Technical Information

Honeywell

ST 3000 Smart Transmitter Series 900 Extension Specification and Model Selection Guide

34-ST-03-74 August 2011

Introduction

In 1983, Honeywell introduced the first Smart Pressure Transmitter— the ST 3000®. In 1989, Honeywell launched the first all digital, bi-directional protocol for smart field devices. Today, its ST 3000 Series 900 Pressure Transmitters continue to bring proven "smart" technology to a wide spectrum of pressure measurement applications. Honeywell STD904 Differential Pressure and STG90L gauge Pressure 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.

Models		
STD904 Differential	0 to 400 inH_2O	0 to 1,000 mbar
STG90L Gauge	0 to 500 psi	0 to 35 bar

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

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

Figure 1 — On the left Model STD904 Differential and on the right Model STG90L Gauge. All Series 900 Pressure transmitters that feature proven piezoresistive sensor technology

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:

- Stability
- Reliability

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

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

Description

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

The measuring means is a piezoresistive sensor, which actually contains three sensors in one. It contains a differential pressure sensor, a temperature sensor, and a static pressure sensor.

Microprocessor-based electronics provide higher span-turndown ratio, improved temperature and pressure compensation, and improved accuracy.

The transmitter's meter body and electronics housing resist shock, vibration, corrosion, and moisture. The electronics housing contains a compartment for the single-board electronics, which is isolated from an integral junction box. The single-board electronics is replaceable and interchangeable with any other ST 3000 Series 100 or Series 900 model transmitters.

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

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

Features

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

Advanced Diagnostics

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

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

Operating Conditions – All Models

Parameter	Reference Condition (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[1]	-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		4,500		4,500			
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 1,440 ohms (as shown in Figure 2)							
Maximum Allowable Working Pressure (MAWP) (ST 3000 products are rated to Maximum Allowable Working Pressure.)	STD904 = 4,500 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)

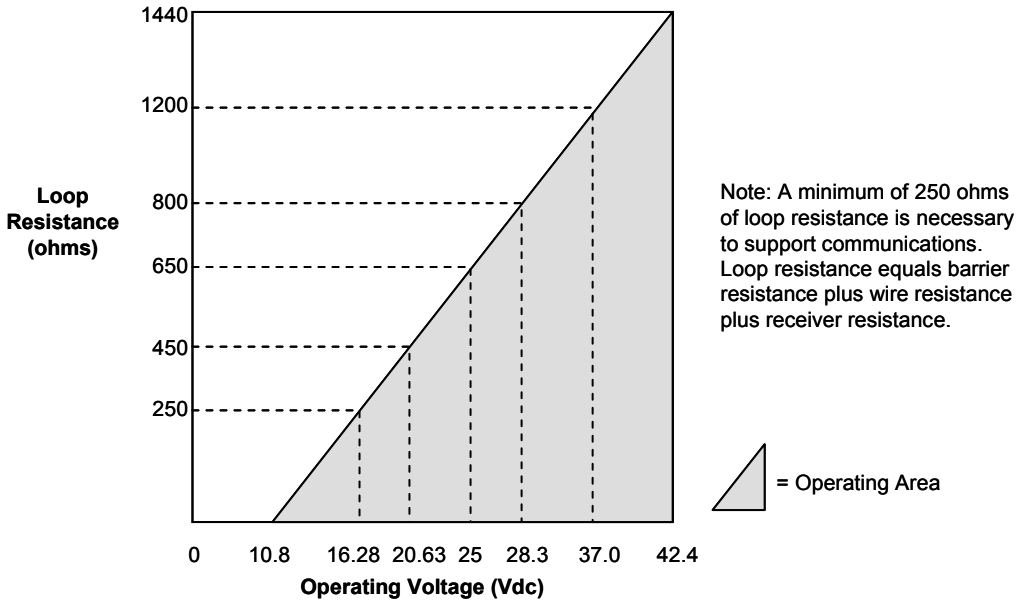

Figure 2 - Supply voltage and loop resistance chart

Performance Under Rated Conditions* - Model STD904

Parameter	Description
Upper Range Limit **inH_2O** **mbar**	400 (39.2°F/4°C is standard reference temperature for inH2O range.) 1,000
Minimum Span **inH_2O** **mbar**	4 Note: Recommended minimum span in square root mode is 20 inH2O (50 mbar). 10
Turndown Ratio	100 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 FOUNDATION™ Fieldbus use Digital Mode specifications.* • *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_2O), accuracy equals: $\pm\left[0.075+0.075\left(\frac{25\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.075+0.075\left(\frac{62\ mbar}{span\ mbar}\right)\right]$ 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_2O), accuracy equals: $\pm\left[0.05+0.075\left(\frac{25\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.05+0.075\left(\frac{62\ mbar}{span\ mbar}\right)\right]$ 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_2O), effect equals: $\pm\left[0.0125+0.3125\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.3125\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.3125% of span. For URV below reference point (50 inH_2O), effect equals: $\pm 0.3125\left(\frac{50\ inH_2O}{span\ inH_2O}\right)$ or $\pm 0.3125\left(\frac{125\ mbar}{span\ mbar}\right)$ 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_2O), effect equals: $\pm\left[0.20+0.40\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.20+0.40\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.575% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.175+0.40\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.175+0.40\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span
Zero Static Pressure Effect per 1000 psi (70 bar)	±0.3% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.0125+0.2875\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.2875\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ 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_2O), effect equals: $\pm\left[0.20+0.40\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.20+0.40\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ 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.

Performance Under Rated Conditions* - Model STG90L

Parameter	Description
Upper Range Limit **psi** **bar**	500 35
Minimum Span **psi** **bar**	5 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) • *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: $\pm\left[0.0125+0.3125\left(\frac{50\ \text{psi}}{\text{span}\ \ \text{psi}}\right)\right]$ or $\pm\left[0.0125+0.3125\left(\frac{3.5\ \text{bar}}{\text{span}\ \ \text{bar}}\right)\right]$ in % of span **In Digital Mode:** ±0.3125% of span. For URV below reference point (50 psi), effect equals: $\pm 0.3125\left(\frac{50\ \text{psi}}{\text{span}\ \ \text{psi}}\right)$ or $\pm 0.3125\left(\frac{3.5\ \text{bar}}{\text{span}\ \ \text{bar}}\right)$ 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: $\pm\left[0.20+0.40\left(\frac{50\ \text{psi}}{\text{span}\ \ \text{psi}}\right)\right]$ or $\pm\left[0.20+0.40\left(\frac{3.5\ \text{bar}}{\text{span}\ \ \text{bar}}\right)\right]$ in % of span **In Digital Mode:** ±0.575% of span. For URV below reference point (50 psi), effect equals: $\pm\left[0.1750+0.40\left(\frac{50\ \text{psi}}{\text{span}\ \ \text{psi}}\right)\right]$ or $\pm\left[0.175+0.40\left(\frac{3.5\ \text{bar}}{\text{span}\ \ \text{bar}}\right)\right]$ in % of span
Stability	±0.03% of URL per year

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

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 "NE")	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: (rise/decay) 10/20 µ sec. 5,000 Amps (50 strikes) 10,000 Amps (20 strikes) 10/1,000 µ sec. 250 Amps (1,000 strikes) 500 Amps (400 strikes)

Physical and Approval Bodies

Parameter	Description
Barrier Diaphragms Material	316L Stainless Steel
Process Head Material	316L 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).
Vent/Drain Valves & Plugs [1]	316 SS[4], Hastelloy® C-276[2], Monel® 400[8] (Model STD904 only)
Fill Fluid	Silicone DC® 200 oil
Electronic Housing	Epoxy-Polyester hybrid paint. Low Copper-Aluminum. Meets NEMA 4X (watertight) and NEMA 7 (explosion proof). Stainless steel optional.
Process Connections STD904	¼-inch NPT; ½-inch NPT with adapter. (Process heads meet DIN19213.)
Process Connections STG90L	½-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.
Process Connections	¼-inch NPT; ½-inch NPT with adapter (standard option, meets DIN requirements)
Dimensions	See Figures 4 and 5
Net Weight STD904	9 pounds (4.1 Kg)
Net Weight STG90L	3.8 pounds (1.7Kg)
Net Weight	9.0 pounds (4.1 Kg).

[2] Hastelloy® C-276 or UNS N10276
[4] Supplied as 316 SS or as Grade CF8M, the casting equivalent of 316 SS.
[8] Monel 400® or UNS N04400 or UNS N04405

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

Certifications

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

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

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

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

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

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

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

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

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

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

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

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

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

European Pressure Equipment Directive (PED) (97/23/EC)	The ST 3000 Smart Pressure Transmitters are in conformity with the essential requirements of the Pressure Equipment Directive. Honeywell ST 3000 Smart Pressure Transmitters are designed and manufactured in accordance with the applicable portions of Annex I, Essential Safety Requirements, and sound engineering practices. These transmitters have no pressurized internal volume, or have a pressurized internal volume rated less than 200 bar (2,900 psig), and/or have a maximum volume of less than 0.1 liter (Article 3, 1.1.(a) first indent, Group 1 fluids). Therefore, these transmitters are not subject to the essential requirements of the directive 97/23/EC (PED, Annex I) and shall not have the CE mark applied. For transmitters rated > 200 bar (2,900 psig) < 1,000 bar (14,500 psig) Honeywell maintains a technical file in accordance with Annex III, Module A, (internal production control) when the CE mark is required. Transmitter Attachments: Diaphragm Seals, Process Flanges and Manifolds comply with Sound Engineering Practice.
	NOTE: Pressure transmitters that are part of safety equipment for the protection of piping (systems) or vessel(s) from exceeding allowable pressure limits, (equipment with safety functions in accordance with Pressure Equipment Directive 97/23/EC article 1, 2.1.3), require separate examination. A formal statement from TÜV Industry Service Group of TÜV America, Inc., a division of TÜV Süddeutschland, a Notified Body regarding the Pressure Equipment Directive, can be found at www.honeywell.com. A hard copy may be obtained by contacting a Honeywell representative.
CE Mark	***Electro Magnetic Compatibility (EMC) (2004/108/EC)*** All Models: EN 50081-1: 1992; EN 50082-2:1995; EN 61326-1:1997 + A1, A2, and A3 – Industrial Locations
Dual Seal Certification	Dual Seal Certification based on ANSI/NFPA 70-202 and ANSI/ISA 12.27.01 requirements without the use of additional seal protection elements.
Recommended Frequency of Calibration	Honeywell recommends verifying the calibration of these devices once every four years.
Approved Manufacturing Locations	Honeywell Process Solutions - York, PA USA Honeywell (Tianjin) Limited – Tianjin, P.R. China Honeywell Automation India Ltd. – Pune 411013 India

Mounting

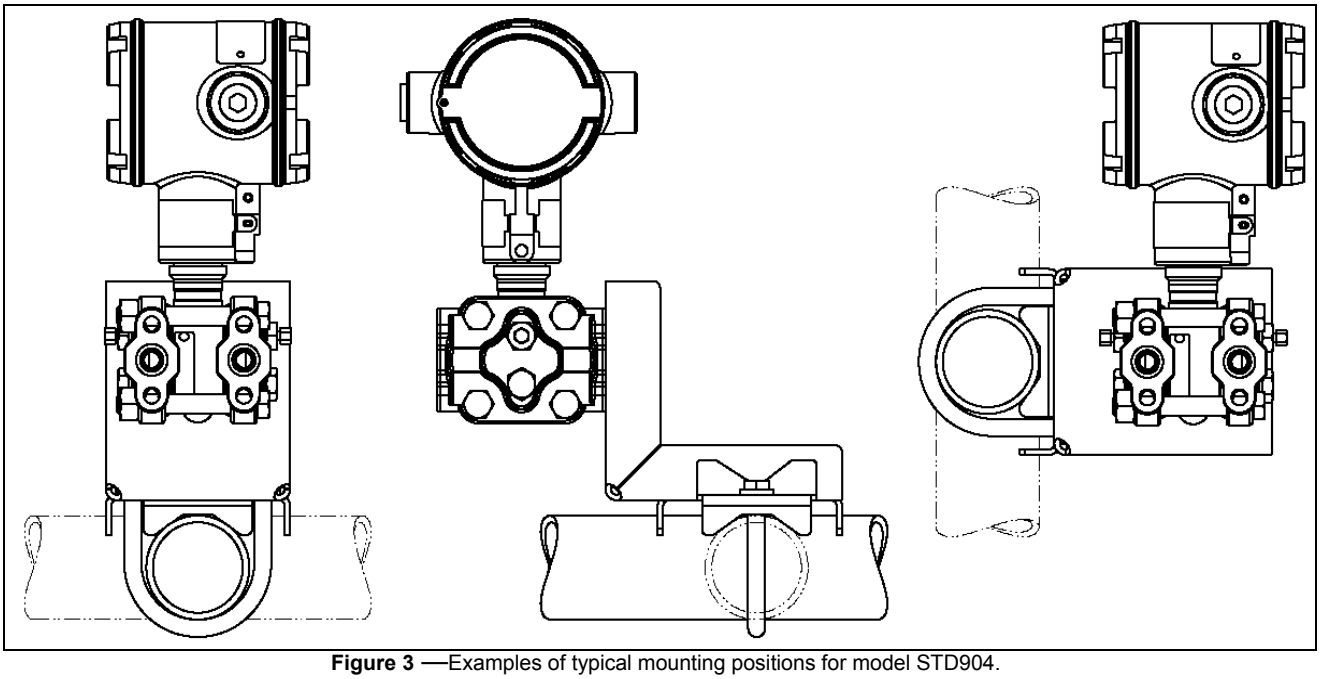

Figure 3 —Examples of typical mounting positions for model STD904.

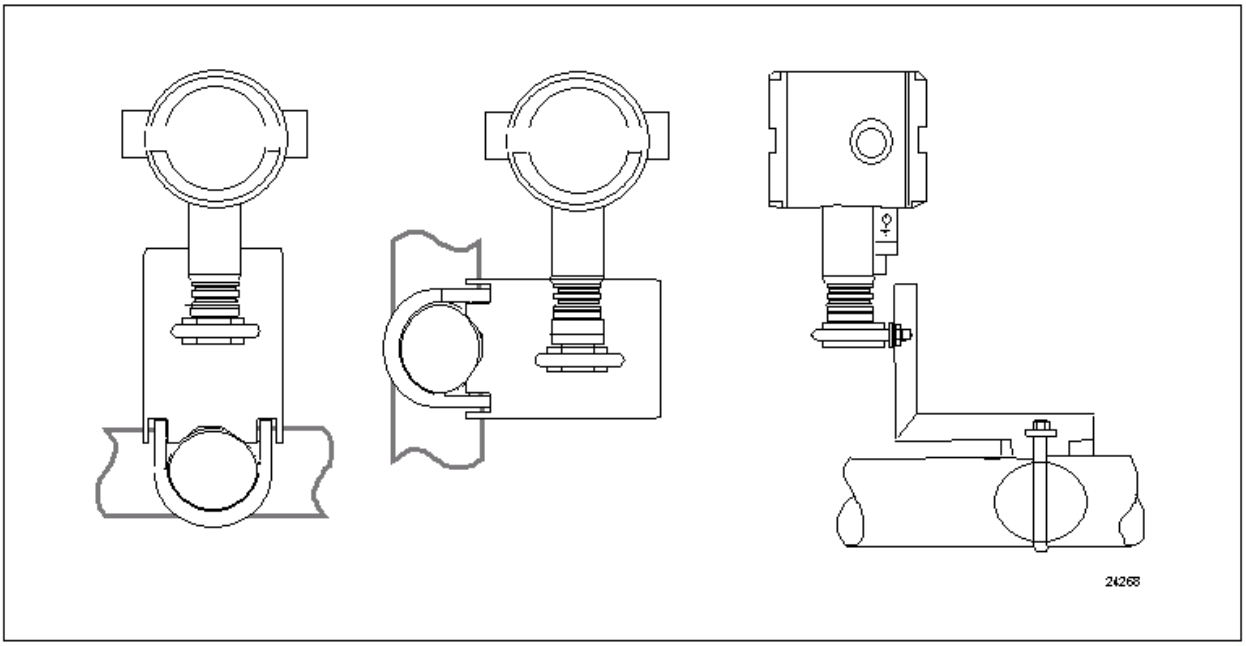

Figure 4 —Examples of typical mounting positions for model STG90L. Note that a mounting bracket is not required for in-line models.

Reference Dimensions: millimeters / inches

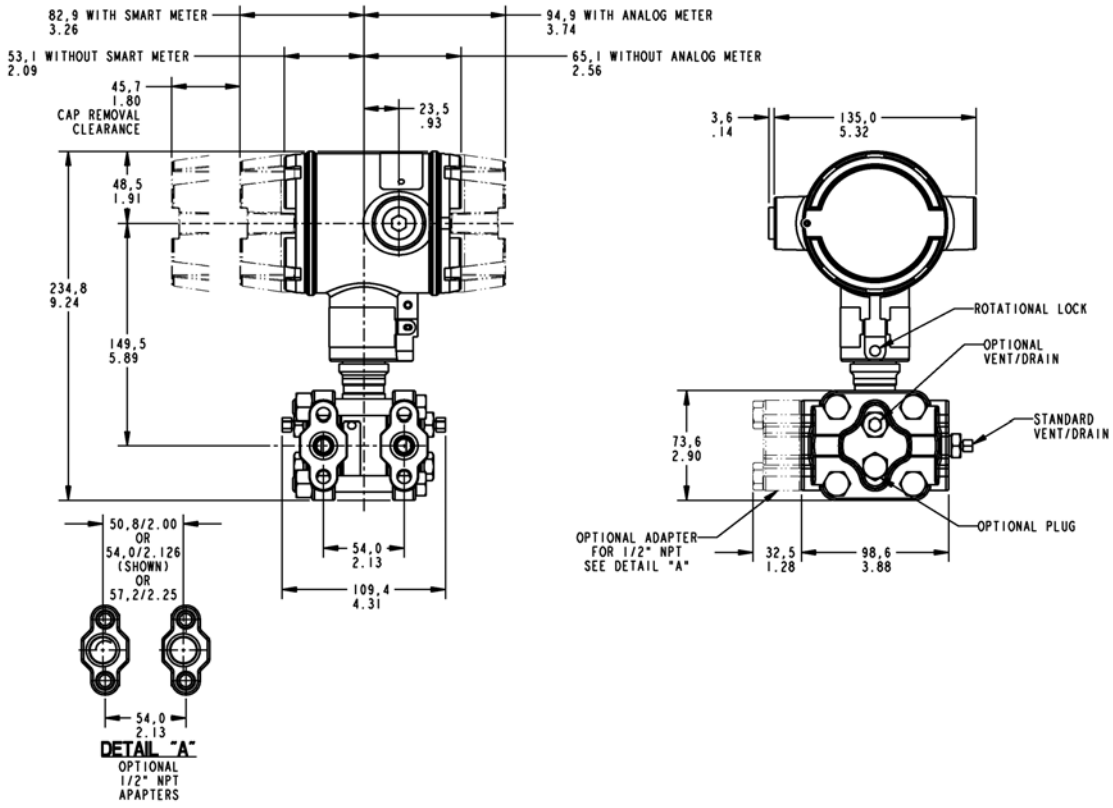

Figure 5 —Model STD904 for reference.

Reference Dimensions: millimeters / inches

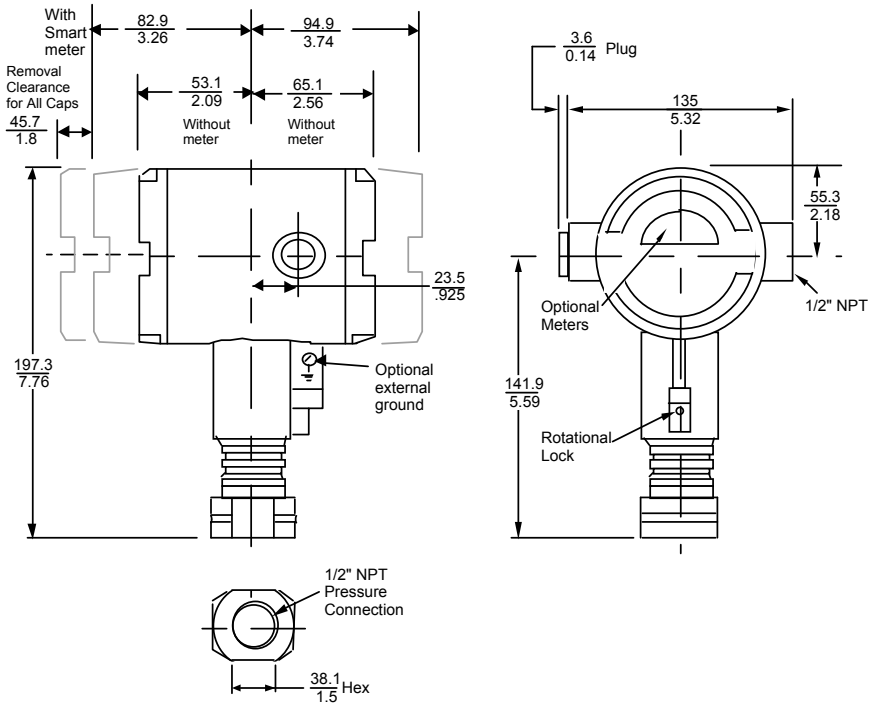

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Figure 6 —Typical model STG90L mounting dimensions for reference

Options

- **Mounting Bracket (Options MB, MX, SB, SX and FB)**
  The 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. An option also exists for Marine approved mounting brackets used with Marine certification options.
- **Indicating Meter (Options ME and SM)**
  Two integral meter options are available. An analog meter (option ME) is available with a 0 to 100% linear scale. The Smart Meter (option SM) provides an LCD display for both analog and digital output and can be configured to display pressure in pre-selected engineering units.
- **Lightning Protection (Option LP)**
  A terminal block is available with circuitry that protects the transmitter from transient surges induced by nearby lightning strikes.
- **HART® Protocol Compatibility (Options HC and H6)**
  Optional electronics modules for the ST 3000 provide HART Protocol compatibility in either HART 5.x or 6.x formats. Transmitters with a HART Option are compatible with any HART enabled system that provides 5.x or 6.x format support.
- **Foundation™ Fieldbus (Option FF)**
  Equips transmitter with FF protocol for use in 31.25 kbit/s FF networks. See document 34-ST-03-72 for additional information on ST 3000 Fieldbus transmitters.
- **SIL2/SIL3 Certification (Option SL)**
  This ST 3000 product is available for use with safety systems. With the SL option, we are fully certified to SIL 2 capability for single transmitters and SIL 3 capability for multiple transmitter use through TÜV Nord Sys Tec GmbH & Co. KG. We are in compliance with the following SIL standards:

  IEC 61508-1: 1998

  IEC 61508-2: 2000

  IEC 61508-3: 1998

- **NAMUR NE43 Compliance (Option NE**)
  This option provides software the meets the NAMUR NE43 requirements for failsafe software. Transmitter failure information is generated when the measuring information is no longer valid.

  Transmitter failure values are: ≤ 3.6 mA and ≥ 21.0 mA.

  The normal ST 3000 ranges are ≤ 3.8 mA and ≥ 20.5 mA.
- **Indicator Configuration (Option CI)**
  Provides custom configuration of Smart Meters.
- **Tagging (Option TG)**
  Up to 30 characters can be added on the stainless steel nameplate mounted on the transmitter's electronics housing at no extra cost. Note that a separate nameplate on the meter body contains the serial number and body-related data. A stainless steel wired on tag with additional data of up to 4 lines of 28 characters is also available. The number of characters for tagging includes spaces.
- **Transmitter Configuration (Option TC)**
  The factory can configure the transmitter linear/square root extraction, damping time, LRV, URV and mode (analog/digital) and enter an ID tag of up to eight characters and scratchpad information as specified.
- **Custom Calibration and ID in Memory (Option CC)**
  The factory can calibrate any range within the scope of the transmitter's range and enter an ID tag of up to eight characters in the transmitter's memory.

Model Selection Guides are subject to change and are inserted into the specifications as guidance only.
Prior to specifying or ordering a model check for the latest revision Model Selection Guides which are published at:
http://hpsweb.honeywell.com/Cultures/en-US/Products/Instrumentation/ProductModelSelectionGuides/default.htm

Model Selection Guide (34-ST-16-56)

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ST 3000 Smart Transmitter In-Line Gage Pressure (LGP) Series 900

Model Selection Guide

Instructions

- Select the desired Key Number. The arrow to the right marks the selection available.
- Make one selection from each table, I 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
STG90L	-	_ _ _	-	00000	+	_ _, _ _, _ _	+	XXXX

KEY NUMBER

	Span	Selection	Avail.
Gage Pressure	0-20 to 0-500 psi/0-1.4 to 0-35 bar	STG90L	↓

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

TABLE I - METER BODY

	Wetted Process Heads	Vent/Drain Valves	Barrier Diaphragms	Selection	
Materials of Const.	316 SS	--	316L SS	E _ _	●
Fill Fluid	DC® 200 Silicone			_ 1 _	●
Process Head Configuration	1/2" NPT (female)			_ _ G	●

TABLE II

No Selection	00000	●

TABLE III - OPTIONS

Communication Options *(Must choose a communications option)*			
Analog only (can be configured using appropriate Honeywell DE tool)	AN	●	b
DE Protocol communications	DE	●	
HART® 5.x Protocol Compatible Electronics	HC	●	
HART® 6.x Protocol Compatible Electronics	H6	●	
FOUNDATION™ Fieldbus Communications	FF	r	
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	
User's Manual Paper Copy (Standard, HC/H6, or FF ships accordingly)	SL	p	
Lightning Protection	LP	●	
Custom Calibration and I.D. in Memory	CC	●	
Transmitter Configuration - (non-Fieldbus)	TC	15	b
Transmitter Configuration - (Fieldbus)	FC	21	
Write Protection (Delivered in the "enabled" position)	WP	●	b
Write Protection (Delivered in the "disabled" position)	WX	●	

Table III continued next page

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TABLE III - OPTIONS (cont'd)	Selection	Avail. STG90L ↓	
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	•	
Stainless Steel Customer Wired-On Tag (4 lines, 28 characters per line, customer supplied information)	TG	•	b
Stainless Steel Customer Wired-On Tag (blank)	TB	•	
End Cap Live Circuit Warning Label in Spanish (only with ATEX 3D)	SP	a	
End Cap Live Circuit Warning Label in Portuguese (only with ATEX 3D)	PG	a	b
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 Bracket Options			
Angle Mounting Bracket - Carbon Steel	MB	•	
Marine Approved Angle Mounting Bracket - Carbon Steel	MX	•	
Angle Mounting Bracket - 304 SS	SB	•	b
Marine Approved Angle Mounting Bracket - 304 SS	SX	•	
Flat Mounting Bracket - Carbon Steel	FB	•	
Services/Certificates/Marine Type Approval Options			
User's Manual Paper Copy (Standard, HC/H6, or FF ships accordingly)	UM	•	
Calibration Test Report and Certificate of Conformance (F3399)	F1	•	
Certificate of Conformance (F3391)	F3	•	
Certificate of Origin (F0195)	F5	•	b
FMEDA Certificate (SIL 1) (FC33321)	F6	•	
SIL Certificate (SIL 2/3) (FC33337)	FE	22	b
NACE Certificate (Process-Wetted & Non-Process Wetted) (FC33339)	F7	•	
NACE Certificate (Process-Wetted only) (FC33338)	FG	•	b
Material Traceability Certification per EN 10204 3.1 (FC33341)	FX	•	
Marine Type Approvals (DNV, ABS, BV, KR & LR) (FC33340)	MT	2	
Warranty Options			
Additional Warranty - 1 year	W1	•	
Additional Warranty - 2 years	W2	•	b
Additional Warranty - 3 years	W3	•	
Additional Warranty - 4 years	W4	•	

Approval Body	Approval Type	Location or Classification	Selection		
No hazardous location approvals			9X	•	
FM Approvals[SM]	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			
Canadian Standards Association (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			
IECEx	Flameproof, Zone 1	**Ex d IIC**; T5 (Ta = -40 to +93ºC), T6 (Ta = -40 to +78ºC)	CA	•	
	Intrinsically Safe, Zone 0/1	**Ex ia IIC**; T3, T4, T5 , T6 (See IECEx certificate for detailed temperature codes by Communications option)			
SAEx (South Africa)	Intrinsically Safe, Zone 0/1	**Ex ia IIC** T4, T5, T6	Z2	•	
	Flameproof, Zone 1	**Ex d IIC** T5, T6 Enclosure IP 66/67	ZD	•	b
	Multiple Marking [11] Int. Safe, Zone 0/1, or Flameproof, Zone 1	**Ex ia IIC** T4, T5, T6 **Ex d IIC** T5, T6 Enclosure IP 66/67	ZA	•	

Approvals Table continued on next page

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TABLE III - Approvals Options (continued)

Approval Body	Approval Type	Location or Classification	Selection	STG90L ↓
ATEX [10] (LCIE)	Intrinsically Safe, Zone 0	⟨Ex⟩ II 1 G — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C) Enclosure IP 66/67	3S	**23**
	Intrinsically Safe, Zone 1	⟨Ex⟩ II 2 G — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C) Enclosure IP 66/67		•
	Dust-Ignitionproof, Zone 0	⟨Ex⟩ II 1 D — **Ex tD A20 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) Enclosure IP 66/67	33	•
	Flameproof, Zone 1	⟨Ex⟩ II 2 GD — **Ex d IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C) Supply 11- 42Vdc **Ex tD A21 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) Enclosure IP 66/67		•
	Non-Sparking, Zone 2	⟨Ex⟩ II 3 G — **Ex nA, IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C); Zone 2 Supply < 42Vdc, 23mA (Honeywell). Enclosure IP 66/67	3N	•
	Multiple Marking [11] Int. Safe, Zone 0/1, or Flameproof, Zone 1, or Non-Sparking, Zone 2	⟨Ex⟩ II 1 GD — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C); Ui = 30V; Ii = 100mA **Ex tD A20 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C)	3C	•
		⟨Ex⟩ II 2 GD — **Ex d IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C) Supply 11- 42Vdc **Ex tD A21 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C)		
		⟨Ex⟩ II 3 GD — **Ex nA, IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C); Zone 2 Supply < 42Vdc, 23mA **Ex tD A22 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) (Honeywell) Enclosure IP 66/67		
CERTUSP INMETRO (Brazil)	Flameproof, Zone 1	BR- Ex d IIC T5, T6	6D	•
	Intrinsically Safe, Zone 0/1	BR- Ex ia IIC; T4, T5, T6 (See CERTUSP certificate for detailed temperature codes by Communications option)	6S	•

b

[10] See ATEX installation requirements in the ST 3000 User's Manual

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

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TABLE IV		**STG90L** ↓
Factory Identification	XXXX	•

RESTRICTIONS

Restriction Letter	Available Only With		Not Available With	
	Table	**Selection**	**Table**	**Selection**
a	III	33 or 3C		
b	Select only one option from this group			
m	III	SM		
n			III	1C, 2J
p	III	HC or H6 and WP	III	FF, 00
r			III	TC, ME, CA
s			III	ME
2	III	MX, SX	III	FB, MB, SB
15			III	FF
21	III	FF		
22	III	SL		
23	III	SH or 43		

Ordering Example: STG90L-E1G-00000-HC,1C+XXXX

Model Selection Guides are subject to change and are inserted into the specifications as guidance only.
Prior to specifying or ordering a model check for the latest revision Model Selection Guides which are published at:
http://hpsweb.honeywell.com/Cultures/en-US/Products/Instrumentation/ProductModelSelectionGuides/default.htm

Model Selection Guide (34-ST-16-55)

Honeywell

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ST 3000 Smart Transmitter Differential Pressure (DP) Series 900

Model Selection Guide

Instructions

- Select the desired Key Number. The arrow to the right marks the selection available.
- Make selections from each Table (I, II and IV), using the column below the proper arrow.
- Select as many Table III options as desired plus a communications option selection.
- A (●) denotes unrestricted availability. A letter denotes restricted availability.
- Restrictions follow Table IV.

Key Number		I		II		III (Optional)		IV
STD904	-	_ _ _	-	0 0 0 0 0	-	_ _, _ _, _ _	+	X X X X

KEY NUMBER

Span	Selection	Avail.
0-4" to 0-400" H_2O / 0-10 to 0-1,000 mbar Body Rating: 4,500 psi (310 bar)	STD904	↓

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

TABLE I - METER BODY

	Process Wetted Heads	Vent/Drain Valves [1] and Plugs	Barrier Diaphragms	Selection	
Materials of Const.	316 SS	316 SS	316L SS	E _ _	●
Fill Fluid	DC®200 Silicone			_ 1 _	●
Process Head Configuration	1/4 NPT			_ _ A	●
	1/2 NPT with Adapter (on 1/4 NPT Head)			_ _ H	t

TABLE II		
No Selection	**0 0 0 0 0**	●

[1] Vent/Drains are sealed with Teflon® or PTFE.

Ordering Example: STD904-E1A-00000-HC,1C+XXXX

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TABLE III - OPTIONS	Selection	STD904	
Communication Options *(Must choose a communications option)*			
Analog only *(can be configured using appropriate Honeywell DE tool)*	AN	●	
DE Protocol communications	DE	●	
HART® 5.x Protocol Compatible Electronics	HC	●	b
HART® 6.x Protocol Compatible Electronics	H6	●	
FOUNDATION™ Fieldbus Communications	FF	r	
Indicating Meter Options			
Analog Meter *(0-100 Even 0-10 Square Root)*	ME	●	
Smart Meter	SM	●	b
Custom Configuration of Smart Meter	CI	e	
Local Zero and Span	ZS	m	
Transmitter Housing & Electronics Options			
*No housing conduit plugs or adaptors come standard with the ST 3000. For certain approval codes, you **must** select a certified conduit plug from below and it will come packaged in the box with your transmitter.*			
1/2 NPT Male to M20 Female 316 SS Certified Conduit Adapter *(ATEX, CSA & IECEx)*	A1	●	
1/2 NPT Male to 3/4 NPT Female 316 SS Certified Conduit Adapter *(ATEX, CSA & IECEx)*	A2	●	
M20 Male to 1/2 NPT Female 316 SS Certified Conduit Adaptor *(ATEX, CSA & IECEx)*	A4	●	
1/2 NPT Zinc-plated Certified Conduit Plug *(ATEX, CSA & IECEx)*	A5	●	
1/2 NPT 316 SS Certified Conduit Plug *(ATEX, CSA & IECEx)*	A6	●	
M20 316 SS Certified Conduit Plug *(ATEX, CSA & IECEx)*	A7	●	
1/2 NPT Non-certified Conduit plug *(Zinc-plated carbon steel, general use)*	A8	●	
NAMUR Failsafe Software	NE	15	
SIL 2 - TÜV Certified transmitter *(requires HC or H6 and WP options)*	SL	P	
Lightning Protection	LP	●	
Custom Calibration and I.D. in Memory	CC	●	
Transmitter Configuration - (non-Fieldbus)	TC	15	
Transmitter Configuration - *(Fieldbus)*	FC	21	b
Write Protection *(Delivered in the "enabled" position)*	WP	●	
Write Protection *(Delivered in the "disabled" position)*	WX	●	b
Stainless Steel Customer Wired-On Tag *(4 lines, 26 characters per line, customer supplied information)*	TG	●	
Stainless Steel Customer Wired-On Tag *(blank)*	TB	●	
Meter Body Options			
NACE A286 SS Bolts and NACE 304 SS Nuts for Process Heads	CR	●	
316 SS [2] Bolts and 316 SS Nuts for Process Heads	SS	●	b
316 SS [2] Adapter Flange - 1/2 NPT with CS Bolts	S2	c	
316 SS [2] Adapter Flange - 1/2 NPT with 316 SS Bolts	S3	c	b
316 SS [2] Adapter Flange - 1/2 NPT with NACE A286 SS Bolts	S4	c	
Transmitter Mounting Bracket Options			
Angle Mounting Bracket - Carbon Steel	MB	●	
Marine Approved Angle Mounting Bracket - Carbon Steel	MX	●	
Angle Mounting Bracket - 304 SS	SB	●	b
Marine Approved AngleMounting Bracket - 304 SS	SX	●	
Flat Mounting Bracket - Carbon Steel	FB	●	
Services/Certificates/Marine Type Approval Options			
User's Manual Paper Copy *(Standard, HC/H6, or FF ships accordingly)*	UM	●	
Calibration Test Report and Certificate of Conformance (F3399)	F1	●	
Certificate of Conformance (F3391)	F3	●	b
Certificate of Origin (F0195)	F5	●	
SIL Certificate *(SIL 2/3)* (FC33337)	FE	22	
NACE Certificate *(Process-Wetted & Non-Process Wetted)* (FC33339)	F7	o	
NACE Certificate *(Process-Wetted only)* (FC33338)	FG	o	b
Material Traceability Certification per EN 10204 3.1 (FC33341)	FX	●	
Marine Type Approvals *(DNV, ABS, BV, KR & LR)* (FC33340)	MT	2	
Warranty Options			
Additional Warranty - 1 year	W1	●	
Additional Warranty - 2 years	W2	●	b
Additional Warranty - 3 years	W3	●	
Additional Warranty - 4 years	W4	●	

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

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TABLE III - OPTIONS (continued)

Approval Body	Approval Type	Location or Classification	Selection	Availability STD904
No hazardous location approvals			9X	•
ATEX[10] (LCIE)	Intrinsically Safe, Zone 0	⟨Ex⟩ II 1 G — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C) Enclosure IP 66/67	3S	•
	Intrinsically Safe, Zone 1	⟨Ex⟩ II 2 G — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C) Enclosure IP 66/67		
	Dust-tight Enclosure, Zone 0	⟨Ex⟩ II 1 D — **Ex tD A20 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) Enclosure IP 66/67	33	**24**
	Flameproof and Dust-tight Enclosure, Zone 1	⟨Ex⟩ II 2 GD — **Ex d IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C) Supply 11- 42Vdc **Ex tD A21 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) Enclosure IP 66/67		
	Non-Sparking, Zone 2	⟨Ex⟩ II 3 G — **Ex nA, IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C); Zone 2 Supply < 42Vdc, 23mA **Ex tD A22 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) (Honeywell). Enclosure IP 66/67	3N	•
	Multiple Marking [11] Int. Safe, Zone 0/1 and Dust-tight Enclosure, or Flameproof, Zone 1 and Dust-tight Enclosure, or Non-Sparking, Zone 2	⟨Ex⟩ II 1 GD — **Ex ia IIC** T4 (Ta = –50°C to +93°C); T5 (Ta = –50°C to +85°C); T6 (Ta = –50°C to +70°C); Ui = 30V; Ii = 100mA **Ex tD A20 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C)	3C	**24**
		⟨Ex⟩ II 2 GD — **Ex d IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C) Supply 11- 42Vdc **Ex tD A21 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C)		
		⟨Ex⟩ II 3 GD — **Ex nA, IIC** T5 (Ta = –40°C to +93°C), T6 (Ta = –40°C to +78°C); Zone 2 Supply < 42Vdc, 23mA **Ex tD A22 IP6X** T95°C (at Ta = 93°C) or T80°C (at Ta = 78°C) (Honeywell) Enclosure IP 66/67		

b

Approvals continued on next page

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TABLE III - Approvals Options (continued)

Approval Body	Approval Type	Location or Classification	Selection	STD904 ↓
FM Approvals[SM]	Explosion Proof	Class I, Div. 1, Groups A,B,C,D	1C	•
	Dust-Ignitionproof	Class II, III Div. 1, Groups E,F,G		
	Non-Incendive	Class I, Div. 2, Groups A,B,C,D		
	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G		
Canadian Standards Association (CSA)	Explosion Proof	Class I, Div. 1, Groups B,C,D	2J	**24**
	Dust-Ignitionproof	Class II, III, Div. 1, Groups E,F,G		
	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G		
IECEx	Flameproof, Zone 1	**Ex d IIC**; T5 (Ta = -40 to +93ºC), T6 (Ta = -40 to +78ºC)	CA	**24**
	Intrinsically Safe, Zone 0/1	**Ex ia IIC**; T3, T4, T5 , T6 (See IECEx certificate for detailed temperature codes by Communications option)		
SAEx (South Africa)	Intrinsically Safe, Zone 0/1	**Ex ia IIC** T4, T5, T6	Z2	•
	Flameproof, Zone 1	**Ex d IIC** T5, T6 Enclosure IP 66/67	ZD	•
	Multiple Marking [11] Intr. Safe, Zone 0/1, or Flameproof, Zone 1	**Ex ia IIC** T4, T5, T6 **Ex d IIC** T5, T6 Enclosure IP 66/67	ZA	•
CERTUSP INMETRO (Brazil)	Flameproof, Zone 1	**BR- Ex d IIC**; T5, T6	6D	•
	Intrinsically Safe, Zone 0/1	**BR- Ex ia IIC**; T4, T5, T6 (See CERTUSP certificate for detailed temperature codes by Communications option)	6S	•

b

[10] See ATEX installation requirements in the ST 3000 User's Manual

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

TABLE IV

Factory Identification	**X X X X**	•

RESTRICTIONS

Restriction Letter	Available Only With		Not Available With	
	Table	Selection	Table	Selection
b	Select only one option from this group			
c	I	_ _ H		
e	III	SM		
m			III	ME
o	III	CR, S4		
p	III	HC or H6 and WP	III	FF
r	III	FISCO/FNICO compliance available only with 1C	III	TC, ME or FISCO/FNICO compliance not available with 3C, 3N, 33, 3S, 2J, CA, Z2, ZD, ZA, 6D & 6S
t	III	Select from Table III S2 or S3		
2	III	MX, SX	III	FB, MB, SB
15			III	FF
21	III	FF		
22	III	SL		
24	III	This approval code requires the selection of a certified conduit plug: A5, A6 or A7		

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Specifications are subject to change without notice.

For More Information

Learn more about how Honeywell's ST 3000 Series 900 Pressure Transmitters can increase performance, reduce downtime and decrease configuration costs, visit our website www.honeywell.com/ps or contact your Honeywell account manager.

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34-ST-03-74
August 2011