SmartLine

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Technical Information

# STD800 SmartLine Differential Pressure Specification 34-ST-03-82

## Introduction

Part of the SmartLine® family of products, the STD800 is a high performance differential pressure transmitter featuring piezoresistive sensor technology. By combining differential pressure sensing with on chip static pressure and temperature compensation the STD800 offers high accuracy and stability 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 0.035% standard & 0.025% Opt
- Stability up to 0.01% of URL per year for ten years
- Automatic static pressure & temperature compensation
- Rangeability up to 400:1
- Response times as fast as 90ms
- Multiple local display capabilities
- External zero, span, & configuration capability
- Polarity insensitive electrical connections
- Comprehensive on-board diagnostic capabilities
- Integral Dual Seal design for highest safety based on ANSI/NFPA 70-202 and ANSI/ISA 12.27.0
- World class overpressure protection
- Full compliance to SIL 2/3 requirements.
- Modular design characteristics
- Available with 15 year warranty
- Plugged Impulse Line Detection Option
- Dual/Triple Calibration Option (HART & Fieldbus Only)

**Figure 1 – STD800 Differential Pressure Transmitters feature field-proven piezoresistive sensor technology**

**Communications/Output Options:**

- 4-20mA dc
- Honeywell Digitally Enhanced (DE)
- HART ® (version 7.0)
- FOUNDATION™ Fieldbus

All transmitters are available with the above listed communications protocols.

**Span & Range Limits:**

| Model | URL "$H_2O$ (mbar) | LRL "$H_2O$ (mbar) | Max Span "$H_2O$ (mbar) | Min Span "$H_2O$ (mbar) |
|---|---|---|---|---|
| STD810 | 10 (25) | -10 (-25) | 10 (25) | 0.1 (0.25) |
| STD820 | 400 (1000) | -400 (-1000) | 400 (1000) | 1.0 (2.5) |
| **Model** | **psi (bar)** | **psi (bar)** | **psi (bar)** | **psi (bar)** |
| STD830 | 100 (7.0) | -100 (-7.0) | 100 (7.0) | 1 (0.07) |
| STD870 | 3000 (210) | -100 (-7.0) | 3000 (210) | 30 (2.1) |

## Description

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

## Unique Indication/Display Options

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

### Basic Alphanumeric LCD Display Features

- Modular (may be added or removed in the field)
- 0, 90,180, & 270 degree position adjustments
- Configurable (HART only) and standard (Pa, KPa, MPa, KGcm2, Torr, ATM, in$H_2O$, m$H_2O$, bar, mbar, in$H_2O$, inHG, FT$H_2O$, mm$H_2O$, mm HG, & psi) measurement units
- 2 Lines 16 Characters (4.13H x 1.83W mm)
- Square root output indication (√)

### Advanced Graphics LCD Display Features

- Modular (may be added or removed in the field)
- 0, 90, 180, & 270 degree position adjustments
- Standard and custom measurement units available.
- Up to eight display screens with 3 formats are possible

  (Large PV with Bar Graph or PV with Trend Graph)
- Configurable screen rotation timing (1 to 30 sec)
- Display Square Root capabilities may be set separately from the 4-20mA dc output signal
- Unique “Health Watch” indication provides instant visibility of diagnostics
- Multiple language capability. (EN, DE, FR, IT, ES, RU, TR, CN & JP)

## Diagnostics

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

## Configuration Tools

### Integral Three Button Configuration Option

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

### Hand Held Configuration

SmartLine transmitters feature two-way communication and configuration capability between the operator and the transmitter. This is accomplished via Honeywell’s field-rated Multiple Communication Configurator (MCT404).
The MCT404 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.
  - Transmitter messaging
  - Maintenance mode indication
  - Tamper reporting
  - FDM Plant Area Views with Health summaries
  - All ST 800 units are Experion tested to provide the highest level of compatibility assurance

## Modular Design

To help contain maintenance & inventory costs, all ST 800 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 indicators*
- Add or remove lightning protection (terminal connection)*

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

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

### Plugged Impulse Line Detection:

STD800 models are offered with a PILD option which provides indication of a plugged impulse line or process connection. When used in conjunction with a basic or advanced display, a non-critical diagnostic indication appears on the integral display. For units without an integral display, an indication can be seen via the host or hand held device when HART Protocol is utilized.

### Dual/Triple Calibration:

STD800 models are optionally offered with multiple calibrations. In lieu of a standard factory calibration, units can be supplied with 1, 2, or 3 customer specified calibrations. These calibrations are stored in the meter body and provide users with factory calibrated performance at up to three different calibrated ranges. This increases application flexibility without requiring any costly recalibration or additional inventory.

## Performance Specifications

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

**Table 1**

| Model | URL | LRL | Min Span | Maximum Turndown Ratio | Stability (% URL/ Yr for ten years) | Reference Accuracy[1,2] (% Span) Std/Opt |
|---|---|---|---|---|---|---|
| STD810 | 10 in $H_2O$/25mbar | -10 in $H_2O$/-25mbar | 0.1 in $H_2O$/0.25mbar | 100:1 | 0.015 | 0.0350% |
| STD820 | 400 in $H_2O$/1000mbar | -400 in $H_2O$/-1000mbar | 1 in $H_2O$/2.5mbar | 400:1 | 0.010 | 0.0375 / 0.025% |
| STD830 | 100 psi/7.0 bar | -100 psi/-7.0 bar | 1 psi/0.07 bar | 100:1 | 0.025 | 0.05 / 0.0325% |
| STD870 | 3000 psi/210 bar | -100 psi/-7.0 bar | 30 psi/2.1 bar | 100:1 | 0.010 | 0.05 / 0.035% |

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

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

TABLE II

| | | | Accuracy[1,2] (% of Span) | | | | Temperature Effect (%Span/50°F) | | Static Line Pressure Effect (% Span/1000psi)[3] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Model | URL | For Spans Below | A | B | C | D | E | F | G |
| Standard Accuracy | STD810 | 10 in $H_2O$/25mbar | 10:1 | 0.010 | 0.025 | 1 / 2.5 | 0.070 | 0.040 | 0.050 | 0.075 |
| | STD820 | 400 in $H_2O$/1000mbar | 16:1 | 0.0125 | 0.025 | 25 / 62.5 | 0.025 | 0.007 | 0.080 | 0.007 |
| | Model | URL | For Spans Below | A | B | C | D | E | F | G |
| | STD830 | 100 psi/7.0 bar | 6.7:1 | 0.0125 | 0.0375 | 15 / 1.03 | 0.025 | 0.010 | 0.075 | 0.0075 |
| | STD870 | 3000 psi/210 bar | 15:1 | | | 200 / 14 | | 0.006 | | |
| *High Accuracy Option* | Model | URL | For Spans Below | A | B | C | D | E | F | G |
| | *STD820* | 400 in $H_2O$/996.4mbar | *16:1* | *0.0125* | *0.0125* | *25 / 62.5* | *0.025* | *0.007* | *0.080* | *0.007* |
| | Model | URL | For Spans Below | A | B | C | D | E | F | G |
| | *STD830* | 100 psi/7 bar | *6.7:1* | *0.0125* | *0.020* | *15 / 1.03* | 0.025 | *0.010* | *0.075* | *0.0075* |
| | *STD870* | 3000 psi/206.8 bar | *15:1* | *0.0150* | *0.020* | *200 / 14* | | *0.006* | | |
| | | | Turn Down Effect $\pm\left[A + B\left(\frac{C}{Span}\right)\right]$ % Span | | | | Temp Effect $\pm\left[D + E\left(\frac{URL}{Span}\right)\right]$ % Span per 28°C (50°F) | | Static Effect $\pm\left[F + G\left(\frac{URL}{Span}\right)\right]$ % Span per 1000 psi | |

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

**Standard Accuracy Total Performance Examples:** (5:1 Turndown, up to 50 °F shift & up to 1000 psi Static Pressure[3])

| Model | Total Performance | Model | Total Performance |
|---|---|---|---|
| **STD810 @ 2"$H_2O$** | 0.50% of span | **STD830 @ 20 psi** | 0.144 % of span |
| **STD820 @ 80" $H_2O$** | 0.135% of span | **STD870 @ 600 psi** | 0.135 % of span |

**Typical Calibration Frequency:** Calibration verification is recommended every four (4) years

**Notes:**

1. Terminal Based Accuracy - Includes combined effects of linearity, hysteresis, and repeatability. Analog output adds 0 .005% of span.
2. For zero based spans and reference conditions of: 25 °C (77°F), 0 psig static pressure, 10 to 55% RH, and 316 Stainless Steel barrier diaphragm.
3. STD810 Includes only zero shift with static pressure. Results are % of span/25 psig

## 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] STD800 | 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**[2] STD810, 820, 830, 870 | 25±1 | 77±2 | -40 to 110[1] | -40 to 230[1] | -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** All Models Except STD810<br>**mmHg absolute**<br>**inH$_2$O absolute** | Atmospheric<br>Atmospheric | | 25<br>13 | | 2 (short term ) [3]<br>1 (short term ) [3] | | | |
| **Supply Voltage**<br>**Load Resistance** | 10.8 to 42.4 Vdc at terminals (IS versions limited to 30 Vdc)<br>0 to 1,440 ohms (as shown in Figure 2) | | | | | | | |
| **Maximum Allowable Working Pressure (MAWP)**[4,5]<br>(ST 800 products are rated to Maximum Allowable Working Pressure. MAWP depends on Approval Agency and transmitter materials of construction.) | **Standard:**<br>STD810 = 50 psi, 3.45 bar<br>STD820, STD830 and STD870 = 4,500 psi, 310.2 bar<br>**Optional:**<br>STD820, STD830, STD870 = 6,000 psi, 420 bar<br>Static Pressure Limit = Maximum Allowable Working Pressure (MAWP) = Overpressure Limit for ST 800 Differential Pressure Transmitters | | | | | | | |

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

[2] Silicone 704 minimum temperature rating is 0ºC (32ºF). NEOBEE M-20 minimum temperature rating is -15ºC (5ºF). NEOBEE® is a registered trademark of Stepan Company

[3] 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 except STD810. 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 800 transmitters with CRN approval.

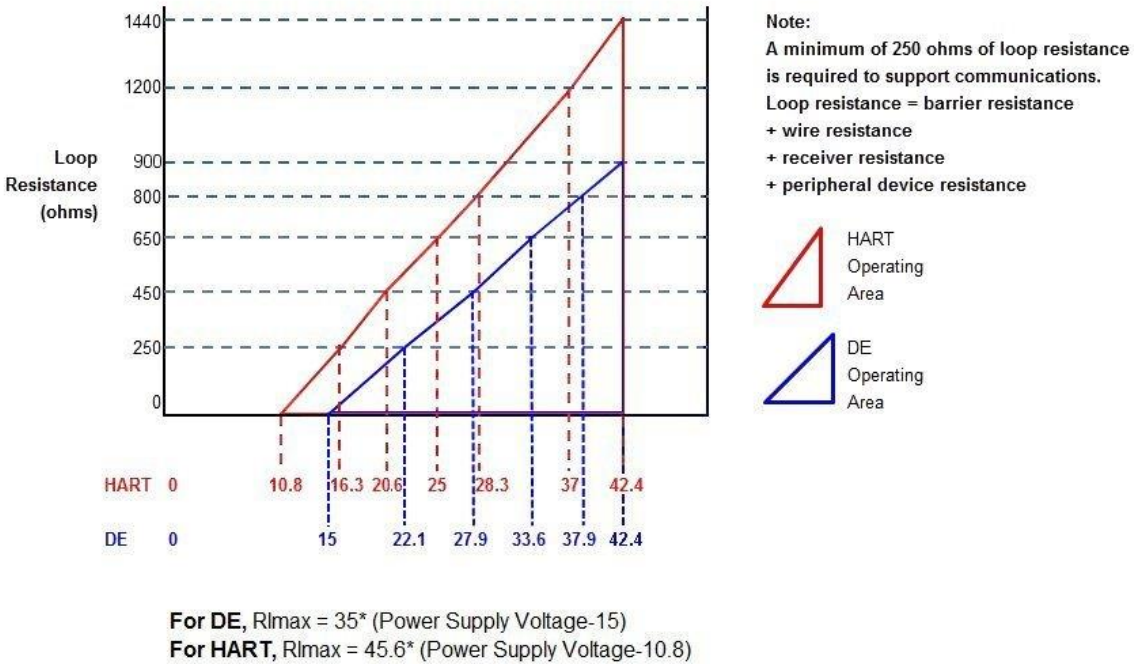



**Figure 2 - Supply voltage and loop resistance chart & calculations**

## Performance Under Rated Conditions – All Models

| Parameter | Description |
|---|---|
| **Analog Output**<br>**Digital Communications**: | Two-wire, 4 to 20 mA (HART & DE Transmitters only)<br>Honeywell DE, HART 7 protocol or FOUNDATION Fieldbus ITK 6.0.1 compliant<br>All transmitters, irrespective of protocol have polarity insensitive connection. |
| **HART & DE Output Failure Modes**<br>(NAMUR for DE Units requires selecting display and configuration buttons or factory configuration) | **Honeywell Standard:** / **NAMUR NE 43 Compliance**:<br>**Normal Limits:** 3.8 – 20.8 mA / 3.8 – 20.5 mA<br>**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**<br>**(includes power up & test algorithms)** | HART or DE: 2.5 sec. Foundation Fieldbus: Host dependant |
| **Response Time**<br>(delay + time constant) | **DE/HART Analog Output**: 90mS<br>**FOUNDATION Fieldbus**: 150mS (Host Dependant) |
| **Damping Time Constant** | **HART:** Adjustable from 0 to 32 seconds in 0.1 increments. **Default:** 0.50 seconds<br>**DE:** Discrete values 0, .16, .32, .48, 1, 2, 4, 8, 16, 32 seconds. **Default:** 0.48 seconds |
| **Vibration Effect**<br>**ST 820, ST 830, ST 870** | Less than +/- 0.1% of URL w/o damping<br>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<br>**Impulse rating:** 8/20uS 5000A (>10 strikes) 10000A (1 strike min.)<br>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], Monel® 400[3], Tantalum, Gold-plated 316L SS, Gold-plated Hastelloy® C-276, Gold-plated Monel® 400 |
| **Process Head Material** | 316 SS[4], Carbon Steel (Zinc-plated)[5]<br>316 SS[4], Carbon Steel (Zinc-plated)[5], Hastelloy C-276[6], Monel 400[7] |
| **Vent/Drain Valves & Plugs [1]** | 316 SS[4], Hastelloy C-276[2], Monel 400[7] |
| **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 seal material is glass-filled PTFE. Viton and graphite are optional. |
| **Mounting Bracket** | Carbon Steel (Zinc-plated) or 304 Stainless Steel or 316 Stainless Steel |
| **Fill Fluid** | Silicone Oil 200, Silicone Oil 704, Inert Fluorinated Oil CTFE and NEOBEE® M-20<br>(Note that STD810 is only available with Silicone Oil 200 and NEOBEE® M-20) |
| **Electronic Housing** | Pure Polyester Powder Coated Low Copper (<0.4%)-Aluminum. Meets NEMA 4X, IP66, & P67. 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 |

[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

[7] Monel 400 or UNS N04400. Supplied as indicated or as Grade M30C, the casting equivalent of Monel 400

## Communications Protocols & Diagnostics

### HART Protocol

**Version:**

HART 7

**Power Supply**

Voltage: 10.8 to 42.4Vdc at terminals

Load: Maximum 1440 ohms See figure 2

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

### Foundation Fieldbus (FF)

**Power Supply Requirements**

Voltage: 9.0 to 32.0Vdc at terminals

Steady State Current: 17.6mAdc

Software Download Current: 27.4mAdc

**Available Function Blocks**

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

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

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

**Link Active Scheduler**

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

**Number of Devices/Segment**

Entity IS model: 6 devices/segment

**Schedule Entries**

18 maximum schedule entries

**Number of VCR's:** 24 max

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

**Software Download**

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

### Honeywell Digitally Enhanced (DE)

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

**Power Supply**

Voltage: 10.8 to 42.4Vdc at terminals

Load: Maximum 1440 ohms See figure 2

### Standard Diagnostics

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

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

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

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

### Other Certification Options

**Materials**

- NACE MRO175, MRO103, ISO15156

## Approval Certifications:

| AGENCY | TYPE OF PROTECTION | COMM. OPTION | FIELD PARAMETERS | AMBIENT TEMP (Ta) |
|---|---|---|---|---|
| FM Approvals™ | **Explosionproof:**<br>Class I, Division 1, Groups A, B, C, D;<br>**Dust Ignition Proof:**<br>Class II, III, Division 1, Groups E, F, G;<br><br>Class I, Zone 0/1, AEx d IIC Ga/Gb<br>Class II, Zone 21, AEx tb IIIC Db T 95°C | All | Note 1 | T5: -50 °C to 85°C<br>T6: -50 °C to 65°C |
| | **Intrinsically Safe:**<br>Class I, II, III, Division 1, Groups A, B, C, D, E, F, G: T4<br><br>Class I, Zone 0, AEx ia IIC Ga T4<br><br>FISCO Field Device (Only for FF Option)<br>Ex ia IIC T4 | 4-20 mA / DE/ HART | Note 2a | -50 °C to 70°C |
| | | Foundation Fieldbus | Note 2b | -50 °C to 70°C |
| | **Nonincendive:**<br>Class I, Division 2, Groups A, B, C, D locations,<br><br>Class I, Zone 2, AEx nA IIC Gc T4 | 4-20 mA / DE/ HART/ Foundation Fieldbus | Note 1 | -50 °C to 85°C |
| | **Enclosure:** Type 4X/ IP66/ IP67 | All | All | - |
| Canadian Standards Association (CSA) | **Explosion Proof:**<br>Class I, Division 1, Groups A, B, C, D;<br>**Dust Ignition Proof:**<br>Class II, III, Division 1, Groups E, F, G;<br><br>Ex d IIC Ga<br>Ex tb IIIC Db T 95°C | All | Note 1 | T5: -50 °C to 85°C<br>T6: -50 °C to 65°C |
| | **Intrinsically Safe:**<br>Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4<br><br>Ex ia IIC Ga T4<br><br>FISCO Field Device (Only for FF Option)<br>Ex ia IIC T4 | 4-20 mA / DE/ HART | Note 2a | -50 °C to 70°C |
| | | Foundation Fieldbus | Note 2b | -50 °C to 70°C |
| | **Nonincendive:**<br>Class I, Division 2, Groups A, B, C, D; T4<br><br>Ex nA IIC Gc T4 | 4-20 mA / DE/ HART/ Foundation Fieldbus | Note 1 | -50 °C to 85°C |
| | **Enclosure:** Type 4X/ IP66/ IP67 | All | All | - |

**Approval Certifications: (Continued)**

| | | | | |
|---|---|---|---|---|
| **ATEX** | **Flameproof:**<br>II 1/2 G Ex d IIC Ga/Gb 5<br>II 2 D Ex tb IIIC Db T 95ºC | All | Note 1 | T5: -50 ºC to 85ºC<br>T6: -50 ºC to 65ºC |
| | **Intrinsically Safe:**<br>II 1 G Ex ia IIC Ga T4 | 4-20 mA / DE/ HART | Note 2a | -50 ºC to 70ºC |
| | FISCO Field Device (Only for FF Option)<br>Ex ia IIC T4 | Foundation Fieldbus | Note 2b | -50 ºC to 70ºC |
| | **Nonincendive:**<br>II 3 G Ex nA IIC Gc T4 | 4-20 mA / DE/ HART/ Foundation Fieldbus | Note 1 | -50 ºC to 85ºC |
| | **Enclosure:** IP66/ IP67 | All | All | - |
| **IECEx (World)** | **Flameproof :**<br>Ex d IIC Ga/Gb<br>Ex tb IIIC Db T 95ºC | All | Note 1 | T5: -50 ºC to 85ºC<br>T6: -50 ºC to 65ºC |
| | **Intrinsically Safe:**<br>Ex ia IIC Ga T4 | 4-20 mA / DE/ HART | Note 2a | -50 ºC to 70ºC |
| | FISCO Field Device (Only for FF Option)<br>Ex ia IIC T4 | Foundation Fieldbus | Note 2b | -50 ºC to 70ºC |
| | **Nonincendive:**<br>Ex nA IIC Gc T4 | 4-20 mA / DE/ HART/ Foundation Fieldbus | Note 1 | -50 ºC to 85ºC |
| | **Enclosure:** IP66/ IP67 | All | All | - |
| **SAEx (South Africa)** | **Flameproof :**<br>Ex d IIC Ga/Gb T4<br>Ex tb IIIC Db T 95ºC | All | Note 1 | -50 ºC to 85ºC |
| | **Intrinsically Safe:**<br>Ex ia IIC Ga T4 | 4-20 mA / DE/ HART | Note 2a | -50 ºC to 70ºC |
| | FISCO Field Device (Only for FF Option)<br>Ex ia IIC T4 | Foundation Fieldbus | Note 2b | -50 ºC to 70ºC |
| | **Nonincendive:**<br>Ex nA IIC Gc T4 | 4-20 mA / DE/ HART/ Foundation Fieldbus | Note 1 | -50 ºC to 85ºC |
| | **Enclosure:** IP66/ IP67 | All | All | - |
| **INMETRO (Brazil)** | **Flameproof:**<br>Ex d IIC Ga/ Gb T4<br>Ex tb IIIC Db T 95ºC | All | Note 1 | -50 ºC to 85ºC |
| | **Intrinsically Safe:**<br>Ex ia IIC Ga T4 | 4-20 mA / DE/ HART | Note 2a | –50 to 70ºC |
| | FISCO Field Device (Only for FF Option)<br>Ex ia IIC T4 | Foundation Fieldbus | Note 2b | –50 to 70ºC |
| | **Nonincendive:**<br>Ex nA IIC Gc T4 | 4-20 mA / DE/ HART/ Foundation Fieldbus | Note 1 | -50 ºC to 85ºC |
| | **Enclosure** : IP 66/67 | All | All | - |

## Approval Certifications: (Continued)

| | | | | |
|---|---|---|---|---|
| **NEPSI (China)** | **Flameproof:**<br>Ex d IIC Ga/Gb T4<br>Ex tb IIIC Db T 85°C | All | Note 1 | -50 °C to 85°C |
| | **Intrinsically Safe:**<br>Ex ia IIC Ga T4 | 4-20 mA / DE/ HART | Note 2a | -50 °C to 70°C |
| | FISCO Field Device (Only for FF Option)<br>Ex ia IIC T4 | Foundation Fieldbus | Note 2b | -50 °C to 70°C |
| | **Nonincendive:**<br>Ex nA IIC Gc T4 | 4-20 mA / DE/ HART/ Foundation Fieldbus | Note 1 | -50 °C to 85°C |
| | **Enclosure** : IP 66/67 | All | All | - |
| **GOST** | **Flameproof:**<br>1 Ex d IIC Ga/Gb T4<br>Ex tb IIIC Db T 85°C | All | Note 1 | -50 °C to 85°C |
| | **Intrinsically Safe:**<br>0 Ex ia IIC Ga T4 | 4-20 mA / DE/ HART | Note 2a | -50 °C to 70°C |
| | FISCO Field Device (Only for FF Option)<br>Ex ia IIC T4 | Foundation Fieldbus | Note 2b | -50 °C to 70°C |
| | **Enclosure** : IP 66/67 | All | All | |

Notes:

1. Operating Parameters:
   Voltage= 11 to 42 V DC Current= 4-20 mA Normal
   = 10 to 30 V (FF) = 30 mA (FF)
2. Intrinsically Safe Entity Parameters
   a. Analog/ DE/ HART Entity Values:
   Vmax= Ui = 30V Imax= 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.

   b. Foundation Fieldbus- Entity Values
   Vmax= Ui = 30V Imax= Ii= 180mA Ci = 0nF Li = 984 uH Pi =1W

   Transmitter with Terminal Block Revision F or Later )
   Vmax= Ui = 30V Imax= Ii= 225mA Ci =0nF Li = 0 Pi =1 W

   FISCO Field Device Imax= Ii= 380 mA Ci = 0nF Li = 0 Pi =5.32 W
   Vmax= Ui = 17.5V
   Note : Transmitter with Terminal Block Revision F or later
   The revision is on the label that is on the module. There will be two lines of text on the label:
   - First is the Module Part #: 50049839-003 or 50049839-004
   - Second line has the supplier information, along with the REVISION:

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

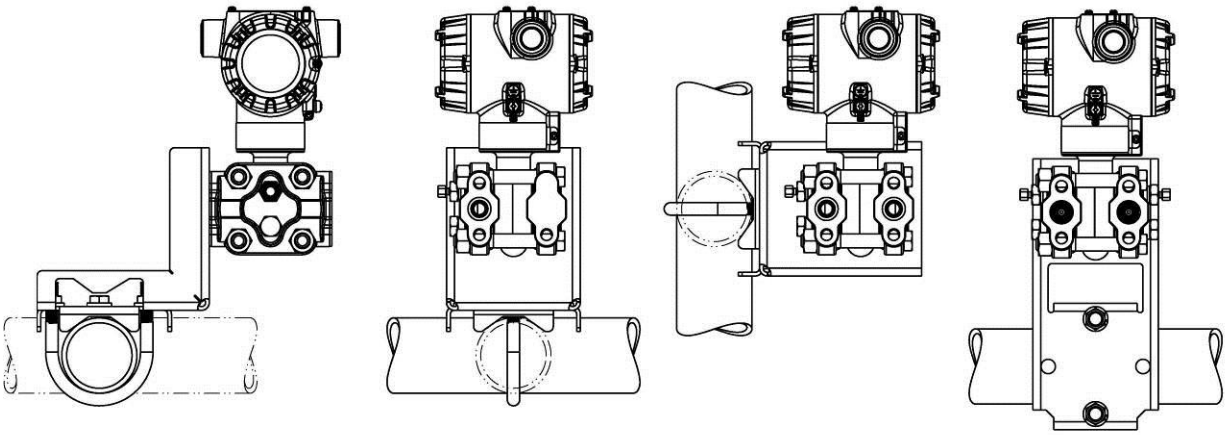
## Approval Certifications: (Continued)

<table>
<tr><td rowspan="6">Marine Certificates</td><td>This certificate defines the certifications covered for the ST 800 Pressure Transmitter family of products, including the SMV 800 Smart Multivariable Transmitter. It represents the compilation of the five certificates Honeywell currently has covering the certification of these products into marine applications.<br><br>For ST 800 Smart Pressure Transmitter and SMV800 Smart Multivarible Transmitter</td></tr>
<tr><td>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</td></tr>
<tr><td>Bureau Veritas (BV) - Product Code: 389:1H. Certificate number: 12660/B0 BV</td></tr>
<tr><td>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</td></tr>
<tr><td>Korean Register of Shipping (KR) - Certificate number: LOX17743-AE001</td></tr>
<tr><td>Lloyd's Register (LR) - Certificate number: 02/60001(E1) & (E2)</td></tr>
<tr><td>SIL 2/3 Certification</td><td>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.</td></tr>
<tr><td>MEASUREMENT INTRUMENTS DIRECTIVE (MID) 2004/ 22/ EC</td><td>Certificate Issued by NMI Certin B.V.<br>Mechanical Class: M3 Electromagnetic Environment: E3<br>Ambient Temperature Range: -25 °C to + 55 °C<br><br>
<table>
<tr><th>Unit</th><th>Custom Calibration</th></tr>
<tr><td>STD820</td><td>0 to 1000 mBar</td></tr>
<tr><td>STD830</td><td>0 to 7 Bar</td></tr>
<tr><td>STA84L</td><td>0 to 35 Bar A</td></tr>
<tr><td>STG84L</td><td>0 to 35 Bar</td></tr>
<tr><td>STD870</td><td>0 to 100 Bar</td></tr>
<tr><td>STA87L</td><td>0 to 100 Bar A</td></tr>
<tr><td>STG87L</td><td>0 to 100 Bar</td></tr>
</table>
</td></tr>
</table>

## Mounting & Dimensional Drawings

**Reference Dimensions:** millimeters / inches

### Mounting Configurations



### Dimensions

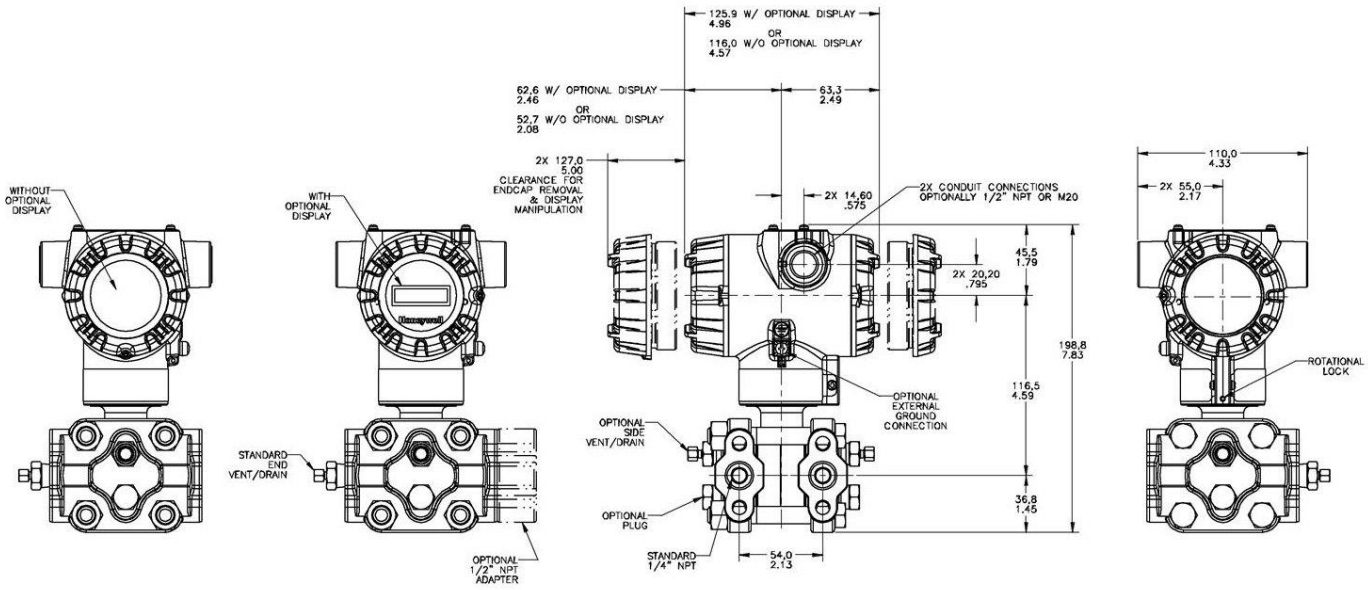



**Figure 4** – Typical mounting dimensions of STD810, STD820, STD830 & STD870 for reference

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 STD800
# Differential Pressure Transmitter

Model Selection Guide:
34-ST-16-82 Issue 17

**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.

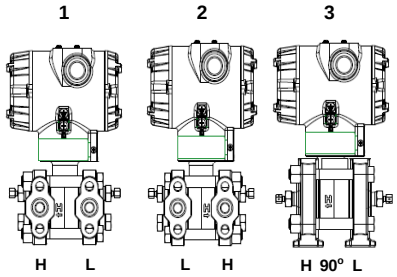
Key STD ___ - I _____ - II _ - III _ - IV ___ - V ___ - VI _ - VII ____ - VIII __.__.__ - IX 0000

| KEY NUMBER | URL | LRL | Max Span | Min Span | Units |
|---|---|---|---|---|---|
| Measurement Range | 10 (25.0) | -10 (-25.0) | 10 (25) | 0.1 (0.25) | " $H_2O$ (mbar) |
| | 400/(1000) | -400/(-1000) | 400/(1000) | 1.0 (2.5) | " $H_2O$ (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 | | | |
|---|---|---|---|---|
| STD810 | ↓ | | | |
| STD820 | | ↓ | | |
| STD830 | | | ↓ | |
| STD870 | | | | ↓ |

| TABLE I | METER BODY SELECTIONS | | | | Selection | Availability | | | |
|---|---|---|---|---|---|---|---|---|---|
| a. Process Wetted Heads & Diaphragm Materials | Process Head Material | Diaphragm Material | | | | | | | |
| | Plated Carbon Steel | 316L Stainless Steel | | | A_____ | * | * | * | * |
| | | Hastelloy® C-276 | | | B_____ | | * | * | * |
| | | Monel® 400 | | | C_____ | | * | * | * |
| | | Tantalum | | | D_____ | | a | a | a |
| | | Gold Plated Stainless Steel | | | 1_____ | * | * | * | * |
| | | Gold Plated Hastelloy C-276 | | | 2_____ | | * | * | * |
| | | Gold Plated Monel 400 | | | 3_____ | | * | * | * |
| | 316 Stainless Steel | 316L Stainless Steel | | | E_____ | * | * | * | * |
| | | Hastelloy C-276 | | | F_____ | | * | * | * |
| | | Monel 400 | | | G_____ | | * | * | * |
| | | Tantalum | | | H_____ | | a | a | a |
| | | Gold Plated Stainless Steel | | | 4_____ | * | * | * | * |
| | | Gold Plated Hastelloy C-276 | | | 5_____ | | * | * | * |
| | | Gold Plated Monel 400 | | | 6_____ | | * | * | * |
| | Hastelloy C-276 | Hastelloy C-276 | | | J_____ | | * | * | * |
| | | Tantalum | | | K_____ | | a | a | a |
| | | Gold Plated Hastelloy C-276 | | | 7_____ | | * | * | * |
| | Monel 400 | Monel 400 | | | L_____ | | a | a | a |
| | | Gold Plated Monel 400 | | | 8_____ | | a | a | a |
| b. Fill Fluid | Silicone Oil 200 | | | | _1____ | * | * | * | * |
| | Fluorinated Oil CTFE | | | | _2____ | | * | * | * |
| | Silicone Oil 704 | | | | _3____ | | * | * | * |
| | NEOBEE® M-20 | | | | _4____ | * | * | * | * |
| c. Process Connection | None | None (1/4" NPTF female thread Std) | | | __A____ | * | * | * | * |
| | 1/2" NPT female | Materials to Match Head & Head Bolt Materials Selections[1] | | | __H____ | * | * | * | * |
| d. Bolt/Nut Materials | Carbon Steel | | | | ___C___ | * | * | * | * |
| | 316 SS | | | | ___S___ | * | * | * | * |
| | Grade 660 (NACE A286) with NACE 304 SS Nuts | | | | ___N___ | * | * | * | * |
| | Grade 660 (NACE A286) Bolts & Nuts | | | | ___K___ | p | p | p | p |
| | Monel K500 | | | | ___M___ | p | p | p | p |
| | Super Duplex | | | | ___D___ | p | p | p | p |
| | B7M | | | | ___B___ | * | * | * | * |
| e. Vent/Drain Type/Location | Head Type | Vent Type | Location | Vent Material | | | | | |
| | Single Ended | None | None | None | ____1__ | * | * | * | * |
| | Single Ended | Standard Vent | Side | Matches Head Material[1] | ____2__ | * | * | * | * |
| | Single Ended | Center Vent | Side | Stainless Steel Only | ____3__ | t | t | t | t |
| | Dual Ended | Standard Vent | End | Matches Head Material[1] | ____4__ | * | * | * | * |
| | Dual Ended | Center Vent | End | Stainless Steel Only | ____5__ | t | t | t | t |
| | Dual Ended | Std Vent/Plug | Side/End | Matches Head Material[1] | ____6__ | * | * | * | * |
| f. Gasket Material | Teflon® or PTFE (Glass Filled) | | | | _____A_ | * | * | * | * |
| | Viton® or Fluorocarbon Elastomer | | | | _____B_ | * | * | * | * |
| | Graphite | | | | _____C_ | * | * | * | * |
| g. Static Pressure | Standard Static Pressure - 4500 psig (310 bar) except STD810: 50 psi (3.5 bar) | | | | ______S | * | * | * | * |
| | High Pressure 6000 psi (415 bar) | | | | ______H | | k | k | k |

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




| | | | STD870 | STD830 | STD820 | STD810 |
|---|---|---|---|---|---|---|
| **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[0] Head Rotation | 3 | h | 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/CCoE Explosion proof, Intrinsically Safe & Non-incendive | | E | * | * | * | * |
| | INMETRO Explosion proof, Intrinsically Safe & Non-incendive | | F | * | * | * | * |
| | NEPSI Explosion proof, Intrinsically Safe & Non-incendive | | G | * | * | * | * |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **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 _ | * | * | * | * |
| | 4-20mA dc | DE Protocol | | _ D _ | u | u | u | u |
| | none | Foundation Fieldbus | | _ F _ | * | * | * | * |
| | none | Profibus | | _ P _ | | | | |
| **c. Customer Interface Selections** | **Indicator** | **Ext Zero, Span & Config Buttons** | **Languages** | | | | |
| | None | None | None | _ _ 0 | * | * | * | * |
| | None | Yes (Zero/Span Only) | None | _ _ A | f | f | f | f |
| | Basic | None | English | _ _ B | * | * | * | * |
| | Basic | Yes | English | _ _ C | * | * | * | * |
| | Advanced | None | EN, GE, FR, IT, SP, RU, TU | _ _ D | * | * | * | * |
| | Advanced | Yes | EN, GR, FR, IT,SP, RU, TU | _ _ E | * | * | * | * |
| | Advanced | None | EN, CH, JP | _ _ H | * | * | * | * |
| | Advanced | Yes | EN, CH, JP | _ _ J | * | * | * | * |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **TABLE V** | **CONFIGURATION SELECTIONS** | | | | | | |
| **a. Application Software** | **Diagnostics** | | | | | | |
| | Standard Diagnostics | | | 1 _ _ | * | * | * | * |
| | Advanced Diagnostics (Above with Plugged Impulse Detection PILD) | | | 2 _ _ | * | * | * | * |
| **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 _ | f | f | f | f |
| | Disabled | Low< 3.6mAdc | Honeywell Std (3.8 - 20.8 mAdc) | _ 2 _ | f | f | f | f |
| | Enabled | High> 21.0mAdc | Honeywell Std (3.8 - 20.8 mAdc) | _ 3 _ | f | f | f | f |
| | Enabled | Low< 3.6mAdc | Honeywell Std (3.8 - 20.8 mAdc) | _ 4 _ | f | f | f | f |
| | Enabled | N/A | N/A Fieldbus or Profibus | _ 5 _ | g | g | g | g |
| | Disabled | N/A | N/A Fieldbus or Profibus | _ 6 _ | g | g | g | g |
| **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 | | | | STD870 | STD830 | STD820 | STD810 |
|---|---|---|---|---|---|---|---|---|
| | Accuracy | Calibrated Range | Calibration Qty | | | | | |
| a. Accuracy and Calibration | Standard | Factory Std | Single Calibration | A | * | * | * | * |
| | Standard | Custom (Unit Data Required) | Single Calibration | B | * | * | * | * |
| | Standard | Custom (Unit Data Required) | Dual Calibration | C | * | * | * | * |
| | Standard | Custom (Unit Data Required) | Triple Calibration | D | * | * | * | * |
| | High Accuracy | Factory Std | Single Calibration | E | | s | s | s |
| | High Accuracy | Custom (Unit Data Required) | Single Calibration | F | | s | s | s |
| | High Accuracy | Custom (Unit Data Required) | Dual Calibration | G | | s | s | s |
| | High Accuracy | Custom (Unit Data Required) | Triple Calibration | H | | s | s | s |

| 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 | Carbon Steel | 8 _ _ _ | * | * | * | * |
| | 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 _ _ | * | * | * | * |
| | Two Wired Stainless Steel Tag (Up to 4 lines 26 char/line) | | _ 2 _ _ | * | * | * | * |
| c. Unassembled Conduit Plugs & Adapters | Unassembled Conduit Plugs & Adapters | | | | | | |
| | No Conduit Plugs or Adapters Required | | _ _ A0 | * | * | * | * |
| | 1/2 NPT Male to 3/4 NPT Female 316 SS Certified Conduit Adapter | | _ _ A2 | n | n | n | n |
| | 1/2 NPT 316 SS Certified Conduit Plug | | _ _ A6 | n | n | n | n |
| | M20 316 SS Certified Conduit Plug | | _ _ A7 | m | m | m | m |
| | Minifast® 4 pin (1/2 NPT) (not suitable for X-Proof applications) | | _ _ A8 | n | n | n | n |
| | Minifast® 4 pin (M20) (not suitable for X-Proof applications) | | _ _ A9 | m | m | m | m |

| TABLE VIII | OTHER Certifications & Options: (String in sequence comma delimited (XX, XX, XX,....) | | | | | | |
|---|---|---|---|---|---|---|---|
| Certifications & Warranty | None - No additional options | 00 | * | * | * | * | |
| | Low Temperature Rating (-50 deg C min. ambient temperature) | LT | w | w | w | | |
| | NACE MR0175; MR0103; ISO15156 (FC33338) Process wetted parts only | FG | * | * | * | * | b |
| | NACE MR0175; MR0103; ISO15156 (FC33339) Process wetted and non-wetted parts | F7 | c | c | c | c | |
| | Marine (DNV, ABS, BV, KR, LR) | MT | d | d | d | d | |
| | EN10204 Type 3.1 Material Traceability (FC33341) | FX | * | * | * | * | |
| | MID Approved Transmitter - Contact Tech Support for specific MID approved ranges | MD | | v | v | v | |
| | Certificate of Conformance (F3391) | F3 | * | * | * | * | b |
| | Calibration Test Report & Certificate of Conformance (F3399) | F1 | * | * | * | * | |
| | Certificate of Origin (F0195) | F5 | * | * | * | * | |
| | FMEDA (SIL 2/3) Certification (FC33337) | FE | j | j | j | j | |
| | Over-Pressure Leak Test Certificate (1.5X MAWP) (F3392) | TP | * | * | * | * | |
| | Cert Clean for $O_2$ or $CL_2$ service per ASTM G93 | OX | e | e | e | e | |
| | PMI Certification | PM | * | * | * | | |
| | Extended Warranty Additional 1 year | 01 | * | * | * | * | b |
| | Extended Warranty Additional 2 years | 02 | * | * | * | * | |
| | Extended Warranty Additional 3 years | 03 | * | * | * | * | |
| | Extended Warranty Additional 4 years | 04 | * | * | * | * | |
| | Extended Warranty Additional 15 years | 15 | * | * | * | * | |

| TABLE IX | Manufacturing Specials |
|---|---|
| Factory | Factory Identification |

| 0000 | * | * | * | * |
|---|---|---|---|---|

**MODEL RESTRICTIONS**

| Restriction Letter | Available Only with | | Not Available with | |
|---|---|---|---|---|
| | Table | Selection(s) | Table | Selection(s) |
| a | | | VIII | F7, FG |
| k | | | Ia | J,K,7,L,8 _ _ _ _ _ _ |
| | | | Ic | _ _ H _ _ _ _ |
| | | | Id | _ _ _ B,D,M,N,S _ _ _ |
| | | | Ie | _ _ _ _ _ 1, 2, 3, 5, 6 _ _ |
| | | | III | B- No CRN number available |
| | | | If | _ _ _ _ _ C_ |
| c | 1d | _ _ _ N,K,D,B _ _ _ | Ia | D,H,K,L,8 _ _ _ _ _ _ |
| d | IV a | C, D, G, H _ _ | VIIa | 1,2,3,5,6,7 _ _ _ |
| e | Ib | _ 2 _ _ _ _ _ | | |
| f | | | IVb | _ F _ |
| g | | | IVb | _ H, D _ |
| h | | | Ie | _ _ _ _ 4, 5, 6 _ _ |
| | | | VIIa | 1,2,3,4,5,6,7 _ _ _ |
| j | IVb | _ H _ | Vb | _ 1,2,6 _ |
| m | IV a | B, D, F, H _ _ | | |
| n | IV a | A, C, E, G _ _ | | |
| p | | | III | B- No CRN number available |
| t | | | Ia | J, K, 7, L, 8 |
| s | Ia | A,E _ _ _ _ _ _ | | |
| u | | | Va | 2 _ _ |
| | | | VIa | C,D,G,H |
| v | IV a | C, D, G, H _ _ | IVb | _D,F_ |
| w | Ib | _1_ _ _ _ _ | VIII | FE |
| 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.

### ASIA PACIFIC

Honeywell Process Solutions,
(TAC) **hfs-tac-support@honeywell.com**

**Australia**
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*Specifications are subject to change without notice.*

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