

ST 3000 Smart Transmitter Series 900 Absolute Pressure Models

STA922/STA92L 0 to 780 mmHgA 0 to 1,040 mbarA
 STA940/STA94L 0 to 500 psia 0 to 35 barA

34-ST-03-66
3/07

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 900 Absolute Pressure Transmitters continue to bring proven “smart” technology to a wide spectrum of pressure measurement applications. Honeywell absolute pressure transmitters are used in applications in which high accuracy in the vacuum range of pressure is needed. Typical applications include low-pressure measurement in vacuum distillation columns, where energy savings are directly proportional to the vacuum in the column. Honeywell transmitters can be used in a wide spectrum of hazardous environments in perfect safety to provide proven, repeatable pressure measurements.

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 cost-effective ST 3000 S900 transmitters lead the industry in reliability and stability:

- Stability = $\pm 0.01\%$ per year
- Reliability = 470 years MTBF



Figure 1—Series 900 Absolute 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. S900 transmitters allow smart performance at analog prices. Accurate, reliable and stable, Series 900 transmitters offer greater turndown ratio than conventional transmitters.

"Honeywell transmitters operating in the digital mode using Honeywell's Digitally Enhanced (DE) protocol make diagnostics available right at the control system's human interface. Equally important, transmitter status information is continuously displayed to alert the operator immediately of a fault condition. Because the process variable (PV) status transmission precedes the PV value, we are guaranteed that a bad PV is not used in a control algorithm. In addition, bi-directional communication provides for remote transmitter configuration directly from the human interface, enabling management of the complete loop."

Maureen Atchison, DuPont
Site Electrical & Instrumentation Leader

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 (at zero static)		Rated Condition		Operative Limits		Transportation and Storage	
	°C	°F	°C	°F	°C	°F	°C	°F
Ambient Temperature	25±1	77±2	-25 to 70	-13 to 158	-40 to 85	-40 to 185	-55 to 125	-67 to 257
Meter Body Temperature								
STA922/STA92L	25±1	77±2	See Figure 2		See Figure 2		-55 to 125	-67 to 257
STA940/STA94L	25±1	77±2	-25 to 70	-13 to 158	-40 to 80	-40 to 176	-55 to 125	-67 to 257
Humidity %RH	10 to 55		0 to 100		0 to 100		0 to 100	
Vacuum Region - Minimum Pressure STA922/STA92L STA940/STA94L	See Figure 2. Operate within specifications above 25 mmHgA (33 mbarA). Short term exposure (2 hours at 70°C/158°F) to full vacuum will not result in damage.							
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 3)							
Maximum Allowable Working Pressure (MAWP) (ST 3000 products are rated to Maximum Allowable Working Pressure)	STA922/STA92L = 1550 mmHgA, 2066 mbarA STA940/STA94L = 750 psia, 52 barA Units can withstand overpressure of 1.5X MAWP without damage.							

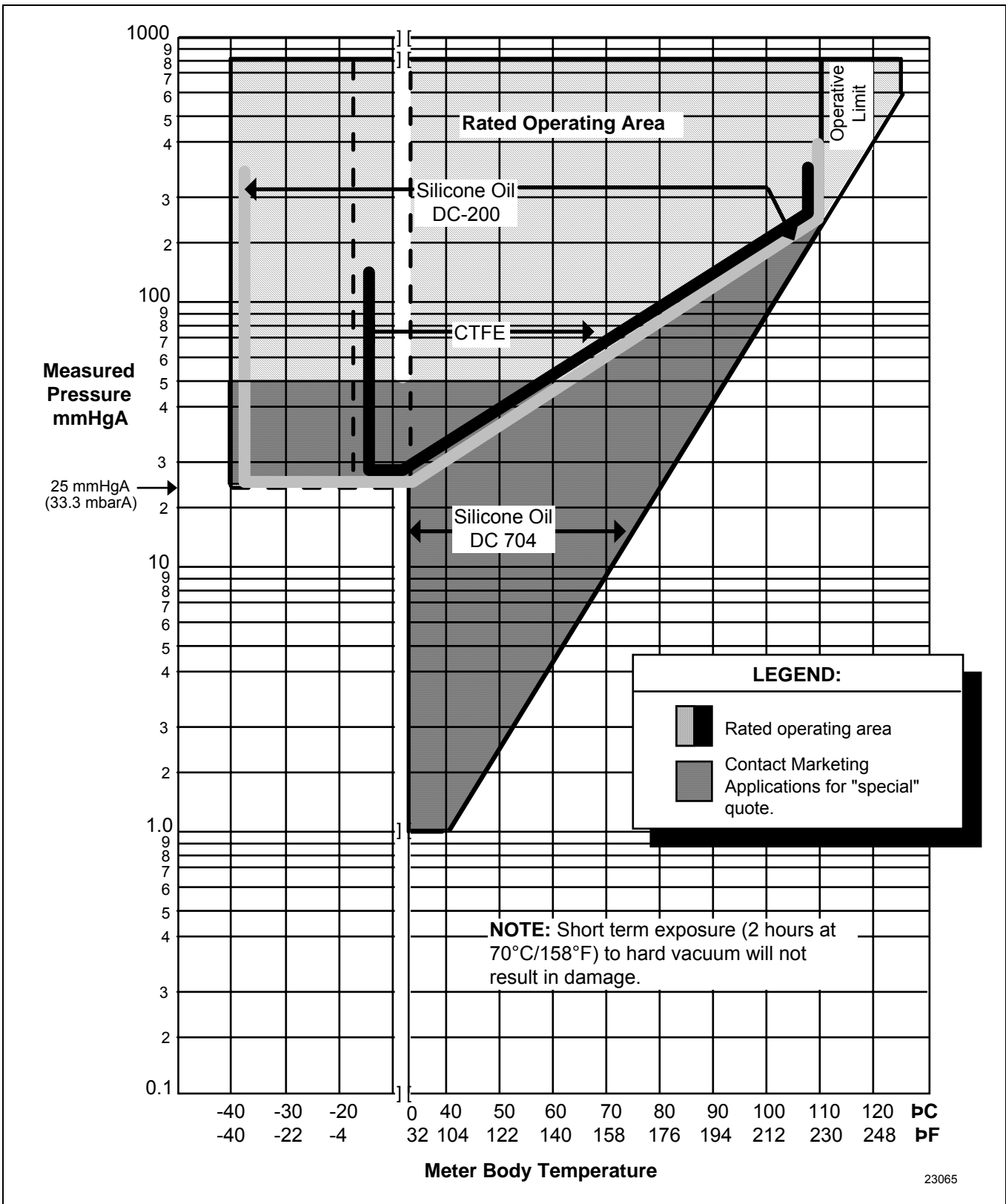


Figure 2—Measured pressure versus meter body temperature chart for model STA922/STA92L

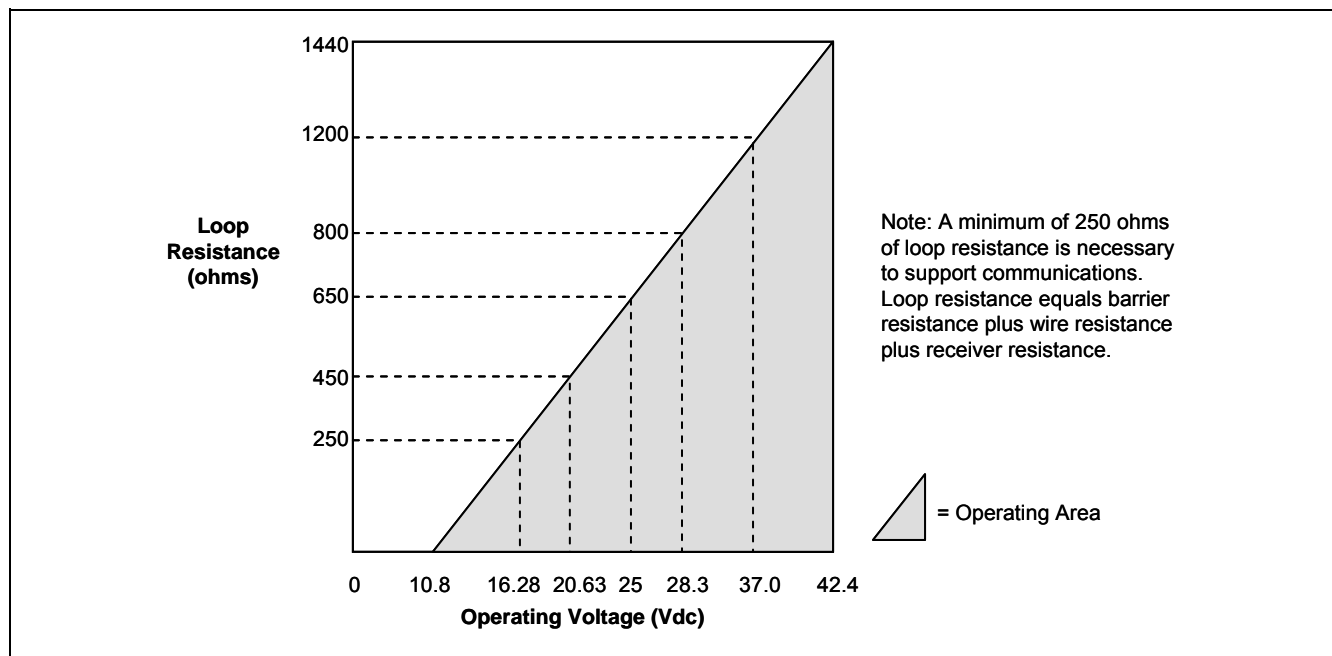


Figure 3—Supply voltage and loop resistance chart

Performance Under Rated Conditions* - Models STA922/STA92L (0 to 780 mmHgA/1040 mbarA)

Parameter	Description
Upper Range Limit mmHgA mbarA	780 (0°C/32°F is standard reference temperature for mmHg range.) 1040
Minimum Span mmHgA mbarA	50 67
Turndown Ratio	15 to 1
Zero Suppression	No limit except minimum span within 0 (zero) to +100% URL.
Accuracy (Reference – Includes combined effects of linearity, hysteresis, and repeatability) • Accuracy includes residual error after averaging successive readings. • For FOUNDATION Fieldbus use Digital Mode specifications. For HART use Analog Mode specifications.	In Analog Mode: ±0.10% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (90 mmHgA), accuracy equals: $\pm 0.05 + 0.05 \left(\frac{90 \text{ mmHgA}}{\text{span mmHgA}} \right)$ or $\pm 0.05 + 0.05 \left(\frac{120 \text{ mbarA}}{\text{span mbarA}} \right)$ in % of span In Digital Mode: ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (90 mmHgA), accuracy equals: $\pm 0.025 + 0.05 \left(\frac{90 \text{ mmHgA}}{\text{span mmHgA}} \right)$ or $\pm 0.025 + 0.05 \left(\frac{120 \text{ mbarA}}{\text{span mbarA}} \right)$ in % of span
Zero Temperature Effect per 28°C (50°F)	In Analog Mode: ±0.1625% of span. For URV below reference point (180 mmHgA), effect equals: $\pm 0.0125 + 0.15 \left(\frac{180 \text{ mmHgA}}{\text{span mmHgA}} \right)$ or $\pm 0.0125 + 0.15 \left(\frac{240 \text{ mbarA}}{\text{span mbarA}} \right)$ in % of span In Digital Mode: ±0.15% of span. For URV below reference point (180 mmHgA), effect equals: $\pm 0.15 \left(\frac{180 \text{ mmHgA}}{\text{span mmHgA}} \right)$ or $\pm 0.15 \left(\frac{240 \text{ mbarA}}{\text{span mbarA}} \right)$ in % of span

* 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 - Models STA922/STA92L (0 to 780 mmHgA/1040 mbarA),

Continued

Parameter	Description
Combined Zero and Span Temperature Effect per 28°C (50°F)	<p>In Analog Mode: ±0.25% of span. For URV below reference point (180 mmHgA), effect equals: $\pm 0.10 + 0.15 \left(\frac{180 \text{ mmHgA}}{\text{span mmHgA}} \right)$ or $\pm 0.10 + 0.15 \left(\frac{240 \text{ mbarA}}{\text{span mbarA}} \right)$ in % of span</p> <p>In Digital Mode: ±0.225% of span. For URV below reference point (180 mmHgA), effect equals: $\pm 0.075 + 0.15 \left(\frac{180 \text{ mmHgA}}{\text{span mmHgA}} \right)$ or $\pm 0.075 + 0.15 \left(\frac{240 \text{ mbarA}}{\text{span mbarA}} \right)$ in % of span</p>

Performance Under Rated Conditions* - Models STA940/STA94L (0 to 500 psia/35 barA)

Parameter	Description
Upper Range Limit psia barA	500 35
Minimum Span psia barA	20 1.4
Turndown Ratio	25 to 1
Zero Suppression	No limit except minimum span within 0 (zero) to +100% URL.
<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: ±0.10% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (20 psia), accuracy equals: $\pm 0.05 + 0.05 \left(\frac{20 \text{ psia}}{\text{span psia}} \right)$ or $\pm 0.05 + 0.05 \left(\frac{1.4 \text{ barA}}{\text{span barA}} \right)$ in % of span</p> <p>In Digital Mode: ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (20 psia), accuracy equals: $\pm 0.025 + 0.05 \left(\frac{20 \text{ psia}}{\text{span psia}} \right)$ or $\pm 0.025 + 0.05 \left(\frac{1.4 \text{ barA}}{\text{span barA}} \right)$ in % of span</p>
Zero Temperature Effect per 28°C (50°F)	<p>In Analog Mode: ±0.1625% of span. For URV below reference point (50 psia), effect equals: $\pm 0.0125 + 0.15 \left(\frac{50 \text{ psia}}{\text{span psia}} \right)$ or $\pm 0.0125 + 0.15 \left(\frac{3.5 \text{ barA}}{\text{span barA}} \right)$ in % of span</p> <p>In Digital Mode: ±0.15% of span. For URV below reference point (50 psia), effect equals: $\pm 0.15 \left(\frac{50 \text{ psia}}{\text{span psia}} \right)$ or $\pm 0.15 \left(\frac{3.5 \text{ barA}}{\text{span barA}} \right)$ in % of span</p>
Combined Zero and Span Temperature Effect per 28°C (50°F)	<p>In Analog Mode: ±0.25% of span. For URV below reference point (50 psia), effect equals: $\pm 0.10 + 0.15 \left(\frac{50 \text{ psia}}{\text{span psia}} \right)$ or $\pm 0.10 + 0.15 \left(\frac{3.5 \text{ barA}}{\text{span barA}} \right)$ in % of span</p> <p>In Digital Mode: ±0.225% of span. For URV below reference point (50 psia), effect equals: $\pm 0.075 + 0.15 \left(\frac{50 \text{ psia}}{\text{span psia}} \right)$ or $\pm 0.075 + 0.15 \left(\frac{3.5 \text{ barA}}{\text{span barA}} \right)$ in % of span</p>

* 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 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	316L SS, Hastelloy C-276
Process Head Material	STA922/STA940: 316 SS, Carbon Steel (zinc-plated), Hastelloy C-276 STA92L/STA94L: 316 SS
Head Gaskets	STA922/STA940: Viton is standard. Teflon is optional but not recommended for leak-proof service under full vacuum. Graphite is also optional.
Meter Body Bolting	STA922/STA940: Carbon Steel (zinc-plated, standard) or A286 SS (NACE) bolts and 302/304 SS (NACE) nuts for heads.
Mounting Bracket	Carbon Steel (zinc-plated) or Stainless Steel angle bracket or Carbon Steel flat bracket available.
Fill Fluid	Silicone DC 200 oil or CTFE (Chlorotrifluoroethylene) Note that DC 704 is available – Please contact Product Marketing.
Electronic Housing	Epoxy-Polyester hybrid paint. Low Copper-Aluminum. Meets NEMA 4X (watertight) and NEMA 7 (explosion proof). Stainless steel optional.
Process Connections	STA922/STA940: 1/2-inch F-NPT, DIN STA92L/STA94L: 1/2-inch F-NPT, 1/2 inch M-NPT, 9/16 AMINCO, DIN 19213
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 Figures 4 and 4a.
Dimensions	See Figures 5 and 5a.
Net Weight	STA922/STA940: 7.0 pounds (3.2 Kg) STA92L/STA94L: 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	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.
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	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)
SA (Australian)	Intrinsically Safe: EX ia IIC T4 Non-Sparking: Ex n IIC T6 (T4 with SM option)
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.

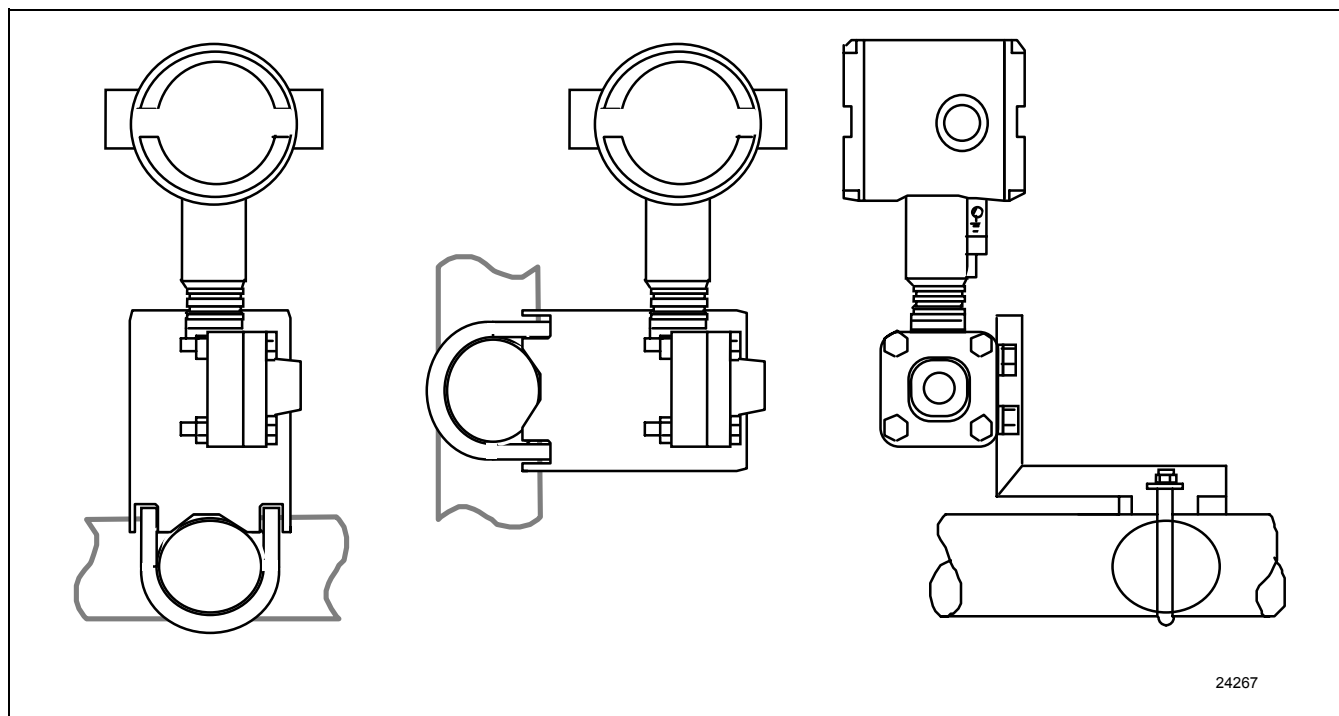


Figure 4—Examples of typical mounting positions

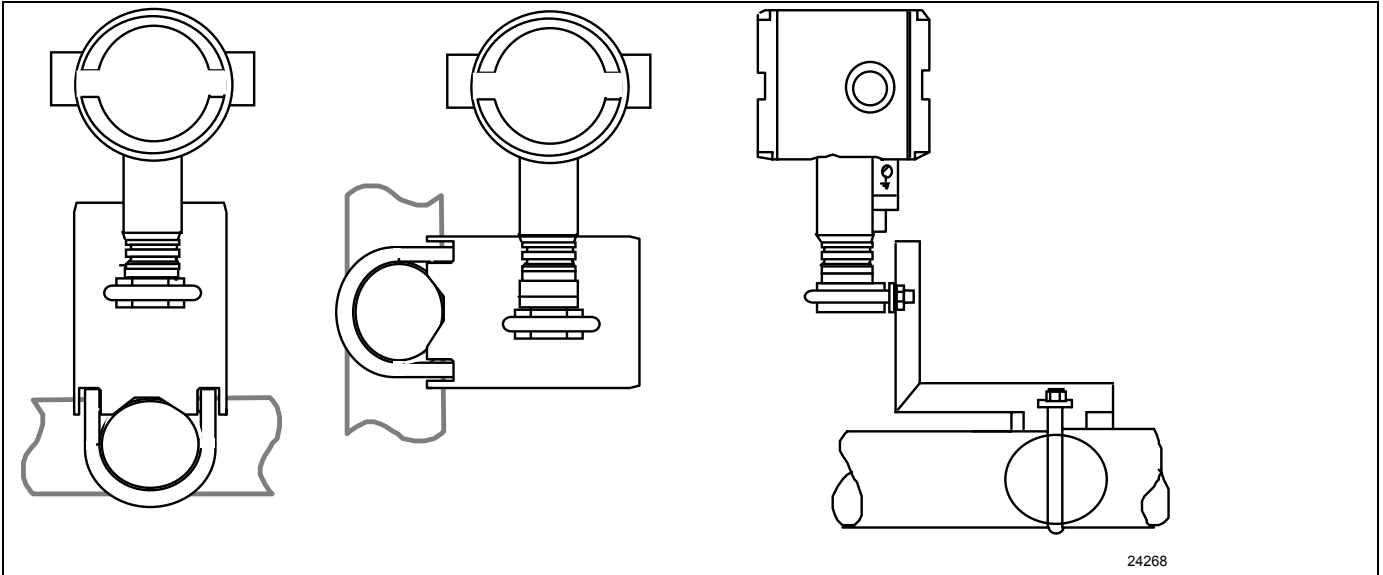


Figure 4a Examples of typical mounting positions for in-line models

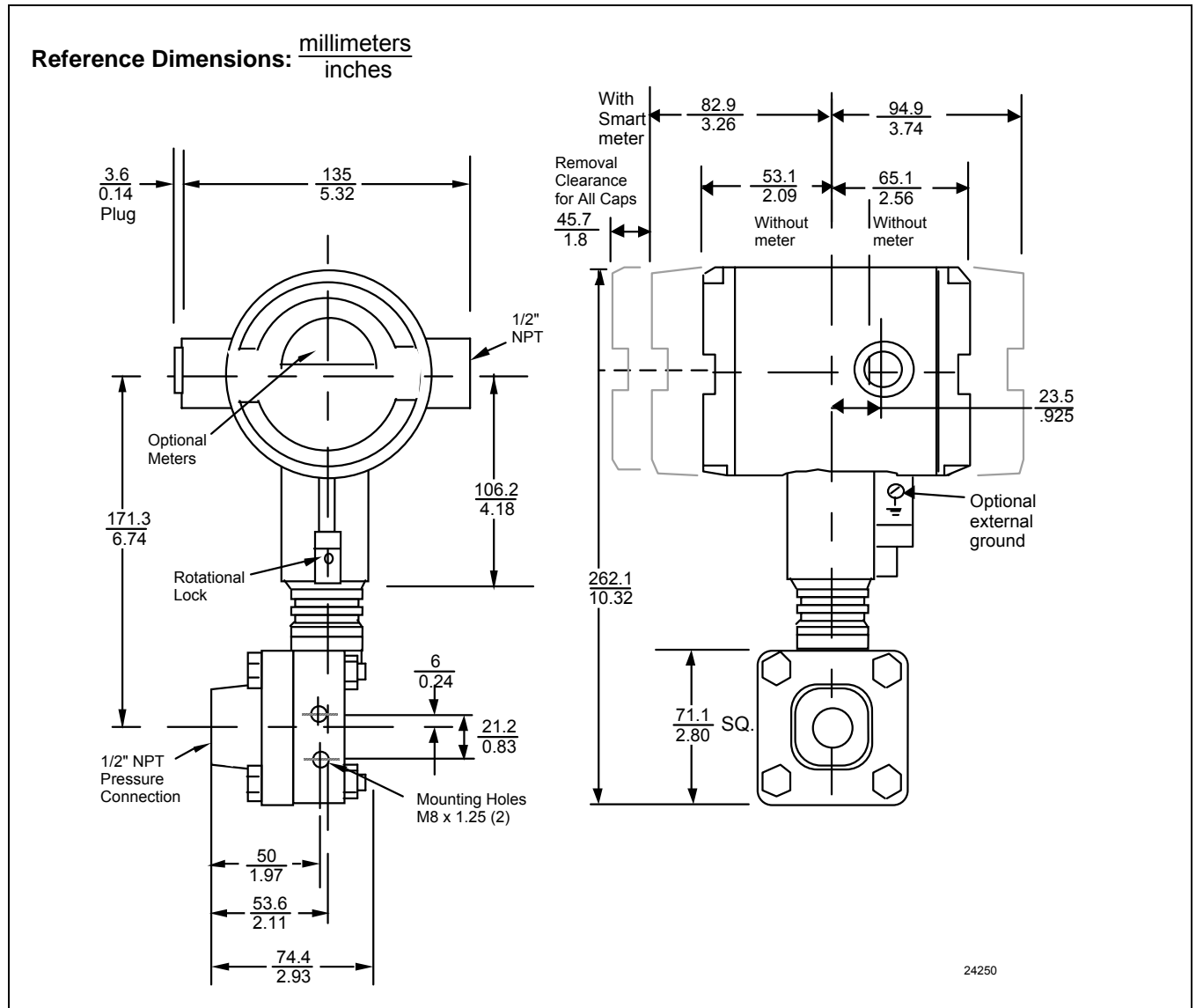


Figure 5—Typical mounting dimensions for reference

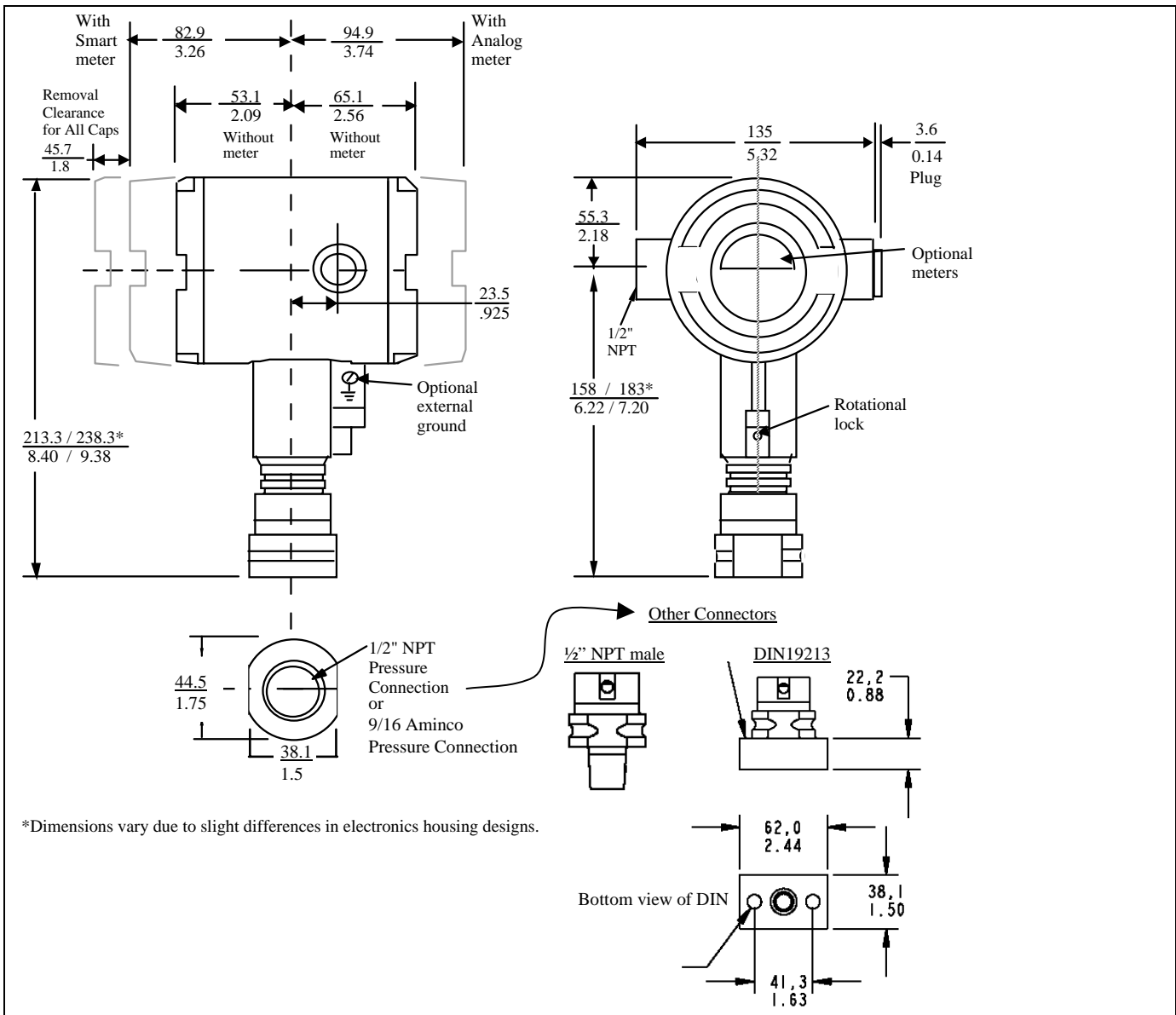


Figure 5a - Typical mounting dimensions for in-line models

Options

Mounting Bracket

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

**Indicating Meter
(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.

**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.

**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 that 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.

**Lightning Protection
(Option LP)**

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

**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

In the U.S.:

Honeywell
Industrial Automation & Control
2500 W. Union Hills Ave
Phoenix, AZ 85053
1-800-288-7491

In Canada:

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

In Latin America:

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

In Europe and Africa:

Honeywell S. A.
Avenue du Bourget 1
1140 Brussels, Belgium

In Eastern Europe:

Honeywell Praha,
s.r.o. Budejovicka 1
140 21 Prague 4,
Czech Republic

In the Middle East:

Honeywell Middle East Ltd.
Khalifa Street,
Sheikh Faisal Building
Abu Dhabi, U. A. E.

In Asia:

Honeywell Asia Pacific Inc.
Honeywell Building,
17 Changi Business Park Central 1
Singapore 486073
Republic of Singapore

In the Pacific:

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

In Japan:

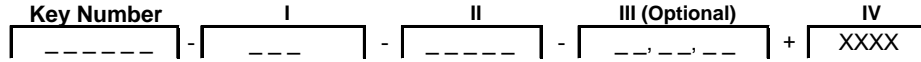
Honeywell K.K.
14-6 Shibaura 1-chrome
Minato-ku, Tokyo, Japan 105-0023
Or, visit Honeywell on the World Wide
Web at: <http://www.honeywell.com>

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

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

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

	Span	Selection	Avail.	
Gage Pressure	0-20 to 0-500 psi/0-1.4 to 0-35 bar	STG944	↓	
	0-300 to 0-3000 psi/0-21 to 0-210 bar	STG974	↓	
Absolute Pressure	0-50 to 0-780 mmHgA/0-67 to 0-1040 mbarA	STA922		↓
	0-20 to 0-500 psia/0-1.4 to 0-35 barA	STA940		↓

TABLE I - METER BODY

	Wetted Process Head ***	Vent/Drain Valve **	Barrier Diaphragms	Selection	Avail.
Materials of Construction	Carbon Steel *	316 SS	316L SS	A _ _	• •
	Carbon Steel *	316 SS	Hastelloy C	B _ _	• •
	Carbon Steel *	316 SS	Monel	C _ _	•
	Carbon Steel *	316 SS	Tantalum	D _ _	•
	316 SS	316 SS	316L SS	E _ _	• •
	316 SS	316 SS	Hastelloy C	F _ _	• •
	316 SS	316 SS	Monel	G _ _	•
	316 SS	316 SS	Tantalum	H _ _	•
	Hastelloy C	Hastelloy C	Hastelloy C	J _ _	• •
	Hastelloy C	Hastelloy C	Tantalum	K _ _	•
	Monel	Monel	Monel	L _ _	•
Fill Fluid	Silicone DC200 ****			_ 1 _	• •
	CTFE			_ 2 _	• •
Process Head Configuration	1/4" NPT			_ _ A	•
	1/2" NPT with Adapter			_ _ G	t
	1/2" NPT			_ _ G	•

TABLE II

No Selection	00000	• •
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- * 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.
 - *** The standard reference head for the STG9XX is carbon steel (zinc-plated). See Table III for a stainless steel reference (HR) head option.
 - **** If STA922 operating below 50mm HgA, see Figure 2 in Specification 34-ST-03-65 and contact Marketing Applications for a "Special" Silicone DC704 quote.
- Notes:** End vent drain valve standard for STG9XX.
End vent drain valves are not available on STA9XX.

Model Selection Guide (34-ST-16-26), cont.

TABLE III - OPTIONS	Selection	Availability		
		STG9xx	STA9xx	
		44 74	22 40	
None	00	•	•	
Communication Options				
HART [®] 5.x Protocol Compatible Electronics	HC	e	e	] b
HART [®] 6.x Protocol Compatible Electronics	H6	e	e	
FOUNDATION Fieldbus Communications	FF	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	
Local Zero	LZ	x		] b
Local Zero and Span	ZS	s		
Transmitter Housing & Electronics Options				
NAMUR Failsafe Software	NE	15	15	
SIL 2 - TÜV Certified transmitter (requires HC and WP options)	SL	p	p	
Lightning Protection	LP	•	•	
Custom Calibration and I.D. in Memory	CC	•	•	
Transmitter Configuration	TC	•	•	
Write Protection (Delivered in the "enabled" position)	WP	•	•	] b
Write Protection (Delivered in the "disabled" position)	WX	•	•	
316 SS Electronics Housing - with M20 Conduit Connections	SH	n	n	] b
1/2" NPT to M20 316 SS Conduit Adapter (BASEEFA EEx d IIC)	A1	n	n	
1/2" NPT to 3/4" NPT 316 SS Conduit Adapter	A2	i	i	
Stainless Steel Housing with M20 to 1/2" NPT 316 SS Conduit Adapter (use for FM and CSA Approvals)	A3	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	•	•	
Low Temperature - -50°C Ambient Limit	LT	z		
End Cap Live Circuit Warning Label in Spanish (only with ATEX 3D)	SP	a	a	] b
End Cap Live Circuit Warning Label in Portuguese (only with ATEX 3D)	PG	a	a	
End Cap Live Circuit Warning Label in Italian (only with ATEX 3D)	TL	a	a	
End Cap Live Circuit Warning Label in German (only with ATEX 3D)	GE	a	a	
Meter Body Options				
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 Adapter Flange - 1/2" NPT with CS Bolts	S2	c		] b
316 SS Adapter Flange - 1/2" NPT with 316 SS Bolts	S3	c		
316 SS Adapter Flange - 1/2" NPT with NACE A286 SS Bolts	S4	c		
316 SS Adapter Flange - 1/2" NPT with B7M Bolts	S5	c		
Hastelloy C Adapter Flange - 1/2" NPT with CS Bolts	T2	c		] b
Hastelloy C Adapter Flange - 1/2" NPT with 316 SS Bolts	T3	c		
Monel Adapter Flange - 1/2" NPT with CS Bolts	V2	c		] b
Monel Adapter Flange - 1/2" NPT with 316 SS Bolts	V3	c		
316 SS Blind Adapter Flange with CS Bolts	B3	•		
316 SS Blind Adapter Flange with 316 SS Bolts	B4	•		
316 SS Blind Adapter Flange with NACE A286 SS Bolts	B5	•		] b
316 SS 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 Process Head Gaskets	VT	•		
Viton Adapter Flange Gaskets	VF	17		
316 SS Reference Head (Carbon Steel Standard)	HR	•		
Modified DIN Process Heads - 316 SS	DN		v	
Graphite Process Head Gasket	GF	•	•	
Transmitter Mounting Bracket Options				
Mounting Bracket - Carbon Steel	MB	•	•	] b
Mounting Bracket - 304 SS	SB	•	•	
Flat Mounting Bracket - Carbon Steel	FB	•	•	

Table III continued next page

Model Selection Guide (34-ST-16-26), cont.

Availability
STG9xx STA9xx

TABLE III - OPTIONS (continued)

	Selection	Availability	
		44 74	22 40
Diaphragm Options			
Gold plated diaphragm(s) on 316 SS	G1	•	
Gold plated diaphragm(s) on Monel or Hastelloy ONLY	G2	•	
Services/Certificates/Marine Type Approval Options			
User's Manual Paper Copy (Standard, HC, or FF ships accordingly)	UM	•	•
Clean Transmitter for Oxygen or Chlorine Service with Certificate	0X	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
Marine Type Approvals (DNV, ABS, BV & LR)	MT	2	2
Warranty Options			
Additional Warranty - 1 year	W1	•	•
Additional Warranty - 2 years	W2	•	•
Additional Warranty - 3 years	W3	•	•
Additional Warranty - 4 years	W4	•	•

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		f	•
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	Ex II 1 G EEx ia IIC T4, T5, T6	3S	•	•
	Flameproof, Zone 1	Ex II 2 G EEx d IIC T5, T6, Enclosure IP 66/67	3D	•	•
	Non-Sparking, Zone 2	Ex II 3 G EEx nA, IIC T6 (Honeywell). Enclosure IP 66/67	3N	•	•
	Multiple Marking**	Ex II 1 G EEx ia IIC T4, T5, T6	3H		
	Int. Safe, Zone 0/1, or Flameproof, Zone 1, or Non-Sparking, Zone 2	Ex II 2 G EEx d IIC T5, T6 Ex II 3 G EEx nA, IIC T6 (Honeywell) Enclosure IP 66/67		•	•
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	•	•
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Model Selection Guide (34-ST-16-26), cont.

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			
c	I	-- G		
e			III	4G
f			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, WP	III	FF, 00
r			III	TC, ME, 4G
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	FB
15			III	FF
17	III	VT		

- Notes:** 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.
 See ST-OE-9 for OMS Order Entry Information including TC, manuals,
 To request a quotation for a non-published "special", fax RFQ to Marketing Applications.

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

Instructions

- Select the desired Key Number. The arrow to the right marks the selection available.
- Make one selection from each table, I and II, using the column below the proper arrow.
- Select as many Table III options as desired (if no options are desired, specify 9X).
- A (•) denotes unrestricted availability. A letter denotes restricted availability.
- Restrictions follow Table IV.

Key Number - I - II - III (Optional) + IV
----- - --- - ----- - - - , - - , - - + XXXX

KEY NUMBER

	Span	Selection	Avail.
Gage Pressure	0-20 to 0-500 psig/0-1.4 to 0-35 bar	STG94L	↓
	0-300 to 0-3000 psig/0-21 to 0-210 bar	STG97L	↓
	0-500 to 0-6000 psig/0-35 to 0-415 bar	STG98L	↓
	0-500 to 0-10000 psig/0-35 to 0-690 bar	STG99L	↓
Absolute Pressure	0-50 to 0-780 mmHg/0-67 to 0-1040 mbarA	STA92L	↓
	0-20 to 0-500 psia/0-1.4 to 0-35 barA	STA94L	↓

TABLE I - METER BODY

	Wetted Process Heads	Vent/Drain Valves **	Barrier Diaphragms	Selection	Avail.
Materials of Construction	316 SS	--	316L SS	E __	• •
	316 SS	--	Hastelloy C	F __	• •
Fill Fluid	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	00000	• •
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** Vent/Drains are Teflon coated for lubricity.

Model Selection Guide (34-ST-16-28), cont.

TABLE III - OPTIONS	Availability	
	STG9_L STA9_L Selection	STG99 L
None	00	• •
Communication Options		
HART [®] 5.x Protocol Compatible Electronics	HC	y y
HART [®] 6.x Protocol Compatible Electronics	H6	y y
FOUNDATION Fieldbus Communications	FF	r r
Indicating Meter Options		
Analog Meter (0-100 Even 0-10 Square Root)	ME	• •
Smart Meter	SM	• •
Custom Configuration of Smart Meter	CI	m m
Local Zero	LZ	x x
Local Zero and Span	ZS	s s
Transmitter Housing & Electronics Options		
NAMUR Failsafe Software	NE	15 15
SIL 2 - TUV Certified transmitter (requires HC and WP options)	SL	p p
Lightning Protection	LP	• •
Custom Calibration and I.D. in Memory	CC	• •
Transmitter Configuration	TC	• •
Write Protection (Delivered in the "enabled" position)	WP	• •
Write Protection (Delivered in the "disabled" position)	WX	• •
316 SS Electronics Housing - with M20 Conduit Connections	SH	n n
1/2" NPT to M20 316 SS Conduit Adapter (BASEEFA EEx d IIC)	A1	n n
1/2" NPT to 3/4" NPT 316 SS Conduit Adapter	A2	u u
Stainless Steel Housing with M20 to 1/2" NPT 316 SS Conduit Adapter (use for FM and CSA Approvals)	A3	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	• •
Low Temperature - -50°C Ambient Limit	LT	• •
End Cap Live Circuit Warning Label in Spanish (only with ATEX 3D)	SP	a a
End Cap Live Circuit Warning Label in Portuguese (only with ATEX 3D)	PG	a a
End Cap Live Circuit Warning Label in Italian (only with ATEX 3D)	TL	a a
End Cap Live Circuit Warning Label in German (only with ATEX 3D)	GE	a a
Transmitter Mounting Brackets Options		
Mounting Bracket - Carbon Steel	MB	• •
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	• •
Clean Transmitter for Oxygen or Chlorine Service with Certificate	OX	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	• •
Marine Type Approvals (DNV, ABS, BV & LR)	MT	2 2
Warranty Options		
Additional Warranty - 1 year	W1	• •
Additional Warranty - 2 years	W2	• •
Additional Warranty - 3 years	W3	• •
Additional Warranty - 4 years	W4	• •

Table III continued next page

Model Selection Guide (34-ST-16-28), cont.

Availability
STG9_L STG99L
STA9_L ↓ ↓

TABLE III - OPTIONS (continued)

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	3	4
	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 type="checkbox"/> II 1 G EEx ia IIC T4, T5, T6	3S	•	•
	Flameproof, Zone 1	<input type="checkbox"/> II 2 G EEx d IIC T5, T6, Enclosure IP 66/67	3D	•	•
	Non-Sparking, Zone 2	<input 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	•	•
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RESTRICTIONS

Restriction Letter	Available Only With		Not Available With	
	Table	Selection	Table	Selection
a	III	3D		
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, WP	III	FF, 00
r			III	TC, ME, 4G, 3S
s			III	FF, ME
u	III	1C, 2J		
x	III	FF, SM		
y			III	4G
2			III	FB
3			Key #	STA92L or STA94L
4			III	No CRN Number Available
15			III	FF

Notes: 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.
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