Technical Information

Honeywell

Smart Temperature Transmitter Series STT 3000, Model STT350 Specifications

EN0I-5222 September 2010

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 or 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 to 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 our SmartLine™ Transmitters. All configuration, operation and communication functions are under the control of the STT350's microprocessors and are implemented through the SFC.

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.

Figure 1 – STT350 Transmitter in Field Mount 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 other Honeywell SmartLine 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 pre-configured at the factory to your exact specifications or they will be shipped with factory default configuration — ready to accept your own configuration.

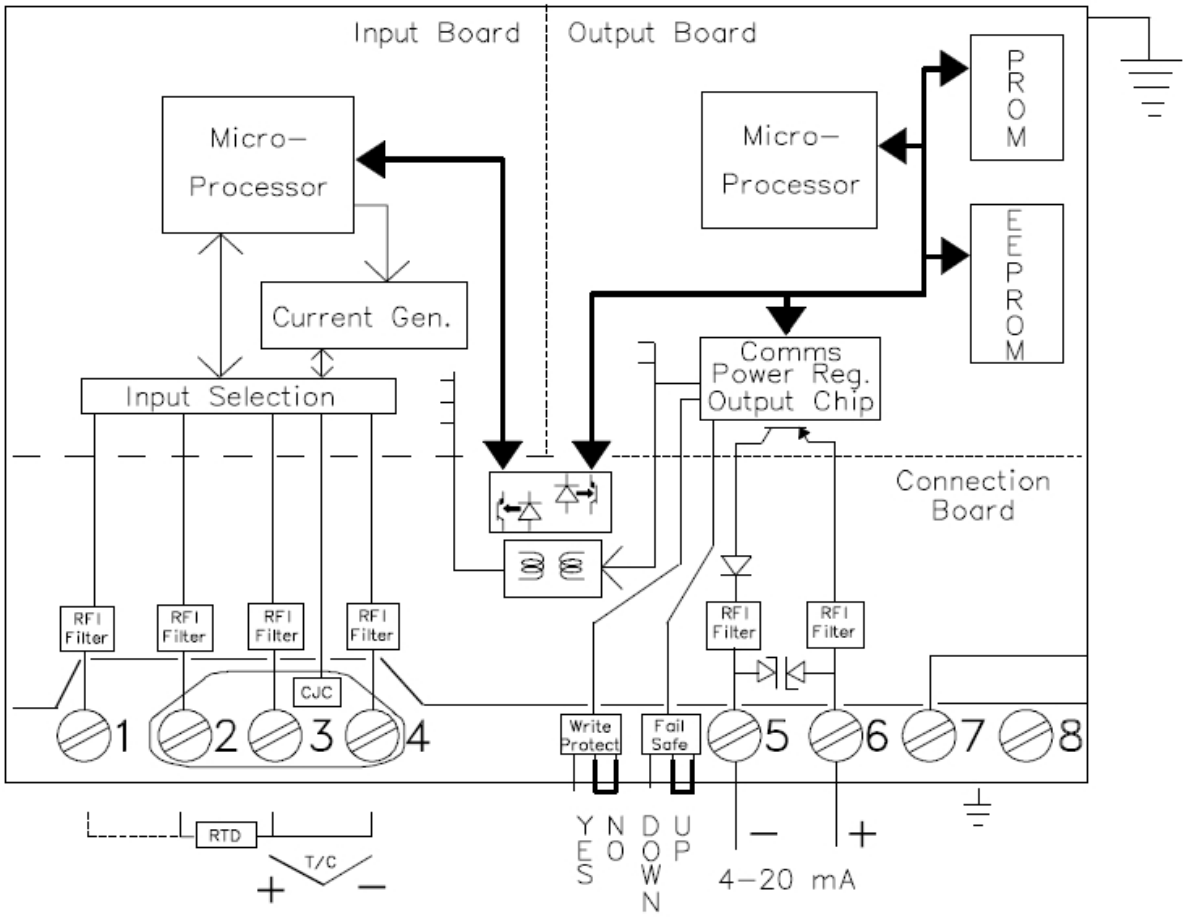

Figure 2—Block Diagram

Performance Under Rated Conditions								
Input Type	**Digital Accuracy for Maximum Range Limits**	**Maximum Range Limits**		**Digital Accuracy for Normal Range Limits**		**Normal Range Limits**		**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)
C	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		0,15Ω		0 to 2000 Ω		

Note that the 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

Operating Conditions				
Parameter	**Reference conditions**	**Rated Condition**	**Operative Limits**	**Transportation and Storage**
Ambient Temperature	23°C ± 2 73°F ± 4	-40 to 85 -40 to 185	-40 to 85 * -40 to 185	-50 to 100 -58 to 212
Humidity Rack Mounting %RH Mounted in EP %RH Housing	 10 to 55 10 to 55	 5 to 95 5 to 100	 5 to 100 5 to 100	 5 to 100 5 to 100
Supply 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 : 0 to 1450 Ohms (as shown in Fig 3)			
Vibration	Maximum of 4g over 15 to 200Hz. (restricted to 3g with indication meter)			
Shock	Maximum of 40g			

Output D/A Accuracy Cold Junction Accuracy Total Reference Accuracy In Analog Mode = In Digital Mode =	±0.025% of span ± 0.25°C Digital Accuracy of input + Output D/A Accuracy + 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 (per 10°C change from 20°C reference)	RTDs or Ohms : 0.029% of reading T/Cs or mV : 0.042% of reading
Cold Junction Rejection Effect	60:1 for changes from 23°C ambient
Output D/A Ambient Temperature Effect	0.045% of span per 10°C change
Total Output Ambient Temperature Effect (ATE) In Analog Mode = In Digital Mode =	 Digital ATE + Output D/A ATE + CJ ATE (T/Cs only) Digital ATE + CJ ATE (T/Cs only)
Power Supply Voltage Effect	0.005% of span per Volt

Parameter	**Description**
Adjustment Range	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
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 Isolation	Meets dielectric strength test of 1400Vac rms (50/60Hz) 2000Vdc for 1 minute
Series Mode Rejection	40dB (100 to 1) for 50 or 60Hz ±0.5Hz (with internal software filter set to local power line frequency)

Parameter	Description
EMC Compliance	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
Update Rate	2 to 5 measurements per second depending on input variation
Response Time	1.5 seconds to 90% of final step value
Stability/Time Drift	0.05% of maximum span per year. Auto calibration against internal reference every second.

Short term Operative Limit of –50°C (-58°F)

Physical Mounting, Construction and Approvals			
Parameter	**Description**		
Mounting	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	Screw Terminals - M3.5x6.7mm nickel coated brass Accepts up to 12AWG, 16AWG recommended		
Net Weight	Transmitter for DIN rail mount - 0.5kg (1.1 pounds) Transmitter in EP or XC housing - 1.6kg (3.6 pounds) Transmitter + indicator in housing - 2.4kg (5.2 pounds)		
Materials of construction	Transmitter 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) XC 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 optional adapters for M20x1.5, 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	<u>With or Without Integral Meter</u> 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 FM Explosion Proof Class I, II, III, Div. 1, Groups B to G <u>Without Integral Meter</u> FM Explosion Proof Class I, II, III, Div. 1, Groups A to G	

Physical Mounting, Construction and Approvals		
Parameter	**Description**	
Surge/Lightning	Internal SP Selection	10 kA peak current (8/ 20 µs waveform), 10kV peak Voltage (10/50 µs waveform)
Protection Options	External LP Selection	10 kA peak current (10/ 20 µs waveform), 500A peak Current (10/1000 µs waveform)
Thermowell & Probe Availability	STT350 can be supplied integrally mounted with any of the previously listed standard resistance temperature devices (RTDs) and thermocouple (T/Cs) elements. **Probe Types:** • 1/4" Rigid or spring loaded RTDs or T/Cs in Inconel or Stainless Steel sheaths in standard lengths from 3" to 24" (other lengths by request) • Standard or heavy duty service • Locally mounted to the STT350 housing or remotely mounted into explosion-proof mounting heads. • With (or without) probe lag hardware : Hex nipple, Straight nipple or Double lag and Union connections • Single or dual element availability; grounded or ungrounded T/Cs Additionally, the following types of Thermowells can also be provided as an integral thermal solution : **Thermowell Materials:** Carbon Steel, 304SS, 316SS, 316L SS, 446SS, Hastelloy B, Hastelloy C, Monel, Inconel 600 (other materials by request) **Thermowell Types:** Threaded well, Flanged well, or Socket well, (with or without thermowell lag extensions) **Flange Types:** Raised Face, Flat Faced and Ring Type Joint flange availability in 1", 1.5", 2" or 3" sizes **Flange Ratings**: ANSI 150#, 300#, 600# and 1500# ratings	

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.

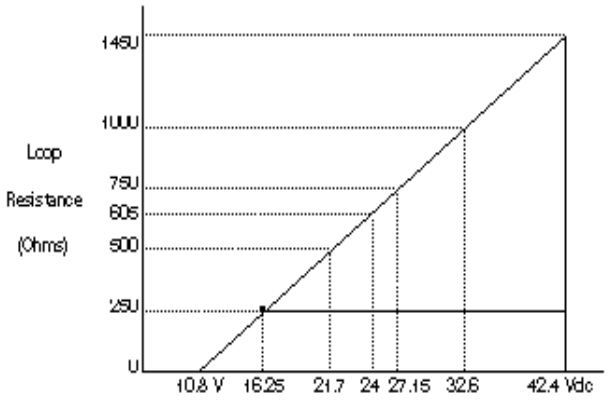

Figure 3 — Supply Voltage versus Load Resistance

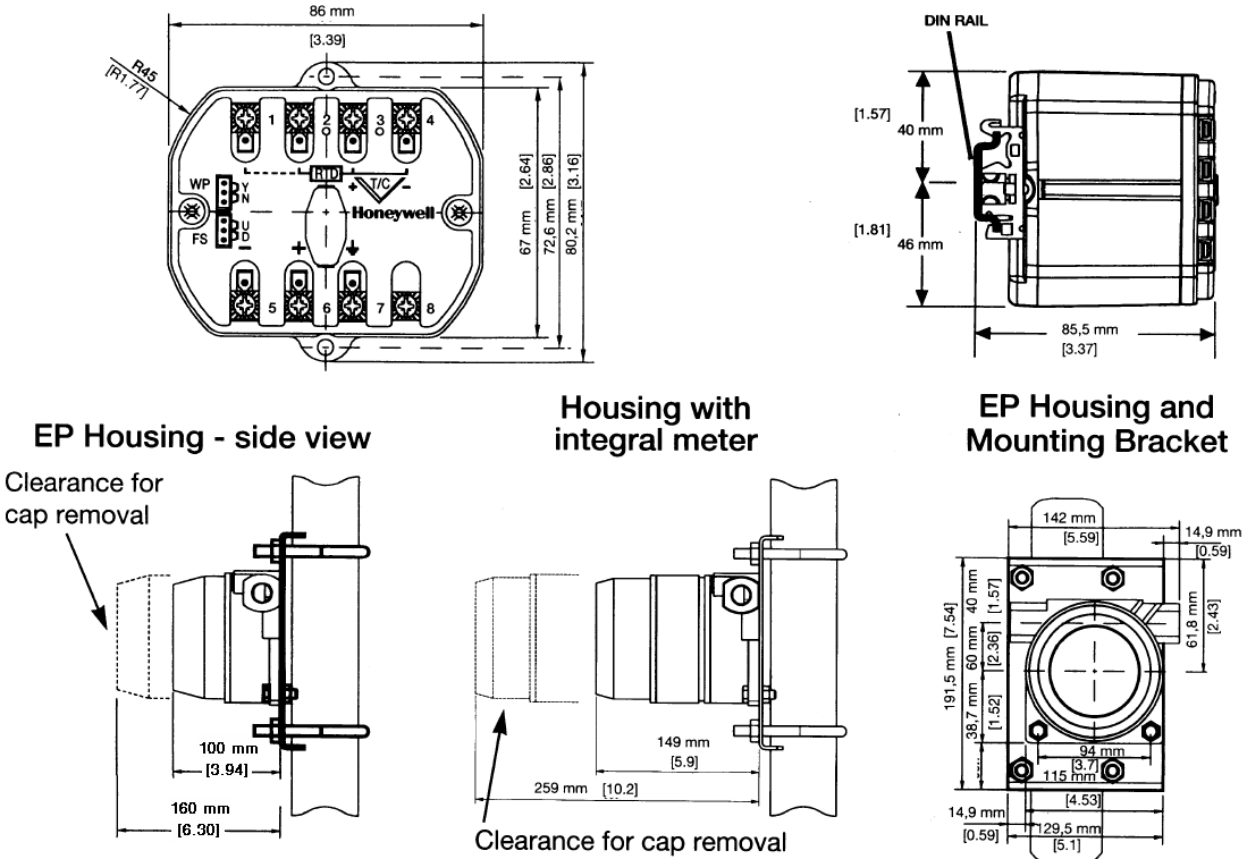

Figure 4 — STT350 Transmitter and Optional Flameproof Housing Dimensions –reference only – mm (inches)

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

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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	I	II	III	IV	V	VI	VII
STT35_	- _	- _ _ _ _	- _ _ _ _	- _ _ _ _ _ _ _	- _ _ _	- _ _ _ _	- _ _ _ _

KEY NUMBER

Description	Selection	Availability ↓	↓
STT350 Smart Temperature Transmitter Module (4-20mA/DE) *	STT350		
STT35F Fieldbus Temperature Transmitter Module *	STT35F		
All modules carry the following approvals: (See Approvals Table VII for more information)			
CE Mark: All modules carry CE Mark and are in compliance with EN 50081-2 and 50082-2.			
Russian Certificate of Pattern 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)

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

TABLE III - Configuration & Tagging

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

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

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TABLE IV - Optional Equipment

			Selection	Availability STT35 _ 0	F
Mounting Arrangement	No Mounting Arrangement Supplied		00 _ _ _ _ _	•	•
	DIN Rail Mounting via 2 Clips (to Top Hat or "G" Rail)		DR _ _ _ _ _	k	k
	Carbon Steel Mounting Bracket for 2" Pipe		MB _ _ _ _ _	j	j
	Stainless Steel Mounting Bracket for 2" Pipe		SB _ _ _ _ _	j	j
316 SS Conduit Adaptor for Wiring Entry	No Adaptor(s) Supplied - 1/2" NPT Conduit Connection		_ _ 0 _ _ _ _	•	•
	1/2" NPT to M20 x 1.5 (EEx d IIC Approved)	1 Adaptor	_ _ 1 _ _ _ _	•	•
		2 Adaptors	_ _ 2 _ _ _ _	•	•
	1/2" NPT to 3/4" NPT	1 Adaptor	_ _ 3 _ _ _ _	•	•
Lightning Protection	No Lightning Protection Supplied		_ _ _ 00 _ _	•	•
	External Lightning Protection - Mountable to Housing		_ _ _ LP _ _	j	j
	Internal Surge/Lightning Protection		_ _ _ SP _ _	j	j
Operator/User Manual	None		_ _ _ _ _ 00	•	•
	English Version (for STT35F Only)		_ _ _ _ _ EF		•
	English Version (for STT350 Only) (4)		_ _ _ _ _ EN	•	
	French Version		_ _ _ _ _ FR	•	
	Spanish Version		_ _ _ _ _ SP	•	

TABLE V - Optional Extended Warranty Coverage & Certificates

Optional Extended Warranty	Standard Warranty	0 _ _	•	•
	Additional Warranty - 1 year	1 _ _	•	•
	Additional Warranty - 2 years	2 _ _	•	•
	Additional Warranty - 3 years	3 _ _	•	•
	Lifetime Warranty - 15 years	L _ _	•	•
Optional Certificate **(Note 5)**	No Transmitter Configuration/ Calibration Certificate	_ 0 _	•	•
	Transmitter Configuration/ Calibration Certificate (D-0097-RD.A)	_ D _	•	•
	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 certifications included		00	•	•
FM Approvals	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**
	Explosion-proof Dust-Ignition-proof Intrinsically Safe Nonincendive Suitable for Outdoor Location	Class I, Div. 1, Groups B,C,D (with Indicato 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	1J	**j**	**j**
	Intrinsically Safe Nonincendive	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G Class I, Div. 2, Groups A,B,C,D	1G	**m**	**m**
CSA	Explosion-Proof Dust Ignition-Proof Intrinsically Safe Suitable for Outdoor Location	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,G Class II, III, Div. 2, Groups F, G Enclosure Type 4X	2J	**j**	**j**
	Intrinsically Safe Suitable for	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G Class I, Div. 2, Groups A,B,C,D	2G	**m**	**m**
ATEX*	Intrinsically Safe, Zone 0/1	⟨Ex⟩ **II 1 G** EEx ia IIC T4, T5, T6 (Module)	3S	•	•
	Flameproof, Zone 1	⟨Ex⟩ **II 2 G** EEx d IIC T5, T6 Enclosure rated IP 66/67	3D	**j**	**j**
	Non-Sparking, Zone 2	⟨Ex⟩ **II 3 G** 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	⟨Ex⟩ **II 1 G** ⟨Ex⟩ **II 2 G** ⟨Ex⟩ **II 3 G** EEx ia IIC T4, T5, T6 EEx d IIC T5, T6 EEx nA, IIC T5, T6 (Honeywell) Enclosure IP 54 minimum	3H	**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)	6S	•	
		BR-Ex ia IIC T6, (Ta -50 to 40°C), T5, (Ta -50 to 50°C), T5, (Ta -50 to 85°C)			•
IECEx	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	•	•
	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.

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RESTRICTIONS

Restriction Letter	Available Only With		Not Available With	
	Table	Selection	Table	Selection
f	II	EP _ _	II	_ _ SM, _ _ FM
g	II	EP _ _		
j	II	EP _ _		
k	II	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.

For More Information
Learn more about how STT 3000 Smart Temperature Transmitter can provide true differential temperature measurement, visit our website www.honeywell.com/ps/hfs or contact your Honeywell account manager.

Honeywell Process Solutions
1860 West Rose Garden Lane
Phoenix, Arizona 85027
Tel: 1-800-423-9883 or 1-800-343-0228
www.honeywell.com/ps

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Honeywell

STT 3000 Smart Temperature Transmitter Specifications

Foundation™ Fieldbus Model STT35F

EN0I-6083 September 2011

Introduction

Honeywell's microprocessor based STT35F Smart Temperature Transmitters convert a primary temperature sensor input into a standard FOUNDATION™ Fieldbus output signal on a 2 wire signal plus power multidrop connection.

These universal temperature input models readily accept signals from a wide variety of industry standard thermocouples (T/Cs) or resistance temperature detectors (RTDs) as well as basic milliVolt or Ohms sensors. The output signal is either proportional to the measured variable or linerarized to temperature.

The STT35F output conforms to the low speed (H1) of the Fieldbus Physical Layer specification IEC 61158-2 (1993). The other protocol layers conform to the FOUNDATION Fieldbus section of the 8 part IEC 61158 standard. This is supported by all the worldwide instrumentation suppliers and enables multidrop field instruments to be powered via a single wire pair and communicate measurement, control, configuration and diagnostic data at 31.25kbps.

STT Features

- Includes Fieldbus Foundation standard Function blocks to ensure full interoperable operation - Analog Input (AI), Control Bloc (PID), Resource Block (RB) and Transducer Block (XB).
- Includes Link Master capability to assume Link Active Scheduler (LAS) role of controlling the deterministic message communications in the event of primary LAS loss.
- Integral Digital Meter available without the need for an additional bus connection or power.
- Fieldbus Simulate link available for loop commissioning/ troubleshooting.

Figure 1 – STT35F module and Transmitter in Field Mount Housing with display indicator.

- Includes Flash Memory for ease of software upgrade over the Fieldbus for changes or improvements in this emerging technology.
- Post read validation of the measured signal before providing fresh output.
- Includes sensor break detection on all input wires.
- Configuration of the STT35F Function Blocks and the Fieldbus Application Parameters can be done with the National Instruments Configuration Toolkit or any other Fieldbus Foundation registered configurator.
- Single model accepts input signals from a choice of primary sensors to satisfy varying applications requirements with minimum transmitter inventory.
- 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.

STT Features (continued)

- Smart transmitter personality with local or remote interfacing means significant manpower efficiency improvements in commissioning, start-up, and ongoing maintenance functions. Write protect link included to safeguard configuration settings.
- Suitable for DIN rail mounting or remote field mounting in a flameproof housing.
- Unique, patented thermocouple tip resistance measurement gives predictive warning of imminent sensor failure for preventative maintenance.
- 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).
- Write protect link included to safeguard configuration settings.
- Supports dual thermocouple sensor inputs for redundant sensor operation.
- Surge/ lightning protection options can be installed internally in housing or externally in conduit.
- Standard digital cold -junction compensation function provides accurate and reliable temperature measurement over a wide ambient operating range.
- The STT35F FOUNDATION Fieldbus Temperature Transmitter is approved for use in systems powered by FISCO and FNICO power supplies. FISCO, Intrinsically Safe, and FNICO, Nonincendive, parameters in addition to Entity parameters are included on the Control Drawing and in the User's Manual.

Description

The STT35F transmitters are suitable as a direct replacement for any conventional or Smart temperature transmitter in use today. Their memory contains the characteristics of most commonly used temperature sensors.

This means that you can use the Fieldbus configuration tool to configure the transmitter for any of these sensors and it will automatically correct for their associated non-linearity.

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 configuration - ready to accept your own configuration. The H1 low speed FOUNDATION Fieldbus protocol is aimed at the replacement of 4-20mA conventional or Smart transmitters by multidrop digital field devices with signal and power carried over a single wire pair and also meeting intrinsic safety requirements. Transmitters can be preconfigured at the factory to your exact specifications or they will be shipped with factory default configuration - ready to accept your own configuration.

Configuration of the field devices and the bus operating parameters can be performed from the system console or from Windows 95 or NT PC based configuration tools such as the National Instruments Configurator. The driving force behind Fieldbus is increased field intelligence and capabilities and these results in a wide range of available configuration selections such as the gain, integral, derivative settings in the PID control block, or its mode of operation - Manual, Automatic or cascade, or built in alarm settings etc.

Performance under Rated Conditions

Input Type	Digital Accuracy for Maximum Range Limits	Maximum Range Limits		Digital Accuracy for Normal Range Limits	Normal Range Limits		Standards
RTD:	**% of Max Span**	**° C**	**° F**	**° C**	**° C°**	**ºF**	
Pt100	0.01	-200 to 850	-328 to 562	0.1	-200 to 450	-328 to 842	IEC751:1986(=0.00385)
Pt200	0.01	-200 to 850	-328 to 562	0.1	-200 to 450	-328 to 842	IEC751:1986(=0.00385)
Pt500	0.02	-200 to 850	-328 to 562	0.1	-200 to 450	-328 to 842	IEC751:1986(=0.00385)
Pt100J	0.01	-200 to 640	-328 to 184	0.1	-200 to 450	-328 to 842	JISC 1604-81(=0.00392)
Ni500	0.04	-80 to 150	-112 to 302	0.1	-50 to 150	-58 to 302	Honeywell Type A
Cu 10	0.37	-20 to 250	-4 to 482	1.0	-20 to 250	-4 to 482	General Electric
Cu 25 **T/C:**	0.19	-20 to 250	-4 to 482	0.5	-20 to 250	-4 to 482	General Electric
B	0.14	200 to 1820	392 to 3308	1.0	550 to 1820	1022 to 3308	IEC 584-1 (ITS-90)
C	0.03	0 to 2300	32 to 4172	0.6	0 to 1650	32 to 3002	IPTS 68
D	0.03	0 to 2300	32 to 4172	0.6	330 to 1370	626 to 2498	IPTS 68
E	0.04	-200 to 1000	-328 to 1832	0.2	0 to 1000	32 to 1832	IEC 584-1 (ITS-90)
J	0.04	-200 to 1200	-328 to 2192	0.2	0 to 800	32 to 1472	IEC 584-1 (ITS-90)
K	0.04	-200 to 1370	-328 to 2498	0.3	-120 to 1370	-191 to 2498	IEC 584-1 (ITS-90)
N	0.06	-200 to 1300	-328 to 2372	0.3	0 to 1300	32 to 2372	IEC 584-1 (ITS-90)
R	0.09	-50 to 1760	-58 to 3200	0.5	500 to 1760	932 to 3200	IEC 584-1 (ITS-90)
S	0.08	-50 to 1760	-58 to 3200	0.5	500 to 1760	932 to 3200	IEC 584-1 (ITS-90)
T	0.14	-250 to 400	-418 to 752	0.2	-100 to 400	-148 to 752	IEC 584-1 (ITS-90)
NiNiMoly	0.03	0 to 1300	32 to 2372	0.3	780 to 1300	1436 to	G.E. (IPTS - 68)
Radiamatic	0.6	420 to 1800	788 to 3272	0.7	780 to1800	1436 to	Honeywell (RH)
milliVolts	0.01	-20 to 120mV		8 V	-10 to 45 mV		
Ohms	0.01	0 to 2000Ω		0.15Ω	to 2000Ω		

Note that the above 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 with simulated inputs from a calibrator box.

All STT35F 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

Operating Conditions				
Parameter	**Reference conditions**	**Rated Condition**	**Operative limits**	**Transportation and storage**
Ambient temperature	23°C ± 2 73°F ± 4	-40 to 85°C -40 to 185°F	-40 to 85°C * -40 to 185°F	-50 to 100°C -58 to 212°F
Humidity **Rack Mounting %RH** **Mounted in EP %RH housing**	 10 to 55 10 to 55	 5 to 95 5 to 100	 5 to 100 5 to 100	 5 to 100 5 to 100
Power supply Current draw	18mA constant current draw.			
Supply Voltage and load Resistance	9.0 to 35Vdc at the transmitter terminals Dependent on number/ type of bus devices.			
Vibration	Maximum of 4g over 15 to 200Hz. (restricted to 3g with indication meter)			
Shock	Maximum of 40g			

*** = Short term operative limit of -50°C (-58°F)**

Additional Specifications	
Cold Junction Accuracy Total Reference Accuracy	± 0.25°C Digital Accuracy of input + CJ Accuracy (T/Cs only) (example: transmitter with thermocouple Type J sensor and 0 to 200°C range Total Reference Accuracy = 0.2 + 0.25 = 0.45°C
Digital Ambient Temperature Effect (per 10°C change from 20°C reference)	RTDs or Ohms : 0.029% of reading T/Cs or mV : 0.042% of reading
Cold Junction Rejection Effect	60:1 for changes from 23°C ambient
Total Output Ambient Temperature Effect (ATE)	Digital ATE + CJ rejection effect (T/Cs only)
Power Supply Voltage Effect	0.005% of span per Volt

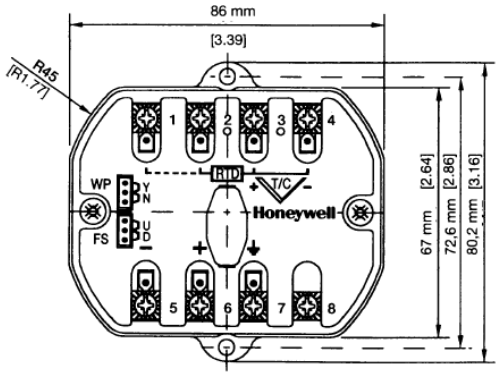
Parameter	
Description	
Adjustment Range	No limits to adjustments between the Maximum range and 1 eng. unit e.g. 1°C
Damping time constant	Adjustable from 0 to 102 seconds digital damping
Input to output galvanic isolation **Input & output common mode isolation**	Meets dielectric strength test of 1400Vac rms (50/60Hz) 2,000Vdc for 1 minute. Withstands dielectric test of 700Vac rms or 1,000 Vdc for 1 minute.
Common Mode Rejection	120dB (1 million to 1) from 50Hz to 50kHz
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, Electro Magnetic - Compatibility (EMC) Directive

Parameter	
RFI Rejection	±0.1% of span at 30V/m over 20 to 1,000MHz in explosion proof housing with shielded cables
Stability/Time Drift	0.05% of maximum span per year. Autocalibration against internal reference every second

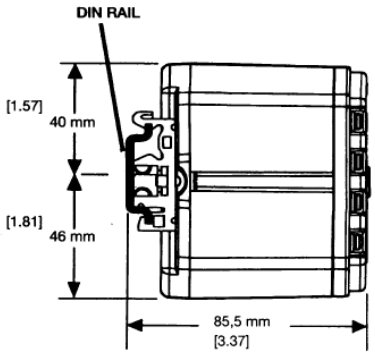
Physical Mounting and Construction	
Parameter	Description
Mounting	DIN rail (top hat or G rail) Explosion Proof/Flameproof housing with surface mounting or 2- inch pipe mounting (IP 66/NEMA 4X Rating) The FM/CSA explosion proof housing meets the applicable requirements of NEMA 7 and 9
Wiring	Screw Terminals - M3.5x6.7mm nickel coated brass. Accepts up to 12AWG, 16AWG recommended
Net Weight	Transmitter for DIN rail mount - 0.5kg (1.1 pounds) Transmitter in EP or XC housing - 1.6kg (3.6 pounds) Transmitter + indicator in housing - 2.4kg (5.2 pounds)
Materials of construction	Transmitter 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) XC 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) 316 Stainless Steel housing available as a special.
Dimensions	See Fig 3
Sensor/ cable entry (EP, XC or ST02 housing)	1/2 NPT electrical connection with optional adapters for M20x1.5, or 3/4 inch NPT

Physical Mounting and Construction	
Thermowell & Probe Availability	STT35F can be supplied integrally mounted with any of the previously listed standard resistance temperature devices (RTDs) and thermocouple (TCs) elements. **Probe Types:** 1/4" Rigid or spring loaded RTDs or T/Cs in Inconel or Stainless Steel sheaths in standard lengths from 3" to 24" (other lengths by request). Standard or heavy duty service. Locally mounted to the STT350 housing or remotely mounted into explosion-proof mounting heads. With (or without) probe lag hardware : Hex nipple, Straight nipple or Double lag and Union connections. Single or dual element availability; grounded or ungrounded Additionally, the following types of Thermowells can also be provided as an integral thermal solution : **Thermowell Materials:** Carbon Steel, 304SS, 316SS, 316L SS, 446SS, Hastelloy B, Hastelloy C, Monel, Inconel 600 (other materials by request). **Thermowell Types:** Threaded well, Flanged well, or Socket well, (with or without thermowell lag extensions). **Flange Types:** Raised Face, Flat Faced and Ring Type Joint flange availability in 1", 1.5", 2" or 3" sizes. **Flange ratings:** ANSI 150, 300, 600, 900 and 1500 ratings.

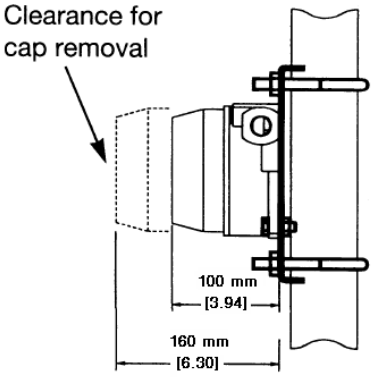
Module – front view



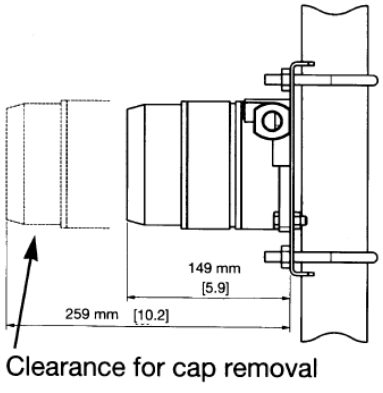
Module +DIN clip



EP Housing - side view



Housing with integral meter



EP Housing and Mounting Bracket

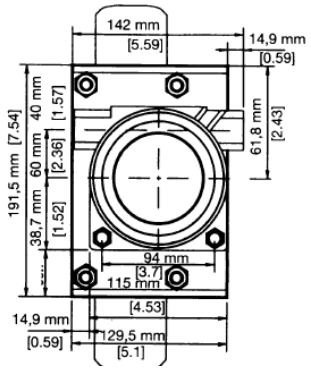


Figure 3 — STT350 Transmitter and Optional Flameproof Housing Dimensions –reference only – mm (inches)

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

Model Selection Guide

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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	I	II	III	IV	V	VI	VII
STT35_	- _	- _ _ _ _	- _ _ _ _	- _ _ _ _ _ _ _	- _ _ _	- _ _ _ _	- _ _ _ _

KEY NUMBER

Description	Selection	Availability	
STT350 Smart Temperature Transmitter Module (4-20mA/DE) *	STT350	↓	
STT35F Fieldbus Temperature Transmitter Module *	STT35F		↓
All modules carry the following approvals: (See Approvals Table VII for more information)			
CE Mark: All modules carry CE Mark and are in compliance with EN 50081-2 and 50082-2.			
Russian Certificate of Pattern 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)

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

TABLE III - Configuration & Tagging

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

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

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TABLE IV - Optional Equipment

			Selection	Availability STT35 _ 0	F
Mounting Arrangement	No Mounting Arrangement Supplied		00 _ _ _ _ _	•	•
	DIN Rail Mounting via 2 Clips (to Top Hat or "G" Rail)		DR _ _ _ _ _	k	k
	Carbon Steel Mounting Bracket for 2" Pipe		MB _ _ _ _ _	j	j
	Stainless Steel Mounting Bracket for 2" Pipe		SB _ _ _ _ _	j	j
316 SS Conduit Adaptor for Wiring Entry	No Adaptor(s) Supplied - 1/2" NPT Conduit Connection		_ _ 0 _ _ _ _	•	•
	1/2" NPT to M20 x 1.5 (EEx d IIC Approved)	1 Adaptor	_ _ 1 _ _ _ _	•	•
		2 Adaptors	_ _ 2 _ _ _ _	•	•
	1/2" NPT to 3/4" NPT	1 Adaptor	_ _ 3 _ _ _ _	•	•
Lightning Protection	No Lightning Protection Supplied		_ _ _ 00 _ _	•	•
	External Lightning Protection - Mountable to Housing		_ _ _ LP _ _	j	j
	Internal Surge/Lightning Protection		_ _ _ SP _ _	j	j
Operator/User Manual	None		_ _ _ _ _ 00	•	•
	English Version (for STT35F Only)		_ _ _ _ _ EF		•
	English Version (for STT350 Only) (4)		_ _ _ _ _ EN	•	
	French Version		_ _ _ _ _ FR	•	
	Spanish Version		_ _ _ _ _ SP	•	

TABLE V - Optional Extended Warranty Coverage & Certificates

Optional Extended Warranty	Standard Warranty	0 _ _	•	•
	Additional Warranty - 1 year	1 _ _	•	•
	Additional Warranty - 2 years	2 _ _	•	•
	Additional Warranty - 3 years	3 _ _	•	•
	Lifetime Warranty - 15 years	L _ _	•	•
Optional Certificate **(Note 5)**	No Transmitter Configuration/ Calibration Certificate	_ 0 _	•	•
	Transmitter Configuration/ Calibration Certificate (D-0097-RD.A)	_ D _	•	•
	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 certifications included		00	•	•
FM Approvals	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**
	Explosion-proof Dust-Ignition-proof Intrinsically Safe Nonincendive Suitable for Outdoor Location	Class I, Div. 1, Groups B,C,D (with Indicato 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	1J	**j**	**j**
	Intrinsically Safe Nonincendive	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G Class I, Div. 2, Groups A,B,C,D	1G	**m**	**m**
CSA	Explosion-Proof Dust Ignition-Proof Intrinsically Safe Suitable for Outdoor Location	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,G Class II, III, Div. 2, Groups F, G Enclosure Type 4X	2J	**j**	**j**
	Intrinsically Safe Suitable for	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G Class I, Div. 2, Groups A,B,C,D	2G	**m**	**m**
ATEX*	Intrinsically Safe, Zone 0/1	Ex II 1 G EEx ia IIC T4, T5, T6 (Module)	3S	•	•
	Flameproof, Zone 1	Ex II 2 G EEx d IIC T5, T6 Enclosure rated IP 66/67	3D	**j**	**j**
	Non-Sparking, Zone 2	Ex II 3 G 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	Ex II 1 G EEx ia IIC T4, T5, T6 Ex II 2 G EEx d IIC T5, T6 Ex II 3 G EEx nA, IIC T5, T6 (Honeywell) Enclosure IP 54 minimum	3H	**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)	6S	•	
		BR-Ex ia IIC T6, (Ta -50 to 40°C), T5, (Ta -50 to 50°C), T5, (Ta -50 to 85°C)			•
IECEx	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	•	•
	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.

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RESTRICTIONS

Restriction Letter	Available Only With		Not Available With	
	Table	Selection	Table	Selection
f	II	EP _ _	II	_ _ SM, _ _ FM
g	II	EP _ _		
j	II	EP _ _		
k	II	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.

For More Information

Learn more about how STT 3000 Smart Temperature Transmitter can provide true differential temperature measurement, visit our website www.honeywell.com/ps/hfs or contact your Honeywell account manager.

Honeywell Process Solutions
1860 West Rose Garden Lane
Phoenix, Arizona 85027
Tel: 1-800-423-9883 or 1-800-343-0228
www.honeywell.com/ps

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