Honeywell

# ST 3000 Smart Transmitter
# Series 900 Gauge Pressure Models
# Specifications
## 34-ST-03-67 August 2011

## Introduction

In 1983, Honeywell introduced the first Smart Pressure Transmitter— the ST 3000®. In 1989, Honeywell launched the first all digital, bi-directional protocol for smart field devices. Today, its ST 3000 Series 900 In-line gauge Pressure Transmitters STG94L and the Series 900 Dual-head gauge (STG944), continue to bring proven "smart" technology to a wide spectrum of pressure measurement applications. Typical applications include high-pressure measurement in boilers, fuel feeds, and high-pressure reaction vessels in the petrochemical and hydrocarbon recovery industries – any location where accuracy and reliability are crucial to safe, economical operation. As with the rest of the line of Honeywell transmitters, the in-line transmitters offer the ability to be installed in a wide variety of hazardous environments for accurate repeatable pressure measurement.

| Models | | |
|---|---|---|
| STG944 | 0 to 500 psi | 0 to 35 bar |
| STG94L | 0 to 500 psi | 0 to 35 bar |
| STG974 | 0 to 3,000 psi | 0 to 210 bar |
| STG97L | 0 to 3,000 psi | 0 to 210 bar |
| STG98L | 0 to 6,000 psi | 0 to 415 bar |
| STG99L | 0 to 10,000 psi | 0 to 690 bar |

Honeywell's cost-effective ST 3000 S900 transmitters lead the industry in reliability and stability

| ST 3000 S900 Transmitter Benefits |
|---|
| Stability = ±0.01% per year |
| Reliability = 470 years MTBF |

**Figure 1** – On the left is an In-line GP type Model STG94L and on the right is a dual-head GP type Model STG944. Both these Series 900 Gauge Pressure Transmitters feature proven piezoresistive sensor technology.

All ST 3000 transmitters can be ordered to provide one of the following output communication options.

| Communications options |
|---|
| 4-20 mA |
| Honeywell Digitally Enhanced (DE) |
| HART® (versions 5.x or 6.x) |
| FOUNDATION™ Fieldbus |

When digitally integrated with Honeywell's Process Knowledge System™, EXPERION PKS™, ST 3000 instruments provide a more accurate process variable as well as advanced diagnostics.

The devices provide comprehensive self-diagnostics to help users maintain high uptime, meet regulatory requirements, and attain high quality standards. S900 transmitters allow smart performance at analog prices. Accurate, reliable and stable, Series 900 transmitters offer greater turndown ratio than conventional transmitters.

## Description

The ST 3000 transmitter can replace any 4 to 20 mA output transmitter in use today and operates over a standard two-wire system.

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.

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 100 or Series 900 model transmitters.

Like other Honeywell transmitters, the ST 3000 features two-way communication and configuration capability between the operator and the transmitter through several Honeywell field-rated portable configuration devices, including the Smart Field Communicator (SFC) and the Multiple Communication Configurator (MC ToolKit). While both are made for in-field use, the MC Toolkit also can be ordered for use in intrinsically safe environments.

The SCT 3000 Smartline® Configuration Toolkit provides an easy way to configure instruments using a personal computer. The toolkit enables configuration of devices before shipping or installation. The SCT 3000 can operate in the offline mode to configure an unlimited number of devices. The database can then be loaded down-line during commissioning.

## Features

- Choice of linear or square root output conformity is a simple configuration selection.
- Direct digital integration with Experion PKS and other control systems provides local measurement accuracy to the system level without adding typical A/D and D/A converter inaccuracies.
- Unique piezoresistive sensor automatically compensates input for temperature and static pressure. Added "smart" features include configuring lower and upper range values, simulating accurate analog output, and selecting preprogrammed engineering units for display.
- Smart transmitter capabilities with local or remote interfacing means significant manpower efficiency improvements in commissioning, start-up, and ongoing maintenance functions.

## Advanced Diagnostics

ST 3000 is now available for both HART® 6 and Foundation™ Fieldbus with advanced diagnostics that minimize unplanned plant outages, minimize maintenance costs and by providing the industry's most reliable transmitter.

- Provide advanced warning of possible failure events and avoid costly shutdowns.
- Three levels of failure reporting
- Comprehensive list of on-board diagnostics (Ref. ST 3000 User manual with HART® 6, 34-ST-25-17 Rev: June 09 and Foundation™ Fieldbus option manual 34-ST-25-15 Rev: June 09)

## Operating Conditions – All Models

| Parameter | Reference Condition | | Rated Condition | | Operative Limits | | Transportation and Storage | |
|---|---|---|---|---|---|---|---|---|
| | °C | °F | °C | °F | °C | °F | °C | °F |
| **Ambient Temperature** | 25±1 | 77±2 | -40 to 70 | -40 to 158 | -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 | |
| **Vacuum Region – Minimum Pressure**<br>**mmHg absolute**<br>**in$H_2O$ absolute** | Atmospheric<br>Atmospheric | | 25<br>13 | | 2 (short term*** )<br>1 (short term*** ) | | | |
| **Supply Voltage, Current, and Load Resistance** | **Voltage Range:** 10.8 to 42.4 Vdc at terminals<br>**Current Range:** 3.0 to 21.8 mA<br>**Load Resistance:** 0 to 1,440 ohms (as shown in Figure 2) | | | | | | | |
| **Maximum Allowable Working Pressure (MAWP)**<br>(ST 3000 products are rated to Maximum Allowable Working Pressure.) | STG944 and STG94L = 500 psi, 35 bar<br>STG974 and STG97L = 3,000 psi, 210 bar<br>STG98L = 6,000 psi, 415 bar<br>STG99L = 10,000 psi, 690 bar<br>Units can withstand overpressure of 1.5X MAWP without damage. | | | | | | | |

* For model 944 with CTFE fill fluid, the rating is –15 to 70°C (5 to 158°F); for model 98L with CTFE fill fluid, the rating is –15 to 110°C (5 to 230°F).

** For Models STG94L, STG97L, and STG98L, STG99L the upper limit is 110°C (230°F).

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

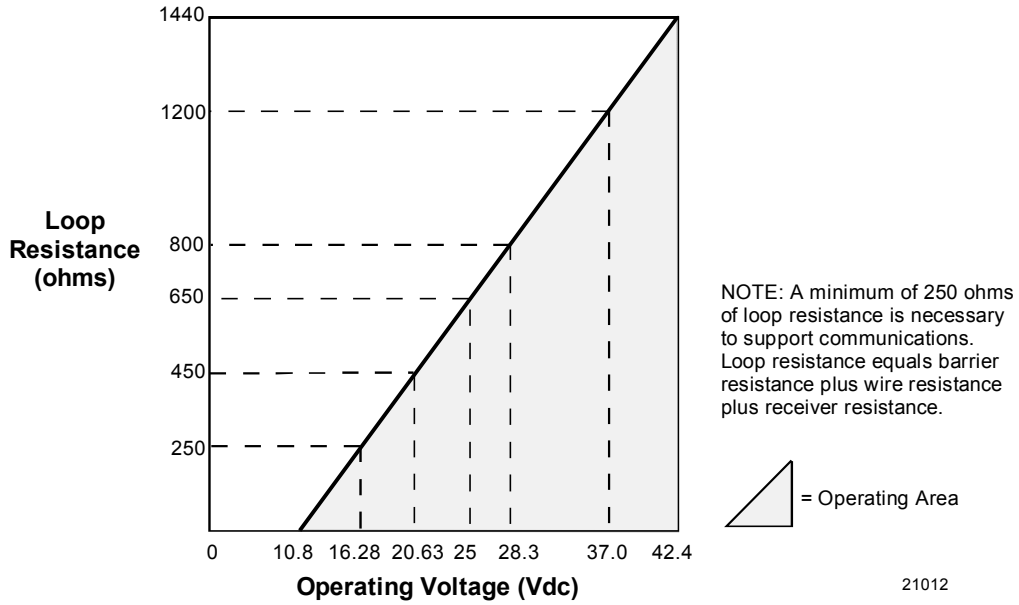



**Figure 2 -** Supply voltage and loop resistance chart

## Performance Under Rated Conditions* - Model STG944 & STG94L (0 to 500 psi/35 bar)

| Parameter | Description |
|---|---|
| **Upper Range Limit** **psi** **bar** | 500<br>35 |
| **Minimum Span** **psi** **bar** | 5<br>0.35 |
| **Turndown Ratio** | 100 to 1 |
| **Zero Elevation and Suppression** | No limit except minimum span from absolute 0 (zero) to +100% URL. Specifications valid over this range. |
| **Accuracy** (Reference – Includes combined effects of linearity, hysteresis, and repeatability)<br>• *Accuracy includes residual error after averaging successive readings.*<br>• *For FOUNDATION™ Fieldbus use Digital Mode specifications.*<br>• *For HART® use Analog Mode specifications.* | **In Analog Mode:** ±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>$\pm\left[0.025+0.05\left(\frac{20\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.025+0.05\left(\frac{1.4\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.0625% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (20 psi), accuracy equals:<br>$\pm\left[0.0125+0.05\left(\frac{20\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.05\left(\frac{1.4\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span |
| **Zero Temperature Effect per 28°C (50°F)** | **In Analog Mode:** ±0.1625% of span.<br>For URV below reference point (50 psi), effect equals:<br>$\pm\left[0.0125+0.15\left(\frac{50\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.15\left(\frac{3.5\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.15% of span.<br>For URV below reference point (50 psi), effect equals:<br>$\pm 0.15\left(\frac{50\ \text{psi}}{\text{span psi}}\right)$ or $\pm 0.15\left(\frac{3.5\ \text{bar}}{\text{span bar}}\right)$ in % of span |
| **Combined Zero and Span Temperature Effect per 28°C (50°F)** | **In Analog Mode:** ±0.25% of span.<br>For URV below reference point (50 psi), effect equals:<br>$\pm\left[0.10+0.15\left(\frac{50\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.10+0.15\left(\frac{3.5\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.225% of span.<br>For URV below reference point (50 psi), effect equals:<br>$\pm\left[0.075+0.15\left(\frac{50\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.075+0.15\left(\frac{3.5\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span |
| **Stability** | ±0.015% of URL per year |

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

## Performance Under Rated Conditions* - Model STG974 & STG97L (0 to 3,000 psi/210 bar)

| Parameter | | Description |
|---|---|---|
| **Upper Range Limit** | **psi**<br>**bar** | 3,000<br>210 |
| **Minimum Span** | **psi**<br>**bar** | 30<br>2.1 |
| **Turndown Ratio** | | 100 to 1 |
| **Zero Elevation and Suppression** | | No limit except minimum span from absolute 0 (zero) to +100% URL. Specifications valid over this range. |
| **Accuracy** (Reference – Includes combined effects of linearity, hysteresis, and repeatability)<br>• *Accuracy includes residual error after averaging successive readings.*<br>• *For FOUNDATION™ Fieldbus use Digital Mode specifications.*<br>• *For HART® use Analog Mode specifications.* | | **In Analog Mode:** ±0.10% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (750 psi), accuracy equals:<br>$\pm\left[0.05+0.05\left(\frac{750\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.05+0.05\left(\frac{52\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (300 psi), accuracy equals:<br>$\pm\left[0.025+0.05\left(\frac{750\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.025+0.05\left(\frac{52\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span |
| **Zero Temperature Effect per 28°C (50°F)** | | **In Analog Mode:** ±0.2125% of span.<br>For URV below reference point (500 psi), effect equals:<br>$\pm\left[0.0125+0.20\left(\frac{500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.20\left(\frac{35\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.20% of span.<br>For URV below reference point (500 psi), effect equals:<br>$\pm 0.20\left(\frac{500\ \text{psi}}{\text{span psi}}\right)$ or $\pm 0.20\left(\frac{35\ \text{bar}}{\text{span bar}}\right)$ in % of span |
| **Combined Zero and Span Temperature Effect per 28°C (50°F)** | | **In Analog Mode:** ±0.325% of span.<br>For URV below reference point (500 psi), effect equals:<br>$\pm\left[0.125+0.20\left(\frac{500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.125+0.20\left(\frac{35\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.30% of span.<br>For URV below reference point (500 psi), effect equals:<br>$\pm\left[0.10+0.20\left(\frac{500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.10+0.20\left(\frac{35\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span |
| **Stability** | | ±0.03% of URL per year |

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

## Performance Under Rated Conditions* - Model STG98L (0 to 6,000 psi/415 bar)

| Parameter | Description |
|---|---|
| **Upper Range Limit** **psi** **bar** | 6,000<br>415 |
| **Minimum Span** **psi** **bar** | 62<br>4.1 |
| **Turndown Ratio** | 100 to 1 |
| **Zero Elevation and Suppression** | No limit except minimum span from absolute 0 (zero) to +100% URL. Specifications valid over this range. |
| **Accuracy** (Reference – Includes combined effects of linearity, hysteresis, and repeatability)<br>• *Accuracy includes residual error after averaging successive readings.*<br>• *For FOUNDATION™ Fieldbus use Digital Mode specifications.*<br>• *For HART® use Analog Mode specifications.* | **In Analog Mode:** ±0.10% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (1,500 psi), accuracy equals:<br>$\pm\left[0.05+0.05\left(\frac{1{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.05+0.05\left(\frac{104\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (1,500 psi), accuracy equals:<br>$\pm\left[0.025+0.05\left(\frac{1{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.025+0.05\left(\frac{104\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span |
| **Zero Temperature Effect per 28°C (50°F)** | **In Analog Mode:** ±0.2125% of span.<br>For URV below reference point (1,500 psi), effect equals:<br>$\pm\left[0.0125+0.20\left(\frac{1{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.20\left(\frac{104\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.20% of span.<br>For URV below reference point (1,500 psi), effect equals:<br>$\pm 0.20\left(\frac{1{,}500\ \text{psi}}{\text{span psi}}\right)$ or $\pm 0.20\left(\frac{70\ \text{bar}}{\text{span bar}}\right)$ in % of span |
| **Combined Zero and Span Temperature Effect per 28°C (50°F)** | **In Analog Mode:** ±0.325% of span.<br>For URV below reference point (1,500 psi), effect equals:<br>$\pm\left[0.125+0.20\left(\frac{1{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.125+0.20\left(\frac{104\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.30% of span.<br>For URV below reference point (1,,500 psi), effect equals:<br>$\pm\left[0.10+0.20\left(\frac{1{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.10+0.20\left(\frac{104\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span |
| **Stability** | ±0.03% of URL per year |

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

## Performance Under Rated Conditions* - STG99L (0 to 10,000 psi/690 bar)

| Parameter | Description |
|---|---|
| **Upper Range Limit** **psi** **bar** | 10,000<br>690 |
| **Minimum Span** **psi** **bar** | 100<br>7 |
| **Turndown Ratio** | 100 to 1 |
| **Zero Elevation and Suppression** | No limit except minimum span from absolute 0 (zero) to +100% URL. Specifications valid over this range. |
| **Accuracy** (Reference – Includes combined effects of linearity, hysteresis, and repeatability)<br>• *Accuracy includes residual error after averaging successive readings.*<br>• *For FOUNDATION™ Fieldbus use Digital Mode specifications.*<br>• *For HART® use Analog Mode specifications.* | **In Analog Mode:** ±0.10% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (2,500 psi), accuracy equals:<br>$\pm\left[0.05+0.05\left(\frac{2{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.05+0.05\left(\frac{172\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based.<br>For URV below reference point (2,500 psi), accuracy equals:<br>$\pm\left[0.025+0.05\left(\frac{2{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.025+0.05\left(\frac{172\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span |
| **Zero Temperature Effect per 28°C (50°F)** | **In Analog Mode:** ±0.2125% of span.<br>For URV below reference point (2,500 psi), effect equals:<br>$\pm\left[0.0125+0.20\left(\frac{2{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.20\left(\frac{172\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.20% of span.<br>For URV below reference point (2,500 psi), effect equals:<br>$\pm 0.20\left(\frac{2{,}500\ \text{psi}}{\text{span psi}}\right)$ or $\pm 0.20\left(\frac{172\ \text{bar}}{\text{span bar}}\right)$ in % of span |
| **Combined Zero and Span Temperature Effect per 28°C (50°F)** | **In Analog Mode:** ±0.325% of span.<br>For URV below reference point (2,500 psi), effect equals:<br>$\pm\left[0.125+0.20\left(\frac{2{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.125+0.20\left(\frac{172\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span<br>**In Digital Mode:** ±0.30% of span.<br>For URV below reference point (2,500 psi), effect equals:<br>$\pm\left[0.10+0.20\left(\frac{2{,}500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.10+0.20\left(\frac{172\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span |
| **Stability** | ±0.03% of URL per year. |

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

## Performance Under Rated Conditions – General for all Models

| Parameter | Description |
|---|---|
| **Output (two-wire)** | Analog 4 to 20 mA or DE digital communications mode. Options available for Foundation™ Fieldbus and HART® protocol. |
| **Supply Voltage Effect** | 0.005% of span per volt. |
| **Damping Time Constant** | Adjustable from 0 to 32 seconds digital damping. |
| **CE Conformity (Europe)** | 89/336/EEC, Electromagnetic Compatibility (EMC) Directive. |
| **NAMUR NE 43 Compliance** | Transmitter failure information is generated when the measuring information is invalid or no longer present. Failure information is transmitted as a current signal but outside the normal 4-20 mA measurement signal level. Transmitter failure values are:<br>≤ 3.6 mA and ≥ 21.0 mA. The normal signal range is ≥ 3.8 mA and ≤ 20.5 mA. |
| **SIL 2/3 Compliance** | SIL certified to IEC 61508 for non-redundant use in SIL 2 related Safety Systems (single use) and for redundant (multiple) use in SIL 3 Safety Systems through<br>TÜV Nord Sys Tec GmbH & Co. KG under the following standards: IEC61508-1: 1998; IEC 61508-2: 2000; IEC61508-3: 1998. |
| **Lightning Protection Option (Code "LP")** | Leakage Current: 10 micro amps max. @ 42.4 VDC, 93°C<br>Impulse Rating: (rise/decay) 10/20 µ sec. 5,000 Amps (50 strikes) 10,000 Amps (20 strikes)<br>10/1,000 µ sec. 250 Amps (1,000 strikes) 500 Amps (400 strikes) |

## Physical and Approval Bodies

| Parameter | Description |
|---|---|
| **Barrier Diaphragms Material** | **Dual-Head Meter Body:** 316L SS, Hastelloy® C-276[2], Monel®400[3], Tantalum<br>**In-Line Meter Body:** 316L SS, Hastelloy® C-276[2] |
| **Process Head Material** | **Dual-Head Meter Body:** Carbon Steel (zinc-plated)[5], 316 SS, Hastelloy® C-276[6], Monel®400[7] Monel®400[3]. [Standard reference head is Carbon Steel (zinc-plated)[5]. Optional reference head is 316 SS[4].]<br>**In-Line Meter Body:** 316L SS process interface. |
| **Head Gaskets** | Teflon® is standard. Viton® is available. |
| **Meter Body Bolting** | Carbon Steel (Zinc plated) standard. Options include 316 SS, NACE A286 SS bolts with 304 SS nuts, and B7M. |
| **Mounting Bracket** | Carbon Steel (Zinc-plated) or Stainless Steel angle bracket or Carbon Steel flat bracket available. |
| **Vent/Drain Valves & Plugs [1]** | 316 SS[4], Hastelloy® C-276[2], Monel® 400 [8] (Models STG944 and STG974 only) |
| **Fill Fluid** | Silicone DC® 200 or CTFE (Chlorotrifluoroethylene) |
| **Electronic Housing** | Epoxy-Polyester hybrid paint. Low Copper-Aluminum. Meets NEMA 4X (watertight) and NEMA 7 (explosion proof). 316 SS optional. |
| **Mounting** | 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 for dual-head models and Figure 4 for in-line models. |
| **Dimensions** | See Figures 5 and 6. |
| **Net Weight** | **With Dual-Head Meter Body:** 9 pounds (4.1 Kg)<br>**With In-Line Meter Body:** 3.8 pounds (1.7 Kg) |

[1] Vent/Drains are sealed with Teflon® or PTFE
[2] Hastelloy® C-276 or UNS N10276
[3] Monel® 400 or UNS N04400
[4] Supplied as 316 SS or as Grade CF8M, the casting equivalent of 316 SS.
[5] Carbon Steel heads are zinc-plated and not recommended for water service due to hydrogen migration. For that service, use 316 stainless steel wetted Process Heads.
[6] Hastelloy® C-276 or UNS N10276. Supplied as indicated or as Grade CW12MW, the casting equivalent of Hastelloy® C-276
[7] Monel® 400 or UNS N04400. Supplied as indicated or as Grade M30C, the casting equivalent of Monel® 400
[8] Monel 400® or UNS N04400 or UNS N04405

**NOTE:** Pressure transmitters that are part of safety equipment for the protection of piping (systems) or vessel(s) from exceeding allowable pressure limits, (equipment with safety functions in accordance with Pressure Equipment Directive 97/23/EC article 1, 2.1.3), require separate examination.

## Certifications

| | Type of Protection | Comm. Option | Field Parameters | Temp. Codes |
|---|---|---|---|---|
| **FM Approvals[SM]** | **Explosionproof:**<br>Class I, Division 1, Groups A, B, C, D locations<br>**Dust Ignition Proof:**<br>Class II, III, Division 1, Groups E, F, G locations,<br>Enclosure Type 4X | All | All | T5 Ta = 93ºC |
| | **Intrinsically Safe:**<br><br>Class I, II, III, Division 1, Groups A, B, C, D, E, F, G locations, Encl | 4-20 mA / DE | Vmax = 42.4V<br>Imax = 225mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = 93ºC |
| | | 4-20 mA | Vmax = 30V<br>Imax = 225mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = 93ºC |
| | **Intrinsically Safe:**<br><br>Class I, II, III, Division 1, Groups A, B, C, D, E, F, G locations;<br><br>Class 1, Zone 0, AEx ia Group IIC, Enclosure Type 4X / IP 66/67 | Fieldbus – Entity (Not FISCO) | Vmax = 32V<br>Imax = 120mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =0.84W | T4 Ta = 40ºC<br>T3 Ta = 93ºC |
| | | Fieldbus – Entity (Not FISCO) | Vmax = 24V<br>Imax = 250mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =1.2W | T4 Ta = 40ºC<br>T3 Ta = 93ºC |
| | | FISCO | Vmax = 17.5V<br>Imax = 380mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =5.32W | T4 Ta = 40ºC<br>T3 Ta = 93ºC |
| | **Nonincendive:**<br><br>Class I, Division 2, Groups A, B, C, D locations, Enclosure Type 4X | 4-20 mA / DE | Vmax = 42.4V<br>Imax = 225mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = 93ºC |
| | | 4-20 mA / HART | Vmax = 30V<br>Imax = 225mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = 93ºC |
| | **Nonincendive:**<br><br>Class I, Division 2, Groups A, B, C, D;<br><br>Suitable for:<br>Class II, Division 2, Groups F&G;<br>Class III, Division 2;<br>Class I, Zone 2, Group IIC,<br>Enclosure Type 4X / IP 66/67 | Fieldbus – Entity (Not FNICO) | Vmax = 32V<br>Imax = 120mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =0.84W | T4 Ta = 40ºC<br>T3 Ta = 93ºC |
| | | Fieldbus – Entity (Not FNICO) | Vmax = 24V<br>Imax = 250mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =1.2W | T4 Ta = 40ºC<br>T3 Ta = 93ºC |
| | | FNICO | Vmax = 32V<br>Ci = 4.2nF<br>Li = 0 | T4 Ta = 40ºC<br>T3 Ta = 93ºC |

*Li = 0 except Li = 150µH when Option ME, Analog Meter, is selected.

FM Approvals[SM] is a service mark of FM Global

| | Type of Protection | Comm. Option | Field Parameters | Temp. Codes |
|---|---|---|---|---|
| **Canadian Standards Association (CSA)** | **Explosion Proof:** Class I, Division 1, Groups B, C, D locations<br><br>**Dust Ignition Proof:** Class II, III, Division 1, Groups E, F, G locations, Enclosure Type 4X | All | All | T4 Ta = 93ºC |
| | **Intrinsically Safe:**<br><br>Class I, II, III, Division 1, Groups A, B, C, D, E, F, G locations, Enclosure Type 4X | 4-20 mA / DE | Vmax = 42V<br>Imax = 225mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = 93ºC |
| | | 4-20 mA / HART | Vmax = 42V<br>Imax = 225mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = 93ºC |
| | | Fieldbus – Entity (Not FISCO) | Vmax = 24V<br>Imax = 250mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =1.2W | T4 Ta = 40ºC<br>T3 Ta = 93ºC |
| | **Nonincendive:**<br><br>Class I, Division 2, Groups A, B, C, D locations, Enclosure Type 4X | 4-20 mA / DE | Vmax = 42.4V<br>Imax = 225mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = 93ºC |
| | | 4-20 mA / HART | Vmax = 30V<br>Imax = 225mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = 93ºC |
| | | Fieldbus – Entity (Not FNICO) | Vmax = 24V<br>Imax = 250mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =1.2W | T4 Ta = 40ºC<br>T3 Ta = 93ºC |
| | **Canadian Registration Number (CRN):** | All ST 3000 models except STG19L, STG99L, STG170 and STG180 have been registered in all provinces and territories in Canada and are marked CRN: 0F8914.5C. | | |

| | Type of Protection | Comm. Option | Field Parameters | Temp. Codes |
|---|---|---|---|---|
| **IECEx International Electrotechnical Commission (LCIE)** | **Flameproof, Zone 1:** Ex d IIC, Enclosure IP 66/67 | All | All | T5 Ta = –50 to 93ºC<br>T6 Ta = –50 to 78ºC |
| | **Intrinsically Safe, Zone 0/1:** Ex ia IIC, Enclosure IP 66/67 | 4-20 mA / DE | Ui = 30V<br>Ii = 100mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = –50 to 93ºC<br>T5 Ta = –50 to 85ºC<br>T6 Ta = –50 to 70ºC |
| | | 4-20 mA / HART | Ui = 30V<br>Ii = 100mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = –50 to 93ºC<br>T5 Ta = –50 to 63ºC<br>T6 Ta = –50 to 48ºC |
| | | Fieldbus (Not FISCO) | Ui = 24V<br>Ii = 250mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =1.2W | T3 Ta = –50 to 93ºC<br>T4 Ta = –50 to 40ºC |

* Li = 0 except Li = 150µH when Option ME, Analog Meter, is selected.

| | Type of Protection | Comm. Option | Field Parameters | Temp. Codes |
|---|---|---|---|---|
| **SAEx (South Africa)** | **Flameproof, Zone 1:** Ex d IIC, Enclosure IP 66/67 | All | All | T5 Ta = –50 to 93ºC<br>T6 Ta = –50 to 78ºC |
| | **Intrinsically Safe, Zone 0/1:** Ex ia IIC, Enclosure IP 66/67 | 4-20 mA / DE | Ui = 30V<br>Ii = 100mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = –50 to 93ºC<br>T5 Ta = –50 to 85ºC<br>T6 Ta = –50 to 70ºC |
| | | 4-20 mA / HART | Ui = 30V<br>Ii = 100mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = –50 to 93ºC<br>T5 Ta = –50 to 63ºC<br>T6 Ta = –50 to 48ºC |
| | | Fieldbus (Not FISCO) | Ui = 24V<br>Ii = 250mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =1.2W | T3 Ta = –50 to 93ºC<br>T4 Ta = –50 to 40ºC |
| | **Multiple Marking:**<br><br>**Flameproof, Zone 1:** Ex d IIC, Enclosure IP 66/67<br><br>**Intrinsically Safe, Zone 0/1:** Ex ia IIC, Enclosure IP 66/67<br><br>**NOTE:** The user must determine the type of protection required for installation of the equipment. The user shall then check the box [ √ ] adjacent to the type of protection used on the equipment certification nameplate. Once a type of protection has been checked on the nameplate, subsequently the equipment shall not be reinstalled using any of the other certification types. | 4-20 mA / DE | Ui = 30V<br>Ii = 100mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = –50 to 93ºC<br>T5 Ta = –50 to 85ºC<br>T6 Ta = –50 to 70ºC |
| | | 4-20 mA / HART | Ui = 30V<br>Ii = 100mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = –50 to 93ºC<br>T5 Ta = –50 to 63ºC<br>T6 Ta = –50 to 48ºC |
| | | Fieldbus (Not FISCO) | Ui = 24V<br>Ii = 250mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =1.2W | T3 Ta = –50 to 93ºC<br>T4 Ta = –50 to 40ºC |

* Li = 0 except Li = 150µH when Option ME, Analog Meter, is selected.

| | Type of Protection | Comm. Option | Field Parameters | Temp. Codes |
|---|---|---|---|---|
| **ATEX (LCIE)** | **Flameproof, Zone 0:** Ⓔx II 1 D, Ex tD Enclosure IP 66/67 | All | All | A20 IP6X T95ºC Ta = 93ºC or T80ºC Ta = 78ºC |
| | **Flameproof, Zone 1:** Ⓔx II 2 GD, Ex d IIC, Ex tD Enclosure IP 66/67 | All | All | T5 Ta = –50 to +93ºC T6 Ta = –50 to +78ºC, A21 IP6X T95ºC Ta = 93ºC or T80ºC Ta = 78ºC |
| | **Intrinsically Safe, Zone 0/1:** Ⓔx II 1 G, Ex ia IIC, Enclosure IP 66/67 | 4-20 mA / DE | Ui = 30V Ii = 100mA Ci = 4.2nF Li = * Pi =1.2W | T4 Ta = –50 to 93ºC T5 Ta = –50 to 85ºC T6 Ta = –50 to 70ºC |
| | | 4-20 mA / HART | Ui = 30V Ii = 100mA Ci = 4.2nF Li = * Pi =1.2W | T4 Ta = –50 to 93ºC T5 Ta = –50 to 63ºC T6 Ta = –50 to 48ºC |
| | | Fieldbus (Not FISCO) | Ui = 24V Ii = 250mA Ci = 4.2nF Li = 0 Pi =1.2W | T3 Ta = –50 to 93ºC T4 Ta = –50 to 40ºC |
| | **Non-Sparking, Zone 2:** Ⓔx II 3 G, Ex nA IIC (Honeywell), Enclosure IP 66/67 | 4-20 mA / DE | Ui = 30V Ii = 100mA Ci = 4.2nF Li = * Pi =1.2W | T4 Ta = –50 to 93ºC T5 Ta = –50 to 85ºC T6 Ta = –50 to 70ºC |
| | | 4-20 mA / HART | Ui = 30V Ii = 100mA Ci = 4.2nF Li = * Pi =1.2W | T4 Ta = –50 to 93ºC T5 Ta = –50 to 63ºC T6 Ta = –50 to 48ºC |
| | | Fieldbus (Not FNICO) | Ui = 24V Ii = 250mA Ci = 4.2nF Li = 0 Pi =1.2W | T3 Ta = –50 to 93ºC T4 Ta = –50 to 40ºC |
| | **Multiple Marking:**<br>**Flameproof, Zone 1:** Ⓔx II 2 G, Ex d IIC<br>**Intrinsically Safe, Zone 0/1:** Ⓔx II 1 G, Ex ia IIC<br>**Non-Sparking, Zone 2:** Ⓔx II 3 G, Ex nA IIC<br>**NOTE:** The user must determine the type of protection required for installation of the equipment. The user shall then check the box [ √ ] adjacent to the type of protection used on the equipment certification nameplate. Once a type of protection has been checked on the nameplate, subsequently the equipment shall not be reinstalled using any of the other certification types. | 4-20 mA / DE | Ui = 30V Ii = 100mA Ci = 4.2nF Li = * Pi =1.2W | T4 Ta = –50 to 93ºC T5 Ta = –50 to 85ºC T6 Ta = –50 to 70ºC |
| | | 4-20 mA / HART | Ui = 30V Ii = 100mA Ci = 4.2nF Li = * Pi =1.2W | T4 Ta = –50 to 93ºC T5 Ta = –50 to 63ºC T6 Ta = –50 to 48ºC |
| | | Fieldbus (Not FISCO/FNICO) | Ui = 24V Ii = 250mA Ci = 4.2nF Li = 0 Pi =1.2W | T3 Ta = –50 to 93ºC T4 Ta = –50 to 40ºC |

* Li = 0 except Li = 150µH when Option ME, Analog Meter, is selected.

| | Type of Protection | Comm. Option | Field Parameters | Temp. Codes |
|---|---|---|---|---|
| **INMETRO (CERTUSP) Brazil** | **Flameproof, Zone 1:**<br><br>BR-Ex d IIC<br>Enclosure IP 66/67 | All | All | T5 Ta = –50 to 93ºC<br>T6 Ta = –50 to 78ºC |
| | **Intrinsically Safe, Zone 0/1:**<br><br>BR-Ex ia IIC<br>Enclosure IP 66/67 | 4-20 mA / DE | Ui = 30V<br>Ii = 100mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = –50 to 93ºC<br>T5 Ta = –50 to 85ºC<br>T6 Ta = –50 to 70ºC |
| | | 4-20 mA / HART | Ui = 30V<br>Ii = 100mA<br>Ci = 4.2nF<br>Li = *<br>Pi =1.2W | T4 Ta = –50 to 93ºC<br>T5 Ta = –50 to 63ºC<br>T6 Ta = –50 to 48ºC |
| | | Fieldbus<br>(Not FISCO) | Ui = 24V<br>Ii = 250mA<br>Ci = 4.2nF<br>Li = 0<br>Pi =1.2W | T3 Ta = –50 to 93ºC<br>T4 Ta = –50 to 40ºC |

- Li = 0 except Li = 150µH when Option ME, Analog Meter, is selected.

| | |
|---|---|
| **ST 3000 Pressure Transmitter Marine Certificate (MT Option)** | This certificate defines the certifications covered for the ST 3000 Pressure Transmitter family of products, including the SMV 3000 Smart Multivariable Transmitter. It represents the compilation of the five certificates Honeywell currently has covering the certification of these products into marine applications.<br><br>For ST 3000 Smart Pressure Transmitter and SMV 3000 Smart Multivarible Transmitter |
| | **American Bureau of Shipping (ABS)** - 2009 Steel Vessel Rules 1-1-4/3.7, 4-6-2/5.15, 4-8-3/13 & 13.5, 4-8-4/27.5.1, 4-9-7/13. Certificate number: 04-HS417416-PDA |
| | **Bureau Veritas (BV)** - Product Code: 389:1H. Certificate number: 12660/B0 BV |
| | **Det Norske Veritas (DNV**) - Location Classes: Temperature D, Humidity B, Vibration A, EMC B, Enclosure C. For salt spray exposure; enclosure of 316 SST or 2-part epoxy protection with 316 SST bolts to be applied. Certificate number: A-11476 |
| | **Korean Register of Shipping (KR)** - Certificate number: LOX17743-AE001 |
| | **Lloyd's Register (LR)** - Certificate number: 02/60001(E1) & (E2) |

| | |
|---|---|
| **European Pressure Equipment Directive (PED) (97/23/EC)** | The ST 3000 Smart Pressure Transmitters are in conformity with the essential requirements of the Pressure Equipment Directive.<br><br>Honeywell ST 3000 Smart Pressure Transmitters are designed and manufactured in accordance with the applicable portions of Annex I, Essential Safety Requirements, and sound engineering practices. These transmitters have no pressurized internal volume, or have a pressurized internal volume rated less than 200 bar (2,900 psig), and/or have a maximum volume of less than 0.1 liter (Article 3, 1.1.(a) first indent, Group 1 fluids). Therefore, these transmitters are not subject to the essential requirements of the directive 97/23/EC (PED, Annex I) and shall not have the CE mark applied.<br><br>For transmitters rated > 200 bar (2,900 psig) < 1,000 bar (14,500 psig) Honeywell maintains a technical file in accordance with Annex III, Module A, (internal production control) when the CE mark is required. Transmitter Attachments: Diaphragm Seals, Process Flanges and Manifolds comply with Sound Engineering Practice. |
| | **NOTE:** Pressure transmitters that are part of safety equipment for the protection of piping (systems) or vessel(s) from exceeding allowable pressure limits, (equipment with safety functions in accordance with Pressure Equipment Directive 97/23/EC article 1, 2.1.3), require separate examination.<br>A formal statement from TÜV Industry Service Group of TÜV America, Inc., a division of TÜV Süddeutschland, a Notified Body regarding the Pressure Equipment Directive, can be found at www.honeywell.com. A hard copy may be obtained by contacting a Honeywell representative. |
| **CE Mark** | ***Electro Magnetic Compatibility (EMC) (2004/108/EC)***<br>All Models: EN 50081-1: 1992; EN 50082-2:1995; EN 61326-1:1997 + A1, A2, and A3 – Industrial Locations |
| **Recommended Frequency of Calibration** | Honeywell recommends verifying the calibration of these devices once every four years. |
| **Approved Manufacturing Locations** | Honeywell Process Solutions - York, PA USA<br>Honeywell (Tianjin) Limited – Tianjin, P.R. China<br>Honeywell Automation India Ltd. – Pune 411013 India |

## Mounting

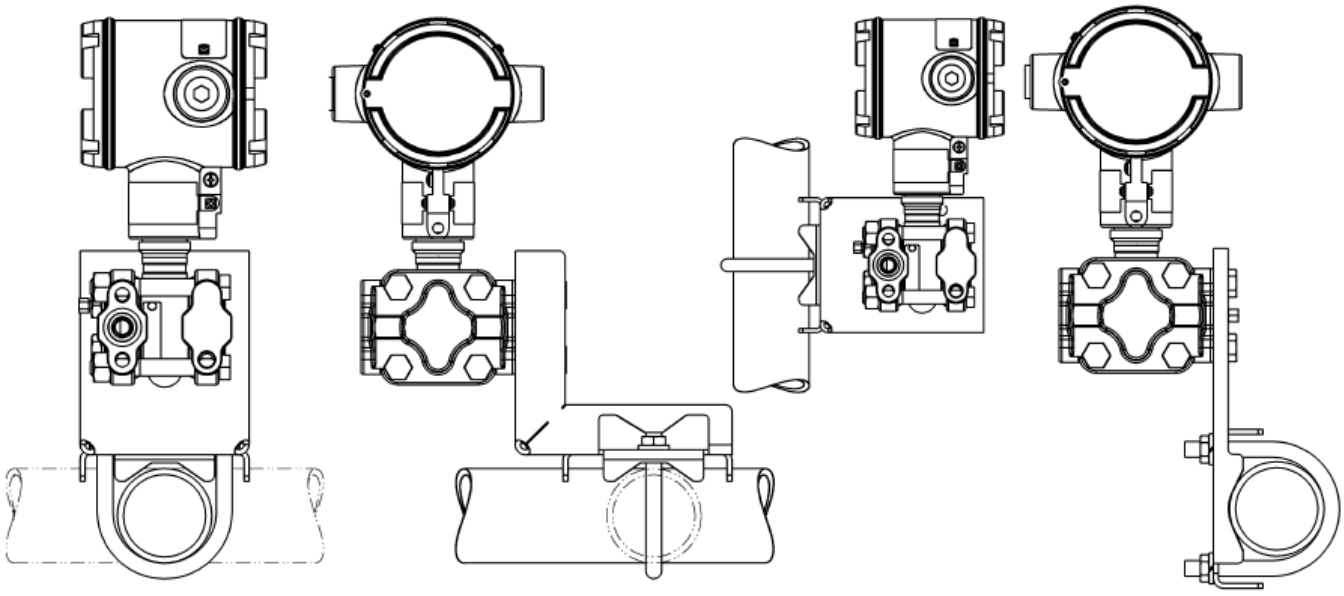


**Figure 3—**Examples of typical mounting positions for dual-head models STG944 and STG974

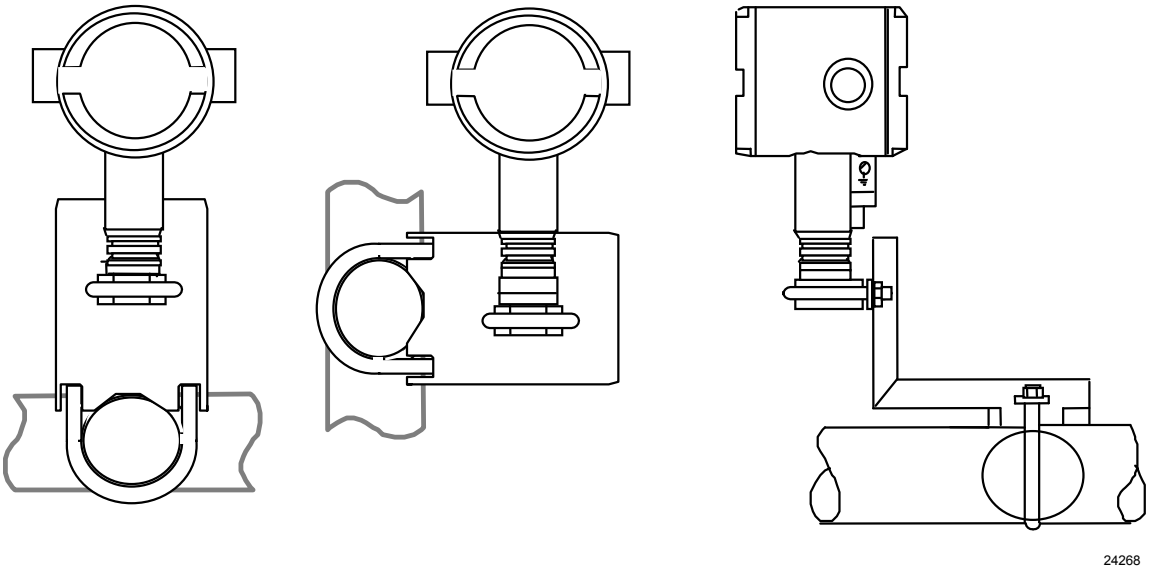



**Figure 4**—Examples of typical mounting positions for in-line models STG94L, STG97L, STG98L, and STG99L. Note that a mounting bracket is not required for in-line models.

## Reference Dimensions

millimeters
inches

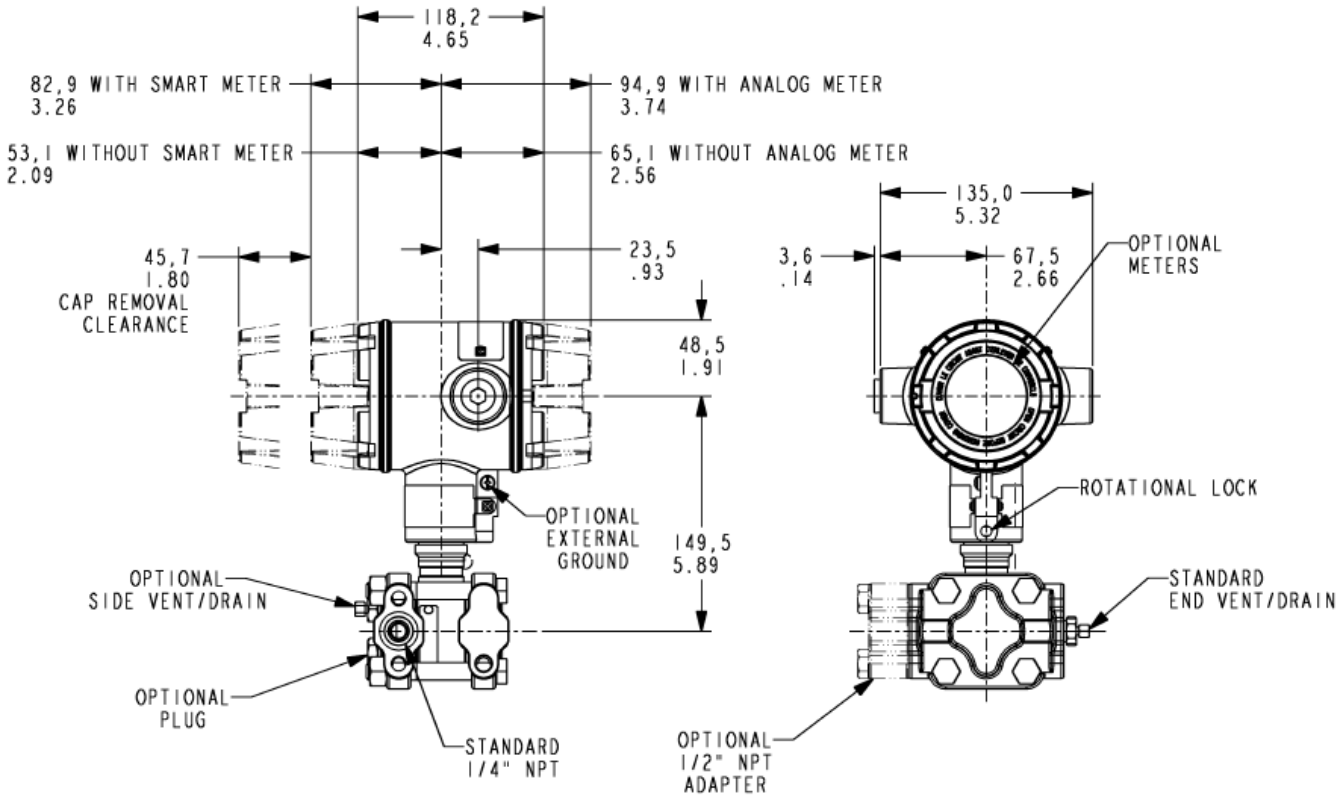
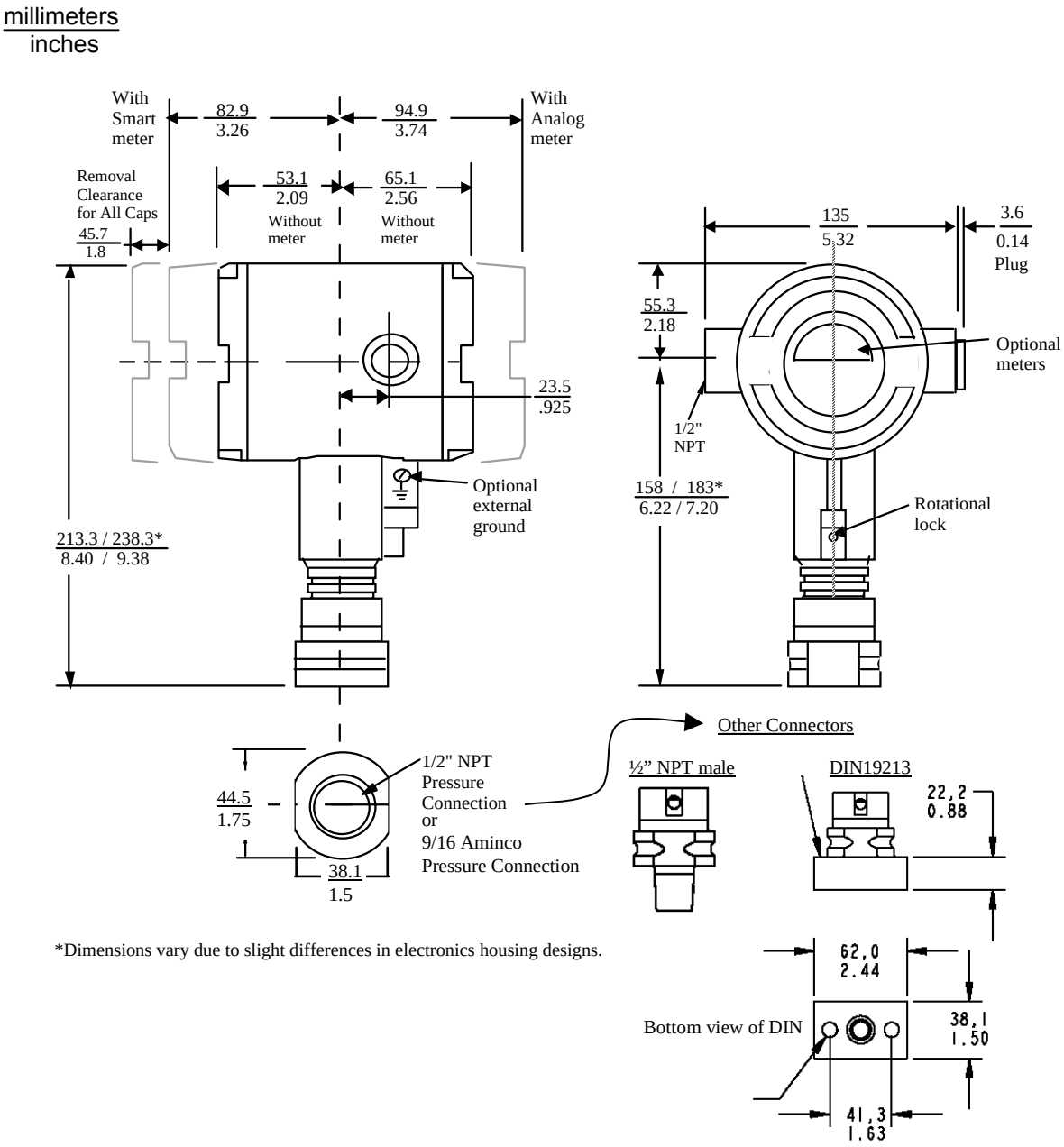



**Figure 5**—Typical mounting dimensions for dual-head models STG944 and STG974 for reference

## Reference Dimensions




*Dimensions vary due to slight differences in electronics housing designs.

**Figure 6—**Typical mounting dimensions for in-line models STG94L, STG97L, STG98L, and STG99L for reference

## Options

- **Mounting Bracket (Options MB, MX, SB, SX, FB)**

  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 (Options ME and SM)**

  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 (Option LP)**

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

- **HART® Protocol Compatibility (Options HC and H6)**

  Optional electronics modules for the ST 3000 provide HART Protocol compatibility in either HART 5.x or 6.x formats. Transmitters with a HART Option are compatible with any HART enabled system that provides 5.x or 6.x format support.

- **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.

- **SIL2/SIL3 Certification (Option SL)**

  This ST 3000 product is available for use with safety systems. With the SL option, we are fully certified to SIL 2 capability for single transmitters and SIL 3 capability for multiple transmitter use through TÜV Nord Sys Tec GmbH & Co. KG. We are in compliance with the following SIL standards:

  IEC 61508-1: 1998;

  IEC 61508-2: 2000;

  IEC 61508-3: 1998

- **NAMUR NE43 Compliance (Option NE**)

  This option provides software the meets the NAMUR NE43 requirements for failsafe software. Transmitter failure information is generated when the measuring information is no longer valid. Transmitter failure values are:
  ≤ 3.6 mA and ≥ 21.0 mA. The normal ST 3000 ranges are ≤ 3.8 mA and ≥ 20.5 mA.

- **Indicator Configuration (Option CI)**

  Provides custom configuration of Smart Meters.

- **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.

## Ordering information

Contact your nearest Honeywell sales office, or visit Honeywell on the World Wide Web at: http://www.honeywell.com.

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Vietnam
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**Model Selection Guide (34-ST-16-26)**

Honeywell

**34-ST-16U-26**
**Issue 56**
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# ST 3000 Smart Transmitter
## Dual Head Gage Pressure (GP) and Single Head Absolute Pressure (AP) Series 900

# 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, II and IV), using the column below the proper arrow.
- Select as many Table III options as desired plus a required communication option selection.
- A (●) denotes unrestricted availability. A letter denotes restricted availability.
- Restrictions follow Table IV.

| Key Number | | I | | II | | III (Optional) | | IV |
|---|---|---|---|---|---|---|---|---|
| _ _ _ _ _ _ | - | _ _ _ | - | 0 0 0 0 0 | - | _ _, _ _, _ _ | + | X X X X |

**KEY NUMBER**

| | Span | Selection | Avail. | | |
|---|---|---|---|---|---|
| **Gage Pressure** | 0-5 to 0-500 psi / 0-.35 to 0-35 bar | STG944 | ↓ | | |
| | 0-30 to 0-3,000 psi / 0-2.1 to 0-210 bar | STG974 | ↓ | | |
| **Absolute Pressure** | 0-50 to 0-780 mmHgA / 0-67 to 0-1,040 mbarA | STA922 | | ↓ | |
| | 0-5 to 0-500 psia / 0-0.35 to 0-35 barA | STA940 | | | ↓ |

**Important Note:** **Base STA and STG models no longer include a default communications option. All units now require the selection of a communication option from Table III (AN, DE, HC, H6 or FF).**

**TABLE I - METER BODY**

| | Wetted Process Head [13] | Vent/Drain Valves [2] | Barrier Diaphragms | Selection | | | |
|---|---|---|---|---|---|---|---|
| **Materials of Construction** | Carbon Steel [1] | 316 SS | 316L SS | A _ _ | ● | ● | ● |
| | Carbon Steel [1] | 316 SS | Hastelloy® C-276 [3] | B _ _ | ● | ● | ● |
| | Carbon Steel [1] | 316 SS | Monel 400® [4] | C _ _ | 19 | | |
| | Carbon Steel [1] | 316 SS | Tantalum | D _ _ | ● | | |
| | 316 SS [5] | 316 SS | 316L SS | E _ _ | ● | ● | ● |
| | 316 SS [5] | 316 SS | Hastelloy® C-276 [3] | F _ _ | ● | ● | ● |
| | 316 SS [5] | 316 SS | Monel 400® [4] | G _ _ | 19 | | |
| | 316 SS [5] | 316 SS | Tantalum | H _ _ | ● | | |
| | Hastelloy® C-276 [3, 6] | Hastelloy® C-276 [3] | Hastelloy® C-276 [3] | J _ _ | ● | ● | ● |
| | Hastelloy® C-276 [3, 6] | Hastelloy® C-276 [3] | Tantalum | K _ _ | ● | | |
| | Monel 400® [4, 7] | Monel 400® [9] | Monel 400® [4] | L _ _ | 19 | | |
| **Fill Fluid** | Silicone DC®200 [14] | | | _ 1 _ | ● | ● | ● |
| | CTFE | | | _ 2 _ | ● | | ● |
| | CTFE (MO) | | | _ 3 _ | | ● | |
| **Process Head Configuration** | 1/4 NPT | | | _ _ A | ● | | |
| | 1/2 NPT with Adapter | | | _ _ G | t | | |
| | 1/2 NPT | | | _ _ G | | ● | ● |

**TABLE II**

| | | | | |
|---|---|---|---|---|
| No Selection | 0 0 0 0 0 | ● | ● | ● |

[1] Carbon Steel heads are zinc-plated and not recommended for water service due to hydrogen migration. For that service, use 316 stainless steel Wetted Process Heads.
[2] Vent/Drains are sealed with Teflon® or PTFE
[3] Hastelloy® C-276 or UNS N10276
[4] Monel 400® or UNS N04400
[5] Supplied as 316 SS or as Grade CF8M, the casting equivalent of 316 SS.
[6] Supplied as indicated or as Grade CW12MW, the casting equivalent of Hastelloy® C-276
[7] Supplied as indicated or as Grade M30C, the casting equivalent of Monel 400®
[9] Monel 400® or UNS N04400 or UNS N04405
[13] The standard reference head for the STG9XX is carbon steel (zinc-plated). See Table III for a stainless steel reference (HR) head option.
[14] Use DC®704 option when the STA922 will be operating below 50mm HgA, see Fig. 2 in Specification 34-ST-03-65.

**Note:** End vent drain valve standard for STG9XX. End vent drain valves are not available on STA9XX.

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**TABLE III - OPTIONS**

| | Selection | Availability STG944 / STG974 | Availability STA922 / STA940 | | |
|---|---|---|---|---|---|
| **Communication Options** (Must choose a communications option) | | | | | |
| Analog only *(can be configured using appropriate Honeywell DE tool)* | AN | ● | ● | ● | b |
| DE Protocol communications | DE | ● | ● | ● | |
| HART® 5.x Protocol Compatible Electronics | HC | ● | ● | ● | |
| HART® 6.x Protocol Compatible Electronics | H6 | ● | ● | ● | |
| FOUNDATION™ Fieldbus Communications | FF | r | r | r | |
| **Indicating Meter Options** | | | | | |
| Analog Meter *(0-100 Even 0-10 Square Root)* | ME | ● | ● | ● | b |
| Smart Meter | SM | ● | ● | ● | |
| Custom Configuration of Smart Meter | CI | m | m | m | |
| Local Zero | LZ | x | | | b |
| Local Zero and Span | ZS | s | | | |
| **Transmitter Housing & Electronics Options** | | | | | |
| *No housing conduit plugs or adaptors come standard with the ST 3000. For certain approval codes, you **must** select a certified conduit plug from below and it will come packaged in the box with your transmitter.* | | | | | |
| 316 SS[5] Electronics Housing - *(with M20 Conduit Connections)* | SH | n | n | n | b |
| 316 SS[5] Electronics Housing - *(with M20 to 1/2 NPT 316 SS conduit adapter for use with FM and CSA Approval codes)* | A3 | i | i | i | |
| 1/2 NPT Male to M20 Female 316 SS Certified Conduit Adapter *(ATEX, CSA & IECEx)* | A1 | n | n | n | |
| 1/2 NPT Male to 3/4 NPT Female 316 SS Certified Conduit Adapter *(ATEX, CSA & IECEx)* | A2 | ● | ● | ● | |
| M20 Male to 1/2 NPT Female 316 SS Certified Conduit Adaptor *(ATEX, CSA & IECEx)* | A4 | ● | ● | ● | |
| 1/2 NPT Zinc-plated Certified Conduit Plug *(ATEX, CSA & IECEx)* | A5 | ● | ● | ● | |
| 1/2 NPT 316 SS Certified Conduit Plug *(ATEX, CSA & IECEx)* | A6 | ● | ● | ● | |
| M20 316 SS Certified Conduit Plug *(ATEX, CSA & IECEx)* | A7 | ● | ● | ● | |
| 1/2 NPT Non-certified Conduit plug *(Zinc-plated carbon steel, general use)* | A8 | ● | ● | ● | |
| NAMUR Failsafe Software | NE | 15 | 15 | 15 | |
| SIL 2 - TÜV Certified transmitter *(requires HC/H6 and WP options)* | SL | p | p | p | |
| Lightning Protection | LP | ● | ● | ● | |
| Custom Calibration and I.D. in Memory | CC | ● | ● | ● | |
| Transmitter Configuration - (*non-Fieldbus)* | TC | 15 | 15 | 15 | b |
| Transmitter Configuration - *(Fieldbus)* | FC | 21 | 21 | 21 | |
| Write Protection *(Delivered in the "enabled" position)* | WP | ● | ● | ● | b |
| Write Protection *(Delivered in the "disabled" position)* | WX | ● | ● | ● | |
| Stainless Steel Customer Wired-On Tag *(4 lines, 26 characters per line, customer supplied information)* | TG | ● | ● | ● | |
| Stainless Steel Customer Wired-On Tag *(blank)* | TB | ● | ● | ● | |
| Low Temperature *(-50°C Ambient Limit)* | LT | z | | | |
| **Meter Body Options** (Seal bolt material depends on Transmitter bolt material) | | | | | |
| A286 SS *(NACE)* Bolts and 304 SS *(NACE)* Nuts for Process Heads | CR | ● | ● | ● | b |
| 316 SS Bolts and 316 SS Nuts for Process Heads | SS | ● | | | |
| B7M Bolts and Nuts for Process Heads | B7 | ● | | | |
| 316 SS[5] Adapter Flange - 1/2 NPT with CS Bolts | S2 | c | | | b |
| 316 SS[5] Adapter Flange - 1/2 NPT with 316 SS Bolts | S3 | c | | | |
| 316 SS[5] Adapter Flange - 1/2 NPT with NACE A286 SS Bolts | S4 | c | | | |
| 316 SS[5] Adapter Flange - 1/2 NPT with B7M Bolts | S5 | c | | | |
| Hastelloy® C-276[3,6] Adapter Flange - 1/2 NPT with CS Bolts | T2 | c | | | |
| Hastelloy® C-276[3,6] Adapter Flange - 1/2 NPT with 316 SS Bolts | T3 | c | | | |
| Monel 400®[4,7] Adapter Flange - 1/2 NPT with CS Bolts | V2 | c | | | |
| Monel 400®[4,7] Adapter Flange - 1/2 NPT with 316 SS Bolts | V3 | c | | | |
| 316 SS[5] Blind Adapter Flange with CS Bolts | B3 | ● | | | b |
| 316 SS[5] Blind Adapter Flange with 316 SS Bolts | B4 | ● | | | |
| 316 SS[5] Blind Adapter Flange with NACE A286 SS Bolts | B5 | ● | | | |
| 316 SS[5] Blind Adapter Flange with B7M Bolts | B6 | ● | | | |
| 316 SS Center Vent Drain and Bushing | CV | ● | | | |
| Side Vent/Drain *(End Vent Drain is standard)* | SV | ● | | | |
| Viton®[8] Process Head Gaskets | VT | ● | | | b |
| Graphite Process Head Gasket | GF | ● | ● | ● | |
| Viton®[8] Adapter Flange Gaskets | VF | 17 | | | |
| 316 SS Reference Head *(Carbon Steel Standard)* | HR | ● | | | |
| Modified DIN Process Heads *(316 SS)* | DN | | v | v | |

**Table III continued next page**

[3] Hastelloy® C-276 or UNS N10276
[4] Monel 400® or UNS N04400
[5] Supplied as 316 SS or as Grade CF8M, the casting equivalent of 316 SS.
[6] Supplied as indicated or as Grade CW12MW, the casting equivalent of Hastelloy® C-276
[7] Supplied as indicated or as Grade M30C, the casting equivalent of Monel 400®
[8] Viton® or Fluorocarbon Elastomer

**TABLE III - OPTIONS (continued)**

| | Selection | STG944 / STG974 | STA922 / STA940 | STA922 / STA940 | |
|---|---|---|---|---|---|
| **Transmitter Mounting Bracket Options** | | | | | |
| Angle Mounting Bracket - Carbon Steel | MB | ● | ● | ● | b |
| Marine Approved Angle Mounting Bracket - Carbon Steel | MX | ● | ● | ● | |
| Angle Mounting Bracket - 304 SS | SB | ● | ● | ● | |
| Marine Approved Angle Mounting Bracket - 304 SS | SX | ● | ● | ● | |
| Flat Mounting Bracket *(pipe mounting)* - Carbon Steel | FB | ● | ● | ● | |
| **Diaphragm Options** | | | | | |
| Gold plated diaphragm(s) on 316 SS | G1 | ● | | | b |
| Gold plated diaphragm(s) on Monel 400® [4] or Hastelloy® C-276 [3] ONLY | G2 | ● | | | |
| **Services/Certificates/Marine Type Approval Options** | | | | | |
| User's Manual Paper Copy *(Standard, HC, H6 or FF ships accordingly)* | UM | ● | ● | ● | |
| Clean Transmitter for Oxygen or Chlorine Service *(with Certificate)* (50035190) | 0X | h | h | h | |
| Over-Pressure Leak Test *(with Certificate)* (F3392 ) | TP | ● | ● | ● | |
| Calibration Test Report and Certificate of Conformance (F3399) | F1 | ● | ● | ● | b |
| Certificate of Conformance (F3391) | F3 | ● | ● | ● | |
| Certificate of Origin (F0195) | F5 | ● | ● | ● | |
| SIL Certificate *(SIL 2/3)* (FC33337) | FE | 22 | 22 | 22 | |
| NACE Certificate *(Process-Wetted & Non-Process Wetted)* (FC33339) | F7 | o | o | o | b |
| NACE Certificate *(Process-Wetted)* (FC33338) | FG | ● | ● | ● | |
| Material Traceability Certification per EN 10204 3.1 (FC33341) | FX | ● | ● | ● | |
| Marine Type Approvals *(DNV, ABS, BV, KR & LR)* (FC33340) | MT | 2 | 2 | 2 | |
| **Warranty Options** | | | | | |
| Additional Warranty - 1 year | W1 | ● | ● | ● | b |
| Additional Warranty - 2 years | W2 | ● | ● | ● | |
| Additional Warranty - 3 years | W3 | ● | ● | ● | |
| Additional Warranty - 4 years | W4 | ● | ● | ● | |

[3] Hastelloy® C-276 or UNS N10276
[4] Monel 400® or UNS N04400

| Approval Body | Approval Type | Location or Classification | Selection | | | | |
|---|---|---|---|---|---|---|---|
| No hazardous location approvals | | | 9X | ● | ● | ● | b |
| FM Approvals[SM] | Explosion Proof | Class I, Div. 1, Groups A,B,C,D | 1C | ● | ● | ● | |
| | Dust-Ignitionproof | 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 | | | | | |
| Canadian Standards Association (CSA) | Explosion Proof | Class I, Div. 1, Groups B,C,D | 2J | f | 24 | 24 | |
| | Dust-Ignitionproof | 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 | | | | | |
| IECEx | Flameproof, Zone 1 | Ex d IIC; T5 (Ta = -40 to +93ºC), T6 (Ta = -40 to +78ºC) | CA | 24 | 24 | 24 | |
| | Intrinsically Safe, Zone 0/1 | Ex ia IIC; T3, T4, T5 , T6 (See Spec for detailed temperature codes by Communications option) | | | | | |
| SAEx (South Africa) | Intrinsically Safe, Zone 0/1 | Ex ia IIC T4, T5, T6 | Z2 | ● | ● | ● | |
| | Flameproof, Zone 1 | EX d IIC T5, T6 Enclosure IP 66/67 | ZD | ● | ● | ● | |
| | Multiple Marking [11] Int. Safe, Zone 0/1, or Flameproof, Zone 1 | Ex ia IIC T4, T5, T6<br>Ex d IIC T5, T6<br>Enclosure IP 66/67 | ZA | ● | ● | ● | |
| CERTUSP INMETRO (Brazil) | Flameproof, Zone 1 | BR- Ex d IIC T5, T6 | 6D | ● | ● | ● | |
| | Intrinsically Safe, Zone 0/1 | BR- Ex ia IIC; T4, T5, T6 (See CERTUSP certificate for detailed temperature codes by Communications option) | 6S | ● | ● | ● | |

**Approvals continued on next page**

[11] The user must determine the type of protection required for installation of the equipment. The user shall then check the box [√] adjacent to the type of protection used on the equipment certification nameplate. Once a type of protection has been checked on the nameplate, subsequently the equipment shall not be reinstalled using any of the other certification types.

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**Approval Body Table (con't)**

| Approval Body | Approval Type | Location or Classification | Selection | STG944 / STG974 | STA922 / STA940 | |
|---|---|---|---|---|---|---|
| ATEX[10] (LCIE) | Intrinsically Safe Zone 0 | ⟨Ex⟩ II 1 G — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C) Enclosure IP 66/67 | 3S | • | • • | b |
| | Intrinsically Safe, Zone 1 | ⟨Ex⟩ II 2 G — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C) Enclosure IP 66/67 | | | | |
| | Dust-tight Enclosure, Zone 0 | ⟨Ex⟩ II 1 D — **Ex tD A20 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) Enclosure IP 66/67 | 33 | **24** | **24** **24** | |
| | Flameproof and Dust-tight Enclosure, Zone 1 | ⟨Ex⟩ II 2 GD — **Ex d IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C) Supply 11- 42Vdc **Ex tD A21 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) Enclosure IP 66/67 | | | | |
| | Non-Sparking, Zone 2 | ⟨Ex⟩ II 3 G — **Ex nA, IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C); Zone 2 Supply < 42Vdc, 23mA **Ex tD A22 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) (Honeywell). Enclosure IP 66/67 | 3N | • | • • | |
| | Multiple Marking [11] | ⟨Ex⟩ II 1 GD — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C); Ui = 30V; Ii = 100mA **Ex tD A20 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) | 3C | **24** | **24** **24** | |
| | Int. Safe, Zone 0/1 and Dust-tight Enclosure, or Flameproof, Zone 1 and Dust-tight Enclosure, or Non-Sparking, Zone 2 | ⟨Ex⟩ II 2 GD — **Ex d IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C) Supply 11- 42Vdc **Ex tD A21 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) | | | | |
| | | ⟨Ex⟩ II 3 GD — **Ex nA, IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C); Zone 2 Supply < 42Vdc, 23mA **Ex tD A22 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) (Honeywell) Enclosure IP 66/67 | | | | |

[10] See ATEX installation requirements in the ST 3000 User's Manual
[11] The user must determine the type of protection required for installation of the equipment. The user shall then check the box [√] adjacent to the type of protection used on the equipment certification nameplate. Once a type of protection has been checked on the nameplate, subsequently the equipment shall not be reinstalled using any of the other certification types.

| TABLE IV | Selection | | | |
|---|---|---|---|---|
| Factory Identification | **X X X X** | • | • | • |

**RESTRICTIONS**

| Restriction Letter | Available Only With | | Not Available With | |
|---|---|---|---|---|
| | Table | Selection | Table | Selection |
| **b** | Select only one option from this group | | | |
| **c** | I | _ _ G | | |
| **f** | III | This approval code requires the selection of a certified conduit plug: A5, A6 or A7 | Key # | STG974 |
| | | | I | L _ _ |
| **h** | I | _ 2 _ | | |
| **i** | III | 1C or 2J | | |
| **m** | III | SM | | |
| **n** | | | III | 1C, 2J |
| **o** | III | CR, S4, B5 | | |
| **p** | III | HC or H6 and WP | III | FF, 00 |
| **r** | I | FISCO/FNICO compliance available only with 1C | III | TC, ME, or FISCO/FNICO compliance not available 3C, 3N, 33, 3S, 2J, CA, Z2, ZD, ZA, 6D & 6S |
| **s** | | | III | FF, ME |
| **t** | III | Select from Table III S2, S3, S4, S5, T2, T3, V2, V3 | | |
| **v** | I | E _ G, F _ G | | |
| **x** | III | FF, SM | | |
| **z** | | | Key # | STG974 |
| **2** | III | MX, SX | III | FB, MB, SB |
| **15** | | | III | FF |
| **17** | III | VT | | |
| **19** | | | III | F7, FG |
| **21** | III | FF | | |
| **22** | III | SL | | |
| **24** | III | This approval code requires the selection of a certified conduit plug: A5, A6 or A7 | | |

**Ordering Example: STG944-A1A-00000-HC,LP,2J+XXXX**

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**Model Selection Guide (34-ST-16-28)**

Honeywell

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**Issue 49**
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# ST 3000 Smart Transmitter In-Line Gage & Absolute Pressure Series 900

# 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, II and IV), using the column below the proper arrow.
- Select as many Table III options as desired plus a communications option selection.
- A (●) denotes unrestricted availability. A letter denotes restricted availability.
- Restrictions follow Table IV.

| Key Number | | I | | II | | III (Optional) | | IV |
|---|---|---|---|---|---|---|---|---|
| _ _ _ _ _ _ | - | _ _ _ | - | 0 0 0 0 0 | - | _ _, _ _, _ _ | + | X X X X |

**KEY NUMBER**

| | Span | Selection | Avail. | |
|---|---|---|---|---|
| **Gage Pressure** | 0-5 to 0-500 psig / 0-0.35 to 0-35 bar | STG94L | ↓ | |
| | 0-30 to 0-3,000 psig / 0-2.1 to 0-210 bar | STG97L | ↓ | |
| | 0-60 to 0-6,000 psig / 0-4.1 to 0-415 bar | STG98L | ↓ | |
| | 0-100 to 0-10,000 psig / 0-7 to 0-690 bar | STG99L | | ↓ |
| **Absolute Pressure** | 0-50 to 0-780 mmHg / 0-67 to 0-1,040 mbarA | STA92L | ↓ | |
| | 0-5 to 0-500 psia / 0-0.35 to 0-35 barA | STA94L | ↓ | |
| | 0-30 to 0-3,000 psia / 0-2.1 to 0-210 barA | STA97L | ↓ | |

**Important Note:** **Base STA and STG models no longer include a default communications option. All units now require the selection of a communication option from Table III (AN, DE, HC, H6 or FF).**

**TABLE I - METER BODY**

| | Wetted Process Heads | Vent/Drain Valves [1] | Barrier Diaphragms | Selection | | |
|---|---|---|---|---|---|---|
| **Materials of Construction** | 316 SS | -- | 316L SS | E _ _ | ● | ● |
| | 316 SS | -- | Hastelloy® C-276 [2] | F _ _ | ● | ● |
| **Fill Fluid** | DC®200 Silicone | | | _ 1 _ | ● | ● |
| | CTFE | | | _ 2 _ | ● | ● |
| **Process Connection Configuration** | 9/16" - 18 Aminco | | | _ _ A | ● | ● |
| | 1/2 NPT (female) | | | _ _ G | ● | ● |
| | 1/2 NPT (male) | | | _ _ H | ● | ● |
| | DIN 19213 | | | _ _ D | ● | |

**TABLE II**

| | | | |
|---|---|---|---|
| No Selection | **0 0 0 0 0** | ● | ● |

[1] Vent/Drains are sealed with Teflon® or PTFE
[2] Hastelloy® C-276 or UNS N10276

**Ordering Example: STG94L-E1A-00000-AN,9X+XXXX**

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| TABLE III - OPTIONS | Selection | Availability STG9 _ L STA9 _ L | Availability STG99 L | |
|---|---|---|---|---|
| **Communication Options** *(Must choose a communications option)* | | | | |
| Analog only *(can be configured using appropriate Honeywell DE tool)* | AN | ● | ● | |
| DE Protocol communications | DE | ● | ● | |
| HART® 5.x Protocol Compatible Electronics | HC | ● | ● | b |
| HART® 6.x Protocol Compatible Electronics | H6 | ● | ● | |
| FOUNDATION™ Fieldbus Communications | FF | r | r | |
| **Indicating Meter Options** | | | | |
| Analog Meter *(0-100 Even 0-10 Square Root)* | ME | ● | ● | |
| Smart Meter | SM | ● | ● | b |
| Custom Configuration of Smart Meter | CI | m | m | |
| Local Zero | LZ | x | x | |
| Local Zero and Span | ZS | s | s | b |
| **Transmitter Housing & Electronics Options** | | | | |
| *No housing conduit plugs or adaptors come standard with the ST 3000. For certain approval codes, you **must** select a certified conduit plug from below and it will come packaged in the box with your transmitter.* | | | | |
| 316 SS[3] Electronics Housing - *(with M20 Conduit Connections)* | SH | n | n | |
| 316 SS[3] Electronics Housing - *(with M20 to 1/2 NPT 316 SS conduit adapter for use with FM and CSA Approval codes)* | A3 | i | i | b |
| 1/2 NPT Male to M20 Female 316 SS Certified Conduit Adapter *(ATEX, CSA & IECEx)* | A1 | ● | ● | |
| 1/2 NPT Male to 3/4 NPT Female 316 SS Certified Conduit Adapter *(ATEX, CSA & IECEx)* | A2 | ● | ● | |
| M20 Male to 1/2 NPT Female 316 SS Certified Conduit Adaptor *(ATEX, CSA & IECEx)* | A4 | ● | ● | |
| 1/2 NPT Zinc-plated Certified Conduit Plug *(ATEX, CSA & IECEx)* | A5 | ● | ● | |
| 1/2 NPT 316 SS Certified Conduit Plug *(ATEX, CSA & IECEx)* | A6 | ● | ● | |
| M20 316 SS Certified Conduit Plug *(ATEX, CSA & IECEx)* | A7 | ● | ● | |
| 1/2 NPT Non-certified Conduit plug *(Zinc-plated carbon steel, general use)* | A8 | ● | ● | |
| NAMUR Failsafe Software | NE | 15 | 15 | |
| SIL 2 - TÜV Certified transmitter *(requires HC or H6 and WP options)* | SL | p | p | |
| Lightning Protection | LP | ● | ● | |
| Custom Calibration and I.D. in Memory | CC | ● | ● | |
| Transmitter Configuration - *(non-Fieldbus)* | TC | 15 | 15 | |
| Transmitter Configuration - *(Fieldbus)* | FC | 21 | 21 | b |
| Write Protection *(Delivered in the "enabled" position)* | WP | ● | ● | |
| Write Protection *(Delivered in the "disabled" position)* | WX | ● | ● | b |
| Stainless Steel Customer Wired-On Tag *(4 lines, 26 characters per line, customer supplied information)* | TG | ● | ● | |
| Stainless Steel Customer Wired-On Tag *(blank)* | TB | ● | ● | |
| Low Temperature *(-50° C Ambient Limit)* | LT | 18 | 18 | |
| **Transmitter Mounting Bracket Options** | | | | |
| Angle Mounting Bracket - Carbon Steel | MB | ● | ● | |
| Marine Approved Angle Mounting Bracket - Carbon Steel | MX | ● | ● | |
| Angle Mounting Bracket - 304 SS | SB | ● | ● | b |
| Marine Approved Angle Mounting Bracket - 304 SS | SX | ● | ● | |
| Flat Mounting Bracket - Carbon Steel | FB | ● | ● | |
| **Services/Certificates/Marine Type Approval Options** | | | | |
| User's Manual Paper Copy *(Standard, HC, H6, or FF ships accordingly)* | UM | ● | ● | |
| Clean Transmitter for Oxygen or Chlorine Service with Certificate (50039190) | 0X | h | h | |
| Over-Pressure Leak Test with Certificate (F3392) | TP | ● | ● | |
| Calibration Test Report and Certificate of Conformance (F3399) | F1 | ● | ● | |
| Certificate of Conformance (F3391) | F3 | ● | ● | b |
| Certificate of Origin (F0195) | F5 | ● | ● | |
| SIL Certificate *(SIL 2/3)* (FC33337) | FE | 22 | 22 | b |
| NACE Certificate *(Process-Wetted & Non-Process Wetted)* (FC33339) | F7 | ● | ● | |
| NACE Certificate *(Process-Wetted only)* (FC33338) | FG | ● | ● | b |
| Material Traceability Certification per EN 10204 3.1 (FC33341) | FX | ● | ● | |
| Marine Type Approvals *(DNV, ABS, BV, KR & LR)* (FC33340) | MT | 2 | 2 | |
| **Warranty Options** | | | | |
| Additional Warranty - 1 year | W1 | ● | ● | |
| Additional Warranty - 2 years | W2 | ● | ● | b |
| Additional Warranty - 3 years | W3 | ● | ● | |
| Additional Warranty - 4 years | W4 | ● | ● | |

**Table III continued next page**

[3] Supplied as 316 SS or as Grade CF8M, the casting equivalent of 316 SS.

**TABLE III - OPTIONS (continued)**

| Approval Body | Approval Type | Location or Classification | Selection | Availability STG9 _ L / STA9 _ L | Availability STG99L |
|---|---|---|---|---|---|
| No hazardous location approvals | | | 9X | • | • |
| FM Approvals[SM] | Explosion Proof | Class I, Div. 1, Groups A,B,C,D | 1C | • | • |
| | Dust-Ignitionproof | 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 | | | |
| ATEX [10] (LCIE) | Intrinsically Safe, Zone 0 | ⟨Ex⟩ II 1 G — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C) Enclosure IP 66/67 | 3S | • | • |
| | Intrinsically Safe, Zone 1 | ⟨Ex⟩ II 2 G — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C) Enclosure IP 66/67 | | | |
| | Dust-tight Enclosure, Zone 0 | ⟨Ex⟩ II 1 D — **Ex tD A20 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) Enclosure IP 66/67 | 33 | **24** | **24** |
| | Flameproof and Dust-tight Enclosure, Zone 1 | ⟨Ex⟩ II 2 GD — **Ex d IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C) Supply 11- 42Vdc **Ex tD A21 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) Enclosure IP 66/67 | | | |
| | Non-Sparking, Zone 2 | ⟨Ex⟩ II 3 G — **Ex nA, IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C); Zone 2 Supply < 42Vdc, 23mA **Ex tD A22 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) (Honeywell). Enclosure IP 66/67 | 3N | • | • |
| | Multiple Marking [11] Int. Safe, Zone 0/1 and Dust-tight Enclosure, or Flameproof, Zone 1 and Dust-tight Enclosure, or Non-Sparking, Zone 2 | ⟨Ex⟩ II 1 GD — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C); Ui = 30V; Ii = 100mA **Ex tD A20 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) | 3C | **24** | **24** |
| | | ⟨Ex⟩ II 2 GD — **Ex d IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C) Supply 11- 42Vdc **Ex tD A21 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) | | | |
| | | ⟨Ex⟩ II 3 GD — **Ex nA, IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C); Zone 2 Supply < 42Vdc, 23mA **Ex tD A22 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) (Honeywell) Enclosure IP 66/67 | | | |

b

**Table III Approvals continued next page**

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**TABLE III - OPTIONS (continued)**

| Approval Body | Approval Type | Location or Classification | Selection | STG9 _ L / STA9 _ L | STG99L | |
|---|---|---|---|---|---|---|
| Canadian Standards Association (CSA) | Explosion Proof | Class I, Div. 1, Groups B,C,D | 2J | **3** | **4** | |
| | Dust-Ignitionproof | 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 | | | | |
| IECEx | Flameproof, Zone 1 | **Ex d IIC** T5 (Ta = -40 to +93ºC), T6 (Ta = -40 to +78ºC) | CA | **24** | **24** | |
| | Intrinsically Safe, Zone 0/1 | **Ex ia IIC**; T3, T4, T5 , T6 See Spec for detailed temperature codes by Communications option | | | | |
| SAEx (South Africa) | Intrinsically Safe, Zone 0/1 | **Ex ia IIC** T4, T5, T6 | Z2 | • | • | b |
| | Flameproof, Zone 1 | **Ex d IIC** T5, T6 Enclosure IP 66/67 | ZD | • | • | |
| | Multiple Marking [11] Int. Safe, Zone 0/1, or Flameproof, Zone 1 | **Ex ia IIC** T4, T5, T6 **Ex d IIC** T5, T6 Enclosure IP 66/67 | ZA | • | • | |
| CERTUSP INMETRO (Brazil) | Flameproof, Zone 1 | **BR- Ex d IIC** T5, T6 | 6D | • | • | |
| | Intrinsically Safe, Zone 0/1 | **BR- Ex ia IIC**; T4, T5, T6 *(See CERTUSP certificate for detailed temperature codes by Communications option)* | 6S | • | • | |

[10] See ATEX installation requirements in the ST 3000 User's Manual
[11] The user must determine the type of protection required for installation of the equipment. The user shall then check the box [√] adjacent to the type of protection used on the equipment certification nameplate. Once a type of protection has been checked on the nameplate, subsequently the equipment shall not be reinstalled using any of the other certification types.

| TABLE IV | Selection | | |
|---|---|---|---|
| Factory Identification | **X X X X** | • | • |

**RESTRICTIONS**

| Restriction Letter | Available Only With | | Not Available With | |
|---|---|---|---|---|
| | Table | Selection | Table | Selection |
| **b** | Select only one option from this group | | | |
| **h** | I | _ 2 _ | | |
| **i** | III | 1C or 2J | | |
| **m** | III | SM | | |
| **n** | | | III | 1C, 2J |
| **p** | III | HC or H6 and WP | III | FF |
| **r** | III | FISCO/FNICO compliance available only with 1C | III | TC, ME or FISCO/FNICO compliance not available with 3C, 3N, 33, 3S, 2J, CA, Z2, ZD, ZA, 6D & 6S |
| **s** | | | III | STA92L, STA94L, FF, ME |
| **x** | III | FF, SM | | |
| **2** | III | MX, SX | III | FB, MB, SB |
| **3** | | This approval code requires the selection of a certified conduit plug: A5, A6 or A7 | Key # | STA92L or STA94L |
| **4** | | This approval code requires the selection of a certified conduit plug: A5, A6 or A7 | III | No CRN Number Available |
| **15** | | | III | FF |
| **18** | I | _ 1 _ | | |
| **21** | III | FF | | |
| **22** | III | SL | | |
| **24** | III | This approval code requires the selection of a certified conduit plug: A5, A6 or A7 | | |

*Specifications are subject to change without notice*.

**For More Information**

Learn more about how Honeywell's ST 3000 Series 900 In-line, Gauge Pressure Transmitters can increase performance, reduce downtime and decrease configuration costs, visit our website www.honeywell.com/ps or contact your local channel partner

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