SmartLine

Technical Information

STT700 SmartLine Temperature Transmitter Specification
34-TT-03-19, September 2022

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 ±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, α, δ and β for calibrated RTD sensors.

Lower Cost of Ownership

- Universal input
- Dual sensor option
- Polarity insensitive loop wiring

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

Figure 1 –
SmartLine STT700 Temperature Transmitter.
Top image shown with housing.
Bottom image with (HART) module only 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.

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 sensor types, allows your site to standardize on a single product and thus simplifying support and training.

Indication/Display Option

The STT700 accommodates a Standard alphanumeric LCD display.

Standard 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 6 digits PV (9.95H x 4.20W mm), 8 Characters
- Built in Basic Device Configuration through internal buttons – Range/Engineering Unit/Loop Test/ Loop Calibration/Zero-Span Setting
- Write Protect indication

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[1,3]

Reference Accuracy [2] (conformance to +/-3 Sigma)

Input Type	Maximum Range Limits		Digital Accuracy (+/-)	Output D/A Accuracy (% of span)	Standards
RTD (2,3,4 wire)	**° C**	**° F**	**° C**	**%**	
Pt100 (α=0.00385)	-200 to 450 -200 to 850	-328 to 842 -328 to 1562	0.15 0.25	0.025	IEC751:1990
Pt200 (α=0.00385)	-200 to 450 -200 to 850	-328 to 842 -328 to 1562	0.30 0.40	0.025	IEC751:1990
Ni 120[5] (α=0.00672)	-80 to 260	-112 to 500	0.12	0.025	Edison Curve #7
Pt50[5] (α=0.00391)	-200 to 450 -200 to 600	-328 to 842 -328 to 1112	0.32 0.55	0.025	GOST 6651-94
Pt100[5] (α=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[5] (α=0.00426)	-50 to 200	-58 to 392	0.42	0.025	GOST 6651-94
Cu 100[5] (α=0.00426)	-50 to 200	-58 to 392	0.50	0.025	GOST 6651-94
Cu 50[5] (α=0.00428)	-200 to 200	-328 to 392	0.55	0.025	GOST 6651-94
Cu 100[5] (α=0.00428)	-200 to 200	-328 to 392	0.32	0.025	GOST 6651-94
Thermocouples	**° 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[5]	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[5]	-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 (α= 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 **Digital Communications:**	Two-wire, 4 to 20 mA HART 7 protocol compliant Honeywell Digitally Enhanced (DE) protocol compliant		
Output Failure Modes		Honeywell Standard:	NAMUR NE 43 Compliance:
	Normal Limits:	3.8 – 20.8 mA	3.8 – 20.5 mA
	Failure Mode:	≤ 3.6 mA and ≥ 21.5 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.		

Analog Input	**Stability:** 0.05% of URL per year for 10 years **Maximum Lead Wire Resistance:** Thermocouples and millivolts: 25 ohms/leg RTD and ohms: 25 ohms/leg
Response Time **(delay + time constant)**	**Analog Output** 500 mSec to reach 96% of final value with 0 seconds damping
Update time	500 mSec for Single Input Units 1 Sec for Dual Input Units
Damping Time Constant	**HART:** Adjustable from 0 to 102 seconds in 0.1 increments. **Default:** 0.50 seconds **DE:** Discrete values 0.0, 0.3, 0.7, 1.5, 3.1, 6.3, 12.7, 25.5, 51.1, 102.3 seconds. **Default**: 0.3 seconds
Ambient Temperature Effect	**Digital Accuracy** 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. **Output D/A:** 0.0045 % of span/°C
Cold Junction Accuracy	±0.5 °C
Total Reference Accuracy	**Digital Mode** Digital Accuracy + C/J Accuracy (T/C input types only) **Analog Mode (HART only)** 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
Sensor Burnout	Burnout detection is user selectable. Upscale or down scale with critical status.
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.

Performance under Rated Conditions – All models

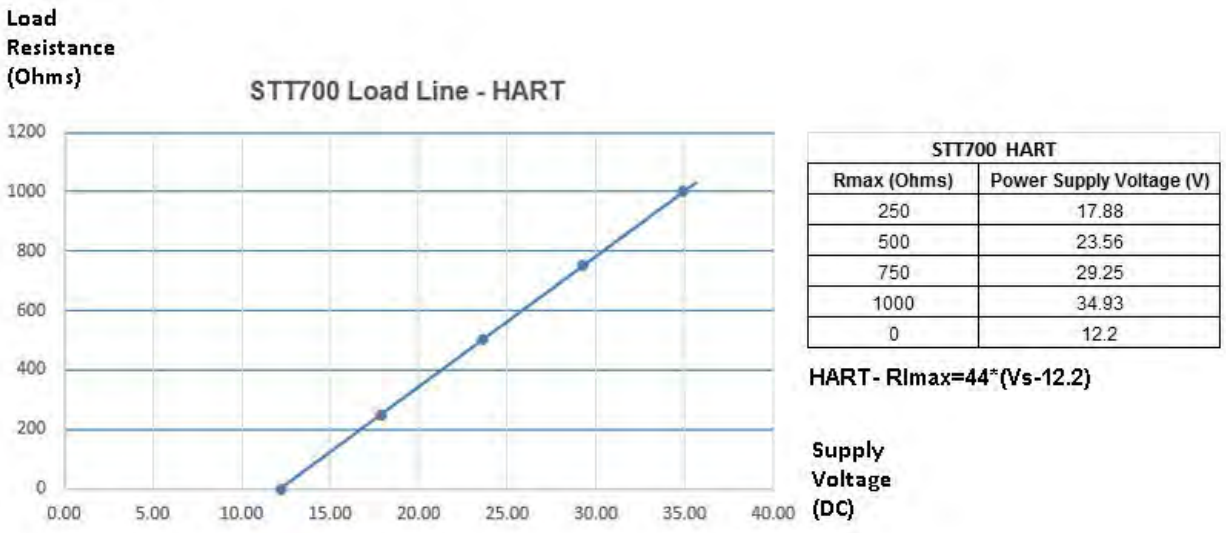
Stray Rejection	**Common Mode** *AC (50 or 60 Hz):* 120 dB (with maximum source impedance of 100 ohms) or ± 1 LSB (least significant bit) whichever is greater with line voltage applied. *DC:* 120 dB (with maximum source impedance of 50 ohms) or a ±1 LSB whichever is greater with 120 VDC applied. *DC (to 1 KHz):* 50 dB (with maximum source of impedance of 50 ohms) or ±1 LSB whichever is greater with 50 VAC applied. **Normal Mode** *AC (50 or 60 Hz):* 60 dB (with 100% span peak-to-peak maximum)
EMC Compliance	EN 61326-1 and EN 61326-3-1 (SIL)
Lightning Protection Option	**Leakage Current:** 10 uA max @ 42.4 VDC 85 °C **Impulse rating:** 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

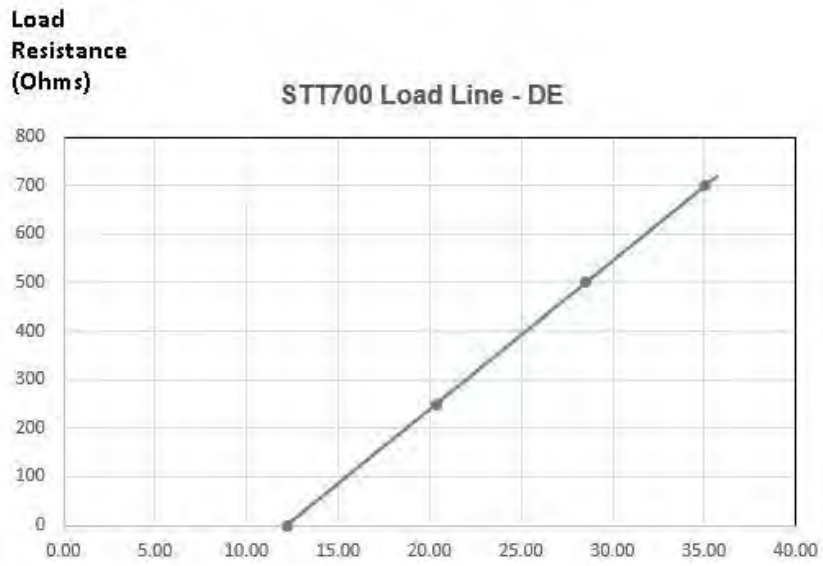
Parameter	Reference Condition		Rated Condition		Operative Limits		Transportation and Storage	
	°C	°F	°C	°F	°C	°F	°C	°F
Ambient Temperature	25±1	77±2	-40 to 85	-40 to 185	-40 to 85	-40 to 185	-55 to 120	-67 to 248
Humidity %RH	10 to 55		0 to 100		0 to 100		0 to 100	
Supply Voltage **Load Resistance**	**HART Models:** 12.2 to 35.0 VDC at terminals (IS installations limited to 30 VDC) 0 to 1,000 ohms (as shown in Figure 2) **DE Models**: 12.2 to 35 VDC at terminals (IS installations limited to 30 VDC) 0 to 700 ohms (as shown in Figure 3)							



STT700 HART	
Rmax (Ohms)	Power Supply Voltage (V)
250	17.88
500	23.56
750	29.25
1000	34.93
0	12.2

HART- RImax=44*(Vs-12.2)

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



STT700 DE	
Rmax (Ohms)	Power Supply Voltage (V)
250	20.37
500	28.54
700	35.08
0	12.2

DE- RImax=30.6*(Vs-12.2)

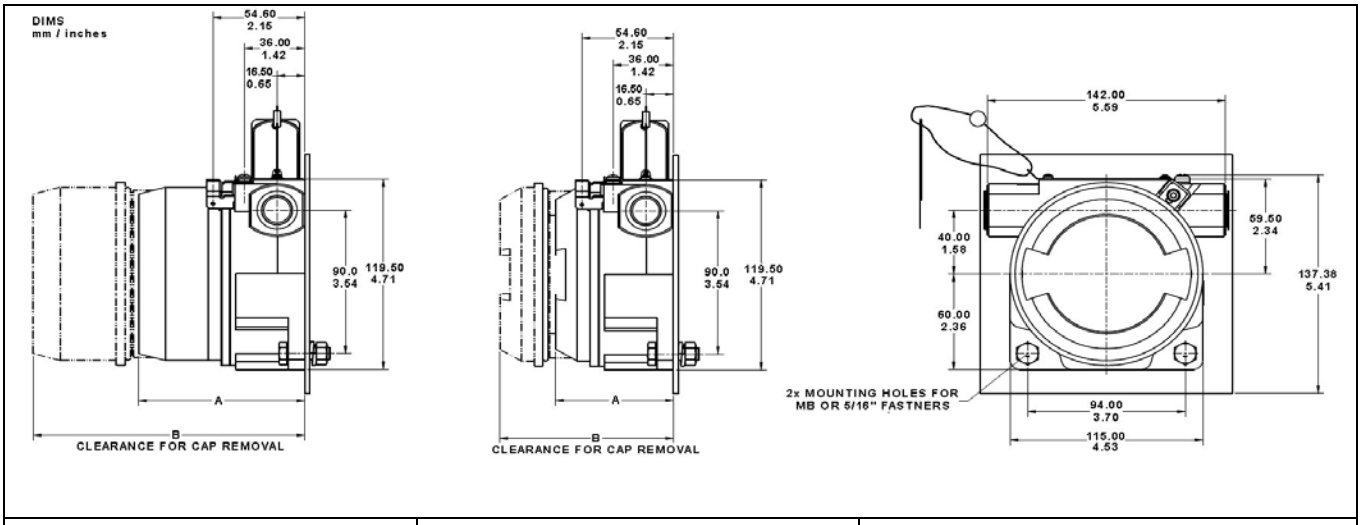
Figure 3 – DE Supply voltage and loop resistance chart & calculations

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 #EN0I-6032. The STT700 temperature transmitter module can also be DIN rail mounted to a top hat or “G” rail via a clip.

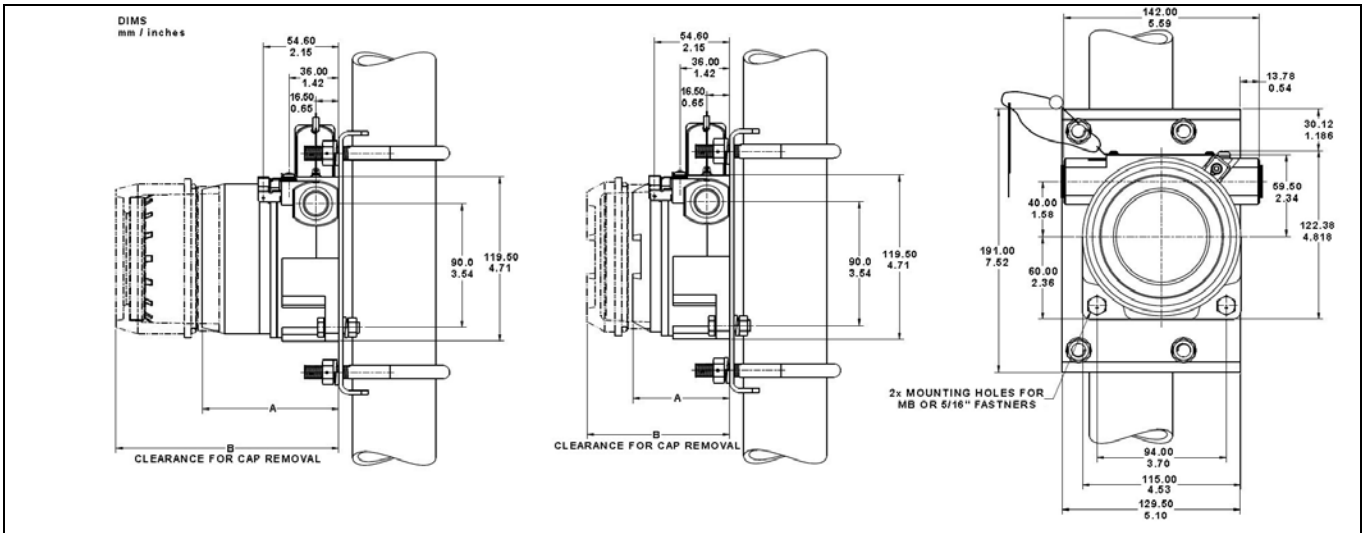
Mounting Module in Housing

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.



Field Mount Housing with Meter	Field Mount Housing without Meter	Field Mount Housing with and without Meter

Figure 4: Wall Mounting Dimensions



Field Mount Housing with Meter	Field Mount Housing without Meter	Field Mount Housing with and without Meter

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 meter if used. 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

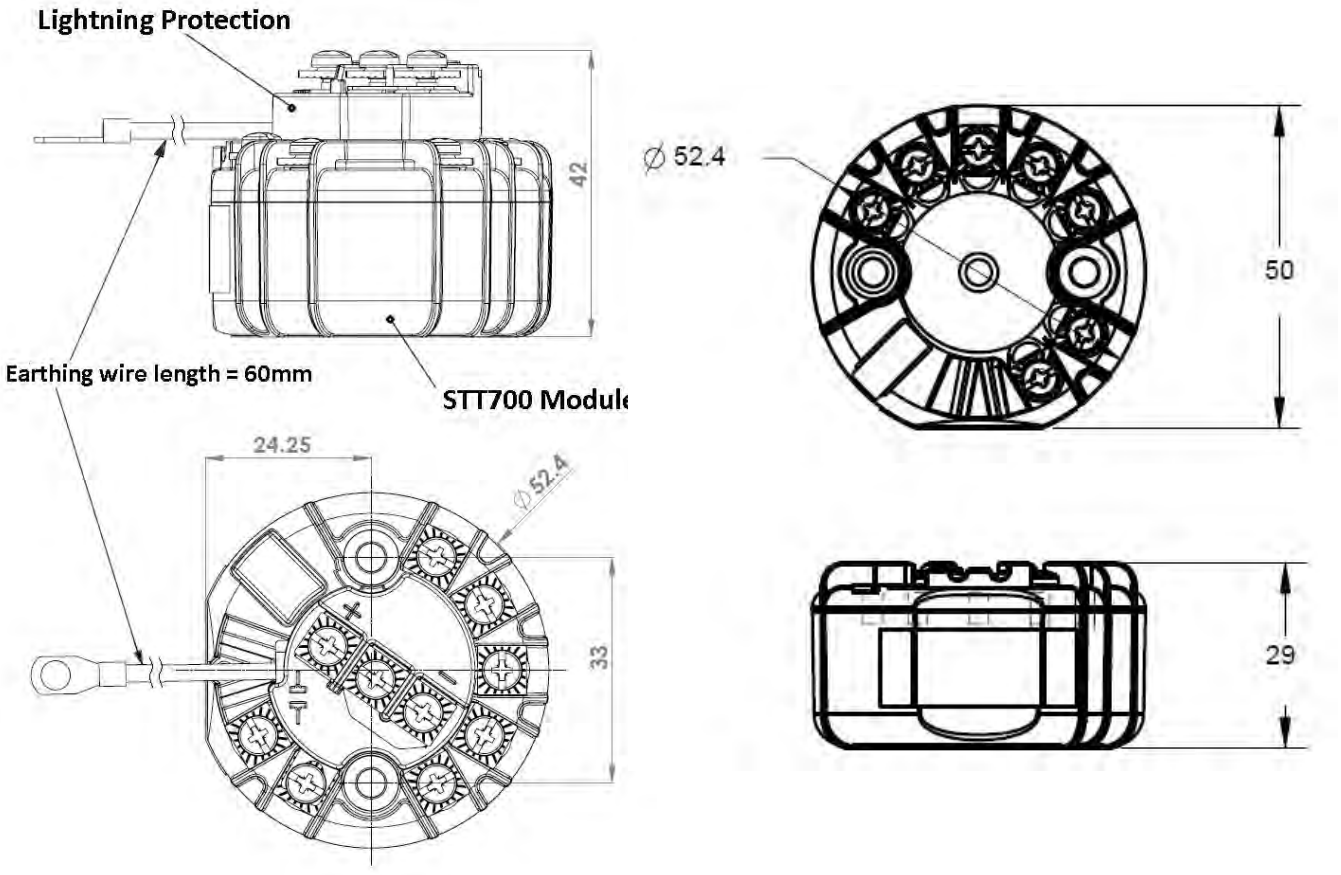


Figure 6 – STT700 transmitter module with lightning protection (left) and without (right)

Wiring Diagrams

RTD Thermocouple, mV and Ohm Connections

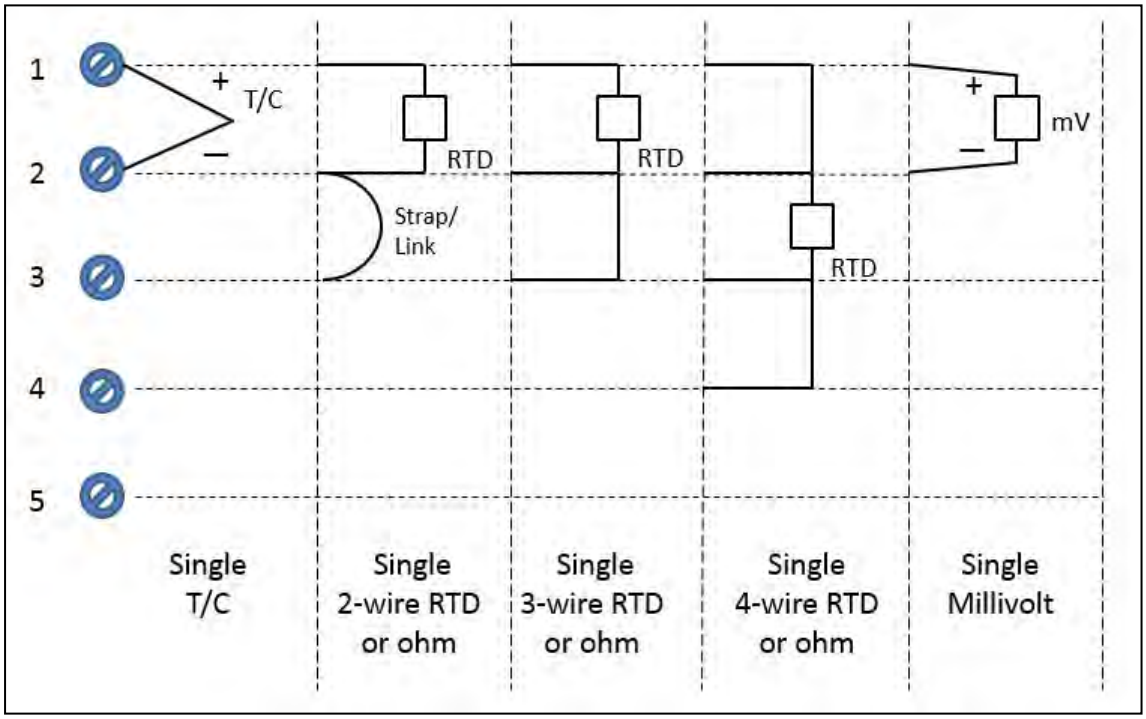


Figure 7 - HART/DE Input Wiring Diagram for single sensor connection

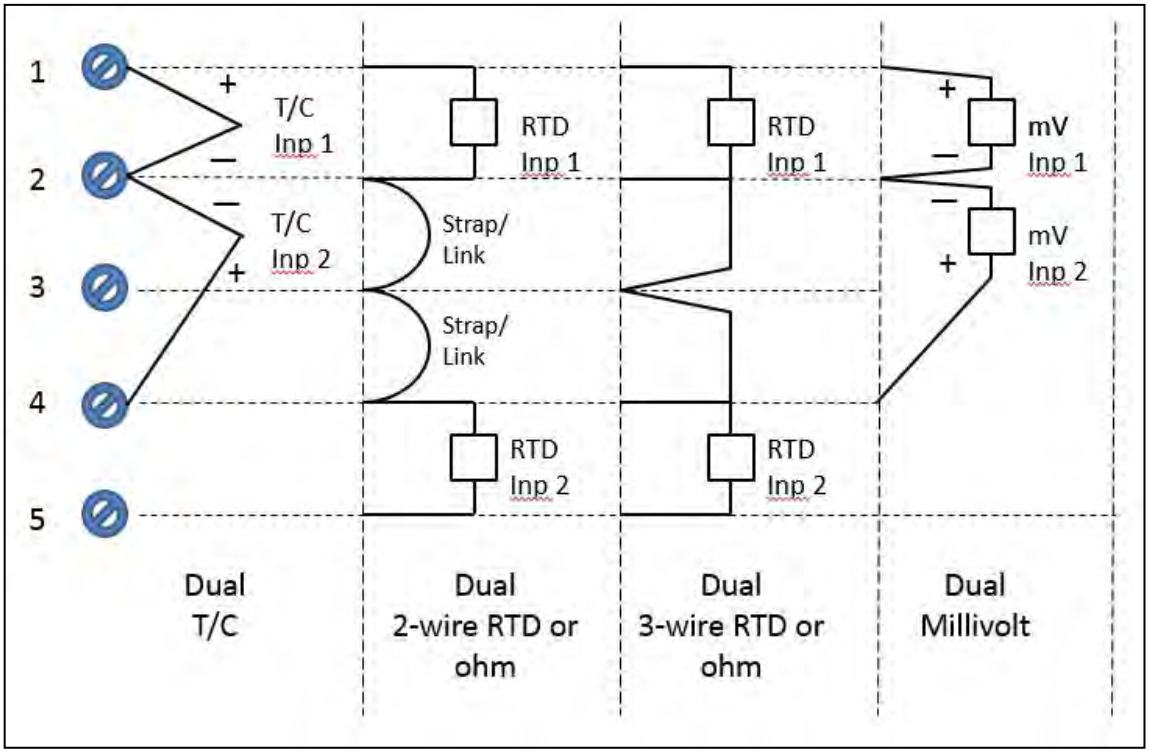


Figure 8 – Wiring Diagram for HART Dual Sensor Connections

Approval Certifications:

AGENCY	MSG Code	TYPE OF PROTECTION	Electrical Parameters	Ambient Temperature
FM Approvals™ (USA)	F1	**Intrinsically Safe** 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: -40ºC to +40ºC T5: -40ºC to +55ºC T4: -40ºC to +70ºC
		Non-Incendive and Zone 2 Intrinsically Safe 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: -40ºC to +40ºC T5: -40ºC to +55ºC T4: -40ºC to +85ºC
	F2	**Intrinsically Safe** Certificate: FM17US0112X Class I, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1: T6..T4 Class I Zone 0 AEx ia IIC T6.. T4 Ga	Note 2	T6: -40ºC to +40ºC T5: -40ºC to +55ºC T4: -40ºC to +70ºC
		Explosion proof Certificate: FM17US0112X Class I, Division 1, Groups A, B, C, D; T6..T5 Class 1, Zone 1, AEx db IIC T6..T5 Gb **Dust-Ignition proof** Class II, Division 1, Groups E, F ,G; T5 Zone 21, AEx tb IIIC T95ºC Db	Note 1	T6: -40ºC to +65ºC T5: -40ºC to +85ºC
		Non-Incendive and Zone 2 Intrinsically Safe 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	T6: -40ºC to +40ºC T5: -40ºC to +55ºC T4: -40ºC to +85ºC
		Enclosure	TYPE 4X/ IP66	
	Standards : FM 3600: 2018; ANSI/ UL 60079-0: 2013 FM 3615 : 2018; ANSI/ UL 60079-1: 2015 ; FM 3610: 2018; ANSI/ UL 60079-11 : 2014 FM 3810 : 2018 ; FM 3611:2018; ANSI/ UL 60079-15 : 2013			

AGENCY	MSG Code	TYPE OF PROTECTION	Electrical Parameters	Ambient Temperature
CSA- Canada and USA	C1	**Intrinsically Safe** Certificate: 70113941 Class I, Division 1, Groups A, B, C, D; T4 Class I Zone 0 AEx ia IIC T4 Ga Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Non-Incendive and Zone 2 Intrinsically Safe Certificate: 70113941 Class I, Division 2, Groups A, B, C, D; T4 Class I Zone 2 AEx ic IIC T4 Gc Ex ic IIC T4 Gc Class I Zone 2 AEx nA IIC T4 Gc Ex nA IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40ºC to +85ºC
	C2	**Explosion proof** 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 **Dust-Ignition Proof:** Class II, III, Division 1, Groups E, F, G; T5 Ex tb IIIC T 95ºC Db Zone 21 AEx tb IIIC T 95ºC Db	Note 1	T6: -40ºC to +65ºC T95ºC/T5:-40ºC to +85ºC
		Intrinsically Safe Certificate: 70113941 Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4 Class I Zone 0 AEx ia IIC T4 Ga Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Non-Incendive and Zone 2 Intrinsically Safe Certificate: 70113941 Class I, Division 2, Groups A, B, C, D; T4 Class I Zone 2 AEx nA IIC T4 Gc Ex nA IIC T4 Gc Class I Zone 2 AEx ic IIC T4 Gc Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40ºC to +85ºC
		Enclosure: Type 4X/ IP66/ IP67		
	Standards: CSA C22.2 No. 0-10: 2015; CSA 22.2 No. 25: 2017; CSA C22.2 No. 30-M1986 (reaffirmed 2016); CSA C22.2 No. 94.2:2015; CSA C22.2 No. 61010-1: 2012; CSA-C22.2No.157-92 (reaffirmed 2016); C22.2 No. 213: 2016; C22.2 No. 60529:2016; C22.2 No. CSA 60079-0:2015; C22.2 No. 60079-1: 2016; C22.2 No. 60079-11: 2014; C22.2 No. 60079-15: 2016; C22.2 No. 60079-31: 2015; ANSI/ ISA 12.12.01 : 2015 ; FM 3600: 2011; ANSI/ UL 61010-1 : 2016; ANSI/ UL 60079-0: 2013 ; FM 3616 : 2011; FM 3615 : 2011; ANSI/ UL 60079-1: 2015 ; ANSI/ UL 60079-31: 2015; ANSI/ UL 60079-11 : 2014; FM 3611: 2016; ANSI/ UL 60079-15 : 2013 ; ANSI/ UL 913: Edition 7; ANSI/ UL 50E: 2015		

AGENCY	MSG Code	TYPE OF PROTECTION	Electrical Parameters	Ambient Temperature
ATEX	A1	**Intrinsically Safe** **Certificate:** SIRA 17ATE2162X II 1 G Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Non Sparking and Zone 2 Intrinsically Safe **Certificate:** SIRA 17ATE4161X II 3 G Ex ec IIC T4 Gc II 3 G Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40ºC to +70ºC
	A2	**Flameproof** **Certificate:** SIRA 17ATE2162X II 2 G Ex db IIC T6..T5 Gb II 2 D Ex tb IIIC T 95ºC Db	Note 1	T6: -40ºC to +65ºC T95ºC/T5:-40ºC to +85ºC
		Intrinsically Safe **Certificate:** SIRA 17ATE2162X II 1 G Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Category 3 Increased Safety Intrinsically Safe **Certificate:** SIRA 17ATE4161X II 3 G Ex ec IIC T4 Gc II 3 G Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40ºC to +85ºC
		Enclosure: IP66/ IP67		
		Standards : EN 60079-0: 2012+A11 : 2013; EN 60079-1 : 2014 ; EN 60079-11: 2012 ; EN 60079-7 : 2015 ; EN 60079-31 : 2014		
IECEx	E1	**Intrinsically Safe** **Certificate:** SIR 17.0035X Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Non Sparking, Zone 2 Intrinsically Safe **Certificate:** SIR 17.0035X Ex ec IIC T4 Gc Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40ºC to +85ºC
	E2	**Flameproof** **Certificate:** SIR 17.0035X Ex db IIC T6..T5 Gb Ex tb IIIC T 95ºC Db	Note 1	T6: -40ºC to +65ºC T95ºC/T5: -40ºC to +85ºC
		Intrinsically Safe **Certificate:** SIR 17.0035X Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Zone 2- Increased Safety and Intrinsically Safe **Certificate:** SIR 17.0035X Ex ec IIC T4 Gc Ex ic IIC T4 Gc	Note 2	T4: -40ºC to +85ºC
		Enclosure: IP66/ IP67		
		Standards: IEC 60079-0: 2011; IEC 60079-1 : 2014; IEC 60079-11 : 2011; IEC 60079-31 : 2014; IEC 60079-7 : 2015		

AGENCY	MSG Code	TYPE OF PROTECTION	Electrical Parameters	Ambient Temperature
CCoE INDIA	P1	**Intrinsically Safe** **Certificate:** P417399/1 Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
	P2	**Flameproof** **Certificate:** P417399/1 Ex db IIC T6..T5 Gb	Note 1	T6: -40ºC to +65ºC T5: -40ºC to +85ºC
		Intrinsically Safe **Certificate:** P417399/1 Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Enclosure: IP66/ IP67		
NEPSI (China)	N1	**Intrinsically Safe** **Certificate:** GYJ18.1420X Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Non Sparking, Zone 2 Intrinsically Safe **Certificate:** GYJ18.1420X Ex ec IIC T6..T4 Gc Ex ic IIC T6..T4 Gc	Note 1 Note 2 for “ic”	T4: -40ºC to +85ºC
	N2	**Flameproof** **Certificate:** GYJ18.1420X Ex db IIC T6..T5 Gb Ex tD A21 IP6X T80 ºC/ T95ºC	Note 1	T6: -40ºC to +65ºC T95ºC/T5: -40ºC to +85ºC
		Intrinsically Safe **Certificate:** GYJ18.1420X Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Zone 2 Intrinsically Safe **Certificate:** GYJ18.1420X Ex ic IIC T4 Gc	Note 2	T4: -40ºC to +85ºC
		Enclosure: IP66/ IP67		
SAEx South Africa	S1	**Intrinsically Safe** **Certificate:** XPL 18.0865X Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Non Sparking, Zone 2 Intrinsically Safe **Certificate:** XPL 18.0865X Ex ec IIC T4 Gc Ex ic IIC T4 Gc	Note 1 Note 2 for “ic”	T4: -40ºC to +85ºC
	S2	**Flameproof** **Certificate:** XPL 18.0865X Ex db IIC T6..T5 Gb Ex tb IIIC T 95ºC Db	Note 1	T6: -40ºC to +65ºC T95ºC/T5: -40ºC to +85ºC
		Intrinsically Safe **Certificate:** XPL 18.0865X Ex ia IIC T4 Ga	Note 2	T4: -40ºC to +70ºC
		Zone 2 Intrinsically Safe **Certificate:** XPL 18.0865X Ex ic IIC T4 Gc	Note 2	T4: -40ºC to +85ºC
		Enclosure: IP66/ IP67		

INMETRO (Brazil)	M1	**Intrinsically Safe:** Ex ia IIC Ga	Note 2	T4: -40ºC to 70ºC
		Non Sparking: Ex ec IIC T4 Gc Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40ºC to 85ºC
	M2	**Flameproof**: Ex db IIC T6..T5 Gb Ex tb IIIC T 95ºC..Db	Note 1	T6: -40 ºC to 65ºC T95 ºC/T5: -40 ºC to 85ºC
		Intrinsically Safe: Ex ia IIC Ga	Note 2	T4: -40ºC to 70ºC
		Zone 2 Intrinsically Safety and Intrinsically Safe: Ex ec IIC T4 Gc Ex ic IIC T4 Gc	Note 1 Note 2 for "ic"	T4: -40ºC to 85ºC
KOSHA (Korea)	K1	**Intrinsically Safe:** Ex ia IIC Ga	Note 2	T4: -40ºC to 70ºC
	K2	**Flameproof**: Ex d IIC T6..T5 IP66/IP67 Ex tD A21 IP66/IP67 T95ºC	Note 1	T6: -40 ºC to 65ºC T95 ºC/T5: -40 ºC to 85ºC
		Intrinsically Safe: Ex ia IIC	Note 2	T4: -40ºC to 70ºC

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.

Honeywell

Section 13
Page: STT7-3
Effective Date: June 1, 2022

Model Selection Guide with Price Data
Honeywell Proprietary

Model STT700
Smart Temperature Transmitter

Model Selection Guide
34-44-16-21 Issue 15 Rev 1

Instructions: Make selections from all Tables Key through XIII using column below the proper arrow. Asterisk indicates availability. Letter (a) refer to restrictions highlighted in the restrictions table. Tables delimited with dashes.
List Price: Price equals the sum of prices for all selections made.

Key		I		II		III		IV		V		VI		VII		VIII
STT700	-	_ _	-	_ _ _	-	_ _ _ _ _ _	-	_ _ _ _	-	_ _ _	-	_	-	_ _, _ _, _ _	-	00000

KEY NUMBER	Input Type	Selection ↓	
	Universal Input	STT700	*

Table I	Inputs and Outputs			
a. No. Inputs	Single sensor input (4 terminations)		1 _	*
	Dual TC or RTD sensor inputs (5 terminations)		3 _	a
b. Output / Protocol	**Analog Output**	**Digital Protocol**		
	4-20mA DC	HART Protocol	_ H	*
	4-20mA DC	DE Protocol	_ D	s

TABLE II	Agency Approvals (see specification data sheet for Approval Code Details)		
a. Approvals	No Approvals Required	00 _	*
	ATEX Intrinsically Safe & Non Sparking	A1 _	v
	ATEX Intrinsically Safe, Flameproof, Dust and Non Sparking	A2 _	k
	cCSAus Intrinsically Safe & Non-incendive/Non Sparking	C1 _	v
	cCSAus Intrinsically Safe, Flameproof/Explosion proof, Dustproof & Non-incendive/Non Sparking	C2 _	k
	IEC Ex Intrinsically Safe & Non Sparking	E1 _	v
	IEC Ex Intrinsically Safe, Flameproof & Dusttight	E2 _	k
	FM Approval Intrinsically Safe & Non-incendive	F1 _	v
	FM Approval Intrinsically Safe, Explosion proof & Non-incendive	F2 _	k
	KOSHA Intrinsically Safe & Non-incendive	K1_	v
	KOSHA Instrinsically Safe, Explosion proof & Dusttight	K2_	k
	NEPSI Intrinsically Safe & Non Sparking	N1 _	v
	NEPSI Intrinsically Safe, Flameproof & Dusttight	N2 _	k
	CCoE Intrinsically Safe & Non Sparking	P1 _	v
	CCoE Intrinsically Safe, Flameproof & Dusttight	P2 _	k
	SAEx Intrinsically Safe & Non Sparking	S1 _	v
	SAEx Intrinsically Safe, Flameproof & Dusttight	S2 _	k
	INMETRO Intrinsically Safe & Non-incendive	M1 _	v
	INMETRO Explosion proof, Intrinsically Safe & Non-incendive	M2 _	k
	EAC Intrinsically Safe & Non-Incendive	J1 _	v
	EAC Explosion proof, Intrinsically Safe & Non-Incendive	J2 _	k
b. Safety	No SIL	_ _ 0	*
	SIL 2/3 certified	_ _ E	m

TABLE III	TRANSMITTER HOUSING and ELECTRONICS SELECTIONS				
a. Housing	**Housing and Material**				
	None			0 _ _ _ _ _	*
	Polyester Powder Coated Aluminum (STT3000)- 2 conduit (1/2 NPT) connections, body			U _ _ _ _ _	*
	316 Stainless Steel (Grade CF8M, STT3000) - 2 conduit (1/2 NPT) connections, body			X _ _ _ _ _	*
b. End Cap	**End Cap and Material**				
	None			_ 0 _ _ _ _	c
	Polyester Powder Coated Aluminum (STT3000)- end cap			_ U _ _ _ _	u
	Polyester Powder Coated Aluminum (STT3000)- end cap with window			_ V _ _ _ _	u
	316 Stainless Steel (Grade CF8M, STT3000) - end cap			_ X _ _ _ _	x
	316 Stainless Steel (Grade CF8M, STT3000) - end cap with window			_ Z _ _ _ _	x
c. Paint Option - Housing	**Item**				
	Housing - standard offering			_ _ 0 _ _ _	*
d. Paint Option - Cap	**Item**				
	End cap - no change			_ _ _ 0 _ _	*
e. Interface Selections	**Integral Display**	**Buttons**	**Languages**		
	None	None	None	_ _ _ _ 0 _	*
	Standard	Yes (Integral)	English	_ _ _ _ 2 _	g
f. Lightning Protection	No lightning protection			_ _ _ _ _ 0	*
	Lightning protection			_ _ _ _ _ P	*

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

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

TABLE VI	CALIBRATION & ACCURACY SELECTIONS				
Accuracy and Calibration	**Accuracy**	**Calibrated Range**	**Calibration Qty**		
	Standard	Factory Std	Single Calibration	A	*
	Standard	Custom (Unit data required)	Single Calibration	C	*

TABLE VII	Other Certifications and Options			
Certifications and Warranty	None - no additional options		00	*
	Certificate of Conformance		F3	*
	Calibration Test Report & Certificate of Conformance		F1	*
	Certificate of Origin		F5	*
	SIL 2/3 Certificate		FE	p
	Extended Warranty Additional 1 year		W1	*
	Extended Warranty Additional 2 years		W2	*
	Extended Warranty Additional 3 years		W3	*
	Extended Warranty Additional 4 years		W4	*

TABLE VIII	Manufacturing Specials		
Factory	Factory Identification	00000	*

[3] NAMUR Output Limits 3.8 - 20.5mAdc can be configured by the customer or select custom configuration Table Vc

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MODEL RESTRICTIONS

Restriction Letter	Available Only with		Not Available with	
	Table	Selection(s)	Table	Selection(s)
a			Ib	_ D
c	IIIa	0_ _ _ _ _		
g	IIa	00,A2,C2,E2,K2,N2,S2,M2,F2,P2 _		
	IIIb	_ V, Z _ _ _ _		
k	IIIa	U, X_ _ _ _ _		
m	IIIf	_ _ _ _ _ P		
n			IIIa	0 _ _ _ _ _
p	IIb	_ _ E		
s			IIb	_ _ E
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
Standard display - replacement	50126003-501
Standard display - upgrade from EU meter	50150171-501
No display-blind cap to standard display upgrade Kit	50150171-502
No display window cap to standard display upgrade Kit	50150171-503

Note P - For part number pricing please refer to WEB Channel.

PRODUCT MANUALS

Description	Part Number
Paper Manual STT700 Smart Temperature Transmitter User Manual - English	34-TT-25-19
Paper Manual STT700 Smart Temperature Transmitter Safety Manual - English	34-TT-25-20
Paper Manual STT700 Smart Temperature Transmitter HART/DE Communications Manual - English	34-TT-25-18

All product documentation is available at www.process.honeywell.com.

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

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Specifications are subject to change without notice.

For more information
To learn more about SmartLine Temperature, visit www.process.honeywell.com
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