

## Technical Information

### STT750 SmartLine Temperature Transmitter Specification 34-TT-03-16, March 2016



#### Introduction

Part of the SmartLine® family of products, the SmartLine STT750 is a high performance temperature transmitter offering high accuracy and stability over a wide range of process and ambient temperatures. SmartLine easily meets the most demanding needs for temperature measurement applications.

#### Best in Class Features:

#### Industry leading performance

- Digital Accuracy up to .14 Deg C for RTD
- Stability up to +/-0.01% of URL per year for ten years
- 125 mSec update time

#### Reliable measurement

- Built in Galvanic Isolation
- Dual Compartment Housing
- Sensor Break detection
- Comprehensive on-board diagnostic capabilities
- Full compliance to SIL 2/3 requirements.
- Available with 3-year warranty
- Supports Namur 89 Wire break
- Direct entry of Callendar-van Dusen coefficients  $R_0$ ,  $\alpha$ ,  $\delta$  and  $\beta$  for calibrated RTD sensors.

#### Lower Cost of Ownership

- Universal input
- Basic digital display capabilities
- Modular construction
- External zero, span, & configuration capability
- Polarity insensitive loop wiring



Figure 1– SmartLine STT750 Temperature transmitter

#### Communications/Output Options:

- 4-20 mA dc
- HART® (version 7.0)

All transmitters are available with the above listed output and communications protocol option.

## Description

The STT750 SmartLine Temperature Transmitter is designed and manufactured to deliver high performance across varying ambient temperature.

## Unique Indication/Display Options

The STT750 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
- Deg C , F, R and Kelvin measurement units
- 2 Lines 16 Characters (4.13H x 1.83W mm)
- Up to 8 display screens with similar formats
- Configurable screen rotation timing (3 to 30 sec)
- Auto/Manual selection for screen rotation
- Displays up to 6 Data-points: Loop PV, CJ Temperature, Sensor, RTD Resistance, Loop output, Percent Loop.
- Out of Range Indication
- PV Status and critical fault indication

## 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 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 Configuration tool.

The Honeywell Handheld MC Toolkit is capable of field configuring 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

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

- All SmartLine products communications protocols meet all of the most current published standards for HART

## Modular Design

To help contain maintenance and inventory costs, all STT750 transmitters are modular in design supporting the user's ability to replace temperature boards, add indicators or change electronic modules without affecting overall performance or approval body certifications.

Each temperature board is uniquely characterized to provide in-tolerance performance over a wide range of application variations in temperature and due to the Honeywell advanced interface, electronic modules may be swapped with any electronics module without losing in-tolerance performance characteristics

### Modular Features

- Replace Temperature/Terminal board/Lightning protection\*
- Replace electronics/comms modules\*
- Add or remove integral indicators\*
- Add or remove external configuration buttons

\* 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>1,3</sup>

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

| Input Type                          | Maximum Range Limits |              | Digital Accuracy (+/-) | Output D/A Accuracy (% of span) | Standards                                      |
|-------------------------------------|----------------------|--------------|------------------------|---------------------------------|--|
| <b>RTD (2,3,4 wire)</b>             | <b>° C</b>           | <b>° F</b>   | <b>° C</b>             | <b>%</b>                        |  |
| Pt25 <sup>5</sup>                   | -200 to 850          | -328 to 1562 | 0.90                   | 0.025                           | IEC751:1990 ( $\alpha=0.00385$ )               |
| Pt100                               | -200 to 850          | -328 to 1562 | 0.14                   | 0.025                           | IEC751:1990 ( $\alpha=0.00385$ )               |
| Pt200                               | -200 to 850          | -328 to 1562 | 0.28                   | 0.025                           | IEC751:1990 ( $\alpha=0.00385$ )               |
| Pt500                               | -200 to 850          | -328 to 1562 | 0.17                   | 0.025                           | IEC751:1990 ( $\alpha=0.00385$ )               |
| Pt1000                              | -200 to 500          | -328 to 932  | 0.14                   | 0.025                           | IEC751:1990 ( $\alpha=0.00385$ )               |
| Ni120                               | -80 to 260           | -112 to 500  | 0.12                   | 0.025                           | Edison Curve #7 ( $\alpha=0.00672$ )           |
| Cu10                                | -50 to 250           | -58 to 482   | 1.40                   | 0.025                           | Edison Copper Winding #15 ( $\alpha=0.00427$ ) |
| <b>Thermocouples</b>                | <b>° C</b>           | <b>° F</b>   | <b>° C</b>             | <b>%</b>                        |  |
| B                                   | 200 to 1820          | 392 to 3308  | 1.20                   | 0.025                           | IEC 584-1 (ITS-90)                             |
| E                                   | -200 to 1000         | -328 to 1832 | 0.40                   | 0.025                           | IEC 584-1 (ITS-90)                             |
| J                                   | -200 to 1200         | -328 to 2192 | 0.50                   | 0.025                           | IEC 584-1 (ITS-90)                             |
| K                                   | -200 to 1370         | -328 to 2498 | 0.50                   | 0.025                           | IEC 584-1 (ITS-90)                             |
| N                                   | -200 to 1300         | -328 to 2372 | 0.80                   | 0.025                           | IEC 584-1 (ITS-90)                             |
| R                                   | -50 to 1760          | -58 to 3200  | 1.00                   | 0.025                           | IEC 584-1 (ITS-90)                             |
| S                                   | -50 to 1760          | -58 to 3200  | 1.00                   | 0.025                           | IEC 584-1 (ITS-90)                             |
| T                                   | -250 to 400          | -418 to 752  | 0.40                   | 0.025                           | IEC 584-1 (ITS-90)                             |
| C (W <sub>5</sub> W <sub>26</sub> ) | 0 to 2300            | 32 to 4172   | 1.20                   | 0.025                           | ANSI/ASTM E-230 (ITS-90)                       |

| Other Input Types | Maximum Range Limits | Digital Accuracy (+/-) | Output D/A Accuracy (% of span) | Standards |
|-------------------|----------------------|------------------------|---------------------------------|-----------|
| Millivolts        | -100 to 1200 mV      | 0.17 mV                | 0.025                           |           |
| Millivolts        | -20 to 125 mV        | 0.021 mV               | 0.025                           |           |
| Ohms              | 0 to 500 Ohms        | 0.30 Ohms              | 0.025                           |           |
| Ohms              | 0 to 2000 Ohms       | 0.45 Ohms              | 0.025                           |           |
| Ohms              | 0 to 3000 Ohms       | 0.65 Ohms              | 0.025                           |           |

1. Digital Accuracy is accuracy of the digital value accessed by the Host system and the handheld communicator

2. Total analog accuracy is the sum of digital accuracy and output D/A Accuracy

3. Output D/A Accuracy is applicable to the 4 to 20 mA Signal output

4. For TC inputs, CJ accuracy shall be added to digital accuracy to calculate the total digital accuracy

5. Custom Callendar-van Dusen not available for Pt25 sensors

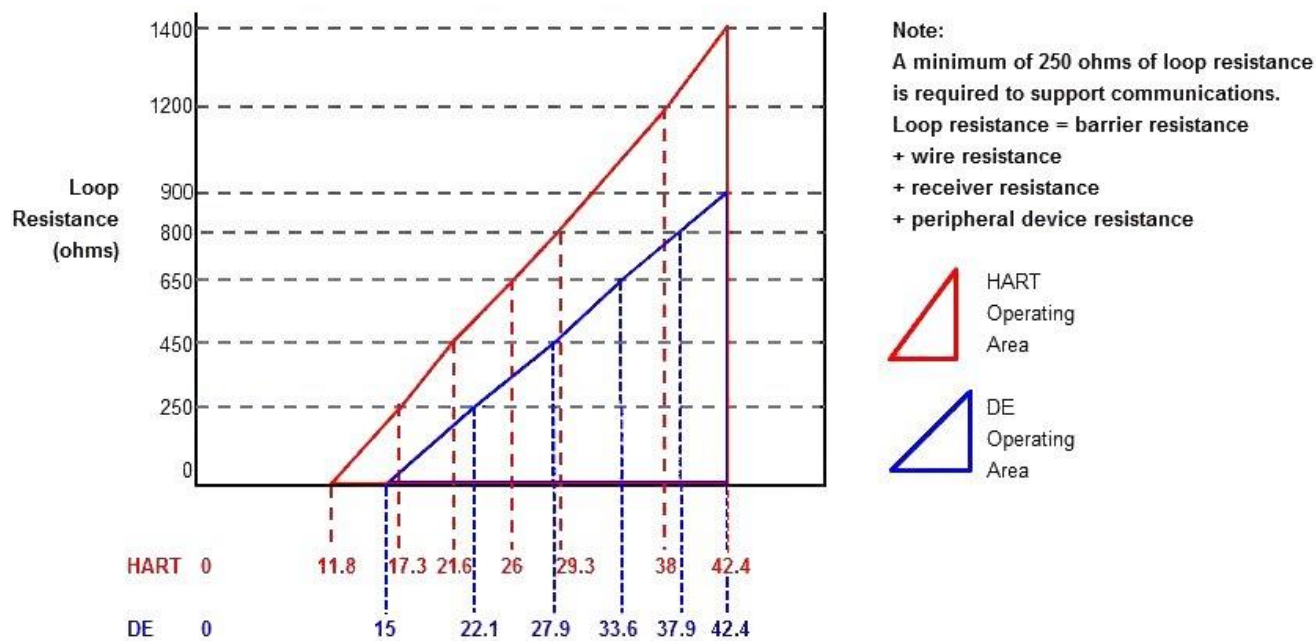
### Performance under Rated Conditions – All Models

| Parameter   | Description   |                         |                      |                         |                       |                       |               |                      |                        |                        |
|---|---|-------------------------|----------------------|-------------------------|-----------------------|-----------------------|---------------|----------------------|------------------------|------------------------|
| Input Span Adjustment Range                                       | No limits to adjustments within the maximum range except minimum span limit of 1 engineering unit   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Analog Output<br>Digital Communications:                          | Two-wire, 4 to 20 mA (HART transmitters only)<br>HART 7 protocol compliant  |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Output Failure Modes<br>(HART only)                               | <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"></td> <td style="width: 33%; text-align: center;">Honeywell Standard:</td> <td style="width: 33%; text-align: center;">NAMUR NE 43 Compliance:</td> </tr> <tr> <td><b>Normal Limits:</b></td> <td style="text-align: center;">3.8 – 20.8 mA</td> <td style="text-align: center;">3.8 – 20.5 mA</td> </tr> <tr> <td><b>Failure Mode:</b></td> <td style="text-align: center;">≤ 3.6 mA and ≥ 21.0 mA</td> <td style="text-align: center;">≤ 3.6 mA and ≥ 21.0 mA</td> </tr> </table> |                         | Honeywell Standard:  | NAMUR NE 43 Compliance: | <b>Normal Limits:</b> | 3.8 – 20.8 mA         | 3.8 – 20.5 mA | <b>Failure Mode:</b> | ≤ 3.6 mA and ≥ 21.0 mA | ≤ 3.6 mA and ≥ 21.0 mA |
|   | Honeywell Standard:   | NAMUR NE 43 Compliance: |                      |                         |                       |                       |               |                      |                        |                        |
| <b>Normal Limits:</b>   | 3.8 – 20.8 mA   | 3.8 – 20.5 mA           |                      |                         |                       |                       |               |                      |                        |                        |
| <b>Failure Mode:</b>  | ≤ 3.6 mA and ≥ 21.0 mA  | ≤ 3.6 mA and ≥ 21.0 mA  |                      |                         |                       |                       |               |                      |                        |                        |
| Output Accuracy (HART only)                                       | ±0.025 % span   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Supply Voltage Effect   | 0.005 % span per volt.  |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Transmitter Turn on Time<br>(includes power up & test algorithms) | HART: 2.5 sec.  |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Analog Input  | <b>Stability:</b> 0.01% of URL per year for 10 years<br><b>Maximum Lead Wire Resistance:</b><br>Thermocouples: 50 ohms/leg<br>RTD (all except Pt25) and ohms: 50 ohms/leg<br>RTD Pt25: 10 ohms/leg  |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Response Time<br>(delay + time constant)                          | <b>HART Analog Output</b><br>130 - 230 mSec   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Update time   | 125 mSec  |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Damping Time Constant   | <b>HART:</b> Adjustable from 0 to 102 seconds in 0.1 increments. <b>Default:</b> 0.50 seconds   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Ambient Temperature Effect  | <b>Digital Accuracy</b><br>For RTD Inputs, 0.0025 °C/°C<br>For T/C Inputs: 0.010 °C/°C<br><b>Output D/A:</b> 0.0010 % of span/°C  |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Cold Junction Accuracy  | ±0.25 °C  |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Total Reference Accuracy  | <b>Digital Mode</b><br>Digital Accuracy + C/J Accuracy (T/C input types only)<br><b>Analog Mode (HART only)</b><br>Digital Accuracy + Output D/A Accuracy + C/J Accuracy (T/C input types only)<br>Example: Transmitter in Analog Mode with Pt100 sensor and 0 to 200°C range<br>Total Reference Accuracy = 0.14°C + (200 °C / 100 %) * 0.025 % = 0.19 °C   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Sensor Burnout  | Burnout detection is user selectable. Upscale or down scale with critical status message. For RTD or ohm type inputs; broken wire/wires will be indicated   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Vibration Effect  | Per IEC60770-1 field or pipeline, high vibration level (10-2000Hz: 0.21 displacement/3g max acceleration)   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Electromagnetic Compatibility                                     | IEC 61326-3-1   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Isolation   | 2000 Vdc (1400Vrms) Galvanic isolation between inputs and output.   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Stray Rejection   | <b>Common Mode</b><br><i>AC (50 or 60 Hz):</i> 120 dB (with maximum source impedance of 100 ohms) or ± 1 LSB (least significant bit) whichever is greater with line voltage applied.<br><i>DC:</i> 120 dB (with maximum source impedance of 50 ohms) or a ±1 LSB whichever is greater with 120 Vdc applied.<br><i>DC (to 1 KHz):</i> 50 dB (with maximum source of impedance of 50 ohms) or ±1 LSB whichever is greater with 50 Vac applied.<br><b>Normal Mode</b><br><i>AC (50 or 60 Hz):</i> 60 dB (with 100% span peak-to-peak maximum)                  |                         |                      |                         |                       |                       |               |                      |                        |                        |
| EMC Compliance  | EN 61326-1 and EN 61326-3-1 (SIL)   |                         |                      |                         |                       |                       |               |                      |                        |                        |
| Lightning Protection Option                                       | <b>Leakage Current:</b> 10 uA max @ 42.4 VDC 85 °C<br><b>Impulse rating:</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">8/20 uS</td> <td style="width: 33%;">5000 A (&gt;10 strikes)</td> <td style="width: 33%;">10000 A (1 strike min.)</td> </tr> <tr> <td>10/1000 uS</td> <td>200 A (&gt; 300 strikes)</td> <td></td> </tr> </table>   | 8/20 uS                 | 5000 A (>10 strikes) | 10000 A (1 strike min.) | 10/1000 uS            | 200 A (> 300 strikes) |               |                      |                        |                        |
| 8/20 uS   | 5000 A (>10 strikes)  | 10000 A (1 strike min.) |                      |                         |                       |                       |               |                      |                        |                        |
| 10/1000 uS  | 200 A (> 300 strikes)   |                         |                      |                         |                       |                       |               |                      |                        |                        |

### Operating Conditions – All Models

| Parameter                                  | Reference Condition   |      | Rated Condition |            | Operative Limits |            | Transportation and Storage |            |
|--|---|------|-----------------|------------|------------------|------------|----------------------------|------------|
|  | °C  | °F   | °C              | °F         | °C               | °F         | °C                         | °F         |
| Ambient Temperature <sup>1</sup><br>STT750 | 25±1  | 77±2 | -40 to 85       | -40 to 185 | -40 to 85        | -40 to 185 | -55 to 120                 | -67 to 248 |
| Humidity %RH                               | 10 to 55  |      | 0 to 100        |            | 0 to 100         |            | 0 to 100                   |            |
| Supply Voltage<br>Load Resistance          | <b>HART Models:</b> 11.8 to 42.4 Vdc at terminals (IS versions limited to 30 Vdc)<br>0 to 1,400 ohms (as shown in Figure 2) |      |                 |            |                  |            |                            |            |

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



For DE,  $R_{max} = 35 * (\text{Power Supply Voltage} - 15)$   
 For HART,  $R_{max} = 45.6 * (\text{Power Supply Voltage} - 11.8)$

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

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

| Parameter           | Description  |
|---------------------|--|
| Mounting Bracket    | Wall or 2" Pipe, Carbon Steel (Zinc-plated) or 316 Stainless Steel   |
| Electronic Housing  | Pure Polyester Powder Coated Low Copper (<0.4%)-Aluminum. Meets Type 4X, IP66, & IP67. All stainless steel housing is optional. Cover O Ring Material: Silicone  |
| Sensor/Cable Entry  | 1/2 NPT electrical connection or M20x1.5   |
| Mounting            | Can be mounted in virtually any position using the standard mounting brackets. Brackets are designed to mount on to a wall or a 2-inch (50 mm) vertical or horizontal pipe.  |
| Wiring              | Accepts up to 16 AWG (1.5 mm diameter).  |
| Dimensions          | See, <a href="#">Figure 4</a> to <a href="#">Figure 11</a>   |
| Net Weight Lbs (kg) | Aluminum housing for transmitter with Display – 2.7 lbs (1.22 kg)<br>Aluminum housing for transmitter w/o Display – 2.6 lbs (1.18 kg)<br>Stainless Steel housing for transmitter with Display – 4.9 lbs (2.22 kg)<br>Stainless Steel housing for transmitter w/o Display – 4.8 lbs (2.18 kg) |

## Communications Protocols & Diagnostics

### HART Protocol

**Version:**

HART 7

**Power Supply**

Voltage: 11.8 to 42.4Vdc at terminals

Load: Maximum 1400 ohms See figure 2

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

IEC 61508 Safety Certified SIL 2 and SIL 3

### Standard Diagnostics

STT750 top level diagnostics are reported as either critical or non-critical as listed below. All diagnostics are readable via the DD/DTM tools. All critical diagnostics will appear on the Basic integral display.

**Critical Diagnostics**

Sensor Module Fault

Communications Module Fault

Sensor Communications Fault

Input Fault

### Wiring Diagram

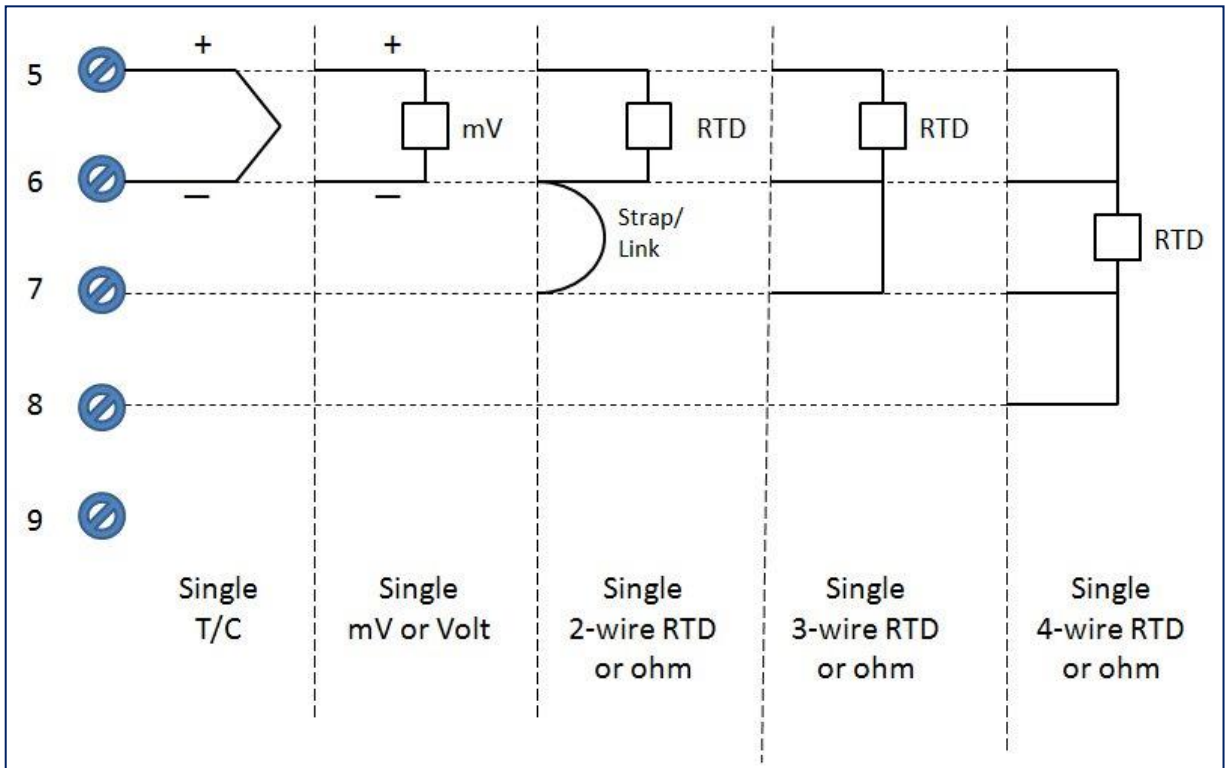


Figure 3 STT750 Thermocouple, RTD, mV, ohm and Volt Connections

**Approval Certifications:**

| MSG CODE | AGENCY              | TYPE OF PROTECTION  | COMM OPTION      | Electrical Parameters | Ambient Temperature |
|----------|---------------------|---|------------------|-----------------------|---------------------|
| A        | FM Approvals™ (USA) | <b>Explosion proof</b> , Certificate: 3051269:<br>Class I, Division 1, Groups A, B, C, D;<br><b>Dust Ignition Proof:</b><br>Class II, III, Division 1, Groups E, F, G; T4<br>Class 1, Zone 1, AEx d IIC T4 Gb<br>Class 2, Zone 21, AEx tb IIIC T 95°C IP 66 Db  | 4-20 mA/<br>HART | Note 1                | -50°C to 85°C       |
|          |                     | <b>Intrinsically Safe</b> , Certificate: 3051269:<br>Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4<br>Class I Zone 0 AEx ia IIC T4 Ga  | 4-20 mA/<br>HART | Note 2                | -50°C to 70°C       |
|          |                     | <b>Non-Incendive</b> , Certificate: 3051269:<br>Class I, Division 2, Groups A, B, C, D; T4<br>Class I Zone 2 AEx nA IIC T4 Gc<br>AEx nA IIC T4  | 4-20 mA/<br>HART | Note 1                | -50°C to 85°C       |
|          |                     | <b>Standards:</b> FM 3600:2011; ANSI/ ISA 60079-0: 2013<br>FM 3615:2006; ANSI/ ISA 60079-1 : 2009<br>FM 3616 : 2011 ; ANSI/ ISA 60079-31 : 2009<br>FM 3610:2010; ANSI/ ISA 60079-11 : 2013<br>FM 3810 : 2005 ; FM 3611:2004; ANSI/ ISA 60079-15 : 2012 ;<br>FM 3810 : 2005 ; NEMA 250 : 2003 ; ANSI/ IEC 60529 : 2004 |                  |                       |                     |
|          |                     | <b>Enclosure:</b> Type 4X/ IP66/ IP67   | ALL              | ALL                   | ALL                 |
| B        | CSA-Canada          | <b>Explosion proof</b> , Certificate: 2689056:<br>Class I, Division 1, Groups A, B, C, D;<br><b>Dust Ignition Proof:</b><br>Class II, III, Division 1, Groups E, F, G; T4<br>Zone 1 Ex d IIC T4 Gb<br>Ex tb IIIC T 95°C IP 66 Db<br>DIP A21 Class II, III   | 4-20 mA/<br>HART | Note 1                | -50°C to 85°C       |
|          |                     | <b>Intrinsically Safe</b> , Certificate: 2689056:<br>Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4<br>Ex ia IIC T4 Ga  | 4-20 mA/<br>HART | Note 2                | -50°C to 70°C       |
|          |                     | <b>Non-Incendive</b> , Certificate: 2689056:<br>Class I, Division 2, Groups A, B, C, D; T4<br>Class I Zone 2 Ex nA IIC T4 Gc<br>Ex nA IIC T4 Gc   | 4-20 mA/<br>HART | Note 1                | -50°C to 85°C       |
|          |                     | <b>Enclosure:</b> Type 4X/ IP66/ IP67   | ALL              | ALL                   | ALL                 |

| MSG CODE   | AGENCY | TYPE OF PROTECTION  | COMM OPTION      | Electrical Parameters | Ambient Temperature |
|--|--------|---|------------------|-----------------------|---------------------|
|  |        | <b>Standards:</b> CSA C22.2 No. 0-10; CSA 22.2 No. 25-1966 (reaffirmed 2009);<br>CSA C22.2 No. 30-M1986 (reaffirmed 2012); CSA C22.2 No. 94-M91;<br>CSA C22.2 No. 142-M1987 (reaffirmed 2009); CSA-C22.2No.157-92 (reaffirmed 2012);<br>C22.2 No. 213-M1987(reaffirmed 2012); C22.2 No. 60529-05<br>C22.2 No. CSA 60079-0:2011; C22.2 No. 60079-1: 2011; C22.2 No. 60079-11: 2011;<br>C22.2 No. 60079-15: 2012; C22.2 No. 60079-31: 2012;<br><br>ANSI/ ISA12.12.01-2012; ANSI/ ISA 60079-0 (12.00.01): 2009 ;<br>ANSI/ ISA 60079-1 (12.22.01): 2009 ; ANSI/ ISA 60079-11(12.02.01) : 2012;<br>ANSI/ ISA 60079-26 (12.00.03) : 2011; ANSI/ ISA 60079-15(12.12.02) : 2012 ;<br>ANSI/ ISA 60079-27 (12.02.04) : 2006; ANSI/ ISA 60079-31(12.10.03) : 2009 ;<br>FM Class 3615: Aug 2006; FM Class 3616: Dec 2011; ANSI/ IEC 60529 :<br>Edition 2.1<br>ANSI/ UL 913: Edition 7; ANSI/ UL 916 : Edition 4 ; |                  |                       |                     |
| C  | ATEX   | <b>Flameproof</b> , Sira 14ATEX2046X:<br>II 2 G Ex d IIC T4 Gb<br>II 2 D Ex tb IIIC T 95°C Db IP 66/<br>IP67  | 4-20 mA/<br>HART | Note 1                | -50°C to 85°C       |
|  |        | <b>Intrinsically Safe</b> , Sira<br>14ATEX2046X:<br>II 1 G Ex ia IIC T4 Ga  | 4-20 mA/<br>HART | Note 2                | -50°C to 70°C       |
|  |        | <b>Enclosure:</b> IP66/ IP67  | ALL              | ALL                   | ALL                 |
|  |        | <b>Standards:</b> EN 60079-0: 2012; EN 60079-1 : 2007; EN 60079-31 : 2009<br>EN 60079-11: 2011; EN 60079-26 : 2006; EN 60529 : 2000 + A1  |                  |                       |                     |
|  |        | <b>Non Sparking</b> , Sira<br>14ATEX4052X:<br>II 3 G Ex nA IIC T4 Gc  | 4-20 mA/<br>HART | Note 1                | -50°C to 85°C       |
|  |        | <b>Enclosure:</b> IP66/ IP67  | ALL              | ALL                   | ALL                 |
| <b>Standards:</b> EN 60079-0: 2012; EN 60079-15 : 2010; IEC 60529 : 2009 with Corr 3 |        |   |                  |                       |                     |
| D  | IECEX  | <b>Flameproof</b> , SIR 14.0020X<br>Ex d IIC T4 Gb<br>Ex tb IIIC T 95°C IP 66/<br>IP67  | 4-20 mA/<br>HART | Note 1                | -50°C to 85°C       |
|  |        | <b>Intrinsically Safe</b> , SIR 14.0020X<br>Ex ia IIC T4 Ga   | 4-20 mA/<br>HART | Note 2                | -50°C to 70°C       |
|  |        | <b>Non Sparking</b> , SIR 14.0020X<br>Ex nA IIC T4 Gc   | 4-20 mA/<br>HART | Note 1                | -50°C to 85°C       |
|  |        | <b>Enclosure:</b> IP66/ IP67  | ALL              | ALL                   | ALL                 |
|  |        | <b>Standards:</b> IEC 60079-0: 2011, Edition 6; IEC 60079-1 : 2007-04, Edition 6;<br>IEC 60079-11 : 2011, Edition 6; IEC 60079-15 : 2010, Edition 4<br>IEC 60079-26 : 2006, Edition 2; IEC 60079-31 : 2008, Edition 1<br>IEC 60529 : 2009 with Corr 3   |                  |                       |                     |
|  |        | <b>Enclosure:</b> IP66/ IP67  | ALL              | ALL                   | ALL                 |

### Notes

#### 1. Operating Parameters:

4-20 mA/HART (Loop Terminal)

Voltage= 11 to 42 V

Current= 4-20 mA Normal (3.8 – 23 mA Faults)

#### 2. Intrinsically Safe Entity Parameters

For details see Control Drawing in the User's manual (34-TT-25-13)



## Mounting & Dimensional Drawings

Reference Dimensions:  $\frac{\text{millimeters}}{\text{inches}}$

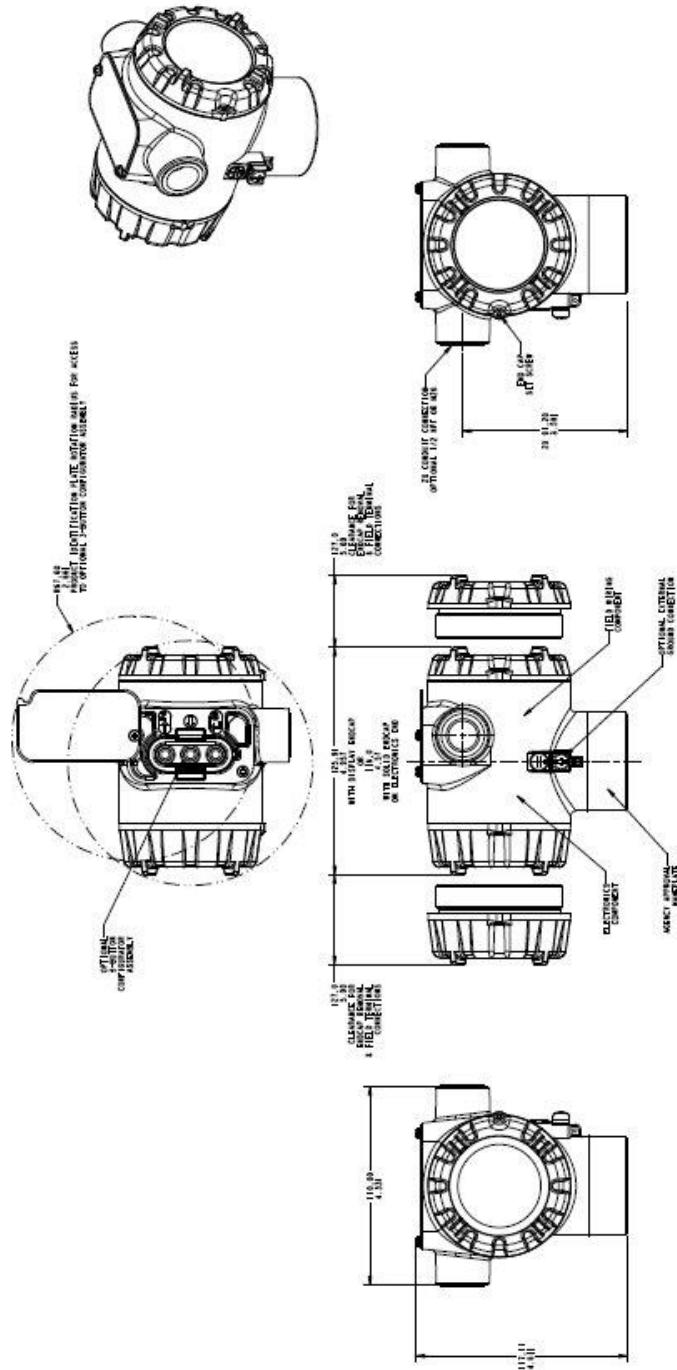
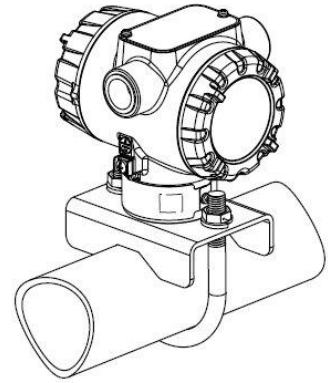
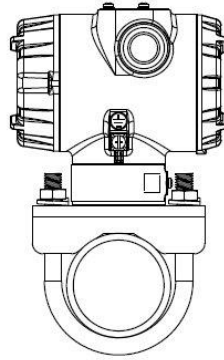
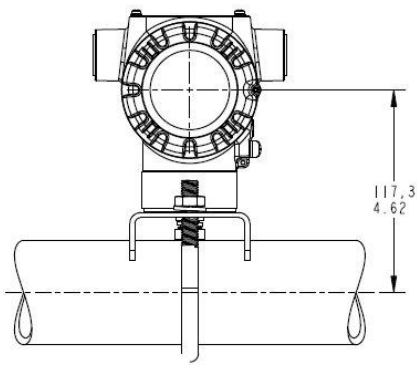
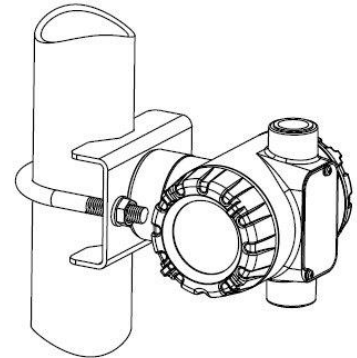
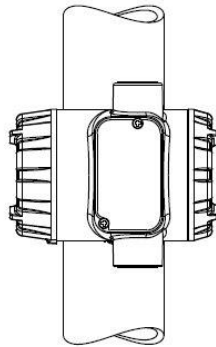
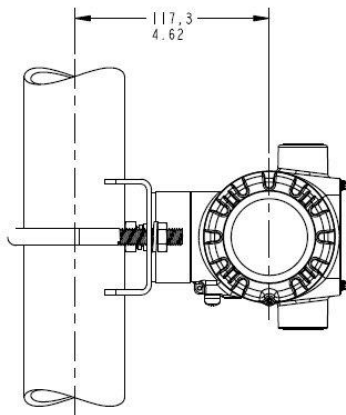


Figure 4 – STT750 housing dimensions

Transmitter enclosure can be rotated a total of 90° from the mounting position selected



**Figure 5 – STT750 Horizontal Pipe Mount**



**Figure 6 – STT750 Vertical Pipe Mounting**

Transmitter enclosure can be rotated a total of 90° from the mounting position selected

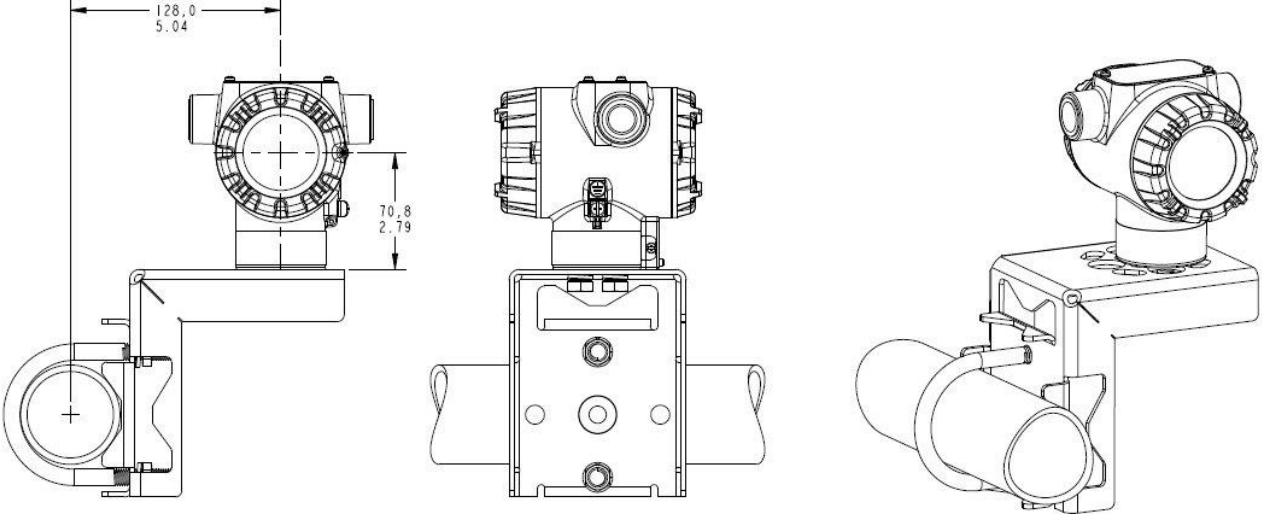


Figure 7 – STT750 Horizontal Angle Bracket Pipe Mounting

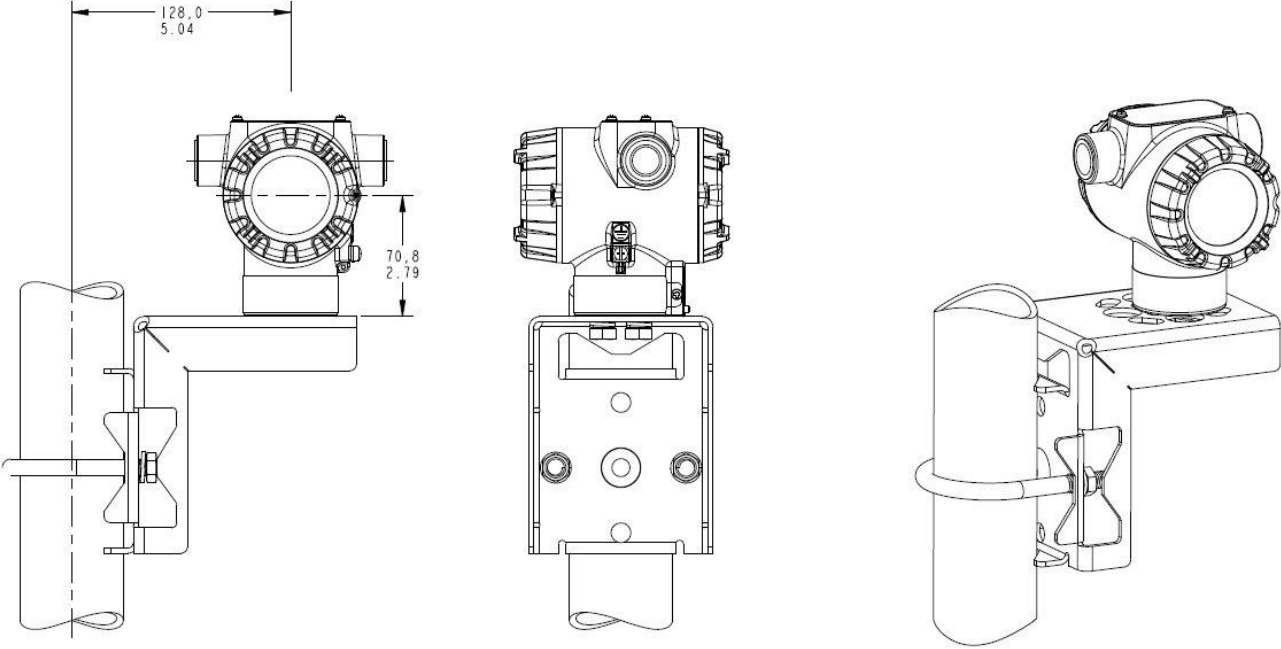


Figure 8 – STT750 Vertical Angle Bracket Pipe Mounting

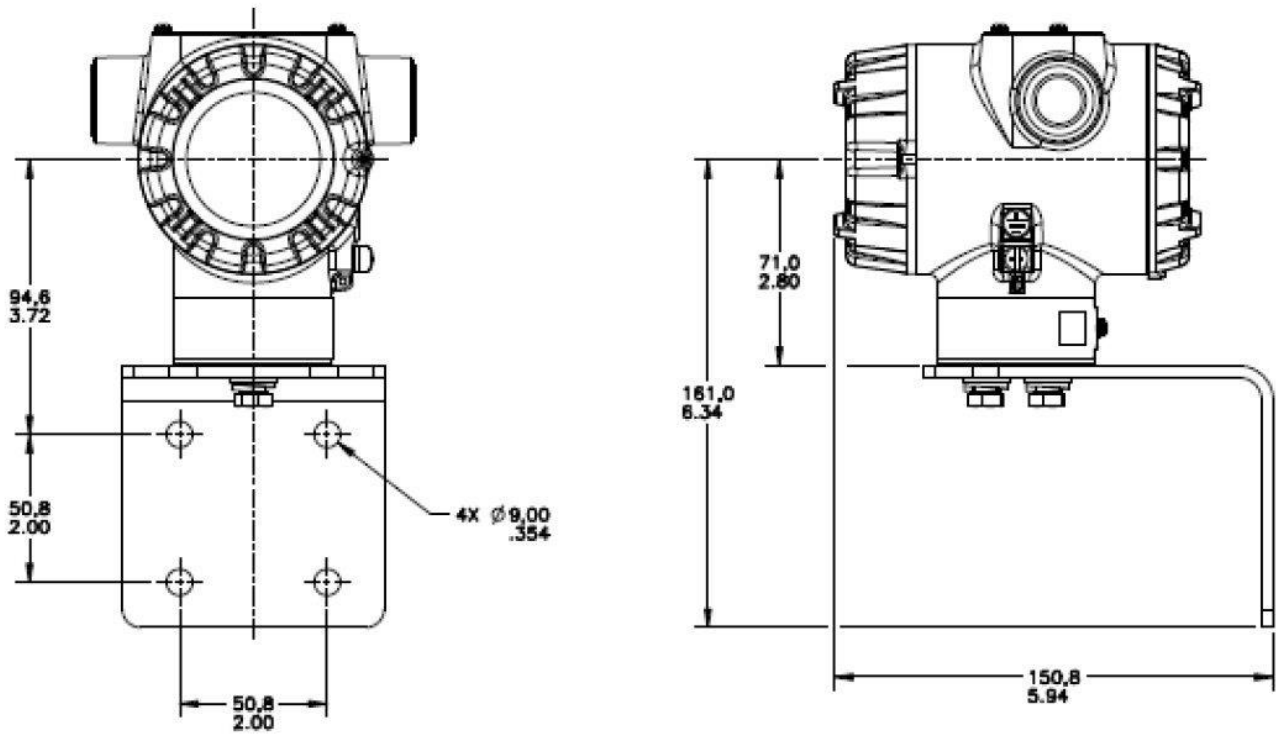


Figure 9 - STT750 Wall Mount

Optional mounting bracket, see [Figure 10](#) and [Figure 11](#)

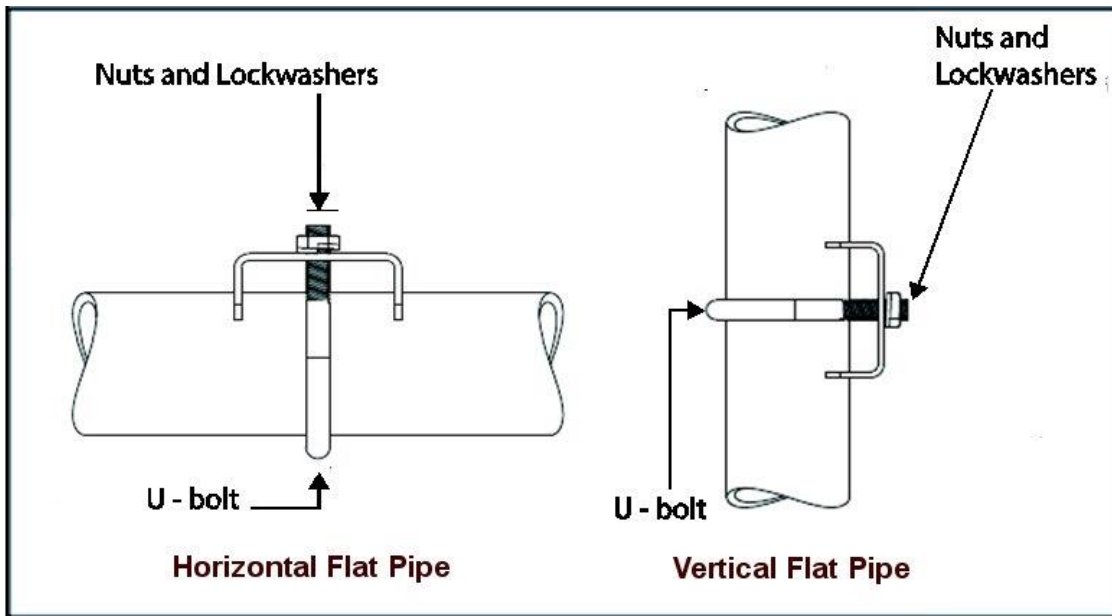


Figure 10: Pipe Mounting Bracket Secured to a Horizontal or Vertical Flat Pipe

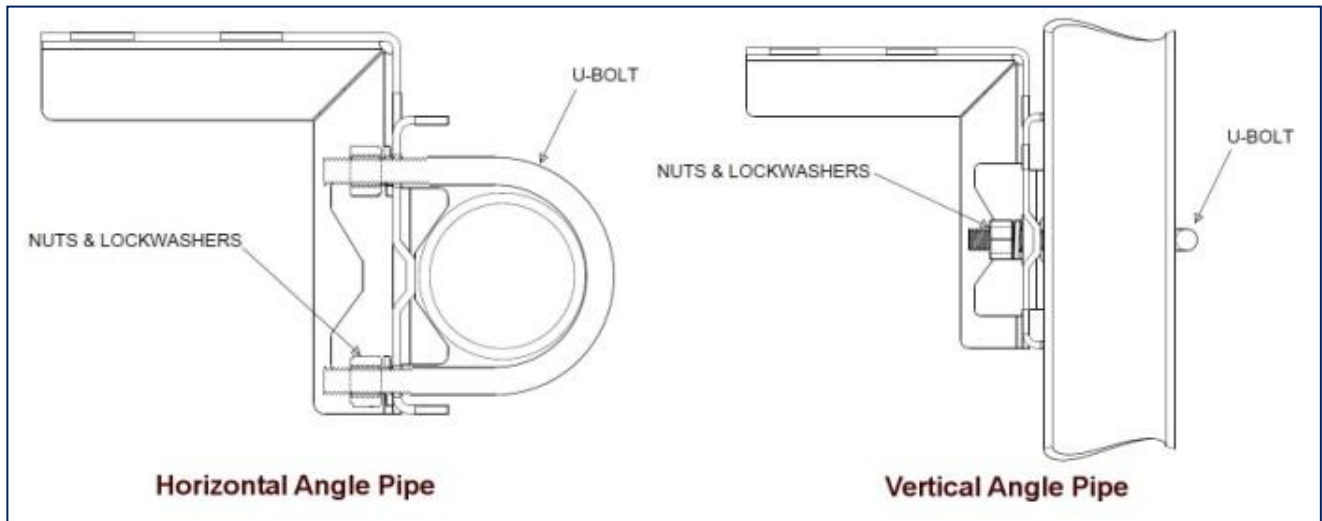


Figure 11 - Pipe Mounting Bracket secured to a Horizontal or Vertical Angle Pipe

The Model Selection Guide is subject to change and is inserted into the specification as guidance only. Prior to specifying or ordering a model check for the latest revision Model Selection Guide which is published at: [www.honeywellprocess.com/en-US/pages/default.aspx](http://www.honeywellprocess.com/en-US/pages/default.aspx)

**Model Selection Guide\_**

# Model STT750 Smart Temperature Transmitter

Model Selection Guide:  
34-44-16-20 Issue 2

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

| Key    | I | II | III | IV | V | VI | VII | VIII | IX      |
|--------|---|----|-----|----|---|----|-----|------|---------|
| STT750 | - | -  | -   | -  | - | -  | -   | -    | X X X X |

| KEY NUMBER | Input Type      |
|------------|-----------------|
|            | Universal Input |

Availability Selection

|        |   |
|--------|---|
| STT750 | * |
|--------|---|

| Table I       | No of Inputs |
|---------------|--------------|
| Input Details | Single       |

|   |   |
|---|---|
| S | * |
|---|---|

| Table II       | Digital output |
|----------------|----------------|
| Digital Output | No             |

|   |   |
|---|---|
| 0 | * |
|---|---|

| TABLE III | Agency Approvals (see data sheet for Approval Code Details)   |
|-----------|---|
| Approvals | No Approvals Required<br>FM Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof<br>CSA Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof<br>ATEX Explosion proof, Intrinsically Safe & Non-incendive<br>IECEx Explosion proof, Intrinsically Safe & Non-incendive |

|   |   |
|---|---|
| 0 | * |
| A | * |
| B | * |
| C | * |
| D | * |

| TABLE IV   | TRANSMITTER ELECTRONICS SELECTIONS |                      |                      |
|--|------------------------------------|----------------------|----------------------|
| a. Electronic Housing Material & Connection Type | Housing and Material               | Connection           | Lightning protection |
|  | Polyester Powder Coated Aluminum   | 1/2 NPT              | None                 |
|  | Polyester Powder Coated Aluminum   | M20                  | None                 |
|  | Polyester Powder Coated Aluminum   | 1/2 NPT              | Yes                  |
|  | Polyester Powder Coated Aluminum   | M20                  | Yes                  |
|  | 316 Stainless Steel (Grade CF8M)   | 1/2 NPT              | None                 |
|  | 316 Stainless Steel (Grade CF8M)   | M20                  | None                 |
|  | 316 Stainless Steel (Grade CF8M)   | 1/2 NPT              | Yes                  |
| b. Output/ Protocol                              | Analog Output                      |                      | Digital Protocol     |
|  | 4-20mA dc                          |                      | HART Protocol        |
| c. Customer Interface Selections                 | Indicator                          | Config Buttons       | Languages            |
|  | None                               | None                 | None                 |
|  | None                               | Yes (Zero/Span Only) | None                 |
|  | Basic                              | None                 | English              |
|  | Basic                              | Yes                  | English              |

|     |   |
|-----|---|
| A__ | * |
| B__ | * |
| C__ | * |
| D__ | * |
| E__ | * |
| F__ | * |
| G__ | * |
| H__ | * |

|     |   |
|-----|---|
| _H_ | * |
|-----|---|

|     |   |
|-----|---|
| __0 | * |
| __A | * |
| __B | * |
| __C | * |

| TABLE V  | CONFIGURATION SELECTIONS |                |                                       |
|--|--------------------------|----------------|---------------------------------------|
| a. Application Software                            | Diagnostics              |                |                                       |
|  | Standard Diagnostics     |                |                                       |
| b. Output Limit, Failsafe & Write Protect Settings | Write Protect            | Fail Mode      | High & Low Output Limits <sup>3</sup> |
|  | Disabled                 | High> 21.0mAdc | Honeywell Std (3.8 - 20.8 mAdc)       |
|  | Disabled                 | Low< 3.6mAdc   | Honeywell Std (3.8 - 20.8 mAdc)       |
|  | Enabled                  | High> 21.0mAdc | Honeywell Std (3.8 - 20.8 mAdc)       |
|  | Enabled                  | Low< 3.6mAdc   | Honeywell Std (3.8 - 20.8 mAdc)       |
| c. General Configuration                           | Factory Standard         |                |                                       |
|  | Custom Configuration     |                |                                       |

|     |   |
|-----|---|
| 1__ | * |
|-----|---|

|     |   |
|-----|---|
| _1_ | * |
| _2_ | * |
| _3_ | * |
| _4_ | * |
| __S | * |
| __C | * |

<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 SELECTIONS |          |                             |                    |
|--|----------|-----------------------------|--------------------|
| a. Accuracy and Calibration                | Accuracy | Calibrated Range            | Calibration Qty    |
|  | Standard | Factory Std                 | Single Calibration |
|  | Standard | Custom (Unit Data Required) | Single Calibration |

|   |   |
|---|---|
| A | * |
| B | * |

| TABLE VII ACCESSORY SELECTIONS                                |   |              |
|---|---|--------------|
| a. Mounting Bracket   | Bracket Type  | Material     |
|   | None  | None         |
|   | Flat Pipe Mounting Bracket  | Carbon Steel |
|   | Flat Pipe Mounting Bracket  | 316 SS       |
|   | Angle Pipe Mounting Bracket                                       | Carbon Steel |
|   | Angle Pipe Mounting Bracket                                       | 316 SS       |
|   | Wall Mounting Bracket   | Carbon Steel |
|   | Wall Mounting Bracket   | 316 SS       |
| b. Customer Tag   | Customer Tag Type   |              |
|   | No customer tag   |              |
|   | One Wired Stainless Steel Tag (Up to 4 lines 26 char/line)        |              |
|   | Two Wired Stainless Steel Tag (Up to 4 lines 26 char/line)        |              |
|   | One Wired Stainless Steel Blank Tag (Up to 4 lines 26 char/line)  |              |
| c. Unassembled Conduit Plugs & Adapters                       | Unassembled Conduit Plugs & Adapters                              |              |
|   | No Conduit Plugs or Adapters Required                             |              |
|   | 1/2 NPT Male to 3/4 NPT Female 316 SS Certified Conduit Adapter   |              |
|   | 1/2 NPT 316 SS Certified Conduit Plug                             |              |
|   | M20 316 SS Certified Conduit Plug                                 |              |
|   | Minifast® 4 pin (1/2 NPT) (not suitable for X-Proof applications) |              |
| Minifast® 4 pin (M20) (not suitable for X-Proof applications) |   |              |

|       |   |
|-------|---|
| 0 ___ | * |
| 1 ___ | * |
| 3 ___ | * |
| 2 ___ | * |
| 4 ___ | * |
| 5 ___ | * |
| 6 ___ | * |

|      |   |
|------|---|
| _0__ | * |
| _1__ | * |
| _2__ | * |
| _3__ | * |

|      |   |
|------|---|
| __A0 | * |
| __A2 | n |
| __A6 | n |
| __A7 | m |
| __A8 | n |
| __A9 | m |

| TABLE VIII Other Certifications and Options |  |
|---|--|
| c. Certifications and Warranty              | None - No additional options                         |
|   | Certificate of Conformance                           |
|   | Calibration Test Report & Certificate of Conformance |
|   | Certificate of Origin                                |
|   | SIL2/3 Certificate                                   |
|   | Extended Warranty Additional 1 year                  |
|   | Extended Warranty Additional 2 years                 |
|   | Extended Warranty Additional 3 years                 |

|    |   |   |
|----|---|---|
| 00 | * | b |
| F3 | * |   |
| F1 | * |   |
| F5 | * | b |
| FE | j |   |
| 01 | * |   |
| 02 | * |   |
| 03 | * |   |

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

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

**MODEL RESTRICTIONS**

| Restriction Letter | Available Only with                    |                | Not Available with |              |
|--------------------|--|----------------|--------------------|--------------|
|                    | Table                                  | Selection(s)   | Table              | Selection(s) |
| j                  |  |                | Vb                 | _1,2_        |
| m                  | IVa                                    | B, D,F, H, __  |                    |              |
| n                  | IVa                                    | A, C, E, G, __ |                    |              |
| 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

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Toll Free 1300-36-39-36  
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1300-36-04-70

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or  
(TAC)  
[dfs-tac-support@honeywell.com](mailto:dfs-tac-support@honeywell.com)

### AMERICA'S

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(Sales) 1-800-343-0228

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or  
(TAC)  
[dfs-tac-support@honeywell.com](mailto:dfs-tac-support@honeywell.com)

*Specifications are subject to change without notice.*

For more information  
To learn more about SmartLine Temperature,  
visit [www.honeywellprocess.com](http://www.honeywellprocess.com)  
Or contact your Honeywell Account Manager

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