SmartLine

Honeywell

Technical Information

STD700 SmartLine Differential Pressure Specification 34-ST-03-121, Jan 2022

Introduction

Part of the SmartLine® family of products, the STD700 models are suitable for monitoring, control and data acquisition featuring piezoresistive sensor technology. By combining pressure sensing with on chip temperature compensation capabilities STD700 offers high accuracy, stability and performance over a wide range of application pressures and temperatures. 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 up to 0.05% of span
- Stability up to 0.020% of URL per year for 10 years
- Automatic static pressure & temperature compensation
- Rangeability up to 100:1
- Response times as fast as 100ms
- Easy to use and intuitive display capabilities
- Intuitive External Zero, Span and 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
- Available with additional 4-year warranty

Communications/Output Options:

- HART ® (version 7.0)

Figure 1 – STD725/735/775 Differential Pressure Transmitters feature field-proven piezoresistive sensor technology

Span & Range Limits:

Model	URL inH_2O (mbar)	LRL inH_2O (mbar)	Min Span inH_2O (mbar)
STD725	400 (1000)	-400 (1000)	4 (10)
Model	**psi (bar)**	**psi (bar)**	**psi (bar)**
STD735	100 (7.0)	-100 (-7.0)	1 (0.07)
STD775	3000 (210)	-100 (-7.0)	30 (2.1)

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, inH_2O, mH_2O, bar, mbar, 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 or External Buttons – Range/Engineering Unit/Loop Test /Loop Calibration/Zero /Span Setting
- 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.

Handheld 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.

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	Stability (% URL/Year for 10 years)	Reference Accuracy[1,2] (% Span) Standard
STD725	400 in H_2O (1000 mbar)	-400 in H_2O (-1000 mbar)	4 in H_2O (10 mbar)	100:1	0.020	0.05
STD735	100 psi (7.0 bar)	-100 psi (-7.0 bar)	1 psi (0.07 bar)	100:1	0.020	
STD775	3000 psi (210 bar)	-100 psi (-7.0 bar)	30 psi (2.1bar)	100:1	0.020	

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

Accuracy, Temperature and Static Pressure Effects: (Conformance to +/-3)

Table 2

			Accuracy[1,2] (% of Span)				Combined Zero & Span Temperature Effect (% Span/28°C (50°F))		Combined Zero & Span Static Line Pressure Effect (% Span/1000psi)	
	Model	URL	Reference Turndown	A	B	C (see URL units)	D	E	F	G
Standard Accuracy	STD725	400 in H_2O (1000 mbar)	16:1	0.005	0.045	25 (62,5)	0.050	0.025	0.100	0.020
	STD735	100 psi (7.0 bar)	4:1			25 (1.75)	0.070	0.015	0.100	0.020
	STD775	3000 psi (210 bar)	10:1			300 (21)	0.070	0.015	0.100	0.020
			Turn Down Effect				Temp Effect		Static Effect	
			$\pm[A+B]$ if $Span \geq C$ $\pm\left[A+B\left(\frac{C}{Span}\right)\right]$ if $Span < C$				$\pm[D+E\left(\frac{URL}{Span}\right)]$		$\pm[F+G\left(\frac{URL}{Span}\right)]$	

Total Performance (% of Span):

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

Total Performance Examples: (standard accuracy, 5:1 Turndown, up to 50°F (28°C) shift & up to 1000 psi Static Pressure)

STD725 @ 80 inH_2O: 0.270% of span

STD735 @ 20 psi: 0.255 % of span

STD775 @ 600 psi: 0.252 % of span

Typical Calibration Frequency:

Calibration verification is recommended every two (2) years

Notes:

1. Terminal 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 psig static pressure, 10 to 55% RH and 316SS barrier diaphragm.

Operating Conditions – All Models

Parameter	Reference Condition		Rated Condition		Operative Limits		Transportation and Storage	
	°C	°F	°C	°F	°C	°F	°C	°F
Ambient Temperature[1]	25±1	77±2	-40 to 85	-40 to 185	-40 to 85	-40 to 185	-55 to 120	-67 to 248
Meter Body Temperature	25±1	77±2	-40 to 110	-40 to 230	-40 to 125	-40 to 257	-55 to 120	-67 to 248
Humidity %RH	10 to 55		0 to 100		0 to 100		0 to 100	
Vac. Region – Min. Pressure **mmHg absolute** **inH$_2$O absolute**	Atmospheric Atmospheric		25 13		2 (short term) [2] 1 (short term) [2]			
Supply Voltage **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)[3,4] (ST 700 products are rated to Maximum Allowable Working Pressure. MAWP depends on Approval Agency and transmitter materials of construction.)	4,500 psi (310 bar)							

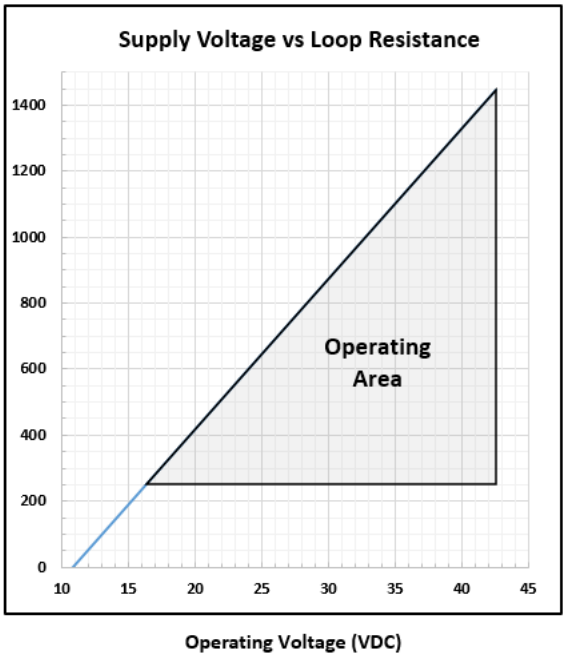
[1] LCD Display operating temperature -20°C to +70°C Storage temperature -30°C to 80°C.

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

[3] MAWP applies for temperatures -40 to 125°C. Static Pressure Limit is de-rated to 3,000 psi for -26°C to -40°C. for all models. Use of graphite o-rings de-rates transmitter to 3,625 psi. Use of 1/2:" process adaptors with graphite o-rings de-rates transmitter to 3,000 psi.

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

[5] Silicone minimum temperature rating is -40°C (-40°F). CTFE minimum temperature rating is -40°C (-40°F).



A minimum of 250 ohms loop resistance is required to support field communicator, where
Loop resistance is the summation of barrier resistance, wire resistance and receiver resistance

Maximum loop resistance
RLmax = 45.6 x (Power Supply Voltage - 10.8)

Figure 2 - Supply voltage and loop resistance chart & calculations

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		**Honeywell Standard**	**NAMUR NE 43 Compliance**
	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 seconds		
Response Time (delay + time constant)	100ms		
Damping Time Constant	Adjustable from 0 to 32 seconds in 0.1 increments. **Default:** 0.50 seconds		
Vibration Effect	Less than +/- 0.1% of URL w/o damping Per IEC60770-1 field or pipeline, high vibration level (10-2000Hz: 0.21 displacement/3g max acceleration)		
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
Barrier Diaphragms Material	316L SS, Hastelloy® C-276[2]
Process Head Material	316 SS[4], Carbon Steel (Zinc-plated) [5], Hastelloy® C-276[6]
Vent/Drain Valves & Plugs [1]	316 SS[4], Hastelloy® C-276[2]
Head Gaskets	Glass-filled PTFE standard. Viton® and graphite are optional.
Meter Body Bolting	Carbon Steel (Zinc plated) standard. Options include 316 SS, NACE A286 SS bolts and Super Duplex.
Optional Adapter Flange and Bolts	Adapter Flange materials include 316 SS, Hastelloy® C-276 and Super-Duplex. Bolt material for flanges is dependent on process head bolts material chosen. Standard adaptor seal material is glass-filled PTFE. Viton and graphite are optional.
Mounting Bracket	2” Pipe, Carbon Steel (Zinc-plated), 304 Stainless Steel or 316 Stainless Steel
Fill Fluid	Silicone 200 , CTFE
Electronic Housing	Pure Polyester Powder Coated Low Copper (<0.4%)-Aluminum. Meets NEMA 4X, IP66, & IP67. All stainless steel housing is optional.
Mounting	Can be mounted in virtually any position using the standard mounting bracket. Bracket is designed to mount on 2-inch (50 mm) vertical or horizontal pipe. See Figure 3.
Process Connections	1/4- NPT or 1/2- NPT with adapter (meets DIN requirements)
Wiring	Accepts up to 16 AWG (1.5 mm diameter).
Dimensions	See Figure 3.
Net Weight	8.3 pounds (3.8 Kg) with Aluminum Housing.

[1] Vent/Drains are sealed with Teflon®

[2] Hastelloy® C-276 or UNS N10276

[4] Supplied as 316 SS or as Grade CF8M, the casting equivalent of 316 SS.

[5] Carbon Steel heads are zinc-plated and not recommended for water service due to hydrogen migration. For that service, use 316 stainless steel wetted Process Heads.

[6] Hastelloy C-276 or UNS N10276. Supplied as indicated or as Grade CW12MW, the casting equivalent of Hastelloy C-276

Communications Protocols & Diagnostics

HART Protocol

Version: HART 7

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 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 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 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 ºC to 70ºC
			Foundation Fieldbus	Note 2b	-50 ºC to 70ºC
		Nonincendive: 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 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 VDC 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.

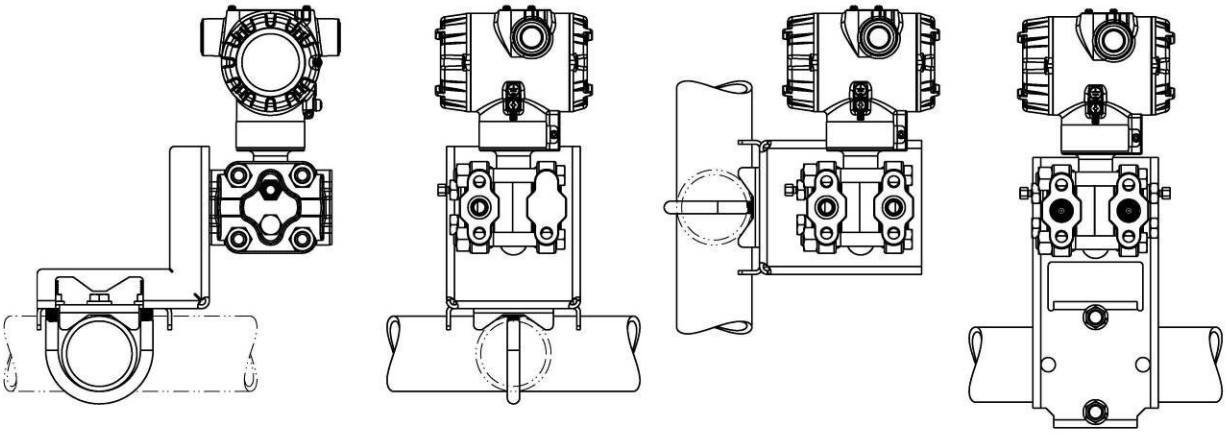
Materials

- NACE MR0175, MR0103, ISO15156

Mounting & Dimensional Drawings

Reference Dimensions: millimeters / inches

Mounting Configurations



Dimensions

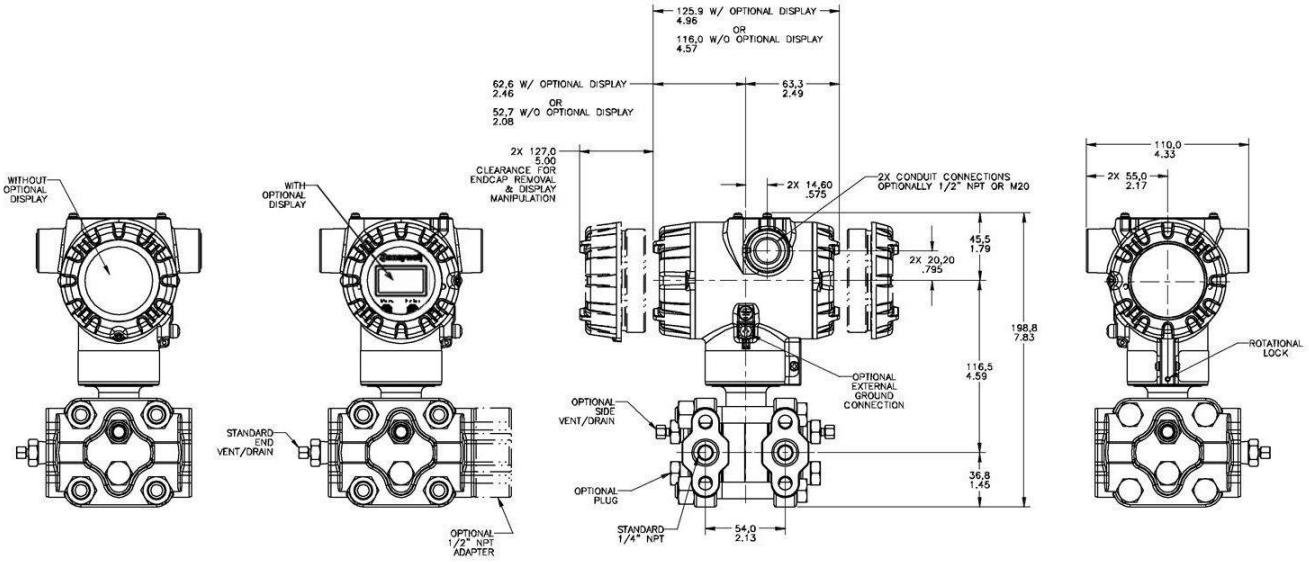


Figure 3 – Typical mounting dimensions of STD725, STD735 & STD775 for reference only

Model Selection Guide

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

Model STD700
Differential Pressure Transmitter

Model Selection Guide:
34-ST-16-121 Issue 8

Instructions: Make selections from all Tables: Key through XIII using column below the proper arrow. Asterisk indicates availability. Letter (a) refer to restrictions highlighted in the restrictions table. Tables delimited with dashes.

Key | I | II | III | IV | V | VI | VII | VIII | IX
STD7_ _ - _ _ _ _ _ _ - _ - _ - _ _ _ - _ _ _ - _ - _ _ _ _ - _ _, _ _, _ _ - 0 0 0 0

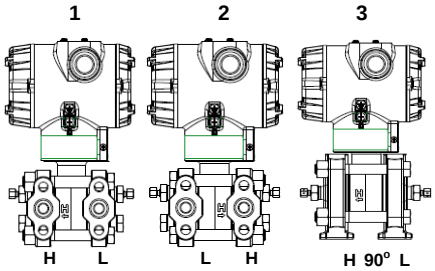
KEY NUMBER	URL	LRL	Max Span	Min Span	Units
a. Measurement Range	400/(1000)	-400/(-1000)	400/(1000)	4.0 (10)	" H_2O (mbar)
	100 (7.0)	-100 (-7.0)	100 (7.0)	1 (0.07)	psi (bar)
	3000 (210)	-100 (-7.0)	3000 (210)	30 (2.1)	psi (bar)

Selection	Availability		
STD725	↓		
STD735		↓	
STD775			↓

TABLE I	METER BODY SELECTIONS			
a. Process Wetted Heads & Diaphragm Materials	Process Head Material		Diaphragm Material	
	Plated Carbon Steel		316L Stainless Steel	
			Hastelloy® C-276	
	316 Stainless Steel		316L Stainless Steel	
			Hastelloy C-276	
	Hastelloy C-276		Hastelloy C-276	
b. Fill Fluid	Silicone Oil 200			
	Fluorinated Oil CTFE			
c. Process Connection	None	None (1/4" NPTF female thread Std)		
	1/2" NPT female	Materials to Match Head & Head Bolt Materials Selections[1]		
d. Bolt/Nut Materials	Carbon Steel			
	316 SS			
	Grade 660 (NACE A286) with NACE 304 SS Nuts			
	Grade 660 (NACE A286) Bolts & Nuts			
	Super Duplex			
e. Vent/Drain Type/Location	Head Type	Vent Type	Location	Vent Material
	Single Ended	None	None	None
	Single Ended	Standard Vent	Side	Matches Head Material[1]
	Single Ended	Center Vent	Side	Stainless Steel Only
	Dual Ended	Standard Vent	End	Matches Head Material[1]
	Dual Ended	Center Vent	End	Stainless Steel Only
	Dual Ended	Std Vent/Plug	Side/End	Matches Head Material[1]
f. Gasket Material	Teflon® or PTFE (Glass Filled)			
	Viton® or Fluorocarbon Elastomer			
	Graphite			
g. Static Pressure	Standard Static Pressure - 4500 psig (315 bar)			

A_ _ _ _ _	*	*	*
B_ _ _ _ _	*	*	*
E_ _ _ _ _	*	*	*
F_ _ _ _ _	*	*	*
J_ _ _ _ _	*	*	*
_1_ _ _ _	*	*	*
_2_ _ _ _	*	*	*
_ _A_ _ _	*	*	*
_ _H_ _ _	*	*	*
_ _ _C_ _ _	*	*	*
_ _ _S_ _ _	*	*	*
_ _ _N_ _ _	*	*	*
_ _ _K_ _ _	p	p	p
_ _ _D_ _ _	p	p	p
_ _ _ _1_ _	*	*	*
_ _ _ _2_ _	*	*	*
_ _ _ _3_ _	t	t	t
_ _ _ _4_ _	*	*	*
_ _ _ _5_ _	t	t	t
_ _ _ _6	*	*	*
_ _ _ _ _A_	*	*	*
_ _ _ _ _B_	*	*	*
_ _ _ _ _C_	*	*	*
_ _ _ _ _ _S	*	*	*

[1]Except Carbon Steel Heads shall use 316SS Vent/Drain, Plugs & Adapters when required



STD775
STD735
STD725

TABLE II	Meter Body & Connection Orientation					
Head/Connect Orientation	Standard	High Side Left, Low Side Right[2] / Std Head Orientation	1	*	*	*
	Reversed	Low Side Left, High Side Right[2] / Std Head Orientation	2	*	*	*
	90/Standard	High Side Left, Low Side Right[2] / 90° Head Rotation	3	h	h	h

TABLE III	Agency Approvals (see data sheet for Approval Code Details)				
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 ELECTRONICS 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 & Config Buttons)	None	EN, RU	_ _ S	*	*	*
	Standard (w/Internal Zero,Span & Config 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	*	*	*

[2] Left side/Right side as viewed from the customer connection perspective

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

TABLE VI	CALIBRATION & ACCURACY SELECTIONS			STD775	STD735	STD725
	Accuracy	Calibrated Range	Calibration Qty			
a. Accuracy and Calibration	Standard	Factory Std	Single Calibration	A	*	*	*
	Standard	Custom (Unit Data Required)	Single Calibration	B	*	*	*

TABLE VII	ACCESSORY SELECTIONS					
	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	304 SS	4 _ _ _	*	*	*
	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 _ _	*	*	*
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	n
	1/2 NPT 316 SS Certified Conduit Plug		_ _ A6	n	n	n
	M20 316 SS Certified Conduit Plug		_ _ A7	m	m	m

TABLE VIII	OTHER Certifications & Options: (String in sequence comma delimited (XX, XX, XX,....)					
Certifications & Warranty	None - No additional options		00	*	*	*	
	NACE MR0175; MR0103; ISO15156 Process wetted parts only		FG	*	*	*	b
	NACE MR0175; MR0103; ISO15156 Process wetted and non-wetted parts		F7	c	c	c	
	Marine (DNV,ABS,BV,KR,LR)		MT	d	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	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	e	
	PM Certification[4]		PM	*	*	*	
	Extended Warranty Additional 1 year		01	*	*	*	
	Extended Warranty Additional 2 years		02	*	*	*	b
	Extended Warranty Additional 3 years		03	*	*	*	
	Extended Warranty Additional 4 years		04	*	*	*	

TABLE IX	Manufacturing Specials				
Factory	Factory Identification	0000	*	*	*

MODEL RESTRICTIONS

Restriction Letter	Available Only with		Not Available with	
	Table	Selection(s)	Table	Selection(s)
c	1d	_ _ _ N,K,D _ _ _		
d	Iva	C, D, G, H _ _	VIIa	1, 2, 3, 5, 6, 7 _ _ _
e	Ib	_ 2 _ _ _ _ _		
h			Ie	_ _ _ _ 4, 5, 6 _ _
			VIIa	1, 2, 3, 4, 5, 6, 7 _ _ _
j			Vb	_ 1,2 _
m	IV a	B, D, F, H _ _		
n	IV a	A, C, E, G _ _		
p			III	B- No CRN number available
s	I a	A, E _ _ _ _ _ _		
t			Ia	J _ _ _ _ _ _
b	Select only one option from this group			

[4]The PM option is available on all Smartline Pressure Transmitter process wetted parts such as process heads, flanges, bushings and vent plugs except plated carbon steel process heads and flanges. PM option information is also available on diaphragms except STG and STA in-line construction pressure transmitters.

FIELD INSTALLABLE REPLACEMENT PARTS

Description	Kit Number
Terminal Strip w/o Lightning Protection Kit for HART Module	50129832-501
Terminal Strip w/Lightening Protection for HART Module	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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Specifications are subject to change without notice.

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