

ST 3000 Smart Transmitter Series 900 Extension Models

STD904	Differential	0 to 400 inH ₂ O	0 to 1,000 mbar
STG90L	Gauge	0 to 500 psi	0 to 35 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 900 Pressure Transmitters continue to bring proven “smart” technology to a wide spectrum of pressure measurement applications. Honeywell STD904 and STG90L transmitters are designed for applications where highest accuracy is not required. STD904 transmitter applications include water flow for utilities. The STG90L gauge pressure transmitter is typically used for pressure in water and gas lines. The STD904 and STG90L transmitter are built to the highest manufacturing standards for reliability and long life. The STD904 and STG90L transmitters can be installed in hazardous environments with options available to meet specific application needs.

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 = ±0.01% per year
- Reliability = 470 years MTBF



Figure 1—Series 900 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

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	-40 to 85	-40 to 185	-40 to 85	-40 to 185	-55 to 125	-67 to 257
Meter Body Temperature	25 ±1	77 ±2	-40 to 110	-40 to 230	-40 to 125	-40 to 257	-55 to 125	-67 to 257
Humidity %RH	10 to 55		0 to 100		0 to 100		0 to 100	
Overpressure								
STD904 psi	0		4500		4500			
bar	0		310		310			
STG90L psi	0		500		500			
bar	0		35		35			
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)	STD904 = 4500 psi, 310 bar STG90L = 500 psi, 35 bar Static Pressure Limit = Maximum Allowable Working Pressure (MAWP) for STD904 STG90L can withstand overpressure of 1.5X MAWP without damage.							

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

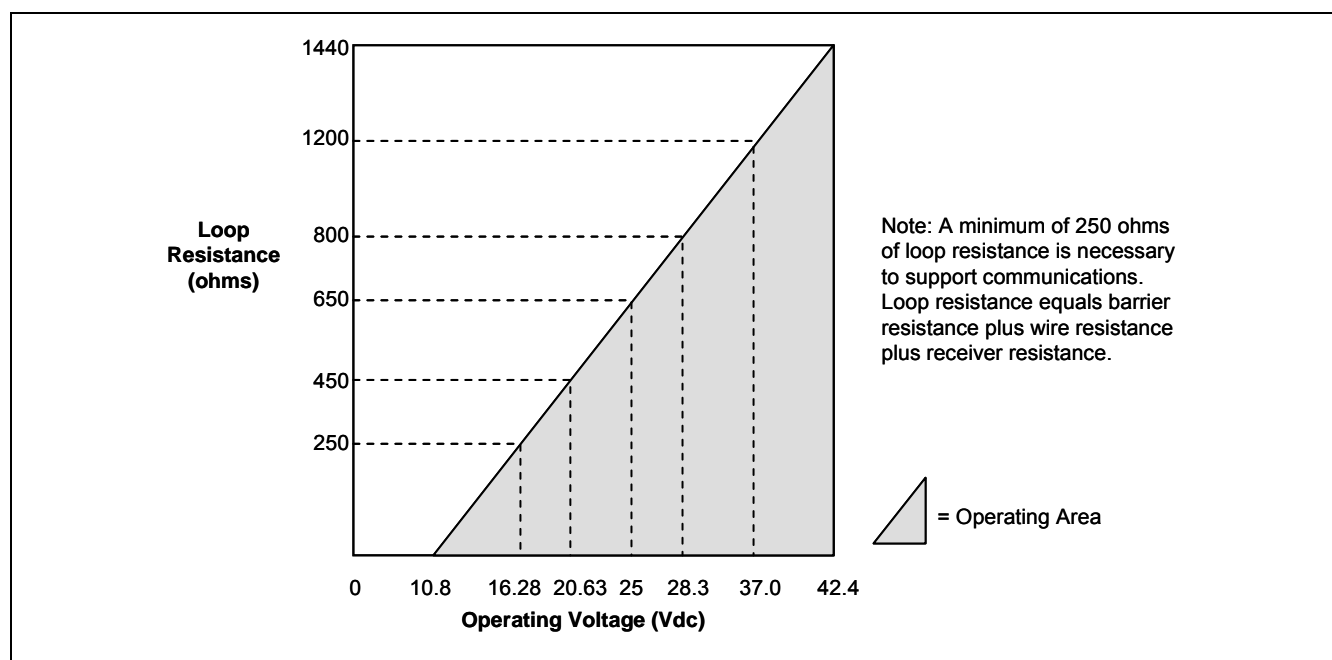


Figure 2 —Supply voltage and loop resistance chart.

Specifications - Performance Under Rated Conditions* - Model STD904

Parameter	Description
Upper Range Limit inH ₂ O mbar	400 (39.2°F/4°C is standard reference temperature for inH ₂ O range.) 1000
Minimum Span inH ₂ O mbar	16 Note: Recommended minimum span in square root mode is 20 inH ₂ O (50 mbar). 40
Turndown Ratio	25 to 1
Zero Elevation and Suppression	-5 to +100% URL.
Accuracy (Reference – Includes combined effects of linearity, hysteresis, and repeatability) • Accuracy includes residual error after averaging successive readings. • For HART use Analog Mode specifications.	In Analog Mode: ±0.15% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (25 inH ₂ O), accuracy equals: $\pm \left[0.075 + 0.075 \left(\frac{25 \text{ in H}_2\text{O}}{\text{span in H}_2\text{O}} \right) \right] \text{ or } \pm \left[0.075 + 0.075 \left(\frac{62 \text{ mbar}}{\text{span mbar}} \right) \right] \text{ in \% of span}$ In Digital Mode: ±0.125% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (25 inH ₂ O), accuracy equals: $\pm \left[0.05 + 0.075 \left(\frac{25 \text{ in H}_2\text{O}}{\text{span in H}_2\text{O}} \right) \right] \text{ or } \pm \left[0.05 + 0.075 \left(\frac{62 \text{ mbar}}{\text{span mbar}} \right) \right] \text{ in \% of span}$
Zero Temperature Effect per 28°C (50°F)	In Analog Mode: ±0.325% of span. For URV below reference point (50 inH ₂ O), effect equals: $\pm \left[0.0125 + 0.3125 \left(\frac{50 \text{ in H}_2\text{O}}{\text{span in H}_2\text{O}} \right) \right] \text{ or } \pm \left[0.0125 + 0.3125 \left(\frac{125 \text{ mbar}}{\text{span mbar}} \right) \right] \text{ in \% of span}$ In Digital Mode: ±0.3125% of span. For URV below reference point (50 inH ₂ O), effect equals: $\pm 0.3125 \left(\frac{50 \text{ in H}_2\text{O}}{\text{span in H}_2\text{O}} \right) \text{ or } \pm 0.3125 \left(\frac{125 \text{ mbar}}{\text{span mbar}} \right) \text{ in \% of span}$
Combined Zero and Span Temperature Effect per 28°C (50°F)	In Analog Mode: ±0.6% of span. For URV below reference point (50 inH ₂ O), effect equals: $\pm \left[0.20 + 0.40 \left(\frac{50 \text{ in H}_2\text{O}}{\text{span in H}_2\text{O}} \right) \right] \text{ or } \pm \left[0.20 + 0.40 \left(\frac{125 \text{ mbar}}{\text{span mbar}} \right) \right] \text{ in \% of span}$ In Digital Mode: ±0.575% of span. For URV below reference point (50 inH ₂ O), effect equals: $\pm \left[0.175 + 0.40 \left(\frac{50 \text{ in H}_2\text{O}}{\text{span in H}_2\text{O}} \right) \right] \text{ or } \pm \left[0.175 + 0.40 \left(\frac{125 \text{ mbar}}{\text{span mbar}} \right) \right] \text{ in \% of span}$
Zero Static Pressure Effect per 1000 psi (70 bar)	±0.3% of span. For URV below reference point (50 inH ₂ O), effect equals: $\pm \left[0.0125 + 0.2875 \left(\frac{50 \text{ in H}_2\text{O}}{\text{span in H}_2\text{O}} \right) \right] \text{ or } \pm \left[0.0125 + 0.2875 \left(\frac{125 \text{ mbar}}{\text{span mbar}} \right) \right] \text{ in \% of span}$
Combined Zero and Span Static Pressure Effect per 1000 psi (70 bar)	±0.6% of span. For URV below reference point (50 inH ₂ O), effect equals: $\pm \left[0.20 + 0.40 \left(\frac{50 \text{ in H}_2\text{O}}{\text{span in H}_2\text{O}} \right) \right] \text{ or } \pm \left[0.20 + 0.40 \left(\frac{125 \text{ mbar}}{\text{span mbar}} \right) \right] \text{ in \% of span}$
Stability	±0.03% of URL per year

*Performance specifications are based on reference conditions of 25°C (77°F), zero (0) static pressure, 10 to 55% RH.

Specifications - Performance Under Rated Conditions* - Model STG90L

Parameter	Description
Upper Range Limit psi bar	500 35
Minimum Span psi bar	20 1.4
Turndown Ratio	25 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 HART use Analog Mode specifications. 	In Analog Mode: ±0.15% of calibrated span or upper range value (URV), whichever is greater, terminal based. In Digital Mode: ±0.125% of calibrated span or upper range value (URV), whichever is greater, terminal based.
Zero Temperature Effect per 28°C (50°F)	In Analog Mode: ±0.325% of span. For URV below reference point (50 psi), effect equals: $\pm \left[0.0125 + 0.3125 \left(\frac{50 \text{ psi}}{\text{span psi}} \right) \right] \text{ or } \pm \left[0.0125 + 0.3125 \left(\frac{3.5 \text{ bar}}{\text{span bar}} \right) \right] \text{ in \% of span}$ In Digital Mode: ±0.3125% of span. For URV below reference point (50 psi), effect equals: $\pm 0.3125 \left(\frac{50 \text{ psi}}{\text{span psi}} \right) \text{ or } \pm 0.3125 \left(\frac{3.5 \text{ bar}}{\text{span bar}} \right) \text{ in \% of span}$
Combined Zero and Span Temperature Effect per 28°C (50°F)	In Analog Mode: ±0.6% of span. For URV below reference point (50 psi), effect equals: $\pm \left[0.20 + 0.40 \left(\frac{50 \text{ psi}}{\text{span psi}} \right) \right] \text{ or } \pm \left[0.20 + 0.40 \left(\frac{3.5 \text{ bar}}{\text{span bar}} \right) \right] \text{ in \% of span}$ In Digital Mode: ±0.575% of span. For URV below reference point (50 psi), effect equals: $\pm \left[0.175 + 0.40 \left(\frac{50 \text{ psi}}{\text{span psi}} \right) \right] \text{ or } \pm \left[0.175 + 0.40 \left(\frac{3.5 \text{ bar}}{\text{span bar}} \right) \right] \text{ in \% of span}$
Stability	±0.03% of URL per year

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

Specifications - Performance Under Rated Conditions - All Models

Parameter	Description
Output (two-wire)	Analog 4 to 20 mA or DE digital communications mode. Option available for HART protocol.
Supply Voltage Effect	0.005% 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.
Option Lightning Protection (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 Stainless Steel
Process Head Material	316 Stainless Steel
Head Gaskets (STD904 only)	Glass filled PTFE
Meter Body Bolting (STD904 only)	Carbon Steel (Zinc plated, standard) or A286 SS (NACE) bolts and 304 SS (NACE) nuts for process heads.
Mounting Bracket	Carbon Steel (Zinc-plated) or Stainless Steel angle bracket or Carbon Steel flat bracket available (standard options).
Fill Fluid	Silicone DC 200 oil
Electronic Housing	Epoxy-Polyester hybrid paint. Low Copper-Aluminum. Meets NEMA 4X (watertight) and NEMA 7 (explosionproof). Stainless steel optional.
Process Connections STD904 STG90L	1/4-inch NPT; 1/2-inch NPT with adapter. (Process heads meet DIN19213.) 1/2-inch NPT
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.
Dimensions	See Figures 4 and 5.
Net Weight STD904 STG90L	9 pounds (4.1 Kg) 3.8 pounds (1.7Kg)
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.

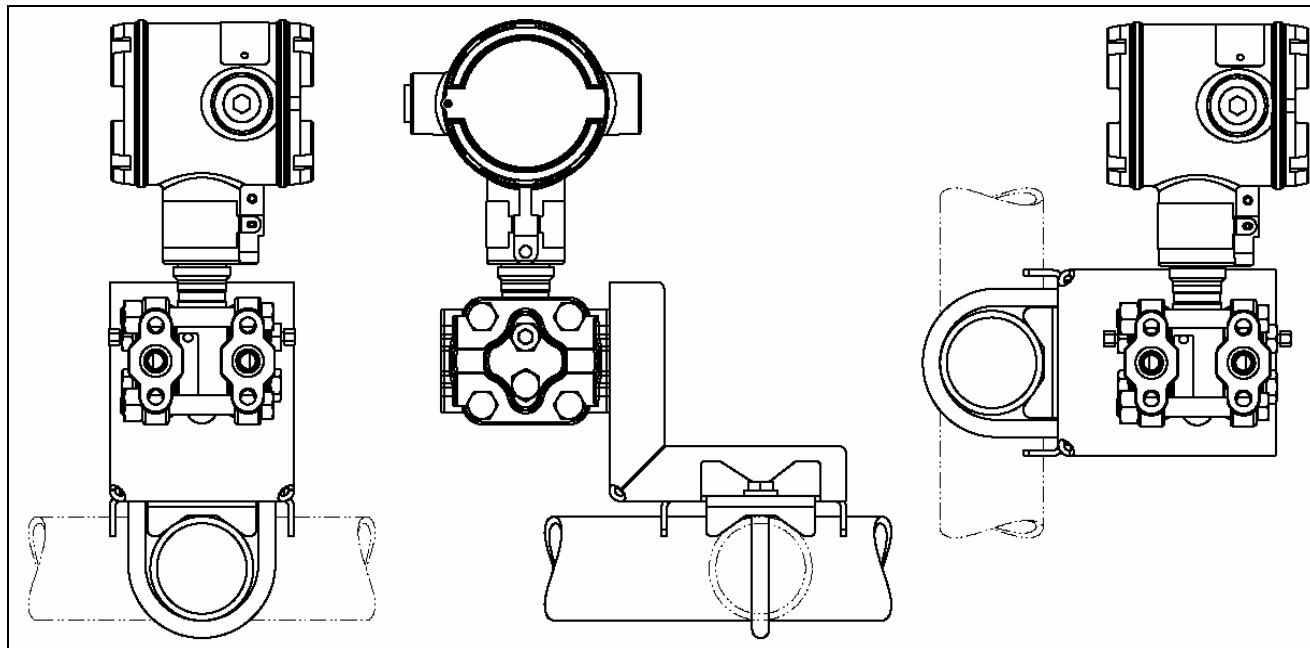


Figure 3 —Examples of typical mounting positions for model STD904.

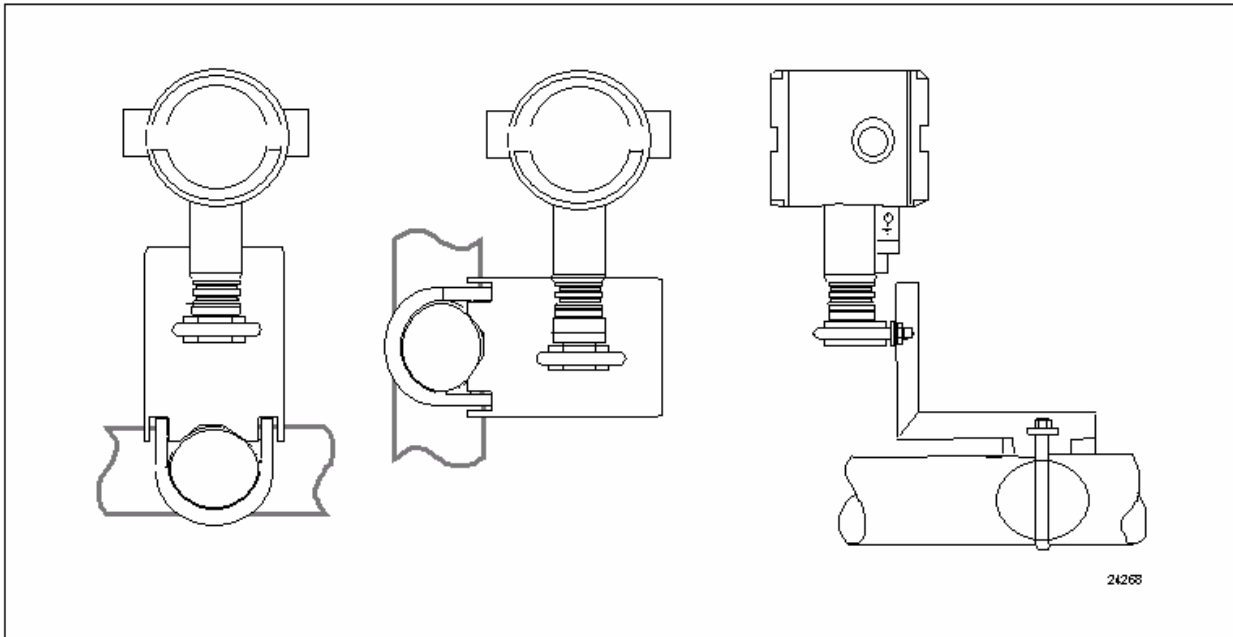


Figure 4—Examples of typical mounting positions for model STG90L. Note that a mounting bracket is not required for in-line models.

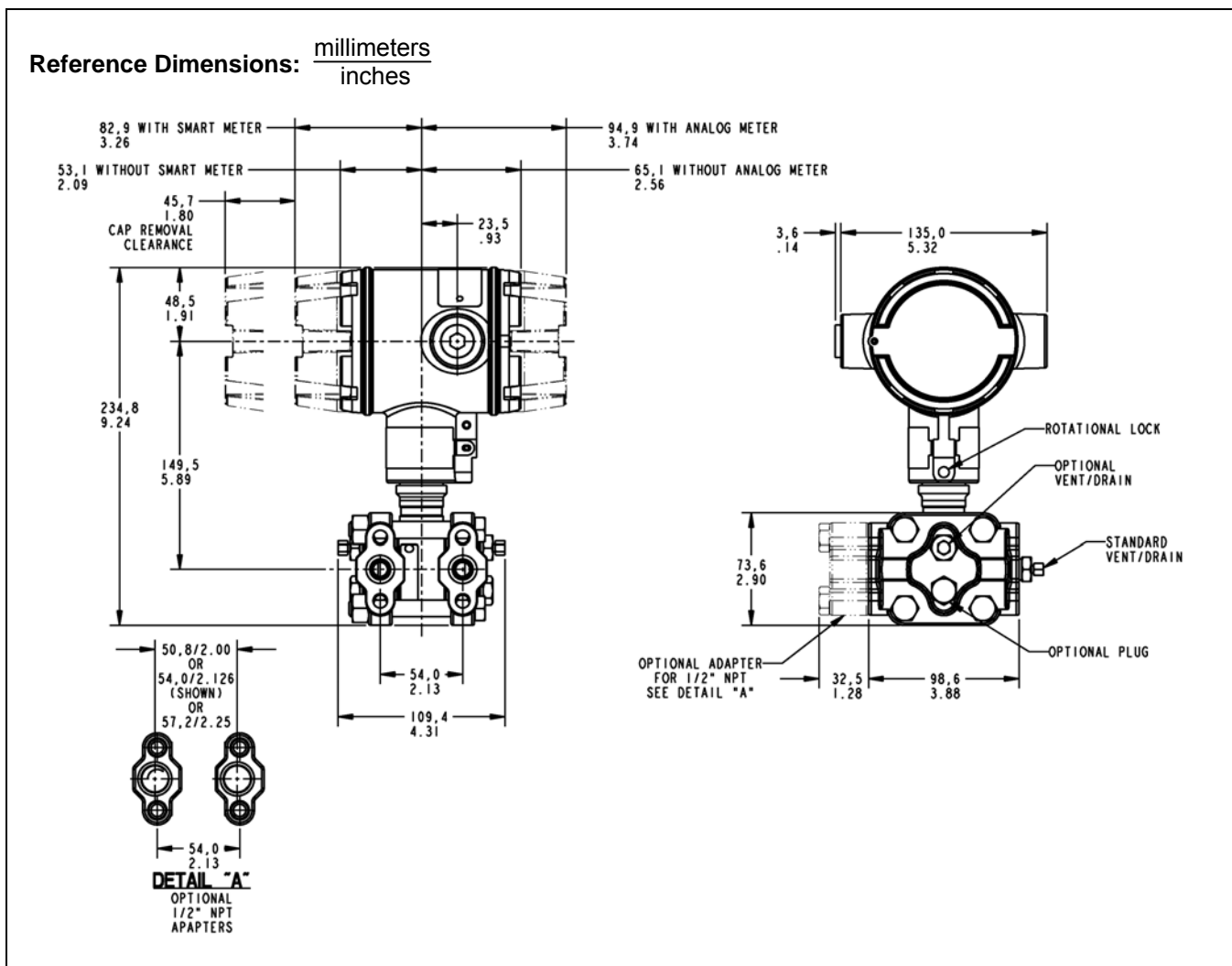


Figure 5—Model STD904 for reference.

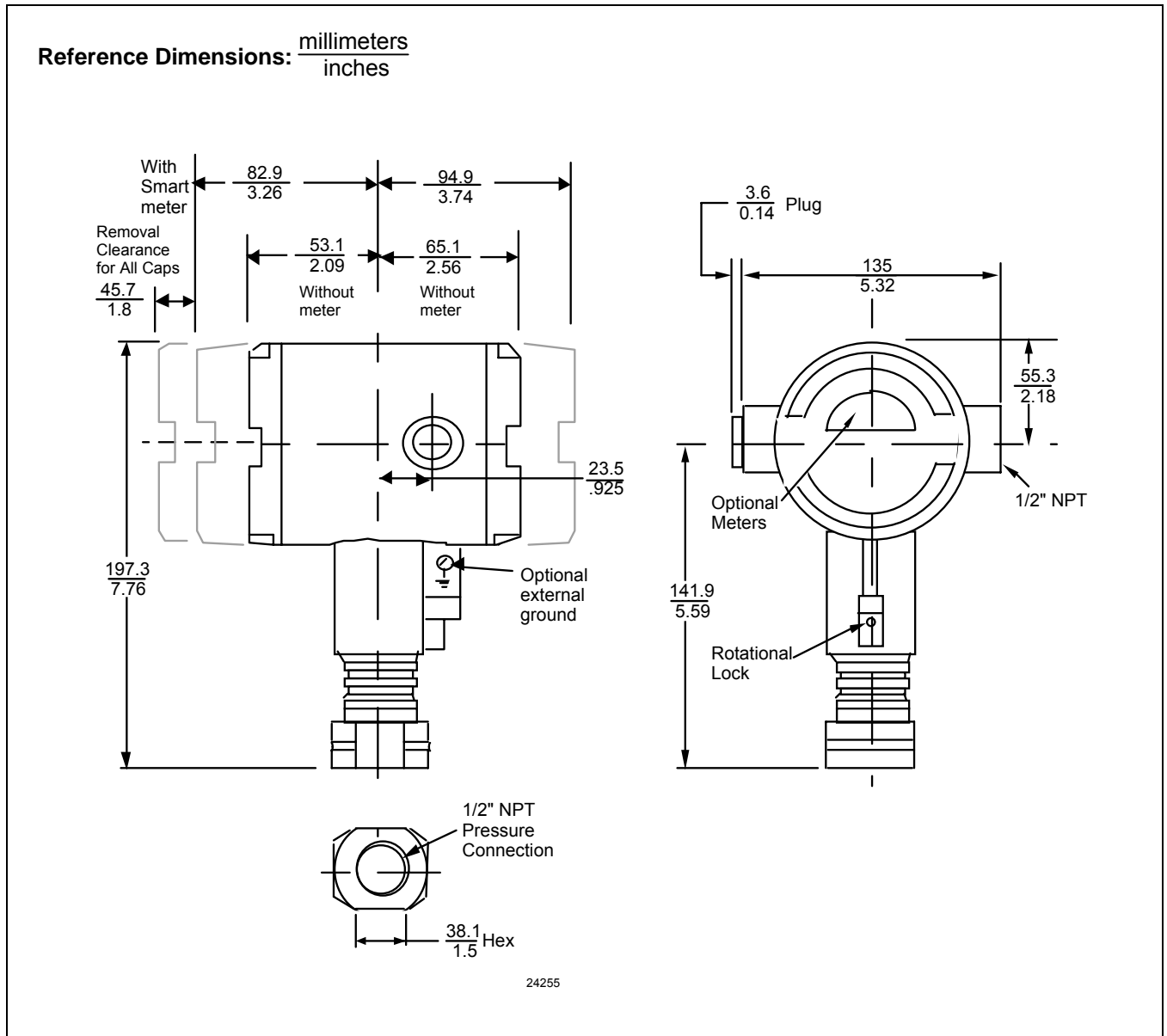


Figure 6 —Typical model STG90L mounting dimensions for reference.

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

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 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 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

In the U.S.:

Honeywell
Industrial Automation & Control
16404 North Black Canyon Hwy.
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-16-56

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 - I - II - 00000 - III (Optional) + IV XXXX

KEY NUMBER	Span	Selection	Availability
Gage Pressure	0-20 to 0-500 psi/0-1.4 to 0-35 bar	STG90L	↓

TABLE I - METER BODY

	Wetted Process Heads	Vent/Drain Valves	Barrier Diaphragms	Selection	
Materials of Const.	316 SS	--	316L SS	E	•
Fill Fluid	Silicone			_ 1 _	•
Process Head Configuration	1/2" NPT (female)			_ _ G	•

TABLE II

No Selection	00000	•
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TABLE III - OPTIONS

None	00	•	
Communication Options			
HART® 5.x Protocol Compatible Electronics	HC	e	} b
HART® 6.x Protocol Compatible Electronics	H6	e	
Indicating Meter Options			
Analog Meter (0-100 Even 0-10 Square Root)	ME	•	} b
Smart Meter	SM	•	
Custom Configuration of Smart Meter	CI	m	
Local Zero and Span	ZS	s	
Transmitter Housing & Electronics Options			
NAMUR Failsafe Software	NE	15	
SIL 2 - TÜV Certified transmitter (requires HC and WP options)	SL	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	•	
1/2" NPT to M20 316 SS Conduit Adapter (BASEEFA EEx d IIC)	A1	n	} b
1/2" NPT to 3/4" NPT 316 SS Conduit Adapter	A2	u	
Stainless Steel Customer Wired-On Tag (4 lines, 28 characters per line, customer supplied information)	TG	•	
Stainless Steel Customer Wired-On Tag (blank)	TB	•	
End Cap Live Circuit Warning Label in Spanish (only with ATEX 3D)	SP	a	} b
End Cap Live Circuit Warning Label in Portuguese (only with ATEX 3D)	PG	a	
End Cap Live Circuit Warning Label in Italian (only with ATEX 3D)	TL	a	
End Cap Live Circuit Warning Label in German (only with ATEX 3D)	GE	a	
Transmitter Mounting Brackets 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-16-56, cont'd

TABLE III - OPTIONS

	Selection	Availability
Services/Certificates/Marine Type Approval Options		
User's Manual Paper Copy (Standard, HC, or FF ships accordingly)	UM	•
Calibration Test Report and Certificate of Conformance (F3399)	F1	•
Certificate of Conformance (F3391)	F3	•
Certificate of Origin (F0195)	F5	•
NACE Certificate (F0198)	F7	•
Marine Type Approvals (DNV, ABS, BV & LR)	MT	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		
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**	Ex II 1 G EEx ia IIC T4, T5, T6	3H	•
	Int. Safe, Zone 0/1, or	Ex II 2 G EEx d IIC T5, T6		
Flameproof, Zone 1, or Non-Sparking, Zone 2	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 [X] adjacent to the type of protection used on the equipment certification nameplate. Once a type of protection has been check

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 or 3H		
b	Select only one option from this group			
e			III	4G
m	III	SM		
n			III	1C, 2J
p	III	HC, WP	III	FF, 00
s			III	ME
u	III	F1D3, C1C3, 1C, 2J		
2			III	FB
15			III	FF

Notes: See ST-29 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.

Model Selection Guide 34-ST-16-55

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 - I - II - III (Optional) + IV
----- - --- - '00000 - -'-'-'-' + XXXX

KEY NUMBER

Span	Selection	Avail.
0-16" to 0-400" H ₂ O/0-62 to 0-1000 mbar Body Rating: 4500 psi (310 bar)	STD904	↓

TABLE I - METER BODY

	Process Wetted Heads	Vent/Drain Valves ** and Plugs	Barrier Diaphragms	Selection	
Materials of Const.	316 SS	316 SS	316L SS	E _ _	•
Fill Fluid	Silicone			_ 1 _	•
Process Head Configuration	1/4" NPT 1/2" NPT with Adapter (on 1/4" NPT Head)			_ _ A _ _ H	• t

TABLE II

No Selection	00000	•
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** Vent/Drains are Teflon coated for lubricity.

Model Selection Guide 34-ST-16-55, cont'd

STD904



TABLE III - OPTIONS

Selection

None	00	•	
Communication Options			
HART 5.x Protocol Compatible Electronics	HC	y] b
HART 6.x Protocol Compatible Electronics	H6	y	
Indicating Meter Options			
Analog Meter (0-100 Even 0-10 Square Root)	ME	w] b
Smart Meter	SM	w	
Custom Configuration of Smart Meter	CI	e	
Local Zero and Span	ZS	m	
Transmitter Housing & Electronics Options			
NAMUR Failsafe Software	NE	15	
SIL 2 - TÜV Certified transmitter (requires HC and WP options)	SL	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	•	
1/2" NPT to M20 316 SS Conduit Adapter (BASEEFA EEx d IIC)	A1	n] b
1/2" NPT to 3/4" NPT 316 SS Conduit Adapter	A2	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	•	
End Cap Live Circuit Warning Label in Spanish (only with ATEX 3D)	SP	a] b
End Cap Live Circuit Warning Label in Portuguese (only with ATEX 3D)	PG	a	
End Cap Live Circuit Warning Label in Italian (only with ATEX 3D)	TL	a	
End Cap Live Circuit Warning Label in German (only with ATEX 3D)	GE	a	
Meter Body Options			
NACE A286 SS Bolts and NACE 304 SS Nuts for Process Heads	CR	•] b
316 SS Bolts and 316 SS Nuts for Process Heads	SS	•	
316 SS Adapter Flange - 1/2" NPT with CS Bolts	S2	c	
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	
Transmitter Mounting Brackets 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
Calibration Test Report and Certificate of Conformance (F3399)	F1	•	
Certificate of Conformance (F3391)	F3	•	
Certificate of Origin (F0195)	F5	•	
NACE Certificate (F0198)	F7	o	
Marine Type Approvals (DNV, ABS, BV & LR)	MT	2	
Warranty Options			
Additional Warranty - 1 year	W1	•] b
Additional Warranty - 2 years	W2	•	
Additional Warranty - 3 years	W3	•	
Additional Warranty - 4 years	W4	•	

Model Selection Guide 34-ST-16-55, cont'd

STD904



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		
CSA	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G	2J	•
	Explosion Proof	Class I, Div. 1, Groups B,C,D		
	Dust Ignition Proof	Class II, III, Div. 1, Groups 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	⊕ II 1 G EEx ia IIC T4, T5, T6	3S	•
	Flameproof, Zone 1	⊕ II 2 G EEx d IIC T5, T6, Enclosure IP 66/67	3D	•
	Non-Sparking, Zone 2	⊕ 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 or 3H		
b	Select only one option from this group			
c	I	H		
e	III	SM		
i	III	1C or 2J		
m			III	ME
n			III	1C, 2J
o	III	CR, S4		
p	III	HC, WP	III	FF, 00
s			III	ME
t	III	Select from Table III S2 or S3		
y			III	4G
2			III	FB
15			III	FF

Note: See ST-83 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.

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