Honeywell

ST 3000
Smart Pressure Transmitter
Quick Start
Installation Guide

34-ST-25-24

Revision 9

July 2011

Notices and Trademarks

Revision 9 July 2011

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While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

About This Document

This document provides descriptions and procedures for the Quick Installation of your ST 3000 Transmitter.
Various other documents are available for reference that describes how to Install, Configure, and Operate the ST 3000 Transmitter. These can be ordered on CD or hardcopy, or may be downloaded from http://honeywell.silverw.com . (Registration is required at this site)

Document Title	Document #
ST 3000 Smart Transmitter and SFC Smart Field Communicator Model STS103	34-ST-25-14
ST 3000 FF Transmitter with Foundation Fieldbus Option Installation and Device Reference Guide	34-ST-25-15
ST 3000 Smart Transmitter Release 300 with HART Communications Option User Manual	34-ST-25-17
SMV 3000 Smart Multivariable Transmitter User's Manual	34-SM-25-02
RMA Smart Meter User's Manual	34-ST-25-08
Smart Field Communicator Model STS103 Operating Guide	34-ST-11-14
Smartline Confoguration Toolkit SCT 3000 Installation and Start-up Guide	34-ST-10-08
MC Toolkit User Manual	34-ST-25-20

Contacts

World Wide Web

The following lists Honeywell's World Wide Web sites that will be of interest to our customers.

Honeywell Organization	WWW Address (URL)
Corporate	http://www.honeywell.com/ps/hfs
Honeywell Process Solutions	http://hpsweb.honeywell.com/Cultures/en-US/ http://www.honeywell.com/ps
International	http://www.honeywell.com/business/global.asp

Telephone

Contact us by telephone at the numbers listed below.

	Organization	Phone Number
United States and Canada	Honeywell Inc.	1-800-343-0228 Sales 1-800-525-7439 Service
Asia Pacific	Honeywell Asia Pacific Inc.	(852) 8298298 Hong Kong
Europe	Honeywell PACE	[32-2] 728-2111 Brussels
Latin America	Honeywell Inc	(305) 364-2355 Sunrise, Florida USA

Technical Assistance

By Telephone	Honeywell Solution Support Center Phone: 1-800-423-9883 (U.S. only) Outside the U.S. call: 1-602-313-6510
Additional Help	You may also seek additional help by contacting the Honeywell distributor who supplied your ST 3000 transmitter.
By E Mail	You can also e-mail your technical questions or comments about this product to: Honeywell Solution Support Center e-mail: **ace@honeywell.com**
Problem Resolution	If it is determined that a hardware problem exists, a replacement transmitter or part will be shipped with instructions for returning the defective unit. Please do not return your transmitter without authorization from Honeywell's Solution Support Center or until the replacement has been received.

Symbol Definitions

The following table lists those symbols used in this document to denote certain conditions.

Symbol	Definition
	This CAUTION symbol on the equipment refers the user to the Product Manual for additional information. This symbol appears next to required information in the manual.
	**WARNING** **PERSONAL INJURY:** Risk of electrical shock. This symbol warns the user of a potential shock hazard where HAZARDOUS LIVE voltages greater than 30 Vrms, 42.4 Vpeak, or 60 VDC may be accessible. **Failure to comply with these instructions could result in death or serious injury.**
	ATTENTION, Electrostatic Discharge (ESD) hazards. Observe precautions for handling electrostatic sensitive devices
	Protective Earth (PE) terminal. Provided for connection of the protective earth (green or green/yellow) supply system conductor.
	Functional earth terminal. Used for non-safety purposes such as noise immunity improvement. NOTE: This connection shall be bonded to protective earth at the source of supply in accordance with national local electrical code requirements.
	Earth Ground. Functional earth connection. NOTE: This connection shall be bonded to Protective earth at the source of supply in accordance with national and local electrical code requirements.
	Chassis Ground. Identifies a connection to the chassis or frame of the equipment shall be bonded to Protective Earth at the source of supply in accordance with national and local electrical code requirements.

Contents

1 Mounting the Transmitter

1.1 Typical Bracket mounted and Flange Mounted Installations

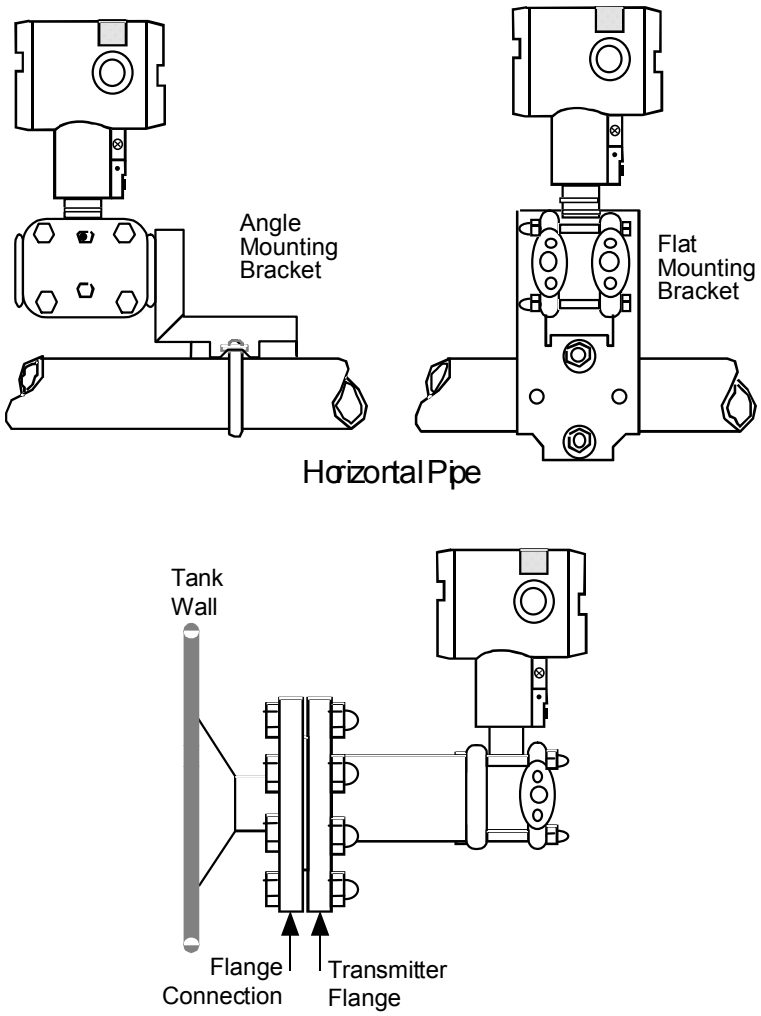


Figure 1

1.2 Bracket Mounting

Optional mounting bracket, see Figure 2

Existing mounting bracket, see Figure 3

Rotate the transmitter housing, see Figure 4

Level a transmitter with small absolute or differential pressure spans, see Figure 5.

Optional Mounting Bracket

Position bracket on 2-inch (50.8 mm) or, and install “U” bolt around pipe and through holes in bracket. Secure with nuts and lockwashers provided.

Figure 2 Example - Angle mounting bracket secured to horizontal or vertical pipe.

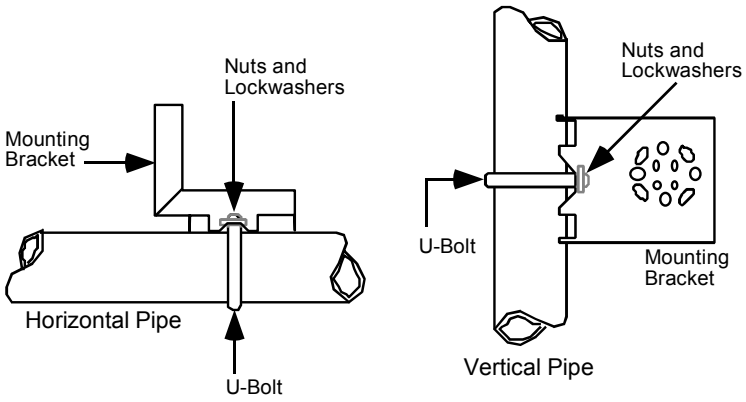


Figure 2

Existing Mounting Bracket

Align appropriate mounting holes in transmitter with holes in bracket and secure with bolts and washers provided.

NOTE: If the meter body is hexagonal, you must use the additional bracket supplied. If meter body is round, discard the bracket

Figure 3 Example – LGP model transmitter mounted to optional angle mounting bracket.

If Transmitter is….	Then….
DP type with double-ended process heads and/or remote seals	Use alternate mounting holes in end of heads
GP and AP with single-ended head	Use mounting holes in side of meter body
In-line GP and AP (LGP model)	Use smaller “U” bolt provided to attach meter body to bracket See Figure 3
Dual head GP	Use mounting holes in end of process head

LGP and LAP models

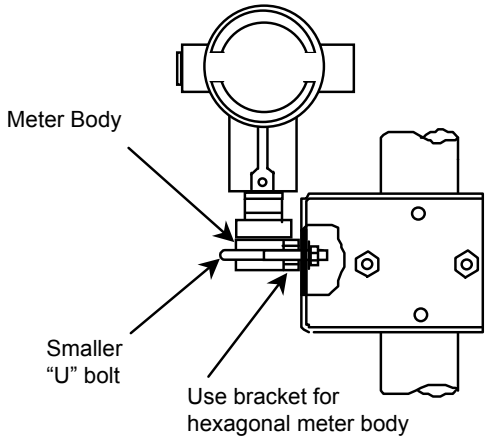


Figure 3

Rotating Transmitter Housing

Loosen set screw on outside neck of transmitter one full turn. Rotate Transmitter housing in maximum of 180 degree increment in left or right direction from center to position you require and tighten set screw (1.46 to 1.68 Nm/13 to 15 lb-in).

Figure 4 Example – Rotating Transmitter Housing.

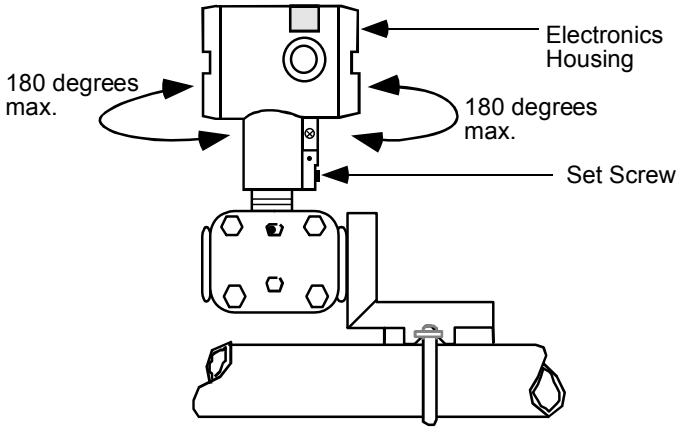


Figure 4

Leveling Transmitters with Small Absolute or Differential Pressure Spans

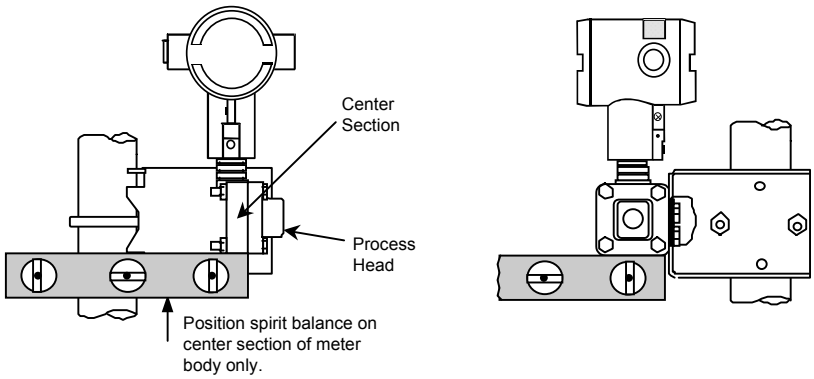
Mounting position of these transmitters is critical due to the smaller transmitter spans.

To minimize these positional effects on calibration (zero shift), take the appropriate mounting precautions that follow for the given transmitter model.

See Figure 5 and Figure 6 for suggestions on how to level the transmitter using a spirit balance.

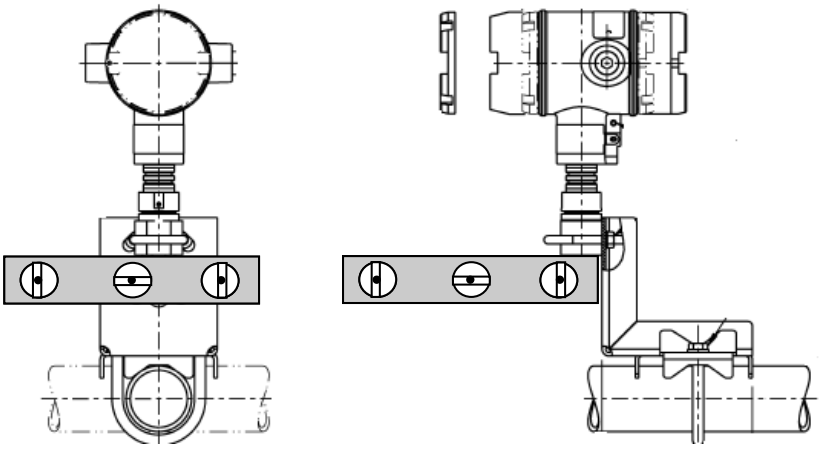
To perform a **Zero Trim** after leveling, refer to Section 0.

Models STA122 and STA922



For a model STA122 or STA922 transmitter, you must ensure that the transmitter is vertical when mounting it. You do this by leveling the transmitter side-to-side and front-to-back.

Figure 5



Mount transmitter vertically to assure best accuracy. Position spirit balance on pressure connection surface of AP body.

Figure 6

1.3 Flange Mounting

To mount a flange mounted transmitter model, bolt the transmitter's flange to the flange pipe on the wall of the tank.

On insulated tanks, remove enough insulation to accommodate the flange extension.

It is the End User's responsibility to provide a flange gasket and mounting hardware that are suitable for the transmitter's service condition.

To prevent degradation of performance in Flush-Mounted Flanged Transmitters, exercise care to ensure that the internal diameter of the flange gasket does not obstruct the sensing diaphragm.

To prevent degradation of performance in Extended Mount Flanged Transmitters, ensure that there is sufficient clearance in front of the sensing diaphragm body.

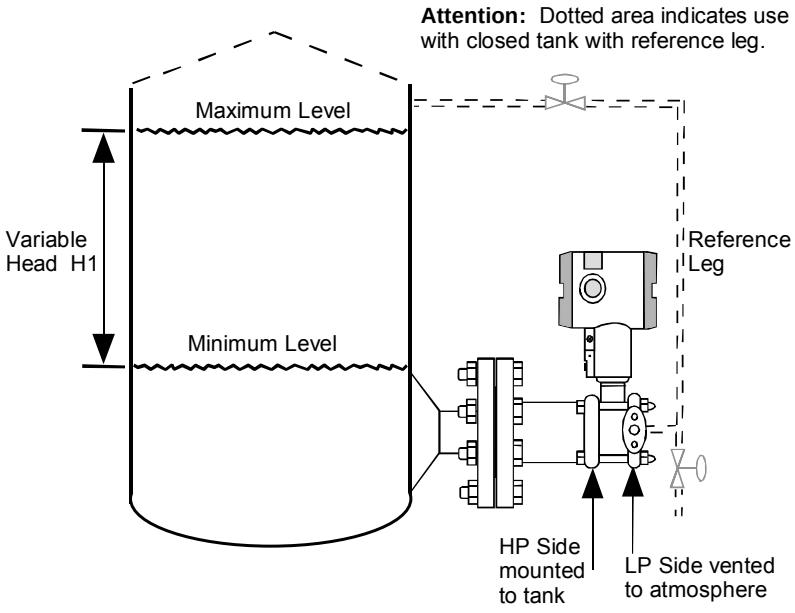


Figure 7

1.4 Flush Mounting

To mount a flush mounted transmitter model, cut a hole for a 1-inch standard pipe in the tank or pipe where the transmitter is to be mounted. See Figure 8

Weld the 1-inch mounting sleeve to the wall of the tank or to the hole cut on the pipe. Insert the meter body of the transmitter into the mounting sleeve and secure with the locking bolt. Tighten the bolt to a torque of 6,4 Nm ±0,30 Nm [4.7 ft.-lbs. ±0.2 ft.-lbs.]

Once the transmitter is mounted, the transmitter housing can be rotated to the desired position. See Figure 4

On insulated tanks, remove enough insulation to accommodate the mounting sleeve.

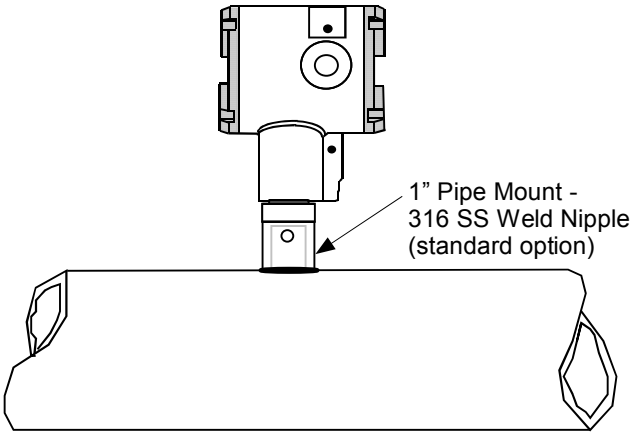


Figure 8

1.5 High Temperature Transmitter Mounting

You can mount the high temperature transmitter directly to the process flange connection or the process piping. See Figure 9

To mount a flange mounted transmitter model, bolt the transmitter's flange to the flange on the wall of the tank or process pipe.

It is the End User's responsibility to provide a flange gasket and mounting hardware that are suitable for the transmitter's service condition.

Once the transmitter is mounted, the transmitter housing can be rotated to the desired position. See Figure 4

On insulated tanks, remove enough insulation to accommodate the mounting sleeve.

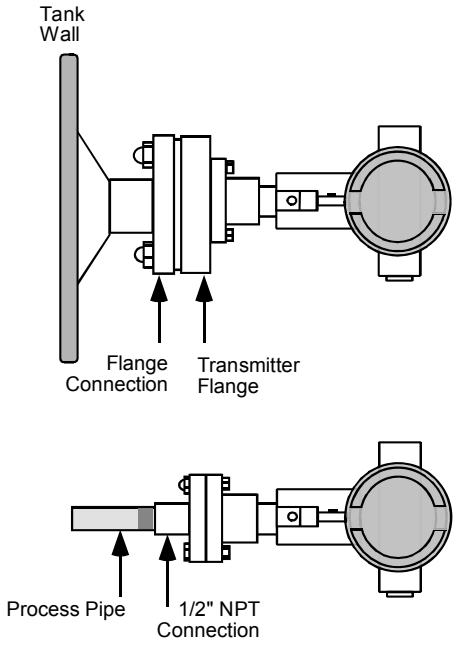


Figure 9

1.6 Remote Seal Mounting

Mount the transmitter at a remote distance determined by length of capiliary tubing.

NOTE: The combination of tank vacuum and high pressure capillary head effect should not exceed 9 psi (300 mm Hg) absolute.

On insulated tanks, remove enough insulation to accommodate the mounting sleeve.

Figure 10 Example – Typical Remote Seal Transmitter installation.

NOTE: For Sanitary 3-A installations, only mount the transmitter outside of the Non-Product Contact area where incidental contact with the process material is unlikely, use a minimum capillary length of 1.5m (5ft.)

If Transmitter Model Number is….	Then connect remote seal on….
STR93D or STR12D	high pressure (HP) side of transmitter to lower flange mounting on tank wall for ***variable*** head H1.
STR13D	low pressure (LP) side of transmitter to lower flange mounting on tank wall for ***variable*** head H1.

STR93D or STR12D	low pressure (LP) side of transmitter to upper flange mounting on tank wall for ***fixed or constant*** head H2.
STR13D	high pressure (HP) side of transmitter to upper flange mounting on tank wall for ***fixed or constant*** head H2.
It is the End User's responsibility to provide a flange gasket and mounting hardware that are suitable for the transmitter's service condition	

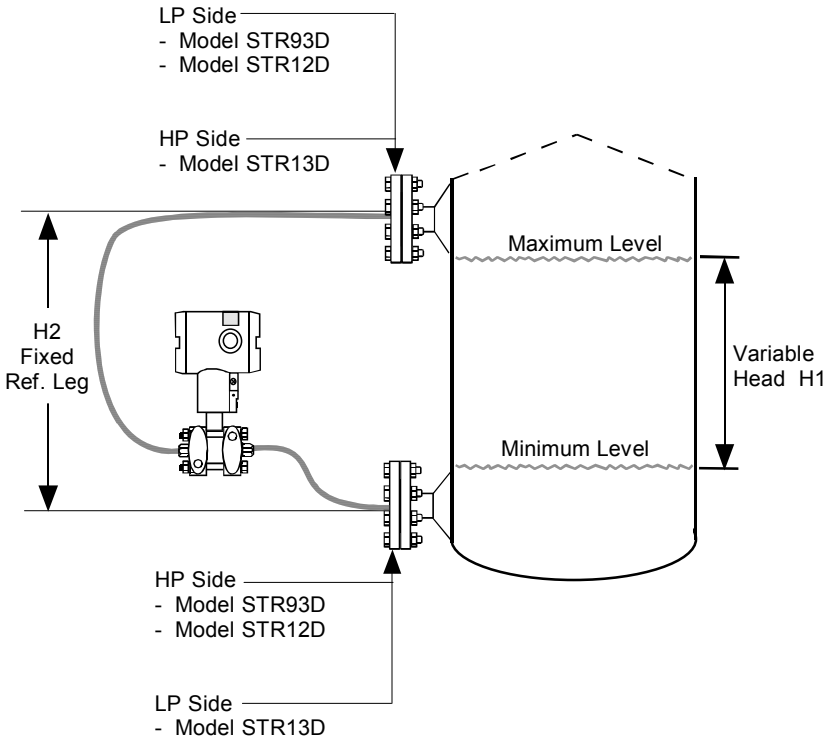


Figure 10

1.7 Conduit Entry Plugs and Adapters

Honeywell Part No.	Description	Material	Environmental Rating	Ambient Limits	Hazardous Location Certification
30679588-501	1/2 NPT Conduit Entry Plug	Zinc Plated Carbon Steel	Type 4X, IP 66-68*	–40°C to +93°C* –40°F to +199°F*	None
30749366-501	M20 Male to 1/2 NPT Female Certified Conduit Adapter	316 Stainless Steel (Silicone O-Ring)	Type 4X, IP 66-68	–50°C to +150°C –58°F to +302°F	CSA Cl I, Div 1, Gp ABCD ATEX Ex II 2 GD; Ex d IIC IECEx Ex d IIC
50000547-501	M20 Certified Conduit Plug	316 Stainless Steel (Silicone O-Ring)	Type 4X, IP 66-68	–50°C to +150°C –58°F to +302°F	CSA Cl I, Div 1, Gp ABCD ATEX Ex II 2 GD; Ex d IIC IECEx Ex d IIC
50000682-501	1/2 NPT Male to 3/4 NPT Female Certified Conduit Adapter	316 Stainless Steel	Type 4X, IP 66-68	–50°C to +150°C –58°F to +302°F	CSA Cl I, Div 1, Gp ABCD ATEX Ex II 2 GD; Ex d IIC IECEx Ex d IIC
50021832-502	1/2 NPT Certified Conduit Plug	Zinc Plated Carbon Steel	Type 4X, IP 66-68	–50°C to +150°C –58°F to +302°F	CSA Cl I, Div 1, Gp ABCD ATEX Ex II 2 GD; Ex d IIC IECEx Ex d IIC
50021832-501	1/2 NPT Certified Conduit Plug	316 Stainless Steel	Type 4X, IP 66-68	–50°C to +150°C –58°F to +302°F	CSA Cl I, Div 1, Gp ABCD ATEX Ex II 2 GD; Ex d IIC IECEx Ex d IIC
51202409-501	1/2 NPT Male to M20 Female Certified Conduit Adapter	316 Stainless Steel	Type 4X, IP 66-68	–50°C to +150°C –58°F to +302°F	CSA Cl I, Div 1, Gp ABCD ATEX Ex II 2 GD; Ex d IIC IECEx Ex d IIC

* Honeywell Specified

Procedures

It is the User/Installer's responsibility to install the ST 3000 Wireless Transmitters in accordance with national and local code requirements. Conduit entry plugs and adapters shall be suitable for the environment, shall be certified for the hazardous location when required and acceptable to the authority having jurisdiction for the plant.

Use the following procedures for installation.

Conduit Entry Plugs see Table 1 & Figure 11

Conduit Adapters see Table 2 & Figure 11

Table 1 – Conduit entry plug installation

Step	Action
1	Remove the protective plastic cap from the threaded conduit entry(s).
2	To ensure the environmental ingress protection rating on tapered (NPT), a non-hardening thread sealant may be used.
3	Thread the appropriate size conduit plug (M20 or ½" NPT) into the conduit entry opening. Do not install conduit entry plugs in conduit entry openings if adapters or reducers will be used.
4	Tighten plugs according to the following table.

Description	Tool	Torque	
M20 Conduit Entry	10mm Hex Wrench	32 Nm	24 Lb-ft
½" NPT Conduit Entry	10mm Hex Wrench	32 Nm	24 Lb-ft

Table 2 – Conduit adapter installation

Step	Action
1	Remove the protective plastic cap from the threaded conduit entry.
2	To ensure the environmental ingress rating on tapered threads (NPT), a non-hardening thread sealant may be used.
3	Thread the appropriate size adapter (M20 or ½ NPT) into the conduit entry opening
4	Tighten adapters according to the following table.

Description	Tool	Torque	
M20 to ½ NPT Adapter	15/16" or 24mm Wrench	32 Nm	24 Lb-ft
½ to ¾ NPT Adapter	1 ¼" Wrench	32 Nm	24 Lb-ft

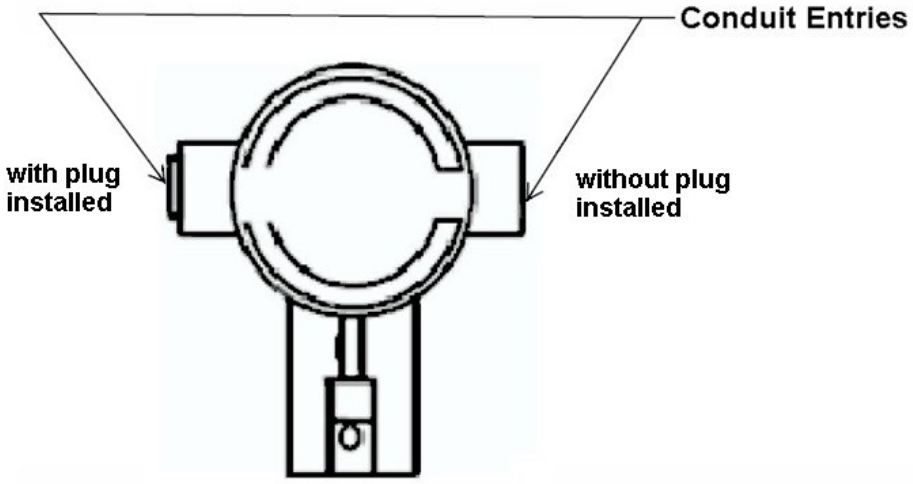


Figure 11 Electronic Housing Conduit Entries

Note. No plugs come installed in the ST 3000 housings. All housings come with temporary plastic dust protectors (red) installed and are not certified for use in any installation.

2 Trim the Transmitter

2.1 Procedure to Trim the Transmitter

For a transmitter with a small differential pressure span, you must ensure that the transmitter is vertical when mounting it. You do this by leveling the transmitter side-to-side and front-to-back. See Figure 5 for suggestions on how to level the transmitter using a spirit balance. You must also zero the transmitter by following the steps in this table.

Step	Action
1	Attach the transmitter to the mounting bracket but do not completely tighten the mounting bolts
2	Connect a tube between the input connections in the high pressure (HP) and low pressure (LP) heads to eliminate the affects of any surrounding air currents.
3	Connect 24 Vdc power to the transmitter and connect a digital voltmeter or SFC to read the transmitter's output or connect a voltmeter across the 250 ohm resistor, if desired.
4	Use applicable communicator to establish communications with the transmitter. For DE transmitter use SFC, SCT, or MCT. For Hart, use MCT or other Hart Communicator with applicable Honeywell DD's. For Fieldbus, use NI FBUS tools with applicable Honeywell DD's.
5	While reading the transmitter's output on a communication tool or a voltmeter, position the transmitter so the output reading is at or near zero, then completely tighten the mounting bolts.
6	Do an input zero correct function using the communication tool. This corrects the transmitter for any minor error that may occur after the mounting bolts are tightened.
7	Remove the tube from between the input connections, the power, and the digital voltmeter or communication tool.

3 Set the Jumpers

3.1 Changing Default Failsafe Direction

Transmitters are shipped with a default failsafe direction of upscale. This means that the transmitter's output will be driven upscale (maximum output) when the transmitter detects a critical status.

You can change the direction from upscale to downscale (minimum output) by cutting jumper W1 on the printed wiring assembly. If your transmitter is operating in the analog mode, an upscale failsafe action will drive the transmitter's output to greater than 21 mA or a downscale action will drive its output to less than 3.8 mA.

If your transmitter is operating in the DE mode an upscale failsafe action will cause the transmitter to generate a "+ infinity" digital signal, or a downscale failsafe action will cause it to generate a "– infinity" digital signal. The STIMV IOP module interprets either signal as "not a number" and initiates its own configured failsafe action for the control system. The STDC initiates the failsafe mode configured through the transmitter when either signal is generated.

NOTE: The failsafe direction display that you can access through the SFC only shows the state of the failsafe jumper in the transmitter as it correlates to analog transmitter operation. The failsafe action of the digital control system may be configured to operate differently than indicated by the state of the jumper in the transmitter.

	**ATTENTION**: Electrostatic Discharge (ESD) hazards. Observe precautions for handling electrostatic sensitive devices
Step	**Action**
1	With transmitter on bench and no power applied. Loosen end-cap lock and unscrew end cap from electronics side of transmitter housing.
2	If applicable, unsnap Local Smart Meter from PWA mounting bracket and unplug cable from connector on back of meter assembly. Loosen two retaining screws and carefully pull mounting bracket and PWA from housing. Using retaining clip remove flex-tape connector from PWA Remove 2-wire power connector from PWA, and then remove PWA and mounting bracket assembly.
3	With component side of PWA facing you, locate failsafe jumper W1 and cut it in half with small wire cutter such as dykes. See Figure 10. This changes failsafe action from upscale to downscale.
4	Reverse applicable previous steps to replace PWA.
5	Turn ON transmitter power.

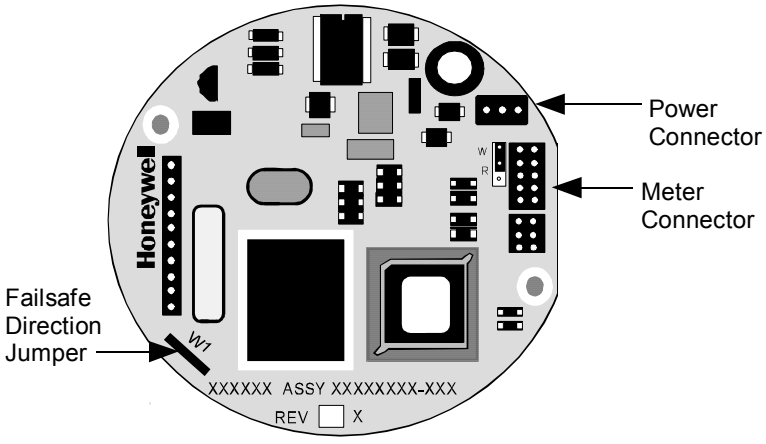


Figure 12

3.2 Optional Write Protect Jumper

The ST 3000 Pressure Transmitter (DE or HART) is now being shipped with a newly designed printed wiring assembly (PWA) that allows user access to the optional write protect jumper without removing the PWA. This version of the PWA is functionally identical to the previous version, with the same performance and specifications. The new version PWA differs only in location of the optional write protect jumper and the associated bracket and hardware.

Do not remove the PWA as described in Section 3.1 Changing Default Failsafe Direction. Instead, follow the following steps.

	**ATTENTION:** Electrostatic Discharge (ESD) hazards. Observe precautions for handling electrostatic sensitive devices.
	**WARNING!** PERSONAL INJURY: Risk of electrical shock. Disconnect power before proceeding. HAZARDOUS LIVE voltages greater than 30 Vrms, 42.4 Vpeak, or 60 VDC may be accessible. Failure to comply with these instructions could result in death or serious injury

Step	Action
1	Place transmitter on bench. Remove power. Loosen end-cap lock and unscrew end-cap from electronics side of transmitter housing
2	If applicable, unsnap local smart meter from PWA mounting bracket.
3	Find the write protect jumper shown in Figure 11 below. Position the jumper for read-only or read/write.
4	Reverse applicable previous steps to install smart meter and end-cap.
5	Re-connect transmitter power.

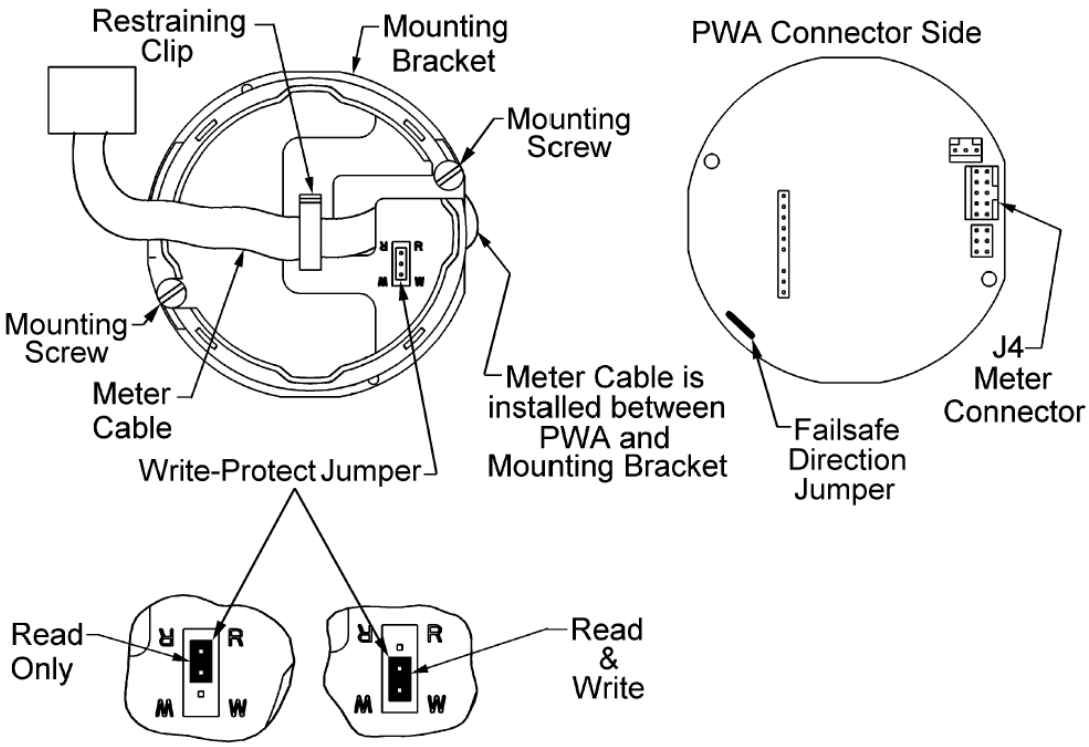


Figure 13

4 Connect the Wiring and Power Up

4.1 Summary

The transmitter is designed to operate in a two-wire power/current loop with loop resistance and power supply voltage within the operating range shown in Figure 14.

Loop wiring is connected to the transmitter by simply attaching the positive (+) and negative (–) loop wires to the positive (+) and negative (–) SIGNAL screw terminals on the terminal block in the transmitter's electronics housing shown in the table in Section 4.2.

Each transmitter includes an internal ground terminal to connect the transmitter to earth ground. A ground terminal can be optionally added to the outside of the electronics housing. While it is not necessary to ground the transmitter for proper operation, we suggest that you do so to minimize the possible effects of "noise" on the output signal and provide additional protection against lightning and static discharge damage.

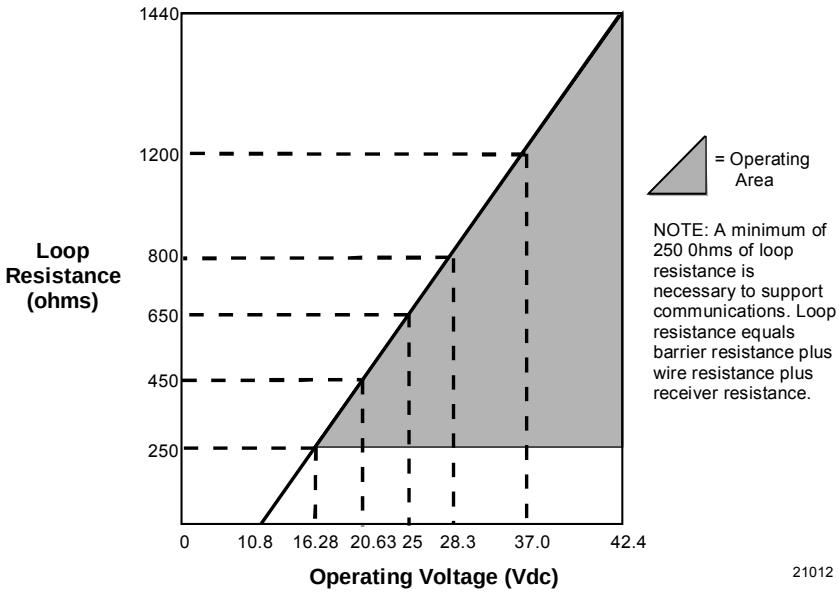


Figure 14

4.2 Wiring Connections

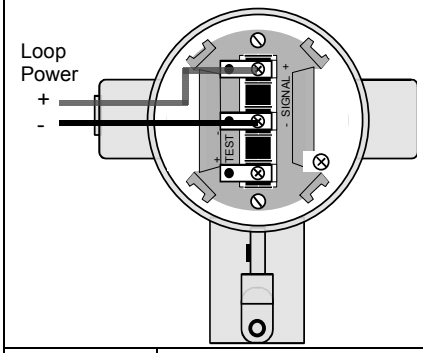
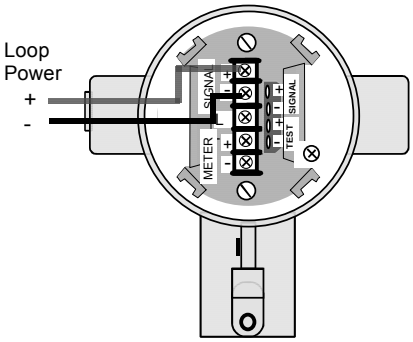
This procedure shows the steps for connecting power to the transmitter.

For loop wiring and external wiring diagrams, refer to the installation drawings presented in the Transmitter Manual.

Detailed drawings are provided for transmitter installation in non-intrinsically safe areas and for intrinsically safe loops in hazardous area locations.

ATTENTION
All wiring must comply with local codes, regulations, and ordinances.

If you will be using the transmitter in a hazardous area, be sure to review the hazardous location reference data included in Appendix B of the transmitter manual before operating the transmitter.

Step	Action
1	Loosen end-cap lock using a 1.5 mm allen wrench and remove end-cap cover from terminal block end of transmitter housing.
2	Feed loop power leads through one of conduit entrances on either side of transmitter housing. Plug whichever entrance you do not use. **ATTENTION** The transmitter accepts up to 16 AWG wire.
3	Observing polarity, connect positive loop power lead to SIGNAL + terminal and negative loop power lead to SIGNAL – terminal. EXAMPLE - CONNECTING LOOP POWER TO TRANSMITTER.
	3-screw terminal block  5-screw terminal block (option LP) 
4	Replace end-cap, and tighten end-cap lock.

4.3 Lightning Protection

When your transmitter is equipped with optional lightning protection, you must connect a wire from the transmitter to ground as shown in Figure 15 to make the protection effective. We recommend that you use a size 8 (American Wire Gage) or (8.37mm^2) bare or green covered wire.

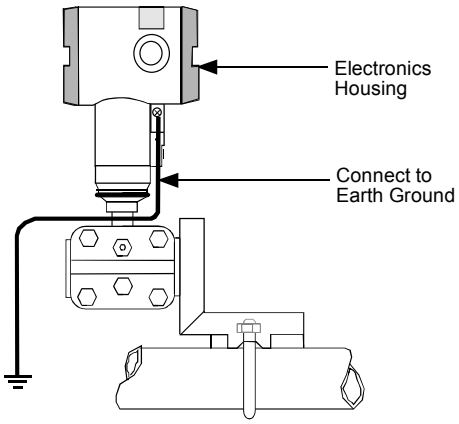


Figure 15

4.4 Additional Considerations for Wiring SMV 3000 Transmitter

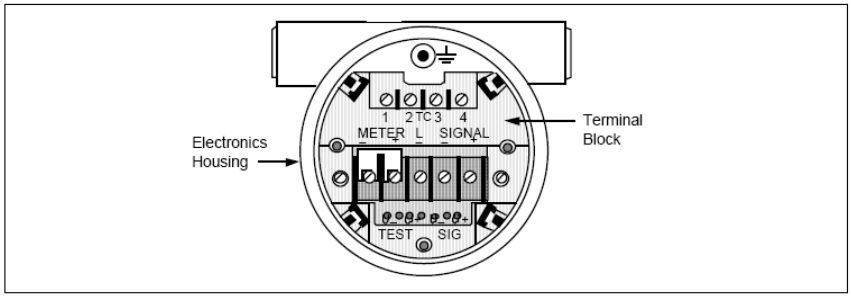


Figure 16 SMV 3000 Transmitter Terminal Block

Connect RTD leads to the TC terminals 1, 2, 3, and 4 as appropriate for the given probe type.

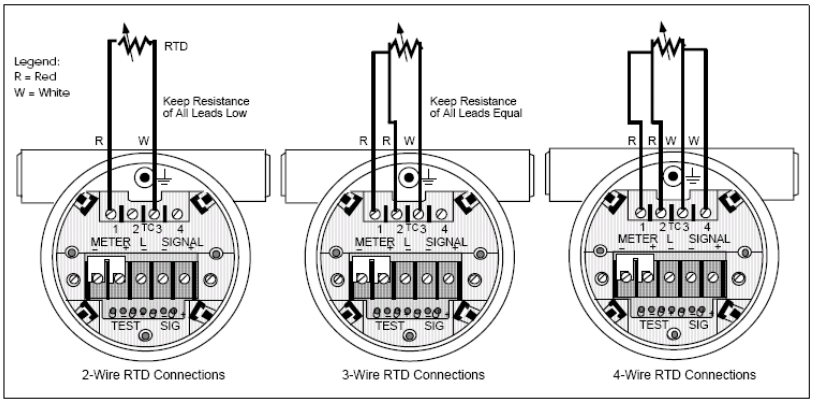


Figure 17 RTD Input Wiring Connections.

Connect thermocouple leads to terminals 1 (–) and 3 (+), observing polarity.

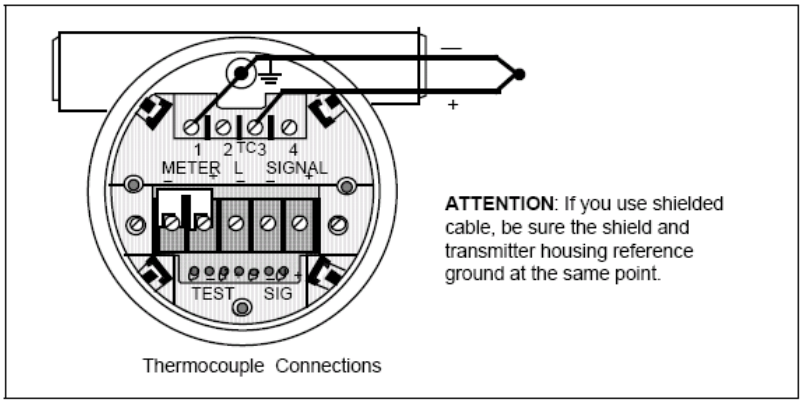


Figure 18 Thermocouple Input Wiring Connections.

5 Certifications

5.1 Product Certifications

5.1.1 Approved Manufacturing Locations

Honeywell Process Solutions
512 Virginia Drive
Fort Washington, PA 19034

Honeywell (Tianjin) Limited
66 BaiHe Road, Tianjin Economic-
Technological Development Area
Tianjin, 300457, P.R. China

Honeywell Automation India Limited
56 & 57 Hadapsar Industrial Estate
Pune 411 013, India

5.1.2 European Directive Information

The EC Declarations of Conformity for all applicable directives for this product can be found on the Honeywell website at www.honeywell.com/imc. A hard copy may be obtained by contacting your local Honeywell sales office.

European Pressure Equipment Directive (PED) 97/23/EC

The ST 3000 pressure transmitters are in conformity with the essential requirements of the PED. 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, is available upon request.

Electromagnetic Compatibility (EMC) 89/336/EEC

All ST 3000 Pressure Transmitters
EN 50081-1: 1992; EN 50082-2: 1995;
EN 61326: 1997 / A1: 1998 – Industrial

CE

5.2 Hazardous Location Certifications

5.2.1 FM™ Approvals (USA)

	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

5.2.2 Canadian Standards Association (CSA)

	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, STG180, STA17L and STA97L have been registered in all provinces and territories in Canada and are marked CRN: 0F8914.5C.		

5.2.3 IECEx International Electrotechnical Commission (LCIE)

	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.

5.2.4 SAEx (South Africa)

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

5.2.5 INMETRO (CERTU SP Brazil)

	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.

5.2.6 ATEX Certification (LCIE)

	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.

5.2.7 Pressure Equipment Directive (PED)

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.

5.2.8 Other Certifications

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 (Tianjin) Limited – Tianjin, P.R. China Honeywell Automation India Ltd. – Pune 411013 India

Sales and Service

For application assistance, current specifications, pricing, or name of the nearest Authorized Distributor, contact one of the offices below.

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