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:

- Accuracies up to 0.05% of span
- Stability up to 0.02% of URL per year for 5 years
- Automatic static pressure & temperature compensation
- Rangeability up to 100:1
- Response times as fast as 100ms
- Alphanumeric display capabilities
- External zero, span, & configuration capability
- Polarity insensitive electrical connections
- 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:

<table>
<thead>
<tr>
<th>Model</th>
<th>URL (^{\text{&quot;H}_{2}\text{O}}} (\text{mbar})</th>
<th>LRL (^{\text{&quot;H}_{2}\text{O}}} (\text{mbar})</th>
<th>\text{Max Span} (^{\text{&quot;H}_{2}\text{O}}} (\text{mbar})</th>
<th>\text{Min Span} (^{\text{&quot;H}_{2}\text{O}}} (\text{mbar})</th>
</tr>
</thead>
<tbody>
<tr>
<td>STD720</td>
<td>400 (1000)</td>
<td>-400 (1000)</td>
<td>400 (1000)</td>
<td>4 (10)</td>
</tr>
<tr>
<td>STD730</td>
<td>100 (7.0)</td>
<td>-100 (-7.0)</td>
<td>100 (7.0)</td>
<td>1 (0.07)</td>
</tr>
<tr>
<td>STD770</td>
<td>3000 (210)</td>
<td>-100 (-7.0)</td>
<td>3000 (210)</td>
<td>30 (2.1)</td>
</tr>
</tbody>
</table>

Communications/Output Options:

- Honeywell Digitally Enhanced (DE)
- 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)
- 0, 90, 180, & 270 degree position adjustments
- Pa, KPa, MPa, KGcm², Torr, ATM, i4H₂O, mH₂O, bar, mbar, inH₂O, inHG, FTH₂O, mmH₂O, mm HG, & psi measurement units
- 2 Lines 16 Characters (4.13H x 1.83W mm)
- Square root output indication

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

Configuration Tools
Integral Three Button Configuration Option
Suitable for all electrical and environmental requirements, SmartLine 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.

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.
  - Tamper reporting
  - 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

Reference Accuracy (conformance to +/-3 Sigma)

<table>
<thead>
<tr>
<th>Model</th>
<th>URL</th>
<th>LRL</th>
<th>Min Span</th>
<th>Maximum Turndown Ratio</th>
<th>Stability (% URL/Year for five years)</th>
<th>Reference Accuracy (%) of Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>STD720</td>
<td>400 in H₂O/1000 mbar</td>
<td>-400 in H₂O/-1000 mbar</td>
<td>4 in H₂O/10 mbar</td>
<td>100:1</td>
<td>0.020</td>
<td>0.0500%</td>
</tr>
<tr>
<td>STD730</td>
<td>100 psi/7.0 bar</td>
<td>-100 psi/-7.0 bar</td>
<td>1 psi/0.07 bar</td>
<td>100:1</td>
<td>0.040</td>
<td></td>
</tr>
<tr>
<td>STD770</td>
<td>3000 psi/210 bar</td>
<td>-100 psi/-7.0 bar</td>
<td>30 psi/2.1 bar</td>
<td>100:1</td>
<td>0.030</td>
<td></td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Model</th>
<th>URL</th>
<th>Turn down greater than</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>STD720</td>
<td>400 in H₂O/1000 mbar</td>
<td>16:1</td>
<td>0.0125</td>
<td>0.0375</td>
<td>25</td>
<td>0.050</td>
<td>0.020</td>
<td>0.100</td>
<td>0.010</td>
</tr>
<tr>
<td>STD730</td>
<td>100 psi/7.0 bar</td>
<td>6.7:1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.065</td>
<td>0.010</td>
<td></td>
</tr>
<tr>
<td>STD770</td>
<td>3000 psi/210 bar</td>
<td>10:1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Performance (% of Span):

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

Total Performance Examples:
- STD720 @ 80°F 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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Reference Condition</th>
<th>Rated Condition</th>
<th>Operative Limits</th>
<th>Transportation and Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C</td>
<td>°F</td>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>25±1</td>
<td>77±2</td>
<td>-40 to 85</td>
<td>-40 to 185</td>
</tr>
<tr>
<td>Meter Body Temperature</td>
<td>25±1</td>
<td>77±2</td>
<td>-40 to 110</td>
<td>-40 to 230</td>
</tr>
<tr>
<td>Humidity</td>
<td>%RH</td>
<td></td>
<td>0 to 100</td>
<td>0 to 100</td>
</tr>
<tr>
<td>Vacuum Region – Min. Pressure</td>
<td>mmHg absolute</td>
<td>Atmospheric</td>
<td>25</td>
<td>2 (short term) ³</td>
</tr>
<tr>
<td></td>
<td>inH₂O absolute</td>
<td>Atmospheric</td>
<td>13</td>
<td>1 (short term) ³</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>10.8 to 42.4 Vdc at terminals (IS versions limited to 30 Vdc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Resistance</td>
<td>0 to 1,440 ohms (as shown in Figure 2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Allowable Working Pressure (MAWP) ⁴,⁵</td>
<td>4,500 psi, 310 bar</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(⁴ ST 700 products are rated to Maximum Allowable Working Pressure. MAWP depends on Approval Agency and transmitter materials of construction.)

| Note: A minimum of 250 ohms of loop resistance is required to support communications. Loop resistance = barrier resistance + wire resistance + receiver resistance. |

R_{Lmax} = 45.6 \times (Power Supply Voltage – 10.8)

1. LCD Display operating temperature -20°C to +70°C Storage temperature -30°C to 80°C.
2. For CTFE fill fluid, the rating is -15 to 110°C (5 to 230°F).
3. For STD720 at temperatures below -15°C URL is reduced to 100” H₂O
4. Short term equals 2 hours at 70°C (158°F)
4. 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.
5. Consult factory for MAWP of ST 700 transmitters with CRN approval.
## Performance Under Rated Conditions – All Models

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analog Output</strong></td>
<td>Two-wire, 4 to 20 mA (HART &amp; DE Transmitters only) Honeywell DE, HART 7 protocol or FOUNDATION Fieldbus ITK 6.0.1 compliant All transmitters, irrespective of protocol have polarity insensitive connections.</td>
</tr>
<tr>
<td><strong>Digital Communications:</strong></td>
<td>Two-wire, 4 to 20 mA (HART &amp; DE Transmitters only) Honeywell DE, HART 7 protocol or FOUNDATION Fieldbus ITK 6.0.1 compliant All transmitters, irrespective of protocol have polarity insensitive connections.</td>
</tr>
<tr>
<td><strong>Output Failure Modes</strong></td>
<td><strong>Honeywell Standard:</strong> Normal Limits: 3.8 – 20.8 mA Failure Mode: ≤ 3.6 mA and ≥ 21.0 mA <strong>NAMUR NE 43 Compliance:</strong> Normal Limits: 3.8 – 20.5 mA Failure Mode: ≤ 3.6 mA and ≥ 21.0 mA</td>
</tr>
<tr>
<td><strong>Supply Voltage Effect</strong></td>
<td>0.005% span per volt.</td>
</tr>
<tr>
<td><strong>Transmitter Turn on Time</strong></td>
<td>HART or DE: 2.5 sec. Foundation Fieldbus: Host dependant</td>
</tr>
<tr>
<td><strong>Response Time</strong></td>
<td><strong>DE/HART Analog Output</strong>: 100mS <strong>FOUNDATION Fieldbus</strong>: 150mS (Host Dependant)</td>
</tr>
<tr>
<td><strong>Damping Time Constant</strong></td>
<td><strong>HART</strong>: Adjustable from 0 to 32 seconds in 0.1 increments. <strong>Default</strong>: 0.50 seconds <strong>DE</strong>: Discrete values 0, .16, .32, .48, 1, 2, 4, 8, 16, 32 seconds. <strong>Default</strong>: 0.48 seconds</td>
</tr>
<tr>
<td><strong>Vibration Effect</strong></td>
<td>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)</td>
</tr>
<tr>
<td><strong>Electromagnetic Compatibility</strong></td>
<td>IEC 61326-3-1</td>
</tr>
<tr>
<td><strong>Lightning Protection Option</strong></td>
<td><strong>Leakage Current</strong>: 10uA max @ 42.4VDC 93C <strong>Impulse rating</strong>: 8/20uS 5000A (&gt;10 strikes) 10000A (1 strike min.) 10/1000uS 200A (&gt; 300 strikes)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Barrier Diaphragms Material</strong></td>
<td>316L SS, Hastelloy® C-276®, Monel® 400 3, Tantalum</td>
</tr>
<tr>
<td><strong>Process Head Material</strong></td>
<td>316 SS 4, Carbon Steel (Zinc-plated) 5, Hastelloy C-276®</td>
</tr>
<tr>
<td><strong>Vent/Drain Valves &amp; Plugs</strong></td>
<td>316 SS 4, Hastelloy C-276®</td>
</tr>
<tr>
<td><strong>Head Gaskets</strong></td>
<td>Glass-filled PTFE standard. Viton® and graphite are optional.</td>
</tr>
<tr>
<td><strong>Meter Body Bolting</strong></td>
<td>Carbon Steel (Zinc plated) standard. Options include 316 SS, NACE A286 SS bolts, Monel K500, Super Duplex and B7M.</td>
</tr>
<tr>
<td><strong>Optional Adapter Flange and Bolts</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Mounting Bracket</strong></td>
<td>2&quot; Pipe, Carbon Steel (Zinc-plated) or 304 Stainless Steel</td>
</tr>
<tr>
<td><strong>Fill Fluid</strong></td>
<td>Silicone DC® 200 oil or CTFE (Chlorotrifluoroethylene).</td>
</tr>
<tr>
<td><strong>Electronic Housing</strong></td>
<td>Pure Polyester Powder Coated Low Copper (&lt;0.6%)-Aluminum. Meets NEMA 4X, IP66, &amp; IP67. All stainless steel housing is optional.</td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Process Connections</strong></td>
<td>1/4- NPT or 1/2- NPT with adapter (meets DIN requirements)</td>
</tr>
<tr>
<td><strong>Wiring</strong></td>
<td>Accepts up to 16 AWG (1.5 mm diameter).</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>See Figure 4.</td>
</tr>
<tr>
<td><strong>Net Weight</strong></td>
<td>8.3 pounds (3.8 Kg) with Aluminum Housing.</td>
</tr>
</tbody>
</table>

1 Vent/Drains are sealed with Teflon®
2 Hastelloy C-276 or UNS N10276
3 Monel 400 or UNS N04400
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

**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**

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

* AI block may have two (2) additional instantiations. All available function blocks adhere to FOUNDATION Fieldbus standards. PID blocks support ideal & robust PID algorithms with full implementation of Auto-tuning.

**Link Active Scheduler**

Transmitters can perform as a backup Link Active Scheduler and take over when the host is disconnected. Acting as a LAS, the device ensures scheduled data transfers typically used for the regular, cyclic transfer of control loop data between devices on the Fieldbus.

**Number of Devices/Segment**

Entity IS model: 6 devices/segment

**Schedule Entries**

18 maximum schedule entries

**Number of VCR’s:** 24 max

**Compliance Testing:** Tested according to ITK 6.0.1

**Software Download**

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

**Honeywell Digitally Enhanced (DE)**

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

**Power Supply**
Voltage: 10.8 to 42.4Vdc at terminals
Load: Maximum 1440 ohms See figure 2

**Standard Diagnostics**

ST 700 top level diagnostics are reported as either critical or non-critical and readable via the DD/DTM tools or

**Critical Diagnostics**

<table>
<thead>
<tr>
<th>HART DD/DTM tools</th>
<th>Basic Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic Module DAC Failure</td>
<td>Electronics Module fault</td>
</tr>
<tr>
<td>Meter Body NVM Corrupt</td>
<td>Meter Body fault</td>
</tr>
<tr>
<td>Config Data Corrupt</td>
<td>Electronics Module fault</td>
</tr>
<tr>
<td>Electronic Module Diag Failure</td>
<td>Electronics Module fault</td>
</tr>
<tr>
<td>Meter Body Critical Failure</td>
<td>Meter Body fault</td>
</tr>
<tr>
<td>Sensor Comm Timeout</td>
<td>Meter Body Comm fault</td>
</tr>
</tbody>
</table>

**Non-Critical Diagnostics**

<table>
<thead>
<tr>
<th>HART DD/DTM tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Failure</td>
</tr>
<tr>
<td>Electronic Module Comm Failure</td>
</tr>
<tr>
<td>Meter Body Excess Current</td>
</tr>
<tr>
<td>Sensor Over Temperature</td>
</tr>
<tr>
<td>Fixed Current Mode</td>
</tr>
<tr>
<td>PV Out of Range</td>
</tr>
<tr>
<td>No Factory Calibration</td>
</tr>
<tr>
<td>No DAC Compensation</td>
</tr>
<tr>
<td>LRV Set Error – Zero Config Button</td>
</tr>
<tr>
<td>URV Set Error – Span Config Button</td>
</tr>
<tr>
<td>AO Out of Range</td>
</tr>
<tr>
<td>Logo Current Noise</td>
</tr>
<tr>
<td>Meter Body Unreliable Comm</td>
</tr>
<tr>
<td>Tamper Alarm</td>
</tr>
<tr>
<td>No DAC Calibration</td>
</tr>
<tr>
<td>Sensor Supply Voltage Low</td>
</tr>
</tbody>
</table>

Refer to ST 700 manuals for additional level diagnostic information

**Other Certification Options**

**Materials**

- NACE MR0175, MR0103, ISO15156
### Approval Certifications:

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>TYPE OF PROTECTION</th>
<th>COMM. OPTION</th>
<th>FIELD PARAMETERS</th>
<th>AMBIENT TEMP (Ta)</th>
</tr>
</thead>
</table>
| **FM Approvals™** | **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 ºC to 85ºC |
| | **Intrinsically Safe:**
  Class I, II, III, Division 1, Groups A, B, C,
  D, E, F, G: T4
  Class 1, Zone 0, AEx ia IIC T4 | 4-20 mA / DE/ HART | Note 2a | -50 ºC to 70ºC |
| | **Nonincendive:**
  Class I, Division 2, Groups A, B, C, D locations,
  Class 1, Zone 2, AEx nA IIC T4 | 4-20 mA / DE/ HART | Note 1 | -50 ºC to 85ºC |
| | **Enclosure:**
  Type 4X/ IP66/ IP67 | Foundation Fieldbus | Note 1 | -50 ºC to 85ºC |
| **Canadian Standards Association (CSA)** | **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
  Ex tD A21 T 95°C IP 66 | All | Note 1 | -50 ºC to 85ºC |
| | **Intrinsically Safe:**
  Class I, II, III, Division 1, Groups A, B, C,
  D, E, F, G; T4
  Ex nA IIC T4 | 4-20 mA / DE/ HART | Note 2a | -50 ºC to 70ºC |
| | **Nonincendive:**
  Class I, Division 2, Groups A, B, C, D
  Ex nA IIC T4 | 4-20 mA / DE/ HART | Note 1 | -50 ºC to 85ºC |
| | **Enclosure:**
  Type 4X/ IP66/ IP67 | Foundation Fieldbus | Note 1 | -50 ºC to 85ºC |
| | **Canadian Registration Number (CRN):**
  All models have been registered in all provinces and territories in Canada and are marked CRN: 0F8914.5C.
### Approval Certifications: (Continued)

<table>
<thead>
<tr>
<th></th>
<th>Flameproof:</th>
<th>Intrinsically Safe:</th>
<th>Nonincendive:</th>
<th>Enclosure:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATEX</strong></td>
<td>Il 1/2 G Ex d IIC T4</td>
<td>Il 1 G Ex ia IIC T4</td>
<td>Il 3 G Ex nA IIC T4</td>
<td>IP66/ IP67</td>
</tr>
<tr>
<td></td>
<td>Il 2 D Ex tb IIC T 85°C IP 66</td>
<td></td>
<td></td>
<td>All</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>Note 1</td>
<td>Note 1</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td>4-20 mA / DE/ HART</td>
<td>Note 2a</td>
<td>Note 1</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td>Note 2b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-50 °C to 70°C</td>
<td></td>
<td>-50 °C to 85°C</td>
<td></td>
</tr>
<tr>
<td><strong>IECEx (World)</strong></td>
<td>Ga/Gb Ex d IIC T4</td>
<td>Ex ia IIC T4</td>
<td>Ex nA IIC T4</td>
<td>IP66/ IP67</td>
</tr>
<tr>
<td></td>
<td>Ex tb IIC T 85°C IP 66</td>
<td></td>
<td></td>
<td>All</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>Note 1</td>
<td>Note 1</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td>4-20 mA / DE/ HART</td>
<td>Note 2a</td>
<td>Note 1</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td>Note 2b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-50 °C to 70°C</td>
<td></td>
<td>-50 °C to 85°C</td>
<td></td>
</tr>
<tr>
<td><strong>SAEx (South Africa)</strong></td>
<td>Ga/Gb Ex d IIC T4</td>
<td>Ex ia IIC T4</td>
<td>Ex nA IIC T4</td>
<td>IP66/ IP67</td>
</tr>
<tr>
<td></td>
<td>Ex tb IIC T 85°C IP 66</td>
<td></td>
<td></td>
<td>All</td>
</tr>
<tr>
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<td>All</td>
<td>Note 1</td>
<td>Note 1</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td>4-20 mA / DE/ HART</td>
<td>Note 2a</td>
<td>Note 1</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td>Note 2b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-50 °C to 70°C</td>
<td></td>
<td>-50 °C to 85°C</td>
<td></td>
</tr>
<tr>
<td><strong>INMETRO (Brazil)</strong></td>
<td>Br- Ga/Gb Ex d IIC T4</td>
<td>Br- Ex ia IIC T4</td>
<td>Ex nA IIC T4</td>
<td>IP 66/67</td>
</tr>
<tr>
<td></td>
<td>Br- Ex tb IIC T 85°C IP 66</td>
<td></td>
<td></td>
<td>All</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>Note 1</td>
<td>Note 1</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td>4-20 mA / DE/ HART</td>
<td>Note 2a</td>
<td>Note 1</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td>Note 2b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-50 °C to 70°C</td>
<td></td>
<td>-50 °C to 85°C</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
-50 °C to 85°C
<table>
<thead>
<tr>
<th>NEPSI (China)</th>
<th>Flameproof:</th>
<th>All</th>
<th>Note 1</th>
<th>-50 °C to 85 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Br- Ga/Gb Ex d IIC T4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Br- Ex tb IIC T 85°C IP 66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflammable Safe:</td>
<td>4-20 mA / DE/ HART</td>
<td>Note 2a</td>
<td></td>
<td>-50 °C to 70 °C</td>
</tr>
<tr>
<td></td>
<td>Foundation Fieldbus</td>
<td>Note 2b</td>
<td></td>
<td>-50 °C to 70 °C</td>
</tr>
<tr>
<td>Noninflammable Safe:</td>
<td>4-20 mA / DE/ HART</td>
<td>Note 1</td>
<td></td>
<td>-50 °C to 85 °C</td>
</tr>
<tr>
<td></td>
<td>Foundation Fieldbus</td>
<td>Note 1</td>
<td></td>
<td>-50 °C to 85 °C</td>
</tr>
<tr>
<td>Enclosure :</td>
<td>IP 66/67</td>
<td>All</td>
<td>All</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes:
1. Operating Parameters:
   Voltage = 11 to 42 V DC
   Current = 4-20 mA Normal (3.8 – 23 mA Faults)
   = 10 to 30 V (FF) = 30 mA (FF)
2. Intrinsically Safe Entity Parameters
   a. Analog/ DE/ HART Entity Values:
      Vmax = Ui = 30V Imax = li = 105 mA Ci = 4.2nF Li = 820uH Pi = 0.9W
   b. Foundation Fieldbus Entity Values
      Vmax = Ui = 30V Imax = li = 225 mA Ci = 0 Li = 0 Pi = 1W

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

**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)

Mounting & Dimensional Drawings

Reference Dimensions: \[ \text{millimeters} \quad \text{inches} \]

Mounting Configurations

Dimensions

Figure 4 – Typical mounting dimensions of STD720, STD730 & STD770 for reference only
**STD700 Smart Pressure Transmitter**

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](http://www.honeywellprocess.com/en-US/pages/default.aspx)

### Model Selection Guide

#### Section 13
**Page: STD7-1**
**Effective Date: Dec 30, 2012**

**Model STD700**

**Differential Pressure Transmitter**

Model Selection Guide:

34-ST-16-101 Issue 1

**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.

<table>
<thead>
<tr>
<th>KEY NUMBER</th>
<th>URL</th>
<th>LRL</th>
<th>Max Span</th>
<th>Min Span</th>
<th>Units</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Measurement Range</td>
<td>400/(1000)</td>
<td>-400/(-1000)</td>
<td>400/(1000)</td>
<td>4.0 (10)</td>
<td>psi (bar)</td>
<td>STD720</td>
</tr>
<tr>
<td></td>
<td>100 (7.0)</td>
<td>-100 (-7.0)</td>
<td>100 (7.0)</td>
<td>1 (0.07)</td>
<td>psi (bar)</td>
<td>STD730</td>
</tr>
<tr>
<td></td>
<td>3000 (210)</td>
<td>-3000 (-210)</td>
<td>3000 (210)</td>
<td>30 (2.1)</td>
<td>psi (bar)</td>
<td>STD770</td>
</tr>
</tbody>
</table>

#### TABLE I

<table>
<thead>
<tr>
<th>Process Head Material</th>
<th>Diaphragm Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>316L Stainless Steel</td>
<td>Hastelloy® C-276</td>
</tr>
<tr>
<td>Monel® 400</td>
<td>Tantalum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process Wetted Heads &amp; Diaphragm Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plated Carbon Steel</td>
</tr>
<tr>
<td>Hastelloy® C-276</td>
</tr>
<tr>
<td>Tantalum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fill Fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone Oil (DC 200)</td>
</tr>
<tr>
<td>Fluorinated Oil CTFE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
</tr>
<tr>
<td>1/2&quot; NPT female</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bolt/Nut Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Steel</td>
</tr>
<tr>
<td>316 SS</td>
</tr>
<tr>
<td>Grade 660 (NACE A286) with NACE 304 SS Nuts</td>
</tr>
<tr>
<td>Grade 660 (NACE A286) Bolts &amp; Nuts</td>
</tr>
<tr>
<td>Monel K500</td>
</tr>
<tr>
<td>Super Duplex</td>
</tr>
<tr>
<td>B7M</td>
</tr>
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</table>

#### Head Type |

<table>
<thead>
<tr>
<th>Vent/Drain Location</th>
<th>Vent Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

#### Vent/Drain Type/Location |

| Single Ended |
| Side w/ Vent |
| End w/ Vent |
| Side w/ Center Vent |
| End w/ Center Vent |
| Side w/ Vent & End w/Plug |

#### Gasket Material |

| Teflon® or PTFE (Glass Filled) |
| Viton® or Fluorocarbon Elastomer |
| Graphite |

#### Static Pressure |

Standard Static Pressure - 4500 psig (315 bar)
TABLE II

<table>
<thead>
<tr>
<th>Head/Connect Orientation</th>
<th>Meter Body &amp; Connection Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>High Side Left, Low Side Right* / Std Head Orientation</td>
</tr>
<tr>
<td>Reversed</td>
<td>Low Side Left, High Side Right* / Std Head Orientation</td>
</tr>
<tr>
<td>90/Standard</td>
<td>High Side Left, Low Side Right* / 90° Head Rotation</td>
</tr>
</tbody>
</table>

TABLE III

<table>
<thead>
<tr>
<th>Approvals</th>
<th>Agency Approvals (see data sheet for Approval Code Details)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Approvals Required</td>
<td>0 * * *</td>
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<tr>
<td>FM Explosion proof, Intrinsically Safe, Non-incendive, &amp; Dustproof</td>
<td>A * * *</td>
</tr>
<tr>
<td>CSA Explosion proof, Intrinsically Safe, Non-incendive, &amp; Dustproof</td>
<td>B * * *</td>
</tr>
<tr>
<td>ATEX Explosion proof, Intrinsically Safe &amp; Non-incendive</td>
<td>C * * *</td>
</tr>
<tr>
<td>IECEx Explosion proof, Intrinsically Safe &amp; Non-incendive</td>
<td>D * * *</td>
</tr>
<tr>
<td>NEPSI Explosion proof, Intrinsically Safe &amp; Non-incendive</td>
<td>G * * *</td>
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</table>

TABLE IV

<table>
<thead>
<tr>
<th>TRANSMITTER ELECTRONICS SELECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Electronic Housing Material &amp; Connection Type</td>
</tr>
<tr>
<td>Polyester Painted Aluminum</td>
</tr>
<tr>
<td>1/2 NPT</td>
</tr>
<tr>
<td>A _ _</td>
</tr>
<tr>
<td>b. Output/Protocol</td>
</tr>
<tr>
<td>4-20mA dc</td>
</tr>
<tr>
<td>HART Protocol</td>
</tr>
<tr>
<td><em>H</em> _ _</td>
</tr>
<tr>
<td>c. Customer Interface Selections</td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>_ _ _</td>
</tr>
<tr>
<td>d. Languages</td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>_ _ _</td>
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</table>

TABLE V

<table>
<thead>
<tr>
<th>CONFIGURATION SELECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Application Software</td>
</tr>
<tr>
<td>Standard Diagnostics</td>
</tr>
<tr>
<td>b. Output Limit, Failsafe &amp; Write Protect Settings</td>
</tr>
<tr>
<td>Disabled</td>
</tr>
<tr>
<td>Disabled</td>
</tr>
<tr>
<td>Enabled</td>
</tr>
<tr>
<td>Enabled</td>
</tr>
<tr>
<td>Enabled</td>
</tr>
<tr>
<td>Disabled</td>
</tr>
<tr>
<td>b. Output Limit, Failsafe &amp; Write Protect Settings</td>
</tr>
<tr>
<td>Disabled</td>
</tr>
<tr>
<td>Enabled</td>
</tr>
<tr>
<td>Enabled</td>
</tr>
<tr>
<td>Enabled</td>
</tr>
<tr>
<td>Disabled</td>
</tr>
<tr>
<td>c. General Configuration</td>
</tr>
<tr>
<td>Factory Standard</td>
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</table>

* Left side/Right side as viewed from the customer connection perspective

Indicates options with best standard delivery
### TABLE VI
#### CALIBRATION & ACCURACY SELECTIONS

<table>
<thead>
<tr>
<th>Accuracy and Calibration</th>
<th>Accuracy</th>
<th>Calibrated Range</th>
<th>Calibration Qty</th>
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<tbody>
<tr>
<td>Standard</td>
<td>Factory Std</td>
<td>Single Calibration</td>
<td>A</td>
</tr>
<tr>
<td>Standard</td>
<td>Custom (Unit Data Required)</td>
<td>Single Calibration</td>
<td>B</td>
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### TABLE VII
#### ACCESSORY SELECTIONS

<table>
<thead>
<tr>
<th>Bracket Type</th>
<th>Material</th>
<th>Selection(s)</th>
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<tbody>
<tr>
<td>None</td>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Angle Bracket</td>
<td>Carbon Steel</td>
<td>1</td>
</tr>
<tr>
<td>Angle Bracket</td>
<td>304 SS</td>
<td>2</td>
</tr>
<tr>
<td>Marine Approved Angle Bracket</td>
<td>304 SS</td>
<td>4</td>
</tr>
<tr>
<td>Flat Bracket</td>
<td>Carbon Steel</td>
<td>5</td>
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<tr>
<td>Flat Bracket</td>
<td>304 SS</td>
<td>6</td>
</tr>
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### TABLE VIII
#### OTHER Certifications & Options

<table>
<thead>
<tr>
<th>Certifications &amp; Warranty</th>
<th>Selection(s)</th>
</tr>
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<tbody>
<tr>
<td>NACE MR0175: MR0103; ISO15156 (FC33338) Process wetted parts only</td>
<td>FG c c c</td>
</tr>
<tr>
<td>NACE MR0175: MR0103; ISO15156 (FC33339) Process wetted and non-wetted parts</td>
<td>F7 c c c</td>
</tr>
<tr>
<td>Marine (DNV, ABS, BV, KR, LR) (FC33340)</td>
<td>MT d d d</td>
</tr>
<tr>
<td>EN10204 Type 3.1 Material Traceability (FC33341)</td>
<td>FX</td>
</tr>
<tr>
<td>Certificate of Conformance (F3391)</td>
<td>F3</td>
</tr>
<tr>
<td>Calibration Test Report &amp; Certificate of Conformance (F3399)</td>
<td>F1</td>
</tr>
<tr>
<td>Certificate of Origin (F0195)</td>
<td>F5</td>
</tr>
<tr>
<td>FMEDA (SIL 2/3) Certification (FC33337)</td>
<td>FE j j j</td>
</tr>
<tr>
<td>Over-Pressure Leak Test Certificate (1.5X MAWP) (F3392)</td>
<td>TP</td>
</tr>
<tr>
<td>Cert Clean for O2 or CL2 service per ASTM G93</td>
<td>OX e e e</td>
</tr>
</tbody>
</table>

### TABLE IX
#### Manufacturing Specials

<table>
<thead>
<tr>
<th>Factory Identification</th>
<th>Selection(s)</th>
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</table>

Indicates options with best standard delivery
Sales and Service
For application assistance, current specifications, pricing, or name of the nearest Authorized Distributor, contact one of the offices below.

**ASIA PACIFIC**
(TAC)
hfs-tac-support@honeywell.com

Australia
Honeywell Limited
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FAX: +(61) 7-3840 6481
Toll Free 1300-36-39-36
Toll Free Fax: 1300-36-04-70

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

Singapore
Honeywell Pte Ltd.
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Fax: +(65) 6445-3033

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Honeywell Korea Co Ltd
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FAX: +44 (0) 1344 655554
Email: (Sales)
sc-cp-apps-salespa62@honeywell.com
or
(TAC)
hfs-tac-support@honeywell.com

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ask-ssc@honeywell.com
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hfs-tac-support@honeywell.com

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Honeywell do Brasil & Cia
Phone: +(55-11) 7266-1900
FAX: +(55-11) 7266-1905

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 www.honeywellprocess.com or contact your Honeywell account manager.

Specifications are subject to change without notice.

Honeywell Process Solutions
1860 West Rose Garden Lane
Phoenix, Arizona 85027
Tel: 1-800-423-9883 or 1-800-343-0228
www.honeywellprocess.com