

ST 3000 Smart Transmitter Series 100 Gauge Pressure Models

STG140/STG14L	0 to 500 psi	0 to 35 bar
STG170/STG17L	0 to 3000 psi	0 to 210 bar
STG180/STG18L	0 to 6000 psi	0 to 415 bar
STG19L	0 to 10000 psi	0 to 690 bar

Specification and Model Selection Guide

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 100 In-line Pressure Transmitters continue to bring proven “smart” technology to a wide spectrum of measurement applications. These transmitters are screwed directly onto a ½” male NPT nipple. 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. Honeywell In-line Transmitters offer the ability to be installed in a wide variety of hazardous environments for accurate repeatable pressure measurement.

All ST 3000 transmitters can provide a 4-20 mA output, Honeywell Digitally Enhanced (DE) output, HART® output, or FOUNDATION™ Fieldbus output. 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.

Honeywell’s high-performance ST 3000 S100 transmitters lead the industry in:

- Accuracy
- Stability
- Reliability
- Rangeability
- Warranty

Includes Lifetime™ Transmitters:

- Total Accuracy = $\pm 0.0375\%$
- Stability = $\pm 0.01\%$ per year
- Reliability = 470 years MTBF
- Rangeability = 400 to 1
- Lifetime Warranty = 15 years



Figure 1—Series 100 Gauge Pressure Transmitters feature proven piezoresistive sensor technology.

The devices provide comprehensive self-diagnostics to help users maintain high uptime, meet regulatory requirements, and attain high quality standards. S100 transmitters are ideal for critical applications, such as custody transfer of natural gas and energy and material balances, where accuracy and stability are of the utmost importance.

"Our commitment to Honeywell field instruments is based on seamless integration with our Honeywell system and the enhanced fault detection that the Honeywell DE protocol offers. Honeywell instruments also offer us a better way of ensuring database integrity over simple analog instruments. In addition, Honeywell's high-quality support has enabled us to better implement solutions to some of our more difficult problems. We have used Honeywell differential pressure smart transmitters for the past eight years. Based on their accuracy and low failure rates, we are now targeting critical flow applications that require the robustness that these transmitters bring."

DCS Systems Engineer
International Integrated Oil Company

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 transmitter.

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.

Specifications

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 85	-40 to 185	-40 to 93	-40 to 200	-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								
mmHg absolute	atmospheric		25		2 (short term **)			
inH ₂ O absolute	atmospheric		13		1 (short term **)			
Supply Voltage, Current, and Load Resistance	Voltage Range: 10.8 to 42.4 Vdc at terminals Current Range: 3.0 to 21.8 mA Load Resistance: 0 to 1440 ohms (as shown in Figure 2)							
Maximum Allowable Working Pressure (MAWP) (ST 3000 products are rated to Maximum Allowable Working Pressure)	STG140 and STG14L = 500 psi , 35 bar STG170 and STG17L = 3000 psi, 210 bar STG180 and STG18L = 6000 psi, 415 bar STG19L = 10,000 psi, 690 bar Units can withstand overpressure of 1.5X MAWP without damage.							

* For CTFE fill fluid the rating is -15 to 110°C (5 to 230°F)

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

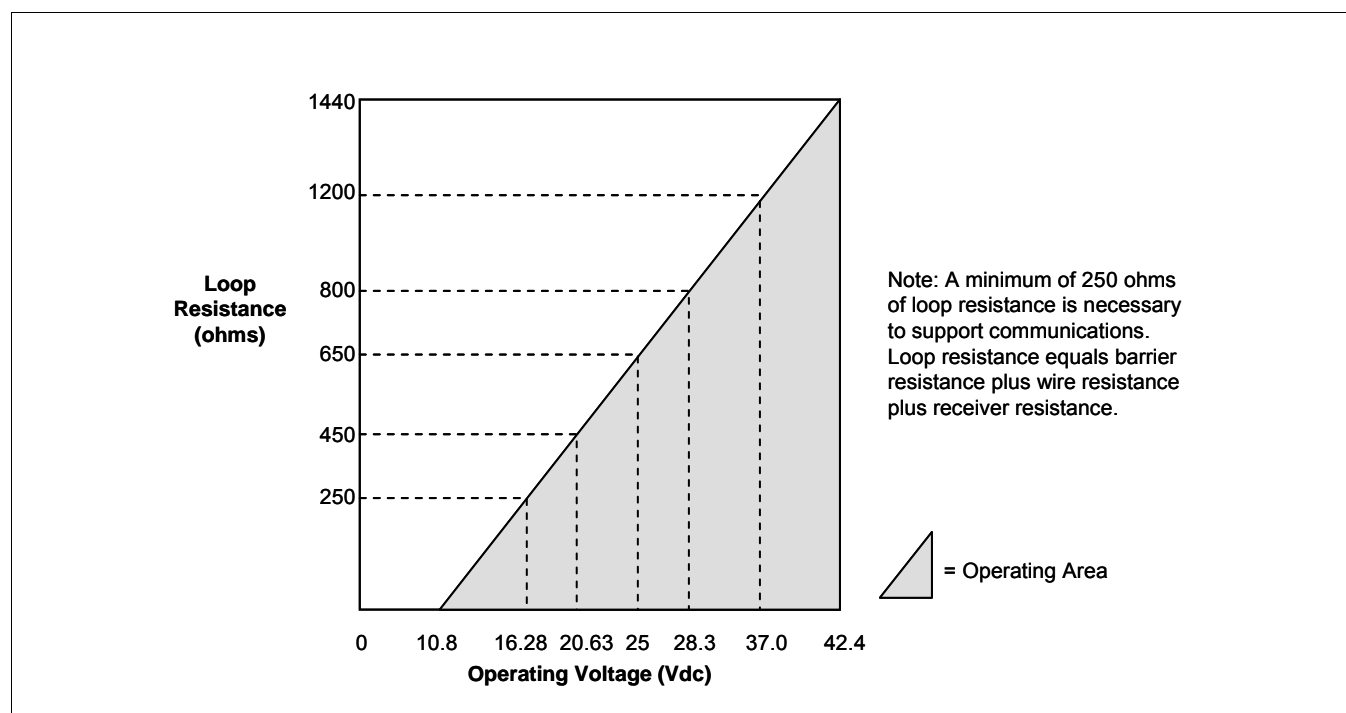


Figure 2 - Supply voltage and loop resistance chart.

Performance Under Rated Conditions* - Models STG140 & 14L (0 to 500 psi)

Parameter	Description
Upper Range Limit	psi: 500 bar: 35
Minimum Span	psi: 5 bar: 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) <ul style="list-style-type: none"> Accuracy includes residual error after averaging successive readings. For FOUNDATION Fieldbus use Digital Mode specifications. For HART use Analog Mode specifications. 	<p>In Analog Mode: $\pm 0.075\%$ of calibrated span or upper range value (URV), whichever is greater, terminal based.</p> <p>For URV calibrated below reference point (20 psi), accuracy equals:</p> $\pm 0.025 + 0.05 \left(\frac{20 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.025 + 0.05 \left(\frac{1.4 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$ <p>* For High Accuracy (HA) option: $\pm 0.0375\%$ of calibrated span or upper range value (URV), whichever is greater, terminal based.</p> <p>In Digital Mode: $\pm 0.0625\%$ of calibrated span or upper range value (URV), whichever is greater, terminal based.</p> <p>For URV calibrated below reference point (20 psi), accuracy equals:</p> $\pm 0.0125 + 0.05 \left(\frac{20 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.05 \left(\frac{1.4 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$ <p>* For High Accuracy (HA) option: $\pm 0.035\%$ of calibrated span or upper range value (URV), whichever is greater, terminal based</p>
Zero Temperature Effect per 28°C (50°F)	<p>In Analog Mode: $\pm 0.0625\%$ of span.</p> <p>For URV below reference point of 50 psi for model STG140 or 75 psi for model STG14L, effect equals:</p> $\pm 0.0125 + 0.05 \left(\frac{50 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.05 \left(\frac{3.5 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$ <p>OR</p> $\pm 0.0125 + 0.05 \left(\frac{75 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.05 \left(\frac{5.25 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$ <p>In Digital Mode: $\pm 0.05\%$ of span.</p> <p>For URV below reference point of 50 psi for model STG140 or 75 psi for model STG14L, effect equals:</p> $\pm 0.05 \left(\frac{50 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.05 \left(\frac{3.5 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$ <p>OR</p> $\pm 0.05 \left(\frac{75 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.05 \left(\frac{5.25 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$
Combined Zero and Span Temperature Effect per 28°C (50°F)	<p>In Analog Mode: $\pm 0.10\%$ of span.</p> <p>For URV below reference point of 50 psi for model STG140 or 75 psi for model STG14L, effect equals:</p> $\pm 0.05 + 0.05 \left(\frac{50 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.05 + 0.05 \left(\frac{3.5 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$ <p>OR</p> $\pm 0.05 + 0.05 \left(\frac{75 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.05 + 0.05 \left(\frac{5.25 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$ <p>In Digital Mode: $\pm 0.075\%$ of span.</p> <p>For URV below reference point of 50 psi for model STG140 or 75 psi for model STG14L, effect equals:</p> $\pm 0.025 + 0.05 \left(\frac{50 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.025 + 0.05 \left(\frac{3.5 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$ <p>OR</p> $\pm 0.025 + 0.05 \left(\frac{75 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.025 + 0.05 \left(\frac{5.25 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$
Stability	$\pm 0.015\%$ of URL per year for lifetime

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

Performance Under Rated Conditions* - Models STG170 & 17L (0 to 3000 psi)

Parameter	Description
Upper Range Limit	psi: 3000 bar: 210
Minimum Span	psi: 100 bar: 7
Turndown Ratio	30 to 1
Zero Elevation and Suppression	No limit except minimum span from absolute 0 (zero) to +100% URL. Specifications valid over this range.
<p>Accuracy (Reference – Includes combined effects of linearity, hysteresis, and repeatability)</p> <ul style="list-style-type: none"> Accuracy includes residual error after averaging successive readings. For FOUNDATION Fieldbus use Digital Mode specifications. For HART use Analog Mode specifications. 	<p>In Analog Mode: ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV calibrated below reference point (750 psi), accuracy equals: $\pm 0.025 + 0.05 \left(\frac{750 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.025 + 0.05 \left(\frac{52 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$</p> <p>In Digital Mode: ±0.0625% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV calibrated below reference point (750 psi), accuracy equals: $\pm 0.0125 + 0.05 \left(\frac{750 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.05 \left(\frac{52 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$</p>
Zero Temperature Effect per 28°C (50°F)	<p>In Analog Mode: ±0.1125% of span. For URV below reference point (500 psi), effect equals: $\pm 0.0125 + 0.10 \left(\frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.10 \left(\frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$</p> <p>In Digital Mode: ±0.10% of span. For URV below reference point (500 psi), effect equals: $\pm 0.10 \left(\frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.10 \left(\frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$</p>
Combined Zero and Span Temperature Effect per 28°C (50°F)	<p>In Analog Mode: ±0.175% of span. For URV below reference point (500 psi), effect equals: $\pm 0.075 + 0.10 \left(\frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.075 + 0.10 \left(\frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$</p> <p>In Digital Mode: ±0.15% of span. For URV below reference point (500 psi), effect equals: $\pm 0.05 + 0.10 \left(\frac{500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.05 + 0.10 \left(\frac{35 \text{ bar}}{\text{span bar}} \right) \text{ in } \% \text{ of span}$</p>
Stability	±0.03% of per year

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

Performance Under Rated Conditions* - Models STG180 & 18L (0 to 6000 psi)

Parameter	Description
Upper Range Limit	psi: 6000 bar: 415
Minimum Span	psi: 100 bar: 7
Turndown Ratio	60 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) <ul style="list-style-type: none"> Accuracy includes residual error after averaging successive readings. For FOUNDATION Fieldbus use Digital Mode specifications. For HART use Analog Mode specifications. 	<p>In Analog Mode: $\pm 0.075\%$ of calibrated span or upper range value (URV), whichever is greater, terminal based.</p> <p>For URV calibrated below reference point (1500 psi), accuracy equals:</p> $\pm 0.025 + 0.05 \left(\frac{1500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.025 + 0.05 \left(\frac{104 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$ <p>In Digital Mode: $\pm 0.0625\%$ of calibrated span or upper range value (URV), whichever is greater, terminal based.</p> <p>For URV calibrated below reference point (1000 psi), accuracy equals:</p> $\pm 0.0125 + 0.05 \left(\frac{1500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.05 \left(\frac{104 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$
Zero Temperature Effect per 28°C (50°F)	<p>In Analog Mode: $\pm 0.1125\%$ of span.</p> <p>For URV below reference point (1000 psi), effect equals:</p> $\pm 0.0125 + 0.10 \left(\frac{1000 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.10 \left(\frac{70 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$ <p>In Digital Mode: $\pm 0.10\%$ of span. .</p> <p>For URV below reference point (1000 psi), effect equals:</p> $\pm 0.10 \left(\frac{1000 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.10 \left(\frac{70 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$
Combined Zero and Span Temperature Effect per 28°C (50°F)	<p>In Analog Mode: $\pm 0.175\%$ of span.</p> <p>For URV below reference point (1000 psi), effect equals:</p> $\pm 0.075 + 0.10 \left(\frac{1000 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.075 + 0.10 \left(\frac{70 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$ <p>In Digital Mode: $\pm 0.15\%$ of span. .</p> <p>For URV below reference point (1000 psi), effect equals:</p> $\pm 0.05 + 0.10 \left(\frac{1000 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.05 + 0.10 \left(\frac{70 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$
Stability	$\pm 0.03\%$ of per year

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

Performance Under Rated Conditions* - Models STG19L (0 to 10000 psi)

Parameter	Description
Upper Range Limit	psi: 10000 bar: 690
Minimum Span	psi: 500 bar: 35
Turndown Ratio	20 to 1
Zero Elevation and Suppression	No limit except minimum span from absolute 0 (zero) to +100% URL. Specifications valid over this range.
<p>Accuracy (Reference – Includes combined effects of linearity, hysteresis, and repeatability)</p> <ul style="list-style-type: none"> • Accuracy includes residual error after averaging successive readings. • For FOUNDATION Fieldbus use Digital Mode specifications. For HART use Analog Mode specifications. 	<p>In Analog Mode: ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV calibrated below reference point (2500 psi), accuracy equals:</p> $\pm 0.025 + 0.10 \left(\frac{2500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.025 + 0.10 \left(\frac{172 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$ <p>In Digital Mode: ±0.0625% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV calibrated below reference point (2500 psi), accuracy equals:</p> $\pm 0.0125 + 0.10 \left(\frac{2500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.10 \left(\frac{172 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$
Zero Temperature Effect per 28°C (50°F)	<p>In Analog Mode: ±0.1125% of span. For URV below reference point (2500 psi), effect equals:</p> $\pm 0.0125 + 0.10 \left(\frac{2500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.0125 + 0.10 \left(\frac{172 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$ <p>In Digital Mode: ±0.10% of span. . For URV below reference point (2500 psi), effect equals:</p> $\pm 0.10 \left(\frac{2500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.10 \left(\frac{172 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$
Combined Zero and Span Temperature Effect per 28°C (50°F)	<p>In Analog Mode: ±0.175% of span. For URV below reference point (2500 psi), effect equals:</p> $\pm 0.075 + 0.10 \left(\frac{2500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.075 + 0.10 \left(\frac{172 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$ <p>In Digital Mode: ±0.15% of span. . For URV below reference point (2500 psi), effect equals:</p> $\pm 0.05 + 0.10 \left(\frac{2500 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.05 + 0.10 \left(\frac{172 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$
Stability	±0.03% of per year

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

Performance Under Rated Conditions - General for all Models

Parameter	Description
Output (two-wire)	Analog 4 to 20 mA or digital communications DE 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 Option	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: ≤ 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 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 microamps max. @ 42.4 VDC, 93°C Impulse Rating: 10/20 μ sec. 5,000 Amps (50 strikes) 10,000 Amps (20 strikes) (rise/decay) 10/1000 μ sec. 250 Amps (1000 strikes) 500 Amps (400 strikes)

Physical and Approval Bodies

Parameter	Description
Barrier Diaphragms Material	Single-Head Meter Body: 316L SS, Hastelloy C-276, Monel In-Line Meter Body: 316L SS, Hastelloy C-276
Process Head Material	Single-Head Meter Body: 316 SS, Carbon Steel (Zinc-plated), Hastelloy, Monel In-Line Meter Body: 316L SS
Head Gaskets	Teflon is standard. Viton and Graphite are optional – see MSG.
Meter Body Bolting	Carbon Steel (Zinc plated) standard. Options include 316 SS bolts and nuts or NACE (A286 SS bolts and 304 SS nuts).
Mounting Bracket	Carbon Steel (Zinc-plated) or Stainless Steel angle bracket or Carbon Steel flat bracket available.
Fill Fluid	Silicone oil or CTFE (Chlorotrifluoroethylene)
Electronic Housing	Epoxy-Polyester hybrid paint. Low Copper-Aluminum. Meets NEMA 4X (watertight) and NEMA 7 (explosion proof). Stainless Steel Optional
Process Connections	Single-Head Meter Body: 1/2-inch NPT, 9/16-18 Aminco, DIN (standard option) In-Line Meter Body: 1/2-inch NPT FEM, 1/2 inch NPT male, 9/16 Aminco, DIN19213
Wiring	Accepts up to 16 AWG (1.5 mm diameter).
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 single-head models and Figure 4 for in-line models.
Dimensions	See Figures 5 and 6.
Net Weight	With Single-Head Meter Body: 7.0 pounds (3.2 Kg) With In-Line Meter Body: 3.8 pounds (1.7 Kg)
Approval Bodies	
Factory Mutual	Explosion Proof: Approved as Explosion Proof for Class I, Division 1, Groups A, B, C, D locations, Dust Ignition Proof: Approved as Dust Ignition Proof for Class II, III, Division 1, Groups E, F, G locations, Intrinsically Safe: Approved as Intrinsically Safe for for Class I, II, III, Division 1, Groups A, B, C, D, E, F, G locations. Nonincendive: Approved as Nonincendive for Class I, Division 2, Groups A, B, C, D locations.

Parameter	Description
CSA	<p>Explosion Proof: Approved as Explosion Proof for Class I, Division 1, Groups B, C, D locations, Dust Ignition Proof: Approved as Dust Ignition Proof for Class II, III, Division 1, Groups E, F, G locations, Intrinsically Safe: Approved as Intrinsically Safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F, G locations.</p>
Canadian Registration Number (CRN)	All ST 3000 model designs, except SATG19L, STG99L, STG170 and STG180 have been registered in all provinces and territories in Canada and are marked CRN:0F8914.5c.
ATEX	<p>Intrinsically Safe, Zone 0/1: EEx ia IIC T4, T5, T6 Flameproof/Zone 1: EEx d IIC T5, T6 (enclosure IP 66/67) Non-Sparking, Zone 2: EEx nA, IIC T6 (enclosure IP 66/67) Multiple Markings: Ex II 1 G: EEx ia IIC T4, T5, T6, Ex II 2 G: EExd IIC T5, T6 Ex II 3 G: EEx nA, IIC T6 (Honeywell) (enclosure IP 66/67)</p>
SA (Australian)	<p>Intrinsically Safe: EX ia IIC T4 Non-Sparking: Ex n IIC T6 (T4 with SM option)</p>
INMETRO (Brazil)	Flame-Proof, Zone 1: EX d IIC T5
Pressure Equipment Directive (97/23/EC)	The ST 3000 pressure transmitters listed in this Specification have no pressurized internal volume or have a pressurized internal volume rated less than 1,000 bar (14,500 psig) and/or have a maximum volume of less than 0.1 liter. Therefore, these transmitters are either; not subject to the essential requirements of the directive 97/23/EC (PED, Annex 1) and shall not have the CE mark, or the manufacturer has the free choice of a module when the CE mark is required for pressures > 200 bar (2,900 psig).

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.

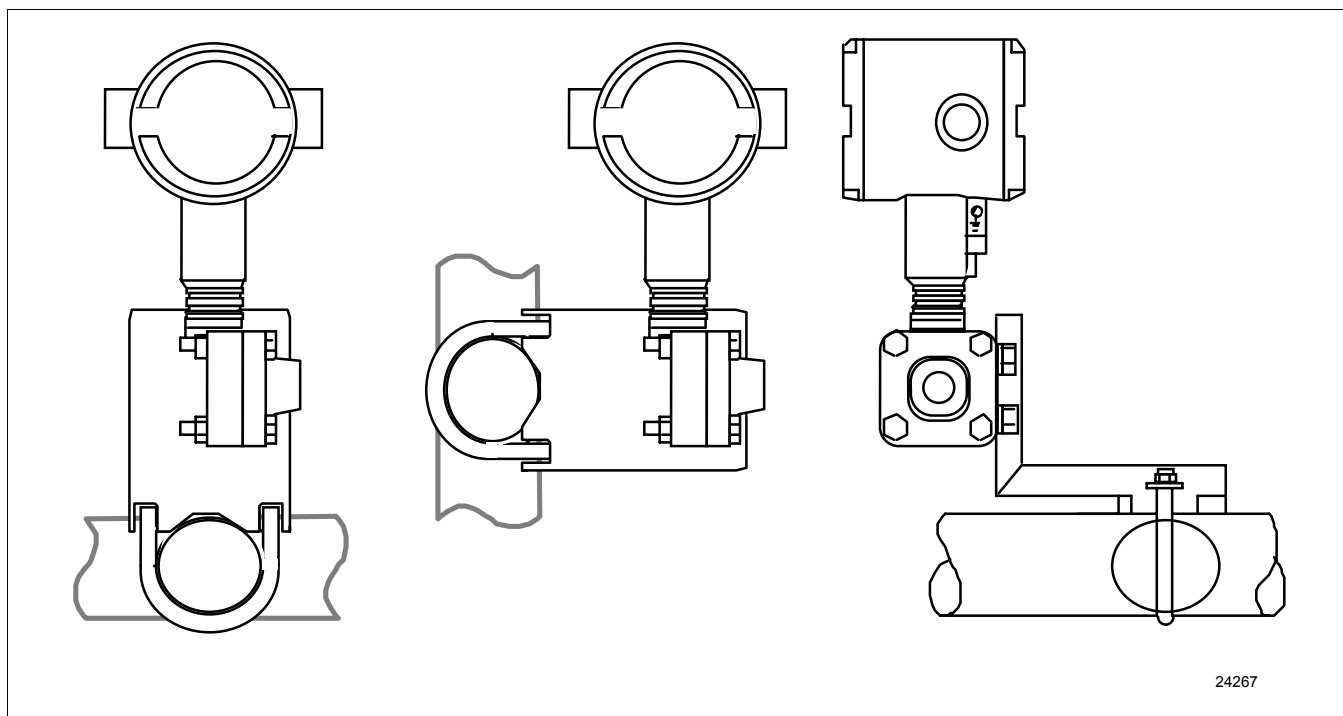


Figure 3 - Examples of typical mounting positions for single-head models STG140, STG170, and STG180.

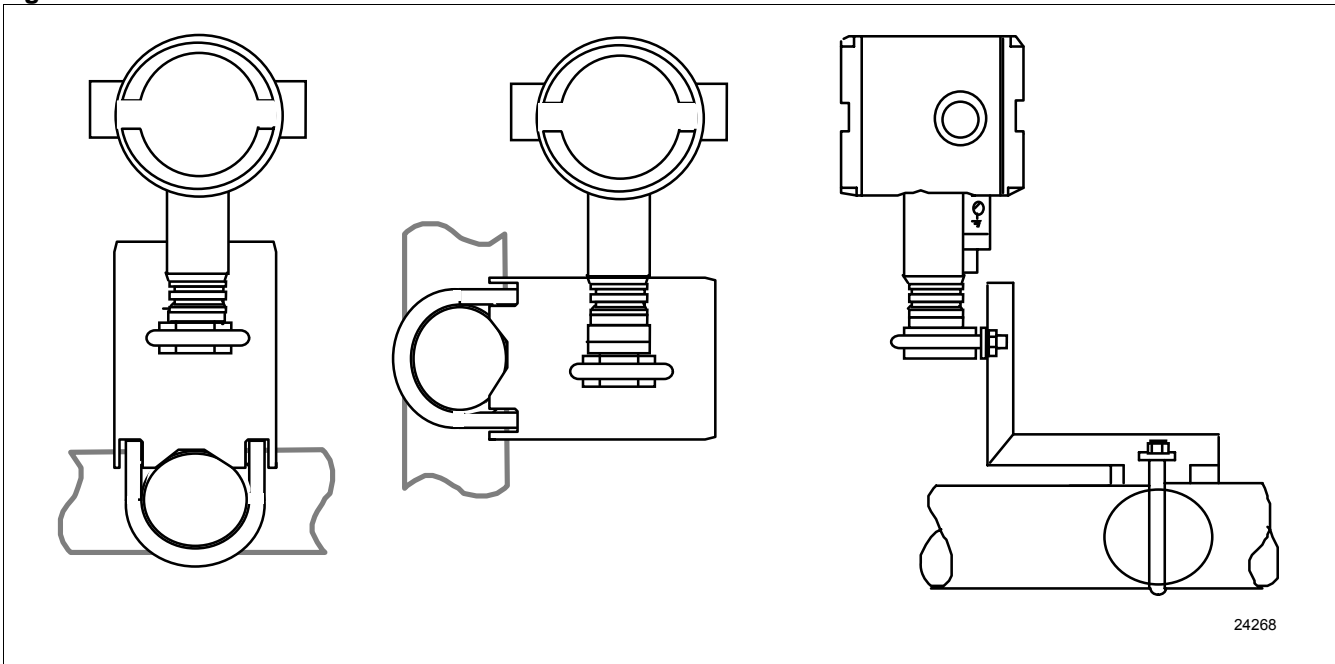


Figure 4 - Examples of typical mounting positions for in-line models STG14L, STG17L, STG18L, and STG19L. Note that a mounting bracket is not required for in-line models.

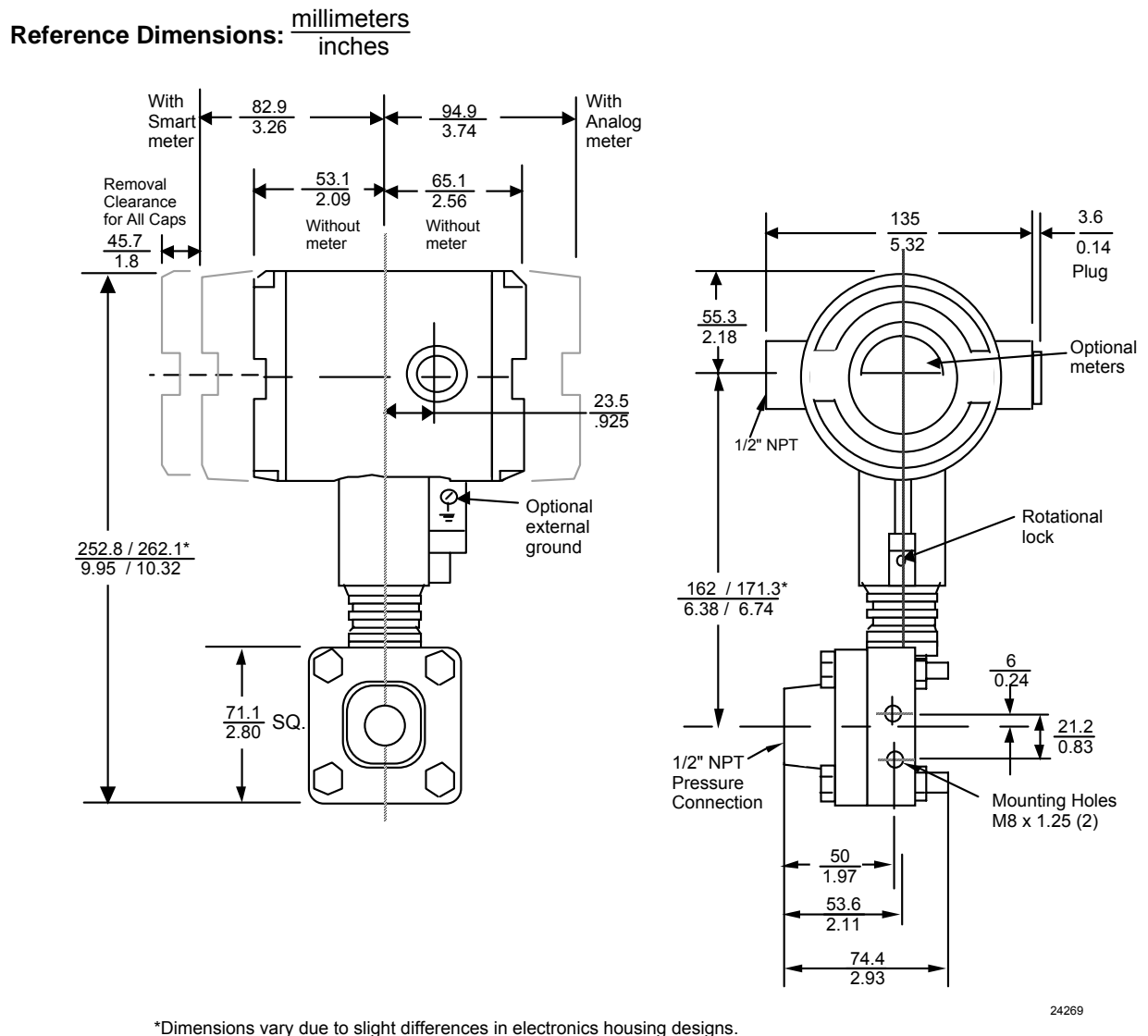


Figure 5 - Typical mounting dimensions for single-head models STG140, STG170, and STG180 for reference.

Reference Dimensions: $\frac{\text{millimeters}}{\text{inches}}$

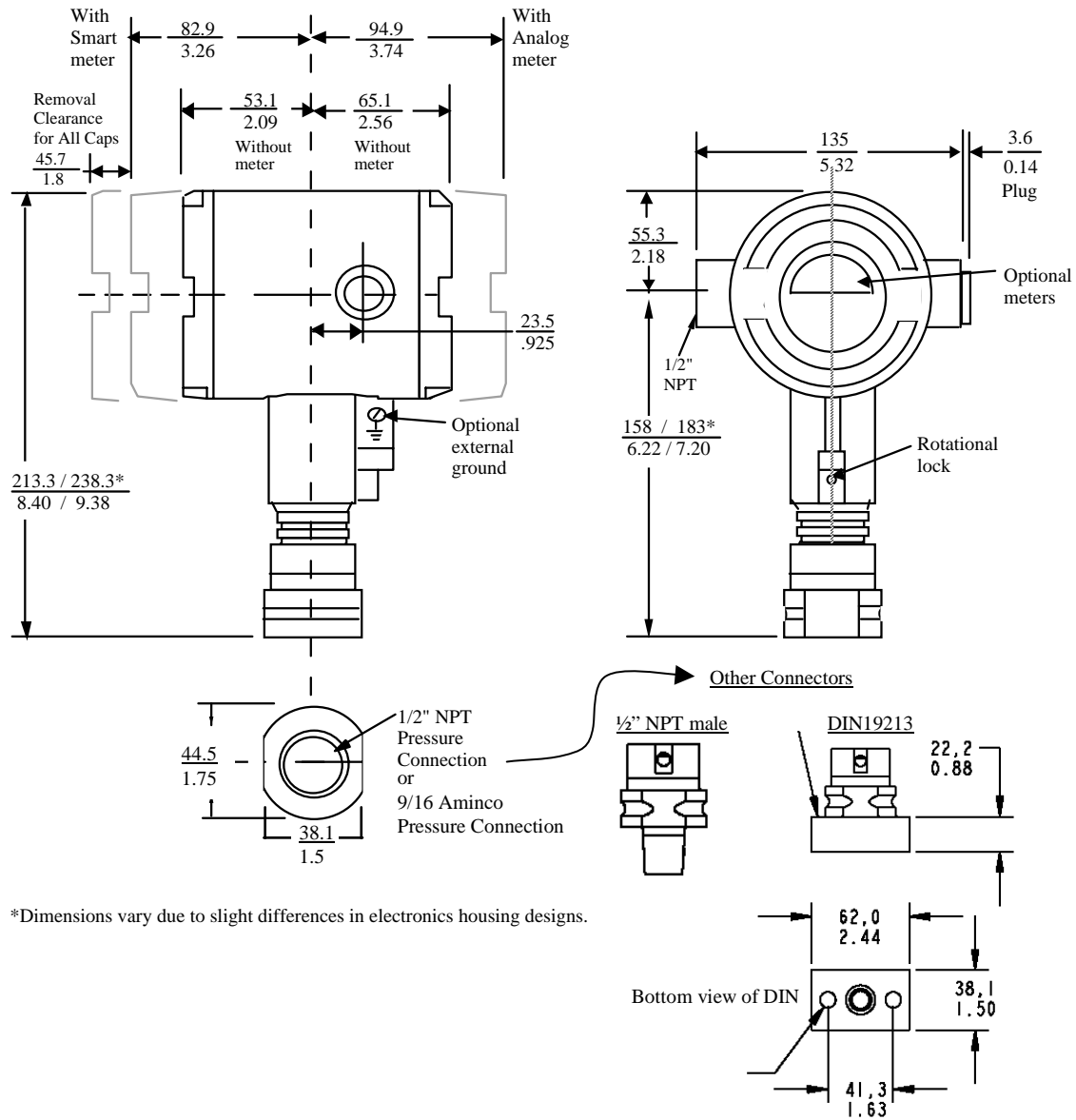


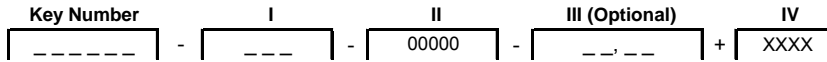
Figure 6 - Typical mounting dimensions for in-line models STG14L, STG17L, STG18L, and STG19L for reference.

Options	Ordering Information	
<p>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.</p> <p>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.</p> <p>HART® Protocol Compatibility (Options HC and H6) Optional electronics modules for the ST 3000 provides 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.</p> <p>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.</p> <p>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</p>	<p>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.</p> <p>Lightning Protection (Option LP) A terminal block is available with circuitry that protects the transmitter from transient surges induced by nearby lightning strikes.</p> <p>Indicator Configuration (Option CI) Provides custom configuration of Smart Meters.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Lifetime Warranty (Option WL) Extends limited 1-year warranty policy to 15 years for ST 3000 S100 pressure transmitters. See Honeywell Terms and Conditions.</p> <p>High Accuracy Extends applicable ST 3000 S100 models to $\pm 0.0375\%$ reference accuracy (analog).</p>	<p>Contact your nearest Honeywell sales office, or</p> <p>In the U.S.: Honeywell Industrial Measurement & Control 2500 W. Union Hills Ave Phoenix AZ 85023 1-800-288-7491</p> <p>In Canada: The Honeywell Centre 155 Gordon Baker Rd. North York, Ontario M2H 3N7 1-800-461-0013</p> <p>In Latin America: Honeywell Inc. 480 Sawgrass Corporate Parkway, Suite 200 Sunrise, FL 33325 (954) 845-2600</p> <p>In Europe and Africa: Honeywell S. A. Avenue du Bourget 1 1140 Brussels, Belgium</p> <p>In Eastern Europe: Honeywell Praha, s.r.o. Budejovicka 1 140 21 Prague 4, Czech Republic</p> <p>In the Middle East: Honeywell Middle East Ltd. Khalifa Street, Sheikh Faisal Building Abu Dhabi, U. A. E.</p> <p>In Asia: Honeywell Asia Pacific Inc. Honeywell Building, 17 Changi Business Park Central 1 Singapore 486073 Republic of Singapore</p> <p>In the Pacific: Honeywell Pty Ltd. 5 Thomas Holt Drive North Ryde NSW Australia 2113 (61 2) 9353 7000</p> <p>In Japan: Honeywell K.K. 14-6 Shibaura 1-chrome Minato-ku, Tokyo, Japan 105-0023</p> <p>Or, visit Honeywell on the World Wide Web at: http://www.honeywell.com</p> <p><i>Specifications are subject to change without notice</i></p>

Model Selection Guide (34-ST-16-03)

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 or approvals are desired, specify 9X).
- A (*) denotes unrestricted availability. A letter denotes restricted availability.
- Restrictions follow Table IV.



KEY NUMBER

	Design	Span	Selection	Availability					
Gage Pressure	Single Head	0-5 to 0-500 psi/0-0.34 to 0-35 bar	STG140	↓					
		0-100 to 0-3000 psi/0-7 to 0-210 bar	STG170		↓				
		0-100 to 0-6000 psi/0-7 to 0-420 bar	STG180			↓			
	In-Line	0-5 to 0-500 psi/0-0.34 to 0-35 bar	STG14L				↓		
		0-100 to 0-3000 psi/0-7 to 0-210 bar	STG17L					↓	
		0-100 to 0-6000 psi/0-7 to 0-420 bar	STG18L						↓
		0-200 to 0-10000 psi/0-14 to 0-690 bar	STG19L					↓	
Absolute Pressure	Single Head	0-50 to 0-780 mm HgA/0-67 to 0-1040 mbarA	STA122		↓				
		0-5 to 0-500 psi/0-0.34 to 0-35 bar absolute	STA140		↓				
	In-Line	0-50 to 0-780 mm HgA/0-67 to 0-1040 mbarA	STA12L					↓	
		0-5 to 0-500 psi/0-0.34 to 0-35 bar absolute	STA14L						↓

TABLE I - METER BODY

	Wetted Process Heads	Vent/Drain Valves ***	Barrier Diaphragms	Selection	Availability					
Materials of Construction	Carbon Steel **	-	316L SS	A _ _	•	•	•	•		
	Carbon Steel **	-	Hastelloy C	B _ _	•	•	•	•		
	Carbon Steel **	-	Monel	C _ _	•	•	•	•		
	316 SS	-	316L SS	E _ _	•	•	•	•		
	****	-	316L SS	E _ _					•	•
	316 SS	-	Hastelloy C	F _ _	•	•	•	•		
	****	-	Hastelloy C	F _ _					•	•
	316 SS	-	Monel	G _ _	•	•	•	•		
	Hastelloy C	-	Hastelloy C	J _ _	•	•	•	•		
Monel	-	Monel	L _ _	•	•	•	•			
Fill Fluid	Silicone DC200 *****			_ 1 _	•	•	•	•	•	•
	CTFE			_ 2 _	•	•	•	•	•	•
Process Connection Configuration	9/16" - 18 Aminco			_ _ A	•	•	•	•	•	•
	1/2" NPT (female)			_ _ G	•	•	•	•	•	•
	1/2" NPT (male)			_ _ H					•	•
	DIN 19213			_ _ D					•	•

- * For STA122 selections using Hastelloy C, both the meter body and diaphragms are Hastelloy C material.
- ** 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.
- *** Vent/Drains are Teflon coated for lubricity.
- **** STGIXL has 316L SS process interface.
- ***** If STA122 operating below 50mm HgA, see Figure 2 in Specification 34-ST-03-61 and contact Marketing Applications for a "Special" Silicone DC704 quote.

Model Selection Guide, cont.

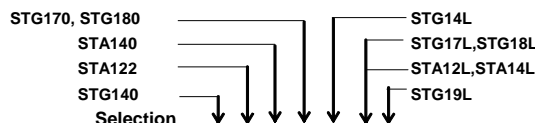


TABLE II

No Selection	00000
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TABLE III - OPTIONS

None	00
Communication Options									
HART 5.x Protocol Compatible Electronics	HC	y	y	y	y	y	y	y	b
HART 6.x Protocol Compatible Electronics	H6	y	y	y	y	y	y	y	
FOUNDATION Fieldbus Communications	FF	r	r	r	r	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	e	e	e	e	e	e	e	b
Local Zero & Span	ZS	m	m	m	m	m	m	m	
Local Zero	LZ	x	x	x	x	x	x	x	
Transmitter Housing & Electronics Options									
NAMUR Failsafe Software	NE	15	15	15	15	15	15	15	b
SIL 2 - TÜV Certified transmitter (requires HC and WP options)	SL	p	p	p	p	p	p	p	
Lightning Protection	LP	.	.	.	.	.	.	.
Custom Calibration and I.D. in Memory	CC	.	.	.	.	.	.	.
Transmitter Configuration - non-Fieldbus	TC	.	.	.	.	.	.	.
Write Protection (Delivered in "ON" position)	WP	.	.	.	.	.	.	.
Write Protection (Delivered in "OFF" position)	WX	g	g	g	g	g	g	g	
316 SS Electronics Housing - (with M20 Conduit Connections)	SH	n	n	n	n	n	n	n	
1/2" NPT to M20 316 SS Conduit Adapter (BASEEFA EEx d IIC)	A1	n	n	n	n	n	n	n	
1/2" NPT to 3/4" NPT 316 SS Conduit Adapter	A2	u	u	u	u	u	u	u	
Stainless Steel Housing with M20 to 1/2" NPT 316 SS Conduit Adapter (use for FM and CSA Approvals)	A3	i	i	i	i	i	i	i	
Stainless Steel Customer Wired-On Tag (4 lines, 28 characters per line, customer supplied information)	TG	.	.	.	.	.	.	.
Stainless Steel Customer Wired-On Tag (blank)	TB	.	.	.	.	.	.	.
High Accuracy	HA	d	.	.	.	.	.	d
End Cap Live Circuit Warning Label in Spanish (only with ATEX 3D)	SP	a	a	a	a	a	a	a	
End Cap Live Circuit Warning Label in Portuguese (only with ATEX 3D)	PG	a	a	a	a	a	a	a	
End Cap Live Circuit Warning Label in Italian (only with ATEX 3D)	TL	a	a	a	a	a	a	a	
End Cap Live Circuit Warning Label in German (only with ATEX 3D)	GE	a	a	a	a	a	a	a	
Meter Body Options									
A286 SS (NACE) Bolts and 304 SS (NACE) Nuts for Head	CR	b
316 SS Bolts and 316 SS Nuts for Proces Heads	SS	f	.	f	f	.	.	.	
Modified DIN Process Heads - 316 SS	DN	w	w	w	w	.	.	.	
Viton Process Head Gasket (Teflon is standard)	VT	z	.	z	z	.	.	.	
Graphite Process Head Gasket	GF	.	.	.	.	.	.	.
Teflon Process Head Gasket (Viton is standard)	TF	.	.	.	.	.	.	.
Transmitter Mounting Bracket Options									
Mounting Bracket - Carbon Steel	MB	b
Mounting Bracket - 304 SS	SB	.	.	.	.	.	.	.
Flat Mounting Bracket - Carbon Steel	FB	.	.	.	.	.	.	.
Services/Certificates/Marine Type Approval Options									
User's Manual Paper Copy (Standard, HC, or FF ships accordingly)	UM	b
Clean Transmitter for Oxygen or Chlorine Service with Certificate	OX	h	h	h	h	h	h	h	
Over-Pressure Leak Test with F3392 Certificate	TP	.	.	.	.	.	.	.
Calibration Test Report and Certificate of Conformance (F3399)	F1	.	.	.	.	.	.	.
Certificate of Conformance (F3391)	F3	.	.	.	.	.	.	.
Certificate of Origin (F0195)	F5	.	.	.	.	.	.	.
FMEDA Certificate (SIL 1)	F6	.	.	.	.	.	.	.
NACE Certificate (F0198)	F7	o	o	o	o	.	.	.	
Marine Type Approvals (DNV, ABS, BV & LR)	MT	2	2	2	2	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	.	.	.	.	.	.	.
Lifetime Warranty - 15 years	WL	.	.	.	.	.	.	.

Model Selection Guide, cont.

STG170, STG180
STA140
STA122
STG140

STG14L
STG17L, STG18L
STA12L, STA14L
STG19L

Approval Body	Approval Type	Location or Classification	Selection										
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		•	•	•	•	•	•	•	•	•	•
SA (Australia)	Intrinsically Safe	Ex ia IIC T4	4G	•	•	•	•	•	•	•	•	•	•
	Non-Sparking	Ex n IIC T6 (T4 with SM option)		•	•	•	•	•	•	•	•	•	•
ATEX*	Intrinsically Safe, Zone 0/1	<input checked="" type="checkbox"/> II 1 G EEx ia IIC T4, T5, T6	3S	•	•	•	•	•	•	•	•	•	•
	Flameproof, Zone 1	<input checked="" type="checkbox"/> II 2 G EEx d IIC T5, T6, Enclosure IP 66/67	3D	•	•	•	•	•	•	•	•	•	•
	Non-Sparking, Zone 2	<input checked="" type="checkbox"/> II 3 G EEx nA, IIC T6 (Honeywell). Enclosure IP 66/67	3N	•	•	•	•	•	•	•	•	•	•
	Multiple Marking** Int. Safe, Zone 0/1, or Flameproof, Zone 1, or Non-Sparking, Zone 2	Ex II 1 G EEx ia IIC T4, T5, T6 Ex II 2 G EEx d IIC T5, T6 Ex II 3 G EEx nA, IIC T6 (Honeywell) Enclosure IP 66/67	3H	•	•	•	•	•	•	•	•	•	•
INMETRO (Brazil)	Flameproof, Zone 1	Ex d IIC T5	6D	•	•	•	•	•	•	•	•	•	

*See ATEX installation requirements in the ST 3000 User's Manual
 ** 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

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

RESTRICTIONS

Restriction Letter	Available Only With		Not Available With	
	Table	Selection	Table	Selection
a	III	3D or 3H		
b	Select only one option from this group			
d	I	A _ _ E _ _		
e	III	SM		
f			III	2J
g			III	SL
h		_ 2 _		
i	III	1C or 2J		
m			III	ME, FF
n			III	1C, 2J
o	III	CR		
p	III	HC, WP	III	FF, 00, WX
r			III	TC, ME, 4G, 3S
u	III	1C, 2J		
w	I	E _ G, F _ G, G _ G		
x	III	FF, SM		
z			III	B _ _ , F _ _ , J _ _
y			III	4G
2			III	FB
3			Key #	STA12L or STA14L
4			III	No CRN Number available
15			III	FF

Note: See ST-83 for Published Specials with pricing.
 See ST-89 and User's Manual for part numbers.
 See ST-OE-9 for OMS Order Entry Information including TC, manuals, certificates, drawings and SPINS.
 See 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.

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