Technical Information

Honeywell

ST 3000 Smart Pressure Transmitter Series 100 Differential Pressure Models Specifications

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Introduction

In 1983, Honeywell introduced the first Smart Pressure Transmitter— the ST 3000®. In 1989, Honeywell launched the first all digital, bi-directional protocol for smart field devices. Today, its ST 3000 Series 100 Differential Pressure Transmitters continue to bring proven "smart" technology to a wide spectrum of pressure measurement applications, from furnace combustion airflow rate to hydrostatic tank gauging. The ST 3000 Series 100 (S100) Differential Pressure Transmitter can be used with any primary flow element to provide proven, repeatable flow measurement.

Models		
STD110	0 to 10 inH_2O	0 to 25 mbar
STD120	0 to 400 inH_2O	0 to 1,000 mbar
STD125	0 to 600 inH_2O	0 to 1,500 mbar
STD130	0 to 100 psi	0 to 7 bar
STD170	0 to 3,000 psi	0 to 210 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 - Series 100 Differential Pressure Transmitters feature field-proven piezoresistive sensor technology

When digitally integrated with Honeywell's Experion® Process Knowledge System or other TDC/TPS systems, ST 3000 instruments provides local measurement accuracy to the system level without adding typical A/D and D/A converter inaccuracies as well as providing advantages from the many other on-board advanced diagnostic features. Honeywell's high-performance ST 3000 S100 transmitters lead the industry in:

- Accuracy
- Stability
- Reliability
- Rangeability
- Warranty

ST 3000 Lifetime™ Transmitter Benefits
Total Accuracy = ±0.0375%
Stability = ±0.01% per year
Reliability = 470 years MTBF
Rangeability = 400 to 1
Lifetime Warranty = 15 years

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

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 uses a differential pressure sensor, a temperature sensor and a static pressure sensor in delivering the most comprehensive compensated output signal available today.

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.

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)

Configuration Tools

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 Smartline Configuration Toolkit 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, Class I, Div. 1 environments.

The SCT 3000 Smartline® Configuration Toolkit provides an easy way to configure instruments using a personal computer as the configuration interface. The toolkit enables configuration of devices before shipping or prior to field installation. The SCT 3000 can operate in the off-line mode to pre-configure an unlimited number of devices. This database can then be loaded down-line during instrument 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 real-world temperature and static pressure variations.
- 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.
- ST 3000 transmitters feature full Dual-Seal certification based on ANSI/NFPA 70-202 and ANSI/ISA 12.27.01 requirements without the use of additional seal protection elements.
- ST 3000 transmitters are available fully compliant to SIL 2/3 requirements as a standard option.

Operating Conditions – All Models

Parameter	Reference Condition		Rated Condition		Operative Limits		Transportation and Storage	
	°C	°F	°C	°F	°C	°F	°C	°F
Ambient Temperature								
STD110	25±1	77±2	-15 to 65	5 to 150	-40 to 70	-40 to 158	-40 to 70	-40 to 158
STD125	25±1	77±2	-40 to 85	-40 to 185	-40 to 85	-40 to 185	-55 to 125	-67 to 257
STD120, STD130, STD170	25±1	77±2	-40 to 85	-40 to 185	-40 to 93	-40 to 200	-55 to 125	-67 to 257
Meter Body Temperature								
STD110	25±1	77±2	-15 to 65	5 to 150	-40 to 70	-40 to 158	-40 to 70	-40 to 158
STD125	25±1	77±2	-40 to 85	-40 to 185	-40 to 85	-40 to 185	-55 to 125	-67 to 257
STD120, STD130, STD170	25±1	77±2	-40 to 110[1]	-40 to 230[1]	-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	
Vac. Region – Min. Pressure All Models Except STD110								
mmHg absolute	Atmospheric		25		2 (short term)[2]			
inH$_2$O absolute	Atmospheric		13		1 (short term)[2]			
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)[4] (ST 3000 products are rated to Maximum Allowable Working Pressure. MAWP depends on Approval Agency and transmitter materials of construction.)	STD110 = 50 psi, 3.45 bar STD120, STD125, STD130 and STD170 = 4,500 psi, 310 bar [3] Static Pressure Limit = Maximum Allowable Working Pressure (MAWP) = Overpressure Limit for ST 3000 Differential Pressure Transmitters							

[1] For CTFE fill fluid, the rating is -15 to 110°C (5 to 230°F)

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

[3] MAWP applies for temperature range -40 to 125°C. However, Static Pressure Limit is de-rated to 3,000 psi from -26°C to -40°C. Use of graphite o-rings de-rates transmitter to 3,625 psi. Use of adaptor with graphite o-rings de-rates transmitter to 3,000 psi.

[4] Consult factory for MAWP of ST 3000 transmitters with CSA approval.

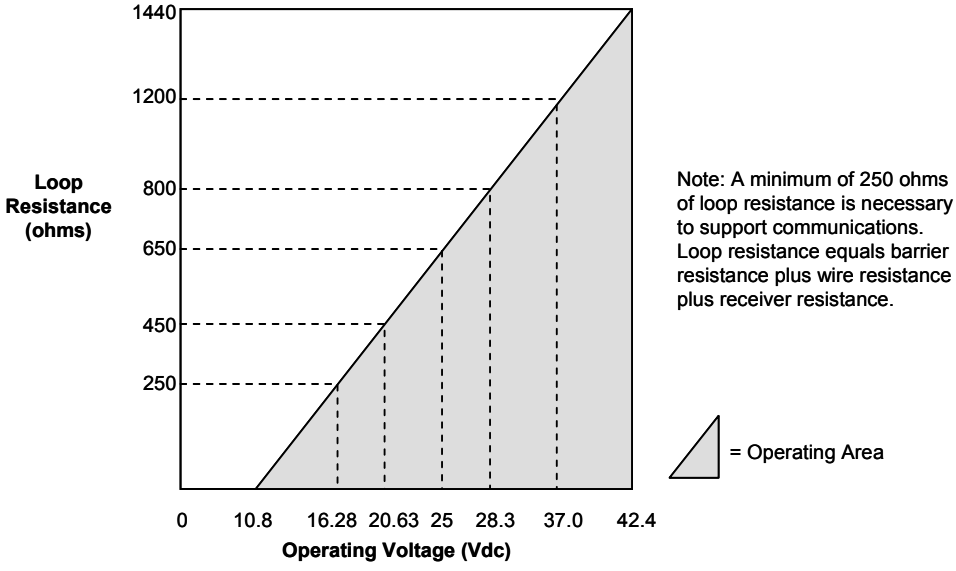

Figure 2 - Supply voltage and loop resistance chart

Performance Under Rated Conditions* - Model STD110 (0 to 10 inH_2O)

Parameter	Description
Upper Range Limit **inH_2O** **mbar**	10 (39.2°F/4°C is standard reference temperature for inH_2O range.) 25
Minimum Span **inH_2O** **mbar**	0.4 1
Turndown Ratio	25 to 1
Zero Elevation and Suppression	No limit except minimum span within ±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:** ±0.1% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (1.5 inH_2O), accuracy equals: $\pm\left[0.025+0.075\left(\frac{1.5\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.025+0.075\left(\frac{3.75\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.0875% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (1.5 inH_2O), accuracy equals: $\pm\left[0.0125+0.075\left(\frac{1.5\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.075\left(\frac{3.75\ mbar}{span\ mbar}\right)\right]$ in % of span
Zero Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.2625% of span. For URV below reference point (10 inH_2O), effect equals: $\pm\left[0.0125+0.25\left(\frac{10\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.25\left(\frac{25\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.25% of span. For URV below reference point (10 inH_2O), effect equals: $\pm 0.25\left(\frac{10\ inH_2O}{span\ inH_2O}\right)$ or $\pm 0.25\left(\frac{25\ mbar}{span\ mbar}\right)$ in % of span
Combined Zero and Span Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.4875% of span. For URV below reference point (10 inH_2O), effect equals: $\pm\left[0.2375+0.25\left(\frac{10\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.2375+0.25\left(\frac{25\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.4625% of span. For URV below reference point (10 inH_2O), effect equals: $\pm\left[0.2125+0.25\left(\frac{10\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.2125+0.25\left(\frac{25\ mbar}{span\ mbar}\right)\right]$ in % of span

* 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* - Model STD120 (0 to 400 inH_2O)

Parameter	Description
Upper Range Limit **inH_2O** **mbar**	400 (39.2°F/4°C is standard reference temperature for inH_2O range.) 1,000
Minimum Span **inH_2O** **mbar**	1 Note: Recommended minimum span in square root mode is 20 inH_2O (50 mbar). 2.5
Turndown Ratio	400 to 1
Zero Elevation and Suppression	No limit except minimum span within ±100% URL. Specifications valid from -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:** ±0.0525% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (25 inH_2O), accuracy equals: $\pm\left[0.025+0.0275\left(\frac{25\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.025+0.0275\left(\frac{62\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.0375% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (25 inH_2O), accuracy equals: $\pm\left[0.0125+0.025\left(\frac{25\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.025\left(\frac{62\ mbar}{span\ mbar}\right)\right]$ in % of span * For **High Accuracy (HA)** option: ±0.025% of calibrated span or upper range value (URV), whichever is greater, terminal based.
Zero Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.0625% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.0125+0.05\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.05\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.05% of span. For URV below reference point (50 inH_2O), effect equals: $\pm 0.05\left(\frac{50\ inH_2O}{span\ inH_2O}\right)$ or $\pm 0.05\left(\frac{125\ mbar}{span\ mbar}\right)$ in % of span
Combined Zero and Span Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.10% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.05+0.05\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.05+0.05\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.075% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.025+0.05\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.025+0.05\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span
Zero Static Pressure Effect per 1,000 psi (70 bar)	±0.075% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.0125+0.0625\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.0625\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span
Combined Zero and Span Static Pressure Effect per 1,000 psi (70 bar)	±0.15% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.0875+0.0625\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0875+0.0625\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span
Stability	±0.01% of URL per year for lifetime

* 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* - Model STD125 (0 to 600 inH_2O)

Parameter	Description
Upper Range Limit inH_2O mbar	600 (39.2°F/4°C is standard reference temperature for inH_2O range.) 1,500
Minimum Span inH_2O mbar	6 15
Turndown Ratio	100 to 1
Zero Elevation and Suppression	No limit except minimum span within 0 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:** ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (25 inH_2O), accuracy equals: $\pm\left[0.0375+0.0375\left(\frac{25\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0375+0.0375\left(\frac{62\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.05% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (25 inH_2O), accuracy equals: $\pm\left[0.0125+0.0375\left(\frac{25\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.0375\left(\frac{62\ mbar}{span\ mbar}\right)\right]$ in % of span
Zero Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.0625% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.0125+0.05\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.05\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.05% of span. For URV below reference point (50 inH_2O), effect equals: $\pm 0.05\left(\frac{50\ inH_2O}{span\ inH_2O}\right)$ or $\pm 0.05\left(\frac{125\ mbar}{span\ mbar}\right)$ in % of span
Combined Zero and Span Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.10% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.05+0.05\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.05+0.05\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span **In Digital Mode:** ±0.075% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.025+0.05\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.025+0.05\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span
Zero Static Pressure Effect per 1,000 psi (70 bar)	±0.075% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.0125+0.0625\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.0125+0.0625\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span
Combined Zero and Span Static Pressure Effect per 1,000 psi (70 bar)	±0.20% of span. For URV below reference point (50 inH_2O), effect equals: $\pm\left[0.1375+0.0625\left(\frac{50\ inH_2O}{span\ inH_2O}\right)\right]$ or $\pm\left[0.1375+0.0625\left(\frac{125\ mbar}{span\ mbar}\right)\right]$ in % of span
Stability	±0.015% 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* - Model STD130 (0 to 100 psi)

Parameter	Description
Upper Range Limit **psi** **bar**	100 7
Minimum Span **psi** **bar**	1 0.07
Turndown Ratio	100 to 1
Zero Elevation and Suppression	No limit except minimum span within –18 and +100% URL. Specifications valid from –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:** ±0.075% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (15 psi), accuracy equals: $\pm\left[0.025+0.05\left(\frac{15\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.025+0.05\left(\frac{1\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span **In Digital Mode:** ±0.0625% of calibrated span or upper range value (URV), whichever is greater, terminal based. For URV below reference point (15 psi), accuracy equals: $\pm\left[0.0125+0.05\left(\frac{15\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.05\left(\frac{1\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span
Zero Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.0625% of span. For URV below reference point (30 psi), effect equals: $\pm\left[0.0125+0.05\left(\frac{30\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.05\left(\frac{2\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span **In Digital Mode:** ±0.05% of span. For URV below reference point (30 psi), effect equals: $\pm 0.05\left(\frac{30\ \text{psi}}{\text{span psi}}\right)$ or $\pm 0.05\left(\frac{2\ \text{bar}}{\text{span bar}}\right)$ in % of span
Combined Zero and Span Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.10% of span. For URV below reference point (30 psi), effect equals: $\pm\left[0.05+0.05\left(\frac{30\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.05+0.05\left(\frac{2\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span **In Digital Mode:** ±0.075% of span. For URV below reference point (30 psi), effect equals: $\pm\left[0.025+0.05\left(\frac{30\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.025+0.05\left(\frac{2\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span
Zero Static Pressure Effect per 1,000 psi (70 bar)	±0.075% of span. For URV below reference point (30 psi), effect equals: $\pm\left[0.0125+0.0625\left(\frac{30\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.0625\left(\frac{2\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span
Combined Zero and Span Static Pressure Effect per 1,000 psi (70 bar)	±0.15% of span. For URV below reference point (30 psi), effect equals: $\pm\left[0.0875+0.0625\left(\frac{30\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0875+0.0625\left(\frac{2\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span
Stability	±0.04% 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* - Model STD170 (0 to 3,000 psi)

Parameter	Description
Upper Range Limit **psi** **bar**	3,000 210
Minimum Span **psi** **bar**	30 2.1
Turndown Ratio	100 to 1
Zero Elevation and Suppression	No limit except minimum span within –0.6 and +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 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 (300 psi), accuracy equals: $\pm\left[0.05+0.10\left(\frac{300\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.05+0.10\left(\frac{21\ \text{bar}}{\text{span bar}}\right)\right]$ 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 (300 psi), accuracy equals: $\pm\left[0.025+0.10\left(\frac{300\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.025+0.10\left(\frac{21\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span
Zero Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.1125% of span. For URV below reference point (500 psi), effect equals: $\pm\left[0.0125+0.10\left(\frac{500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.10\left(\frac{35\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span **In Digital Mode:** ±0.10% of span. For URV below reference point (500 psi), effect equals: $\pm 0.10\left(\frac{500\ \text{psi}}{\text{span psi}}\right)$ or $\pm 0.10\left(\frac{35\ \text{bar}}{\text{span bar}}\right)$ in % of span
Combined Zero and Span Temperature Effect per 28°C (50°F)	**In Analog Mode:** ±0.175% of span. For URV below reference point (500 psi), effect equals: $\pm\left[0.075+0.10\left(\frac{500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.075+0.10\left(\frac{35\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span **In Digital Mode:** ±0.15% of span. For URV below reference point (500 psi), effect equals: $\pm\left[0.05+0.10\left(\frac{500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.05+0.10\left(\frac{35\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span
Zero Static Pressure Effect per 1,000 psi (70 bar)	±0.075% of span. For URV below reference point (500 psi), effect equals: $\pm\left[0.0125+0.0625\left(\frac{500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0125+0.0625\left(\frac{35\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span
Combined Zero and Span Static Pressure Effect per 1,000 psi (70 bar)	±0.15% of span. For URV below reference point (500 psi), effect equals: $\pm\left[0.0875+0.0625\left(\frac{500\ \text{psi}}{\text{span psi}}\right)\right]$ or $\pm\left[0.0875+0.0625\left(\frac{35\ \text{bar}}{\text{span bar}}\right)\right]$ in % of span
Stability	±0.03% of URL per year.

* Performance specifications are based on reference conditions of 25°C (77°F), 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) **Digital communications** :	Analog : 4 to 20 mA (Normal signal range is ≥ 3.8 mA and ≤ 20.8 mA. Transmitter failure values are: is ≥ 3.6 mA and ≤ 20.9 mA Honeywell DE mode, FOUNDATION™ Fieldbus or HART® protocol (selectable versions 5.x or 6.x available).
Supply Voltage Effect	0.005% span per volt.
Damping Time Constant	Adjustable from 0 to 32 seconds digital damping.
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 (Option "SL")	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 (Option "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) 10/1,000 µ sec. 250 Amps (1,000 strikes) 500 Amps (400 strikes)

Physical and Approval Bodies

Parameter	Description
Barrier Diaphragms Material STD125, STD110 STD120, STD130, STD170	 316L SS, Gold-plated 316L SS 316L SS, Hastelloy® C-276[2], Monel® 400[3], Tantalum, Gold-plated 316L SS, Gold-plated Hastelloy® C-276, Gold-plated Monel® 400
Process Head Material STD125, STD110 STD120, STD130, STD170	 316 SS[4], Carbon Steel (Zinc-plated)[5] 316 SS[4], Carbon Steel (Zinc-plated)[5], Hastelloy® C-276[6], Monel® 400[7]
Vent/Drain Valves & Plugs [1]	316 SS[4], Hastelloy® C-276[2], Monel® 400 [8]
Head Gaskets	Glass-filled PTFE standard. Viton® and graphite are optional. See MSG.
Meter Body Bolting	Carbon Steel (Zinc plated) standard. Options include 316 SS, NACE A286 SS bolts and 304 SS nuts and B7M.
Optional Adapter Flange and Bolts	Adapter Flange materials include 316 SS, Hastelloy® C-276 and Monel® 400. Bolt material for flanges is dependent on process head bolts material chosen. Standard adaptor o-ring material is glass-filled PTFE. Viton® and graphite are optional.
Mounting Bracket	Carbon Steel (Zinc-plated) or Stainless Steel bracket or Carbon Steel flat bracket available (standard options).
Fill Fluid	Silicone DC® 200 oil or CTFE (Chlorotrifluoroethylene). Note that Model STD110 is only available with silicone fill fluid.
Electronic Housing	Epoxy-Polyester hybrid paint. Low Copper-Aluminum. Meets NEMA 4X (watertight) and NEMA 7 (explosion proof). All stainless steel housing is optional.
Mounting	Can be mounted in virtually any position using the standard mounting bracket. Bracket is designed to mount on 2-inch (50 mm) vertical or horizontal pipe. See Figure 3.
Process Connections	1/4-inch NPT; 1/2-inch NPT with adapter (standard option, meets DIN requirements)
Wiring	Accepts up to 16 AWG (1.5 mm diameter).
Dimensions	See Figure 4.
Net Weight	9.0 pounds (4.1 Kg).

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

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 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

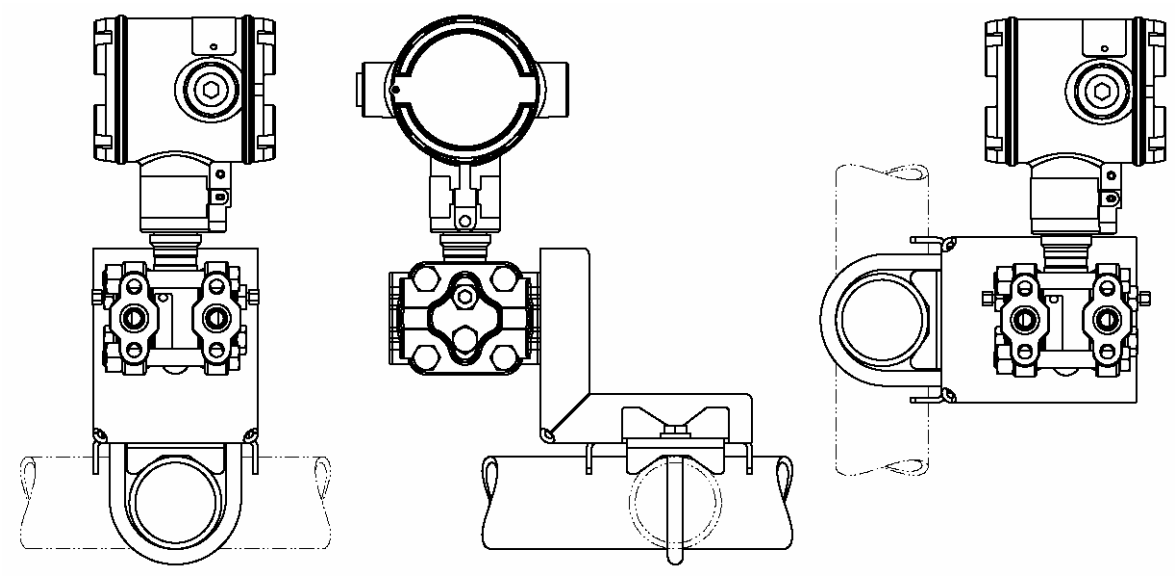

Figure 3 – Examples of typical mounting positions

Reference Dimensions: millimeters / inches

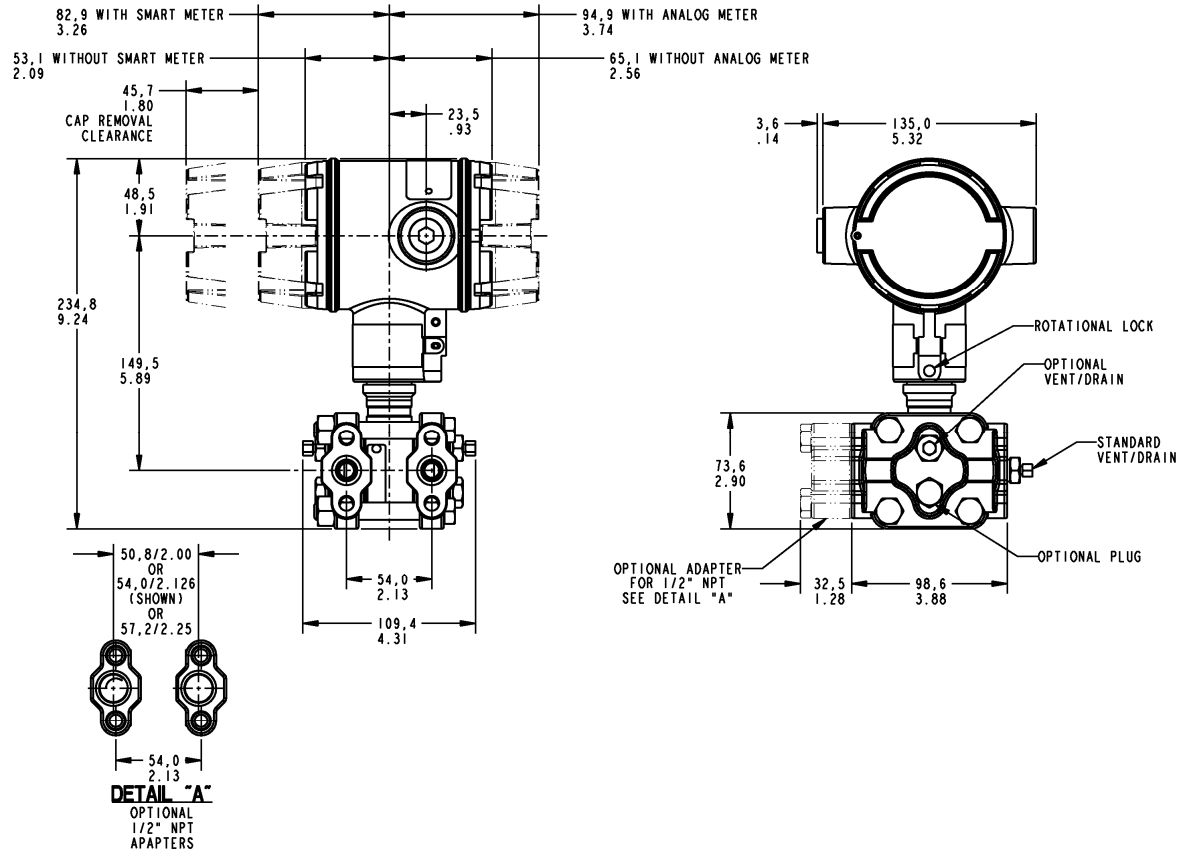

Figure 4 – Typical mounting dimensions of STD110, STD120, STD125, STD130 & STD170 for reference

Options

- **High Accuracy (Option HA)**
  Extends applicable S100 models to ±0.025% analog reference accuracy.
- **Mounting Bracket (Options MB, MX, SB, SX, 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 dual 0 to 10 square root and 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 selected engineering units.
- **HART® Output Protocol (Options HC and H6)**
  Optional electronic 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.
- **Digital Enhanced Output (Option DE)**
  A communications protocol used together with TDC and Experion system solutions to provide a higher level and more secure data interface between instruments and the control system.
- **Foundation™ Fieldbus Output (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
- **Lightning Protection (Option LP)**
  A terminal block is available with circuitry that protects the transmitter from transient surges induced by nearby lightning strikes.
- **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 ≥ 20.8 mA.
- **Write Protection (Options WP and WX)**
  Provides the capability to hardwire write-protect installed transmitter configurations.
- **Stainless Steel 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. 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 (Options TC and FC)**
  With Option TC, the factory can configure the analog, DE or HART® transmitter's 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.

  With Option FC, the Device ID, Transmitter Tag, Unit Level Node Address, Output Mode and Damping Time Constants can be 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.
- **Indicator Configuration (Option CI)**
  Provides custom configuration of Smart Meters
- **Lifetime Warranty (Option WL)**
  Extends limited 1-year warranty policy to 15 years for ST 3000 S100 pressure transmitters. See Honeywell Terms and Conditions.

Ordering information

For application assistance, current specifications, pricing, or name of the nearest Authorized Distributor, contact one of the offices below. Or, visit Honeywell on the World Wide Web at: http://www.honeywell.com.

ASIA PACIFIC

Control Products
Asia Pacific Headquarters
Phone: +(65) 6355-2828
Fax: +(65) 6445-3033

Asia Pacific Global Technical Support

Field Instruments
Phone: +65 6580 3156
Fax: +65 6445-3033
Process Instruments
Phone: (603) 76950 4777
Fax: (603) 7958 8922

Australia
Honeywell Limited
Phone: +(61) 7-3846 1255
FAX: +(61) 7-3840 6481
Toll Free 1300-36-39-36
Toll Free Fax:
1300-36-04-70

China – PRC - Beijing
Honeywell China Inc.
Phone: +(86-10) 8458-3280
Fax: +(86-10) 8458-4650

China – PRC - Shanghai
Honeywell China Inc.
Phone: (86-21) 5257-4568
Fax: (86-21) 6237-2826

China – PRC - Chengdu
Honeywell China Inc.
Phone: +(86-28) 8678-6348
Fax: +(86-28) 8678-7061

China – PRC - Xi'an
Honeywell China Ltd - Xi'an.
Phone: +(86-29) 8833-7490
Fax: +(86-29) 8833-7489

China – PRC - Shenzhen-
Honeywell China Inc.
Phone: +(86) 755-2518-1226
Fax: +(86) 755-2518-1221

Indonesia
PT Honeywell Indonesia
Phone: +(62) 21-535-8833
FAX: +(62) 21-5367 1008

India
Automation India Ltd.
Honeywell Ltd.
Phone:+(91) 5603-9400
Fax: +(91) 5603-9600

Japan
Honeywell Inc.
Phone: +(81) 3 6730 7150
Fax: +(81) 3 6730 7228

Malaysia
Honeywell Engineering
Sdn Bhd
Phone: +(60-3) 7950-4776
Fax: +(60-3) 7958-8922

New Zealand
Honeywell Limited
Phone: +(64-9) 623-5052
Fax: +(64-9) 623-5060
Toll Free (0800) 202-088

Philippines
Honeywell Systems
(Philippines) Inc.
Phone: +(63-2) 633-2830-31/
636 1661-62
Fax: +(63-2) 638-4013

Singapore
Honeywell Pte Ltd.
Phone: +(65) 6580 3278
Fax: +(65) 6445-3033

South Korea
Honeywell Korea Co Ltd
Phone: +(822) 799 6315
Fax: +(822) 792 9015

Thailand
Honeywell Systems
(Thailand) Ltd.
Phone: +(662) 693-3099
FAX: +(662) 693-3089

Taiwan R.O.C.
Honeywell Taiwan Ltd.
Phone: +(886-2) 2245-1000
FAX: +(886-2) 2245-3241

SE Asia Countries

see Honeywell Pte Ltd
(Singapore)
for:
Pakistan
Cambodia
Guam
Laos
Myanmar
Vietnam
East Timor

SE Asia Countries

see Honeywell Automation
India Ltd for:
Bangladesh
Nepal
Sri Lanka

EUROPE

Austria
Honeywell Austria GmbH
Phone: +43 (316)400123
FAX: +43 (316)40017

Belgium
Honeywell SA/NV
Phone: +32 (0) 2 728 24 07
FAX: +32 (0) 2 728 22 45

Bulgaria
Honeywell EOOD
Phone: +(359) 2 40 20 900
FAX: +(359) 2 40 20 990

Czech Republic
Honeywell spol. s.r.o.
Phone: +420 242 442 232
FAX: +420 242 442 131

Denmark
Honeywell A/S
Phone: +(45) 39 55 55 55
FAX: +(45) 39 55 55 58

Finland
Honeywell OY
Phone: +358 (0) 20752 2753
FAX: +358 (0) 20752 2751

France
Honeywell SA
Phone: +33 (0)1 60198075
FAX: +33 (0)1 60198201

Germany
Honeywell AG
Phone: +49 (69)8064-299
FAX: +49 (69)806497336

Hungary
Honeywell Kft.
Phone: +36-1-451 4300
FAX: +36-1-451 4343

Italy
Honeywell S.p.A.
Phone: +39 02 92146 307/
395
FAX: +39 0292146377

The Netherlands
Honeywell B.V.
Phone: +31 (0) 20 5656200
FAX: +31 (0) 20 5656210

Norway
Honeywell A/S
Phone: (45) 39 55 55 55

Poland
Honeywell Sp. zo.o
Phone: +48-22-6060900
FAX: +48-22-6060901

Portugal
Honeywell Portugal Lda
Phone: +351 21 424 5000
FAX: +351 21 424 50 99

Romania
Honeywell Bucharest
Phone: +40 (0) 21 2316437
FAX: +40 (0) 21 2316439

Russian Federation (RF),
ZAO "Honeywell"
Phone: +7 (095) 796 98 00
FAX: +7 (495) 797 99 64

Slovak Republic
Honeywell s.r.o.
Phone: +421-2-58247 410
FAX: +421-2-58247 415

Spain
Honeywell S.A.
Phone: +34 (0)91313 61 00
FAX: +34 (0)91313 61 30

Sweden
Honeywell AB
Phone: +(46) 8 775 55 00
FAX: +(46) 8 775 56 00

Switzerland
Honeywell AG
Phone: +41 18552448
FAX: +(41) 1 855 24 45

Turkey
Honeywell Turkey A.S.
Phone: +90 216 578 71 00
FAX: +90 216 575 66 35

Ukraine
Honeywell
Tel: +380-44-201 44 74
Fax: +380-44-201-44-75

United Kingdom
Honeywell Control Systems
Ltd.
Phone: +44 (0)1344 655251
FAX: +44 (0) 1344 655554

MIDDLE EAST

Abu Dhabi U A E
Middle East Headquarters
Honeywell Middle East Ltd.
Phone: +971 2 4041246
FAX: +971 2 4432536

Sultanate of Oman
Honeywell & Co Oman LLC
Phone: +968 24 701153/
Ext.33
FAX +968 24 787351

Saudia Arabia
Honeywell Turki Arabia Ltd
Jubail Office
Phone: +966-3-341-0140
Fax: +966-3-341-0216
Honeywell - ATCO
Dammam Office
Phone: 0096638304584
Fax: 0096638338059

Kuwait
Honeywell Kuwait KSC
Phone: +965 242 1327 to 30
Fax: +965 242 8315
and
Phone: +965 326 2934/1821
Fax: +965 326 1714

AFRICA

Mediterranean & African Distributors
Honeywell SpA
Phone: +39 (02) 250 10 604
FAX: +39 (02) 250 10 659

South Africa (Republic of) and sub saharan
Honeywell Southern Africa
Honeywell S.A. Pty. Ltd.
Phone: +27 11 6958000
FAX +27 118051504

NORTH AMERICA

Canada
Honeywell LTD
Phone: 1-800-737-3360
FAX: 1-800-565-4130

USA
Honeywell Process Solutions,
Phone: 1-800-423-9883
Or 1-800-343-0228
Email: ask-ssc@honeywell.com

SOUTH AMERICA

Argentina
Honeywell S.A.I.C.
Phone: +(54-11) 4383-3637
FAX: +(54-11) 4325-6470

Brazil
Honeywell do Brasil & Cia
Phone: +(55-11) 7266-1900
FAX: +(55-11) 7266-1905

Chile
Honeywell Chile, S.A.
Phone: +(56-2) 233-0688
FAX: +(56-2) 231-6679

Mexico
Honeywell S.A. de C.V.
Phone: +(52) 55 5259-1966
FAX: +(52) 55 5570-2985

Puerto Rico
Honeywell Inc.
Phone: +(809) 792-7075
FAX: +(809) 792-0053

Trinidad
Honeywell Inc.
Phone: +(868) 624-3964
FAX: +(868) 624-3969

Venezuela
Honeywell CA
Phone: +(58-2) 238-0211
FAX: +(58-2) 238-3391

Specifications are subject to change without notice.

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

Honeywell

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ST 3000 Smart Transmitter Differential Pressure (DP) Series 100

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
_ _ _ _ _ _	-	_ _ _	-	_ _ _ _ _	-	_ _, _ _	+	XXXX

KEY NUMBER

Span	Selection	Availability				
0-1" to 0-400" H_2O/0-2.5 to 0-1,000 mbar Body Rating: 4,500 psi (315 bar)	STD120	↓				
0-5 to 0-100 psi/0-0.35 to 0-7 bar Body Rating: 4,500 psi (315 bar)	STD130		↓			
0-100 to 0-3,000 psi/0-7 to 0-210 bar Body Rating: 4,500 psi (315 bar)	STD170			↓		
0-25" to 0-600" H_2O/0-62.2 to 0-1,500 mbar Body Rating: 4500 psi (315 bar)	STD125				↓	
0-0.4" to 0-10" H_2O/0-1 to 0-25 mbar Body Rating: 50 psi (3.5 bar) Compound Characterized	STD110					↓

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 and Plugs[2]	Barrier Diaphragms	Selection					
Materials of Construction	Carbon Steel [1]	316 SS	316L SS	A _ _	●	●	●	●	●
	Carbon Steel [1]	316 SS	Hastelloy® C-276 [3]	B _ _	●	●	●		
	Carbon Steel [1]	316 SS	Monel 400® [4]	C _ _	19	19	19		
	Carbon Steel [1]	316 SS	Tantalum	D _ _	●	●	●		
	316 SS [5]	316 SS	316L SS	E _ _	●	●	●	●	●
	316 SS [5]	316 SS	Hastelloy® C-276 [3]	F _ _	●	●	●		
	316 SS [5]	316 SS	Monel 400® [4]	G _ _	19	19	19		
	316 SS [5]	316 SS	Tantalum	H _ _	●	●	●		
	Hastelloy® C-276 [3, 6]	Hastelloy® C-276 [3]	Hastelloy® C-276 [3]	J _ _	●	●	●		
	Hastelloy® C-276 [3, 6]	Hastelloy® C-276 [3]	Tantalum	K _ _	●	●	●		
	Monel 400® [4, 7]	Monel 400® [9]	Monel 400® [4]	L _ _	19	19	19		
Fill Fluid	DC® 200 Silicone			_ 1 _	●	●	●	●	●
	CTFE			_ 2 _	●	●	●	●	
Process Head Configuration	¼" NPT			_ _ A	●	●	●	●	●
	½" NPT with Adapter (on ¼" NPT Head)			_ _ H	t	t	t	t	t

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

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TABLE II	Selection	Availability STD1xx 20	30	70	25	10	
No Selection	00000	●	●	●	●	●	
TABLE III - OPTIONS	**Selection**						
Communication Options *(Must choose a communications option)*							
Analog only (can be configured using appropriate Honeywell DE tool)	AN	●	●	●	●	●	
DE Protocol communications	DE	●	●	●	●	●	
HART® 5.x Protocol compatible electronics	HC	●	●	●	●	●	b
HART® 6.x Protocol compatible electronics	H6	●	●	●	●	●	
FOUNDATION™ Fieldbus Communications	FF	r	r	r	r	r	
Indicating Meter Options							
Analog Meter (0-100 Even 0-10 Square Root)	ME	●	●	●	●	●	
Smart Meter	SM	●	●	●	●	●	b
Custom Configuration of Smart Meter	CI	e	e	e	e	e	
Local Zero & Span	ZS	m	m	m	m		
Local Zero	LZ	x	x	x	x		b
Transmitter Housing & Electronics Options							
NAMUR Failsafe Software	NE	15	15	15	15	15	
SIL 2 - TÜV Certified transmitter (requires HC or H6 and WP options)	SL	p	p	p	p	p	
Lightning Protection	LP	●	●	●	●	●	
Custom Calibration and I.D. in Memory	CC	●	●	●	●	●	
Transmitter Configuration - (non-Fieldbus)	TC	15	15	15	15	15	
Transmitter Configuration - (Fieldbus)	FC	21	21	21	21	21	b
Write Protection (Delivered in the "enabled" position)	WP	●	●	●	●	●	
Write Protection (Delivered in the "disabled" position)	WX	●	●	●	●	●	b
316 SS [5] Electronics Housing - *with M20 Conduit Connections*	SH	n	n	n	n	n	
1/2" NPT to M20 316 SS Conduit Adapter (BASEEFA EEx d IIC)	A1	n	n	n	n	n	
1/2" NPT to 3/4" NPT 316 SS Conduit Adapter	A2	●	●	●	●	●	b
316 SS [5] Housing with M20 to 1/2" NPT 316 SS Conduit Adapter *(use for FM and CSA Approvals)*	A3	i	i	i	i	i	
Steel Customer Wired-On Tag (4 lines, 28 characters per line, customer supplied information)	TG	●	●	●	●	●	b
Stainless Steel Customer Wired-On Tag (blank)	TB	●	●	●	●	●	
High Accuracy	HA	d					
Low Temperature - -50°C Ambient Limit	LT	18	18	18			
End Cap Live Circuit Warning Label in Spanish (only with ATEX 3D)	SP	a	a	a	a	a	
End Cap Live Circuit Warning Label in Portuguese (only with ATEX 3D)	PG	a	a	a	a	a	b
End Cap Live Circuit Warning Label in Italian (only with ATEX 3D)	TL	a	a	a	a	a	
End Cap Live Circuit Warning Label in German (only with ATEX 3D)	GE	a	a	a	a	a	
Meter Body Options							
316 SS Bolts and 316 SS Nuts for Process Heads	SS	●	●	●	●	●	
B7M Bolts and Nuts for Process Heads	B7	●	●	●	●	●	b
NACE A286 SS Bolts and 304 SS Nuts for Process Heads	CR	●	●	●	●	●	
316 SS [5] Adapter Flange - 1/2" NPT with CS Bolts	S2	c	c	c	c	c	
316 SS [5] Adapter Flange - 1/2" NPT with 316 SS Bolts	S3	c	c	c	c	c	
316 SS [5] Adapter Flange - 1/2" NPT with NACE A286 SS Bolts	S4	c	c	c	c	c	
316 SS [5] Adapter Flange - 1/2" NPT with B7M Bolts	S5	c	c	c	c	c	
Hastelloy® C-276 [3, 6] Adapter Flange - 1/2" NPT with CS Bolts	T2	c	c	c			b
Hastelloy® C-276 [3, 6] Adapter Flange - 1/2" NPT with 316 SS Bolts	T3	c	c	c			
Monel 400® [4, 7] Adapter Flange - 1/2" NPT with CS Bolts	V2	c	c	c			
Monel 400® [4, 7] Adapter Flange - 1/2" NPT with 316 SS Bolts	V3	c	c	c			
316 SS [5] Blind Adapter Flange with CS Bolts	B3	●	●	●	●	●	
316 SS [5] Blind Adapter Flange with 316 SS Bolts	B4	●	●	●	●	●	
316 SS [5] Blind Adapter Flange with NACE A286 SS Bolts	B5	●	●	●	●	●	b
316 SS [5] Blind Adapter Flange with B7M Bolts	B6	●	●	●	●	●	
Side Vent/Drain (End Vent Drain is standard)	SV	●	●	●	●	●	
316 SS Center Vent Drain and Bushing	CV	●	●	●	●		
Viton® [8] Process Head Gaskets (adapter gaskets ordered separately)	VT	●	●	●	●	●	
Graphite Process Head & Adaptor Flange Gaskets	GF	●	●	●	●	●	b
Viton® [8] Adapter Flange Gaskets	VF	17	17	17	17	17	
Diaphragm Options							
Gold plated diaphragm(s) on 316 SS	G1	●	●	●	●	●	
Gold plated diaphragm(s) on Monel 400® [4] or Hastelloy® C-276 [3] ONLY	G2	●	●	●			b

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

TABLE III - OPTIONS (continued)

Transmitter Mounting Bracket Options	Selection	STD1xx Availability 20	30	70	25	10	
Angle Mounting Bracket - Carbon Steel	MB	●	●	●	●	●	
Marine Approved Angle Mounting Bracket - Carbon Steel	MX	●	●	●	●	●	
Angle Mounting Bracket - 304 SS	SB	●	●	●	●	●	b
Marine Approved Angle Mounting Bracket - 304 SS	SX	●	●	●	●	●	
Flat Mounting Bracket - Carbon Steel	FB	●	●	●	●	●	
Services/Certificates/Marine Type Approval Options							
User's Manual Paper Copy (Standard, HC/H6, or FF ships accordingly)	UM	●	●	●	●	●	
Clean Transmitter for Oxygen or Chlorine Service with Certificate	0X	j	j	j	j		
Over-Pressure Leak Test with F3392 Certificate	TP	●	●	●	●	●	
Calibration Test Report and Certificate of Conformance (F3399)	F1	●	●	●	●	●	
Certificate of Conformance (F3391)	F3	●	●	●	●	●	b
Certificate of Origin (F0195)	F5	●	●	●	●	●	
FMEDA Certificate (SIL 1) (FC33321)	F6	●	●	●	●	●	
SIL Certificate (SIL 2/3) (FC33337)	FE	22	22	22	22	22	b
NACE Certificate (Process-Wetted & Non-Process Wetted) (FC33339)	F7	o	o	o	o	o	
NACE Certificate (Process-Wetted only) (FC33338)	FG	●	●	●	●	●	b
Material Traceability Certification per EN 10204 3.1 (FC33341)	FX	●	●	●	●	●	
Marine Type Approvals (DNV, ABS, BV, KR & LR) (FC33340)	MT	2	2	2	2	2	
Warranty Options							
Additional Warranty - 1 year	W1	●	●	●	●	●	
Additional Warranty - 2 years	W2	●	●	●	●	●	
Additional Warranty - 3 years	W3	●	●	●	●	●	b
Additional Warranty - 4 years	W4	●	●	●	●	●	
Lifetime Warranty - 15 years	WL	●	●	●	●	●	

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	●	●	f	●	●	
	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 +93°C), T6 (Ta = -40 to +78°C)	CA	●	●	●	●	●	b
	Intrinsically Safe, Zone 0/1	**Ex ia IIC**; T3, T4, T5 , T6 See Spec for detailed temperature codes by Communications option.							
SAEx (South Africa)	Intrinsically Safe, Zone 0/1	**Ex ia IIC** T4, T5, T6	Z2	●	●	●	●	●	
	Flameproof, Zone 1	**Ex d IIC** T5, T6 Enclosure IP 66/67	ZD	●	●	●	●	●	
	Multiple Marking [11] 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	●	●	●	●	●	

Approvals continued on next page

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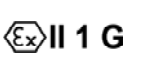
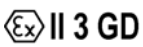
TABLE III - Approvals Options (continued)

Approval Body	Approval Type	Location or Classification	Selection	STD1xx 20	30	70	25	10
ATEX [10] (LCIE)	Intrinsically Safe, Zone 0	 **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**	**23**	**23**	**23**	**23**
	Intrinsically Safe, Zone 1	 **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 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 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 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 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 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 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

[3] Hastelloy® C-276 or UNS N10276
[4] Monel 400® or UNS N04400
[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	Availability STD1xx Selection	20	30	70	25	10
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			
c	I	_ _ H		
d	I	A _ _, E _ _	III	G1, G2
e	III	SM		
f			I	L _ _
i	III	1C or 2J		
j	I	_ 2 _		
m			III	ME, FF
n			III	1C, 2J
o	III	CR, S4, B5		
p	III	HC or H6 and WP	III	FF, 00
r			III	TC, ME, CA
t	III	S2, S3 ,S4, S5, T2, T3, V2, V3		
x	III	FF, SM		
2	III	MX, SX	III	FB, MB, SB
15			III	FF
17	III	VT		
18	I	_ 1 _		
19			III	F7, FG
21	III	FF		
22	III	SL		
23	III	SH or A3		

Ordering Example: STD120-A1A-00000-AN,1C + XXXX

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For More Information

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

Honeywell Process Solutions
1860 West Rose Garden Lane
Phoenix, Arizona 85027
Tel: 1-800-423-9883 or 1-800-343-0228
www.honeywell.com/ps

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