SmartLine

Honeywell

Technical Information

STR700 SmartLine Remote Diaphragm Seals Specification 34-ST-03-124, October 2020

Introduction

Part of the SmartLine® family of products, the STR700 is a series of 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 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.

- Accuracies up to 0.075% of span
- Automatic static pressure & temperature compensation
- Rangeability up to 100:1
- Easy to use and intuitive display capabilities
- Intuitive External zero, span, & configuration capability
- 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

Span & Range Limits:

Model	URL psid (bar)	LRL psid (bar)	Min Span psid (bar)
STR735D	100 (7.0)	-100 (-7.0)	0.9 (0.062)
Model	**psig (bar)**	**psig (bar)**	**psig (bar)**
STR745G	500 (35.0)	-14.7 (-1.0)	5 (0.35)

Figure 1 – STR700 Remote Diaphragm Seal Unit with feature field-proven piezoresistive sensor technology

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

Communications/Output Options:

- HART ® (version 7.0)

Description

The SmartLine family pressure transmitters are 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.

Indication/Display Option

Standard LCD Display Features

- Modular (may be added or removed in the field)
- Supports HART protocol variant
- 0, 90,180, & 270 degree position adjustments
- Configurable (HART only) and standard (Pa, KPa, MPa, KGcm2, Torr, ATM, mH_2O, bar, mbar, inH_2O, inHG, FTH_2O, mmH_2O, mm HG, & psi) measurement units.
- Supports Flow engineering units
- 2 Lines 6 digits PV (9.95H x 4.20W mm) 8 Characters
- Square root output indication (√)
- Write protect Indication
- Built in Basic Device Configuration through Internal Buttons – Range/Engineering Unit/Loop Test /Loop Calibration/Zero /Span Setting
- o Multiple language capability (EN, RU)

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**

System Integration

- SmartLine communications protocols all meet the most current published standards for HART.
- All ST 700 units are Experion tested to provide the highest level of compatibility assurance

Configuration Tools

External Two Button Configuration Option
Suitable for all electrical and environmental requirements, SmartLine offers the ability to configure the transmitter and display, for all basic parameters, via two externally accessible buttons when a display option is selected. Zero/span capabilities are also optionally available via two external buttons with or without selection of the display option.

Internal Two Button Configuration Option
The Standard display has two buttons that can be used for Basic configuration such as re ranging, PV Engineering unit setting, Zero/Span settings, Loop testing and calibration functions.

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
Field Device Manager (FDM) Software and FDM Express are also available for managing HART configurations.

Modular Design

To help contain maintenance & inventory costs, all ST 700 transmitters are modular in design supporting the user's ability to replace meter bodies, standard displays or electronic modules without affecting overall performance. Each meter body is uniquely characterized to provide in-tolerance performance over a wide range of application variations in temperature and pressure.

Modular Features

- Meter body replacement
- Add or remove standard displays
- Add or remove lightning protection (terminal connection)

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)

Table 1

Model	URL	LRL	Min Span	Maximum Turndown Ratio	Reference Accuracy[1,2] (% Span) Standard
STR735D	100 psi (7.0 bar)	-100 psi (-7.0bar)	0.9 psi (0.062bar)	111:1	0.075
STR745G	500 psi (35 bar)	-14.7 psi (-1.0 bar)	5 psi (0.035 bar)	100:1	0.075

Table 2

			Accuracy[1,2] (% of Span)				Combined Zero & Span temperature Effect (% Span / 28°C (50°F))		
	Model	URL	Reference Turndown	A	B	C (see URL units)	D	E	F
Standard Accuracy	STR735D	100 psi (7.0 bar)	22:1	0.005	0.060	4.52 (0.311)	0.275	1.200	9 (0.622)
	STR745G	500 psig (35 bar)	20:1			25 (1.75)			
			Turn Down Effect				Temperature Effect		
			$\pm[A+B]$ if $Span \geq C$ $\pm\left[A+B\left(\frac{C}{Span}\right)\right]$ if $Span < C$				$\pm[D+E\left(\frac{F}{Span}\right)]$ $\pm\left[A+B\left(\frac{F}{Span}\right)\right]$ if $Span < F$		

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

Total Performance (% of Span):

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

Total Performance Examples (for comparison): (standard accuracy, 5:1 Turndown, up to 50 °F (28°C) shift)

STR735D @ 20 psid: 1.476% of span

Typical Calibration Frequency:

Calibration verification is recommended every four (4) years

Notes:

1.Terrninal Based Accuracy – Includes combined effects of linearity, hysteresis, and repeatability. Analog output adds 0.006% 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

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[1]	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)[4] (ST 700 products are rated to Maximum Allowable Working Pressure. MAWP depends on Approval Agency and transmitter materials of construction.)	MAWP is minimum of Body Rating or Seal Rating (See Model Selection Guide for Seal MAWP) **Body** **MAWP** STR735D 750 psig (51.7 bar) Bolted Process Heads STR745G 500 psig (35 bar)							

[1] Ambient Temperature Limit is a function of Process Interface Temperature. (See Figures 3 & 4)

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

[4] Consult factory for MAWP of ST 700 transmitters with CRN approval.

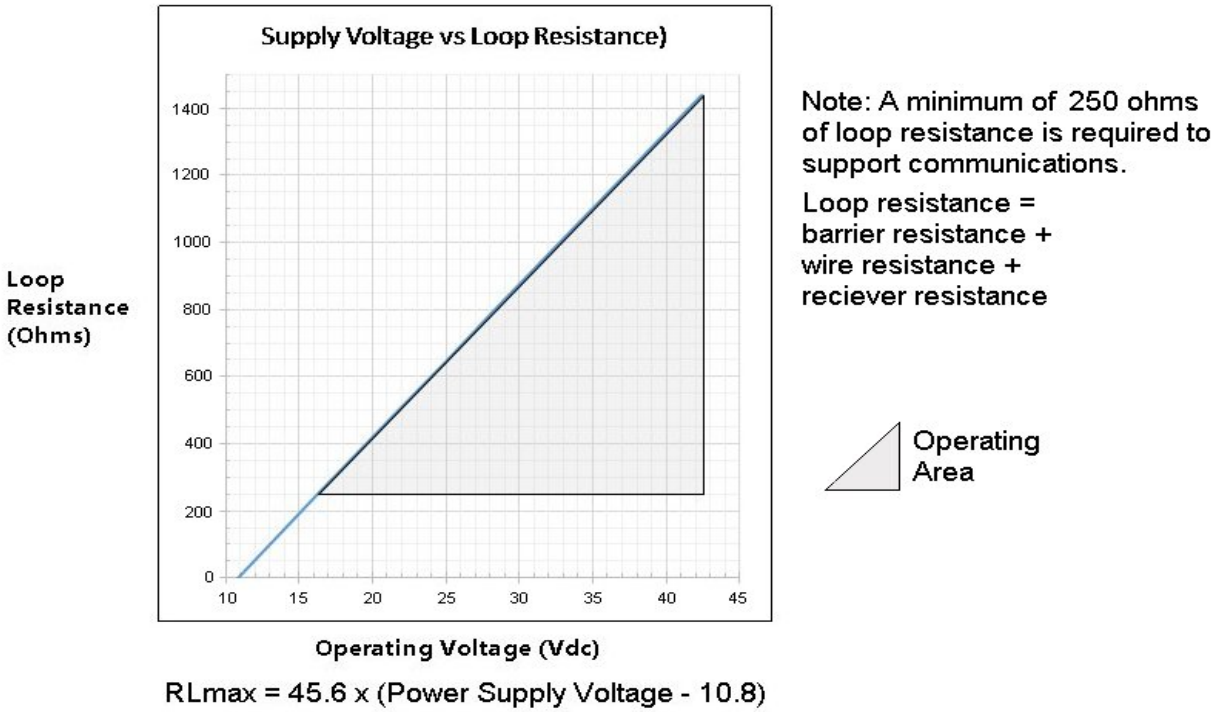


Figure 2 – Supply voltage and loop resistance

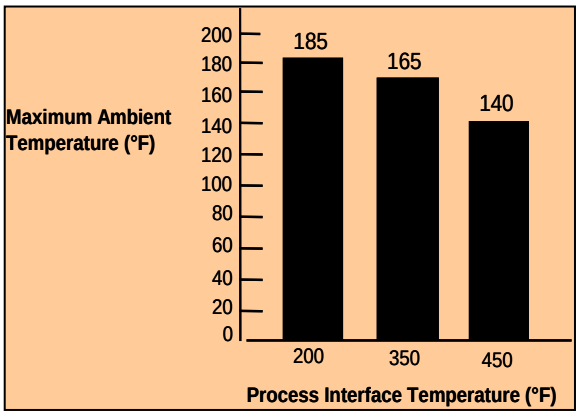


Figure 3- Ambient Temperature Limits

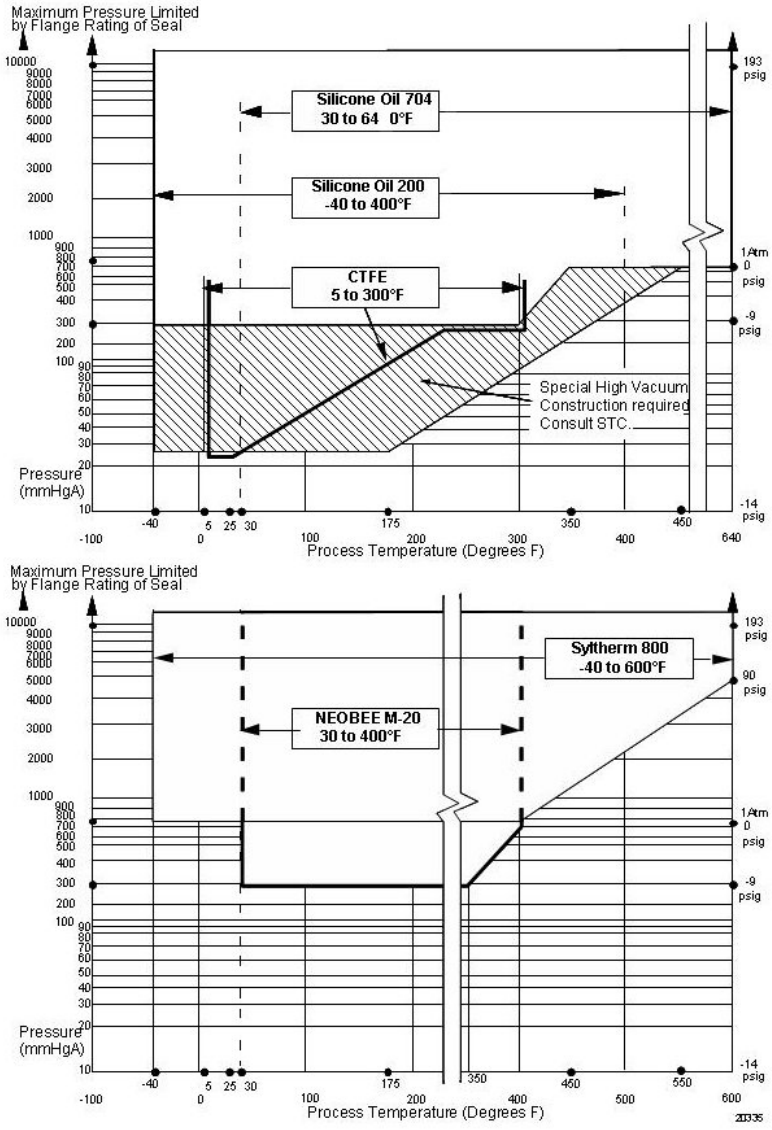


Figure 4 - STR700 Remote Seals operable limits for pressure vs. temperature

Performance Under Rated Conditions – All Models

Parameter	Description
Analog Output **Digital Communications**:	Two-wire, 4 to 20 mA HART 7 protocol
HART Output Failure Modes	**Compliance**: **Honeywell Standard:** **NAMUR NE 43** **Normal Limits:** 3.8 – 20.8 mA 3.8 – 20.5 mA **Failure Mode:** ≤ 3.6 mA and ≥ 21.0 mA ≤ 3.6 mA and ≥ 21.0 mA
Supply Voltage Effect	0.005% span per volt.
Transmitter Turn on Time (includes power up & test algorithms)	2.5 sec.
Damping Time Constant	Adjustable from 0 to 32 seconds in 0.1 increments. **Default:** 0.50 seconds
Electromagnetic Compatibility	IEC 61326-3-1
Lightning Protection Option	**Leakage Current:** 10uA max @ 42.4VDC 93C **Impulse rating:** 8/20uS 5000A (>10 strikes) 10000A (1 strike min.) 10/1000uS 200A (> 300 strikes)

Materials Specifications (see model selection guide for availability/restrictions with various models)

Parameter	Description
Process Interface	See Model Selection Guide for Material Options for desired seal type.
Seal Barrier Diaphragm	316L Stainless Steel, Monel®, Hastelloy® C, Tantalum
Seal Gasket Materials	Klinger C-4401 (non-asbestos) Grafoil®, Teflon®, Gylon 3510®
Mounting Bracket	Carbon Steel (Zinc-Chromate plated) or 304 Stainless Steel or 316 Stainless Steel.
Fill Fluid (Meter Body)	Silicone 200 S.G. @ 25°C = 0.94 CTFE (Chlorotrifluoroethylene) S.G. @ 25°C = 1.89
Fill Fluid (Secondary)	Silicone 200 S.G. @ 25°C = 0.94 CTFE (Chlorotrifluoroethylene) S.G. @ 25°C = 1.89 Silicone 704 S.G. @ 25°C = 1.07 Syltherm 800® S.G. @ 25°C = 0.90 NEOBEE M-20® S.G. @ 25°C = 0.93
Electronic Housing	Pure Polyester Powder Coated Low Copper (<0.4%)-Aluminum. Meets NEMA 4X, IP66, & P67. All stainless steel housing is optional.
Capillary Tubing	**Material:** Armored Stainless Steel or PVC Coated Armored Stainless Steel. **Length:** 5, 10, 15, 20, 25, and 35 feet (1.5, 3, 4.6, 6.1, 7.5, and 10.7 meters). A 2 inch (51 millimeter) S.S. close-coupled nipple is also available. See Model Selection Guide. Refer **to** Table 1 for guide to maximum capillary length vs. diaphragm diameter. 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.
Wiring	Accepts up to 16 AWG (1.5 mm diameter)
Mounting	See Figure 5
Dimensions	**Transmitter:** Figure 6 and Figure 7 **Seal:** Figure 8 through to Figure 13
Net Weight	**Transmitter:** 8.3 pounds (3.8 Kg). With Aluminum Housing. Total weight is dependent on seal

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.

MINIMUM RECOMMENDED SPAN FOR STR735D TRANSMITTER WITH TWO SEALS

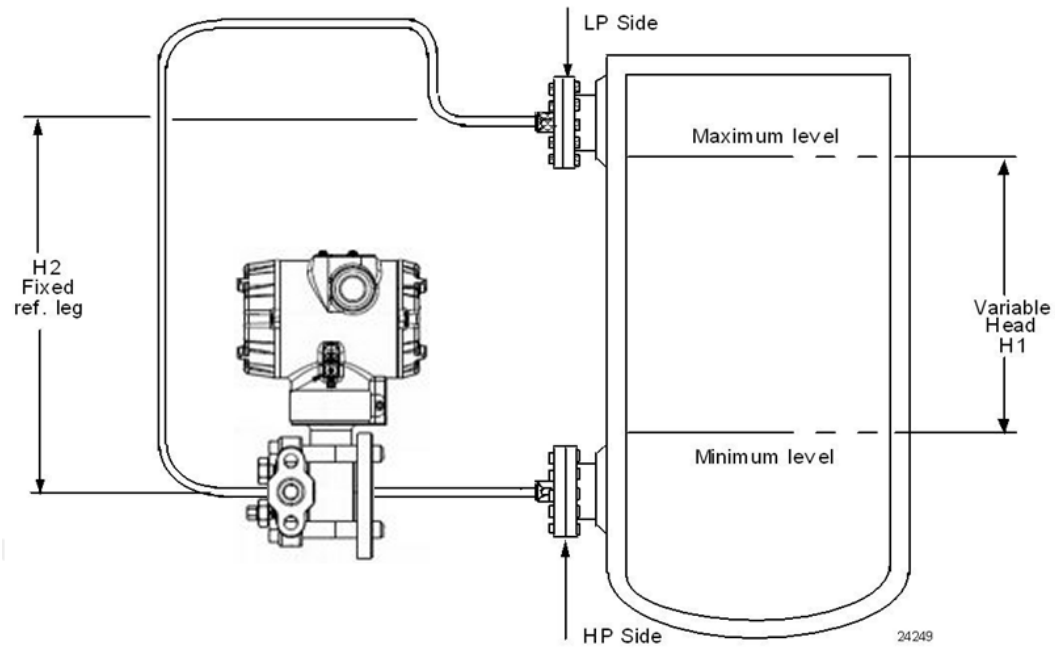
Diaphragm Size (Inch)	Capillary Length (Feet)						Maximum Capillary Length (Feet)
	5	10	15	20	25	35	
1.9	15 psi	20 psi	25 psi	-	-	-	15
2.4	5.4 psi	7.2 psi	9.0 psi	10.8 psi	12.6 psi	14.4 psi	35
2.9	1.8 psi	2.7 psi	3.6 psi	4.5 psi	5.4 psi	7.2 psi	35
3.5	0.9 psi	0.9 psi	0.9 psi	1.0 psi	1.2 psi	1.4 psi	35
4.1	0.9 psi	0.9 psi	0.9 psi	0.9 psi	0.9 psi	1.1 psi	35

MINIMUM RECOMMENDED SPAN FOR STR745G AND STR735D TRANSMITTER WITH ONE REMOTE SEAL

Diaphragm Size (Inch)	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	2 psi	2 psi	3 psi	4 psi	5 psi	6 psi	8 psi	35
4.1	0.9 psi	0.9 psi	1 psi	2 psi	3 psi	3.5 psi	5 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.

Table 3 – Typical Maximum capillary length and diaphragm size chart

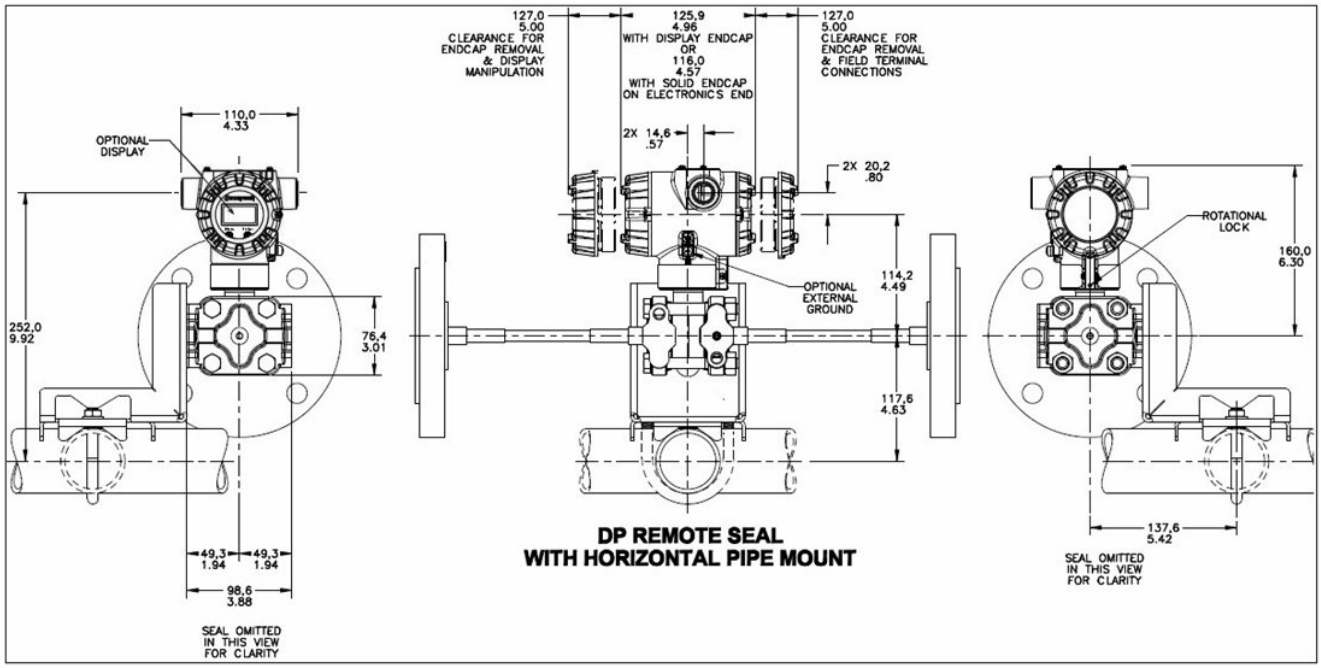


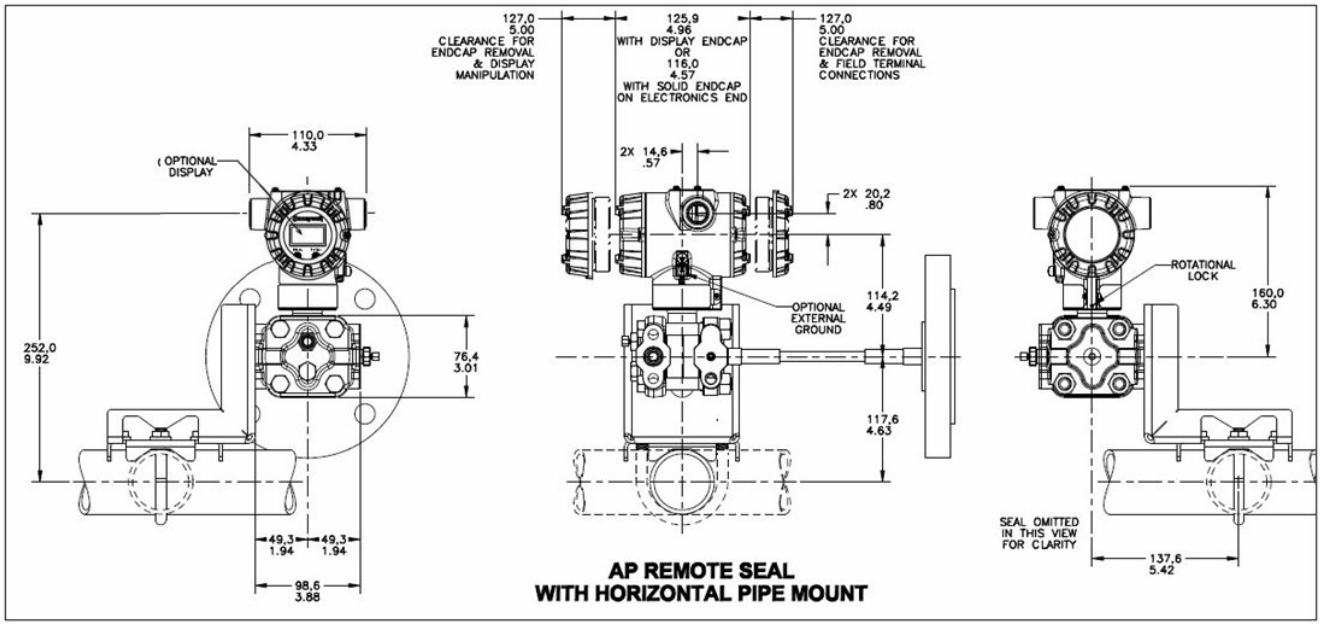
NOTE: Lower flange seal should not be mounted over 22 feet below or above the transmitter for silicone fill fluid (11 feet for CTFE fill fluid) with tank at one atmosphere. The combination of tank vacuum and high pressure capillary head effect should not exceed 9 psi vacuum (300 mmHg absolute).

Consult Honeywell for installation of STR735D

Figure 5 - STR700 transmitter with remote diaphragm seals shown mounted on a tank

Reference Dimensions Horizontal Mounting





Reference Dimensions Horizontal Mounting (cont'd)

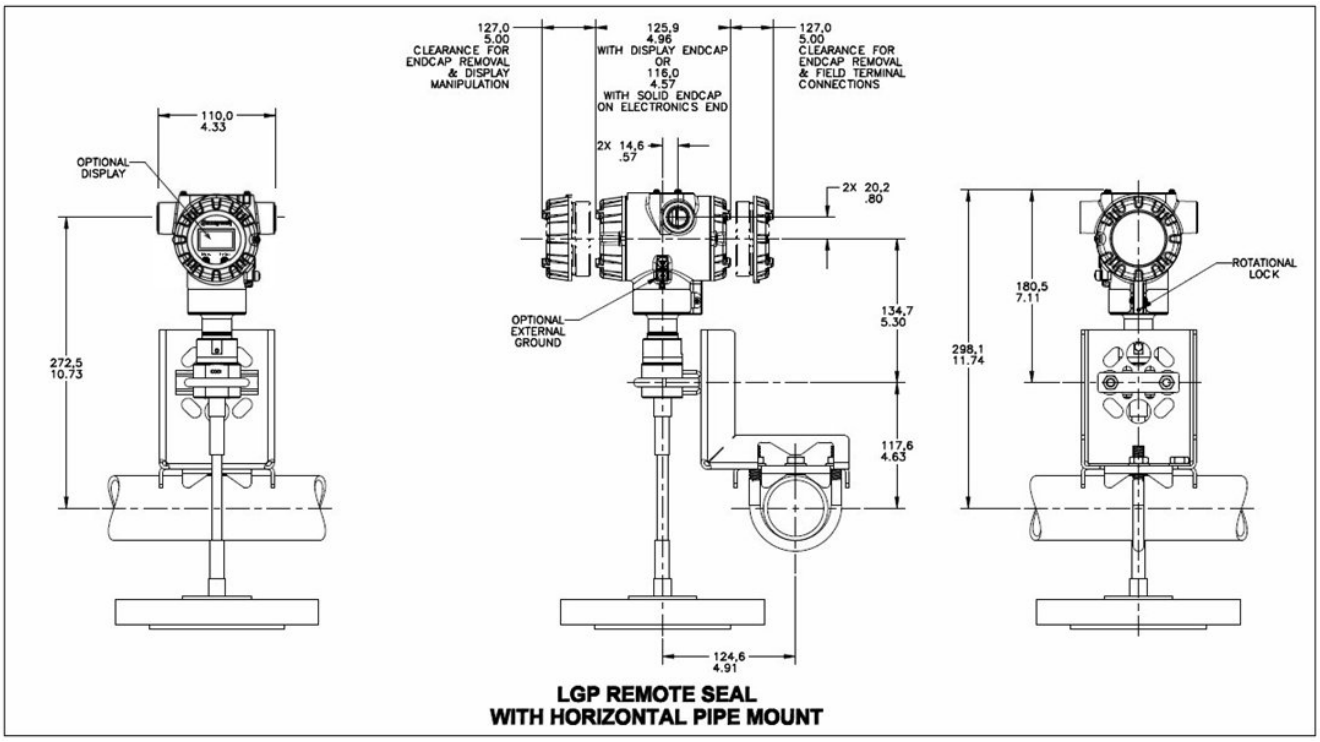
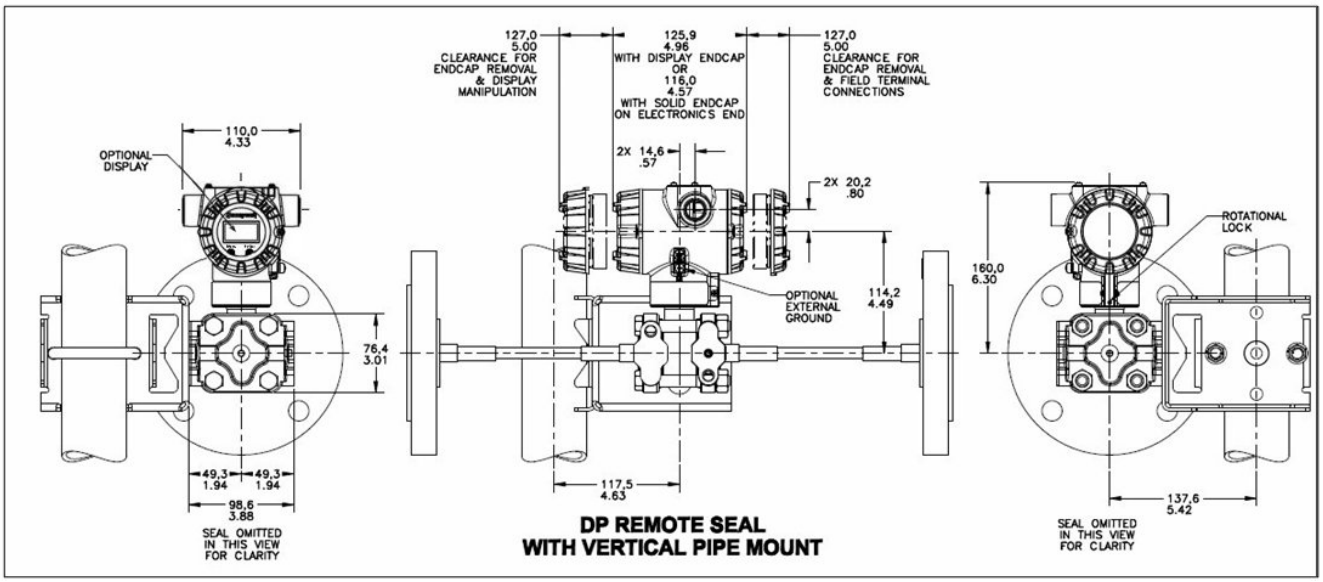


Figure 6 - Approximate Horizontal Mounting Dimensions for Remote Seal Transmitter

Reference Dimensions Vertical Mounting



Reference Dimensions Vertical Mounting (cont'd)

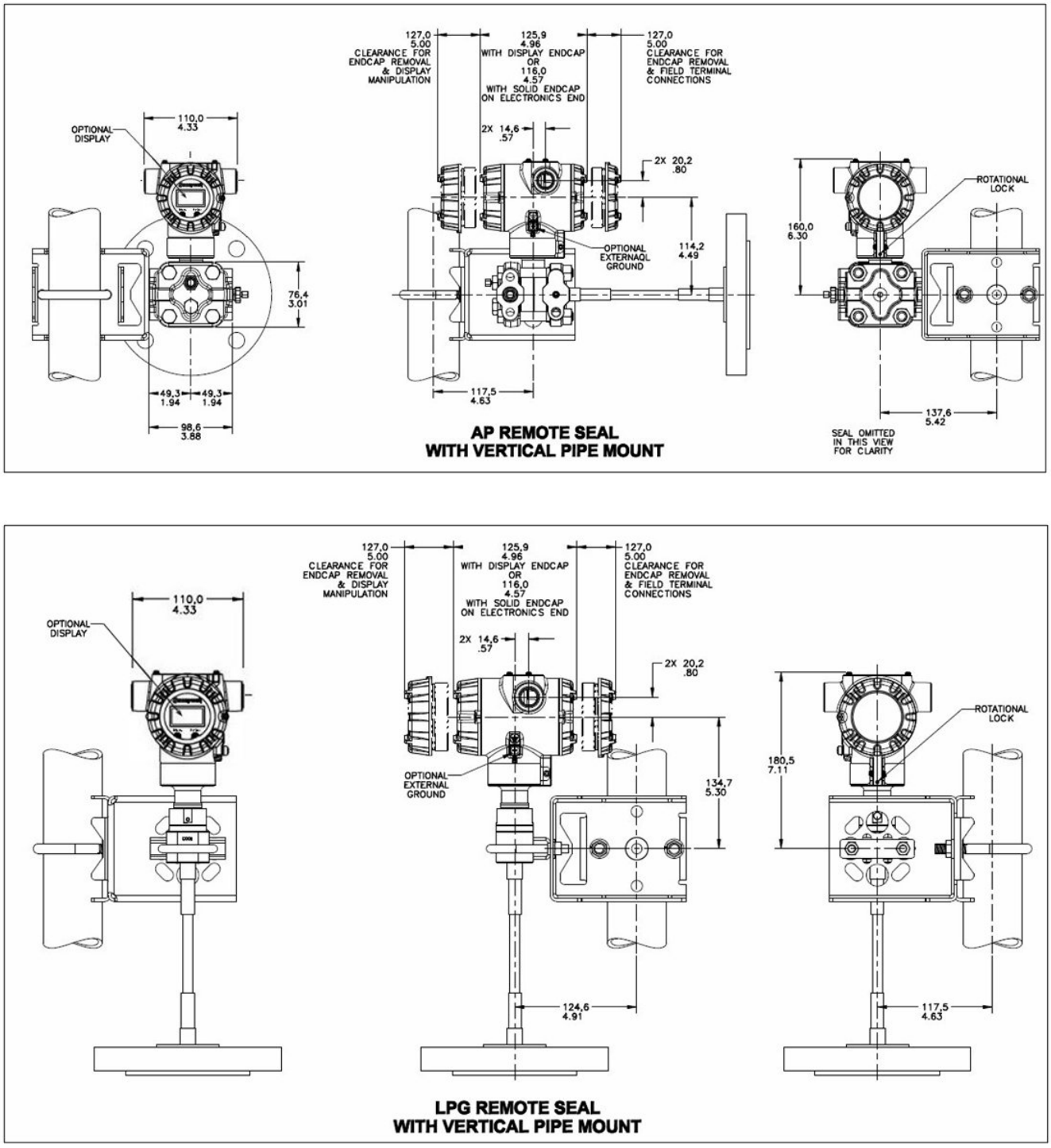
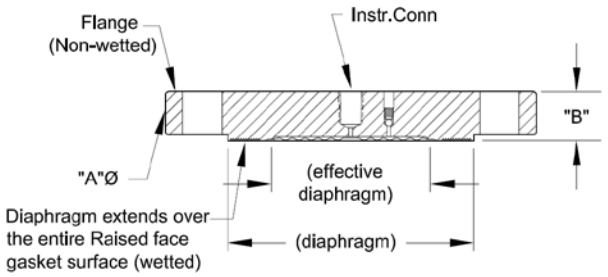


Figure 7 — Approximate vertical mounting dimensions for Remote Seal Transmitter

Reference Dimensions (cont'd)

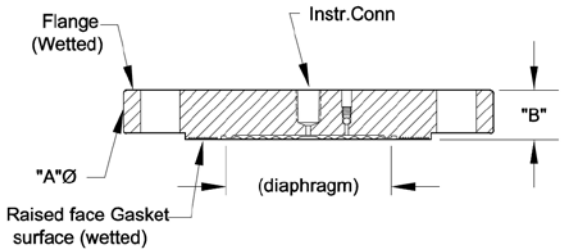
Flush Flanged Seal Dimensions

Type	ANSI/DIN Rating	Flange Material	Wetted Materials		Construction See figure	↔	↕
			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		1.37
			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		1.56
			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		1.75
			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		1.32
			Monel	Monel	D		
			Tantalum	SS	C		



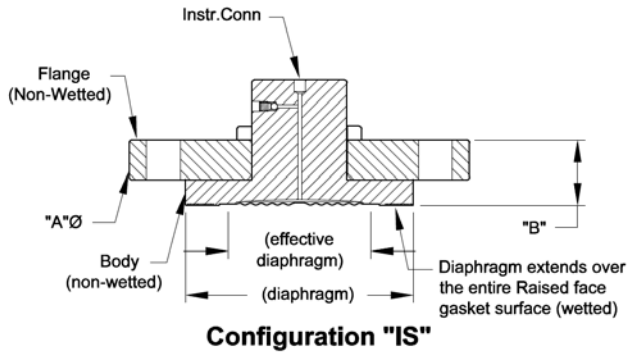
Configuration "HS"

Figure A



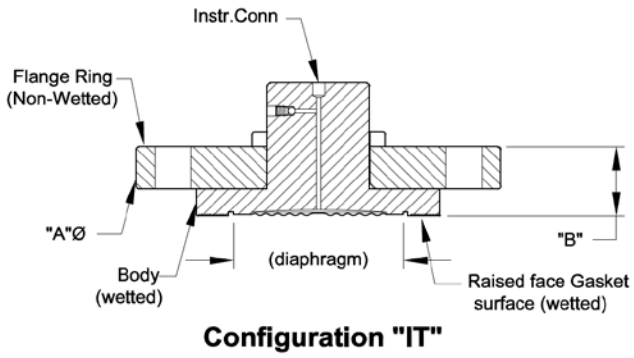
Configuration "HT"

Figure B



Configuration "IS"

Figure C



Configuration "IT"

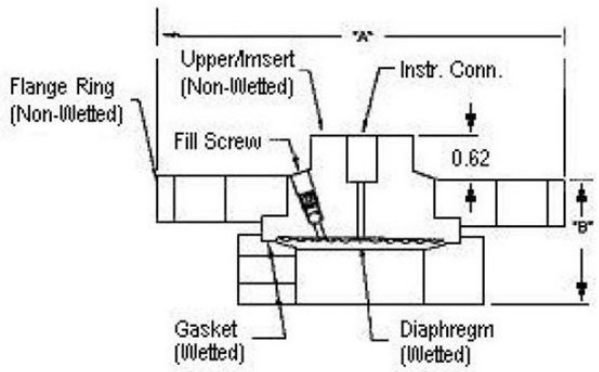
Figure D

Figure 8 - Seal Dimensions (Flush Flanged)

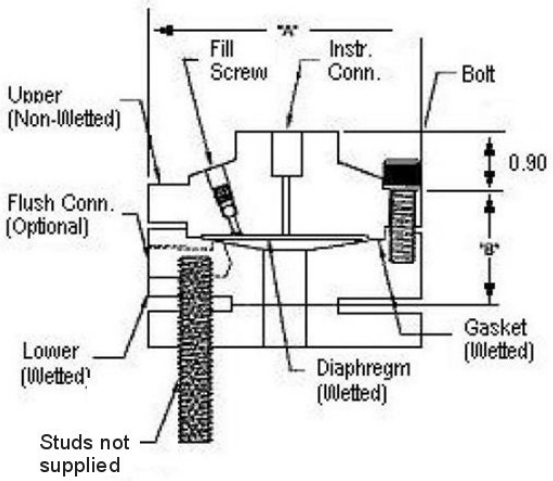
Reference Dimensions (cont'd) Flush Flanged Seal with Lower

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"	A	4.25	4.00	5.25
			B0	1.12	1.72	1.84
			B1	1.62	1.72	1.84
			B2	1.98	1.72	2.34
		1-1/2"	A	5.00	5.00	5.25
			B0	2.50	2.50	1.78
			B1	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 9 - 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

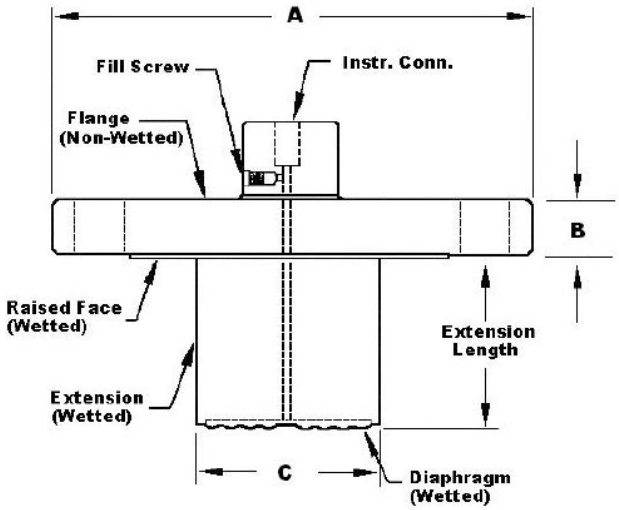


Figure 10 — Seal Dimensions (Extended Diaphragms)

Pancake Seal

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

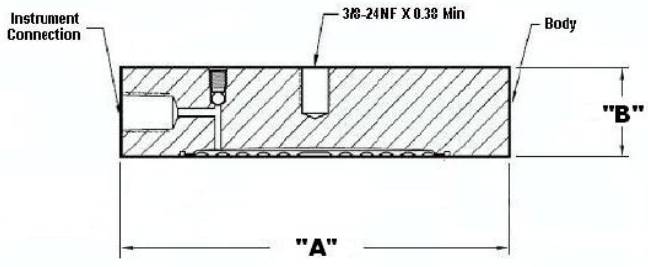


Figure 11 — Seal Dimensions (Pancake)

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	1.66	1.66	1.79
		B1	1.66	1.66	1.79
		B2	2.18	2.16	2.14
	3/4" or 1"	A	3.50	4.00	5.25
		B0	1.66	1.66	1.79
		B1	1.66	1.66	1.79
		B2	8.25	2.16	2.14

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

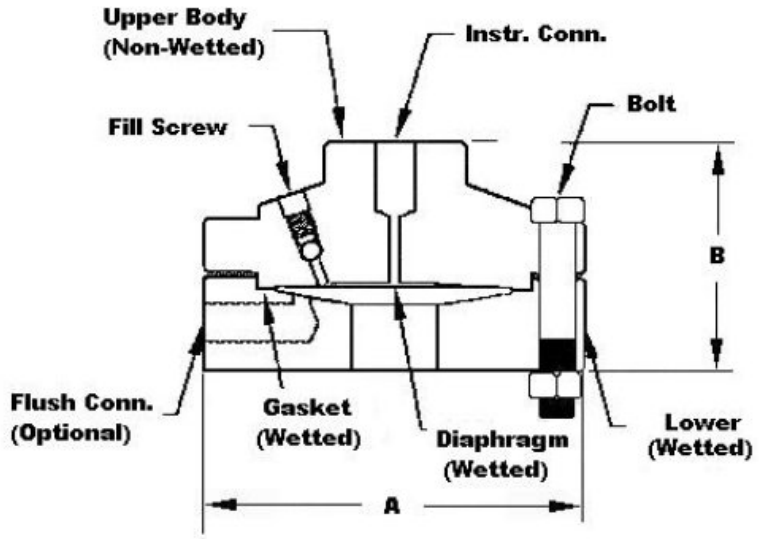


Figure 12— Seal Dimensions (Threaded Process Connection Seals)

Calibration Ring

Type	Size	Rating	Dimension	1/4 NPT	1/2 NPT
Calibration Ring	3"	150# / 600#	A	5.00	5.00
			B	1.00	1.50
			C	3.00	3.00

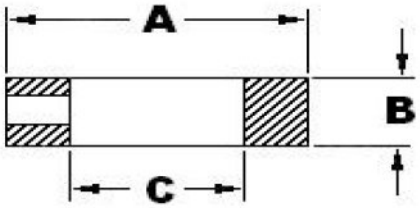


Figure 13— Calibration Ring

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)

Standard Diagnostics

ST 700 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	Standard Display
Electronic Module DAC Failure	Fault Comm El
Meter Body NVM Corrupt	Fault Mtrbody
Config. Data Corrupt	Fault Comm El
Electronic Module Diag Failure	Fault Comm El
Meter Body Critical Failure	Fault Mtrbody
Sensor Comms Timeout	Fault Mbd Com

Non-Critical Diagnostics

HART DD/DTM Tools
Display Failure
Electronic Module Comm Failure
Meter Body Excess Correct
Sensor Over Temperature
Fixed Current Mode
PV Out of Range
No Factory Calibration
LRV Set Error – Zero Config. Button
URV Set Error – Zero Config. Button
AO Out of Range
Loop Current Noise
Meter Body Unreliable Comm
No DAC Calibration
Sensor Supply Voltage Low

Refer to ST 700 manuals for additional level diagnostic information.

Hazardous Areal Certifications:

MSG CODE	AGENCY	TYPE OF PROTECTION	COMM. OPTION	ELECTRICAL PARAMETERS	AMBIENT TEMP (Ta)
A	FM Approvals™ USA	**Explosionproof:** Class I, Division 1, Groups A, B, C, D; Dust Ignition Proof: Class II, III, Division 1, Groups E, F, G; T6..T5 Class l, Zone 0/1, AEx db IIC T6..T5 Ga/Gb Class ll, Zone 21, AEx tb IIIC T95° Db	All	Note 1	T5: -50 ºC to 85ºC T6: -50 ºC to 65ºC
		Intrinsically Safe: Class I, II, III, Division 1, Groups A, B, C, D, E, F, G: T4 Class l, 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 ºC to 70ºC
			Foundation Fieldbus	Note 2b	-50 ºC to 70ºC
		Nonincendive: Class I, Division 2, Groups A, B, C, D locations, T4 Class l, Zone 2, AEx nA IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50 ºC to 85ºC
		Enclosure: Type 4X/ IP66/ IP67	All	All	-
		STANDARDS: 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	**Explosion Proof:** 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
		Intrinsically Safe: 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
			Foundation Fieldbus	Note 2	-50°C TO 70°C
		Nonincendive: 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
		Enclosure: Type 4X/ IP66/ IP67	All	All	-

MSG CODE	AGENCY	TYPE OF PROTECTION	COMM. OPTION	ELECTRICAL PARAMETERS	AMBIENT TEMP (Ta)
		STANDARDS: CSA C22.2 No. 0-10; CSA C22.2 No. 94-M91; CSA C22.2 No. 25-1966; CSA C22.2 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**	**Flameproof: SIRA 12ATEX2233X** 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
		Intrinsically Safe: SIRA 12ATEX2233X 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
		Zone 2, Increase Safety: SIRA 12ATEX4234X II 3 G Ex ec IIC T4 Gc	4-20 mA / DE/ HART/	Note 1	-50°C TO 85°C
		Zone 2, Intrinsically Safe: SIRA 12ATEX4234X 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
		Enclosure: IP66/ IP67	All	All	-
		STANDARDS: 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**	**Flameproof: IECEx SIR 12.0100X** 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
		Intrinsically Safe: IECEx SIR 12.0100X 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
		Zone 2, Increase Safety: IECEx SIR 12.0100X Ex ec IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		Zone 2, Intrinsically Safe: IECEx SIR 12.0100X 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
		Enclosure: IP66/ IP67	All	All	-
		STANDARDS: 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**	**Flameproof :** 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
		Intrinsically Safe: 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
		Zone 2, Increase Safety: II 3 G Ex ec IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		Zone 2, Intrinsically Safe: 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
		Enclosure: IP66/ IP67	All	All	-
F	**INMETRO Brazil**	**Flameproof:** 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
		Intrinsically Safe: Ex ia IIC T4 Ga	4-20 mA / DE/ HART	Note 2a	-50°C TO 70°C
		FISCO Field Device (Only for FF Option) Ex ia IIC T4 Ga; Ex ic IIC T4 Gc	Foundation Fieldbus	Note 2b	-50°C TO 70°C
		Zone 2, Increase Safety: II 3 G Ex ec IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		Zone 2, Intrinsically Safe: 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
		Enclosure : IP 66/67	All	All	-
G	**NEPSI CHINA**	**Flameproof:** 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
		Intrinsically Safe: 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
		Zone 2, Increase Safety: II 3 G Ex ec IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		Zone 2, Intrinsically Safe: 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
		Enclosure : IP 66/67	All	All	-

I	**EAC Russia, Belarus and Kazakhstan**	**Flameproof:** 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
		Intrinsically Safe: 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
		Zone 2, Non Sparking: 2 Ex nA IIC T4 Gc X	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		Zone 2, Intrinsically Safe: 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
		Enclosure : IP 66/67	All	All	
J	**CCoE INDIA**	**Flameproof:** Ex d IIC T6..T5 Ga/Gb	All	Note 1	T5: -50°C TO 85°C T6: -50°C TO 65°C
		Intrinsically Safe: 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
		Non Sparking Ex nA IIC T4 Gc	4-20 mA / DE/ HART/ Foundation Fieldbus	Note 1	-50°C TO 85°C
		Enclosure: IP66/ IP67	All	All	-
K	**UATR UKRAINE**	**Flameproof:** 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
		Intrinsically Safe: 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
		Enclosure: IP66/ IP67	All	All	-

Notes:

1. Operating Parameters:
   Voltage= 11 to 42 V DC Current= 4-20 mA Normal

2. Intrinsically Safe Entity Parameters
   a. Analog/ DE/ HART Entity Values:
   Vmax= Ui = 30V Imax= Ii= 105mA Ci = 4.2nF Li =984 uH Pi =0.9W

Transmitter with Terminal Block Revision E or Later

Vmax= Ui = 30V Imax= Ii= 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:

XXXXXXX-EXXXX, THE "X" is production related, THE POSITION of the "E" IS THE REVISION.

Other Certification Options

SIL

SIL 2/3 Certification	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.

Materials

- NACE MR0175, MR0103, ISO15156

Application Data

Liquid Level: Closed Tank

Determine the minimum and maximum pressure differentials to be measured (Figure 14)

PMin = (SGp x a) - (SGf x d)
= LRV when HP at bottom of tank
= –URV when LP at bottom of tank

PMax = (SGp x b) - (SGf x d)
= URV when HP at bottom of tank
= –LRV when LP at bottom of tank

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 Spec” for values.)

SG_p = Specific Gravity of process fluid

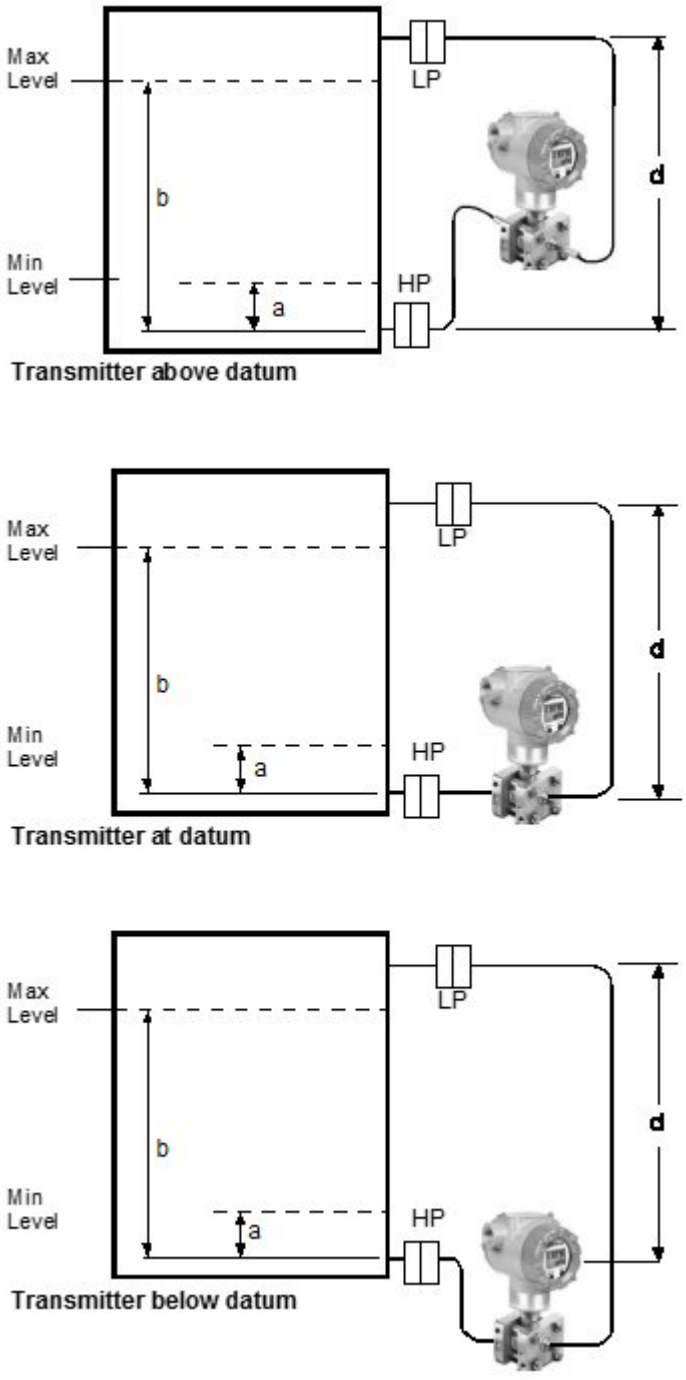


Figure 14—Closed tank liquid level measurement distance

Application Data (Cont'd)

Density or Interface*

Calculate the minimum and maximum pressure differentials to be measured. (Figure 15)

$P_{min} = (SG_{min} – SG_f) \times (d)$;
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.)

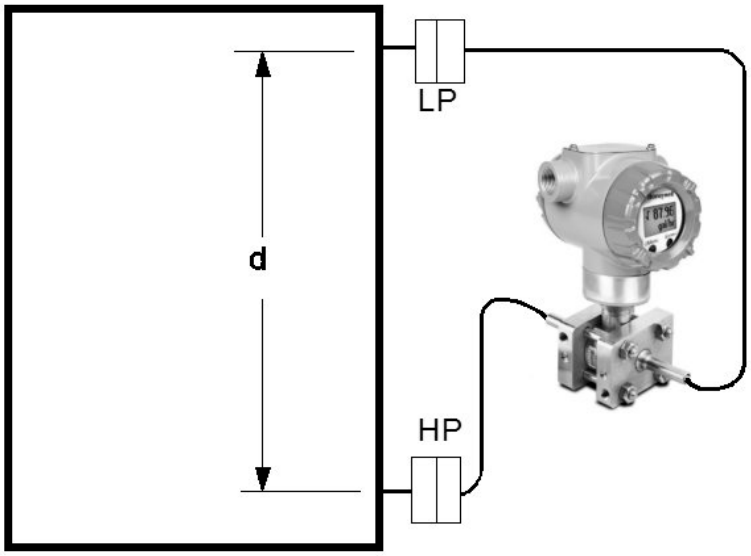


Figure 15- Density, direct acting transmitter configuration

Seal Configurations

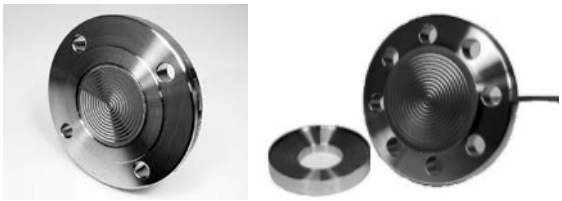


Figure 16—Flush Flange Seals and with Left Lower

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 Lowers. Lowers are essentially calibration rings, which allow flushing connections if needed.

Figure 17—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

Seal Configurations (cont'd)

Figure 18 — 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 19— 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.

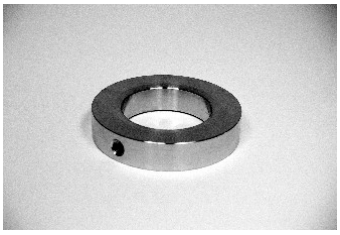


Figure 20 — Calibration Rings

Calibration Rings are available with Flush Flange Seals and Pancake Seals. Flushing ports (1/4" or ½") are available with calibration rings.

Figure 21 — 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 22 — 2" Stainless Steel Nipples

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

Figure 23 — Welded Meter Body for All-Welded Remote Seal Solution

Welded Meter Body for All-Welded Remote Seal Solution. The welded ST 700 meter body is an important part of an All-Welded Remote Seal Solution, which is commonly used in Vacuum applications.

Model Selection Guide

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

Model STR700
(DP, GP) Remote Seals

Model Selection Guide
34-ST-16-124 Issue 8

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
STR7 _ _ _	- _ _ _ _ _ _ _	- _ _ _ _ _ _ _ _ _	- _	- _ _	- _ _	- _	- _ _ _ _	- _ _ ' _ _	+ 0 0 0 0

KEY NUMBER	URL	LRL	Max Span	Min Span	Units	Selection	Availability	
Measurement Range Std Accuracy	100 (7) 500 (35)	-100 (-7) -14.7 (-1.0)	100 (7) 500 (35)	0.9 (0.062) 5 (0.35)	psi (bar) psi (bar)	STR735D STR745G	↓	↓

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

TABLE I	Description					Selection		
Meter Body & Capillaries	a. Number of Seals	1 Remote Seal (High Side) 2 Remote Seals 1 Remote Seal (Low Side)				1 _ _ _ _ _ _ 2 _ _ _ _ _ _ 3 _ _ _ _ _ _	● ● ●	●
	b. Primary Fill Fluid (Meter body)	Silicone Oil 200 Fluorinated Oil CTFE				_ 1 _ _ _ _ _ _ 2 _ _ _ _ _	● **2**	● **2**
	c. Construction	**Non-Wetted Adapter Head Materials**						
	In-Line Gauge	316 SS Bonnet 316 SS Bonnet for Close-Couple				_ _ A _ _ _ _ _ _ B _ _ _ _		● **3**
	Dual Head DP	316 SS (bolt-on heads) 316 SS for Close-Couple 316 SS with all-welded meter body				_ _ C _ _ _ _ _ _ D _ _ _ _ _ _ E _ _ _ _	● **3** **4**	
	d. Bolts and Nuts forTransmitter Heads	None Carbon Steel Bolts and Nuts 316 SS Bolts and Nuts A286 SS (NACE) Bolts and 304 SS (NACE) Nuts				_ _ _ 0 _ _ _ _ _ _ C _ _ _ _ _ _ S _ _ _ _ _ _ N _ _ _	**22** ● ● ●	●
	e. Secondary Fill Fluid (capillary & seal)**	No Fill Fluid Silicone Oil 200 Fluorinated Oil CTFE Silicone Oil 704 Neobee® M20 [11] Sytherm® 800 [12]				_ _ _ _ 0 _ _ _ _ _ _ 1 _ _ _ _ _ _ 2 _ _ _ _ _ _ 3 _ _ _ _ _ _ 4 _ _ _ _ _ _ 5 _ _	**5** ● ● ● ● ●	**5** ● ● ● ● ●
	f. Connection of Remote Seal to Meter Body** 	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 _	●	●
			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**
	g. Seal Option**	None Teflon Coated Seal Diaphragm - only for anti-sticking				_ _ _ _ _ _ 0 _ _ _ _ _ _ 4	● **7**	● **7**

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

[11] Limited vacuum availability.

[12] Minimum static pressure requirement. No vacuum allowed. See Specifications 34-ST-03-88 Figure 15


In-Line Gauge


Dual Head DP


All welded

						STR745G	STR735D
Note: When selecting required seal, you must specify only the 9 selections within the required seal type.					**Selection**		
TABLE II	**Description**						
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** [1]	**Selection**		
	Flush Flanged Seal** 	3.5"	3"	ANSI Class 150	AFA_ _ _ _ _ _	•	•
				ANSI Class 300	AFC_ _ _ _ _ _	•	•
			80mm	DIN DN80-PN40	AFM_ _ _ _ _ _	•	•
		Wetted Material		**Diaphragm** / **Upper Insert**	**Selection**		
				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 [5] / 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 [4] (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

[1] Standard facing 125-250 AARH RF (raised face) serrated surface finish.

[4] Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation

[5] 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.

TABLE II	Descripton					Selection	STR745G	STR735D
	Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating [1]	Const. - See Spec. Figure 34-ST-03-104	Construction - See Spec. Figure 34-ST-03-104		
Seals (continued)	Flush Flanged Seal with Lower**	2.4"	1"	ANSI 150	22	BCA_ _ _ _ _ _	•	•
				ANSI 300	22	BCC_ _ _ _ _ _	•	•
			1-1/2"	ANSI 150	22	BGA_ _ _ _ _ _	•	•
				ANSI 300	22	BGC_ _ _ _ _ _	•	•
			2"	ANSI 150	22	BDA_ _ _ _ _ _	•	•
				ANSI 300	22	BDC_ _ _ _ _ _	•	•
			3"	ANSI 150	22	BFA_ _ _ _ _ _	•	•
				ANSI 300	22	BFC_ _ _ _ _ _	•	•
		2.9"	1/2"	ANSI 150	23	CAA_ _ _ _ _ _	•	•
			1"	ANSI 150	23	CCA_ _ _ _ _ _	•	•
				ANSI 300	23	CCC_ _ _ _ _ _	•	•
			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_ _ _ _ _ _	•	•
			1"	ANSI 150	23	DCA_ _ _ _ _ _	•	•
				ANSI 300	23	DCC_ _ _ _ _ _	•	•
			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		**Diaphragm**	**Lower**	**Selection**		
				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)		**Upper**	**Upper Insert**	**Selection**		
				316L SS	316L SS	_ _ _ _ _ _4_ _ _	•	•
				Carbon Steel	316L SS	_ _ _ _ _ _5_ _ _	•	•
		Bolts [6]		No Selection		_ _ _ _ _ _ _0_ _	•	•
		Flushing Connections and Plugs[4] (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
[1] Standard facing 125-250 AARH RF (raised face) serrated surface finish.
[6] Bolt material will be same as Upper Material. However, if Table I bolts/nuts material is NACE, seal bolt material will be 304 SS NACE.
[4] 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.

TABLE II	Descripton						STR745G	STR735D
	Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating [1]		Selection		
Seals (continued)	 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" (3.70" 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	•	•

Table II continued below

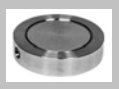
TABLE II	Descripton						STR745G	STR735D
	Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating Dependent on Customer Flange [1]		Selection		
Seals (continued)	 Pancake Seal	3.5"	3"	ANSI Class 150/300/600		GFA_ _ _ _ _ _	•	•
		Wetted Material		Diaphragm	Body			
				316L SS	316L SS	_ _ _GA_ _ _ _	•	•
				Hastelloy® C-276	316L SS	_ _ _GB_ _ _ _	•	•
				Hastelloy® C-276	Hastelloy® C-276	_ _ _GC_ _ _ _	•	•
				Monel 400®	Monel 400®	_ _ _GE_ _ _ _	8	8
				Tantalum	Tantalum [7]	_ _ _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[4] (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
[1] Standard facing 125-250 AARH RF (raised face) serrated surface finish.
[4] Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation
[7] 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.

TABLE II	Descripton						STR745G	STR735D
	Seal Type	Diaphragm Diameter	Threaded Process Connection Size (NPT Female)	Pressure Rating CS Bolts	Pressure Rating 304 SS Bolts	Selection	↓	↓
Seals (continued)	 Seal with Threaded Process Connection	2.4"	1/2 NPT	2,500 psi	1,250 psi	JJG _ _ _ _ _ _	•	•
			3/4 NPT			JKG _ _ _ _ _ _	•	•
			1 NPT			JLG _ _ _ _ _ _	•	•
		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 [8]	Carbon Steel			_ _ _ _ _ _ C _ _	•	•
			304 SS			_ _ _ _ _ _ D _ _	•	•
		Flushing Connections and Plugs[4] (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 _	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

Table II continued next page

[4] Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation

[8] 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.

TABLE III	Agency Approvals (see data sheet for Approval Code Details)		STR745G	STR735D
Approvals	No Approvals Required	0	•	•
	FM Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof	A	•	•
	CSA Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof	B	•	•
	ATEX Explosion proof, Intrinsically Safe & Non-incendive	C	•	•
	IECEx Explosion proof, Intrinsically Safe & Non-incendive	D	•	•
	SAEx Explosion proof, Intrinsically Safe & Non-incendive	E	•	•
	INMETRO Explosion proof, Intrinsically Safe & Non-incendive	F	•	•
	NEPSI Explosion proof, Intrinsically Safe & Non-incendive	G	•	•
	EAC-Customs Union(Russia,Belarus and Kazakhstan)EX Approval Flameproof,Intrinsically Safe	I	•	•
	CCoE Explosion proof, Intrinsically Safe & Non-incendive	J	•	•
	UATR Flameproof, Intrinsically Safe & Dustproof	K	•	•

TABLE IV	TRANSMITTER ELECTRONIC SELECTIONS					
a. Electronic Housing Material & Connection Type	Material	Connection	Lightning Protection			
	Polyester Powder Coated Aluminum	1/2 NPT	None	A _ _	•	•
	Polyester Powder Coated Aluminum	M20	None	B _ _	•	•
	Polyester Powder Coated Aluminum	1/2 NPT	Yes	C _ _	•	•
	Polyester Powder Coated Aluminum	M20	Yes	D _ _	•	•
	316 Stainless Steel (Grade CF8M)	1/2 NPT	None	E _ _	•	•
	316 Stainless Steel (Grade CF8M)	M20	None	F _ _	•	•
	316 Stainless Steel (Grade CF8M)	1/2 NPT	Yes	G _ _	•	•
	316 Stainless Steel (Grade CF8M)	M20	Yes	H _ _	•	•
b. Output/ Protocol	Analog Output	Digital Protocol				
	4-20mA dc	HART Protocol		_ H _	•	•
c. Customer Interface Selections	Indicator	Ext Zero, Span & Config Buttons	Languages			
	None	None	None	_ _ 0	•	•
	None	Yes (Zero/Span Only)	None	_ _ A	•	•
	Standard (w/internal Zero, Span & Conf Buttons)	None	EN, RU	_ _ S	•	•
	Standard (w/internal Zero, Span & Conf Buttons)	Yes	EN, RU	_ _ T	•	•

TABLE V	CONFIGURATION SELECTIONS					
a. Application Software	Diagnostics					
	Standard Diagnostics			1 _ _	•	•
b. Output Limit, Failsafe & Write Protect Settings	Write Protect	Fail Mode	High & Low Output Limits[3]			
	Disabled	High> 21.0mAdc	Honeywell Std (3.8 - 20.8 mAdc)	_ 1 _	•	•
	Disabled	Low< 3.6mAdc	Honeywell Std (3.8 - 20.8 mAdc)	_ 2 _	•	•
	Enabled	High> 21.0mAdc	Honeywell Std (3.8 - 20.8 mAdc)	_ 3 _	•	•
	Enabled	Low< 3.6mAdc	Honeywell Std (3.8 - 20.8 mAdc)	_ 4 _	•	•
c. General Configuration	Factory Standard			_ _ S	•	•
	Custom Configuration (Unit Data Required from customer)			_ _ C	•	•

TABLE VI	CALIBRATION & ACCURACY SELECTIONS					
Accuracy and Calibration	Accuracy	Calibrated Range	Calibration Qty			
	NA	None	None	0	21	21
	Standard	Factory Std	Single Calibration	A	23	23
	Standard	Custom (Unit Data Required)	Single Calibration	B	23	23

[3] NAMUR Output Limits 3.8 - 20.5mAdc can be configured by the customer or select custom configuration Table Vc

TABLE VII	ACCESSORY SELECTIONS		STR745G	STR735D
	Bracket Type	**Material**		
a. Mounting Bracket	None	None	0 _ _ _	● ●
	Angle Bracket	Carbon Steel	1 _ _ _	● ●
	Angle Bracket	304 SS	2 _ _ _	● ●
	Angle Bracket	316 SS	3 _ _ _	● ●
	Marine Approved Bracket	Carbon Steel	8 _ _ _	y
	Marine Approved Bracket (In - Line)	Carbon Steel	9 _ _ _	●
	Marine Approved Bracket	304 SS	4 _ _ _	y
	Marine Approved Bracket (In - Line)	304 SS	A _ _ _	●
	Flat Bracket	Carbon Steel	5 _ _ _	● ●
	Flat Bracket	304 SS	6 _ _ _	● ●
	Flat Bracket	316 SS	7 _ _ _	● ●
b. Customer Tag	**Customer Tag Type**			
	No customer tag		_ 0 _ _	● ●
	One Wired Stainless Steel Tag (Up to 4 lines 26 char/line)		_ 1 _ _	● ●
	Two Wired Stainless Steel Tag (Up to 4 lines 26 char/line)		_ 2 _ _	● ●
c. Unassembled Conduit Plugs & Adapters	**Unassembled Conduit Plugs & Adapters**			
	No Conduit Plugs or Adapters Required		_ _ A0	● ●
	1/2 NPT Male to 3/4 NPT Female 316 SS Certified Conduit Adapter		_ _ A2	n n
	1/2 NPT 316 SS Certified Conduit Plug		_ _ A6	n n
	M20 316 SS Certified Conduit Plug		_ _ A7	m m

TABLE VIII	OTHER Certifications & Options : (String in sequence comma delimited (XX, XX, XX,....)				
	None - No other options		00	*	*	
Certifications & Warranty	NACE MR0175; MR0103; ISO15156 Process wetted parts only		FG	●	●	b
	NACE MR0175; MR0103; ISO15156 wetted and non-wetted parts		F7	c	c	
	Marine (DNV,ABS,BV,KR,LR)		MT	d	d	
	EN10204 Type 3.1 Material Traceability		FX	●	●	
	Certificate of Conformance		F3	●	●	b
	Calibration Test Report & Certificate of Conformance		F1	●	●	
	Certificate of Origin		F5	●	●	
	FMEDA (SIL 2/3) Certification		FE	j	j	
	Over-Pressure Leak Test Certificate (1.5X MAWP)		TP	●	●	
	Cert Clean for O_2 or CL_2 service per ASTM G93		OX	e	e	

TABLE IX	Manufacturing Specials			
Factory	**Factory Identification**	0 0 0 0	●	●

MODEL RESTRICTIONS

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

FIELD INSTALLABLE REPLACEMENT PARTS

Description	Kit Number
Terminal Strip w/o Lightning Protection Kit for HART Modules	50129832-501
Terminal Strip w/Lightning Protection for HART Modules	50129832-502
HART Electronics Module	50129828-501
HART Electronics Module w/connection for external configuration buttons	50129828-502
Standard Display Module	50126003-501

PRODUCT MANUALS

Description	Part Number
ST 700 Smart Transmitter User Manual - English	34-ST-25-44
ST 700 Smart Transmitter HART Communications Manual - English	34-ST-25-47
ST 700 Smart Transmitter Safety Manual - English	34-ST-25-37

All product documentation is available at 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.

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Web

Knowledge Base search
engine **http://bit.ly/2N5VIdi**

Specifications are subject to change without notice.

For more information
To learn more about SmartLine Transmitters,
visit **www.honeywellprocess.com**
Or contact your Honeywell Account Manager

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34-ST-03-124
October 2020