

### STT700 SmartLine Temperature Transmitter Specification

34-TT-03-19, December 2018



#### Introduction

Part of the SmartLine® family of products, the SmartLine STT700 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:** The STT700 is single or a dual input temperature transmitter that supports millivolt, thermocouple and RTD sensors. It is available with either HART or DE protocol output.

#### High performance

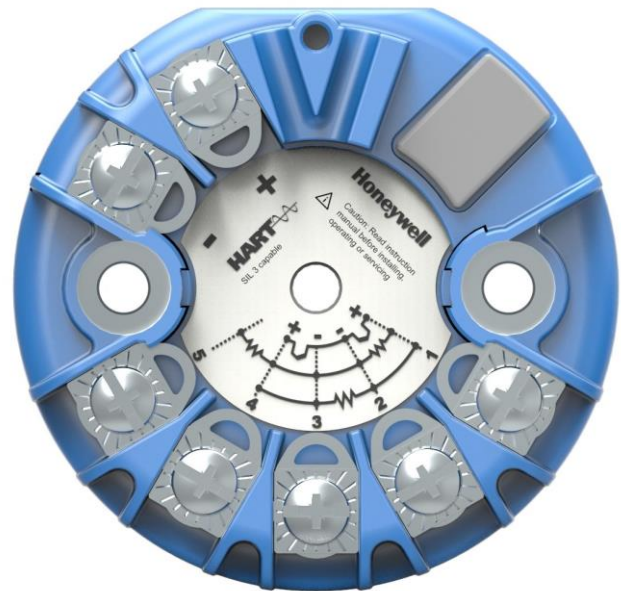
- Digital accuracy up to 0.15 Deg C for Pt100
- Stability up to  $\pm 0.05\%$  of URL per year for ten years
- 500 mSec update time (single input)
- 1 Sec update time (dual input)

#### Reliable measurement

- Built in galvanic isolation
- Sensor break detection
- Comprehensive on-board diagnostic capabilities
- Full compliance to SIL 2/3 requirements.
- Available with 4-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
- Dual sensor option
- External zero, span, & configuration capability
- Polarity insensitive loop wiring



**Figure 1– SmartLine STT700 Temperature Transmitter (HART) module shown with dual input capability**

#### Communications/Output Options:

- 4-20 mA DC
- HART® (version 7.0)
- Honeywell Digitally Enhanced (DE)

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

#### Mounting Options:

- Direct sensor head mounting in DIN Form A aluminum housing.
- Other mounting options available include wall, pipe, DIN Rail or single compartment field housing.

## **Description**

Part of the SmartLine® family of products, the SmartLine STT700 is a high performance temperature transmitter offering high accuracy and stability over a wide range of process and ambient temperatures. The STT700 addresses the broadest market applications by providing a temperature transmitter that can meet the bulk of the industrial application needs. The STT700's versatility, including the ability to select single or dual input, HART or DE protocol, with or without display, various mounting configurations, and the ability to connect to 2, 3 or 4-wire sensors types, allows your site to standardize on a single product and thus simplifying support and training.

## **Configuration Tools**

### **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 and DE 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 handheld configuration device.

### **Personal Computer Configuration**

HART Communicator Model 375, 475 or MC Toolkit for HART 7 Models.

Field Device Manager (FDM) Software and FDM Express are also available for managing HART and DE device configurations (FDC).

Smart Field Communicator (SFC) for DE Models.

## **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
- SmartLine STT700 is fully compatible with Honeywell's DE protocol.

## **STT250 Compatibility**

The STT700 design allows it to easily replace an existing STT250 Temperature Transmitter. The STT700 physically fits into an existing STT250 mount and the STT700 offers the same functions as a STT250.

---

## 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
	° C	° F			
<b>RTD (2,3,4 wire)</b>					
	° C	° F	° C	%	
Pt100 ( $\alpha=0.00385$ )	-200 to 450 -200 to 850	-328 to 842 -328 to 1562	0.15 0.25	0.025	IEC751:1990
Pt200 ( $\alpha=0.00385$ )	-200 to 450 -200 to 850	-328 to 842 -328 to 1562	0.30 0.40	0.025	IEC751:1990
Ni 120 <sup>5</sup> ( $\alpha=0.00672$ )	-80 to 260	-112 to 500	0.12	0.025	Edison Curve #7
Pt50 <sup>5</sup> ( $\alpha=0.00391$ )	-200 to 450 -200 to 600	-328 to 842 -328 to 1112	0.32 0.55	0.025	GOST 6651-94
Pt100 <sup>5</sup> ( $\alpha=0.00391$ )	-200 to 450 -200 to 600	-328 to 842 -328 to 1112	0.16 0.27	0.025	GOST 6651-94
Cu 50 <sup>5</sup> ( $\alpha=0.00426$ )	-50 to 200	-58 to 392	0.42	0.025	GOST 6651-94
Cu 100 <sup>5</sup> ( $\alpha=0.00426$ )	-50 to 200	-58 to 392	0.50	0.025	GOST 6651-94
Cu 50 <sup>5</sup> ( $\alpha=0.00428$ )	-200 to 200	-328 to 392	0.55	0.025	GOST 6651-94
Cu 100 <sup>5</sup> ( $\alpha=0.00428$ )	-200 to 200	-328 to 392	0.32	0.025	GOST 6651-94
<b>Thermocouples</b>	° C	° F	° C	%	
B	550 to 1820 200 to 1820	1022 to 3308 392 to 3308	1.00 3.00	0.025	ANSI / ASTM E-230 (ITS-90)
C <sup>5</sup>	0 to 1650 0 to 2300	32 to 3002 32 to 4172	1.20 1.70	0.025	ANSI / ASTM E-230 (ITS-90)
E	0 to 1000 -200 to 1000	32 to 1832 -328 to 1832	0.30 0.60	0.025	ANSI / ASTM E-230 (ITS-90)
J	0 to 800 -200 to 1200	32 to 1472 -200 to 2192	0.30 0.70	0.025	ANSI / ASTM E-230 (ITS-90)
K	-120 to 1370 -200 to 1370	-191 to 2498 -328 to 2498	0.60 0.90	0.025	ANSI / ASTM E-230 (ITS-90)
N	0 to 1300 -200 to 1300	32 to 2372 -328 to 2372	0.40 1.50	0.025	ANSI / ASTM E-230 (ITS-90)
R	500 to 1760 -50 to 1760	-58 to 3200 -58 to 3200	0.60 1.00	0.025	ANSI / ASTM E-230 (ITS-90)
S	500 to 1760 -50 to 1760	-58 to 3200 -58 to 3200	0.60 1.00	0.025	ANSI / ASTM E-230 (ITS-90)
T	-100 to 400 -250 to 400	-148 to 752 -418 to 752	0.30 0.50	0.025	ANSI / ASTM E-230 (ITS-90)
L <sup>5</sup>	-0 to 800 -200 to 800	-32 to 1472 -328 to 1472	0.50 0.90	0.025	GOST R 8.585-2001

Other Input Types	Maximum Range Limits	Digital Accuracy (+/-)	Output D/A Accuracy (% of span)	Standards
Millivolts	-7 to 22 mV	0.010 mV	0.025	
Millivolts	-20 to 125 mV	0.015 mV	0.025	
Ohms	0 to 500 Ohms	0.35 Ohms	0.025	
Ohms	0 to 2000 Ohms	0.50 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. Not available in DE transmitters.
6. Japanese Pt100J ( $\alpha = 0.003916$ ) may be obtained by using the CVD algorithm with Pt100D.

### Differential Temperature Measurement

SmartLine STT700 Temperature supports differential temperature measurements for dual input transmitters. When the loop current mode is set to "Differential" then the input range is from A to B for sensor 1 & 2 where

A = Sensor 1 Minimum - Sensor 2 Maximum  
 B = Sensor 1 Maximum - Sensor 2 Minimum

### Digital Accuracy for differential temperature measurement

- If both input types are the same, then the digital accuracy equals 1.5 times the worst case accuracy for that input type.
- If the input types are different, then the digital accuracy equals the sum of the worst case sensor 1 and sensor 2 accuracies. For example, assume that input 1 is a J T/C and input 2 is an R T/C. Assume that the desired operating range is between 0 and +400 °C. The digital accuracy for a J T/C in this range is 0.30 °C and the digital accuracy for an R T/C in this range is 1.00 °C. Therefore, the worst case digital accuracy would be 1.30 °C.

### Callendar - Van Dusen Algorithm (CVD)

The easy to use Callendar - Van Dusen (CVD) algorithm allows the use of calibrated platinum RTD sensors to increase the overall system accuracy. Simply enable the algorithm and then enter the four CVD coefficients supplied with the calibrated RTD sensor into the transmitter. Honeywell can preprogram the CVD constants at the factory when the Custom Configuration option is selected and the CVD constants are supplied at order entry.

### 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	Two-wire, 4 to 20 mA
Digital Communications:	HART 7 protocol compliant Honeywell Digitally Enhanced (DE) protocol compliant
Output Failure Modes	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 ≥ 21.5 mA                      ≤ 3.6 mA and ≥ 21.5 mA
Output Accuracy	±0.025 % span
Supply Voltage Effect	0.005 % span per volt.
Transmitter Turn on Time (includes power up & test algorithms)	HART or DE: 6 sec.

<b>Analog Input</b>	<b>Stability:</b> 0.05% of URL per year for 10 years <b>Maximum Lead Wire Resistance:</b> Thermocouples and millivolts: 25 ohms/leg RTD and ohms: 25 ohms/leg
<b>Response Time (delay + time constant)</b>	<b>Analog Output</b> 500 mSec to reach 96% of final value with 0 seconds damping
<b>Update time</b>	500 mSec for Single Input Units 1 Sec for Dual Input Units
<b>Damping Time Constant</b>	<b>HART:</b> Adjustable from 0 to 102 seconds in 0.1 increments. <b>Default:</b> 0.50 seconds <b>DE:</b> Discrete values 0.0, 0.3, 0.7, 1.5, 3.1, 6.3, 12.7, 25.5, 51.1, 102.3 seconds. <b>Default:</b> 0.3 seconds
<b>Ambient Temperature Effect</b>	<b>Digital Accuracy</b> For all RTD (except Pt200) and 500 ohm Input Types: 0.017 ohms/°C For RTD Pt200 and 2000 ohm Input Types: 0.034 ohms/C. <b>Output D/A:</b> 0.0045 % of span/°C
<b>Cold Junction Accuracy</b>	±0.5 °C
<b>Total Reference Accuracy</b>	<b>Digital Mode</b> Digital Accuracy + C/J Accuracy (T/C input types only) <b>Analog Mode (HART only)</b> Digital Accuracy + Output D/A Accuracy + C/J Accuracy (T/C input types only) Example: Transmitter in Analog Mode with Pt100 sensor and 0 to 200°C range Total Reference Accuracy = 0.15 °C + (200 °C / 100%) * 0.025% = 0.20 °C
<b>Sensor Burnout</b>	Burnout detection is user selectable. Upscale or down scale with critical status.
<b>Vibration Effect</b>	Per IEC60770-1 field or pipeline, high vibration level (10-2000Hz: 0.21 displacement/3g max acceleration)
<b>Electromagnetic Compatibility</b>	IEC 61326-3-1
<b>Isolation</b>	2000 VDC (1400Vrms) Galvanic isolation between inputs and output.

### Performance under Rated Conditions – All models

<b>Stray Rejection</b>	<b>Common Mode</b> <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. <i>DC:</i> 120 dB (with maximum source impedance of 50 ohms) or a ±1 LSB whichever is greater with 120 VDC applied. <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. Normal Mode <i>AC (50 or 60 Hz):</i> 60 dB (with 100% span peak-to-peak maximum)
<b>EMC Compliance</b>	EN 61326-1 and EN 61326-3-1 (SIL)
<b>Lightning Protection Option</b>	<b>Leakage Current:</b> 10 uA max @ 42.4 VDC 85 °C <b>Impulse rating:</b> 8/20 uS      5000 A (>10 strikes)      10000 A (1 strike min.) 10/1000 uS      200 A (> 300 strikes)

### Materials Specifications - All models

Parameter	Description
Terminal Block and Module Housing	Lexan 500R (Polycarbonate, Glass Fiber Reinforced 10%)
Connection Screws	M3 Nickel Plated Brass
Weight	0.075 kg (0.2 lbs)

**Operating Conditions – All models**

Parameter	Reference Condition		Rated Condition		Operative Limits		Transportation and Storage	
	°C	°F	°C	°F	°C	°F	°C	°F
Ambient Temperature	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 Load Resistance	<b>HART Models:</b> 12.2 to 35.0 VDC at terminals (IS installations limited to 30 VDC) 0 to 1,000 ohms (as shown in <a href="#">Figure 2</a> ) <b>DE Models:</b> 12.2 to 35 VDC at terminals (IS installations limited to 30 VDC) 0 to 700 ohms (as shown in <a href="#">Figure 3</a> )							

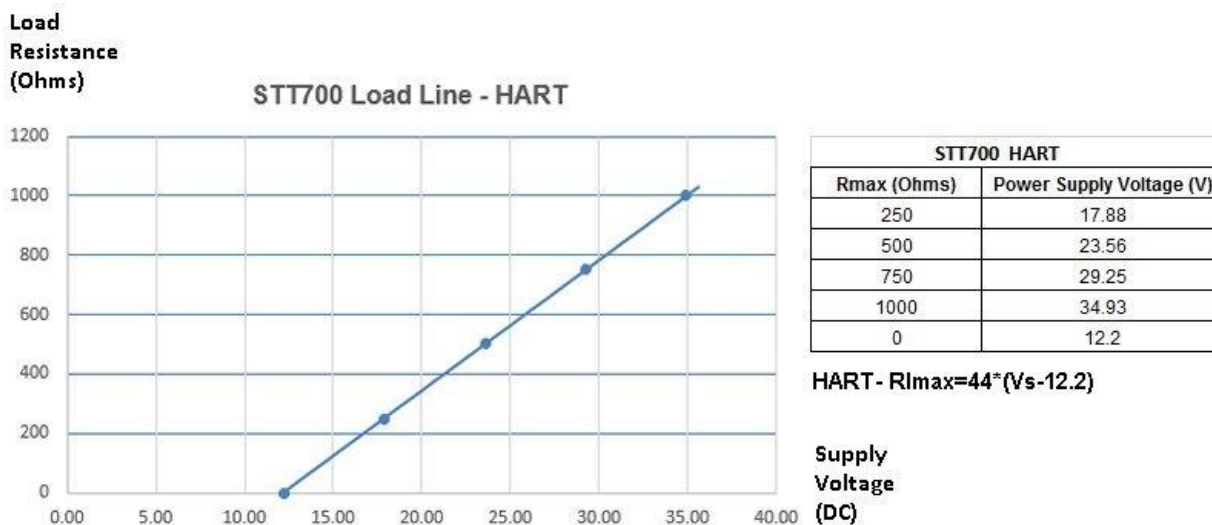


Figure 2 – HART Supply voltage and loop resistance chart & calculations

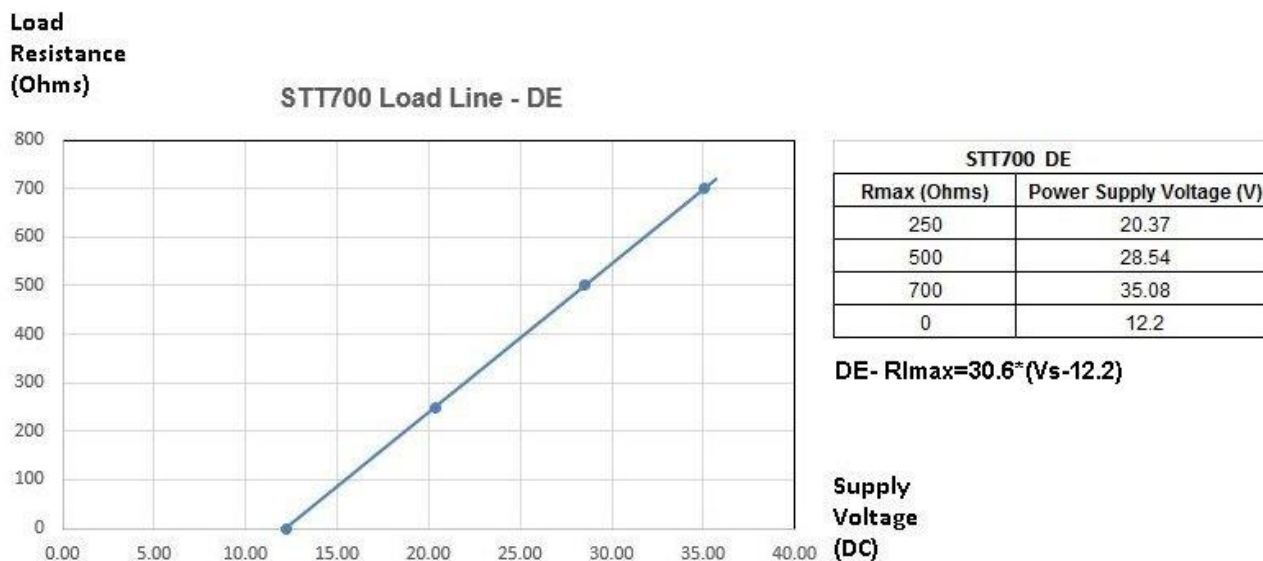


Figure 3 – DE Supply voltage and loop resistance chart & calculations



### Physical Mounting and Construction

The STT700 Temperature Transmitter is designed to be mounted in a DIN Form A aluminum housing for direct installation with the temperature sensor or can be provided in a remote pipe or wall mount housing. Details for the available housings are in document #EN01-6032. The STT700 temperature transmitter module can also be DIN rail mounted to a top hat or "G" rail via a clip.

### Integral Meters

Honeywell's Series STT700 temperature transmitters can be supplied with local or remote indication. An Engineering Units (EU) meter can be mounted integral to the transmitter inside the field mount housing. Order an integral meter as part of the model number; Table III \_\_ \_ 1 \_ . Order a remote meter as model RMA300. The EU meter displays temperature in engineering units. DE transmitters can use the EU Meter as long as they are configured to operate in the analog mode. Refer to document #34-ST-25-08D for more details.

### Mounting Module in Housing

The STT700 module can be installed in a variety of housings suitable for field mounting (2" or 50mm pipe mount), direct head mounting, or wall mounting. See [Table 1](#). Also, see STT700 Transmitter User's manual, 34-ST-25-17, for more details.

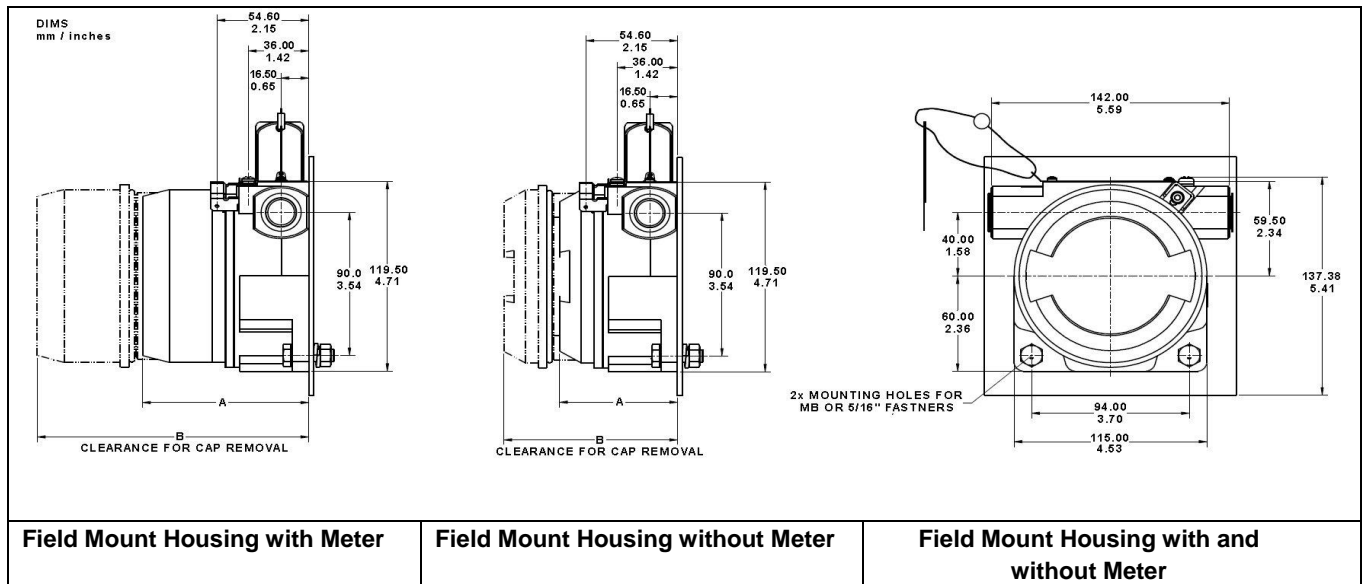


Figure 4: Wall Mounting Dimensions

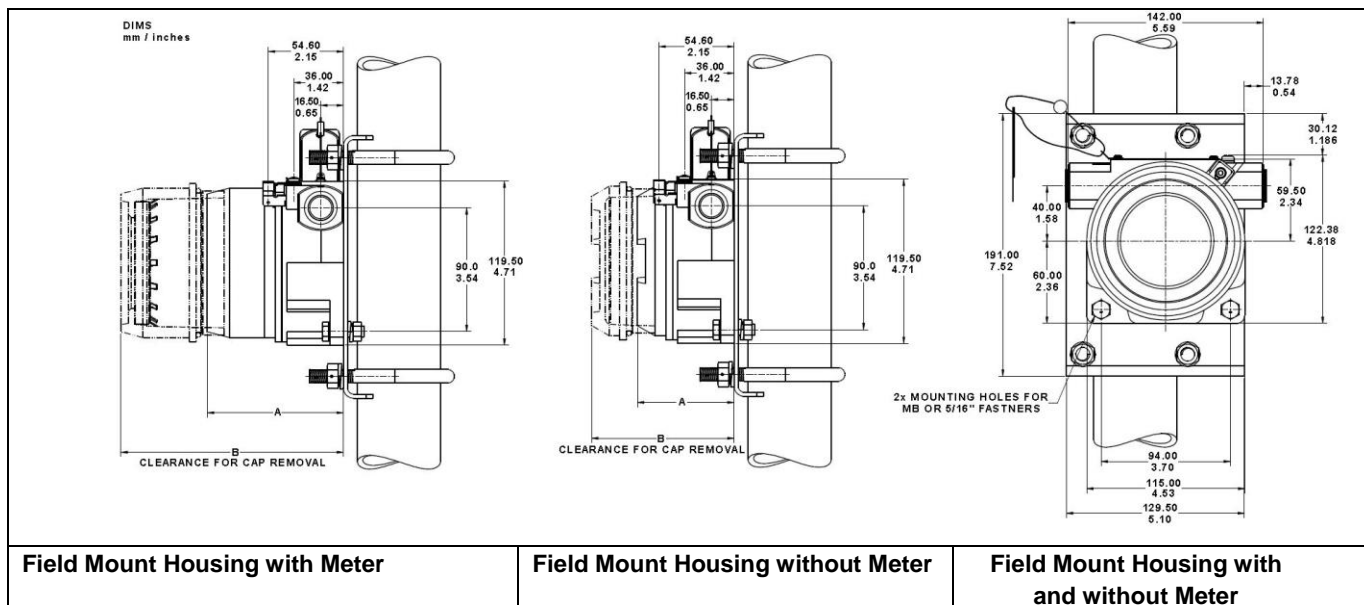


Figure 5: Pipe Mounting Dimensions

**Table 1: Dimension table for use with Figure 4 and Figure 5**

Dimensions	Aluminum (field mount housing)	
	A	B
Without integral meter	70 mm [2.76 inch]	120,8 mm [4.76 inch]
With integral meter	127 mm [5.00 inch]	210,8 mm [8.30 inch]

### Lightning Protector

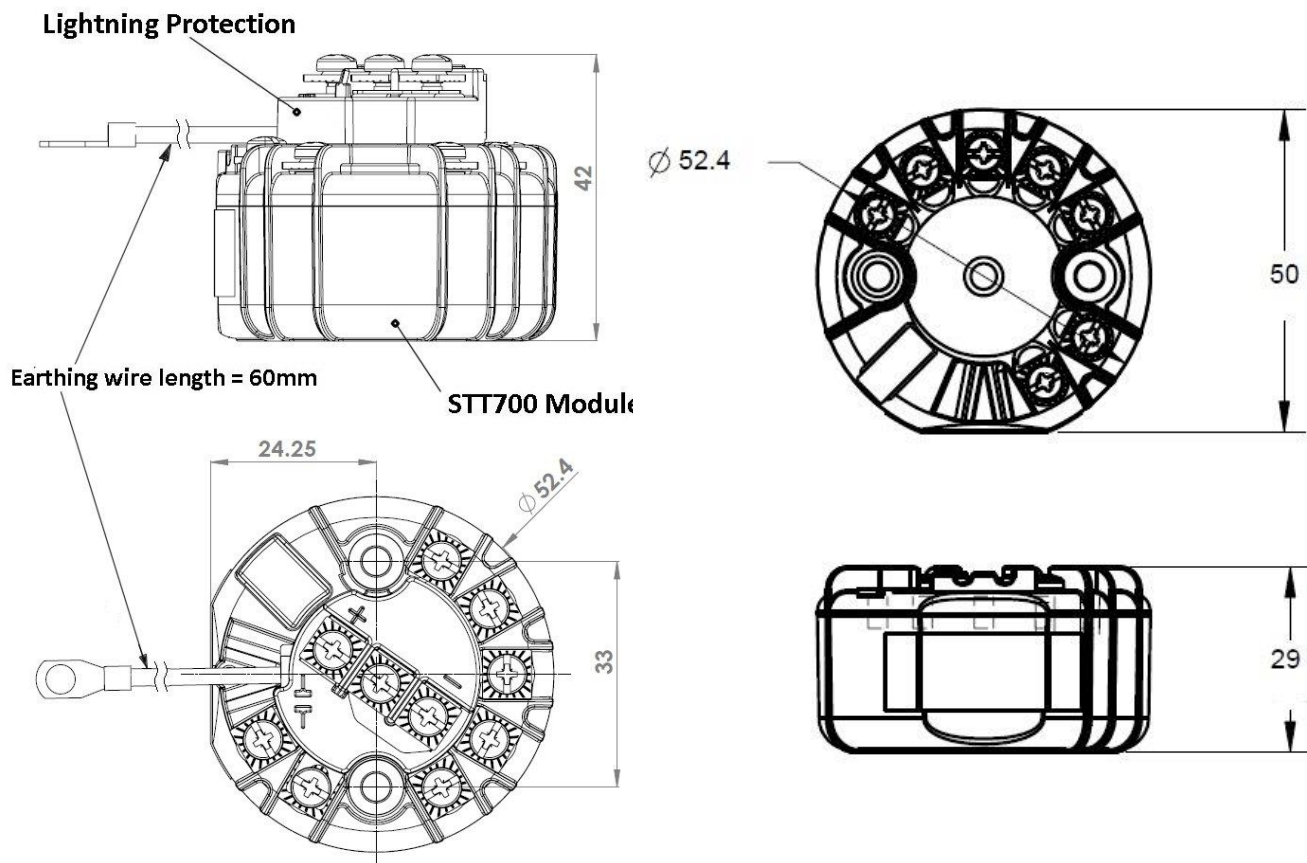
This device is designed to give the Smart temperature transmitter maximum protection against surges such as those generated by lightning strikes. It mounts right on the top of the STT700 transmitter module, providing easy field wiring and also protection for the EU meter if used.

It mounts on the top of the STT700 transmitter module, providing easy field wiring. The compact mounting allows the use of a variety of housings including the Honeywell explosion proof field mount housing. See [Figure 6](#).

Refer to document #34-TT-03-20, Lightning Protection spec for more details.

The device can be used in both intrinsic safety and flame/explosion proof applications.

### Mounting & Dimensional Drawings



**Figure 6 – STT700 transmitter module with lightning protection (left) and without (right)**



## Wiring Diagrams

### RTD Thermocouple, mV and Ohm Connections

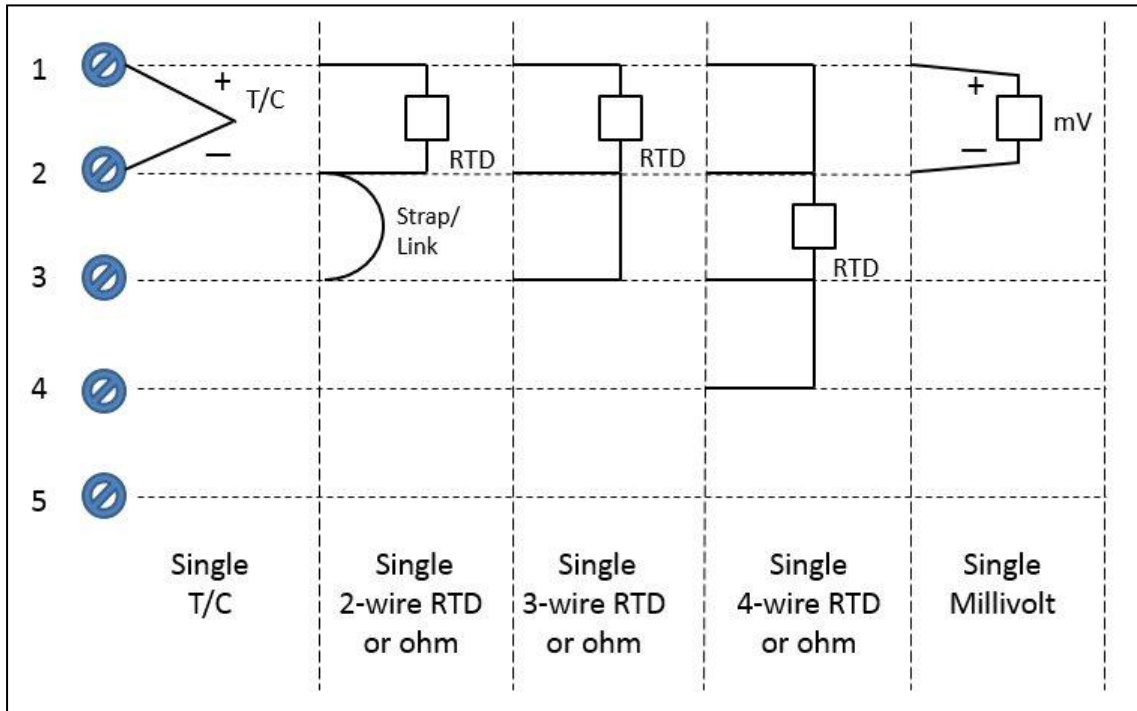


Figure 7 - HART/DE Input Wiring Diagram for single sensor connection

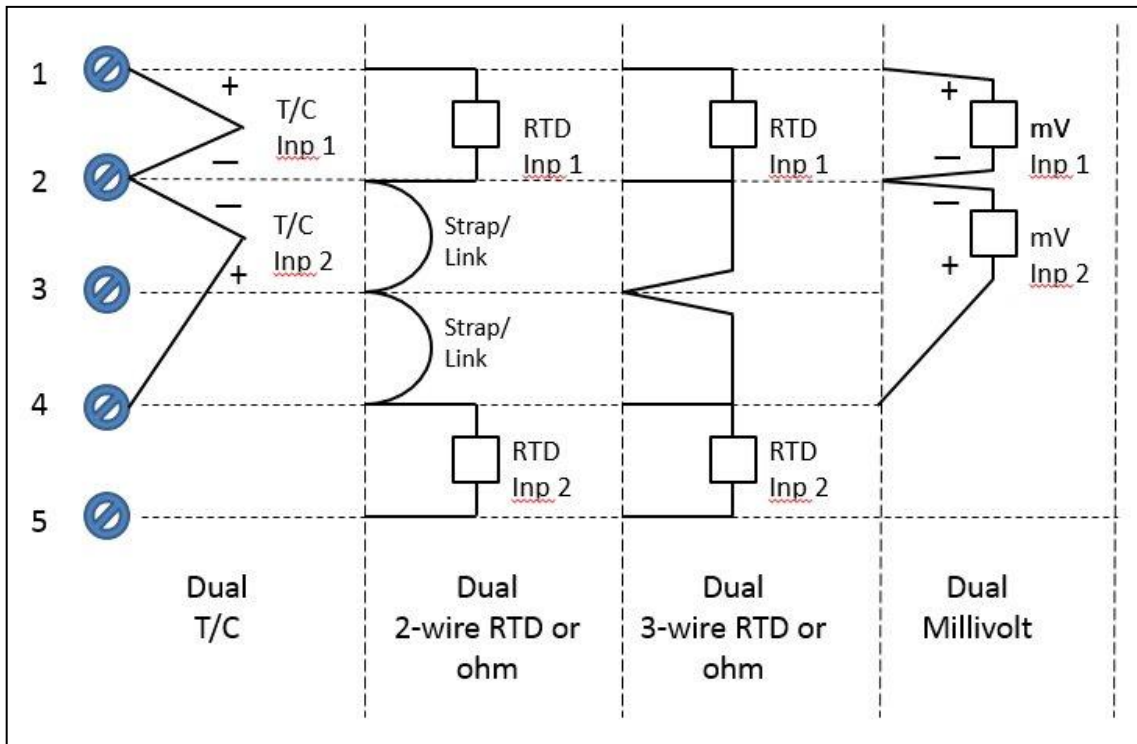










Figure 8 - Wiring Diagram for HART Dual Sensor Connections

## Approval Certifications:

MSG CODE	AGENCY	TYPE OF PROTECTION	Electrical Parameters	Ambient Temperature
F1	FM Approvals™ (USA)	<b>Intrinsically Safe</b> Certificate: FM17US0112X Class I, Division 1, Groups A, B, C, D; T6.. T4 Class I Zone 0 AEx ia IIC T6.. T4 Ga	Note 2	T6: -40 °C to +40 °C T5: -40 °C to +55 °C T4: -40 °C to +70 °C
		<b>Non-Incendive and Zone 2 Intrinsically Safe</b> Certificate: FM17US0112X Class I, Division 2, Groups A, B, C, D; T6..T4 Class I Zone 2 AEx nA IIC T6..T4 Gc Class I Zone 2 AEx ic IIC T6..T4 Gc	Note 1 Note 2 for "ic"	T6: -40 °C to +40 °C T5: -40 °C to +55 °C T4: -40 °C to +85 °C
F2 (No EU Meter)	FM Approvals™ (USA)	<b>Explosion proof</b> Certificate: FM17US0112X Class I, Division 1, Groups A, B, C, D; T6..T5 Class 1, Zone 1, AEx db IIC T6..T5 Gb	Note 1	T6: -40 °C to +65 °C T5: -40 °C to +85 °C
		<b>Non-Incendive</b> Certificate: FM17US0112X Class I, Division 2, Groups A, B, C, D; T6..T4	Note 1	T6: -40 °C to +40 °C T5: -40 °C to +55 °C T4: -40 °C to +85 °C
F2 (W/ EU Meter)	FM Approvals™ (USA)	<b>Explosion proof</b> Certificate: FM17US0112X Class I, Division 1, Groups A, B, C, D; T6..T5 Class I, Zone 1, AEx db IIC T6..T5 Gb	Note 1	T6: -40 °C to +65 °C T5: -40 °C to +85 °C
		<b>Non-Incendive and Zone 2 Intrinsically Safe</b> Certificate: FM17US0112X Class I, Division 2, Groups A, B, C, D; T4	Note 1	T4: -40 °C to +85 °C
		<b>Standards:</b> FM 3600:2018; ANSI/ UL 60079-0: 2013 FM 3615 : 2018; ANSI/ UL 60079-1: 2015 ; FM 3610:2018; ANSI/ UL 60079-11 : 2013 FM 3810 : 2018 ; FM 3611:2018; ANSI/ UL 60079-15 : 2013		

C1	CSA- Canada and USA	<b>Intrinsically Safe</b> Certificate: 70113941 Class I, Division 1, Groups A, B, C, D; T6..T4 Class I Zone 0 AEx ia IIC T6..T4 Ga Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C
		<b>Non-Incendive and Zone 2 Intrinsically Safe</b> Certificate: 70113941 Class I, Division 2, Groups A, B, C, D; T6.. T4 Class I Zone 2 AEx ic IIC T6..T4 Gc Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40 °C to +85 °C
C2	CSA- Canada and USA	<b>Explosion proof</b> Certificate: 70113941 Class I, Division 1, Groups A, B, C, D; T6..T5 Ex db IIC T6..T5 Gb Class 1, Zone 1, AEx db IIC T6..T5 Gb <b>Dust-Ignition Proof:</b> Class II, III, Division 1, Groups E, F, G; T5 Ex tb IIIC T 95°C Db Zone 21 AEx tb IIIC T 95°C Db	Note 1	T6: -40 °C to +65 °C T95°C/T5: -40 °C to +85 °C
		<b>Intrinsically Safe</b> Certificate: 70113941 Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4 Class I Zone 0 AEx ia IIC T6..T4 Ga Ex ia IIC T4 Ga	Note 2	T6: -40 °C to +40 °C T5: -40 °C to +55 °C T4: -40 °C to +70 °C
		<b>Non-Incendive and Zone 2 Intrinsically Safe</b> Certificate: 70113941 Class I, Division 2, Groups A, B, C, D; T6..T4 Class I Zone 2 AEx ic IIC T4 Gc Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40 °C to +85 °C
		<b>Enclosure:</b> Type 4X/ IP66/ IP67		
		<b>Standards:</b> CSA C22.2 No. 0-10: 2006; CSA 22.2 No. 25-1966 (reaffirmed 2009); CSA C22.2 No. 30-M1986 (reaffirmed 2012); CSA C22.2 No. 94-M91; CSA C22.2 No. 61010-1: 2013; CSA-C22.2No.157-92 (reaffirmed 2012); C22.2 No. 213: 2016; C22.2 No. 60529-05 C22.2 No. CSA 60079-0:2011; C22.2 No. 60079-1: 2011; C22.2 No. 60079-11: 2011; C22.2 No. 60079-15: 2012; C22.2 No. 60079-31: 2012;  FM 3600:2011; ANSI/ UL 60079-0: 2013 FM 3616 : 2011; FM 3615 : 2011; ANSI/ UL 60079-1: 2015 ; ANSI/ UL 60079-31: 2015; FM 3610:2015; ANSI/ UL 60079-11 : 2013 FM 3810 : 2005 ; FM 3611:2016; ANSI/ UL 60079-15 : 2013 ANSI/ UL 913: Edition 7; ANSI/ UL 916 : Edition 4 ;		

A1	ATEX	<b>Intrinsically Safe</b> <b>Certificate:</b> SIRA 17ATE2162X  II 1 G Ex ia IIC T6..T4 Ga	Note 2	T4: -40 °C to +70 °C	
		<b>Non Sparking and Zone 2 Intrinsically Safe</b> <b>Certificate:</b> SIRA 17ATE4161X  II 3 G Ex ec IIC T6..T4 Gc  II 3 G Ex ic IIC T6..T4 Gc	Note 1 Note 2 for "ic"	T4: -40 °C to +70 °C	
A2	ATEX	<b>Flameproof</b> <b>Certificate:</b> SIRA 17ATE2162X  II 2 G Ex db IIC T6..T5 Gb  II 2 D Ex tb IIIC T 95°C Db	Note 1	T6: -40 °C to +65 °C T95°C/T5: -40 °C to +85 °C	
		<b>Intrinsically Safe</b> <b>Certificate:</b> SIRA 17ATE2162X  II 1 G Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C	
		<b>Category 3 Non Sparking</b> <b>Certificate :</b> HON 17.0202X  II 3 G Ex ec IIC T4 Gc <b>Category 3 Intrinsically Safe</b> <b>Certificate:</b> SIRA 17ATE4161X  II 3 G Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40 °C to +85 °C	
		<b>Enclosure:</b> IP66/ IP67			
		<b>Standards :</b> EN 60079-0: 2012+A11 : 2013; EN 60079-1 : 2014 ; EN 60079-11: 2012 ; EN 60079-7 : 2015 ; EN 60079-31 : 2014			
E1	IECEX	<b>Intrinsically Safe</b> <b>Certificate:</b> SIR 17.0035X Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C	
		<b>Non Sparking, Zone 2 Intrinsically Safe</b> <b>Certificate:</b> SIR 17.0035X Ex ec IIC T4 Gc Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40 °C to +85 °C	
E2	IECEX	<b>Flameproof</b> <b>Certificate:</b> SIR 17.0035X Ex db IIC T6..T5 Gb Ex tb IIIC T 95°C Db	Note 1	T6: -40 °C to +65 °C T95°C/T5: -40 °C to +85 °C	
		<b>Intrinsically Safe</b> <b>Certificate:</b> SIR 17.0035X Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C	
		<b>Zone 2 Intrinsically Safe</b> <b>Certificate:</b> SIR 17.0035X Ex ic IIC T4 Gc	Note 2	T4: -40 °C to +85 °C	
		<b>Enclosure:</b> IP66/ IP67			
		<b>Standards:</b> IEC 60079-0: 2011; IEC 60079-1 : 2014; IEC 60079-11 : 2011; IEC 60079-31 : 2014			

P1	CCoE-INDIA	<b>Intrinsically Safe</b> <b>Certificate:</b> P417399/1 Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C
P2	CCoE-INDIA	<b>Flameproof</b> <b>Certificate:</b> P417399/1 Ex db IIC T6..T5 Gb	Note 1	T6: -40 °C to +65 °C T5: -40 °C to +85 °C
		<b>Intrinsically Safe</b> <b>Certificate:</b> P417399/1 Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C
		<b>Enclosure:</b> IP66/ IP67		
N1	NEPSI (China)	<b>Intrinsically Safe</b> <b>Certificate:</b> GYJ18.1420X Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C
		<b>Non Sparking, Zone 2 Intrinsically Safe</b> <b>Certificate:</b> GYJ18.1420X Ex ec IIC T6..T4 Gc Ex ic IIC T6..T4 Gc	Note 1 Note 2 for "ic"	T4: -40 °C to +85 °C
N2	NEPSI (China)	<b>Flameproof</b> <b>Certificate:</b> GYJ18.1420X Ex db IIC T6..T5 Gb Ex tD A21 IP6X T80 °C/ T95 °C	Note 1	T6: -40 °C to +65 °C T95 °C/T5: -40 °C to +85 °C
		<b>Intrinsically Safe</b> <b>Certificate:</b> GYJ18.1420X Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C
		<b>Zone 2 Intrinsically Safe</b> <b>Certificate:</b> GYJ18.1420X Ex ic IIC T4 Gc	Note 2	T4: -40 °C to +85 °C
		<b>Enclosure:</b> IP66/ IP67		
S1	SAEx South Africa	<b>Intrinsically Safe</b> <b>Certificate:</b> XPL 18.0865X Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C
		<b>Non Sparking, Zone 2 Intrinsically Safe</b> <b>Certificate:</b> XPL 18.0865X Ex ec IIC T4 Gc Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40 °C to +85 °C
S2	SAEx South Africa	<b>Flameproof</b> <b>Certificate:</b> XPL 18.0865X Ex db IIC T6..T5 Gb Ex tb IIIC T 95 °C Db	Note 1	T6: -40 °C to +65 °C T95 °C/T5: -40 °C to +85 °C
		<b>Intrinsically Safe</b> <b>Certificate:</b> XPL 18.0865X Ex ia IIC T4 Ga	Note 2	T4: -40 °C to +70 °C
		<b>Zone 2 Intrinsically Safe</b> <b>Certificate:</b> XPL 18.0865X Ex ic IIC T4 Gc	Note 2	T4: -40 °C to +85 °C
		<b>Enclosure:</b> IP66/ IP67		

**Notes****1. Operating Parameters:**

4-20 mA/HART (Loop Terminal) - Voltage= 10.58 to 35 V, Current= 4-20 mA Normal (3.8 – 21.5 mA Faults)

**2. Intrinsically Safe Entity Parameters**

For details see Control Drawing in the STT700 Transmitter User's manual (#34-TT-25-17)

**Model Selection Guide**

The Model Selection Guide is subject to change and is inserted into the specification as guidance only.

**Model STT700  
Smart Temperature Transmitter**

Model Selection Guide  
34-44-16-21 Issue 4

**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
STT700	-	-	-	-	-	-	-	00000

KEY NUMBER	Input Type
	Universal Input

Availability Selection	
STT700	*

Table I	Inputs and Outputs	
a. No. Inputs	Single sensor input (4 terminations)	
	Dual TC or RTD sensor inputs (5 terminations)	
b. Output / Protocol	<b>Analog Output</b>	<b>Digital Protocol</b>
	4-20mA DC	HART Protocol
	4-20mA DC	DE Protocol

1	*
3	a

_H	*
_D	s

TABLE II	Agency Approvals (see specification data sheet for Approval Code Details)	
a. Approvals	No Approvals Required	
	ATEX Intrinsically Safe & Non Sparking	
	ATEX Intrinsically Safe, Flameproof, Dust and Non Sparking	
	CSA Intrinsically Safe & Non-incendive/Non Sparking	
	CSA Intrinsically Safe, Flameproof/Explosion proof, Dustproof & Non-incendive/Non Sparking	
	IEC Ex Intrinsically Safe & Non Sparking	
	IEC Ex Intrinsically Safe, Flameproof & Dusttight	
	FM Approval Intrinsically Safe & Non-incendive	
	FM Approval Explosion proof & Non-incendive	
	NEPSI Intrinsically Safe & Non Sparking	
	NEPSI Intrinsically Safe, Flameproof & Dusttight	
	CCoE Intrinsically Safe & Non Sparking	
	CCoE Intrinsically Safe, Flameproof & Dusttight	
	SAEx Intrinsically Safe & Non Sparking	
SAEx Intrinsically Safe, Flameproof & Dusttight		
b. Safety	No SIL	
	SIL 2/3 certified	

00	*
A1	v
A2	k
C1	v
C2	k
E1	v
E2	k
F1	v
F2	k
N1	v
N2	k
P1	v
P2	k
S1	v
S2	k
_0	*
_E	m

TABLE III	TRANSMITTER HOUSING and ELECTRONICS SELECTIONS		
a. Housing	<b>Housing and Material</b>		
	None		
	Polyester Powder Coated Aluminum (STT3000)- 2 conduit (1/2 NPT) connections, body		
b. End Cap	316 Stainless Steel (Grade CF8M, STT3000) - 2 conduit (1/2 NPT) connections, body		
	<b>End Cap and Material</b>		
	None		
	Polyester Powder Coated Aluminum (STT3000)- end cap		
	Polyester Powder Coated Aluminum (STT3000)- end cap with window		
c. Paint Option - Housing	316 Stainless Steel (Grade CF8M, STT3000) - end cap		
	316 Stainless Steel (Grade CF8M, STT3000) - end cap with window		
d. Paint Option - Cap	Item		
e. Interface Selections	<b>Integral Display</b>	<b>Buttons</b>	<b>Languages</b>
	None	None	None
	EU Meter	None	English
f. Lightning Protection	No lightning protection		
	Lightning protection		

0	*
U	*
X	*

_0	c
_U	u
_V	u
_X	x
_Z	x

_0	*
----	---

_0	*
----	---

_0	*
_1	f

_0	*
_P	*



TABLE IV		ACCESSORY SELECTIONS		Availability Selection											
a. Mounting Arrangement	Bracket Type		Material		<table border="1"> <tr><td>0 ___</td><td>*</td></tr> <tr><td>8 ___</td><td>*</td></tr> <tr><td>9 ___</td><td>*</td></tr> <tr><td>6 ___</td><td>v</td></tr> <tr><td>7 ___</td><td>c</td></tr> </table>	0 ___	*	8 ___	*	9 ___	*	6 ___	v	7 ___	c
	0 ___	*													
	8 ___	*													
	9 ___	*													
	6 ___	v													
7 ___	c														
None		None													
Mounting Bracket for 2" pipe (STT3000 housing)		Carbon Steel													
Mounting Bracket for 2" pipe (STT3000 housing)		316 SS													
Spring Loaded Mounting set															
DIN Rail Mounting via Clip															
b. Customer Tag	Customer Tag Type				<table border="1"> <tr><td>_ 0 _ _</td><td>*</td></tr> <tr><td>_ 1 _ _</td><td>n</td></tr> <tr><td>_ 2 _ _</td><td>n</td></tr> <tr><td>_ 5 _ _</td><td>n</td></tr> </table>	_ 0 _ _	*	_ 1 _ _	n	_ 2 _ _	n	_ 5 _ _	n		
	_ 0 _ _	*													
	_ 1 _ _	n													
	_ 2 _ _	n													
	_ 5 _ _	n													
No customer tag															
One Stainless Steel Tag (Up to 4 lines, 26 char / line), wired-on															
Two Stainless Steel Tag (Up to 4 lines, 26 char / line), wired-on															
One Wired Stainless Steel Blank Tag (Up to 4 lines, 26 char / line)															
c. Unassembled Conduit Plugs & Adapters	Unassembled Conduit Plugs & Adapters				<table border="1"> <tr><td>_ _ A0</td><td>*</td></tr> <tr><td>_ _ A1</td><td>*</td></tr> <tr><td>_ _ A2</td><td>*</td></tr> <tr><td>_ _ A6</td><td>*</td></tr> </table>	_ _ A0	*	_ _ A1	*	_ _ A2	*	_ _ A6	*		
	_ _ A0	*													
	_ _ A1	*													
	_ _ A2	*													
	_ _ A6	*													
No Conduit Plugs or Adapters Required															
1/2 NPT Male to M20 Female 316 SS Certified Conduit Adapter (qty 2)															
1/2 NPT Male to 3/4 NPT Female 316 SS Certified Conduit Adapter (qty 2)															
1/2 NPT 316 SS Certified Conduit Plug															

TABLE V		CONFIGURATION SELECTIONS				Availability Selection							
a. Application Support	Diagnostics				<table border="1"> <tr><td>1 _ _</td><td>*</td></tr> </table>	1 _ _	*						
	1 _ _	*											
Standard Diagnostics													
b. Output Limit, Failsafe & Write Protect Settings	Write Protect	Fail Mode	High & Low Output Limits <sup>3</sup>		<table border="1"> <tr><td>_ 1 _</td><td>*</td></tr> <tr><td>_ 2 _</td><td>*</td></tr> <tr><td>_ 3 _</td><td>*</td></tr> <tr><td>_ 4 _</td><td>*</td></tr> </table>	_ 1 _	*	_ 2 _	*	_ 3 _	*	_ 4 _	*
	_ 1 _	*											
	_ 2 _	*											
	_ 3 _	*											
	_ 4 _	*											
Disabled	High > 21.0mA dc	Honeywell Std (3.8 - 20.8 mA dc)											
Disabled	Low < 3.6mA dc	Honeywell Std (3.8 - 20.8 mA dc)											
Enabled	High > 21.0mA dc	Honeywell Std (3.8 - 20.8 mA dc)											
Enabled	Low < 3.6mA dc	Honeywell Std (3.8 - 20.8 mA dc)											
c. General Configuration	Factory Standard				<table border="1"> <tr><td>_ _ S</td><td>*</td></tr> <tr><td>_ _ C</td><td>*</td></tr> </table>	_ _ S	*	_ _ C	*				
	_ _ S	*											
_ _ C	*												
Custom Configuration													

TABLE VI		CALIBRATION & ACCURACY SELECTIONS			Availability Selection				
Accuracy and Calibration	Accuracy	Calibrated Range	Calibration Qty		<table border="1"> <tr><td>A</td><td>*</td></tr> <tr><td>C</td><td>*</td></tr> </table>	A	*	C	*
	A	*							
	C	*							
Standard	Factory Std	Single Calibration							
Standard	Custom (Unit data required)	Single Calibration							

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

TABLE VII		Other Certifications and Options		Availability Selection																			
Certifications and Warranty	None - no additional options		<table border="1"> <tr><td>00</td><td>*</td><td rowspan="5">b</td></tr> <tr><td>F3</td><td>*</td></tr> <tr><td>F1</td><td>*</td></tr> <tr><td>F5</td><td>*</td></tr> <tr><td>FE</td><td>p</td></tr> <tr><td>W1</td><td>*</td><td rowspan="5">b</td></tr> <tr><td>W2</td><td>*</td></tr> <tr><td>W3</td><td>*</td></tr> <tr><td>W4</td><td>*</td></tr> </table>	00	*	b	F3	*	F1	*	F5	*	FE	p	W1	*	b	W2	*	W3	*	W4	*
	00	*		b																			
	F3	*																					
	F1	*																					
	F5	*																					
	FE	p																					
	W1	*		b																			
	W2	*																					
	W3	*																					
	W4	*																					
Certificate of Conformance																							
Calibration Test Report & Certificate of Conformance																							
Certificate of Origin																							
SIL 2/3 Certificate																							
Extended Warranty Additional 1 year																							
Extended Warranty Additional 2 years																							
Extended Warranty Additional 3 years																							
Extended Warranty Additional 4 years																							

TABLE VIII		Manufacturing Specials		Availability Selection	
Factory	Factory Identification		<table border="1"> <tr><td>00000</td><td>*</td></tr> </table>	00000	*
00000	*				

**MODEL RESTRICTIONS**

Restriction Letter	Available Only with		Not Available with	
	Table	Selection(s)	Table	Selection(s)
a			lb	_ D
c	IIIa	0 _ _ _ _		
f	IIIb	_ V, Z _ _ _ _		
k	IIIa	U, X _ _ _ _		
m	III f	_ _ _ _ P		
n			IIIa	0 _ _ _ _
p	IIb	_ _ E		
s			IIb IIIe	_ E _ _ 1 _
u	IIIa	U _ _ _ _		
v			IIIa	U, X _ _ _ _
x	IIIa	X _ _ _ _		
b	Select only one option from this group			

**REPLACEMENT PARTS**

Description	Kit Number
DIN rail mounting clip	51156364-501
Spring loaded mounting clip	46188416-501
Mounting bracket - carbon steel, 2 inch pipe	30755905-501
Cap - blind, carbon steel	46188471-501
Cap - window, carbon steel	46188471-502
EU Meter - replacement	51451985-501
EU Meter - mounting bracket	46188056-502

## Sales and Service

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

### ASIA PACIFIC

Honeywell Process Solutions,  
(TAC) [dfs-tac-support@honeywell.com](mailto:dfs-tac-support@honeywell.com)

Australia  
Honeywell Limited  
Phone: +(61) 7-3846 1255  
FAX: +(61) 7-3840 6481  
Toll Free 1300-36-39-36  
Toll Free Fax:  
1300-36-04-70

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

Singapore  
Honeywell Pte Ltd.  
Phone: +(65) 6580 3278  
Fax: +(65) 6445-3033

South Korea  
Honeywell Korea Co Ltd  
Phone: +(822) 799 6114  
Fax: +(822) 792 9015

### EMEA

Honeywell Process Solutions,  
Phone: + 80012026455 or  
+44 (0)1202645583

Email: (Sales)  
[FP-Sales-Apps@Honeywell.com](mailto:FP-Sales-Apps@Honeywell.com)  
or  
(TAC)  
[dfs-tac-support@honeywell.com](mailto:dfs-tac-support@honeywell.com)

### AMERICA'S

Honeywell Process Solutions,  
Phone: (TAC) 1-800-423-9883 or  
215/641-3610  
(Sales) 1-800-343-0228

Email: (Sales)  
[FP-Sales-Apps@Honeywell.com](mailto:FP-Sales-Apps@Honeywell.com)  
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

### Process Solutions

Honeywell  
1250 W Sam Houston Pkwy S  
Houston, TX 77042

Honeywell Control Systems Ltd  
Honeywell House, Skimped Hill Lane  
Bracknell, England, RG12 1EB  
Shanghai City Centre, 100 Jungi Road  
Shanghai, China 20061

[www.honeywellprocess.com](http://www.honeywellprocess.com)

34-TT-03-19  
December 2018  
©2018 Honeywell International Inc.

**Honeywell**