

# **Technical Information**

# STD700 SmartLine Differential Pressure Specification 34-ST-03-101



#### Introduction

Part of the SmartLine® family of products, the STD700 is suitable for monitoring, control and data acquisition.

STD700 products feature piezoresistive sensor technology combining pressure sensing with on chip temperature compensation capabilities providing 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:**

- o Accuracies up to 0.05% of span
- o Stability up to 0.02% of URL per year for 5 years
- o Automatic static pressure & temperature compensation
- o Rangeability up to 100:1
- o Response times as fast as 100ms
- Alphanumeric display capabilities
- o External zero, span, & configuration capability
- o Polarity insensitive electrical connections
- o 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
- o Full compliance to SIL 2/3 requirements.
- o Modular design characteristics

# Span & Range Limits:

Opan a	italige Ellilli	0.		
Model	URL	LRL	Max Span	Min Span
	"H₂O	"H₂O	"H₂O	"H₂O
	(mbar)	(mbar)	(mbar)	(mbar)
STD720	400 (1000 <b>)</b>	-400 (1000)	400 (1000)	4 (10)
Model	psi (bar)	psi (bar)	psi (bar)	psi (bar)
STD730	100 (7.0)	-100 (-7.0)	100 (7.0)	1 (0.07)
STD770	3000 (210)	-100 (-7.0)	3000 (210)	30 (2.1)



Figure 1 – STD700 Differential Pressure Transmitters feature field-proven piezoresistive sensor technology

# **Communications/Output Options:**

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

All transmitters are available with the above listed communications protocols.

# **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. This level of performance allows the ST 700 to replace most competitive transmitters available today.

# **Indication/Display Option**

The ST 700 modular design accommodates a basic alphanumeric LCD display.

# **Basic Alphanumeric LCD Display Features**

- Modular (may be added or removed in the field)
- o 0, 90,180, & 270 degree position adjustments
- Pa, KPa, MPa, KGcm2, Torr, ATM, i4H<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
- o 2 Lines 16 Characters (4.13H x 1.83W mm)
- o Square root output indication ( $\sqrt{}$ )

#### 0

## **Configuration Tools**

# **Integral Three Button Configuration Option**

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

## **Hand Held Configuration**

SmartLine transmitters feature two-way communication and configuration capability between the operator and the transmitter. This is accomplished via Honeywell's field-rated Multiple Communication Configurator (MCT202).

The MCT202 is capable of field configuring DE and HART Devices and can also be ordered for use in intrinsically safe environments. All Honeywell transmitters are designed and tested for compliance with the offered communication protocols and are designed to operate with any properly validated hand held 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.

# **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/DE/Fieldbus.
- Integration with Honeywell's Experion PKS offers the following unique advantages.
  - o Tamper reporting
  - o FDM Plant Area Views with Health summaries
  - All ST 700 units are Experion tested to provide the highest level of compatibility assurance

## **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, add indicators or change electronic modules without affecting overall performance or approval body certifications. Each meter body is uniquely characterized to provide in-tolerance performance over a wide range of application variations in temperature and pressure and due to the Honeywell advanced interface, electronic modules may be swapped with any electronics module without losing in-tolerance performance characteristics.

#### **Modular Features**

- Meter body replacement
- Exchange/replace electronics/comms modules\*
- Add or remove integral indicator\*
- 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<sup>1</sup>

Reference Accuracy <sup>2</sup> (conformance to +/-3 Sigma)

Model	URL	LRL	Min Span	Maximum Turndown Ratio	Stability (% URL/Year for five years)	Reference Accuracy <sup>1</sup> (% Span)
STD720	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	0.020	
STD730	100 psi/7.0 bar	-100 psi/-7.0 bar	1 psi/0.07 bar	100:1	0.040	0.0500%
STD770	3000 psi/210 bar	-100 psi/-7.0 bar	30 psi/2.1bar	100:1	0.030	

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

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

		TABLE II							
		Accuracy <sup>1</sup> (% of Span)			-	ture Effect n/50°F)	Eff	e Pressure ect n/1000psi)	
Model	URL	For Spans Below	Α	В	C "H2O / m bar	D	E	F	G
STD720	400 in H <sub>2</sub> O1000mbar	16:1	0.0125	0.0375	25/62.5	0.050	0.020	0.100	0.010
Model	URL	For Spans below	Α	В	C psi/bar	D	E	F	G
STD730	100 psi/7.0 bar	4:01	0.0125	0.0375	25 / 1.75	0.065	0.010	0.10	0.01
STD770	3000 psi/210 bar	10:1	0.0123	0.0373	300 / 21	0.005	0.010	0.10	0.01
		Turn Down Effect $\pm \left[A + B\left(\frac{C}{\mathrm{Span}}\right)\right]$ % Span			Temp Effect		Static	Effect	
					L \	URL   Span   28°C (50°F)	$\pm \left[ F + G \left( \frac{1}{2} \right) \right]$ % Span pe	Span Span Span Span Span Span Span Span	

# **Total Performance (% of Span):**

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

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

**STD720 @ 80" H₂O:** 0.218% of span **STD730 @ 20 psi:** 0.196 % of span **STD770 @ 600 psi:** 0.196 % 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 0.005% 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 Rated Condition Condition		Operative Limits		Transportation and Storage		
	°C	°F	°C	°F	°C	°F	°C	°F
Ambient Temperature <sup>1</sup>	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 <sup>2</sup>	25±1	77±2	-40 to 110	-40 to 230	-40 to 125	-40 to 257	-55 to 120	-67 to 248
Humidity %RI	101	to 55	0 to	100	0 to 100		0 to 100	
Vac. Region – Min. Pressu mmHg absolute inH <sub>2</sub> O absolute	€ Atmos	ospheric 25 2 (short term ) 3 ospheric 13 1 (short term ) 3						
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)	4,5							
(ST 700 products are rated to Maxin Allowable Working Pressure. MAV depends on Approval Agency and transmitter materials of constructio	/P	osi, 310 t	oar					

<sup>&</sup>lt;sup>1</sup> LCD Display operating temperature -20°C to +70°C Storage temperature -30°C to 80°C.

For STD720 at temperatures below -15°C URL is reduced to 100" H<sub>2</sub>O

<sup>&</sup>lt;sup>5</sup> Consult factory for MAWP of ST 700 transmitters with CRN approval.

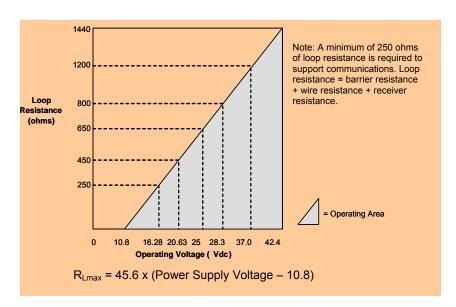


Figure 2 - Supply voltage and loop resistance chart & calculations

 $<sup>^2</sup>$  For CTFE fill fluid, the rating is -15 to 110  $^{\circ}\text{C}$  (5 to 230  $^{\circ}\text{F})$ 

 $<sup>^3</sup>$  Short term equals 2 hours at 70°C (158°F)

<sup>4</sup> 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.

# **Performance Under Rated Conditions – All Models**

Parameter	Description					
Analog Output	Two-wire, 4 to 20 m/	Two-wire, 4 to 20 mA (HART & DE Transmitters only)				
Digital Communications:	Honeywell DE, HAR	RT 7 protocol or FOUNDATION Fieldb	us ITK 6.0.1 compliant			
	All transmitters, irres	All transmitters, irrespective of protocol have polarity insensitive connections.				
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 vo	lt.				
Transmitter Turn on Time (includes power up & test algorithms)	HART or DE: 2.5 sec	c. Foundation Fi	eldbus: Host dependant			
Response Time	DE/HART Anal	og Output FC	UNDATION Fieldbus			
(delay + time constant)	100mS	1:	50mS (Host Dependant)			
Damping Time Constant	HART: Adjustable fr	om 0 to 32 seconds in 0.1 incremer	nts. Default: 0.50 seconds			
	<b>DE</b> : Discrete values	0, .16, .32, .48, 1, 2, 4, 8, 16, 32 se	conds. Default: 0.48 seconds			
Vibration Effect	Less than +/- 0.1% o	of URL w/o damping				
	Per IEC60770-1 field acceleration)	d or pipeline, high vibration level (10	0-2000Hz: 0.21 displacement/3g max			
Electromagnetic Compatibility	IEC 61326-3-1					
Lightning Protection Option		0uA max @ 42.4VDC 93C 3/20uS 5000A (>10 strikes)	10000A (1 strike min.)			
	1	0/1000uS 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 <sup>2</sup> , Monel® 400 <sup>3</sup> , Tantalum		
Process Head Material	316 SS <sup>4</sup> , Carbon Steel (Zinc-plated) <sup>5</sup> , Hastelloy C-276 <sup>6</sup>		
Vent/Drain Valves & Plugs <sup>1</sup>	316 SS <sup>4</sup> , Hastelloy C-276 <sup>2</sup>		
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, Monel K500, Super Duplex and B7M.		
Optional Adapter Flange and Bolts	Adapter Flange materials include 316 SS, Hastelloy C-276 and Monel 400. Bolt material for flanges is dependent on process head bolts material chosen. Standard adaptor o-ring material is glass-filled PTFE. Viton and graphite are optional.		
Mounting Bracket	2" Pipe, Carbon Steel (Zinc-plated) or 304 Stainless Steel		
Fill Fluid	Silicone DC® 200 oil or CTFE (Chlorotrifluoroethylene).		
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 4.		
Net Weight	8.3 pounds (3.8 Kg) with Aluminum Housing.		

<sup>&</sup>lt;sup>1</sup> Vent/Drains are sealed with Teflon<sup>®</sup>
<sup>3</sup> Monel 400 or UNS N04400

Hastelloy C-276 or UNS N10276
 Supplied as 316 SS or as Grade CF8M, the casting equivalent of 316 SS.

<sup>5</sup> 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

#### **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**

Available I allottoll 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				

<sup>\*</sup> Al 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 700 top level diagnostics are reported as either critical or non-critical and readable via the DD/DTM tools or

Critical Diagnostics

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

# Non-Critical Diagnostics

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			
No DAC Compensation			
LRV Set Error – Zero Config			
Button			
URV Set Error – Span Config			
Button			
AO Out of Range			
Loop Current Noise			
Meter Body Unreliable Comm			
Tamper Alarm			
No DAC Calibration			
Sensor Supply Voltage Low			

Refer to ST 700 manuals for additional level diagnostic information

#### **Other Certification Options**

#### **Materials**

NACE MRO175, MRO103, ISO15156

**Approval Certifications:** 

AGENCY	TYPE OF PROTECTION	COMM. OPTION	FIELD PARAMETERS	AMBIENT TEMP (Ta)
	Explosionproof: Class I, Division 1, Groups A, B, C, D; Dust Ignition Proof: Class II, III, Division 1, Groups E, F, G; T4 Class I, Zone 1/2, AEx d IIC T4 Class II, Zone 21, AEx tb IIIC T 85°C IP 66	All	Note 1	-50 °C to 85°C
FM Approvals <sup>™</sup>	Intrinsically Safe: Class I, II, III, Division 1, Groups A, B, C, D, E, F, G: T4	4-20 mA / DE/ HART	Note 2a	-50 °C to 70°C
Tim Approvals	Class 1, Zone 0, AEx ia IIC T4	Foundation Fieldbus	Note 2b	-50 °C to 70°C
	Nonincendive: Class I, Division 2, Groups A, B, C, D locations,	4-20 mA / DE/ HART	Note 1	-50 °C to 85°C
	Class 1, Zone 2, AEx nA IIC T4	Foundation Fieldbus	Note 1	-50 °C to 85°C
	Enclosure: Type 4X/ IP66/ IP67	All	All	-
	Explosion Proof: Class I, Division 1, Groups A, B, C, D; Dust Ignition Proof: Class II, III, Division 1, Groups E, F, G; T4  Ex d IIC T4	All	Note 1	-50 °C to 85°C
	Ex tD A21 T 95°C IP 66			
Canadian Standards	Intrinsically Safe: Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4	4-20 mA / DE/ HART	Note 2a	-50 °C to 70°C
Association (CSA)	Ex nA IIC T4	Foundation Fieldbus	Note 2b	-50 °C to 70°C
	Nonincendive: Class I, Division 2, Groups A, B, C, D; T4	4-20 mA / DE/ HART	Note 1	-50 °C to 85°C
	Ex nA IIC T4	Foundation Fieldbus	Note 1	-50 °C to 85°C
	Enclosure: Type 4X/ IP66/ IP67	All	All	-
	Canadian Registration Number (CRN):		een registered in all da and are marked (	=

# **Approval Certifications: (Continued)**

				1
	Flameproof: II 1/2 G Ex d IIC T4 II 2 D Ex tb IIIC T 85°C IP 66	All	Note 1	-50 °C to 85°C
АТЕХ	Intrinsically Safe:	4-20 mA / DE/ HART	Note 2a	-50 °C to 70°C
	II 1 G Ex ia IIC T4	Foundation Fieldbus	Note 2b	-50 °C to 70°C
	Nonincendive:	4-20 mA / DE/ HART	Note 1	-50 °C to 85°C
	II 3 G Ex nA IIC T4	Foundation Fieldbus	Note 1	-50 ℃ to 85℃
	Enclosure: IP66/ IP67	All	All	All
	Flameproof : Ga/Gb Ex d IIC T4 Ex tb IIIC T 85°C IP 66	All	Note 1	-50 °C to 85°C
	Intrinsically Safe:	4-20 mA / DE/ HART	Note 2a	-50 °C to 70°C
IECEx (World)	Ex ia IIC T4	Foundation Fieldbus	Note 2b	-50 °C to 70°C
	Nonincendive: Ex nA IIC T4	4-20 mA / DE/ HART	Note 1	-50 °C to 85°C
		Foundation Fieldbus	Note 1	-50 ℃ to 85℃
	Enclosure: IP66/ IP67	All	All	All
	Flameproof : Ga/Gb Ex d IIC T4 Ex tb IIIC T 85°C IP 66	All	Note 1	-50 °C to 85°C
	Intrinsically Safe: Ex ia IIC T4  Nonincendive: Ex nA IIC T4	4-20 mA / DE/ HART	Note 2a	-50 °C to 70°C
SAEx (South Africa)		Foundation Fieldbus	Note 2b	-50 °C to 70°C
		4-20 mA / DE/ HART	Note 1	-50 °C to 85°C
		Foundation Fieldbus	Note 1	-50 ℃ to 85℃
	Enclosure: IP66/IP67	All	All	All
	Flameproof: Br- Ga/Gb Ex d IIC T4 Br- Ex tb IIIC T 85°C IP 66	All	Note 1	-50 °C to 85°C
INMETRO	Intrinsically Safe:	4-20 mA / DE/ HART	Note 2a	-50 °C to 70°C
(Brazil)	Br- Ex ia IIC T4	Foundation Fieldbus	Note 2b	-50 °C to 70°C
	Nonincendive: Ex nA IIC T4	4-20 mA / DE/ HART	Note 1	-50 °C to 85°C
		Foundation Fieldbus	Note 1	-50 ℃ to 85℃
	Enclosure: IP 66/67	All	All	-

	Flameproof: Br- Ga/Gb Ex d IIC T4 Br- Ex tb IIIC T 85°C IP 66	All	Note 1	-50 °C to 85°C
	Intrinsically Safe:	4-20 mA / DE/ HART	Note 2a	-50 °C to 70°C
NEPSI (China)	Br- Ex ia IIC T4	Foundation Fieldbus	Note 2b	-50 °C to 70°C
	Nonincendive: Ex nA IIC T4	4-20 mA / DE/ HART	Note 1	-50 °C to 85°C
		Foundation Fieldbus	Note 1	-50 °C to 85°C
	Enclosure: IP 66/67	All	All	-

# Notes:

1. Operating Parameters:

= 10 to 30 V (FF) = 30 mA (FF)

2. Intrinsically Safe Entity Parameters

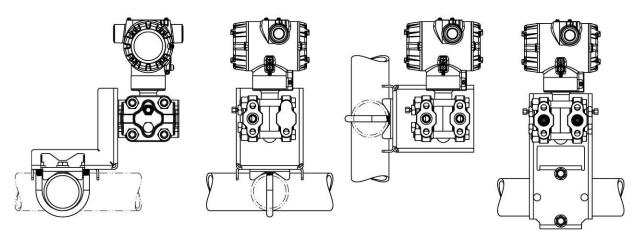
a. Analog/ DE/ HART Entity Values:

b. Foundation Fieldbus Entity Values

	This certificate defines the certifications covered for the ST 700 Pressure Transmitter family of products. It represents the compilation of the five certificates Honeywell currently has covering the certification of these products into marine applications.
	American Bureau of Shipping (ABS) - 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
Marine Certificates	Bureau Veritas (BV) - Product Code: 389:1H. Certificate number: 12660/B0 BV
	Det Norske Veritas (DNV) - 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
	Korean Register of Shipping (KR) - Certificate number: LOX17743-AE001
	Lloyd's Register (LR) - Certificate number: 02/60001(E1) & (E2)
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.

# **Mounting & Dimensional Drawings**

# **Mounting Configurations**



#### **Dimensions**

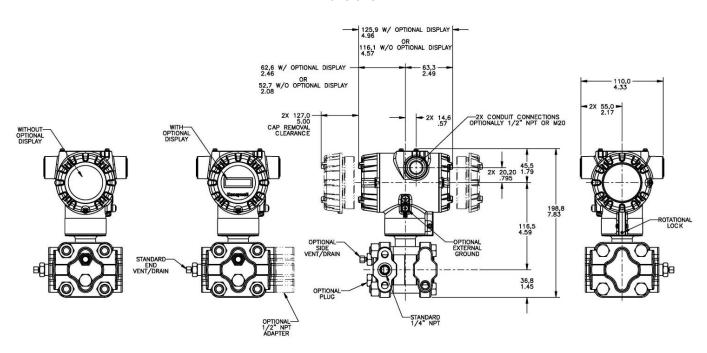


Figure 4 – Typical mounting dimensions of STD720, STD730 & STD770 for reference only

Selection

STD720

Model Selection Guides are subject to change and are inserted into the specifications as guidance only. Prior to specifying or ordering a model check for the latest revision Model Selection Guides which are published at: www.honeywellprocess.com/en-US/pages/default.aspx

Model Selection Guide\_

# **Model STD700 Differential Pressure Transmitter**

URL

400/(1000)

# **Model Selection Guide**

34-ST-16-101 Issue 3, Rev.3

**KEY NUMBER** 

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.

LRL

a. Measurement	400/(1000)	-400/(-1000)	400/(1000)	4.0 (10)	" H <sub>2</sub> O (mbar)	STD720			
Range	100 (7.0)	-100 (-7.0)	100 (7.0)	1 (0.07)	psi (bar)	STD730			
Kange	3000 (210)	-100 (-7.0)	3000 (210)	30 (2.1)	psi (bar)	STD770			
TABLE I		METER BODY SELECTIONS							
	Process Hea	d Material		Diaphragm Materia	al				
			316L Stainless			A	*	*	*
	Plated Cart	on Steel	Hastelloy® C-2	76		В	*	*	*
a. Process Wetted		7011 01001	Monel® 400			C	а	а	а
Heads &			Tantalum			D	*	*	*
Diaphragm			316L Stainless	Steel		E	*	*	*
Materials	316 Stainle	Hastelloy C-276	3		F	*	*	*	
materiale	3 to Staitliess Steel		Monel 400			G	а	а	а
			Tantalum			H	*	*	*
	Hastelloy	C-276	Hastelloy C-276	3		J	*	*	*
	riastelloy	0 210	Tantalum			K	*	*	*
b. Fill Fluid	Silicone Oil (DC 200)					_1	*	*	*
	Fluorinated Oil CTFE		_2	*	*	*			
c. Process	None				A	*	*	*	
Connection	1/2" NPT female Materials to Match Head & Head Bolt Materials Selections		H	*	*	*			
	Carbon Steel			C	а	а	а		
	316 SS			S	а	а	а		
d. Bolt/Nut	Grade 660 (NACE A286) with NACE 304 SS Nuts			N	. *	*	*		
Materials	Grade 660 (NACE A286) Bolts & Nuts			K	р	р	р		
	Monel K500			M	. r	r	r		
	Super Duplex				D	р	р	р	
	B7M	1 1/ //5 : 1				B		*	*
	Head Type	Vent/Drain I	ocation	Vent M	iateriai				
	Single Ended	None Side w/Vent		None Matches Head M	lotorial <sup>1</sup>	<sup>1</sup>		_	*
e. Vent/Drain	Single Ended	Side w/vent Side w/Center Vent				<sup>2</sup>		ايا	_
Type/Location	Single Ended Dual Ended	End w/Vent		Stainless Steel C Matches Head M		<sup>3</sup>	۱ *	*	۱ *
	Dual Ended	End w/Venter Vent		Stainless Steel C			t		
	Dual Ended	Side w/ Vent & End	w/Plug	Matches Head M		6	*	*	*
	Teflon® or PTFE (Glass		···· lug				*	*	*
f Gasket	Viton® or Fluorocarbon	Elastomer				В	*	*	*
Material	Graphite					C_	*	*	*
	·								
g. Static Pressure	Standard Static Pressu	re - 4500 psig (315 b	ar)			s	*	*	*
1							_		_

Max Span

Min Span

Units

<sup>&</sup>lt;sup>1</sup>Except Carbon Steel Heads shall use 316SS Vent/Drain, Plugs & Adapters when required

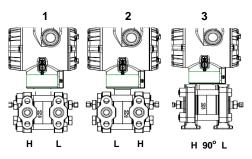


TABLE II		Meter Body & Connection Orientation
Head/Connect Orientation	Reversed	High Side Left, Low Side Right <sup>2</sup> / Std Head Orientation Low Side Left, High Side Right <sup>2</sup> / Std Head Orientation High Side Left, Low Side Right <sup>2</sup> / 90° Head Rotation

STD770 STD730 STD720	<u>_</u>	$\overline{\ \ }$	
1	*	*	*
2	*	*	*
3	h	h	h

TABLE III	Agency Approvals (see data sheet for Approval Code Details)
	No Approvals Required
	FM Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof
	CSA Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof
Approvals	ATEX Explosion proof, Intrinsically Safe & Non-incendive
Αμμιοναίδ	IECEx Explosion proof, Intrinsically Safe & Non-incendive
	SAEx/CCoE Explosion proof, Intrinsically Safe & Non-incendive
	INMETRO Explosion proof, Intrinsically Safe & Non-incendive
	NEPSI Explosion proof, Intrinsically Safe & Non-incendive

0	*	*	*
Α	*	*	*
В	*	*	*
С	*	*	*
D	*	*	*
E	*	*	*
F	*	*	*
G	*	*	*

TABLE IV	TR	ANSMITTER ELE	CTRONICS SE	LECTIONS	
	Materi	ial	Connection	Lightning Protection	
	Polyester Powder C	oated Aluminum	1/2 NPT	None	
- Flantania	Polyester Powder C	oated Aluminum	M20	None	
a. Electronic	Polyester Powder C	oated Aluminum	1/2 NPT	Yes	
Housing Material & Connection	Polyester Powder C	oated Aluminum	M20	Yes	
Type	316 Stainless Stee	I (Grade CF8M)	1/2 NPT	None	
Турс	316 Stainless Stee	I (Grade CF8M)	M20	None	
	316 Stainless Stee	I (Grade CF8M)	1/2 NPT	Yes	
	316 Stainless Stee	I (Grade CF8M)	M20	Yes	
	Analog Output		Digital Protocol		
b. Output/	4-20m <i>A</i>	4-20mA dc		HART Protocol	
Protocol	4-20m <i>A</i>	A dc	DE Protocol		
	n/a		F	oundation Fieldbus	
	Indicator	Ext Zero, Span & C	Config Buttons	Languages	
c. Customer	None	None	Э	None	
Interface	None	Yes (Zero/Sp	oan Only)	None	
Selections	Basic	None	е	English	
	Basic	Yes	i	English	

Α	*	*	*	
B	*	*	*	
C	*	*	*	
D	*	*	*	
E	*	*	*	
	*	*	*	
F G H	*	*	*	
H	*	*	*	
Н	*	*	*	
	*	*	*	
	*	*	*	

TABLE V	CONFIGURATION SELECTIONS				
a. Application		Dia	gnostics		
Software	Standard Diagnostics				
	Write Protect	Fail Mode	High	& Low Output Limits <sup>3</sup>	
b. Output Limit,	Disabled	High> 21.0mAdc	Honeywell Std	(3.8 - 20.8 mAdc)	
	Disabled	Low< 3.6mAdc	Honeywell Std	(3.8 - 20.8 mAdc)	
Protect Settings	Enabled	High> 21.0mAdc	Honeywell Std	(3.8 - 20.8 mAdc)	
	Enabled	Low< 3.6mAdc	Honeywell Std	(3.8 - 20.8 mAdc)	
	Enabled	N/A	N/A	Fieldbus	
	Disabled	N/A	N/A	Fieldbus	
c. General	Factory Standard				
Configuration	Custom Configuration (I	Jnit Data Required fr	om customer)		

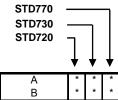
1 * * * *  _1_ f f f _2_ f f f _3_ f f f 4 f f f
$ \begin{array}{c cccc} -2 & f & f & f \\ -3 & f & f & f \end{array} $
_3_ f f f
4   4   4   4
$ \begin{bmatrix} 5 \\ 6 \end{bmatrix} $ $ \begin{bmatrix} \mathbf{g} \\ \mathbf{g} \\ \mathbf{g} \end{bmatrix} $ $ \begin{bmatrix} \mathbf{g} \\ \mathbf{g} \end{bmatrix} $
S
C * * *

\_\_B

<sup>&</sup>lt;sup>2</sup> Left side/Right side as viewed from the customer connection perspective

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

TABLE VI		CALIBRATION & ACCURACY SEL	ECTIONS
a. Accuracy and	Accuracy	Calibrated Range	Calibration Qty
•	Standard	Factory Std	Single Calibration
Calibration	Standard	Custom (Unit Data Required)	Single Calibration



Calibration	Standard	Custom (Unit Data R	Required)	Single Calibration		В	*	*	*
TABLE VII		ACCESSOR	Y SELECTION						· <u></u>
	Bracket 1	Гуре		Material					
a. Mounting Bracket	None Angle Bracket Angle Bracket		None Carbon Steel 304 SS			0 1 2	* *	* *	* *
Diacket	Marine Approved Angle Flat Bracket Flat Bracket		304 SS Carbon Steel 304 SS			4 5 6	* *	* * *	* *
		Custom	er Tag Type						
b. Customer Tag	No customer tag One Wired Stainless Ste Two Wired Stainless Ste					_0 _1 _2	* *	* *	* * *
		sembled Conduit Plu	,						
c. Unassembled Conduit Plugs & Adapters	No Conduit Plugs or Ada 1/2 NPT Male to 3/4 NPT 1/2 NPT 316 SS Certified M20 316 SS Certified Co Minifast <sup>®</sup> 4 pin (1/2 NPT Minifast <sup>®</sup> 4 pin (M20) (no	F Female 316 SS Ce d Conduit Plug anduit Plug onduit Plug ont suitable for X-F	Proof application			A0 A2 A6 A7 A8 A9	n	n n m n	n n m n
TABLE VIII	OTHER Certifications & O	ptions: (String in seq	uence comma c	elimited (XX, XX, XX,)					
	NACE MR0175; MR0103 NACE MR0175; MR0103 Marine (DNV, ABS, BV,	3; ISO15156 (FC333 KR, LR) (FC33340)	39) Process we	, ,	5	FG F7 MT	c c d	c c d	c d
Certifications & Warranty	EN10204 Type 3.1 Mate Certificate of Conforman Calibration Test Report 8	ce (F3391) & Certificate of Confo		))		FX F3 F1	* *	* * *	*
	Certificate of Origin (F01 FMEDA (SIL 2/3) Certific Over-Pressure Leak Tes Cert Clean for O <sub>2</sub> or CL <sub>2</sub>	cation (FC33337) t Certificate (1.5X M/				F5 FE TP OX	; ; e	; ; e	j *
TABLE IX	Manufacturing Specials					0000			
Factory	Factory Identification					0000	*	*	*

# **MODEL RESTRICTIONS**

Restriction Letter	Available Only with		Not Available with	
	Table	Selection(s)	Table	Selection(s)
а			VIII	F7, FG
С	1d	N,K,D,B	la	C,G
d			VIIa	1,2,5,6
е	lb	_2		
f			IVb	_F_
g			IVb	_ H, D _
h			le	4, 5, 6
			VIIa	1,2,4,5,6
j	IVb	_H_	Vb	_ 1,2,6 _
m	IV a	B, D		
n	IV a	A, C		
р			III	B- No CRN number available
r			VIII	F7, FG
			III	B- No CRN number available
t			la	J, K
b	Select only one option from this group			

## Sales and Service

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

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Specifications are subject to change without notice.

## For More Information

Learn more about how Honeywell's SmartLine Smart Pressure Transmitters can increase performance, reduce downtime and decrease configuration costs, visit our website <a href="https://www.honeywellprocess.com">www.honeywellprocess.com</a> or contact your Honeywell account manager.

