Honeywell

STT 3000 Smart Temperature Transmitter

Model STT350

EN0I-5222 September 2010

Specification and Model Selection Guide

Introduction

Honeywell's microprocessor based STT350 Smart Temperature Transmitter converts a primary sensor input into an output signal for a conventional 4 to 20mA, two wire loop.

This universal temperature input model readily accepts signals from a wide variety of industry standard thermocouples resistance temperature detectors (RTDs) as well as a straight millivolt or Ohms sensor. Its output signal is either proportional to the measured variable or linearized temperature, and is transmitted in either an analog 4-20mA format or a digital DE protocol format for direct digital integration to the TPS® control system. You easily select the analog or digital format for the output signal transmission through the Smart Field Communicator® (SFC) which is the common hand-held operator interface for Smartline™ Transmitters. All configuration, operation and communication functions are under the control of the STT350's microprocessors and are implemented through the SFC.



Figure 1 – STT350 Transmitter in Field Mount Housing.

Features

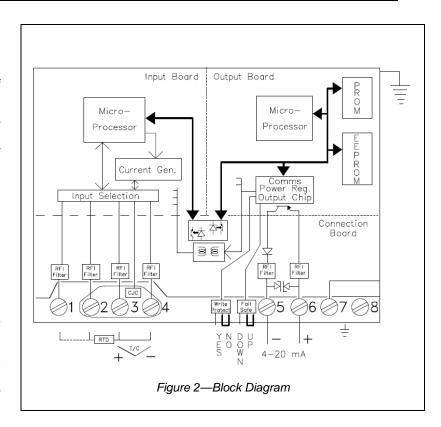
- Single model accepts input signals from a choice of primary sensors to satisfy varying applications requirements with minimum transmitter inventory.
- Standard digital cold-junction compensation function provides accurate and reliable temperature measurement over a wide ambient operating range.
- Direct digital integration with TPS system provides local measurement accuracy to the system level without adding typical A/D and D/A converter inaccuracies.
- Added Smart features include reading of the highest and lowest inputs, external cold junction compensation temperature at an isothermal block and engineering units displayed in degrees C, F, K, or R plus millivolt and Ohms.

- Suitable for DIN rail mounting or remote field mounting in a flameproof housing.
- Smart transmitter personality with local or remote interfacing means significant manpower efficiency improvements in commissioning, start-up, and ongoing maintenance functions.
- Automatically provides true differential temperature measurement of thermocouple or RTD inputs by individual linearization of each sensor reading and then computing the difference.
- Suitable for true 4-wire Pt100 measurement (or 3- or 2-wire).
- FISCO approved

- Write protect link included to safeguard configuration settings.
- Designed to be in compliance with EMC requirements and is CE-Marked.
- Includes sensor break detection on all input wires.
- Post read validation of the measured signal before providing fresh output.
- Supports dual thermocouple sensor inputs for redundant sensor operation.
- Integral analog or digital indicating meter option
- Surge/lightning protection options can be installed internally in housing or externally in conduit.

Description

The STT350 transmitter is suitable as a direct replacement for any conventional temperature transmitter in use today. Its memory contains the characteristics of most commonly used temperature sensors. This means that you can use the SFC to configure the transmitter for any of these sensors and it will automatically correct for their associated non-linearities. You make all transmitter adjustments and diagnostic checks through an SFC connected anywhere across the 4-20mA wire route. This lets you initiate configuration and maintenance functions at locations remote from the transmitter itself. The SFC is also fully compatible with all Honeywell Smartline other Transmitters. The transmitter module can also be installed on a standard DIN rail (to EN50022) or remotely mounted in a flameproof housing designed for either surface or two-inch pipe-stand mounting. Transmitters can be preconfigured at the factory to your exact specifications or they will be shipped with factory default configurationready to accept your own configuration.



Performa	ance Und	er Rated C	onditions									
nput Type	Digital Accuracy for Maxi- mum Range Limits	Maximum Rang	e Limits	Digital Accuracy for Normal Range Limits		Normal Range Limits		Accuracy for Normal Range		Accuracy for Normal Range		Standards
	% of Max. Span	°C	°F	°C	°F	°C	°F	-				
RTD Pt 100	0,01	-200 to 850	-328 to 1562	0,1	0,18	-200 to 450	-328 to 842	IEC 751:1986 (a=0.00385)				
Pt 200	0,01	-200 to 850	-328 to 1562	0,1	0,18	-200 to 450	-328 to 842	IEC 751:1986 (a=0.00385)				
Pt 500	0,02	-200 to 850	-328 to 1562	0,1	0,18	-200 to 450	-328 to 842	IEC 751:1986 (a=0.00385)				
Pt 100J	0,01	-200 to 640	-328 to 1184	0,1	0,18	-200 to 450	-328 to 842	JISC 1604-81 (a=0.00392)				
Ni 50	0,04	-80 to 150	-112 to 302	0,1	0,18	-50 to 150	-58 to 302	Honeywell Type A				
Cu 10	0,37	-20 to 250	-4 to 482	1,0	1,8	-20 to 250	-4 to 482	General Electric				
Cu 25	0,19	-20 to 250	-4 to 482	0,5	0,9	-20 to 250	-4 to 482	General Electric				
T/C: B	0,14	200 to 1820	392 to 3308	1,0	1,8	550 to 1820	1022 to 3308	IEC 584-1 (ITS-90)				
С	0,03	0 to 2300	32 to 4172	0,6	1,08	0 to 1650	32 to 3002	IPTS 68				
D	0,03	0 to 2300	32 to 4172	0,6	1,08	330 to 1370	626 to 2498	IPTS 68				
E	0,04	-200 to 1000	-328 to 1832	0,2	0,36	0 to 1000	32 to 1832	IEC 584-1 (ITS-90)				
J	0,04	-200 to 1200	-328 to 2192	0,2	0,36	0 – 800	32 to 1472	IEC 584-1 (ITS-90)				
K	0,04	-200 to 1370	-328 to 2498	0,3	0,54	-120 to 1370	-191 to 2498	IEC 584-1 (ITS-90)				
N	0,06	-200 to 1300	-328 to 2372	0,3	0,54	0 to 1300	32 to 2372	IEC 584-1 (ITS-90)				
R	0,09	-50 to 1760	-58 to 3200	0,5	0,9	500 to 1760	932 to 3200	IEC 584-1 (ITS-90)				
S	0,08	-50 to 1760	-58 to 3200	0,5	0,9	500 to 1760	932 to 3200	IEC 584-1 (ITS-90)				
T	0,14	-250 to 400	-418 to 752	0,2	0,36	-100 to 400	-148 to 752	IEC 584-1 (ITS-90)				
NiNiMoly	0,03	0 to 1300	32 to 2372	0,3	0,54	780 to 1300	1436 to 2372	G.E. (IPTS – 68)				
Radiamatic	0,6	420 to 1800	788 to 3272	0,7	1,26	780 to 1800	1436 to 2372	Honeywell (RH)				
Millivolts	0,01	-20 to 120 mV		8µV		-10 to 45 mV						
Ohms	0,01	0 to 2000 Ω		$0,15\Omega$		0 to 2000 Ω						

Note that the Page 2 Accuracy values are available merely by selecting the sensor type and range (i.e. without user calibration). Improvements of up to 2 times can be obtained for the accuracy by calibrating to the required LRV/URV values. All STT350 units pass through 20 hours of Environmental Stress Screening (ESS) by fast cycling between -40 and +85°C to ensure maximum product reliability. During this ESS process, the ambient temperature compensation coefficients are determined for individual units and burned in transmitter memory to provide maximum performance over a wide range of operating conditions.

SPECIFICATIONS

Annibient Temperature	Operating Condi	tions						
10 to 55 5 to 95 5 to 100 5 to 100 5 to 100	<u> </u>		Rated Condition	Operative Limits	Transportation and Storage			
Humidity Rack Mounting %RH dousting What doubted in EP %RH dousing Voltage, Current and Load Resistance Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 3.6 to 21.8 mA Load Resistance Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 3.6 to 21.8 mA Load Resistance Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 3.6 to 21.8 mA Load Resistance Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 3.6 to 21.8 mA Load Resistance Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 3.6 to 21.8 mA Load Resistance: Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 3.6 to 21.8 mA Load Resistance: Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 3.6 to 21.8 mA Load Resistance: Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 3.6 to 21.8 mA Load Resistance: Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 3.6 to 21.8 mA Load Resistance: Voltage Range : 10.8 to 42.4 Vdc at the transmitter terminals Current Range : 40.025% of span = 40.	Ambient Temperature	23°C ± 2	-40 to 85	-40 to 85 *	-50 to 100			
Sack Mounting %RH 10 to 55 5 to 95 5 to 100 5		73°F ± 4	-40 to 185	-40 to 185	-58 to 212			
Mounted in EP %RH 10 to 55 5 to 100 5 to 100 5 to 100	Humidity							
Supply Voltage, Current Supply Voltage, Current Annalog Name Supply Voltage, Current Current Range : 3.6 to 21.8 mA Load Resistance 10 to 1450 Ohms (as shown in Fig 3)	Rack Mounting %RH							
Supply Voltage, Current and Load Resistance Current Range : 3.6 to 24.8 mA Current Range : 4.0.25 ma Current		10 to 55	5 to 100	5 to 100	5 to 100			
Current Range : 3.6 to 21.8 mA Load Resistance Current Range : 3.6 to 21.8 mA Load Resistance : 0 to 1450 Ohms (as shown in Fig 3)				L				
Load Resistance : 0 to 1450 Ohms (as shown in Fig 3)				erminals				
Assistation Maximum of 4g over 15 to 200Hz. (restricted to 3g with indication meter) Assistant of 40g Dutput DIA Accuracy Cold Junction Accuracy Cold Junction Accuracy Fotal Reference Accuracy In Analog Mode= In Digital Mode =	and Load Resistance	<u> </u>		0)				
Dutput D/A Accuracy Digital Accuracy of input + Output D/A Accuracy + CJ Accuracy (T/Cs only) Digital Accuracy of input + CJ Accuracy + CJ Accuracy (T/Cs only) Digital Accuracy of input + CJ Accuracy (T	N.C.1 (2)		, ,	,				
Dutput D/A Accuracy 20Id Junction Rejection Effect 30Id Junction Rejection Effect 30Id Junction Rejection Effect 30Id Junction Rejection Effect 40Id Junction Rejection Effect 50Id Output D/A Ambient Temperature Effect 50Id Output Ambient Temperature Effect 50Id Output D/A Ambient Temperature Effect 50Id Output D/A Ambient Temperature Effect 50Id Output Ambient Temperature Effect 50Id Output D/A Ambient Temperature Effect 50Id Output D/A ATE + CJ ATE (T/Cs only) 50Id Junction Rejection Effect 50Id Output D/A ATE + CJ ATE (T/Cs only) 50Id Junction Rejection Effect 50Id Output Ambient Temperature Effect 60Id Output D/A ATE + CJ ATE (T/Cs only) 60Id Junction Rejection Effect 70Id Output D/A ATE + CJ ATE (T/Cs only) 70Id Junction Rejection Subject Attention Subject Att			o 200Hz. (restricted to 3g w	vith indication meter)				
20.25°C Digital Areference Accuracy In Analog Mode		Maximum of 40g	1					
Total Reference Accuracy In Analog Mode In Digital Mode Digital Accuracy of input + Output D/A Accuracy + CJ Accuracy (T/Cs only) Digital Accuracy of input + CJ Accuracy (T/Cs only) Digital Accuracy of input + CJ Accuracy (T/Cs only) Digital Accuracy of input + CJ Accuracy (T/Cs only) Digital Accuracy of input + CJ Accuracy (T/Cs only) Digital Accuracy of input + CJ Accuracy (T/Cs only) Digital Accuracy of input + CJ Accuracy (T/Cs only) (example: transmitter operating in Analog Mode with Pt100 sensor and 0 to 200°C Total Reference Accuracy = 0.1 + ((200/100) x 0.025) = 0.15°C Digital Ambient Temperature Effect RTDs or Ohms : 0.029% of reading T/Cs or mV : 0.042% of reading Digital Accuracy of input + CJ Accuracy (T/Cs only) of reading T/Cs or mV : 0.042% of reading Digital Accuracy of input + CJ Accuracy of input hand analog Mode with perature of input hand analog Mode with Pt100 sensor and 0 to constant RTDs or Ohms : 0.029% of reading T/Cs or MV : 0.042% of reading T/Cs or MV : 0.			'					
n Digital Mode = Digital Accuracy of Input + CJ Accuracy (T/Cs only) (example: transmitter operating in Analog Mode with Pt100 sensor and 0 to 200° C Total Reference Accuracy = 0.1 + ((200/100) x 0.025) = 0.15° C Digital Ambient Temperature Effect RTDs or Ohms : 0.029% of reading T/Cs or mV : 0.042% of reading Per 10° C change from 20° C reference) T/Cs or mV : 0.042% of reading Per 10° C change from 20° C reference Price Total Output D/A Ambient Temperature Effect Potal Output D/A Ambient Temperature Effect Potal Output D/A ATE + CJ ATE (T/Cs only) Potal ATE + CJ ATE	,							
(example: transmitter operating in Analog Mode with Pt100 sensor and 0 to 200°C Total Reference Accuracy = 0.1 + ((200/100) x 0.025) = 0.15°C Digital Ambient Temperature Effect Per 10°C change from 20°C reference) Per 10°C change from 20°C reference) T/Cs or mV : 0.042% of reading T/Cs or mV : 0.042% of reading T/Cs or mV : 0.042% of reading T/Cs or mV in the mode of the mod	•	In Analog Mode=	, ,		3 (
200°C Total Reference Accuracy = 0.1 + ((200/100) x 0.025) = 0.15°C	In Digital Mode =		, ,	, ,	,			
Total Reference Accuracy = 0.1 + ((200/100) x 0.025) = 0.15°C Digital Ambient Temperature Effect per 10°C change from 20°C reference) T/Cs or mV : 0.042% of reading T/Cs or mV : 0.042% of reading Cold Junction Rejection Effect 60:1 for changes from 23°C ambient Dutput D/A Ambient Temperature Effect 70:1 o.045% of span per 10°C change 70:1 o.045% of				erating in Analog Mode wi	in Pt100 sensor and 0 to			
Digital Ambient Temperature Effect Per 10°C change from 20°C reference) Poly Junction Rejection Effect Dutput DIA Ambient Temperature Effect Dutput DIA Ambient Temperature Effect Digital ATE + Output DIA ATE + CJ ATE (T/Cs only) Digital ATE + CJ ATE (T/Cs only) Di				cv = 0.1 + ((200/100) × 0.0	25) = 0.15°C			
Description Description Description No limits to adjustments within the Maximum range except minimum span limit of 1 engineering unit e.g. 1°C Dutput (2 Wire) Strength of any of the description Adjustable from 0 to 102 seconds digital damping Dutput Government Dutput Go			Total Nelelelice Accurat	3y - 0.1 · ((200/100) x 0.0.	23) = 0.13 0			
Description Description Description No limits to adjustments within the Maximum range except minimum span limit of 1 engineering unit e.g. 1°C Dutput (2 Wire) Strength of any of the description Adjustable from 0 to 102 seconds digital damping Dutput Government Dutput Go	Digital Ambient Temperatu	ire Effect	RTDs or Ohms: 0.029%	of reading				
Cold Junction Rejection Effect Output D/A Ambient Temperature Effect Output D/A Ambient Temperature Effect Output D/A Ambient Temperature Effect Output Ambient Temperature Effect (ATE) In Analog Mode = Digital ATE + Output D/A ATE + CJ ATE (T/Cs only) Digital ATE + CJ ATE			T/Cs or mV : 0.042% of	T/Cs or mV : 0.042% of reading				
Fotal Output Ambient Temperature Effect (ATE) In Analog Mode = Digital ATE + Output D/A ATE + CJ ATE (T/Cs only) Digital Mode = Digital ATE + CJ ATE (T/Cs only) Digital ATE + CJ ATE (T/Cs only) Digital ATE + CJ ATE (T/Cs only) Output (2 Wire) Dutput (3 Wire) Dutput (4 Wire) Dutput (5 Wire) Dutput (6 Wire) Dutput (7 Wire) Dutput (8 Wire) Dutput (9								
Fotal Output Ambient Temperature Effect (ATE) In Analog Mode = Digital ATE + Output D/A ATE + CJ ATE (T/Cs only) Digital Mode = Digital ATE + CJ ATE (T/Cs only) Digital ATE + CJ ATE (T/Cs only) Digital ATE + CJ ATE (T/Cs only) Output (2 Wire) Dutput (3 Wire) Dutput (4 Wire) Dutput (5 Wire) Dutput (6 Wire) Dutput (7 Wire) Dutput (8 Wire) Dutput (9	Output D/A Ambient Temp	erature Effect	0.045% of span per 10°0	C change				
In Analog Mode = In Digital ATE + Output D/A ATE + CJ ATE (T/Cs only) Power Supply Voltage Effect Parameter Adjustment Range Dutput (2 Wire) Adjustable from 0 to 102 seconds digital damping Durput to Output Galvanic solation Burnout detection is user selectable Upscale or downscale with critical status message Input to Output Galvanic solation Series Mode Rejection Addis (100 to 1) for 50 or 60Hz ±0.5Hz (with internal software filter set to local power line frequency ENC Compliance In compliance with 89/336/EEC, Electromagnetic Compatibility (EMC) Directive REI Rejection Response Time Digital ATE + Output D/A ATE + CJ ATE (T/Cs only) Digital ATE + CJ ATE (T/Cs only) 0.005% of span per Volt 0.0004% of span per Vol				<u> </u>				
Digital Mode = Digital ATE + CJ ATE (T/Cs only) Power Supply Voltage Effect Description Adjustment Range No limits to adjustments within the Maximum range except minimum span limit of 1 engineering unite.g. 1°C Output (2 Wire) 4-20mA or Honeywell DE digital protocol Extended range: 3.8-20.8mA. Fail safe modes < 3.8mA or 21.8mA Damping Time Constant Adjustable from 0 to 102 seconds digital damping Thermocouple Burnout Burnout detection is user selectable Upscale or downscale with critical status message Input to Output Galvanic solation Series Mode Rejection 40dB (100 to 1) for 50 or 60Hz ±0.5Hz (with internal software filter set to local power line frequency EMC Compliance In compliance with 89/336/EEC, Electromagnetic Compatibility (EMC) Directive ### 1.5 seconds to 90% of final step value	In Analog Mode =	,	Digital ATE + Output D/A	A ATE + CJ ATE (T/Cs only	y)			
Parameter Adjustment Range No limits to adjustments within the Maximum range except minimum span limit of 1 engineering uni e.g. 1°C Output (2 Wire) 4-20mA or Honeywell DE digital protocol Extended range: 3.8-20.8mA. Fail safe modes <3.8mA or 21.8mA Damping Time Constant Adjustable from 0 to 102 seconds digital damping Thermocouple Burnout Burnout detection is user selectable Upscale or downscale with critical status message nput to Output Galvanic solation Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric stren	In Digital Mode =		Digital ATE + CJ ATE (T	/Cs only)				
No limits to adjustments within the Maximum range except minimum span limit of 1 engineering unit e.g. 1°C Output (2 Wire) 4-20mA or Honeywell DE digital protocol Extended range: 3.8-20.8mA. Fail safe modes <3.8mA or 21.8mA Adjustable from 0 to 102 seconds digital damping Thermocouple Burnout Burnout detection is user selectable Upscale or downscale with critical status message nput to Output Galvanic solation Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Mode Rejection 40dB (100 to 1) for 50 or 60Hz ±0.5Hz (with internal software filter set to local power line frequency in compliance In compliance with 89/336/EEC, Electromagnetic Compatibility (EMC) Directive ±0.1% of span at 30V/m over 20 to 1,000MHz in explosion-proof housing with shielded cables Jpdate Rate 2 to 5 measurements per second depending on input variation 1.5 seconds to 90% of final step value	Power Supply Voltage Effe	ect	0.005% of span per Volt					
e.g. 1°C Output (2 Wire) 4-20mA or Honeywell DE digital protocol Extended range: 3.8-20.8mA. Fail safe modes <3.8mA or 21.8mA Oamping Time Constant Adjustable from 0 to 102 seconds digital damping Thermocouple Burnout Burnout detection is user selectable Upscale or downscale with critical status message nput to Output Galvanic solation Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vd	Parameter	Description						
Extended range: 3.8-20.8mÅ. Fail safe modes <3.8mÅ or 21.8mÅ Damping Time Constant Adjustable from 0 to 102 seconds digital damping Burnout detection is user selectable Upscale or downscale with critical status message Input to Output Galvanic solation Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 mi	Adjustment Range		nts within the Maximum ran	ige except minimum span l	imit of 1 engineering unit			
Adjustable from 0 to 102 seconds digital damping Burnout detection is user selectable Upscale or downscale with critical status message nput to Output Galvanic solation Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Me	Output (2 Wire)	4-20mA or Honeywe	II DE digital protocol					
Thermocouple Burnout Burnout detection is user selectable Upscale or downscale with critical status message nput to Output Galvanic solation Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute 40dB (100 to 1) for 50 or 60Hz ±0.5Hz (with internal software filter set to local power line frequency EMC Compliance In compliance with 89/336/EEC, Electromagnetic Compatibility (EMC) Directive ±0.1% of span at 30V/m over 20 to 1,000MHz in explosion-proof housing with shielded cables Jpdate Rate 2 to 5 measurements per second depending on input variation 1.5 seconds to 90% of final step value		Extended range: 3.8-	-20.8mA. Fail safe modes <	3.8mA or 21.8mA				
Upscale or downscale with critical status message nput to Output Galvanic solation Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute 40dB (100 to 1) for 50 or 60Hz ±0.5Hz (with internal software filter set to local power line frequency EMC Compliance In compliance with 89/336/EEC, Electromagnetic Compatibility (EMC) Directive ±0.1% of span at 30V/m over 20 to 1,000MHz in explosion-proof housing with shielded cables Jpdate Rate 2 to 5 measurements per second depending on input variation 1.5 seconds to 90% of final step value	Damping Time Constant	Adjustable from 0 to	102 seconds digital dampin	g				
Upscale or downscale with critical status message nput to Output Galvanic solation Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute 40dB (100 to 1) for 50 or 60Hz ±0.5Hz (with internal software filter set to local power line frequency EMC Compliance In compliance with 89/336/EEC, Electromagnetic Compatibility (EMC) Directive ±0.1% of span at 30V/m over 20 to 1,000MHz in explosion-proof housing with shielded cables Jpdate Rate 2 to 5 measurements per second depending on input variation 1.5 seconds to 90% of final step value	Thermocouple Burnout	Burnout detection is	user selectable					
solation Series Mode Rejection 40dB (100 to 1) for 50 or 60Hz ±0.5Hz (with internal software filter set to local power line frequency EMC Compliance In compliance with 89/336/EEC, Electromagnetic Compatibility (EMC) Directive ±0.1% of span at 30V/m over 20 to 1,000MHz in explosion-proof housing with shielded cables Jpdate Rate 2 to 5 measurements per second depending on input variation 1.5 seconds to 90% of final step value	<u> </u>	Upscale or downscal	e with critical status message	ge				
In compliance with 89/336/EEC, Electromagnetic Compatibility (EMC) Directive RFI Rejection ±0.1% of span at 30V/m over 20 to 1,000MHz in explosion-proof housing with shielded cables Jpdate Rate 2 to 5 measurements per second depending on input variation 1.5 seconds to 90% of final step value	Input to Output Galvanic Isolation	Meets dielectric strer	ngth test of 1400Vac rms (50	0/60Hz) 2000Vdc for 1 min	ute			
In compliance with 89/336/EEC, Electromagnetic Compatibility (EMC) Directive RFI Rejection ±0.1% of span at 30V/m over 20 to 1,000MHz in explosion-proof housing with shielded cables Jpdate Rate 2 to 5 measurements per second depending on input variation 1.5 seconds to 90% of final step value	Series Mode Rejection	40dB (100 to 1) for 5	0 or 60Hz ±0.5Hz (with inter	rnal software filter set to lo	cal power line frequency)			
RFI Rejection ±0.1% of span at 30V/m over 20 to 1,000MHz in explosion-proof housing with shielded cables Update Rate 2 to 5 measurements per second depending on input variation 1.5 seconds to 90% of final step value	EMC Compliance							
Update Rate 2 to 5 measurements per second depending on input variation Response Time 1.5 seconds to 90% of final step value	RFI Rejection							
Response Time 1.5 seconds to 90% of final step value	Update Rate							
	Response Time			1				
	Stability/Time Drift		•	on against internal referen	ce every second.			

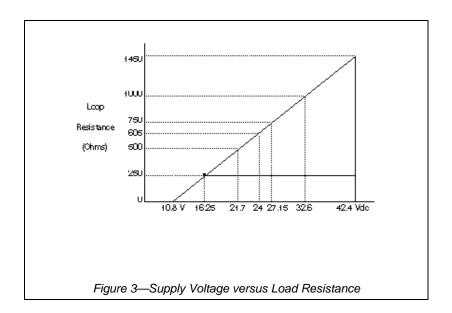
Parameter	Description					
Mounting	DIN rail (top hat or G rail) Field Mount Housing with surface mou	DIN rail (top hat or G rail) Field Mount Housing with surface mounting or 2-inch pipe mounting (IP 66/NEMA 4X Rating) Field Mount Housing meets the applicable requirements of NEMA 7 and 9				
Wiring	crew Terminals - M3.5x6.7mm nickel coated brass Accepts up to 12AWG, 16AWG recommended					
Net Weight	Transmitter in EP or XC housing - 1.6k	ransmitter for DIN rail mount - 0.5kg (1.1 pounds) ransmitter in EP or XC housing - 1.6kg (3.6 pounds) ransmitter + indicator in housing - 2.4kg (5.2 pounds)				
Materials of construction	EP housing - Aluminum housing with bt XC housing - Aluminum housing with b	Fransmitter module - Aluminum housing with baked on Polyester paint cover - Noryl terminal block. EP housing - Aluminum housing with baked on epoxy-polyester hybrid paint cover (beige) KC housing - Aluminum housing with baked on 2 coats epoxy resin cover (beige) ST02 housing - Aluminum housing with baked on 2 coats epoxy resin cover (red)				
Dimensions	See Fig 4					
Sensor/Cable Entry (EP, XC or ST02 Housing)	1/2 inch NPT electrical connection with	n optional adapters for N	//20x1.5, or 3/4 inch NPT			
Safety Approvals	STT350 Module	CENELEC	Intrinsically Safe Ex ia IIC T4/T5/T6 with 30V/100mA/1.2W barrier (T4/T5/T6 = -20 to +80/+50/+40 °C ambient)			
		CSA	Intrinsically Safe Class I, Div.1, Groups A to D			
		FM	Intrinsically Safe Class I, II, III, Div. 1, Groups A to G Non-incendive Class I, Div. 2, Groups A to D Suitable for Class II, III, Div. 2, Groups F and G			
			Russian Certificate of pattern Approval No 332 of 18/10/94 IEC 68 and IEC 801			
	Additional Approvals with EP, XC or ST02 Housings With or Without Integral Meter Zone 2: T6, 28V/22mA Cenelec Flame Proof Ex d IIC T6 CSA Explosion Proof Class I, II, III, Div. 1, Groups B to G Without Integral Meter FM Explosion Proof Class I, II, III, Div. 1, Groups A to G					
Surge/Lightning	Internal SP Selection	10 kA peak current (8/ Voltage (10/50 µs way	/ 20 μs waveform), 10kV peak veform)			
Protection Options	External LP Selection	10 kA peak current (10 Current (10/1000 μs w	0/ 20 µs waveform), 500A peak vaveform)			
Thermowell & Probe Availability	from 3" to 24" (other lengths by req • Standard or heavy duty service. • Locally mounted to the STT350 hor • With (or without) probe lag hardwar connections. • Single or dual element availability; Additionally, the following types of The Thermowell Materials:	r T/Cs in Inconel or Stai uest). using or remotely mount re: Hex nipple, Straight grounded or ungrounde ermowells can also be pi S, 446SS, Hastelloy B, I	nless Steel sheaths in standard lengths ted into explosion-proof mounting heads. nipple or Double lag and Union d T/Cs rovided as an integral thermal solution:			

NOTE: A minimum of 250 Ohms of loop resistance is required to support communications. Loop resistance is the total of loop wiring resistance, safety barrier and receiving device input developing resistor.

The triangle outlined by the heavy lines alongside shows the operating area for field wiring and barrier resistance beyond the 250 Ohms necessary for communications.

If a Smart Meter is included in the loop, allow an additional 2.25 Volts for meter power.

If surge lightning protection is included this adds 44 Ohms to the loop resistance; i.e., allow 1 Volt additional supply or reduced loop wiring power.



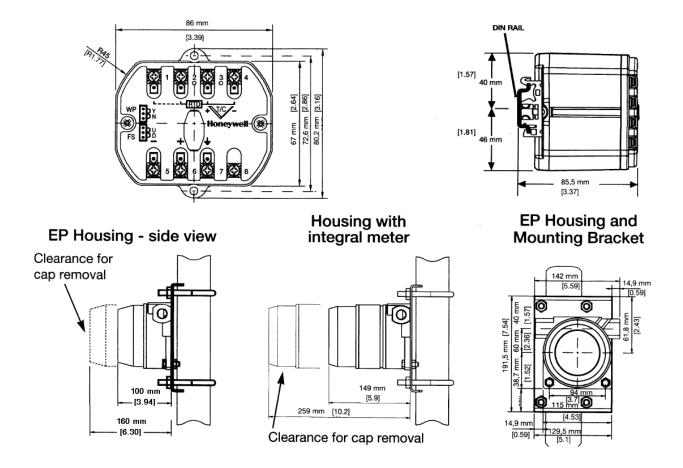


Figure 4—STT350 Transmitter and Optional Flameproof Housing Dimensions -reference only - mm (inches)

Model Selection Guide (34-44-16-02)

Model Selection Guides are subject to change and are inserted into the specifications as guidance only. Prior to specifying or ordering a model check for the latest revision Model Selection Guides which are published at: http://hpsweb.honeywell.com/Cultures/en-US/Products/Instrumentation/ProductModelSelectionGuides/default.htm

Honeywell

34-44-16U-02 Issue 33 Page 1 of 4

STT 3000 Temperature Transmitter Models STT350 & STT35F Fieldbus

Model Selection Guide



Instructions

- Select the desired Key Number. The arrow to the right marks the selection available.
- Make one selection from each table using the column below the proper arrow.
- A dot (•) denotes unrestricted availability. A letter denotes restricted availability.
- Restrictions follow Table VII.

Key Number	_L_	II	III	IV	V	VI	VII
STT35_	- 🗀 -						

KEY NUMBER

	Description	Selection	Availa	ability
STT350 Smart Tempe	STT350 Smart Temperature Transmitter Module (4-20mA/DE) *		+	
STT35F Fieldbus Temperature Transmitter Module *		STT35F		\ \
All modules carry the follo	owing approvals: (See Approvals Table VII for more information)			
CE Mark:	All modules carry CE Mark and are in compliance with			
Dussian Cartificate of Da	EN 50081-2 and 50082-2.			
Russian Certificate of Pa	tern Approval No. 2064 of Jan. 1988.			

^{*} Use of STT350/35F within Class II or III, Division 1 or 2, Groups E, F and G requires the use of explosion-proof field mount housing option.

TABLE I - Sensor Probe and Thermowell Accessories

No Integral Sensor Probe or Thermowell Supplied	0	•	•

TABLE II - Transmitter Housing and Integral Meters (Select approval body certification in Table VII)

Evaluation Droof Field	No Housing Supplied	00	•	•
Explosion-Proof Field Mount Housing	Aluminum with beige epoxy coating	EP	•	•
(Note 2)	For Stainless Steel or Red Epoxy Painted Housing,			
(Note 2)	select Table II EP and appropriate Table VI code.			
	No Meter Supplied	00	•	•
Integral Meter	Analog Meter for Field Mount Housing	ME	j	
(Note 3)	Digital Meter for Field Mount Housing	SM	j	
	Fieldbus Digital Meter for Field Mount Housing	FM		j

TABLE III - Configuration & Tagging

TABLE III - Configurat	ion a ragging				_
	None - Factory Default Configuration Supplied	00	•	•	1
Configuration	Transmitter Configuration (see 13:STT-OE-5 for choices)	TC	•		ı
	Transmitter Configuration - (Fieldbus)	FC		•	ı
	No Tagging Requested	00	•	•	1
Customer Tagging	316 SS Wired-on Customer I.D. Tag - (4 lines,	TG	j	j	ı
(Note 4)	28 characters per line, customer specified information)				ı
	316 SS Wired-on Customer I.D. Tag (blank)	TB	j	j	ı

- Note 1: Specify 8 digit customer I.D. when probe/well selected. See Price Pages 13:TP-1 to 16 for sensor/well pricing.
- Note 2: With a housing, 20 characters max. of customer information is available on the nameplate at no charge. (See 13:STT-OE-5 for ordering instructions.)
- Note 3: Remote Meter available as Model RMA300 (See Price Page 13:RM-1.)
- Note 4: Replaces Selection ____US

34-44-16U-02 Issue 33 Page 2 of 4

	Availa	bility
STT35	- 1	→

TABLE IV - Optional Ed	quipment	Selection	0	F
	No Mounting Arrangement Supplied	00	•	•
Mounting Arrangement	DIN Rail Mounting via 2 Clips (to Top Hat or "G" Rail)	DR	k	k
Mounting Arrangement	Carbon Steel Mounting Bracket for 2" Pipe	MB	j	j
	Stainless Steel Mounting Bracket for 2" Pipe	SB	j	j
316 SS Conduit	No Adaptor(s) Supplied - 1/2" NPT Conduit Connection	0	•	•
Adaptor for Wiring	1/2" NPT to M20 x 1.5 1 Adaptor	1	•	•
Entry	(EEx d IIC Approved) 2 Adaptors	2	•	•
Liftiy	1/2" NPT to 3/4" NPT	3	•	•
	No Lightning Protection Supplied	00	•	•
Lightning Protection	External Lightning Protection - Mountable to Housing	LP	j	j
	Internal Surge/Lightning Protection	SP	j	j
	None	00	•	•
	English Version (for STT35F Only)	EF		•
Operator/User Manual	English Version (for STT350 Only) (4)	EN	•	
	French Version	FR	•	
	Spanish Version	SP	•	

TABLE V - Optional Extended Warranty Coverage & Certificates

	Standard Warranty	0	•	•
Optional Extended Warranty	Additional Warranty - 1 year	1	•	•
	Additional Warranty - 2 years	2	•	•
vvairanty	Additional Warranty - 3 years	3	•	•
	Lifetime Warranty - 15 years	L	•	•
	No Transmitter Configuration/ Calibration Certificate	_0_	•	•
Optional Certificate (Note 5)	Transmitter Configuration/ Calibration Certificate (D-0097-RD.A)	_D_	•	•
(Note 5)	No Certificate of Conformance/ Origin	0	•	•
	Certificate of Conformance/ Origin (D-0098-RD.A)	C	•	•

TABLE VI - Additional Features

No Selection	0000	•	•
Red Epoxy Painted Housing Cap	ST01	j	j
Red Epoxy Painted Explosion-Proof Housing (Note 6)	ST02	g	g
316 Stainless Steel Explosion-Proof Housing (Note 6)	ST07	g	g

Pricing Table A

Table VI	Table II		
ST07	EP00		
	EPME		
	EPSM		
	EPFM		

Note 5: Installation Guide, chosen Operator's Manuals and chosen Certificates are automatically shipped with unit. See 13:STT-OE-7 for additional manuals and alternate shipping.

Note 6: Must be ordered with Table II EP __.

TABLE VII - Safety Approval Body Selection Appearing on Housing Nameplate e

STT35 _ Availability

Approval Body	Approval Type	Location or Classification	Selection	0	F
None	No approval body cert	ifications included	00	•	•
	Explosion-proof Dust-Ignition-proof Intrinsically Safe Nonincendive Suitable for Outdoor Location	Class I, Div. 1, Groups A,B,C,D Class II, III Div. 1, Groups E,F,G Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G Class I, Div. 2, Groups A,B,C,D Class II, III, Div. 2, Groups F, G Enclosure Type 4X	1C	f	f
FM Approvals	Explosion-proof Dust-Ignition-proof Intrinsically Safe Nonincendive Suitable for Outdoor Location Intrinsically Safe	Class I, Div. 1, Groups B,C,D (with Indicate Class II, III, Div. 1 Groups E,F,G Class I, III, III, Div. 1, Groups A,B,C,D,E,F,C Class I, Div. 2, Groups A,B,C,D Class II, III, Div. 2, Groups F, G Enclosure Type 4X Class I, II, III, Div. 1, Groups A,B,C,D,E,F,C	1J	j	j
	Nonincendive	Class I, Div. 2, Groups A,B,C,D	1G	m	m
CSA	Explosion-Proof Dust Ignition-Proof Intrinsically Safe Suitable for Outdoor Location Intrinsically Safe	Class I, Div. 1, Groups B,C,D Class II, III, Div. 1, Groups E,F,G Class I, II, III, Div. 1, Groups A,B,C,D,E,F,C Class II, III, Div. 2, Groups F, G Enclosure Type 4X Class I, II, III, Div. 1, Groups A,B,C,D,E,F,C	2J	j	j
	Suitable for	Class I, II, III, DIV. I, Gloups A,B,C,D,E,I ,C	2G	m	m
ATEX*	Intrinsically Safe, Zone 0/1	⑤ II 1 G EEx ia IIC T4, T5, T6 (Module)	3S	•	•
	Flameproof, Zone 1	EEx d IIC T5, T6 Enclosure rated IP 66/67	3D	j	j
	Non-Sparking, Zone 2	EEx nA, T5, T6, Zone 2 (Honeywell) Module to be installed in enclosure rated IP 54 minimum	3N	•	•
	Multiple Marking**, Int. Safe, Zone 0/1, or Flameproof, Zone 1, or Non-Sparking, Zone 2	 ☑ II 1 G EEx ia IIC T4, T5, T6 EEx d IIC T5, T6 ☑ II 2 G EEx nA, IIC T5, T6 ☑ II 3 G (Honeywell) Enclosure IP 54 minimum 	ЗН	j	j
SA	Instrinsically Safe, Zone 0/1	Ex ia IIC T4 (Ta = 70°C)	4S	•	
INMETRO (Brazil)	Flameproof	BR-Ex d IIC T6, (Ta -50 to 80°C), T5, (Ta -50 to 85°C)	6D	j	j
	Intrinsically Safe	BR-Ex ia IIC T6, (Ta -50 to 40°C), T5, (Ta -50 to 55°C), T5, (Ta -50 to 85°C) BR-Ex ia IIC T6, (Ta -50 to 40°C), T5, (Ta -	6S	·	
		50 to 50°C), T5, (Ta -50 to 85°C)			•
	Intrinsically Safe, Zone 0/1	Ex ia IIB or IIC T6 (Ta = -50°C to +40°C) Ex ia IIB or IIC T5 (Ta = -50°C to +50°C) Ex ia IIB or IIC T4 (Ta = -50°C to +85°C) (Module only, IP 20)	CS	•	•
IECEx	Flameproof, Zone 1, Intrinsically Safe, Zone 0/1	Ex d IIC T6 (Ta = -50°C to +80°C) Ex d IIC T5 (Ta = -50°C to +85°C) Ex ia IIB or IIC T6 (Ta = -50°C to +40°C) Ex ia IIB or IIC T5 (Ta = -50°C to +50°C) Ex ia IIB or IIC T4 (Ta = -50°C to +85°C) Enclosure IP 66/67	CA	j	j

^{*} See ATEX installation requirements in Operator's Manuals EN1I-6162 & EN1I-6196

The user must determine the type of protection required for installation of the equipment. The user shall then check

^{**} the box [√] adjacent to the type of protection used on the equipment certification nameplate. Once a type of protection has been checked on the nameplate, the equipment shall not be reinstalled using any of the other certification types.

34-44-16U-02 Issue 33 Page 4 of 4

RESTRICTIONS

Restriction Letter	Available Only With		Not Available With		
Restriction Letter	Table	Selection	Table	Selection	
f	ll ll	EP	II	SM,FM	
g	ll l	EP			
j	ll l	EP			
k	ll ll	0000			
m			II	EP	

Notes: See 13:STT-9 and User's Manual for part numbers.

See 13:STT-OE-5 for OMS Order Entry Information including tagging, transmitter configuration, manuals, certificates, drawings and SPINS.

To request a quotation for a non-published "special", fax RFQ to Marketing Applications at 602 313-6155.

Ordering Example: STT350-0-EPME-0000-0000000-000-0000-0000

Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information.

If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.



Honeywell Process Solutions

1860 West Rose Garden Lane Phoenix, AZ 85027 Tel: 877.466.3993 or 602.313.6665

www.honeywell.com/ps/hfs

EN0I-5222 September 2010 © 2006-2010 Honeywell International Inc.