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 7,000 mbar
STD170	0 to 3,000 psi	0 to 210,000 mbar

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

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.

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 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, 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** **inH$_2$O absolute**	 Atmospheric Atmospheric		 25 13		 2 (short term) [2] 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.

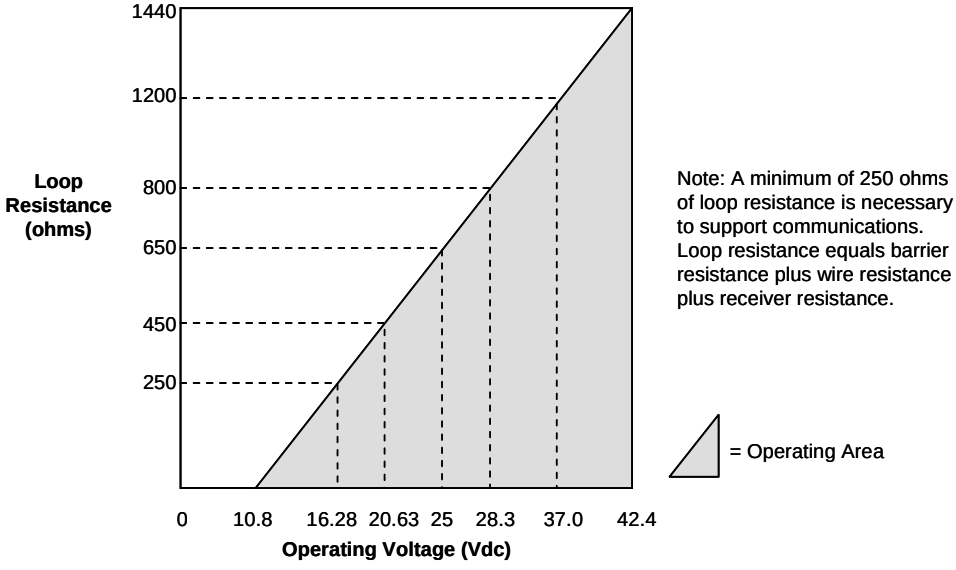

Figure 2 - Supply voltage and loop resistance chart

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**	25 62.2
Turndown Ratio	24 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**	5 0.35
Turndown Ratio	20 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**	100 7
Turndown Ratio	30 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, 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 (Angle)	Carbon Steel (Zinc-plated) or Stainless Steel angle 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®

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 / HART	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	Vmax = 32V Imax = 120mA Ci = 4.2nF Li = 0 Pi =0.84W	T4 Ta = 40ºC T3 Ta = 93ºC
		Fieldbus – Entity	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	Vmax = 32V Imax = 120mA Ci = 4.2nF Li = 0 Pi =0.84W	T4 Ta = 40ºC T3 Ta = 93ºC
		Fieldbus – Entity	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.

	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	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	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	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	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	Ui = 24V Ii = 250mA Ci = 4.2nF Li = 0 Pi =1.2W	T3 Ta = –50 to 93ºC T4 Ta = –50 to 40ºC

	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	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 1:** Ⓔx II 2 G, Ex d IIC Enclosure IP 66/67	All	All	T5 Ta = –50 to 93ºC T6 Ta = –50 to 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	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	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	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.

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.
Approved Manufacturing Locations	Honeywell Process Solutions - York, PA USA Honeywell Process Solutions – Phoenix, AZ USA Honeywell (Tianjin) Limited – Tianjin, P.R. China Honeywell Automation India Ltd. – Pune 411013 India

Mounting

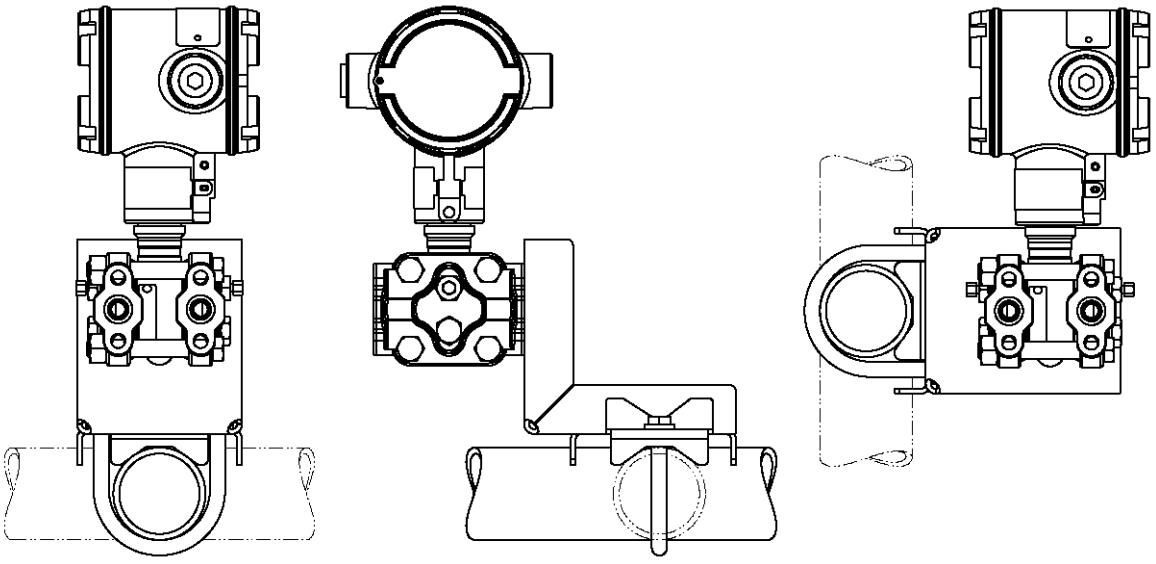

Figure 3 – Examples of typical mounting positions

Reference Dimensions: millimeters / inches

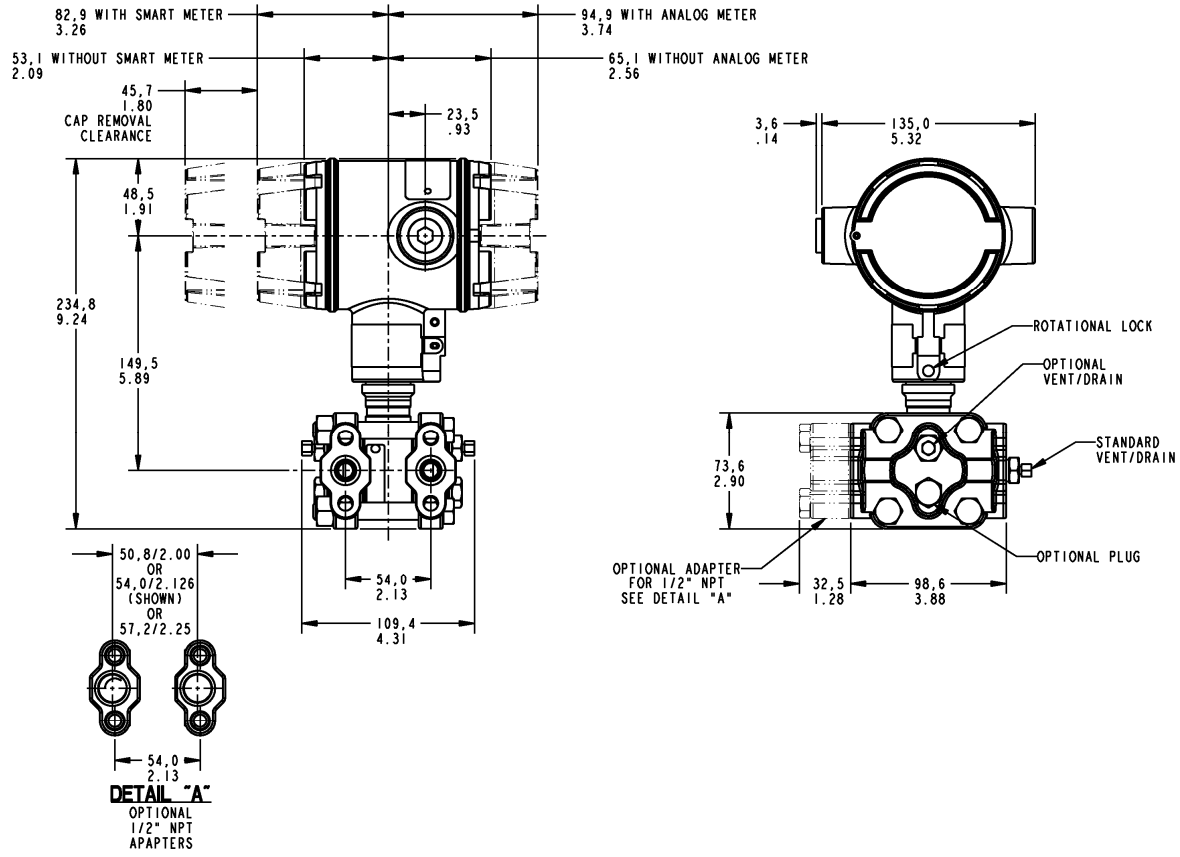

Figure 4 – Typical mounting dimensions of STD110, STD120, STD125, STD130 & STD170 for reference

Options

- **High Accuracy (Option HA)**

  Extends applicable S100 models to ±0.025% analog reference accuracy.

- **Angle Mounting Bracket (Options MB, MX, SB, SX, FB)**

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

- **FoundationTM 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

- **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.

- **Lightning Protection (Option LP)**

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

- **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.

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Honeywell - ATCO
Dammam Office
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Fax: 0096638338059

Kuwait
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Fax: +965 242 8315
and
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Fax: +965 326 1714

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Specifications are subject to change without notice.

Model Selection Guide

Model Selection Guide
34-ST-16-01 Issue 59

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® [10]	Monel 400® [4]	L _ _	19	19	19		
Fill Fluid	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.
[2] Vent/Drains are Teflon® [9] - coated for lubricity.
[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] Teflon® or PTFE
[10] Monel 400® or UNS N04400 or UNS N04405

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	•	•	•	•	•	b
DE Protocol communications	DE	•	•	•	•	•	b
HART® 5.x Protocol compatible electronics	HC	•	•	•	•	•	b
HART® 6.x Protocol compatible electronics	H6	•	•	•	•	•	b
FOUNDATION™ Fieldbus Communications	FF	r	r	r	r	r	b
Indicating Meter Options							
Analog Meter (0-100 Even 0-10 Square Root)	ME	•	•	•	•	•	b
Smart Meter	SM	•	•	•	•	•	b
Custom Configuration of Smart Meter	CI	e	e	e	e	e	b
Local Zero & Span	ZS	m	m	m	m		b
Local Zero	LZ	x	x	x	x		b
Transmitter Housing & Electronics Options							
NAMUR Failsafe Software	NE	15	15	15	15	15	b
SIL 2 - TÜV Certified transmitter (requires HC or H6 and WP options)	SL	p	p	p	p	p	b
Lightning Protection	LP	•	•	•	•	•	b
Custom Calibration and I.D. in Memory	CC	•	•	•	•	•	b
Transmitter Configuration - (non-Fieldbus)	TC	15	15	15	15	15	b
Transmitter Configuration - (Fieldbus)	FC	21	21	21	21	21	b
Write Protection (Delivered in the "enabled" position)	WP	•	•	•	•	•	b
Write Protection (Delivered in the "disabled" position)	WX	•	•	•	•	•	b
316 SS [5] Electronics Housing - *with M20 Conduit Connections*	SH	n	n	n	n	n	b
1/2" NPT to M20 316 SS Conduit Adapter (BASEEFA EEx d IIC)	A1	n	n	n	n	n	b
1/2" NPT to 3/4" NPT 316 SS Conduit Adapter	A2	i	i	i	i	i	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	b
Steel Customer Wired-On Tag (4 lines, 28 characters per line, customer supplied information)	TG	•	•	•	•	•	b
Stainless Steel Customer Wired-On Tag (blank)	TB	•	•	•	•	•	b
High Accuracy	HA	d					b
Low Temperature - -50°C Ambient Limit	LT	18	18	18			b
End Cap Live Circuit Warning Label in Spanish (only with ATEX 3D)	SP	a	a	a	a	a	b
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	b
End Cap Live Circuit Warning Label in German (only with ATEX 3D)	GE	a	a	a	a	a	b
Meter Body Options							
316 SS Bolts and 316 SS Nuts for Process Heads	SS	•	•	•	•	•	b
B7M Bolts and Nuts for Process Heads	B7	•	•	•	•	•	b
NACE A286 SS Bolts and 304 SS Nuts for Process Heads	CR	•	•	•	•	•	b
316 SS [5] Adapter Flange - 1/2" NPT with CS Bolts	S2	c	c	c	c	c	b
316 SS [5] Adapter Flange - 1/2" NPT with 316 SS Bolts	S3	c	c	c	c	c	b
316 SS [5] Adapter Flange - 1/2" NPT with NACE A286 SS Bolts	S4	c	c	c	c	c	b
316 SS [5] Adapter Flange - 1/2" NPT with B7M Bolts	S5	c	c	c	c	c	b
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			b
Monel 400® [4, 7] Adapter Flange - 1/2" NPT with CS Bolts	V2	c	c	c			b
Monel 400® [4, 7] Adapter Flange - 1/2" NPT with 316 SS Bolts	V3	c	c	c			b
316 SS [5] Blind Adapter Flange with CS Bolts	B3	•	•	•	•	•	b
316 SS [5] Blind Adapter Flange with 316 SS Bolts	B4	•	•	•	•	•	b
316 SS [5] Blind Adapter Flange with NACE A286 SS Bolts	B5	•	•	•	•	•	b
316 SS [5] Blind Adapter Flange with B7M Bolts	B6	•	•	•	•	•	b
Side Vent/Drain (End Vent Drain is standard)	SV	•	•	•	•	•	b
316 SS Center Vent Drain and Bushing	CV	•	•	•	•		b
Viton® [8] Process Head Gaskets (adapter gaskets ordered separately)	VT	•	•	•	•	•	b
Graphite Process Head & Adaptor Flange Gaskets	GF	•	•	•	•	•	b
Viton® [8] Adapter Flange Gaskets	VF	17	17	17	17	17	b
Diaphragm Options							
Gold plated diaphragm(s) on 316 SS	G1	•	•	•	•	•	b
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)	Selection	Availability STD1xx 20	30	70	25	10	
Transmitter Mounting Brackets Options							
Mounting Bracket - Carbon Steel	MB	•	•	•	•	•	b
Marine Approved Mounting Bracket - Carbon Steel	MX	•	•	•	•	•	
Mounting Bracket - 304 SS	SB	•	•	•	•	•	
Marine Approved 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	•	•	•	•	•	b
Certificate of Conformance (F3391)	F3	•	•	•	•	•	
Certificate of Origin (F0195)	F5	•	•	•	•	•	
FMEDA Certificate (SIL 1) (FC33321)	F6	•	•	•	•	•	b
SIL Certificate (SIL 2/3) (FC33337)	FE	22	22	22	22	22	
NACE Certificate (Process-Wetted & Non-Process Wetted) (FC33339)	F7	o	o	o	o	o	b
NACE Certificate (Process-Wetted only) (FC33338)	FG	•	•	•	•	•	
Marine Type Approvals (DNV, ABS, BV, KR & LR) (FC33340)	MT	2	2	2	2	2	
Warranty Options							
Additional Warranty - 1 year	W1	•	•	•	•	•	b
Additional Warranty - 2 years	W2	•	•	•	•	•	
Additional Warranty - 3 years	W3	•	•	•	•	•	
Additional Warranty - 4 years	W4	•	•	•	•	•	
Lifetime Warranty - 15 years	WL	•	•	•	•	•	

Approval Body	Approval Type	Location or Classification	Selection					
No hazardous location approvals			9X	•	•	•	•	•	b
FM Approvals	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 +93ºC), T6 (Ta = -40 to +78ºC)	CA	•	•	•	•	•	
	Intrinsically Safe, Zone 0/1	Ex ia IIC; T3, T4, T5 , T6 See Spec for detailed temperature codes by Communications option							
ATEX [10]	Intrinsically Safe, Zone 0/1	Ⓔx II 1 G Ex ia IIC T4, T5,T6	3S	•	•	•	•	•	
	Flameproof, Zone 1	Ⓔx II 2 G Ex d IIC T5, T6, Enclosure IP 66/67	3D	•	•	•	•	•	
	Non-Sparking, Zone 2	Ⓔx II 3 G Ex nA, IIC T6 (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 G Ex ia IIC T4, T5, T6 Ex II 2 G Ex d IIC T5, T6 Ex II 3 G Ex nA, IIC T6 (Honeywell) Enclosure IP 66/67	3H	•	•	•	•	•	
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] 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	•	•	•	•	•	
INMETRO (Brazil)	Flameproof, Zone 1	Ex d IIC T5	6D	•	•	•	•	•	

[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 chec

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	3D or 3H		
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		

Note: See ST-89 for Published Specials with pricing.

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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.

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