

### STR800 SmartLine Remote Diaphragm Seals Specification 34-ST-03-88, October 2020



#### Introduction

Part of the SmartLine® family of products, the STR800 is a series of high performance pressure transmitters hydraulically matched and optimized with a complete set of remote diaphragm seals. Utilizing the same high performance sensor technology of the ST 800 product line Honeywell has optimized the mechanical and hydraulic designs in order to minimize the typical effects of temperature on remote seal systems. The SmartLine family is also fully tested and compliant with Experion® PKS providing the highest level of compatibility assurance and integration capabilities. SmartLine easily meets the most demanding application needs for pressure measurement applications.

#### Best in Class Features:

- Accuracies of up to 0.0375% of span
- Automatic static pressure & temperature compensation
- Rangeability up to 100:1
- Multiple local display capabilities
- External zero, span, & configuration capability
- Polarity insensitive electrical connections
- Comprehensive on-board diagnostic capabilities
- Integral Dual Seal design for highest safety based on ANSI/NFPA 70-202 and ANSI/ISA 12.27.0
- World class overpressure protection
- Full compliance to SIL 2/3 requirements.
- Modular design characteristics
- Available with additional 15-year warranty

#### Typical Diaphragm Seal applications

- High Process Temperatures
- Viscous or Suspended Solids
- Highly Corrosive Process Materials
- Sanitary Applications
- Applications with Hydrogen Permeation Possibilities
- Level Applications with Maintenance Intensive Wet Legs
- Applications requiring remote Transmitter Mounting
- Tank Applications with Density or Interface Measurements



Figure 1 – STR800 Remote Diaphragm Seal Unit

#### Communications/Output Options:

- Honeywell Digitally Enhanced (DE)
- HART® (version 7.0)
- FOUNDATION™ Fieldbus

All transmitters are available with the above listed communications protocols.

#### Span & Range Limits:

Model	URL “H <sub>2</sub> O (mbar)	LRL “H <sub>2</sub> O (mbar)	Min Span “H <sub>2</sub> O (mbar)
STR82D	400 (1000)	-400 (-1000)	4.0 (10)
Model	psid (bar)	psid (bar)	psid (bar)
STR83D	100 (7.0)	-100 (-7.0)	1 (0.07)
Model	psig (bar)	psig (bar)	psig (bar)
STR84G	500 (35.0)	-14.7 (-1.0)	5 (0.35)
STR87G	3000 (210)	-14.7 (-1.0)	30 (2.1)
Model	psia (bara)	psig (bara)	psig (bara)
STR84A	500 (35)	0 (0)	5 (0.35)

## Description

The SmartLine family of gauge pressure, differential pressure, and absolute pressure transmitters is designed around a high performance piezo-resistive sensor. This one sensor actually integrates multiple sensors linking process pressure measurement with on-board static pressure (DP Models) and temperature compensation measurements resulting in the best total performance available. This level of performance allows the ST 800 to replace virtually any competitive transmitter available today.

## Unique Indication/Display Options

The ST 800 modular design accommodates a basic alphanumeric LCD display or a unique advanced graphics LCD display with many unparalleled features.

### Basic Alphanumeric LCD Display Features

- Modular (may be added or removed in the field)
- 0, 90, 180, & 270 degree position adjustments
- Configurable (HART only) and standard (Pa, KPa, MPa, KGcm<sup>2</sup>, Torr, ATM, inH<sub>2</sub>O, mH<sub>2</sub>O, bar, mbar, inH<sub>2</sub>O, inHG, FTH<sub>2</sub>O, mmH<sub>2</sub>O, mm HG, & psi) measurement units
- 2 Lines 16 Characters (4.13H x 1.83W mm)
- Square root output indication (√)

### Advanced Graphics LCD Display Features

- Modular (may be added or removed in the field)
- 0, 90, 180, & 270 degree position adjustments
- Standard and custom measurement units available.
- Up to eight display screens with 3 formats are possible
- (Large PV with Bar Graph or PV with Trend Graph)
- Configurable screen rotation timing
- Display Square Root capabilities may be set separately from the 4-20mA dc output signal
- Unique "Health Watch" indication provides instant visibility of diagnostics
- Multiple language capability. (EN, DE, FR, IT, ES, RU, TR, CN, JP)

## Diagnostics

SmartLine transmitters all offer digitally accessible diagnostics which aid in providing advanced warning of possible failure events minimizing unplanned shutdowns, providing **lower overall operational costs**

## Configuration Tools

### Integral Three Button Configuration Option

Suitable for all electrical and environmental requirements, SmartLine offer the ability to configure the transmitter and display via three externally accessible buttons when either display option is selected. Zero/span capabilities are also optionally available via these buttons with or without selection of a display option.

### Hand Held Configuration

SmartLine transmitters feature two-way communication and configuration capability between the operator and the transmitter. All Honeywell transmitters are designed and tested for compliance with the offered communication protocols and are designed to operate with any Standards compliant handheld configuration device.

### Personal Computer Configuration

Honeywell's SCT 3000 Configuration Toolkit provides an easy way to configure Digitally Enhanced (DE) instruments using a personal computer as the configuration interface. Field Device Manager (FDM) Software and FDM Express are also available for managing HART & Fieldbus device configurations.

## System Integration

- SmartLine communications protocols all meet the most current published standards for HART/DE/Fieldbus.
- Integration with Honeywell's Experion PKS offers the following unique advantages.
  - Transmitter messaging
  - Maintenance mode indication
  - Tamper reporting
  - FDM Plant Area Views with Health summaries
  - All ST 800 units are Experion tested to provide the highest level of compatibility assurance

## Modular Design

To help contain maintenance & inventory costs, all STR800 transmitters are modular in design supporting the user's ability to replace or add indicators, terminal connections or electronic modules without affecting overall performance or approval body certifications

### Modular Features

- Exchange/replace electronics/comms modules\*
- Add or remove integral indicators\*
- Add or remove lightning protection (terminal connection)\*

\* Field replaceable in all electrical environments (including IS) except flameproof without violating agency approvals.

With no performance effects, Honeywell's unique modularity results in **lower inventory needs and lower overall operating costs.**

## Performance Specifications

### Reference Accuracy (conformance to +/-3 Sigma)

Model	URL	LRL	Min Span	Maximum Turndown Ratio	Reference Accuracy <sup>1,2</sup> (% Span)
STR82D	400 in H <sub>2</sub> O (1000 mbar)	-400 in H <sub>2</sub> O (-1000 mbar)	4 in H <sub>2</sub> O (10 mbar)	100:1	0.0375
STR83D	100 psid (7.0 bar)	-100 psi (-7.0 bar)	1 in psi (0.07 bar)	100:1	0.0375
STR84G	500 psi (35 bar)	-14.7 (-1.0 bar)	5 psi (0.35 bar)	100:1	0.0375
STR87G	3000 psi (210 bar)	-14.7 psi (-1.0 bar)	30 psi (2.1 bar)	100:1	0.0375
STR84A	500 psia (35 bara)	0 psia (0 bara)	5 psia (0.35 bara)	100:1	0.0375

Zero and span may be set anywhere within the listed (URL/LRL) range limits

### Accuracy at Specified Span, Temperature and Static Pressure: (conformance to +/-3 Sigma)

	Model	URL	Accuracy <sup>1,2</sup> (% of Span)			Combined Zero & Span Temperature Effect <sup>3</sup> (% Span/ 28°C (50°F))			
			Reference Turndown	A	B	C (see URL units)	D	E	F (see URL units)
Standard Accuracy	STR82D	400 in H <sub>2</sub> O (1000mbar)	8:1	0.005	0.0325	50 (125)	0.175	1.000	200 (500)
	STR83D	100 psid (7.0 bar)	3.33:1			30 (2.1)	0.025	0.280	30 (2.1)
	STR84G	500 psi (35 bar)	25:1			20 (1.4)			
	STR87G	3000 psi (210 bar)	10:1			300 (2.1)			
	STR84A	500 psia (35 bara)	25:1			20 (1.4)			
Turn Down Effect						Temp Effect			
$\pm [A + B] \text{ if Span} \geq C$ $\pm \left[ A + B \left( \frac{C}{\text{Span}} \right) \right] \text{ if Span} < C$						$\pm \left[ D + E \left( \frac{F}{\text{Span}} \right) \right]$			

Total Performance (% of Span):

$$\text{Total Performance} = \pm \sqrt{(\text{Accuracy})^2 + (\text{Temp Effect})^2}$$

**Total Performance Examples:** (standard accuracy, 5:1 Turndown, up to 50 °F shift)

**STR82D @ 80" H<sub>2</sub>O:** 2.68% of span

**STR83D @ 20 psid:** 0.45% of span

### Typical Calibration Frequency:

Calibration verification is recommended every four (4) years

### Notes:

1. Terminal Based Accuracy – Includes combined effects of linearity, hysteresis, and repeatability. Analog output adds 0.005% of span.
2. For zero based spans and reference conditions of 25°C (77°F). 0 psi static pressure for DP, >= 0 psia for GP, 10 to 55% R.H, and 316 Stainless Steel barrier diaphragms
3. Specification applies to transmitter with 2 balanced remote seals. Apply a 1.5 factor for temperature effect for capillary lengths greater than 10 feet.

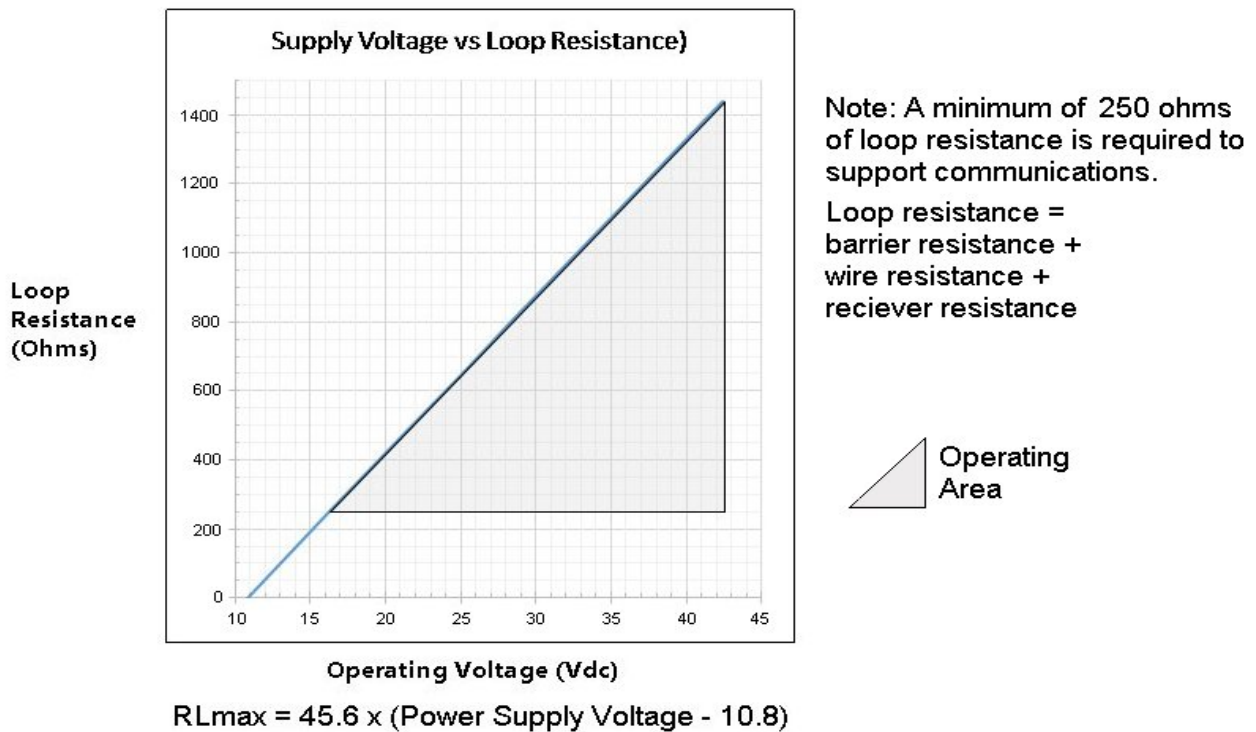
**Operating Conditions – All Models**

Parameter	Reference Condition (at zero static)		Rated Condition		Operative Limits		Transportation and Storage																			
	°C	°F	°C	°F	°C	°F	°C	°F																		
Ambient Temperature <sup>1</sup>	25±1	77±2	-	-	-	-	-55 to 90	-67 to 194																		
Humidity %RH	10 to 55		0 to 100		0 to 100		0 to 100																			
Vacuum Region, Minimum Pressure mmHg absolute	Atmospheric (See Figure 4 for vacuum limitation)																									
Supply Voltage, Current, and Load Resistance	10.8 to 42.4 Vdc at terminals (IS versions limited to 30 Vdc) 0 to 1,440 ohms (as shown in Figure 2)																									
Maximum Allowable Working Pressure (MAWP) <sup>4</sup> <small>(ST 800 products are rated to Maximum Allowable Working Pressure. MAWP depends on Approval Agency and transmitter materials of construction.)</small>	<table border="0"> <tr> <td colspan="2"><b>MAWP is minimum of Body Rating or Seal Rating (See Model Selection Guide for Seal</b></td> </tr> <tr> <td><b>Body</b></td> <td><b>MAWP</b></td> </tr> <tr> <td>STR82D</td> <td>2,500 psig (172 bar) Bolted Process Heads</td> </tr> <tr> <td>STR83D</td> <td>2,500 psig (172 bar) Bolted Process Heads</td> </tr> <tr> <td>STR82D</td> <td>1,450 psig (100 bar) All Welded Process</td> </tr> <tr> <td>STR83D</td> <td>1,450 psig (100 bar) All Welded Process</td> </tr> <tr> <td>STR84G</td> <td>500 psig (35 bar)</td> </tr> <tr> <td>STR87G</td> <td>3,000 psig (207 bar)</td> </tr> <tr> <td>STR84A</td> <td>500 psia (35 bara)</td> </tr> </table>								<b>MAWP is minimum of Body Rating or Seal Rating (See Model Selection Guide for Seal</b>		<b>Body</b>	<b>MAWP</b>	STR82D	2,500 psig (172 bar) Bolted Process Heads	STR83D	2,500 psig (172 bar) Bolted Process Heads	STR82D	1,450 psig (100 bar) All Welded Process	STR83D	1,450 psig (100 bar) All Welded Process	STR84G	500 psig (35 bar)	STR87G	3,000 psig (207 bar)	STR84A	500 psia (35 bara)
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STR87G	3,000 psig (207 bar)																									
STR84A	500 psia (35 bara)																									

<sup>1</sup> Ambient Temperature Limit is a function of Process Interface Temperature and fill fluid. (See Figure 3 & Figure 4)

LCD Display operating temperature -20°C to +70°C . Storage temperature -30°C to 80°C

<sup>4</sup> Consult factory for MAWP of ST 800 transmitters with CRN approval.



**Figure 2 - Supply voltage and loop resistance**

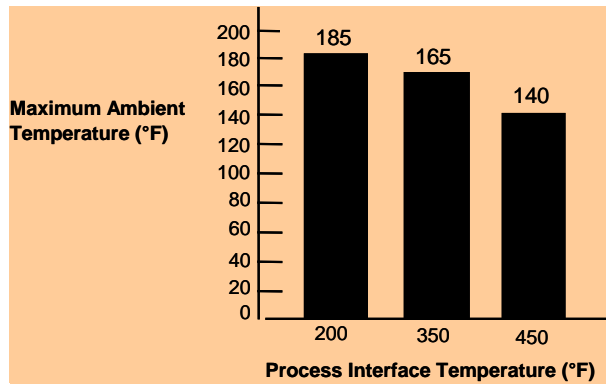


Figure 3 - Ambient temperature limits

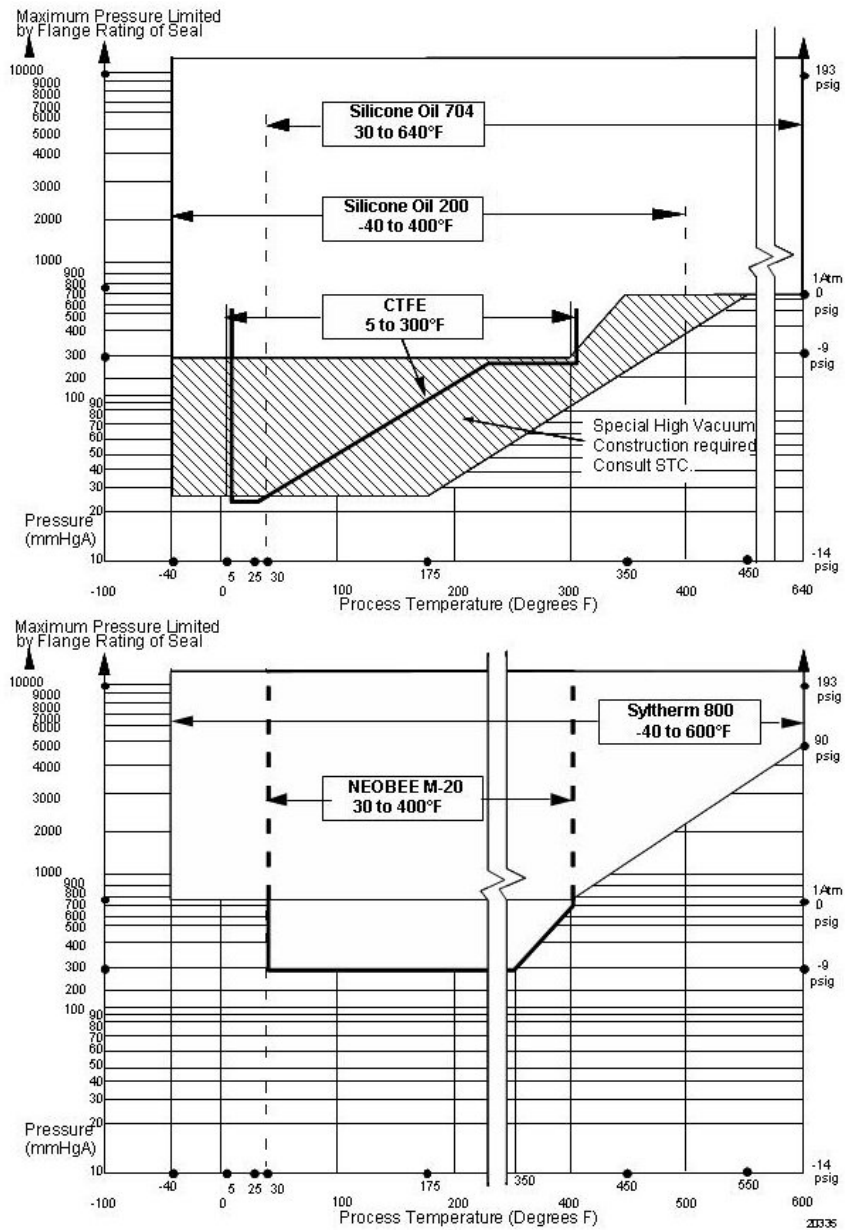


Figure 4 - STR800 Remote Seals operable limits for pressure vs. temperature



**Minimum recommended span for STR82D and STR83D Transmitter with two Remote Seals**

Diaphragm Size (Inches)	Capillary Length (Feet)						Maximum Capillary Length (Feet)
	5	10	15	20	25	35	
2.4	7.2 psi						5
2.9	3.6 psi	4.5 psi	5.4 psi	6.3 psi			20
3.5	0.6 psi	0.7 psi	0.9 psi	1.0 psi	1.2 psi	1.4 psi	35
4.1	0.4 psi	0.5 psi	0.6 psi	0.8 psi	0.9 psi	1.1 psi	35

**Minimum recommended span for STR82D and STR83D Transmitter with one Remote Seal**

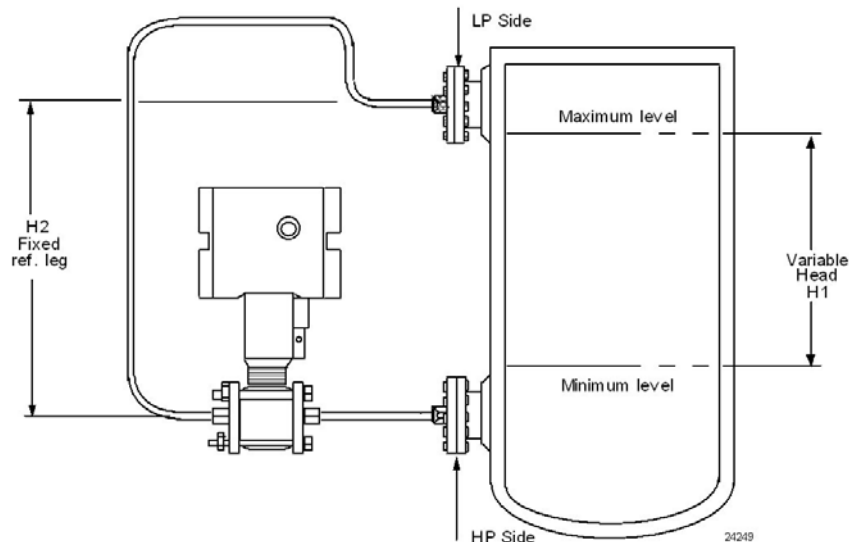
Diaphragm Size (Inches)	Direct Mount	Capillary Length (Feet)						Maximum Capillary Length (Feet)
		5	10	15	20	25	35	
2.4	20 psi	30 psi						5
2.9	10 psi	15 psi	20 psi	25 psi	30 psi			20
3.5	1.8 psi	2.9 psi	3.6 psi	4.3 psi	5.0 psi	5.8 psi	7.2 psi	35
4.1	1.4 psi	2.2 psi	2.9 psi	3.6 psi	4.3 psi	5.0 psi	5.8 psi	35

**Minimum recommended span for STR84G, STR84A and STR87G Transmitter**

Diaphragm Size (Inches)	Direct Mount	Capillary Length (Feet)						Maximum Capillary Length (Feet)
		5	10	15	20	25	35	
1.9	25 psi	30 psi	40 psi	50 psi				15
2.4	10 psi	15 psi	20 psi	25 psi	30 psi	35 psi	50 psi	35
2.9	8 psi	9 psi	10 psi	11 psi	12 psi	13 psi	15 psi	35
3.5	5 psi	5 psi	5 psi	5 psi	5 psi	6 psi	8 psi	35
4.1	5 psi	5 psi	5 psi	5 psi	5 psi	6 psi	8 psi	35

**Note:** The minimum span is the higher of the higher of the value from the table above or the value defined under the Performance Conditions for the range transmitter.

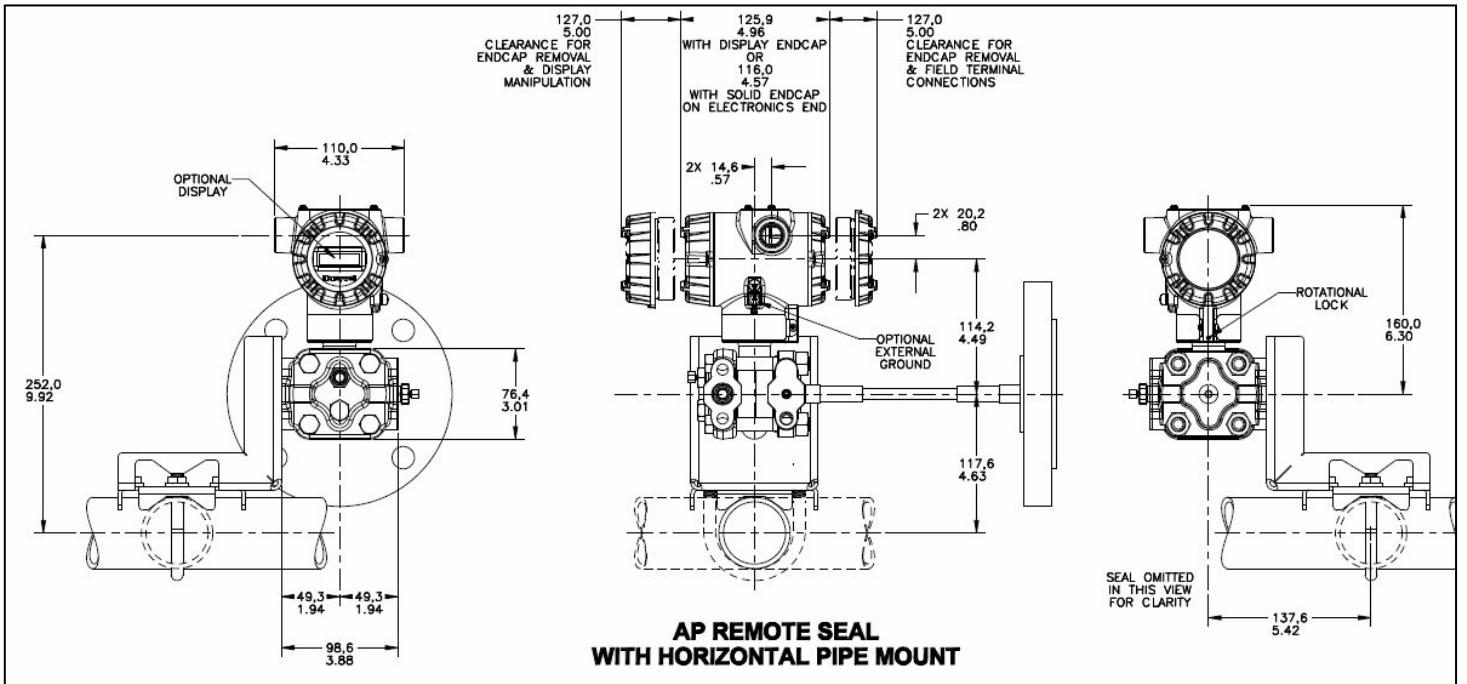
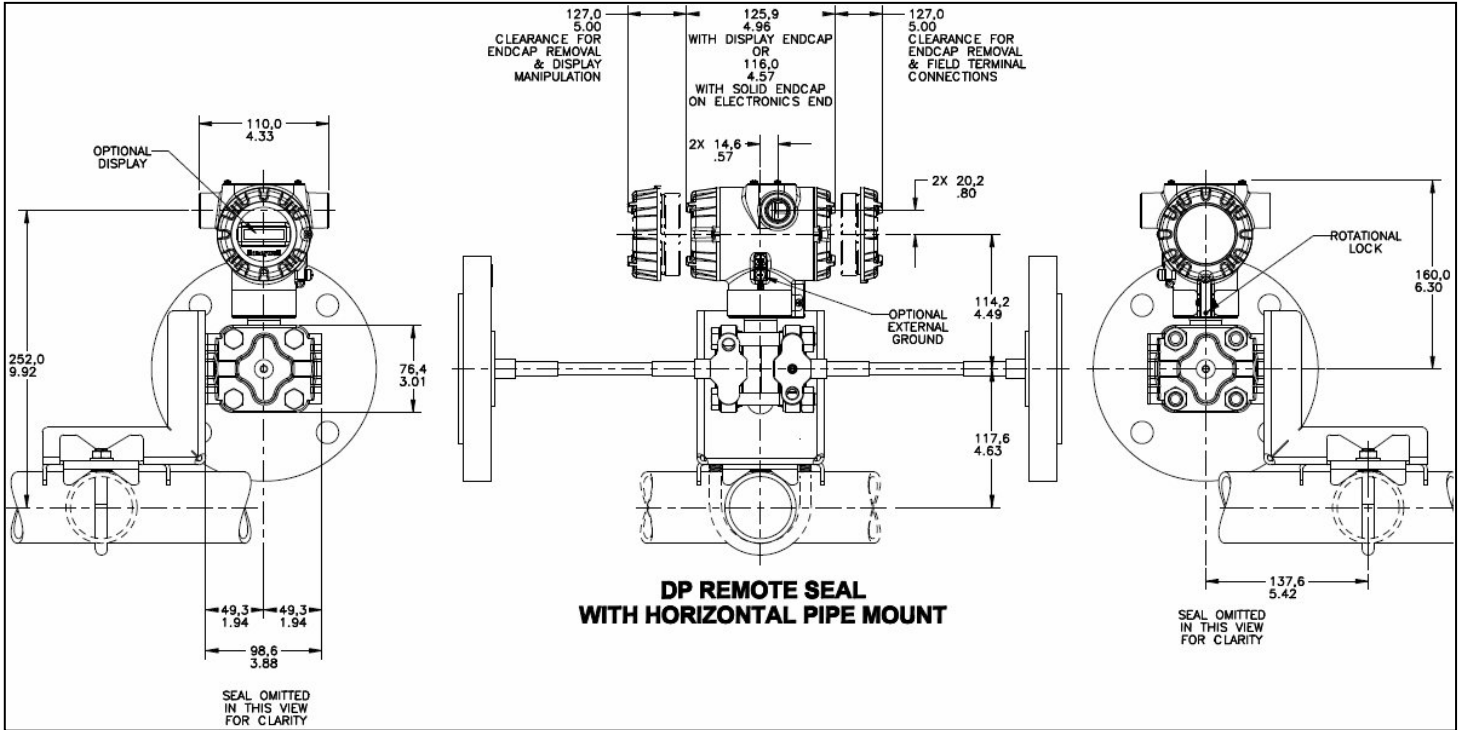
**Figure 5 – Typical Maximum capillary length and diaphragm size chart**



NOTE: Lower flange seal should not be mounted over 22 feet below or above the transmitter for silicone fill fluid (11 feet for CTFE fill fluid) with tank at one atmosphere. The combination of tank vacuum and high pressure capillary head effect should not exceed 9 psi vacuum (300 mmHg absolute).

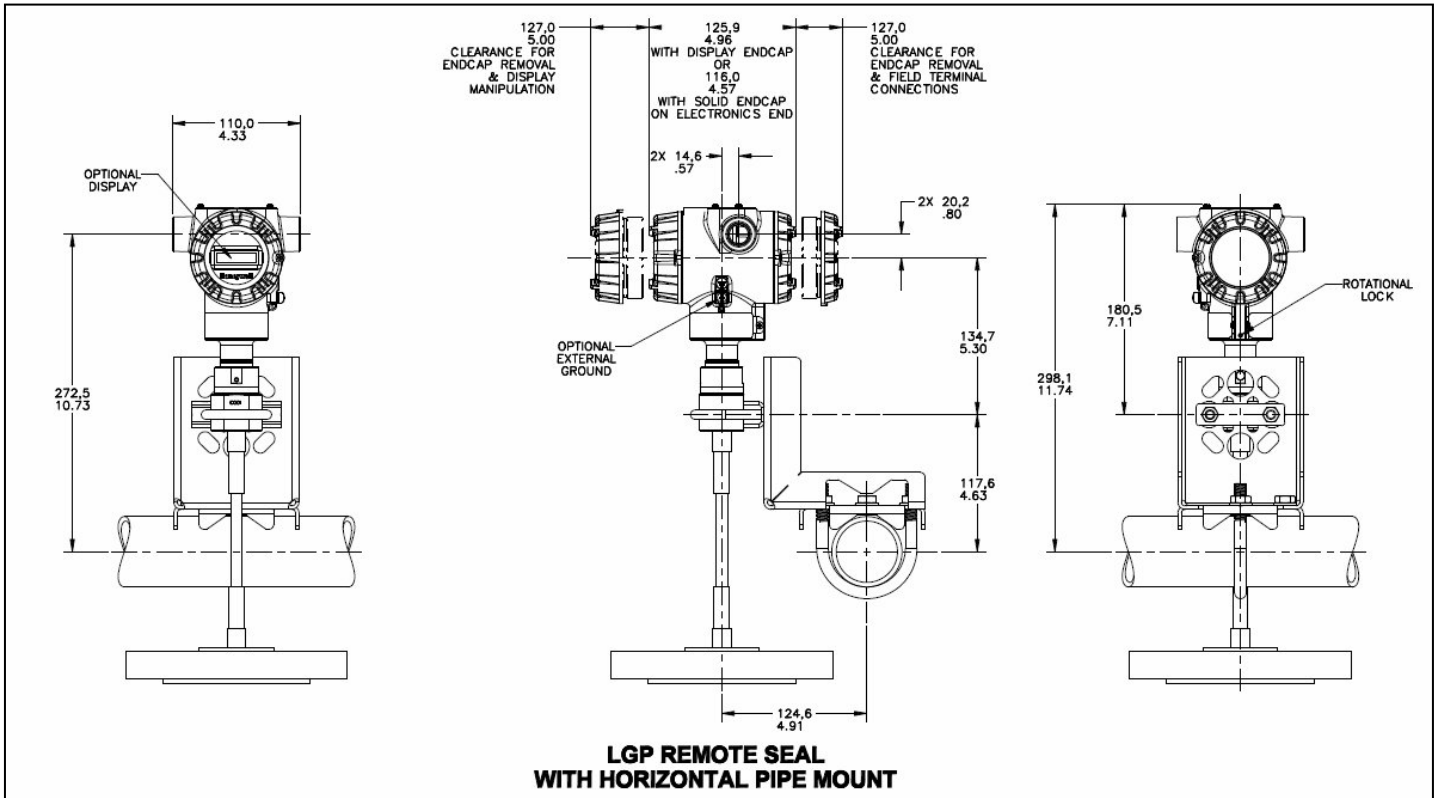
**Figure 6 - STR800 transmitter with remote diaphragm seals shown mounted on a tank**

**Reference Dimensions Horizontal Mounting**



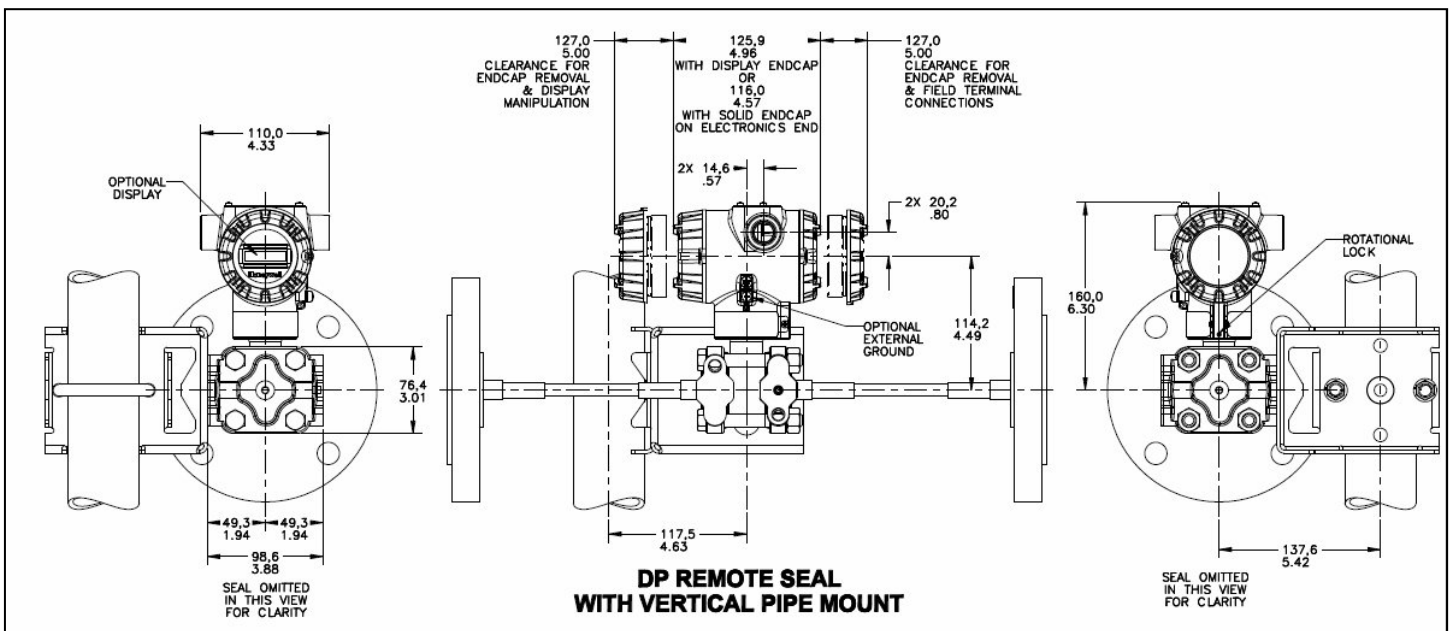


**Reference Dimensions Horizontal Mounting (cont'd)**

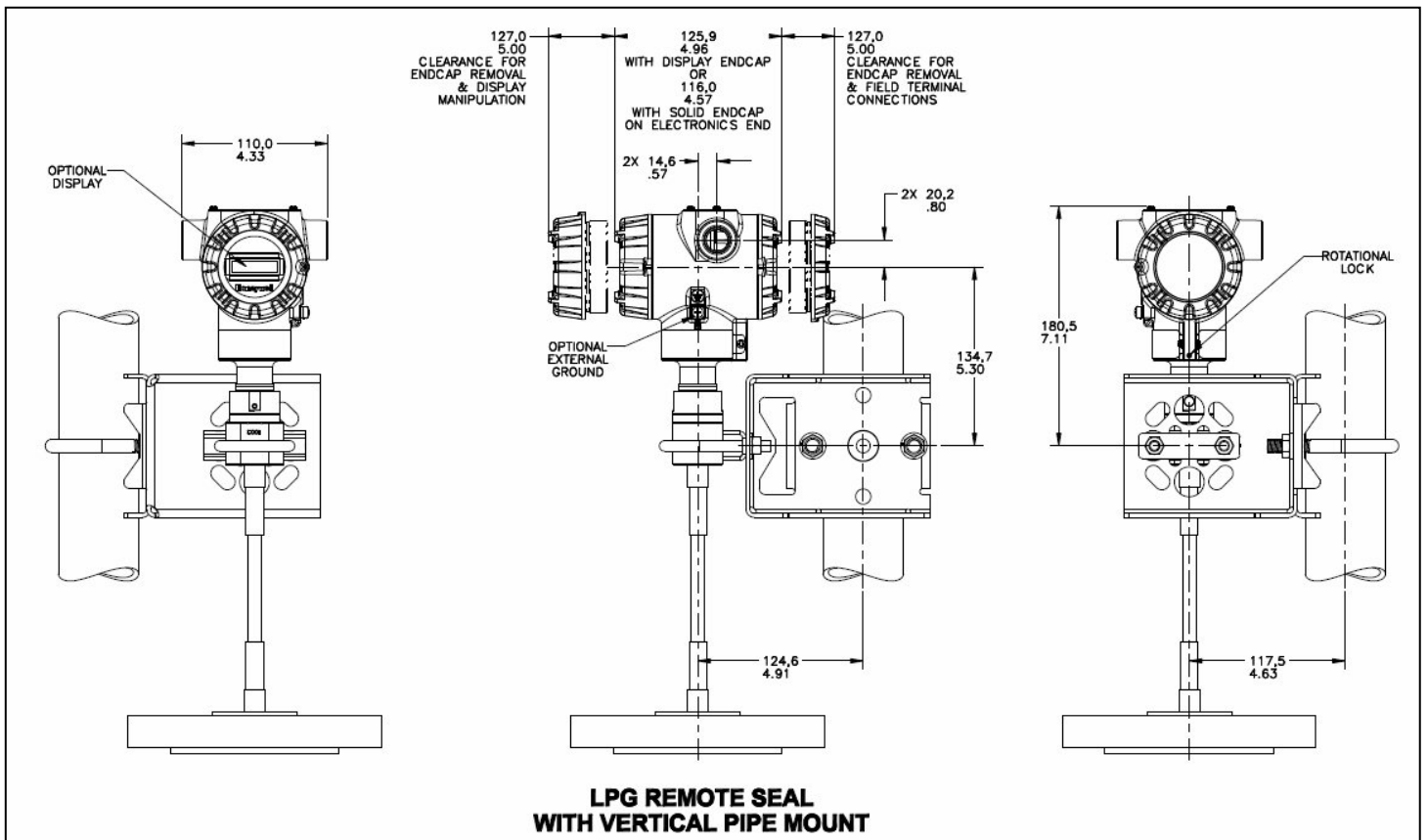
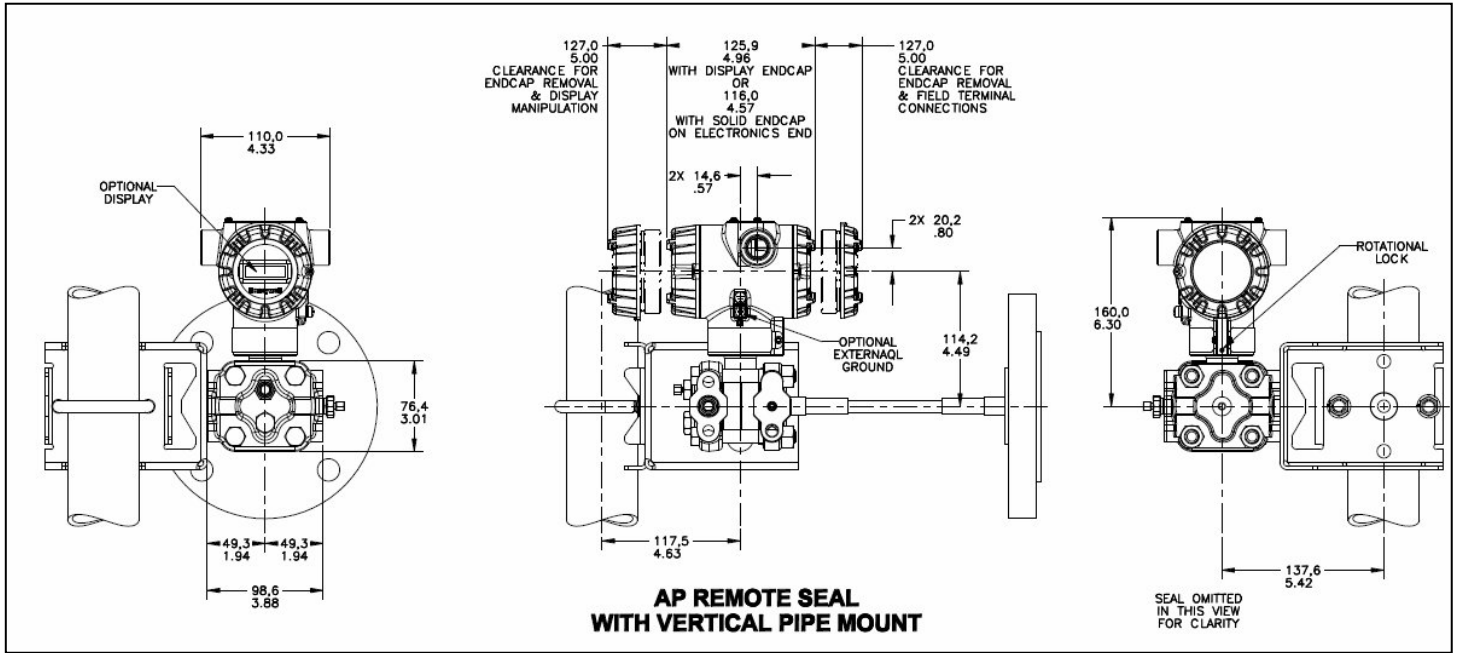


**Figure 7 — Approximate horizontal mounting dimensions for Remote Seal Transmitter**

**Reference Dimensions Vertical Mounting**



**Reference Dimensions Vertical Mounting (cont'd)**

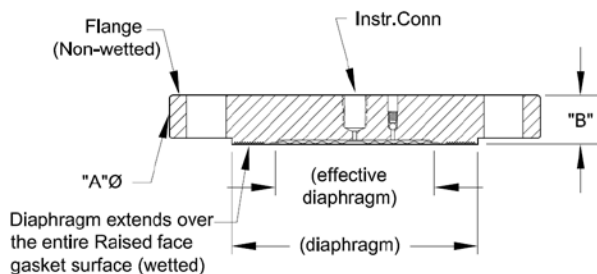


**Figure 8 — Approximate vertical mounting dimensions for Remote Seal Transmitter**

**Reference Dimensions (cont'd)**

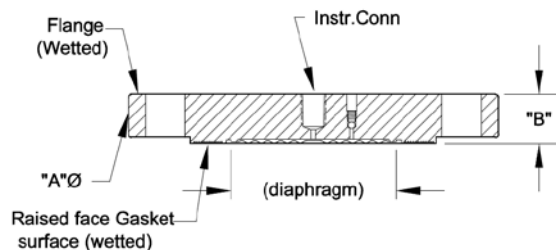
**Flush Flanged Seal Dimensions**

Type	ANSI/DIN Rating	Flange Material	Wetted Materials		Construction See figure	Dimensions	
			Diaphragm	Body		A	B
Flush Flanged Seal	3" Class 150#	CS	SS	SS	D	7.5	1.37
			Hastelloy C	SS	C		
			Hastelloy C	Hastelloy C	D		
			Monel	Monel	D		
			Tantalum	SS	C		
		SS	SS	N/A	B	7.50	0.94
			Hastelloy C	SS	A		
			Hastelloy C	Hastelloy C	D		
			Monel	Monel	D		
			Tantalum	SS	C		
	3" Class 300#	CS	SS	SS	D	8.25	1.56
			Hastelloy C	SS	C		
			Hastelloy C	Hastelloy C	D		
			Monel	Monel	D		
			Tantalum	SS	C		
		SS	SS	N/A	B	8.25	1.12
			Hastelloy C	SS	A		
			Hastelloy C	Hastelloy C	D		
			Monel	Monel	D		
			Tantalum	SS	C		
	3" Class 600#	CS	SS	SS	D	8.25	1.75
			Hastelloy C	SS	C		
			Hastelloy C	Hastelloy C	D		
			Monel	Monel	D		
Tantalum			SS	C			
SS		SS	N/A	B	8.25	1.5	
		Hastelloy C	SS	A			
		Hastelloy C	Hastelloy C	D			
		Monel	Monel	D			
		Tantalum	SS	C			
DN80-PN40	CS	SS	SS	D	7.87	1.32	
		Hastelloy C	SS	C			
		Hastelloy C	Hastelloy C	D			
		Monel	Monel	D			
		Tantalum	SS	C			
	SS	SS	N/A	B	7.87	0.94	
		Hastelloy C	SS	A			
		Hastelloy C	Hastelloy C	D			
		Monel	Monel	D			
		Tantalum	SS	C			



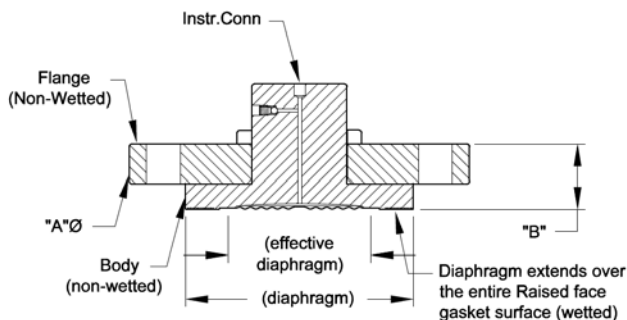
**Configuration "HS"**

**Figure A**



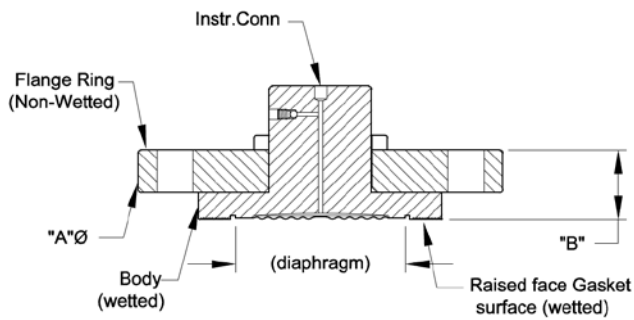
**Configuration "HT"**

**Figure B**



**Configuration "IS"**

**Figure C**



**Configuration "IT"**

**Figure D**

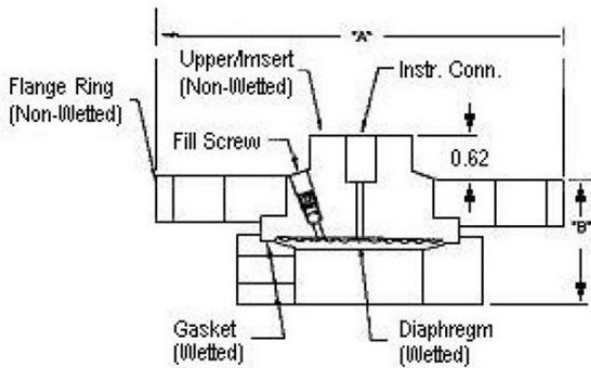
**Figure 9— Seal Dimensions (Flush Flanged)**

**Reference Dimensions (cont'd)**

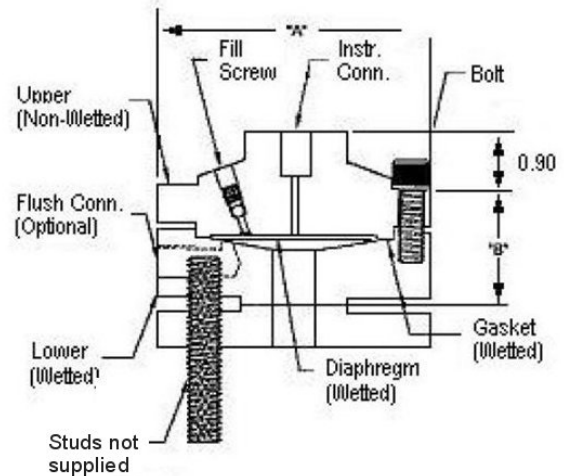
**Flush Flanged Seal with Lower**

Type	ANSI/DIN Rating	Size	Dimension	2.4" Diaph. Dia. (in.)	2.9" Diaph. Dia. (in.)	4.1" Diaph. Dia. (in.)
Flush Flanged Seal with Lower	Class 150#	1/2"	A	3.50	4.00	5.25
			B0	1.72	1.72	1.84
			B1	1.72	1.72	1.84
			B2	2.22	2.22	2.34
		1"	B0	4.25	4.00	5.25
			B1	1.12	1.72	1.84
			B2	1.62	1.72	1.84
			B2	1.98	1.72	2.34
		1-1/2"	B0	5.00	5.00	5.25
			B1	2.50	2.50	1.78
			B2	3.00	3.00	2.12
			B2	3.50	3.40	2.12
	2"	A	6.00	6.00	6.00	
		B0	2.50	2.50	2.12	
		B1	3.00	3.00	2.12	
		B2	3.50	3.40	2.12	
	3"	A	7.50	7.50	7.50	
		B0	2.58	2.88	2.60	
		B1	2.88	2.88	3.00	
		B2	3.50	3.40	3.40	
	Class 300#	1"	A	4.88	4.00	5.25
			B0	2.50	1.72	1.88
			B1	3.00	1.72	2.12
			B2	3.50	2.22	2.12
1-1/2"		A	6.12	6.12	5.25	
		B0	2.50	2.50	2.12	
		B1	3.00	3.00	2.12	
		B2	3.50	3.40	2.12	
2"		A	6.50	6.50	6.50	
		B0	2.50	2.50	2.70	
		B1	3.00	3.00	3.00	
		B2	3.50	3.40	3.50	
3"	A	8.25	8.25	8.25		
	B0	3.48	3.48	3.20		
	B1	3.48	3.48	3.60		
	B2	4.10	4.00	4.00		
Class 600#	1"	A	4.88	4.50	5.25	
		B0	2.50	2.15	2.26	
		B1	3.00	2.15	2.26	
		B2	3.50	2.40	2.50	
	1-1/2"	A	6.12	6.12	5.25	
		B0	2.50	1.53	2.50	
		B1	3.00	2.09	3.00	
		B2	3.50	2.49	3.50	
	2"	A	6.50	6.50	6.50	
		B0	3.10	3.10	3.30	
		B1	3.60	3.60	3.60	
		B2	4.10	4.00	4.10	
3"	A	8.25	8.25	8.25		
	B0	3.48	3.48	3.20		
	B1	3.48	3.48	3.60		
	B2	4.10	4.00	4.00		

B0 Without Flush  
 B1 B Dimension with 1/4 NPT Flushing Connection  
 B2 B dimension with 1/2 NPT Flushing Connection



**Flush Flanged Seal with Lower**



**Flush Flanged Seal with Lower**

Note: 0.90 dimension is 0.70 for 4.1" Dia Diaphragm

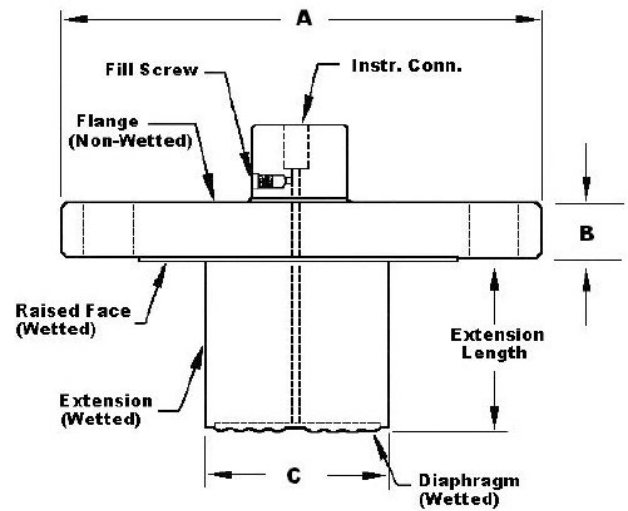
**Figure 10 — Seal Dimension (Flush Flanged)**

**Reference Dimensions (cont'd)**

**Flanged Seal with Extended Diaphragm**

Type	ANSI/DIN Rating	Dimension	2.8" Diaphragm Dia. (in.)	3.5" Diaphragm Dia. (in.)
Flanged Seal with Extended Diaphragm	3" Class 150#	A	7.50	-
		B	0.94	-
		C	2.80	-
	3" Class 300#	A	8.25	-
		B	1.12	-
		C	2.80	-
DIN DN80-PN40	A	7.87	-	
	B	0.94	-	
	C	2.80	-	
4" Class 150#	A	-	9.00	
	B	-	0.94	
	C	-	3.70	
4" Class 300#	A	-	10.00	
	B	-	1.25	
	C	-	3.70	
DIN DN100-PN40	A	-	9.25	
	B	-	0.94	
	C	-	3.70	

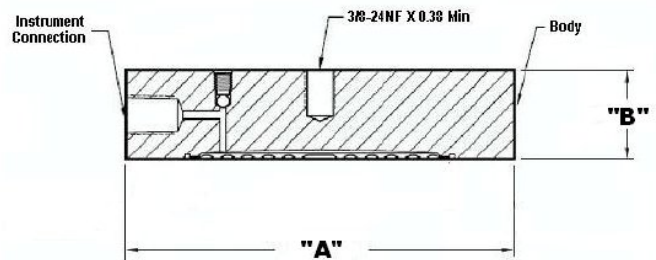
Designed to meet with schedule 40 pipe



**Figure 11 — Seal Dimensions (Extended Diaphragms)**

**Pancake Seal**

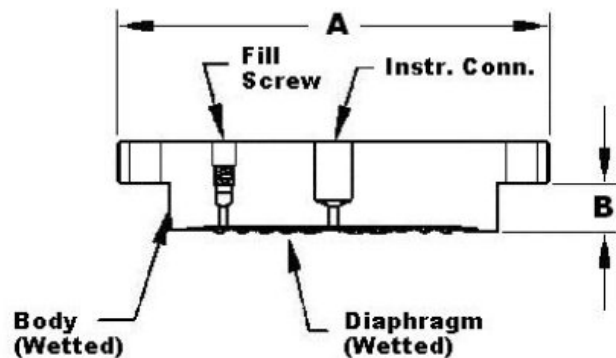
Type	ANSI/DIN	Dimension	3.5" Diaph. (in.)
Pancake Seal	Class 150#, 300#, 600# DN80-PN40	A	5.00
		B	1.08



**Figure 12— Seal Dimensions (Pancake)**

**Chemical Tee "Taylor Wedge" Seal**

Type	Size	Dimension	3.5" Diaph. (in.)
Chemical Tee "Taylor Wedge" Seal	750 psi	A	5.00
		B	0.50

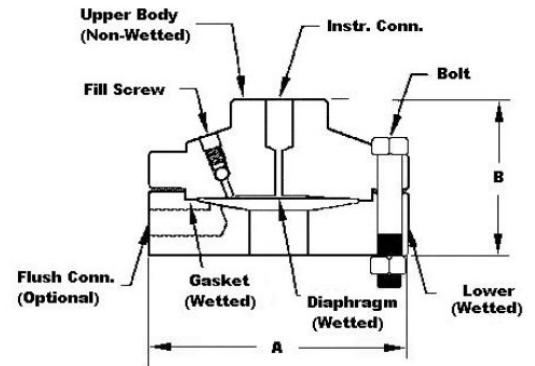


**Figure 13— Seal Dimensions (Chemical TEE "Taylor Wedge" Seals)**

**Seal with Threaded Process Connection**

Type	Size	Dimension	2.4" Diaphragm Dia. (in.)	2.9" Diaphragm Dia. (in.)	4.1" Diaphragm Dia. (in.)
Threaded Process Conn. Seal	1/4" or 1/2"	A	3.50	4.00	5.25
		B0	1.88	1.88	1.79
		B1	1.88	1.88	1.79
	3/4" or 1"	A	3.50	4.00	5.25
		B0	1.88	1.88	1.79
		B2	8.25	2.18	2.14

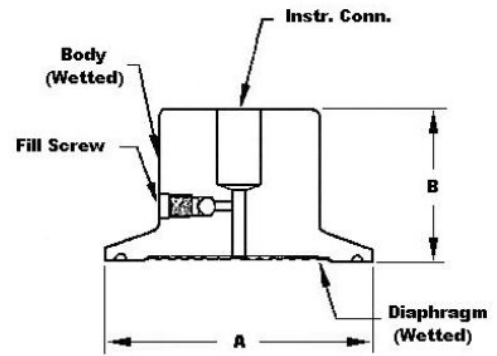
B0 Without Flush  
 B1 B Dimension with 1/4 NPT Flushing Connection  
 B2 B dimension with 1/2 NPT Flushing Connection



**Figure 14— Seal Dimensions (Threaded Process Connection Seals)**

**Sanitary Seal**

Type	Size	Dimension	1.9" Diaphragm Dia. (in.)	2.4" Diaphragm Dia. (in.)	2.9" Diaphragm Dia. (in.)	4.1" Diaphragm Dia. (in.)
Sanitary Seal	2"	A	2.50	-	-	-
		B	1.42	-	-	-
	2- 1/2"	A	-	3.00	-	-
		B	-	1.28	-	-
	3"	A	-	-	3.57	-
		B	-	-	1.38	-
	4"	A	-	-	-	4.88
		B	-	-	-	1.80



**Figure 15- Seal Dimensions (Sanitary Seals)**

**Saddle Seal**

Type	Size	Dimension	2.4" Diaph. (in.)
Saddle Seal	3"	A	3.50
		B	2.90
	4" or larger	A	3.50
		B	3.04

Note: Specify 6 or 8 bolt pattern

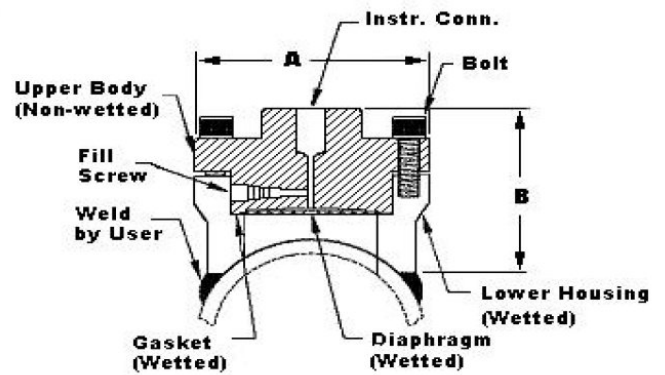


Figure 16 — Seal Dimensions (3" Saddle Seal)

Type	Size	Dimension	2.4" Diaph. (in.)
Saddle Seal	3"	A	3.50
		B	2.90
	4" or larger	A	3.50
		B	3.04

Note: Specify 6 or 8 bolt pattern

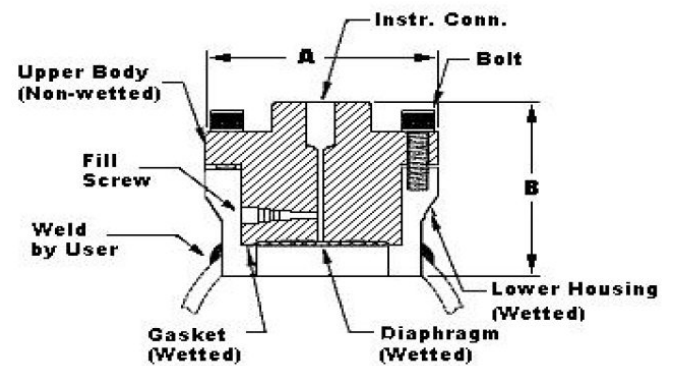


Figure 17— Seal Dimensions (4" Saddle Seal)

**Calibration Ring**

Type	Size	Rating	Dimension	1/4 NPT	1/2 NPT
Calibration Ring	3"	150# / 800#	A	5.00	5.00
			B	1.00	1.50
			C	3.00	3.00

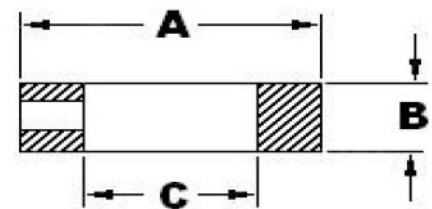


Figure 18— Calibration Ring

## Communications Protocols & Diagnostics

### HART Protocol

#### Version:

HART 7

#### Power Supply

Voltage: 10.8 to 42.4Vdc at terminals

Load: Maximum 1440 ohms See [Figure 2](#).

Minimum Load: 0 ohms. (For handheld communications a minimum load of 250 ohms is required)

### Foundation Fieldbus (FF)

#### Power Supply Requirements

Voltage: 9.0 to 32.0Vdc at terminals

Steady State Current: 17.6mAdc

Software Download Current: 27.4mAdc

#### Available Function Blocks

Block Type	Qty	Execution Time
Resource	1	n/a
Transducer	1	n/a
Diagnostic	1	n/a
Analog Input	1*	30 ms
PID w/Autotune	1	45 ms
Integrator	1	30 ms
Signal Char (SC)	1	30 ms
LCD Display	1	n/a
Flow Block	1	30 ms
Input Selector	1	30 ms
Arithmetic	1	30 ms

\* AI block may have two (2) additional instantiations.

All available function blocks adhere to FOUNDATION Fieldbus standards. PID blocks support ideal & robust PID algorithms with full implementation of Auto-tuning.

#### Link Active Scheduler

Transmitters can perform as a backup Link Active Scheduler and take over when the host is disconnected.

Acting as a LAS, the device ensures scheduled data transfers typically used for the regular, cyclic transfer of control loop data between devices on the Fieldbus.

#### Number of Devices/Segment

Entity IS model: 6 devices/segment

#### Schedule Entries

18 maximum schedule entries

Number of VCR's: 24 max

Compliance Testing: Tested according to ITK 6.0.1

### Software Download

Utilizes Class-3 of the Common Software Download procedure as per FF-883 which allows the field devices of any manufacturer to receive software upgrades from any host.

### Honeywell Digitally Enhanced (DE)

DE is a Honeywell proprietary protocol which provides digital communications between Honeywell DE enabled field devices and Hosts.

#### Power Supply

Voltage: 10.8 to 42.4Vdc at terminals

Load: Maximum 1440 ohms See [Figure 2](#).

### Standard Diagnostics

ST 800 top level diagnostics are reported as either critical or non-critical and readable via the DD/DTM tools or integral display as shown below.

Critical Diagnostics		
HART DD/DTM tools	Advanced Display	Basic Display
Electronic Module DAC Failure	Electronics Module fault	Electronics Module fault
Meter Body NVM Corrupt	Meterbody fault	Meterbody fault
Config Data Corrupt	Electronics Module fault	Electronics Module fault
Electronic Module Diag Failure	Electronics Module fault	Electronics Module fault
Meter Body Critical Failure	Meterbody fault	Meterbody fault
Sensor Comm Timeout	Meterbody Comm fault	Meterbody Comm fault

Non-Critical Diagnostics		
HART DD/DTM tools	Advanced Display	Basic Display
Display Failure	n/a	n/a
Electronic Module Comm Failure	n/a	n/a
Meter Body Excess Correct	Zero Correct (OK or EXCESSIVE) Span Correct (OK or EXCESSIVE)	n/a
Sensor Over Temperature	Meterbody Temp (OK, OVER TEMP)	n/a
Fixed Current Mode	Analog Out mode (Fixed or Normal)	n/a
PV Out of Range	Primary PV (OK or OVERLOAD)	n/a
No Factory Calibration	Factory Cal (OK, NO FACTORY CAL)	n/a
No DAC Compensation	DAC Temp Comp (OK, NO COMPENSATION)	n/a
LRV Set Error – Zero Config Button	n/a	n/a
URV Set Error – Span Config Button	n/a	n/a
AO Out of Range	n/a	n/a
Loop Current Noise	n/a	n/a
Meter Body Unreliable Comm	Meterbody Comm (OK, SUSPECT)	n/a
Tamper Alarm	n/a	n/a
No DAC Calibration	n/a	n/a
Sensor Supply Voltage Low	Supply Voltage (OK, LOW, or HIGH)	n/a

Refer to ST 800 diagnostics tech note for additional level diagnostics.

### Other Certification Options

#### Materials

- NACE MRO175, MRO103, ISO15156



**Hazardous Areal Certification:**

MSG CODE	AGENCY	TYPE OF PROTECTION	COMM. OPTION	ELECTRICAL PARAMETERS	AMBIENT TEMP (Ta)
A	FM Approvals™ USA	<b>Explosionproof:</b> Class I, Division 1, Groups A, B, C, D; Dust Ignition Proof: Class II, III, Division 1, Groups E, F, G; T6..T5 Class I, Zone 0/1, AEx db IIC T6..T5 Ga/Gb Class II, Zone 21, AEx tb IIIC T95° Db	All	Note 1	T5: -50 °C to 85°C T6: -50 °C to 65°C
		<b>Intrinsically Safe:</b> Class I, II, III, Division 1, Groups A, B, C, D, E, F, G: T4 Class I, Zone 0, AEx ia IIC T4 Ga FISCO Field Device (Only for FF Option) Ex ia IIC T4 Ga; Ex ic IIC T4 Gc	4-20 mA / DE/ HART	Note 2a	-50 °C to 70°C
		<b>Nonincendive:</b> Class I, Division 2, Groups A, B, C, D locations, T4 Class I, Zone 2, AEx nA IIC T4 Gc	Foundation Fieldbus	Note 2b	-50 °C to 70°C
		<b>Nonincendive:</b> Class I, Division 2, Groups A, B, C, D locations, T4 Class I, Zone 2, AEx nA IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50 °C to 85°C
		<b>Enclosure:</b> Type 4X/ IP66/ IP67	All	All	-
		<b>STANDARDS:</b> FM Class 3600:2011; FM Class 3610: 2010; FM Class 3611: 2004; FM Class 3615: 2006; FM Class 3616: 2011; FM Class 3810: 2005; ANSI/ISA 60079-0: 2013; ANSI/UL 60079-1: 2015; ANSI/UL 60079-11: 2014; ANSI/ISA 60079-15: 2012; ANSI/UL 60079-26: 2017; ANSI/UL 60079-31: 2015; ANSI/NEMA 250: 2003; ANSI/ IEC 60529: 2004			
B	Canadian Standards Association (CSA) USA and Canada	<b>Explosion Proof:</b> Class I, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1, T6..T5 Class I Zone 1 AEx db IIC T6..T5 Ga/Gb Ex db IIC T6..T5 Ga/Gb Zone 22 AEx tb IIIC T95° Db Ex tb IIIC T95° Db	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe:</b> Class I, II, III, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1, T4 Class I Zone 0, AEx ia IIC T4 Ga Class I Zone 2, AEx ic IIC T4 Gc Ex ia IIC T4 Ga Ex ic IIC T4 Gc FISCO Field Device (Only for FF Option) Ex ia IIC T4 Ga; Ex ic IIC T4 Gc	4-20 mA / DE/ HART	Note 2	-50°C TO 70°C
		<b>Nonincendive:</b> Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F, G; Class III, Division 2, T4 Class I Zone 2 AEx nA IIC T4 Gc Ex nA IIC T4 Gc	Foundation Fieldbus	Note 2	-50°C TO 70°C
		<b>Nonincendive:</b> Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F, G; Class III, Division 2, T4 Class I Zone 2 AEx nA IIC T4 Gc Ex nA IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C to 85°C
		<b>Enclosure:</b> Type 4X/ IP66/ IP67	All	All	-
		<b>STANDARDS:</b> CSA C22.2 No. 0-10; CSA C22.2 No. 94-M91; CSA C22.2 No. 25-1966; CSA C22.2			

MSG CODE	AGENCY	TYPE OF PROTECTION	COMM. OPTION	ELECTRICAL PARAMETERS	AMBIENT TEMP (Ta)
		No. 30-M1986; CSA C22.2 No. 142-M1987; CSA C22.2 No. 157-92; CSA C22.2 No. 213-M1987; CSA-C22.2 No. 60529:05; CSA-C22.2 No. 60079-0:11; CSA-C22.2 No. 60079-1:11; CSA-C22.2 No. 60079-11:11; CSA-C22.2 No. 60079-15:12; CSA-C22.2 No. 60079-31:12; ISA 12.12.01-2010; ISA 60079-0: 2009; ISA 60079-11: 2011; ISA 60079-15: 2009; ISA 60079-26: 2008; ISA-60079-27:2007 (12.02.04)-2006 (R2011); UL 913 Ed. 6; UL 916:1998; ANSI/ISA-12.27.01-2011			
C	ATEX	<b>Flameproof: SIRA 12ATEX2233X</b> II 1/2 G Ex db IIC T6..T5 Ga/Gb II 2 D Ex tb IIIC T95°C...T120°C Db	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe: SIRA 12ATEX2233X</b> II 1 G Ex ia IIC T4 Ga FISCO Field Device (Only for FF Option) II 1 G Ex ia IIC T4 Ga	4-20 mA / DE/ HART	Note 2	-50°C TO 70°C
			Foundation Fieldbus	Note 2	-50°C TO 70°C
		<b>Zone 2, Increase Safety: SIRA 12ATEX4234X</b> II 3 G Ex ec IIC T4 Gc	4-20 mA / DE/ HART/	Note 1	-50°C TO 85°C
		<b>Zone 2, Intrinsically Safe: SIRA 12ATEX4234X</b> II 3 G Ex ic IIC T4 Gc FISCO Field Device (Only for FF Option) II 3 G Ex ic IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 2	-50°C TO 85°C
		<b>Enclosure: IP66/ IP67</b>	All	All	-
<b>STANDARDS:</b> EN 60079-0: 2012/A11: 2013; EN 60079-1: 2014; EN 60079-7: 2015; EN 60079-11: 2012; EN 60079-26: 2015; EN 60079-31: 2009					
D	IECEX World	<b>Flameproof: IECEx SIR 12.0100X</b> Ex db IIC T6..T5 Ga/Gb Ex tb IIIC T95°C...T120°C Db	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe: IECEx SIR 12.0100X</b> Ex ia IIC T4 Ga FISCO Field Device (Only for FF Option) Ex ia IIC T4 Ga; Ex ic IIC T4 Gc	4-20 mA / DE/ HART	Note 2	-50°C TO 70°C
			Foundation Fieldbus	Note 2	-50°C TO 70°C
		<b>Zone 2, Increase Safety: IECEx SIR 12.0100X</b> Ex ec IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		<b>Zone 2, Intrinsically Safe: IECEx SIR 12.0100X</b> Ex ic IIC T4 Gc FISCO Field Device (Only for FF Option) Ex ic IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 2	-50°C TO 85°C
		<b>Enclosure: IP66/ IP67</b>	All	All	-
<b>STANDARDS:</b> IEC 60079-0: 2011; IEC 60079-1: 2014; IEC 60079-7: 2017; IEC 60079-11: 2011; IEC 60079-26: 2014; IEC 60079-31: 2013					

E	SAEx South Africa	<b>Flameproof :</b> Ex d IIC T6...T5 Ga/Gb Ex tb IIIC T95°C...T120°C Db	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe:</b> Ex ia IIC Ga T4 FISCO Field Device (Only for FF Option) Ex ia IIC T4 Ga; Ex ic IIC T4 Gc	4-20 mA / DE/ HART	Note 2	-50°C TO 70°C
			Foundation Fieldbus	Note 2	-50°C TO 70°C
		<b>Zone 2, Increase Safety:</b> II 3 G Ex ec IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		<b>Zone 2, Intrinsically Safe:</b> Ex ic IIC T4 Gc FISCO Field Device (Only for FF Option) Ex ic IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 2	-50°C TO 85°C
<b>Enclosure:</b> IP66/ IP67	All	All	-		
F	INMETRO Brazil	<b>Flameproof:</b> Ex db IIC T6..T5 Ga/Gb Ex tb IIIC T95°C...T120°C Db	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe:</b> Ex ia IIC T4 Ga  FISCO Field Device (Only for FF Option) Ex ia IIC T4 Ga; Ex ic IIC T4 Gc	4-20 mA / DE/ HART	Note 2a	-50°C TO 70°C
			Foundation Fieldbus	Note 2b	-50°C TO 70°C
		<b>Zone 2, Increase Safety:</b> II 3 G Ex ec IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		<b>Zone 2, Intrinsically Safe:</b> Ex ic IIC T4 Gc FISCO Field Device (Only for FF Option) Ex ic IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 2	-50°C TO 85°C
		<b>Enclosure :</b> IP 66/67	All	All	-
G	NEPSI CHINA	<b>Flameproof:</b> Ex db IIC T6..T5 Ga/Gb Ex tb IIIC T 95°C Db	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe:</b> Ex ia IIC T4 Ga FISCO Field Device (Only for FF Option) Ex ia IIC T4 Ga; Ex ic IIC T4 Gc	4-20 mA / DE/ HART	Note 2	-50°C TO 70°C
			Foundation Fieldbus	Note 2	-50°C TO 70°C
		<b>Zone 2, Increase Safety:</b> II 3 G Ex ec IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		<b>Zone 2, Intrinsically Safe:</b> Ex ic IIC T4 Gc FISCO Field Device (Only for FF Option) Ex ic IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 2	-50°C TO 85°C
<b>Enclosure :</b> IP 66/67	All	All	-		

H	KOSHA Korea	<b>Flameproof :</b> Ex d IIC T4, T5, T6 Ex tD A21 IP66/IP67 T95°C...T120 °C	All	Note 1	T4: -50°C TO 85°C T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe:</b> Ex ia IIC T4	4-20 mA / DE/ HART	Note 2	Ta= -50 °C to 70°C
			Foundation Fieldbus	Note 2	Ta= -50 °C to 70°C
<b>Enclosure:</b> IP66/ IP67		All	All	-	
I	EAC Russia, Belarus and Kazakhstan	<b>Flameproof:</b> Ga/Gb Ex d IIC T6..T5 Ex tb IIIC Db T 85°C	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe:</b> Ga Ex ia IIC T4 X FISCO Field Device (Only for FF Option) Ga Ex ia IIC T4 X	4-20 mA / DE/ HART	Note 2	-50°C TO 70°C
			Foundation Fieldbus	Note 2	-50°C TO 70°C
		<b>Zone 2, Non Sparking:</b> 2 Ex nA IIC T4 Gc X	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		<b>Zone 2, Intrinsically Safe:</b> Ga Ex ic IIC T4 X FISCO Field Device (Only for FF Option) 2 Ex ic IIC T4 Gc X	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 2	-50°C TO 85°C
<b>Enclosure :</b> IP 66/67		All	All		
J	CCoE INDIA	<b>Flameproof:</b> Ex d IIC T6..T5 Ga/Gb	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe:</b> Ex ia IIC T4 Ga FISCO Field Device (Only for FF Option) Ex ia IIC T4 Ga; Ex ic IIC T4 Gc	4-20 mA / DE/ HART	Note 2	-50°C TO 70°C
			Foundation Fieldbus	Note 2	-50°C TO 70°C
		<b>Non Sparking</b> Ex nA IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
<b>Enclosure:</b> IP66/ IP67		All	All	-	
K	UATR UKRAINE	<b>Flameproof:</b> II 1/2 G Ex db IIC T6..T5 Ga/Gb II 2 D Ex tb IIIC T95°C...T120°C Db	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		<b>Intrinsically Safe:</b> II 1 G Ex ia IIC T4 Ga FISCO Field Device (Only for FF Option) II 1 G Ex ia IIC T4 Ga	4-20 mA / DE/ HART	Note 2	-50°C TO 70°C
			Foundation Fieldbus	Note 2	-50°C TO 70°C
<b>Enclosure:</b> IP66/ IP67		All	All	-	

Notes:

1. Operating Parameters:

Voltage= 11 to 42 V DC

Current= 4-20 mA Normal

= 10 to 30 V (FF)

= 30 mA (FF)

2. Intrinsically Safe Entity Parameters

a. Analog/ DE/ HART Entity Values:

Vmax= Ui = 30V      Imax= li= 105mA      Ci = 4.2nF      Li =984 uH      Pi =0.9W

Transmitter with Terminal Block Revision E or Later

Vmax= Ui = 30V      Imax= li= 225mA      Ci = 4.2nF      Li = 0      Pi =0.9W

Note : Transmitter with Terminal Block Revision E or later

The revision is on the label that is on the module. There will be two lines of text on the label:

- First is the Module Part #: 50049839-001 or 50049839-002
- Second line has the supplier information, along with the REVISION:

XXXXXX-EXXX, THE "X" is production related, THE POSITION of the "E" IS THE REVISION.

b. Foundation Fieldbus- Entity Values

Vmax= Ui = 30V      Imax= li= 180mA      Ci = 0nF      Li = 984 uH      Pi =1W

Transmitter with Terminal Block Revision F or Later

Vmax= Ui = 30V      Imax= li= 225mA      Ci =0nF      Li = 0      Pi =1 W

FISCO Field Device      Imax= li= 380 mA      Ci = 0nF      Li = 0      Pi =5.32 W

Vmax= Ui = 17.5V

Note : Transmitter with Terminal Block Revision F or later

The revision is on the label that is on the module. There will be two lines of text on the label:

- First is the Module Part #: 50049839-003 or 50049839-004
- Second line has the supplier information, along with the REVISION:

XXXXXX-EXXX, THE "X" is production related, THE POSITION of the "E" IS THE REVISION

**Approval Certifications:**

<b>Marine Certificates</b>	This certificate defines the certifications covered for the SmartLine Pressure Transmitter family of products, including the SMV SmartLine Multivariable Transmitter. It represents the compilation of the five certificates Honeywell currently has covering the certification of these products into marine applications.																
	<b>American Bureau of Shipping (ABS)</b> - 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																
	<b>Bureau Veritas (BV)</b> - Product Code: 389:1H. Certificate number: 12660/B0 BV																
	<b>Det Norske Veritas (DNV)</b> - 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																
	<b>Korean Register of Shipping (KR)</b> - Certificate number: LOX17743-AE001																
	<b>Lloyd's Register (LR)</b> - Certificate number: 02/60001(E1) & (E2)																
<b>SIL 2/3 Certification</b>	IEC 61508 SIL 2 for non-redundant use and SIL 3 for redundant use according to EXIDA and TÜV Nord Sys Tec GmbH & Co. KG under the following standards: IEC61508-1: 2010; IEC 61508-2: 2010; IEC61508-3: 2010.																
<b>MEASUREMENT INSTRUMENTS DIRECTIVE (MID) 2004/ 22/ EC</b>	<p>Certificate Issued by NMI Certin B.V.  <b>Mechanical Class: M3      Electromagnetic Environment: E3</b>  <b>Ambient Temperature Range: -25 °C to + 55 °C</b></p> <table border="1"> <thead> <tr> <th>Unit</th> <th>Custom Calibration</th> </tr> </thead> <tbody> <tr> <td>STD820</td> <td>0 to 1000 mBar</td> </tr> <tr> <td>STD830</td> <td>0 to 7 Bar</td> </tr> <tr> <td>STA84L</td> <td>0 to 35 Bar A</td> </tr> <tr> <td>STG84L</td> <td>0 to 35 Bar</td> </tr> <tr> <td>STD870</td> <td>0 to 100 Bar</td> </tr> <tr> <td>STA87L</td> <td>0 to 100 Bar A</td> </tr> <tr> <td>STG87L</td> <td>0 to 100 Bar</td> </tr> </tbody> </table>	Unit	Custom Calibration	STD820	0 to 1000 mBar	STD830	0 to 7 Bar	STA84L	0 to 35 Bar A	STG84L	0 to 35 Bar	STD870	0 to 100 Bar	STA87L	0 to 100 Bar A	STG87L	0 to 100 Bar
Unit	Custom Calibration																
STD820	0 to 1000 mBar																
STD830	0 to 7 Bar																
STA84L	0 to 35 Bar A																
STG84L	0 to 35 Bar																
STD870	0 to 100 Bar																
STA87L	0 to 100 Bar A																
STG87L	0 to 100 Bar																

## Application Data

### Liquid Level: Closed Tank

Determine the minimum and maximum pressure differentials to be measured (Figure 19).

$$\begin{aligned} P_{\text{Min}} &= (SG_p \times a) - (SG_f \times d) \\ &= \text{LRV when HP at bottom of tank} \\ &= -\text{URV when LP at bottom of tank} \end{aligned}$$

$$\begin{aligned} P_{\text{Max}} &= (SG_p \times b) - (SG_f \times d) \\ &= \text{URV when HP at bottom of tank} \\ &= -\text{LRV when LP at bottom of tank} \end{aligned}$$

Where:

minimum level at 4mA  
maximum level at 20 mA

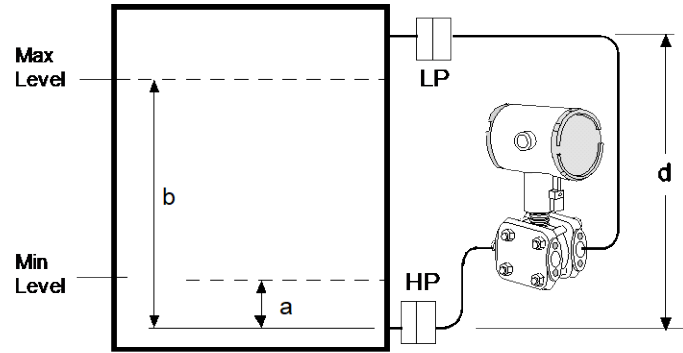
a = distance between bottom tap and minimum level

b = distance between bottom tap and maximum level

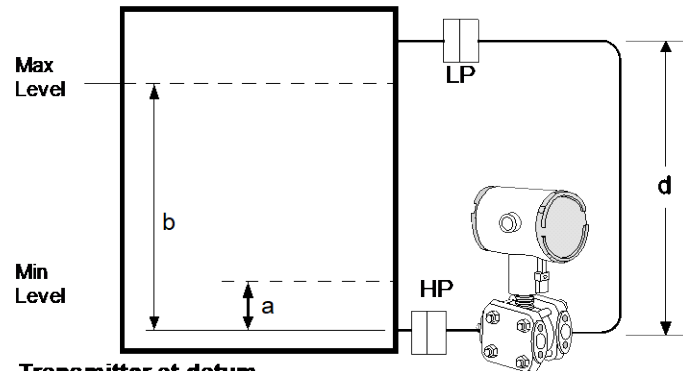
d = distance between taps

$SG_f$  = Specific Gravity of capillary fill fluid (See Page 6 "Material Specifications" for values.)

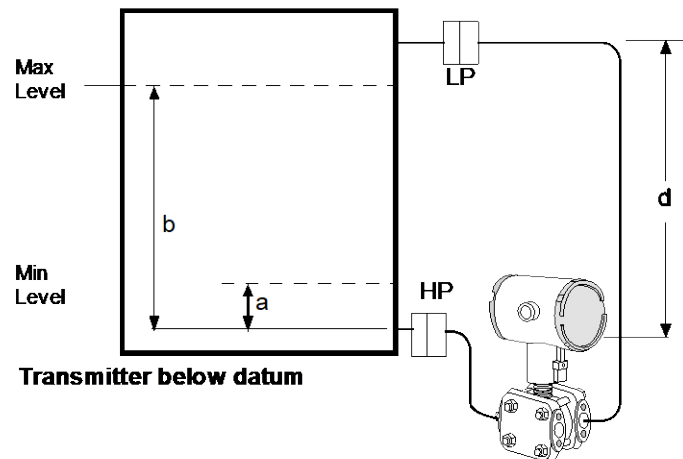
$SG_p$  = Specific Gravity of process fluid



**Transmitter above datum**



**Transmitter at datum**



**Transmitter below datum**

24253

**Figure 19—Closed tank liquid level measurement distance**

## Application Data (Cont'd)

### Density or Interface\*

Calculate the minimum and maximum pressure differentials to be measured (Figure 20).

$P_{\min} = (SG_{\min} - SG_f) \times (d)$ ;  
minimum density, 4mA output

$P_{\max} = (SG_{\max} - SG_f) \times (d)$ ;  
maximum density, 20mA output

Where:

d = distance between the taps

$SG_{\max}$  = maximum Specific Gravity

$SG_{\min}$  = minimum Specific Gravity

$SG_f$  = Specific Gravity of capillary fill fluid (See Page 6 "Material Specifications" for values.)

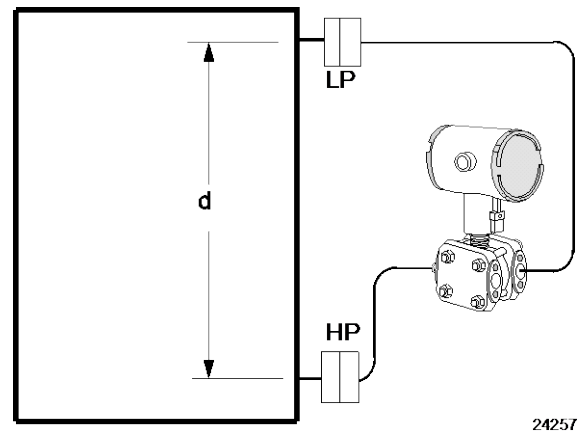


Figure 20—Density, direct acting transmitter configuration

## Seal Configurations



Figure 21—Flush Flange Seals and with left lower

Flush Flange Seals can be used with differential, gauge and absolute pressure transmitters and are available with 3" ANSI Class 150, ANSI Class 300 and DIN DN80-PN40 process connections. Flush flange seals can also be provided with Lower. Lower is essentially calibration rings, which allow flushing connections if needed.



Figure 22— Flange Seal with Extended Diaphragm

Flange Seal with Extended Diaphragm can be used with differential, gauge and absolute pressure transmitters and are available with 3" and 4" ANSI Class 150, ANSI Class 300, DIN DN80-PN40 and DIN DN100-PN40 process connections. 2", 4" and 6" extension lengths are available



Figure 23—Pancake Seals

Pancake Seals can be used with differential, gauge and absolute pressure transmitters and are available with 3" ANSI Class 150, 300 and 600 process connections.



Figure 24— Chemical Tee "Taylor" Wedge

Chemical Tee "Taylor" Wedge can be used with differential pressure transmitters and are available with Taylor Wedge 5" O.D. process connection.

## Seal Configurations (cont'd)



**Figure 25— Seals with Threaded Process Connections**

Seals with Threaded Process Connections can be used with differential, gauge and absolute pressure transmitters and are available with ½", ¾" and 1" NPT Female process connections.



**Figure 29— Stainless Steel Armor and PVC Coated Stainless Steel Armor Capillaries**

Stainless Steel Armor and PVC Coated Stainless Steel Armor Capillaries are available with Honeywell Remote Seal Solutions.



**Figure 26— Sanitary Seals**

Sanitary Seals can be used with differential, gauge and absolute pressure transmitters and are available with 3" and 4" Tri-Clover-Tri-Clamp process connections.



**Figure 30— 2" Stainless Steel Nipples**

2" Stainless Steel Nipples are available for Close-Coupled remote seal solutions



**Figure 27— Saddle Seals**

Saddle Seals can be used with differential, gauge and absolute pressure transmitters and are available with 3" and 4" (6 bolt or 8 bolt designs) process connections.



**Figure 31— Welded Meter Body for All-Welded Remote Seal Solution**

Welded Meter Body for All-Welded Remote Seal Solution. The welded ST 800 meter body is an important part of an All-Welded Remote Seal Solution, which is commonly used in Vacuum applications.



**Figure 28— Calibration Rings**

Calibration Rings are available with Flush Flange Seals and Pancake Seals. Flushing ports (1/4" or 1/2") are available with calibration rings.

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## Model Selection Guide

Model Selection Guides are subject to change and are inserted into the specifications as guidance only.

# Model STR800 (DP, GP & AP) Remote Seals

Model Selection Guide  
34-ST-16-88 Issue 26

### Instructions

- Select the desired Key Number. The arrow to the right marks the selection available.
- Make selections from each Table (I, II and IX) using the column below the proper arrow.
- A (●) denotes unrestricted availability. A letter denotes restricted availability.
- Restrictions follow Table IX.

Key Number	I	II	III	IV	V	VI	VII	VIII	IX
STR ---	-	-	-	-	-	-	-	-	+ 0000

KEY NUMBER	URL	LRL	Max Span	Min Span	Units	Selection	Availability	
<b>Measurement Range Std Accuracy</b>	400 (1000)	-400 (-1000)	400 (1000)	4 (10)	" H <sub>2</sub> O (mbar)	STR82D	↓	↓
	100 (7)	-100 (-7)	100 (7)	1 (0.07)	psi (bar)	STR83D	↓	↓
	500 (35)	5.7 (0.39)	500 (35)	5 (0.35)	psia (bar A)	STR84A	↓	↓
	500 (35)	-14.7 (-1.0)	500 (35)	5 (0.35)	psi (bar)	STR84G	↓	↓
	3000 (210)	14.7 (-1.0)	3000 (210)	30 (2.1)	psi (bar)	STR87G	↓	↓

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

TABLE I	Description				Selection	Availability		
<b>Meter Body &amp; Capillaries</b>	<b>a. Number of Seals</b>	1 Remote Seal (High Side)				1 _____	●	●
		2 Remote Seals				2 _____	●	●
		1 Remote Seal (Low Side)				3 _____	●	●
	<b>b. Primary Fill Fluid (Meter body)</b>	Silicone Oil 200				__1_____	●	●
		Fluorinated Oil CTFE				__2_____	2	2
		Silicone Oil 704				__3_____	●	●
		NEOBEE® M-20 <sup>11</sup>				__4_____	●	●
	<b>c. Construction</b>	<b>Non-Wetted Adapter Head Materials</b>						
		<b>In-Line Gauge/Absolute</b>	316 SS Bonnet				__A_____	●
	316 SS Bonnet for Close-Couple				__B_____	3	3	
	<b>Dual Head DP</b>	316 SS (bolt-on heads)				__C_____	●	●
		316 SS for Close-Couple				__D_____	3	3
		316 SS with all-welded meter body				__E_____	4	4
		None				__0_____	22	●
	<b>d. Bolts and Nuts for Transmitter Heads</b>	Carbon Steel Bolts and Nuts				__C_____	●	●
316 SS Bolts and Nuts				__S_____	●	●		
A286 SS (NACE) Bolts and 304 SS (NACE) Nuts				__N_____	●	●		
B7M(NACE) Bolts and 7M(NACE) Nuts				__B_____	●	●		
<b>e. Secondary Fill Fluid (capillary &amp; seal)**</b>	No Fill Fluid				__0_____	5	5	
	Silicone Oil 200				__1_____	●	●	
	Fluorinated Oil CTFE				__2_____	●	●	
	Silicone Oil 704				__3_____	●	●	
	Neobee® M20 <sup>11</sup>				__4_____	●	●	
	Syltherm® 800 <sup>12</sup>				__5_____	●	●	
<b>f. Connection of Remote Seal to Meter Body**</b>	No Capillary, No Nipple (Specify for VAM Unit Only)				__0_____	5	5	
	Capillary Length	5 feet	1.5 m	SS Armor	__A_____	●	●	
		10 feet	3.0 m		__B_____	●	●	
		15 feet	4.5 m		__C_____	●	●	
		20 feet	6.1 m		__D_____	●	●	
		25 feet	7.5 m		__E_____	●	●	
		35 feet	10.7 m		__F_____	●	●	
	Capillary Length	5 feet	1.5 m	PVC Coated SS Armor	__G_____	●	●	
		10 feet	3.0 m		__H_____	●	●	
		15 feet	4.5 m		__J_____	●	●	
		20 feet	6.1 m		__K_____	●	●	
		25 feet	7.5 m		__L_____	●	●	
35 feet		10.7 m	__M_____		●	●		
2 inch long SS nipple close-coupled				__2_____	6	6		
<b>g. Seal Option**</b>	None				__0_____	●	●	
	Std Gold Plated Seal Diaph. = 50 µin				__1_____	7	7	
	Teflon Coated Seal Diaphragm - only for anti-sticking				__4_____	7	7	

<sup>10</sup> Refer to 34-ST-00-128 for additional options, consult factory

<sup>11</sup> Limited vacuum availability.

<sup>12</sup> Minimum static pressure requirement. No vacuum allowed. See Specifications 34-ST-03-88 Figure 15



In-Line Gauge



Dual Head DP



All welded

STR84G & 87G & 84A  
STR82D & 83D

**Note:** When selecting required seal, you must specify only the 9 selections within the required seal type.

TABLE II		Description			Selection			
Seals	No Seal Attached to Core Transmitter (Specify for VAM Unit Only)			0 0 0 0 0 0 0 0 0	21	21		
	Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating <sup>1</sup>	Selection			
	Flush Flanged Seal**	3.5"	3"	ANSI Class 150	AFA _____	•	•	
				ANSI Class 300	AFC _____	•	•	
			80mm	DIN DN80-PN40	AFM _____	•	•	
		Wetted Material		<b>Diaphragm</b>	<b>Upper Insert</b>	<b>Selection</b>		
				316L SS	316L SS	___ AA ___	•	•
				Hastelloy® C-276	316L SS	___ AB ___	•	•
				Hastelloy® C-276	Hastelloy® C-276	___ AC ___	•	•
		Monel 400®	Monel 400®	___ AE ___	8	8		
		Tantalum <sup>5</sup>	316L SS	___ AF ___	8	8		
		Non-Wetted Material (upper)	CS (Nickel Plated)		___ 1 ___	•	•	
			316L SS	___ 2 ___	•	•		
Seal-Capillary Connection	Center Seal		___ 1 ___	•	•			
		Side Seal	___ 2 ___	9	9			
Calibration Rings	None		___ A ___	•	•			
		316L SS	___ B ___	10	10			
		Hastelloy® C-276	___ C ___	10	10			
		Monel 400®	___ D ___	10	10			
Flushing Connections and Plugs <sup>4</sup> (Metal plug material will be the same as Cal. ring material if metal plug is chosen )	None		___ 0 ___	•	•			
		One 1/4" with plastic plug	___ H ___	11	11			
		One 1/4" with metal plug	___ J ___	11	11			
		Two 1/4" with plastic plugs	___ M ___	11	11			
		Two 1/4" with metal plugs	___ N ___	11	11			
		One 1/2" with plastic plug	___ P ___	11	11			
		One 1/2" with metal plug	___ Q ___	11	11			
		Two 1/2" with plastic plugs	___ R ___	11	11			
		Two 1/2" with metal plugs	___ S ___	11	11			

Table II continued next page

\*\* Refer to 34-ST-00-128 for additional options, consult factory

<sup>1</sup> Standard facing 125-250 AARH RF (raised face) serrated surface finish.

<sup>4</sup> Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation

<sup>5</sup> Tantalum Upper insert has Tantalum wetted parts and 316 SS or CS non-wetted parts

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

STR84G & 87G & 84A  
STR82D & 83D


TABLE II		Description				Selection		
Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating <sup>1</sup>	Const. - See Spec. Figure 34-ST-03-88	Construction - See Spec. Figure 34-ST-03-88			
 Flush Flanged Seal with Lower**	2.4"	1"	ANSI 150	22	BCA _____	12	•	
			ANSI 300	22	BCC _____	12	•	
		1-1/2"	ANSI 150	22	BGA _____	12	•	
			ANSI 300	22	BGC _____	12	•	
		2"	ANSI 150	22	BDA _____	12	•	
			ANSI 300	22	BDC _____	12	•	
		3"	ANSI 150	22	BFA _____	12	•	
			ANSI 300	22	BFC _____	12	•	
		2.9"	1/2"	ANSI 150	23	CAA _____	•	•
				ANSI 300	23	CCA _____	•	•
			1-1/2"	ANSI 150	22	CGA _____	•	•
				ANSI 300	22	CGC _____	•	•
	2"	ANSI 150	22	CDA _____	•	•		
		ANSI 300	22	CDC _____	•	•		
	4.1"	1/2"	ANSI 150	22	DAA _____	•	•	
			ANSI 300	23	DCA _____	•	•	
		1-1/2"	ANSI 150	23	DGA _____	•	•	
			ANSI 300	23	DGC _____	•	•	
		2"	ANSI 150	23	DDA _____	•	•	
			ANSI 300	22	DDC _____	•	•	
	3"	ANSI 150	22	DFA _____	•	•		
		ANSI 300	22	DFC _____	•	•		
	Wetted Material	<b>Diaphragm</b>		<b>Lower</b>		<b>Selection</b>		
		316L SS		316L SS		--- BA ---	•	•
		Hastelloy® C-276		316L SS		--- BB ---	•	•
		Hastelloy® C-276		Hastelloy® C-276		--- BC ---	•	•
		Monel 400®		Monel 400®		--- BE ---	8	8
		Tantalum		316L SS		--- BF ---	8	8
		Tantalum		Hastelloy® C-276		--- BG ---	8	8
	Tantalum		Tantalum Clad		--- BH ---	13	13	
	Non-Wetted Material (upper, upper insert)	<b>Upper</b>		<b>Upper Insert</b>		<b>Selection</b>		
		316L SS		316L SS		----- 4 -----	•	•
Carbon Steel		316L SS		----- 5 -----	•	•		
Bolts <sup>6</sup>		No Selection			----- 0 -----	•	•	
Flushing Connections and Plugs <sup>4</sup> (Metal plug material will be the same as Lower material, if metal plug is chosen - (SS Plug for CS Lower and Tantalum Clad)		None			----- 0 -----	•	•	
		One 1/4" with plastic plug		----- H -----	•	•		
		One 1/4" with metal plug		----- J -----	•	•		
		Two 1/4" with plastic plugs		----- M -----	•	•		
		Two 1/4" with metal plugs		----- N -----	•	•		
		One 1/2" with plastic plug		----- P -----	•	•		
		One 1/2" with metal plug		----- Q -----	•	•		
		Two 1/2" with plastic plugs		----- R -----	•	•		
		Two 1/2" with metal plugs		----- S -----	•	•		
Gasket	Klinger® C-4401 (non-asbestos)			----- K -----	•	•		
	Grafoil®			----- G -----	•	•		
	Teflon®			----- T -----	•	•		
	Gylon® 3510			----- L -----	15	15		

Table II continued next page

\*\* Refer to 34-ST-00-128 for additional options, consult factory


<sup>1</sup> Standard facing 125-250 AARH RF (raised face) serrated surface finish.

<sup>6</sup> Bolt material will be same as Upper Material. However, if Table I bolts/nuts material is NACE or B7M, seal bolt material will be 304 SS NACE.



<sup>4</sup> Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

STR84G & 87G & 84A  
STR82D & 83D

TABLE II		Description					
Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating <sup>1</sup>		Selection		
 Flange Seal with Extended Diaphragm**	2.8"	3" (2.8" OD extension)	ANSI Class 150		EFA _____	•	•
			ANSI Class 300		EFC _____	•	•
	DIN DN80-PN40				EFM _____	•	•
	3.5"	4" (3.7" OD extension)	ANSI Class 150		FGA _____	•	•
			ANSI Class 300		FGC _____	•	•
	DIN DN100-PN40				FGP _____	•	•
	Wetted Material			Diaphragm	Ext. Tube	Selection	
				316L SS	316L SS	___ EA ___	•
			Hastelloy® C-276	316L SS	___ EB ___	•	•
			Hastelloy® C-276	Hastelloy® C-276	___ EC ___	•	•
Non-Wetted Material (flange)		CS (Nickel Plated)		___ 7 ___	•	•	
		316L SS		___ 8 ___	•	•	
Bolts		No Selection		___ 0 ___	•	•	
Extension Length		2"		___ 2 ___	•	•	
		4"		___ 4 ___	•	•	
		6"		___ 6 ___	•	•	
No Selection	No Selection	No Selection		___ 0 ___	•	•	

STR84G & 87G & 84A  
STR82D & 83D

TABLE II		Description					
Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating Dependent on Customer Flange <sup>1</sup>		Selection		
 Pancake Seal	3.5"	3"	ANSI Class 150/300/600		GFA _____	•	•
			Diaphragm	Body	Selection		
	Wetted Material		316L SS	316L SS	___ GA ___	•	•
			Hastelloy® C-276	316L SS	___ GB ___	•	•
			Hastelloy® C-276	Hastelloy® C-276	___ GC ___	•	•
			Monel 400®	Monel 400®	___ GE ___	8	8
			Tantalum	Tantalum <sup>7</sup>	___ GG ___	8	8
	Non-Wetted Material		No Selection		___ 0 ___	•	•
	Bolts		No Selection		___ 0 ___	•	•
	Calibration Rings 		None		___ A ___	•	•
316L SS			___ B ___	10	10		
Hastelloy® C-276			___ C ___	10	10		
Monel 400®			___ D ___	10	10		
Flushing Connections and Plugs <sup>4</sup> (Metal plug material will be the same as Cal. Ring material, if metal plug is chosen)		None		___ 0 ___	•	•	
		One 1/4" with plastic plug		___ H ___	11	11	
		One 1/4" with metal plug		___ J ___	11	11	
		Two 1/4" with plastic plugs		___ M ___	11	11	
		Two 1/4" with metal plugs		___ N ___	11	11	
		One 1/2" with plastic plug		___ P ___	11	11	
		One 1/2" with metal plug		___ Q ___	11	11	
		Two 1/2" with plastic plugs		___ R ___	11	11	
		Two 1/2" with metal plugs		___ S ___	11	11	

<sup>1</sup> Refer to 34-ST-00-128 for additional options, consult factory  
<sup>1</sup> Standard facing 125-250 AARH RF (raised face) serrated surface finish.  
<sup>4</sup> Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation  
<sup>7</sup> Tantalum Body has Tantalum wetted parts and 316 SS non-wetted parts

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

STR84G & 87G & 84A  
STR82D & 83D



TABLE II		Description					
Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating <sup>1</sup>		Selection		
 Chemical Tee "Taylor" Wedge	3.5"	Taylor Wedge 5" O.D.	750 psi		HMO _____	16	
	Wetted Material		Diaphragm	Body	Selection		
			316L SS	316L SS	___ HA ___	•	
			Hastelloy® C-276	316L SS	___ HB ___	•	
			Hastelloy® C-276	Hastelloy® C-276	___ HC ___	•	
	Non-Wetted Material		No Selection		___ 0 ___	•	
	Bolts		No Selection		___ 0 ___	•	
Styles		No Selection		___ 0 ___	•		
No Selection		No Selection		___ 0 ___	•		

Table II continued below

STR84G & 87G & 84A  
STR82D & 83D

TABLE II		Description						
Seal Type	Diaphragm Diameter	Threaded Process Connection Size (NPT Female)	Pressure Rating		Selection			
			CS Bolts	304 SS Bolts				
 Seal with Threaded Process Connection	2.4"	1/2 NPT	2,500 psi	1,250 psi	JJG _____	12	•	
		3/4 NPT			JKG _____	12	•	
		1 NPT			JLG _____	12	•	
	2.9"	1/2 NPT	2,500 psi	1,250 psi	KJG _____	•	•	
		3/4 NPT			KKG _____	•	•	
		1 NPT			KLG _____	•	•	
	4.1"	1/2 NPT	1,500 psi	750 psi	LJG _____	•	•	
		3/4 NPT			LKG _____	•	•	
		1 NPT			LLG _____	•	•	
	Wetted Material		Diaphragm	Lower	Selection			
			316L SS	Carbon Steel	___ JA ___	•	•	
			316L SS	316L SS	___ JB ___	•	•	
			Hastelloy® C-276	316L SS	___ JC ___	•	•	
			Hastelloy® C-276	Hastelloy® C-276	___ JD ___	•	•	
			Monel 400®	Monel 400®	___ JE ___	8	8	
			Tantalum	316L SS	___ JF ___	8	8	
			Tantalum	Hastelloy® C-276	___ JG ___	8	8	
	Non-Wetted Material (upper)		CS (Nickel Plated)		___ A ___	•	•	
			316 Stainless Steel		___ C ___	17	17	
	Bolts <sup>8</sup>		Carbon Steel		___ D ___	•	•	
		304 SS		___ E ___	•	•		
Flushing Connections and Plugs <sup>4</sup>		None		___ 0 ___	•	•		
		One 1/4" with plastic plug		___ H ___	•	•		
		One 1/4" with metal plug		___ J ___	•	•		
		Two 1/4" with plastic plugs		___ M ___	•	•		
		Two 1/4" with metal plugs		___ N ___	•	•		
		One 1/2" with plastic plug		___ P ___	18	18		
		One 1/2" with metal plug		___ Q ___	18	18		
		Two 1/2" with plastic plugs		___ R ___	18	18		
		Two 1/2" with metal plugs		___ S ___	18	18		
Gasket		Klinger® C-4401 (non-asbestos)		___ K ___	•	•		
		Grafoil®		___ G ___	•	•		
		Teflon®		___ T ___	•	•		
		Gylon® 3510		___ L ___	15	15		

<sup>1</sup> Standard facing 125-250 AARH RF (raised face) serrated surface finish.

<sup>4</sup> Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation

<sup>8</sup> If Table I Bolts and Nuts material option is NACE, Bolts and Nuts will ship with Alloy Steel NACE and MAWP may change.

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

STR84G & 87G & 84A  
STR82D & 83D



TABLE II		Description						
Seals (continued)	Seal Type	Diaphragm Diameter	Flange Size	Pressure Rating		Selection		
		1.9"	2"	Customer clamp rating or 600 psi, whichever is less		MD0 _____	20	19
		2.4"	2-1/2"			NE0 _____		
		2.9"	3"			PF0 _____		
		4.1"	4"			QG0 _____		
		Wetted Material		Diaphragm	Body	Selection		
				316L SS	316L SS	___ N A ___	•	•
		Non-Wetted Material		No Selection		___ 0 ___	•	•
		Bolts		No Selection		___ 0 ___	•	•
		Styles		Tri-Clover Tri-Clamp®		___ 8 ___	•	•
	Gasket		No Selection		___ 0 ___	•	•	

Table II continued below

STR84G & 87G & 84A  
STR82D & 83D

TABLE II		Description							
Seals (continued)	Seal Type	Diaphragm Diameter	Size and Bolt Pattern	Seal Pressure Rating		Selection			
		2.4"	8-Bolt Design	for 3" Pipe ≥ 4" pipe	2,500 psi	1,250 psi	RFK _____	12	•
							RGK _____		
		2.4"	6-Bolt Design	for 3" Pipe ≥ 4" pipe	2,000 psi	1,000 psi	RPK _____	12	•
							RQK _____		
					Diaphragm	Lower Housing	Selection		
					316L SS	Carbon Steel	___ RA ___	•	•
					316L SS	316L SS	___ RB ___	•	•
					Hastelloy® C-276	316L SS	___ RC ___	•	•
					Hastelloy® C-276	Hastelloy® C-276	___ RD ___	•	•
				316L SS	N/A-Body Only <sup>10</sup>	___ SB ___	•	•	
			Hastelloy® C-276	N/A-Body Only <sup>10</sup>	___ SC ___	•	•		
			Body	Bolts <sup>10,11</sup>	Selection				
			Carbon Steel	Carbon Steel	___ B ___	8	8		
			316L SS	316 SS	___ C ___				
			Bolts		No Selection		___ 0 ___	•	•
			Styles		No Selection		___ 0 ___	•	•
			Gasket	Klinger® C-4401 (non-asbestos)		___ K ___	•	•	
				Grafoil®		___ G ___	•	•	
				Teflon®		___ T ___	•	•	
				Gylon® 3510		___ L ___	•	•	

<sup>9</sup> All sanitary seals have dairy grade 3A approval.

<sup>10</sup> Bolts are not included with "body only" selection.

<sup>11</sup> If Table I Bolts and Nuts material option is NACE, seal bolt material will be 304 SS NACE.

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

STR84G & 87G & 84A  
STR82D & 83D

TABLE III	Agency Approvals (see data sheet for Approval Code Details)
Approvals	No Approvals Required
	FM Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof
	CSA Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof
	ATEX Explosion proof, Intrinsically Safe & Non-incendive
	IECEX Explosion proof, Intrinsically Safe & Non-incendive
	SAEx Explosion proof, Intrinsically Safe & Non-incendive
	INMETRO Explosion proof, Intrinsically Safe & Non-incendive
	NEPSI Explosion proof, Intrinsically Safe & Non-incendive
	KOSHA Explosion proof, Intrinsically Safe & Non-incendive
	EAC Customs Union(Russia,Belarus,Kazakhstan) Ex Approval,Flameproof, Intrinsically Safe
	CCoE Explosion proof, Intrinsically Safe & Non-incendive
	UATR Flameproof, Intrinsically Safe & Dustproof

0	•	•
A	•	•
B	•	•
C	•	•
D	•	•
E	•	•
F	•	•
G	•	•
H	•	•
I	•	•
J	•	•
K	•	•

TABLE IV	TRANSMITTER ELECTRONIC SELECTIONS		
a. Electronic Housing Material & Connection Type	Material	Connection	Lightning Protection
	Polyester Powder Coated Aluminum	1/2 NPT	None
	Polyester Powder Coated Aluminum	M20	None
	Polyester Powder Coated Aluminum	1/2 NPT	Yes
	Polyester Powder Coated Aluminum	M20	Yes
	316 Stainless Steel (Grade CF8M)	1/2 NPT	None
	316 Stainless Steel (Grade CF8M)	M20	None
	316 Stainless Steel (Grade CF8M)	1/2 NPT	Yes
b. Output/ Protocol	Analog Output		Digital Protocol
	4-20mA dc		HART Protocol
	4-20mA dc none		DE Protocol Foundation Fieldbus
c. Customer Interface Selections	Indicator	Buttons	Languages
	None	None	None
	None	Yes (Zero/Span Only)	None
	Basic	None	English
	Basic	Yes	English
	Advanced	None	EN,GR,IT, FR,SP,RU, TU
	Advanced	Yes	EN,GR,IT, FR,SP,RU, TU
	Advanced	None	EN, CH, JP
Advanced	Yes	EN, CH, JP	

A __	•	•
B __	•	•
C __	•	•
D __	•	•
E __	•	•
F __	•	•
G __	•	•
H __	•	•

_ H _	•	•
_ D _	•	•
_ F _	•	•

__ 0	•	•
__ A	f	f
__ B	•	•
__ C	•	•
__ D	•	•
__ E	•	•
__ H	•	•
__ J	•	•

TABLE V	CONFIGURATION SELECTIONS		
a. Application Software	Diagnostics		
	Standard Diagnostics		
b. Output Limit, Failsafe & Write Protect Settings	Write Protect	Fail Mode	High & Low Output Limits <sup>3</sup>
	Disabled	High> 21.0mA dc	Honeywell Std (3.8 - 20.8 mA dc)
	Disabled	Low< 3.6mA dc	Honeywell Std (3.8 - 20.8 mA dc)
	Enabled	High> 21.0mA dc	Honeywell Std (3.8 - 20.8 mA dc)
	Enabled	Low< 3.6mA dc	Honeywell Std (3.8 - 20.8 mA dc)
	Enabled	N/A	N/A Fieldbus or Profibus
c. General Configuration	Factory Standard		
	Custom Configuration (Unit Data Required from customer)		

1 __	•	•
------	---	---

_ 1 _	f	f
_ 2 _	f	f
_ 3 _	f	f
_ 4 _	f	f
_ 5 _	g	g
_ 6 _	g	g

__ S	•	•
__ C	•	•

TABLE VI	CALIBRATION & ACCURACY SELECTIONS		
Accuracy and Calibration	Accuracy	Calibrated Range	Calibration Qty
	NA	None	None
	Standard	Factory Std	Single Calibration
	Standard	Custom (Unit Data Required)	Single Calibration

0	21	21
A	23	23
B	23	23

<sup>3</sup> NAMUR Output Limits 3.8 - 20.5mA dc can be configured by the customer or select custom configuration Table Vc

TABLE VII ACCESSORY SELECTIONS		
<b>a. Mounting Bracket</b>	<b>Bracket Type</b>	<b>Material</b>
	None	None
	Angle Bracket	Carbon Steel
	Angle Bracket	304 SS
	Angle Bracket	316 SS
	Marine Approved Bracket	Carbon Steel
	Marine Approved Bracket (In Line)	Carbon Steel
	Marine Approved Bracket	304 SS
	Marine Approved Bracket (In Line)	304 SS
	Flat Bracket	Carbon Steel
Flat Bracket	304 SS	
Flat Bracket	316 SS	
<b>b. Customer Tag</b>	<b>Customer Tag Type</b>	
	No customer tag	
	One Wired Stainless Steel Tag (Up to 4 lines 26 char/line) Two Wired Stainless Steel Tag (Up to 4 lines 26 char/line)	
<b>c. Unassembled Conduit Plugs &amp; Adapters</b>	<b>Unassembled Conduit Plugs &amp; Adapters</b>	
	No Conduit Plugs or Adapters Required	
	1/2 NPT Male to 3/4 NPT Female 316 SS Certified Conduit Adapter	
	1/2 NPT 316 SS Certified Conduit Plug	
	M20 316 SS Certified Conduit Plug	
	Minifast® 4 pin (1/2 NPT) Minifast® 4 pin (M20)	

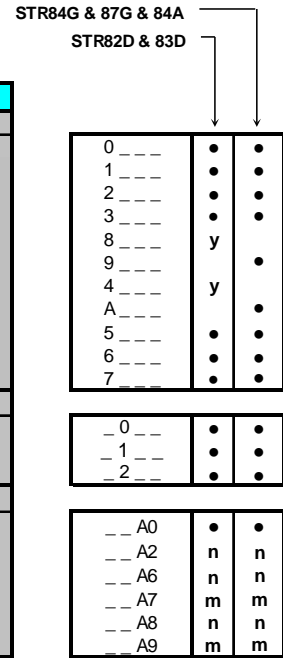


TABLE VIII OTHER Certifications & Options : (String in sequence comma delimited (XX, XX, XX,....))	
<b>Certifications &amp; Warranty</b>	None - No additional options
	NACE MR0175; MR0103; ISO15156 (FC33338) Process wetted parts only
	NACE MR0175; MR0103; ISO15156 (FC33339) wetted and non-wetted parts
	Marine (DNV,ABS,BV,KR,LR)
	EN10204 Type 3.1 Material Traceability (FC33341)
	Certificate of Conformance (F3391)
	Calibration Test Report & Certificate of Conformance (F3399)
	Certificate of Origin (F0195)
	FMEDA (SIL 2/3) Certification (FC33337)
	Over-Pressure Leak Test Certificate (1.5X MAWP) (F3392)
	Cert Clean for O <sub>2</sub> or CL <sub>2</sub> service per ASTM G93
	Extended Warranty Additional 1 year
	Extended Warranty Additional 2 years
	Extended Warranty Additional 3 years
	Extended Warranty Additional 4 years
Extended Warranty "LifeTime" Additional 15 years	

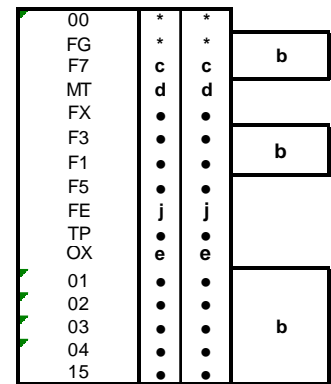
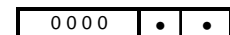


TABLE IX Manufacturing Specials	
<b>Factory</b>	<b>Factory Identification</b>





**MODEL RESTRICTIONS**

Restriction Letter	Available Only With		Not Available With	
	Table	Selection(s)	Table	Selection(s)
<b>b</b>	Select only one option from this group			
<b>d</b>	IVa	C, D,G,H _ _	VIIa	1,2,3,5,6,7 _ _ _
<b>c</b>	Id	_ _ _ 0, N, B _ _ _		
<b>e</b>	Ib	_ 2 _ 2 _ _		
<b>f</b>			IVb	_ F _
<b>g</b>			IVb	_ H, D _
<b>j</b>	IVb	_ H _	Vb	_ 1,2,6 _
<b>m</b>	IVa	B, D, F, H _ _		
<b>n</b>	IVa	A, C, E, G _ _		
<b>y</b>			Ic	_ _ E _ _ _
<b>2</b>	Ie	_____ 0 _____ _____ 2 _____ _____ 4 _____		
<b>3</b>	If	_ _ _ _ 2 _	Ia	2 _____
<b>4</b>	I	2 _ _ 0 _ _		
<b>5</b>	II	000000000	VIII	FG, F7, FX, OX,TP,MT,F1
<b>6</b>	I	_ _ B,D _ _ _ _	Ia	2 _ _ _ _ _
<b>7</b>			II	_____ AF _____ _____ BF _____ _____ BG _____ _____ BH _____ _____ GG _____ _____ JF _____ _____ JG _____
<b>8</b>			VIII	FG, F7
<b>9</b>	II	_____ AA2 _____ _____ AB2 _____		
<b>10</b>			II	_ _ _ _ _ 0
<b>11</b>			II	_ _ _ _ _ A _
<b>12</b>	If	_ _ _ _ A, G, 2 _		
<b>13</b>	II	_ _ _ _ _ 0 _	II VIII	_ _ _ _ _ T FG, F7
<b>15</b>	II	_____ BF _____ _____ BG _____ _____ BH _____ _____ JF _____ _____ JG _____		
<b>16</b>	I	2 _ _ _ _ _		
<b>17</b>			II	_ _ _ JA _ _ _
<b>18</b>			II	_____ JJG _____ _____ JKG _____ _____ JLG _____
<b>19</b>			If	_ _ _ _ 2 _
<b>20</b>	If	_____ A,G _____		
<b>21</b>	I	_ _ _ _ 000		
<b>22</b>	Ic	_ _ E _ _ _		
<b>23</b>			II	000000000

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**FIELD INSTALLABLE REPLACEMENT PARTS**

Description	Kit Number
Integrally Mounted Basic Indicator Kit (Compatible with all Electronic Modules)	50049911-501
Integrally Mounted Advanced Indicator Kit (Compatible with all Electronic Modules)	50049846-501
Terminal Strip w/Lightning Protection Kit for HART or DE Modules	50075472-532
Terminal Strip w/Lightning Protection Kit for FFB Module	50075472-534
Terminal Strip w/o Lightning Protection for HART or DE Modules	50075472-531
Terminal Strip w/o Lightning Protection FFB Module	50075472-533
HART Electronics Module	50049849-501
HART Electronics Module w/connection for external configuration buttons	50049849-502
DE Electronics Module	50049849-503
DE Electronics Module w/connection for external configuration buttons	50049849-504
FFB Electronics Module Kit	50049849-507
FFB Electronics Module w/connection for external configuration buttons	50049849-508

**PRODUCT MANUALS**

Description	Part Number
Paper Manual ST 800 Smart Transmitter User Manual - English	34-ST-25-35
Paper Manual ST 800 Smart Transmitter HART/DE Communications Manual - English	34-ST-25-38
Paper Manual ST 800 Smart Transmitter Safety Manual - English	34-ST-25-37
Paper Manual ST 800 Smart Transmitter Foundation Fieldbus Manual - English	34-ST-25-39
Paper Manual ST 800 Smart Transmitter Function Block Manual - English	34-ST-25-42

All product documentation is available at [www.honeywellprocess.com](http://www.honeywellprocess.com).

## Sales and Service

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

### ASIA PACIFIC

Honeywell Process Solutions,  
Phone: + 800 12026455 or  
+44 (0) 1202645583  
(TAC) [hfs-tac-support@honeywell.com](mailto:hfs-tac-support@honeywell.com)

#### 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 - Shanghai

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

#### Singapore

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

#### South Korea

Honeywell Korea Co Ltd  
Phone: +(822) 799 6114  
Fax: +(822) 792 9015

### EMEA

Honeywell Process Solutions,  
Phone: + 800 12026455 or  
+44 (0) 1202645583

#### Email: (Sales)

[FP-Sales-Apps@Honeywell.com](mailto:FP-Sales-Apps@Honeywell.com)

or

(TAC)

[hfs-tac-support@honeywell.com](mailto:hfs-tac-support@honeywell.com)

#### Web

Knowledge Base search  
engine <http://bit.ly/2N5Vldi>

### AMERICAS

Honeywell Process Solutions,  
Phone: (TAC) (800) 423-9883  
or (215) 641-3610  
(Sales) 1-800-343-0228

#### Email: (Sales)

[FP-Sales-Apps@Honeywell.com](mailto:FP-Sales-Apps@Honeywell.com)

or

(TAC)

[hfs-tac-support@honeywell.com](mailto:hfs-tac-support@honeywell.com)

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To learn more about SmartLine Pressure Transmitters, visit [www.honeywellprocess.com](http://www.honeywellprocess.com)  
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### Process Solutions

Honeywell  
1250 W Sam Houston Pkwy S  
Houston, TX 77042

Honeywell Control Systems Ltd  
Honeywell House, Skimped Hill Lane  
Bracknell, England, RG12 1EB

Shanghai City Centre, 100 Jungi Road  
Shanghai, China 20061



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