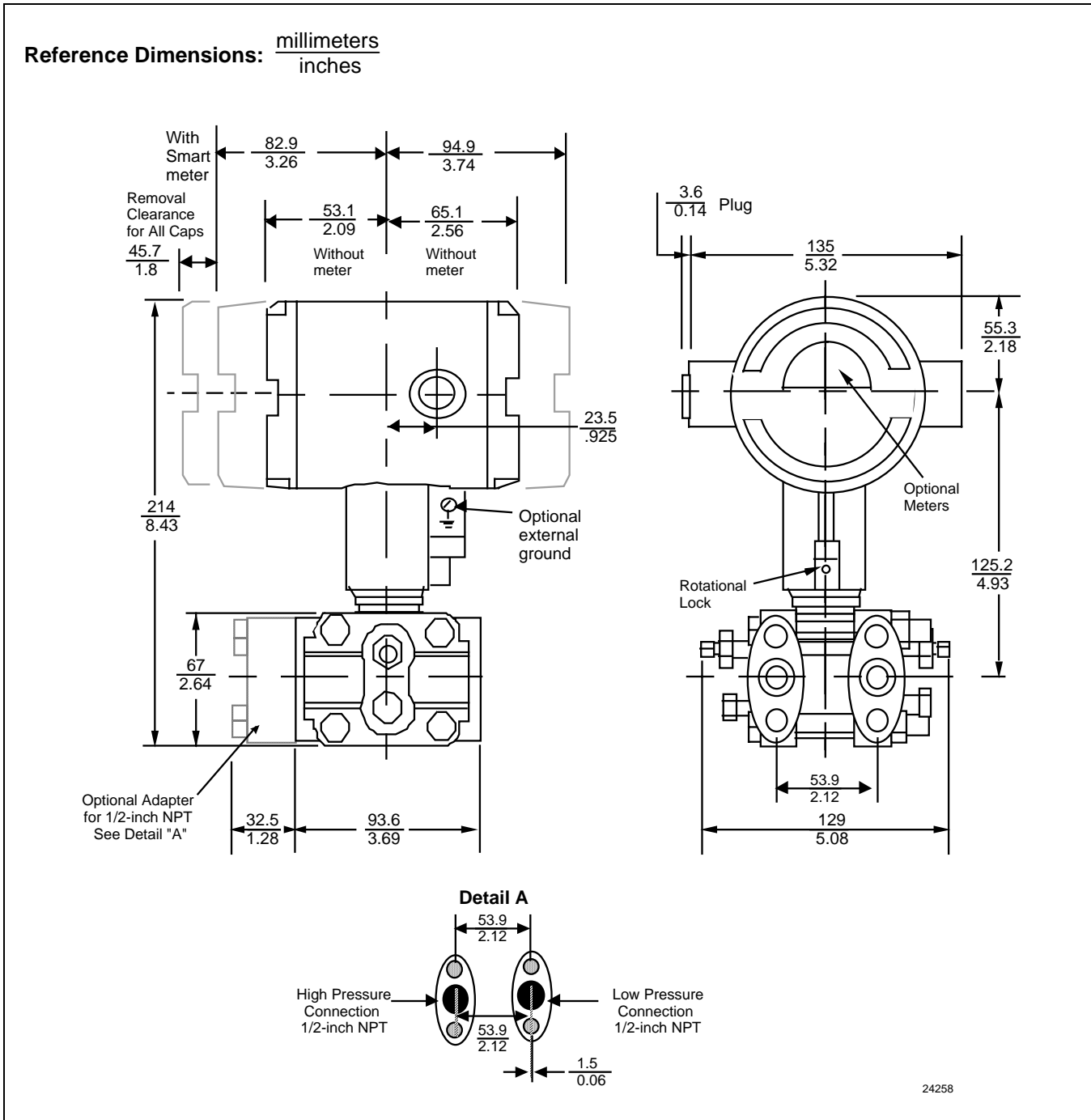
### Physical and Approval Bodies

| Parameter  | Description  |
|--|--|
| <b>Barrier Diaphragms Material</b><br>STD924, STD930<br>STD974 | 316L SS, Hastelloy C-276, Monel, Tantalum<br>316L SS, Hastelloy C-276  |
| <b>Process Head Material</b><br>STD924, STD930<br>STD974       | 316 SS, Carbon Steel (zinc-plated), Monel, Hastelloy<br>316 SS, Carbon Steel (zinc-plated), Hastelloy  |
| <b>Head Gaskets</b>  | Teflon, Viton (Only with 316L SS or Monel barrier diaphragms)  |
| <b>Meter Body Bolting</b>                                      | Carbon Steel (Zinc plated, standard) or A286 SS (NACE) bolts and 302/304 SS (NACE) nuts for heads and 316 SS (NACE) bolts for adapters (standard option).  |
| <b>Mounting Bracket</b>  | Carbon Steel (Zinc-plated) or Stainless Steel angle bracket or Carbon Steel flat bracket available (standard options).   |
| <b>Fill Fluid</b>  | Silicone DC 200 oil or CTFE (Chlorotrifluoroethylene)  |
| <b>Electronic Housing</b>                                      | Epoxy-Polyester hybrid paint. Low Copper-Aluminum. Meets NEMA 4X (watertight) and NEMA 7 (explosionproof). Stainless steel optional.   |
| <b>Process Connections</b>                                     | 1/4-inch NPT; 1/2-inch NPT with adapter, standard option; DIN.   |
| <b>Wiring</b>  | Accepts up to 16 AWG (1.5 mm diameter).  |
| <b>Mounting</b>  | Can be mounted in virtually any position using the standard mounting bracket. Bracket is designed to mount on 2-inch (50 mm) vertical or horizontal pipe. See Figure 3.  |
| <b>Dimensions</b>  | See Figures 4 and 5.   |
| <b>Net Weight</b>  | 9 pounds (4.1 Kg)  |
| <b>Approval Bodies</b>   | Approved as explosionproof and intrinsically safe for use in Class I, Division 1, Groups A, B, C, D locations, and nonincendive for Class I, Division 2, Groups A, B, C, D locations. Approved EEx ia IIC T5 and EEx d IIC T6 per CENELEC standards; and Ex N II T5 per BS 6941.<br><br>Series 900 with HC (HART) compatibility is self-certified for Zone 2, T5, maximum 42V/22 mA. |

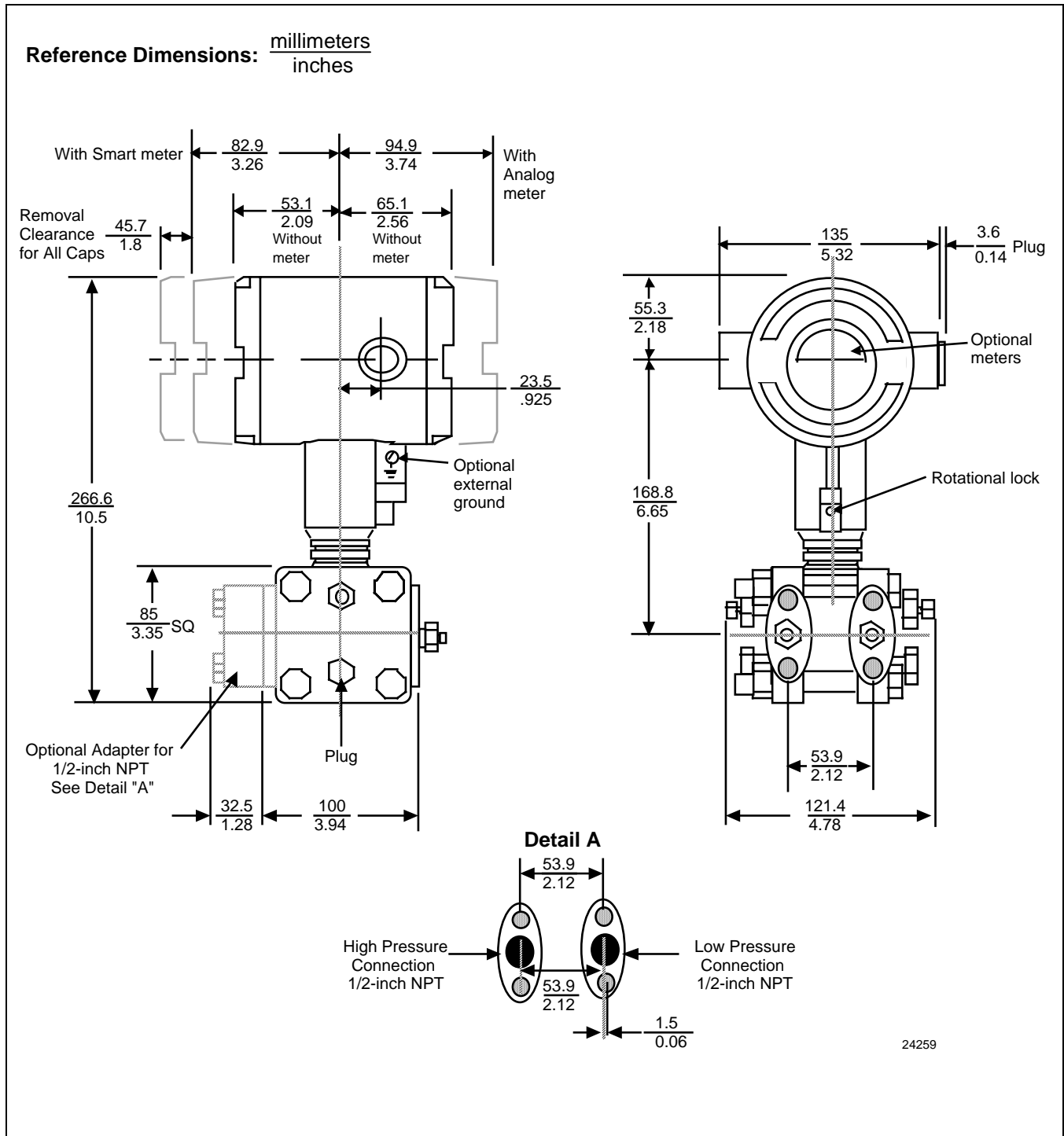


**Figure 3**—Examples of typical mounting positions





**Figure 4**—Typical models STD924 and STD930-A, B, E, F, J (SS, Hastelloy C) mounting dimensions for reference.



**Figure 5**—Typical models STD924 and STD930-C, D, G, H, K, L (Monel, Tantalum), and model STD974 mounting dimensions for reference

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## Options

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### **Mounting Bracket**

The angle mounting bracket is available in either zinc-plated carbon steel or stainless steel and is suitable for horizontal or vertical mounting on a two inch (50 millimeter) pipe, as well as wall mounting. An optional flat mounting bracket is also available in carbon steel for two inch (50 millimeter) pipe mounting.

### **Indicating Meter**

Two integral meter options are available. An analog meter (option ME) is available with a 0 to 100% linear scale. The Smart Meter (option SM) provides an LCD display for both analog and digital output and can be configured to display pressure in pre-selected engineering units.

### **Lightning Protection**

A terminal block is available with circuitry that protects the transmitter from transient surges induced by nearby lightning strikes.

### **HART Protocol Compatibility (Option HC)**

An optional electronics module is available for the Series 900 that provides HART Protocol compatibility. Transmitters with the HART Option are compatible with the AMS System. (Contact your AMS Supplier if an upgrade is required.)

Configuration of the HART Option transmitter is accomplished using a Universal HART Communicator. For full functionality the communicator must contain the Honeywell Device Description (DD). Contact your nearest Honeywell office or distributor for further information regarding this option.

*Specifications are subject to change without notice.  
(Note that specifications may differ slightly for transmitters manufactured before October 30, 1995.)*

### **Tagging (Option TG)**

Up to 30 characters can be added on the stainless steel nameplate mounted on the transmitter's electronics housing at no extra cost. Note that a separate nameplate on the meter body contains the serial number and body-related data. A stainless steel wired on tag with additional data of up to 4 lines of 28 characters is also available. The number of characters for tagging includes spaces.

### **Transmitter Configuration (Option TC)**

The factory can configure the transmitter linear/square root extraction, damping time, LRV, URV and mode (analog/digital) and enter an ID tag of up to eight characters and scratchpad information as specified.

### **Custom Calibration and ID in Memory (Option CC)**

The factory can calibrate any range within the scope of the transmitter's range and enter an ID tag of up to eight characters in the transmitter's memory.

### **FOUNDATION Fieldbus (Option FF)**

Equips transmitter with FF protocol for use in 31.25 kbit/s FF networks. See document 34-ST-03-72 for additional information on ST 3000 Fieldbus transmitters.

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## Ordering Information

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Contact your nearest Honeywell sales office, or

In the U.S.:

Honeywell  
Industrial Automation & Control  
16404 N. Black Canyon Highway  
Phoenix, AZ 85023  
1-800-288-7491

In Canada:

The Honeywell Centre  
155 Gordon Baker Rd.  
North York, Ontario  
M2H 3N7  
1-800-461-0013

In Latin America:

Honeywell Inc.  
480 Sawgrass Corporate Parkway,  
Suite 200  
Sunrise, FL 33325  
(954) 845-2600

In Europe:

Honeywell PACE  
1, Avenue du Bourget  
B-1140 Brussels, Belgium  
[32-2] 728-2111

In Asia:

Honeywell Asia Pacific Inc.  
Room 3213-25  
Sun Hung Kai Centre  
No. 30 Harbour Road  
Wanchai, Hong Kong  
2829-8298

In the Pacific:

Honeywell Limited  
5 Thomas Holt Drive  
North Ryde NSW 2113  
Australia  
(61 2) 9353 7000

Or, visit Honeywell on the World  
Wide Web at:  
<http://www.honeywell.com>

**Model Selection Guide**

**Instructions**

- Select the desired Key Number. The arrow to the right marks the selection available.
  - Make one selection from each table, I and II, using the column below the proper arrow. Select as many Table III options as desired (if no options are desired, specify 00). A dot denotes unrestricted availability. A letter denotes restricted availability. Restrictions follow Table IV.
- Key Number - I - II - III (Optional) + IV  
XXXX

| KEY NUMBER   | Selection | Availability |   |   |
|--|-----------|--------------|---|---|
| <b>Span</b>  |           |              |   |   |
| 0-10" to 0-400" H2O/0-25 to 0-1000 mbar<br>Body Rating: 3000 psi (210 bar) | STD924    | ↓            |   |   |
| 0-5 to 0-100 psi/0-0.34 to 0-7 bar<br>Body Rating: 3000 psi (210 bar)      | STD930    |              | ↓ |   |
| 0-100 to 0-3000 psi/0-7 to 0-210 bar<br>Body Rating: 3000 psi (210 bar)    | STD974    |              |   | ↓ |

**TABLE I - METER BODY**

|                                | Wetted<br>Process Heads                  | Vent/Drain<br>Valves **<br>and Plugs | Barrier<br>Diaphragms |       |   |   |   |
|--------------------------------|--|--------------------------------------|-----------------------|-------|---|---|---|
| Material<br>of<br>Construction | Carbon Steel *                           | 316 St. St.                          | 316 LSS               | A __  | • | • | • |
|                                | Carbon Steel *                           | 316 St. St.                          | Hastelloy C           | B __  | • | • | • |
|                                | Carbon Steel *                           | 316 St. St.                          | Monel                 | C __  | • | • | • |
|                                | Carbon Steel *                           | 316 St. St.                          | Tantalum              | D __  | • | • | • |
|                                | 316 St. St.                              | 316 St. St.                          | 316 LSS               | E __  | • | • | • |
|                                | 316 St. St.                              | 316 St. St.                          | Hastelloy C           | F __  | • | • | • |
|                                | 316 St. St.                              | 316 St. St.                          | Monel                 | G __  | • | • | • |
|                                | 316 St. St.                              | 316 St. St.                          | Tantalum              | H __  | • | • | • |
|                                | Hastelloy C                              | Hastelloy C                          | Hastelloy C           | J __  | • | • | v |
|                                | Hastelloy C                              | Hastelloy C                          | Tantalum              | K __  | v | v | • |
| Monel                          | Monel                                    | Monel                                | L __                  | v     | v | • |   |
| Fill Fluid                     | Silicone                                 |                                      |                       | _ 1 _ | • | • | • |
|                                | CTFE                                     |                                      |                       | _ 2 _ | • | • | • |
| Process Head<br>Configuration  | 1/4" NPT                                 |                                      |                       | _ _ A | • | • | • |
|                                | 1/2" NPT with Adapter (on 1/4" NPT Head) |                                      |                       | _ _ H | t | t | t |

**TABLE II**

|              |       |   |   |   |
|--------------|-------|---|---|---|
| No Selection | 00000 | • | • | • |
|--------------|-------|---|---|---|

\* Carbon Steel heads are zinc-plated. Not recommended for water service due to hydrogen migration. Use Stainless Steel heads.

\*\* Vent/Drains are Teflon coated for lubricity.

Model Selection Guide, continued

| TABLE III - OPTIONS   | Selection | Availability |    |    |
|---|-----------|--------------|----|----|
|   |           | 24           | 30 | 74 |
| None  | 00        | •            | •  | •  |
| Adapter Flange - 1/2" NPT St. Steel   | S2        | c            | c  | c  |
| Adapter Flange - 1/2" NPT Hastelloy-C   | T2        | c            | c  | c  |
| Adapter Flange - 1/2" NPT Monel   | V2        | c            | c  | c  |
| Modified DIN Process Heads - 316SS  | DN        | w            | w  | w  |
| Viton Head Gaskets (1/2" adapter gaskets are special)   | VT        | z            | z  | z  |
| Mounting Bracket - Carbon Steel   | MB        | •            | •  | •  |
| Mounting Bracket - ST. ST.  | SB        | •            | •  | •  |
| Flat Mounting Bracket - Carbon Steel  | FB        | •            | •  | •  |
| 316 ST.ST. Electronics Housing with M20 Conduit Connections   | SH        | m            | m  | m  |
| 1/2" NPT to M20 316SS Conduit Adapter (BASEEFA EEx d IIC)   | A1        | n            | n  | n  |
| 1/2" NPT to 3/4" NPT 316 SS Conduit Adapter   | A2        | u            | u  | u  |
| Lightning Protection  | LP        | •            | •  | •  |
| Analog Meter (0-100 Even 0-10 Square Root)  | ME        | •            | •  | •  |
| Smart Meter   | SM        | •            | •  | •  |
| Local Zero  | LZ        | x            | x  | x  |
| Local Zero and Span   | ZS        | s            | s  | s  |
| A286SS (NACE) Bolts and 302/304SS (NACE) Nuts for Heads and 316SS (NACE) Bolts for Adapters               | CR        | •            | •  | •  |
| Stainless Steel Customer Wired-On Tag<br>(4 lines, 28 characters per line, customer supplied information) | TG        | •            | •  | •  |
| Stainless Steel Customer Wired-On Tag (blank)   | TB        | •            | •  | •  |
| Custom Calibration and I.D. in Memory   | CC        | •            | •  | •  |
| Transmitter Configuration   | TC        | •            | •  | •  |
| Write Protection  | WP        | •            | •  | •  |
| Additional Warranty - 1 year  | W1        | •            | •  | •  |
| Additional Warranty - 2 years   | W2        | •            | •  | •  |
| Additional Warranty - 3 years   | W3        | •            | •  | •  |
| Additional Warranty - 4 years   | W4        | •            | •  | •  |
| Clean Transmitter for Oxygen or Chlorine Service with Certificate   | 0X        | j            | j  | j  |
| Over-Pressure Leak Test with F3392 Certificate  | TP        | •            | •  | •  |
| Side Vent/Drain (End Vent Drain is standard)  | SV        | g            | g  | y  |
| SS Center Vent Drain and Bushing  | CV        | g            | g  | •  |
| Blind DIN SS Flanges Mounted with NACE Bolts  | B2        | d            | d  | d  |
| Low Temperature - -50°C Ambient Limit   | LT        | •            | •  | •  |
| Calibration Test Report and Certificate of Conformance (F3399)  | F1        | •            | •  | •  |
| Certificate of Conformance (F3391)  | F3        | •            | •  | •  |
| Certificate of Origin (F0195)   | F5        | •            | •  | •  |
| NACE Certificate (F0198)  | F7        | o            | o  | o  |
| HART Protocol Compatible Electronics  | HC        | e            | e  | e  |
| FOUNDATION Fieldbus Communications  | FF        | r            | r  | r  |

**Model Selection Guide, continued**

| TABLE III - OPTIONS (continued) |                                   |   | STD9<br>Selection | Availability |    |    |
|---------------------------------|-----------------------------------|---|-------------------|--------------|----|----|
|                                 |                                   |   |                   | 24           | 30 | 74 |
| No hazardous location approvals |                                   |   | 9X                | •            | •  | •  |
| Factory Mutual                  | Explosion Proof                   | Class I, Div. 1, Groups A,B,C,D   | 1C                | •            | •  | •  |
|                                 | Dust Ignition Proof               | Class II, III Div. 1, Groups E,F,G  |                   |              |    |    |
|                                 | Non-Incendive                     | Class I, Div. 2, Groups A,B,C,D   |                   |              |    |    |
|                                 | Intrinsically Safe                | Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G  |                   |              |    |    |
| CSA                             | Explosion Proof                   | Class I, Div. 1, Groups B,C,D   | 2J                | •            | •  | •  |
|                                 | Dust Ignition Proof               | Class II, III, Div. 1, Groups E,F,G   |                   |              |    |    |
|                                 | Intrinsically Safe                | Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G  |                   |              |    |    |
| Zone 2 (Europe)                 | Self-Declared per 94/9/EC (ATEX4) | Ex II 3 GD T <sup>(1)</sup> X<br>(1) T4 at Tamb. 93°C, T5 at Tamb. 80°C, T6 at Tamb. 65°C | 3N                | •            | •  | •  |
| SA (Australia)                  | Intrinsically Safe                | Ex ia IIC T4  | 4H                | a            | a  | a  |
|                                 | Non-Incendive                     | Ex n IIC T6 (T4 with SM option)   |                   |              |    |    |
|                                 | Flame Proof                       | Ex d IIC T6   |                   |              |    |    |
| LCIE                            | Flame Proof                       | EEx d IIC T6  | 3A                | f            | f  | f  |
|                                 | Intrinsically Safe                | EEx ia IIC T5   |                   |              |    |    |
| CENELEC                         | Flame Proof                       | EEx d IIC T6  | 3D                | •            | h  | •  |
|                                 | Intrinsically Safe                | EEx ia IIC T5   |                   |              |    |    |
| Factory Identification          |                                   |   | XXXX              | •            | •  | •  |

**TABLE IV**

|                        |      |   |   |   |
|------------------------|------|---|---|---|
| Factory Identification | XXXX | • | • | • |
|------------------------|------|---|---|---|

**Model Selection Guide**, continued

**RESTRICTIONS**

| Restriction Letter | Available Only With |   | Not Available With |  |
|--------------------|---------------------|---|--------------------|--|
|                    | Table               | Selection                               | Table              | Selection  |
| a                  |                     | Approval Body pending                   |                    |  |
| b                  |                     | Select only one option from this group  |                    |  |
| c                  | I                   | __H                                     |                    |  |
| d                  | I<br>III            | E _ A, F _ A, G _ A, H _ A<br>DN        |                    |  |
| e                  | III                 | 1C, 2J, 3D, 3N, 9X                      |                    |  |
| f                  | III                 | HC                                      | I                  | STD930-C __, G __, L __                          |
| g                  |                     |   | I                  | K __, L __<br>includes side vent<br>no price add |
| h                  |                     |   | I                  | C __, G __, L __                                 |
| j                  | I                   | _2_                                     |                    |  |
| k                  | I                   | C __, G __, L __                        |                    |  |
| m                  |                     |   | III                | ZS, 1C, 2J                                       |
| n                  |                     |   | III                | 1C, 2J   |
| o                  | III                 | CR or B2                                |                    |  |
| r                  |                     |   | III                | TC, ME   |
| s                  |                     |   | III                | FF, ME   |
| t                  | III                 | Select from Table III S2, T2, V2        |                    |  |
| u                  | III                 | 1C, 2J                                  |                    |  |
| v                  |                     | Includes side vent drain - no price add |                    |  |
| w                  | I                   | E _ A, F _ A, G _ A, H _ A              | III                | SV   |
| x                  | III                 | FF, SM                                  |                    |  |
| y                  |                     |   | I<br>III           | J __, includes<br>side vent, no price add<br>DN  |
| z                  |                     |   | I                  | B __, D __, F __, H __,<br>J __, K __            |

**Note:** See 13:ST-27 for Published Specials with pricing.  
 See 13:ST-29 and User's Manual for part numbers.  
 See 13:ST-OE-9 for OMS Order Entry Information including TC, manuals, certificates, drawings and SPINS.  
 See 13:ST-OD-1 for tagging, ID, Transmitter Configuration (TC) and calibration including factory default values.  
 To request a quotation for a non-published "special", fax RFQ to Marketing Applications.

**Honeywell**