

## STT 3000 Series STT350

### SMART TEMPERATURE TRANSMITTER

Model STT350

34-TT-03-01  
7/99

### Specification and Model Selection Guide

#### Key Features

- Unmatched performance – 0.13°C **Total Performance** accuracy for 100 ohm Platinum RTDs.
- Superior stability – 0.05% maximum span per year.
- Provides **True Differential** temperature measurement of thermocouple or RTD inputs by individual linearization of each sensor reading and then computing the difference.
- Supports **Dual Thermocouple** sensor inputs for redundant sensor operation.
- Suitable for 2, 3 or 4 wire 100 and 200 ohm Platinum RTD measurement.
- Standard digital cold-junction compensation function provides accurate and reliable temperature measurement over a wide ambient operating range.
- Includes **sensor break detection** on all input wires.



*Figure 1 – STT350 Transmitter in field mount housing.*

Product Description	Added Product Features
<p>The <b>STT350</b> is Honeywell's high performance smart temperature transmitter. The output is transmitted in either an analog 4-20mA format or Honeywell's digital DE protocol format for digital integration to the Honeywell TPS control system. You select the analog or digital output format through the <b>Smart Field Communicator™</b> (SFC); the common hand held operator interface for our Smartline™ Transmitters, or with the PC-based <b>SCT 3000™</b> (<b>Smart Configuration Toolkit</b>). All configuration, operation and communication functions are implemented remotely from the TPS consoles or through the SFC or SCT.</p> <p><b>STT350</b> transmitters are suitable for new installations as well as replacements for any conventional or smart temperature transmitters in use today. The transmitter's memory contains the characteristics of the RTD and thermocouple temperature sensors most commonly used. You can easily use the hand-held or PC tool to configure the transmitter for any of these sensors.</p> <p>Accuracies stated in the <i>performance specifications</i> below are available by selecting the sensor type and range (i.e. without user calibration). Calibration of the LRV/URV end points will typically give accuracy improvements of up to 2 times. Sensor errors can be minimized by calibration to the specific sensor either by setting it at the LRV/URV temperatures or by simulation of the known values.</p> <p>Additionally, all units pass through environmental stress screening by fast cycling between -40°C and +85°C to ensure maximum product reliability. During this process the ambient temperature coefficients are determined for each unit and burned into memory to ensure temperature compensation over a wide range of operating conditions.</p> <p>Configuration adjustments and diagnostics checks can be made either locally or remotely from anywhere along the signal wires. This enables major savings in manpower time during commissioning, start up and maintenance activities.</p>	<p>The <b>STT350</b> temperature transmitters readily accept input 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 linearized to temperature.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Mounting options include wall, pipe, or DIN rail mounting with or without a housing.</li> <li>• Single model accepts input signal from a wide choice of primary sensors to satisfy varying application requirements with minimum transmitter inventory.</li> <li>• Hardware selectable upscale/downscale failsafe link to ensure secure operation in the event of a failure.</li> <li>• Open circuit sensor analysis carried out in every measurement cycle.</li> <li>• Selectable latching/non-latching failsafe operation for open circuit sensor.</li> <li>• The optional smart meter accepts either the 4-20mA or DE protocol and displays temperature on a LCD in engineering units or 0 to 100% span.</li> <li>• Analog to Digital converter validated frequently.</li> <li>• Surge/lightning protection options can be installed internally in housing or externally in conduit.</li> <li>• Write protection link included to safeguard configuration settings.</li> </ul>

## Digital Integration Links the STT 3000 to TPS and A-B PLCs for Greater Process Efficiency

**Digital Integration** of the STT 350 Smart Temperature Transmitter with Honeywell's TPS system allows you to combine advanced transmitter technology with our state-of-the-art, process-connected controllers - the Process Manager, Advanced Process Manager and High Performance Process Manager. Digital Integration is also available with the Allen-Bradley 1771 and 1746 module design for use with the PLC-5 and SLC controllers.

**Digital Integration** of the STT 350 Smart Temperature Transmitter with TPS improves the integrity of the process data measurements, letting you monitor process variability with greater accuracy. *Accurate and more reliable data lets you implement advanced control strategies, and provide greater bottom-line profits.*

**Digital Integration** combines the functions of TPS system with the strengths of the **STT350** to help achieve maximum productivity, by providing:

- **Database security and integrity** - PV Status transmission precedes the PV value, guaranteeing that a bad PV is not used in a control algorithm.
- **Bidirectional communication and a common database for the system and the transmitter** – Data upload and download capability lowers transmitter installation costs.
- **Single-window diagnostics for the transmitter (electronics and meter body) and loop** – Remote troubleshooting reduces maintenance effort and expedites repairs. Differentiates between transmitter or interface module faults, operator overrides, wiring faults, communications errors, test mode and unsafe process conditions.
- **Automatic historization of all transmitter parameter changes** – System maintenance log automatically provides audit trail of changes.
- **Enhanced accuracy** – Elimination of D/A and A/D converters improves measurement accuracy.

## TPS Digital Integration



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*Digital integration enhances process control performance, data integrity and productivity.*

### Why use a Temperature Transmitter?

Many customers commonly wire temperature sensors directly to their control system. Upgrading these inputs to smart temperature transmitters offers the following advantages:

- Standard 4-20 mA wiring is less expensive and easier to install than thermocouple or RTD wiring.
- Greater measurement accuracy by using standard twisted pair wiring, because long runs of thermocouple wiring are susceptible to RFI noise interference and lead wire resistance.
- Greater flexibility to change sensor types when T/C or RTD field wiring is minimized.
- Use of standard 4-20mA DCS input cards instead of numerous and more expensive T/C or RTD input cards.
- Diagnostics available with smart transmitters improve the maintainability of any individual measurement, particularly when digitally integrated to an industrial automation system.
- Speed of response versus input multiplexers is greatly improved for control when transmitters are used.

### Which sensor, RTD or Thermocouple?

Both RTDs and thermocouples are used for process temperature measurements. RTDs have gained in acceptance due to improved reliability and lower costs, but thermocouples remain the proper choice for many applications. RTDs are generally the best choice when accuracy and measurement stability are crucial.

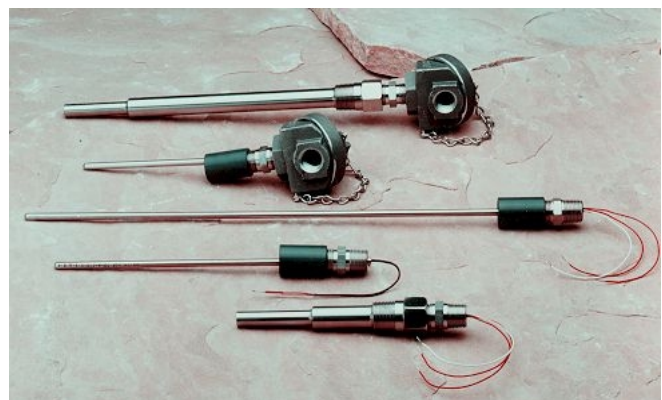
### Choosing the Best Sensor...

	Sensor Performance Characteristics	
	RTD	T/C
Accuracy	0.01 to 0.1 deg F	1 to 10 deg F
Stability	<0.1% error in 5 years	1 deg F / year
Sensitivity	0.1 to 10 ohms / deg F	5 to 50mV / deg F
Linearity	Best	Moderate
Range	-328 to 1562 deg F -200 to 850 C	-310 to 3308 deg F -190 to 1821 C
Response	Moderate	Best
Price	\$\$\$	\$
Options	<i>Platinum</i> + best overall selection - most expensive  <i>Nickel</i> + good for < 300 deg F  <i>Copper</i> + most linear, least \$ - limited span	<i>Ungrounded</i> + longest expected life + well protected <i>Grounded</i> + improved response - requires isolated trans. <i>Exposed</i> + quickest response + direct process immersion - vulnerable to damage
Overall	* Highest accuracy over a wide range * Best stability	* Greatest economy * Higher temperatures * Faster response

### Temperature Probe and Thermowell Availability

**STT350** can be supplied complete with any of the listed thermocouple or RTD sensors and with any of a wide range of thermowells. For direct mount installation the sensor is supplied with a mounting plate for STT350 module attachment and screws to provide the spring loaded attachment to the housing.

See details on the standard sensors available in "Guide to Temperature Sensors and Thermowells", specification 34-44-29-01 for North America.



## Dual Input Capability

The **STT350's** dual input capability allows more advanced applications to be implemented in a single transmitter. These include differential temperature and redundant T/C applications described below.

### Differential Temperature Measurement

Many temperature measurement applications require measurement of temperature differences. The historical approach is to convert the temperature sensor signals to high level 4-20mA signals and process these through a subtraction module to derive the difference. An improved solution in recent years has been to use Smart Temperature transmitters configured to operate in the actual measured engineering unit and connect the two sensors to be subtracted so that differential temperature could be measured in a single transmitter.

The “State of the Art” solution available in **STT350** is to measure the two sensor signals individually, determine the measured temperatures and subtract these to provide a more accurate output signal proportional to the differential temperature.

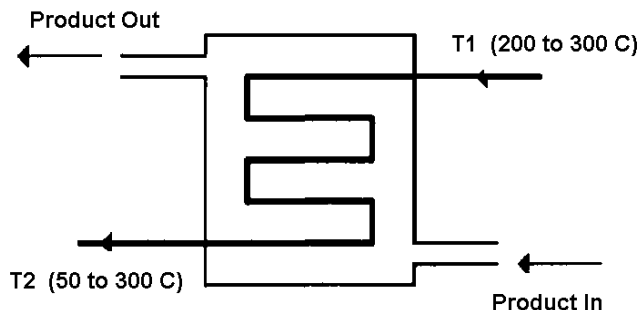


Figure 2 – Typical Application - Heat Exchanger.

As illustrated in Figure 2, the product passes through the heat exchanger that has an incoming fluid supplying the heat in the range 200°C to 300°C. The outlet temperature T2 can be in the range 50 to 300°C. The differential temperature measurement (T1 - T2) will have a range of 0 to 250 degrees (if no heat is exchanged then the fluid passes through with no temperature change, if maximum heat is transferred then T1 is 300°C and T2 is 50°C.)

### Redundant or “Backup” Thermocouples

In high temperature measurement applications, thermocouple sensors are often prone to failure (or burnout). Corrosion and contamination of the sensor progressively reduces the area of the junction of the dissimilar metals and finally results in an open circuit (failed) sensor.

The Honeywell **STT350** Smart Temperature Transmitter automatically monitors for a thermocouple burnout condition by continually checking the resistance of the thermocouple. If this measurement exceeds 2,000Ω, then the transmitter may drive to either the high or low failsafe limit (i.e. outside of the standard 4-20mA band). The **STT350** can also recognize if the sensor is starting to degrade to a failure condition and provide advance warning to the operator. This action is triggered if the measured sensor resistance exceeds 500Ω. This warning is accessible through either the Smart Field Communicator (SFC), the SCT 3000 Smart Configuration Toolkit or automatically on the Total Plant Solution (TPS) console screen to enable planning of preventative action before the sensor finally burns out.

The STT350 can also provide automatic switchover to the spare thermocouple sensor based on the results of the resistance measurements. This is “Redundant T/C” operation (Int. Pat App No WO 96/11389). In this configuration, if one sensor exceeds 500Ω resistance it will instantaneously transfer to the other sensor. Also in this configuration if one sensor exceeds 2,000Ω while the other is less then it will transfer to the better sensor. In either case, an alarm message is generated based on the type of failure mode (action) taken.

### 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	° F	
Pt100	0.01	-200 to 850	-328 to 1562	0.1	-200 to 450	-328 to 842	IEC751:1986( $\alpha=0.00385$ )
Pt200	0.01	-200 to 850	-328 to 1562	0.1	-200 to 450	-328 to 842	IEC751:1986( $\alpha=0.00385$ )
Pt500	0.02	-200 to 850	-328 to 1562	0.1	-200 to 450	-328 to 842	IEC751:1986( $\alpha=0.00385$ )
Pt100J	0.01	-200 to 640	-328 to 1184	0.1	-200 to 450	-328 to 842	JISC 1604-81( $\alpha=0.00392$ )
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	0.19	-20 to 250	-4 to 482	0.5	-20 to 250	-4 to 482	General Electric
T/C	% of Max Span	° C	° F	° C	° C	° F	
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 3272	GE (IPTS - 68)
Radiamatic	0.6	420 to 1800	788 to 3272	0.7	780 to 1800	1436 to 3272	Honeywell (RH)
Millivolts	0.01	-20 to 120mV		8 $\mu$ V	-10 to 45 mV		
Ohms	0.01	0 to 2000 $\Omega$		0.15 $\Omega$	0 to 2000 $\Omega$		

Note that the accuracy values above 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.



### CAUTION



#### Reference Accuracy $\neq$ Performance

Ambient temperature effects and D/A errors are often of greater influence on installed instrument performance than reference accuracy specifications.

Under actual operating conditions, temperature transmitters with identical reference accuracies can yield varying levels of measurement performance.

STT 3000's continuous temperature compensation and **digital communications** deliver superior installed performance.

Performance Specifications	
<b>Output D/A accuracy</b>	±0.025% of span.
<b>Cold Junction accuracy</b>	±0.25°C.
<b>Total reference accuracy: Analog 4-20mA mode</b>	Digital accuracy + Output D/A accuracy + CJ accuracy (T/Cs only).
<b>Total reference accuracy: Digital DE mode</b>	Digital accuracy + CJ accuracy (T/Cs only).
Example: Transmitter operating in analog with Pt100 sensor and 0 to 200°C range.	Total reference accuracy = $0.1 + (200/100) \times 0.025 = 0.15^\circ\text{C}$ .
<b>Digital ambient temperature effect: (per 10°C change from 23°C ref.)</b>	RTDs or Ohms: 0.030% of reading in Ohms. T/Cs or mV : 0.042% of reading in mV.
<b>Output D/A ambient temp. effect: (per 10°C change from 23°C ref.)</b>	±0.045% of span.
<b>Cold Junction ambient temperature effect</b>	60: 1 rejection for ambient temperature changes from 23°C reference.
<b>Total output ambient temperature effect: Analog 4-20mA mode</b>	Digital effect + Output D/A effect + CJ effect (T/Cs only).
<b>Total output ambient temperature effect: Digital DE mA mode</b>	Digital effect + CJ effect (T/Cs only).
<b>Power supply voltage effect</b>	0.005% of Max span per Volt.
<b>Stability/time drift</b>	0.05% of maximum span per year. Autocalibration against internal reference every second.
Additional Parameters	
<b>Output</b>	4-20mA or Honeywell DE digital protocol. Extended range: 3.8-20.8mA. Fail safe modes <3.8mA or 21.8mA.
<b>Adjustment range</b>	No limits to adjustments within the Maximum Range except minimum span limit of 1 engineering unit e.g. 1°C.
<b>Damping time constant</b>	Adjustable from 0 to 102 seconds digital damping.
<b>Output response time</b>	1 second to reach 63% of final value with 0 secs damping.
<b>Output update time</b>	0.5 secs.
<b>Input to output galvanic isolation Input &amp; output common mode isolation</b>	Meets dielectric strength test of 1400Vac rms (50/60Hz) 2,000Vdc for 1 minute.
<b>Thermocouple burnout</b>	Burnout detection is user selectable. Upscale or downscale with critical status message on STT350.
<b>Sensor open circuit</b>	Open circuit/ burnout detection is user selectable. Upscale or downscale with critical status message. Latching or non-latching sensor burnout action.
<b>Common mode rejection</b>	120dB (1 million to 1) from 50Hz to 50kHz.
<b>Series mode rejection</b>	40dB (100 to 1) for 50 or 60Hz ±0.5Hz. (with internal software filter set to local power line frequency.
<b>EMC compliance</b>	In compliance with 89/336/EEC, ElectroMagnetic Compatibility (EMC) Directive.
<b>RFI rejection</b>	±0.1% of span at 30V/m over 20 to 1,000MHz in metallic housing and with shielded cables.



Operating Conditions				
	Reference conditions	Rated conditions	Operative limits	Transportation and storage
<b>Ambient temperature</b>	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
<b>Humidity</b>				
<b>Rack mounting %RH</b>	10 to 55	5 to 95	5 to 100	5 to 100
<b>Mounted in EP %RH housing</b>	10 to 55	5 to 100	5 to 100	5 to 100
<b>Supply voltage and load resistance</b>	10.8 to 42.4 Vdc at the transmitter terminals. 0 to 1450 Ohms (as shown in Figure 3).			
<b>Vibration</b>	Maximum of 4g over 15 to 200Hz. (restricted to 3g with indication meter).			
<b>Shock</b>	Maximum of 40g.			

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

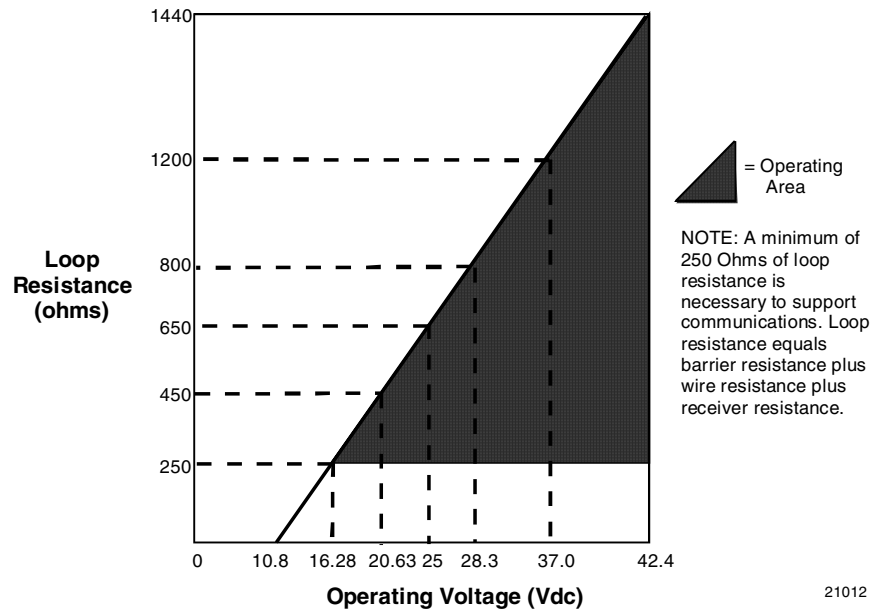


Figure 3 – Operating Range for STT 350 Transmitters.



## Physical Mounting, Construction and Approvals

Parameter	Description														
<b>Mounting</b>	DIN rail (top hat or G rail). Explosion Proof/Flame Proof 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.														
<b>Wiring</b>	Screw Terminals - M3.5x6.7mm nickel coated brass. Accepts up to 12AWG, 16AWG recommended.														
<b>Net weight</b>	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).														
<b>Materials of construction</b>	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.														
<b>Dimensions</b>	See Figure 5.														
<b>Sensor/ cable entry</b> (EP, XC or ST02 housing)	1/2 inch NPT electrical connection with optional adapters for M20x1.5, or 3/4 inch NPT.														
<b>Safety approvals: STT350 Module</b>	<table> <tr> <td>CENELEC</td><td>Intrinsically Safe EEx ia IIC T4/ T5/ T6 with 30V/100mA/1.2W barrier. (T4/ T5/ T6 = -20 to +80/ +50/ + 40 °C ambient). Intrinsically Safe Class I, Div.1, Groups A to D.</td></tr> <tr> <td>CSA</td><td>Intrinsically Safe Class I, II, III, Div. 1, Groups A to G.</td></tr> <tr> <td>FM</td><td>Non-Incendive Class I, Div. 2, Groups A to D.</td></tr> <tr> <td>FM</td><td>Suitable for Class II, III, Div. 2, Groups F and G.</td></tr> <tr> <td>GOSSTANDARD</td><td>Tested and approved by Russian Certificate of pattern Approval No 332 of 18/10/94.</td></tr> </table>	CENELEC	Intrinsically Safe EEx ia IIC T4/ T5/ T6 with 30V/100mA/1.2W barrier. (T4/ T5/ T6 = -20 to +80/ +50/ + 40 °C ambient). Intrinsically Safe Class I, Div.1, Groups A to D.	CSA	Intrinsically Safe Class I, II, III, Div. 1, Groups A to G.	FM	Non-Incendive Class I, Div. 2, Groups A to D.	FM	Suitable for Class II, III, Div. 2, Groups F and G.	GOSSTANDARD	Tested and approved by Russian Certificate of pattern Approval No 332 of 18/10/94.				
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GOSSTANDARD	Tested and approved by Russian Certificate of pattern Approval No 332 of 18/10/94.														
<b>Additional approvals: With EP, XC or ST02 housings</b>	<table> <tr> <td colspan="2"><u>With or without integral meter</u></td></tr> <tr> <td></td><td>Zone 2: T6, 28V/22mA.</td></tr> <tr> <td>CENELEC</td><td>Flame Proof EEx d IIC T6.</td></tr> <tr> <td>CSA</td><td>Explosion Proof Class I, II, III, Div. 1, Groups B to G.</td></tr> <tr> <td>FM</td><td>Explosion Proof Class I, II, III, Div. 1, Groups B to G.</td></tr> <tr> <td colspan="2"><u>Without integral meter</u></td></tr> <tr> <td>FM</td><td>Explosion Proof Class I, II, III, Div. 1, Groups A to G.</td></tr> </table>	<u>With or without integral meter</u>			Zone 2: T6, 28V/22mA.	CENELEC	Flame Proof EEx 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.
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<u>Without integral meter</u>															
FM	Explosion Proof Class I, II, III, Div. 1, Groups A to G.														
<b>Surge/lightning protection options</b>															
Internal SP selection	10 kA peak current (8/ 20 µs waveform), 10kV peak Voltage (10/ 50 µs waveform).														
External LP selection	10 kA peak current (10/ 20 µs waveform), 500A peak current (10/ 1000 µs waveform).														

## STT350 Housing Options and Specifications

Honeywell's Series **STT350** of Temperature Transmitters can be supplied with a housing enclosure for 2" pipe or wall mounting. Available materials are Aluminum and 316 Stainless Steel. The **STT350** can be supplied factory installed in a housing by specifying from the **STT350** Model Selection Guide, which is included in this specification sheet.

### Aluminum Housing

Suitable for pipe or wall mounting remote from the temperature sensor, for direct sensor head mounting (in North America), for local indication and for Explosion-Proof (FM/ CSA and Cenelec), Intrinsically Safe or general purpose applications. Dimensions are shown in Figure 5.

*Material:* Low copper Aluminum alloy

*Cable/Conduit entries:* 1/2"NPT.

*Paint cover:* Beige polyester/ epoxy hybrid or beige epoxy painted.

*Weight:* 1.1kg (2.4 lb)

*Enclosure classification:* IP65. Conforms to the applicable requirements of NEMA 7 and 9 for FM/ CSA Explosion-Proof applications.

Order as STT350 Table II selection E P \_ \_ .

### 316 SS Housing

Suitable for corrosive/salt spray environments and for pipe or wall mounting remote from the temperature sensor, for direct sensor head mounting (in North America), for local indication and for Explosion-Proof (FM/ CSA and Cenelec), Intrinsically Safe or general purpose applications. Dimensions are shown in Figure 5.

*Material:* 316SS

*Cable/Conduit entries:* 1/2"NPT, 3/4" NPT or M20 available via an adapter.

*Paint cover:* none.

*Weight:* 3.2 kg (6.9 lb)

*Enclosure classification:* IP65

Order as STT350 Table VI selection ST 07.

## STT350 Indicating Meters

Honeywell's **STT350** Temperature Transmitters can be supplied with local or remote indication. A smart meter can be mounted integral to the transmitter inside the field mount housing. Order an integral meter as part of the model number in the Table II options below. Order a remote meter as model RMA300.

*Option SM* – The smart meter accepts 4-20mA or DE protocol and displays temperature on a LCD in selectable engineering units or 0 to 100% span. See Figure 4.

*RMA 300* – The remote digital meter reads DE protocol and displays temperature on a LCD in 0 to 100% span.



Figure 4 – Integral meter in field mount housing.

## Mounting Options with Dimensions

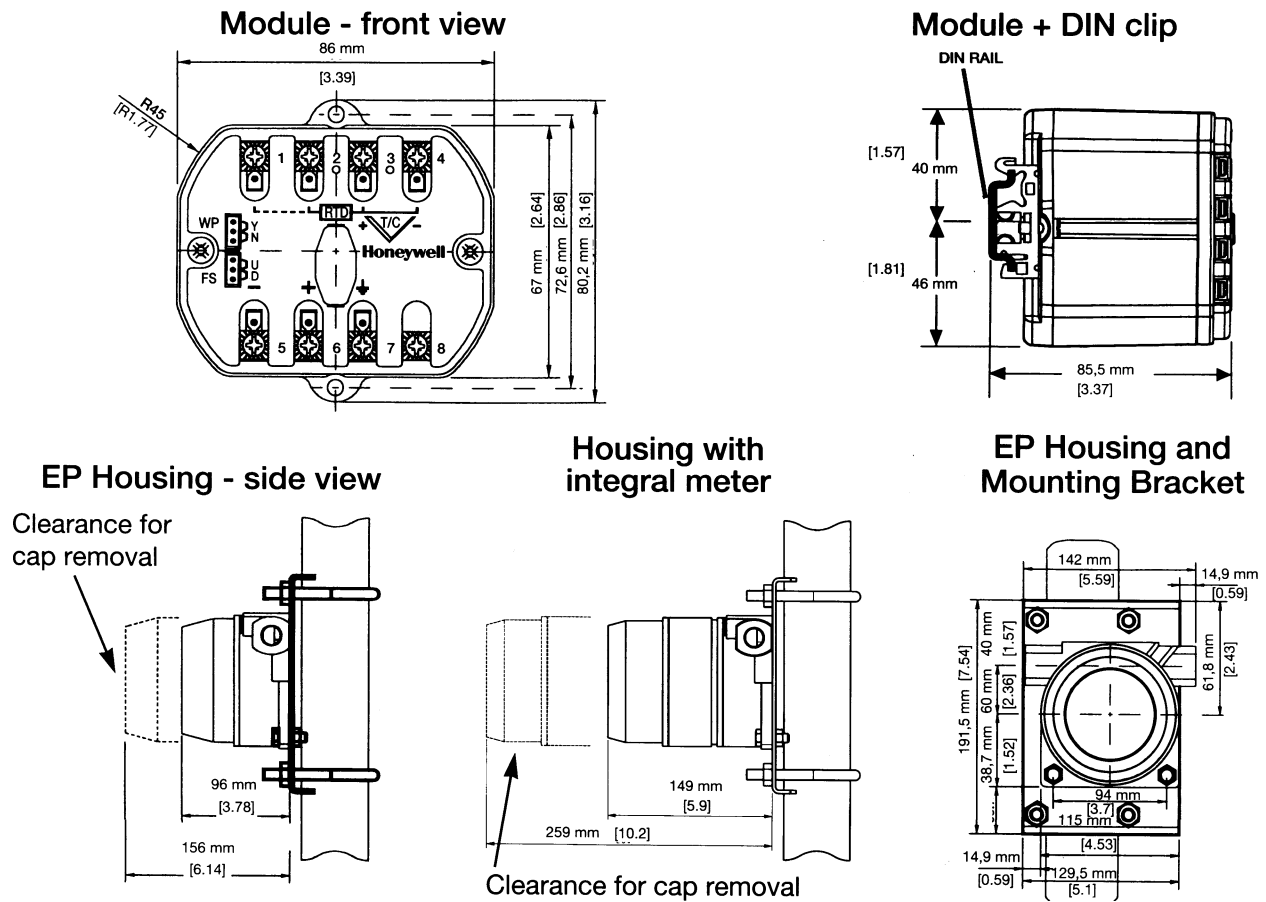


Figure 5 – STT350 transmitter and optional flameproof housing dimensions – reference only

**STT350 Model Selection Guide**

34-44-16-02

**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  
 STT350    -      -      -      -      -      -      -  

KEY NUMBER	Description	Selection	Availability
STT350	STT350 Smart Temperature Transmitter Module (4-20mA/DE)	STT350	↓
	All modules carry the following approvals:		
FM:	Intrinsically Safe for Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G Non-Incendive for Class I, Div. 2, Groups A,B,C,D Suitable for Class II, III, Div. 2, Groups F,G		
CSA:	Intrinsically Safe for Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G		
CENELEC:	Intrinsically Safe for EEx ia IIC T4/T5/T6		
CE Mark:	All modules carry CE Mark and are in compliance with EN 50081-2 and 50082-2.		
	Russian Certificate of Pattern Approval No. 332 of 18/10/94.		

**TABLE I - Sensor Probe and Thermowell Accessories**

No Integral Sensor Probe or Thermowell Supplied	0	•
Sensor Probe and/or Thermowell mounted or tested with STT 3000 <sup>(1)</sup>	1	j

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

Explosion-Proof Field Mount Housing <sup>(2)</sup>	No Housing Supplied	00 __	•
	Explosion-Proof Housing		
	- with baked on beige polyester/epoxy hybrid paint	EP __	•
	- with beige epoxy paint	XC __	•
	For Stainless Steel or Red Epoxy Painted Housing, select Table II EP __ and appropriate Table VI code.		
Integral Meter <sup>(3)</sup>	No Meter Supplied	-- 00	•
	Smart Meter	-- SM	j

**TABLE III - Configuration & Tagging**

Configuration	None - Factory Default Configuration Supplied	00 __	•
	Transmitter Configuration (see 13:STT-OE-5 for choices)	TC __	•
Customer Tagging <sup>(4)</sup>	No Tagging Requested	-- 00	•
	316 SS Wired-on Customer I.D. Tag - (4 lines, 28 characters per line, customer specified information)	-- TG	j
	316 SS Wired-on Customer I.D. Tag (blank)	-- TB	j

<sup>(1)</sup> Specify 8 digit customer I.D. when probe/well selected. See Price Pages 13:TP-1 to 16 for sensor/well selections and pricing.

<sup>(2)</sup> 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.)

<sup>(3)</sup> Remote Meter available as Model RMA300 (See Price Page 13:RM-1.)

## STT350 Model Selection Guide

Availability  
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**TABLE IV - Optional Equipment**

Mounting Arrangement	No Mounting Arrangement Supplied	00 _ _ _ _	•
	DIN Rail Mounting via 2 Clips (to Top Hat or "G" Rail)	DR _ _ _ _	k
	Carbon Steel Mounting Bracket for 2" Pipe	MB _ _ _ _	j
	Stainless Steel Mounting Bracket for 2" Pipe	SB _ _ _ _	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 _ _ _	c
	1/2" NPT to 3/4" NPT	_ _ 2 _ _ _	c
		_ _ 3 _ _ _	c
Lightning Protection	No Lightning Protection Supplied	_ _ _ 00 _ _	•
	External Lightning Protection - Mountable to Housing	_ _ _ LP _ _	j
	Internal Surge/Lightning Protection	_ _ _ SP _ _	j
		_ _ _ _ _	
Operator's/User's Manual	None	_ _ _ _ _ 00	•
	North American Version (1 manual for 5 units)	_ _ _ _ _ US	•
	European Version (1 manual for 5 units)	_ _ _ _ _ EN	•
	French Version (1 manual for 5 units)	_ _ _ _ _ FR	•

**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 _ _	•
	Additional Warranty - 4 years	4 _ _	•
	Additional Warranty - 5 years	5 _ _	•
Optional Certificate <sup>(4)</sup>	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	•

<sup>(4)</sup> 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.

**TABLE VI - Additional Features**

No Selection	0000	•
Red Epoxy Painted Housing Cap	ST01	j
Red Epoxy Painted Explosion-Proof Housing <sup>(b)</sup>	ST02	g
316 Stainless Steel Explosion-Proof Housing <sup>(b)</sup>	ST07	g

<sup>(5)</sup> Must be ordered with Table II EP \_ \_.

## STT350 Model Selection Guide

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

Approval Body	Approval Type	Location or Classification		
None	-	No explosion-proof or flame-proof approval body certifications included	0000	•
Factory Mutual	Explosion-Proof	Class I, Div. 1, Groups A,B,C,D	F1D3	f
	Dust Ignition-Proof	Class II, III Div. 1, Groups E,F,G		
	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G		
	Non-Incendive	Class I, Div. 2, Groups A,B,C,D Suitable for Class II, III, Div. 2, Groups F, G		
	Explosion-Proof	Class I, Div. 1, Groups B,C,D	F1C3	j
	Dust Ignition-Proof	Class II, III, Div. 1 Groups E,F,G		
	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G		
	Non-Incendive	Class I, Div. 2, Groups A,B,C,D Suitable for Class II, III, Div. 2, Groups F, G		
CSA	Explosion-Proof	Class I, Div. 1, Groups B,C,D	C1C3	j
	Dust Ignition-Proof	Class II, Div. 1, Groups E,F,G Suitable for Class III, Div. 1 & 2, Groups E,F,G CSA Enclosure 4		
	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G		
	Non-Incendive	Class I, Div. 2, Groups A,B,C,D		
CENELEC	Flame-Proof	EEx d IIC T6	E1D3	j
	Intrinsically Safe	EEx ia IIC T6/T5/T4		
	Intrinsically Safe	EEx ia IIC T6/T5/T4	E0D2	•
Self-Certified	Zone 2	T6, 28v/22mA	N2T4	j

### RESTRICTIONS

Restriction Letter	Table	Available Only With Selection	Table	Not Available With Selection
c	II	EP __, XC __	VII	C1C3
f	II	EP __, XC __	II	__ SM
g	II	EP __		
j	II	EP __, XC __		
k	II	0000		

**Note:** 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.

## Honeywell's STT 3000 line of Smart Temperature Transmitters – for any application need

Honeywell's **STT 3000** family of microprocessor based smart temperature transmitters includes the high performance Series **STT350** described in this specification sheet, the Foundation™ Fieldbus **STT35F** and the head mountable **STT250** described in product specification sheets 34-TT-03-02 and 34-TT-03-04.

Honeywell's microprocessor based **STT35F** Foundation Fieldbus Temperature transmitters convert a primary sensor input into a standard Foundation Fieldbus digital output signal on a 2 wire signal connection.

The **STT250** offers competitive performance in a more compact, head mount module and a wide range of smart communications protocol.



## Ordering Information

**Contact your nearest Honeywell sales office, or**

In the U.S.:

Honeywell  
Industrial Automation & Control  
16404 N. Black Canyon Highway  
Phoenix, AZ 85023  
1-800-288-7491

In Latin America:

Honeywell Inc.  
480 Sawgrass Corporate Parkway,  
Suite 200  
Sunrise, FL 33325  
(954) 845-2600

In Asia:

Honeywell Asia Pacific Inc.  
Room 3213-25  
Sun Hung Kai Centre  
No. 30 Harbour Road  
Wanchai, Hong Kong  
(852) 2829-8298

In Canada:

The Honeywell Centre  
155 Gordon Baker Rd.  
North York, Ontario  
M2H 3N7  
1-800-461-0013

In Europe:

Honeywell PACE  
1, Avenue du Bourget  
B-1140 Brussels, Belgium  
[32-2] 728 -2111

In the Pacific:

Honeywell Limited  
5 Thomas Holt Drive  
North Ryde NSW 2113  
Australia  
(61 2) 9353 7000

Or, visit Honeywell on the World Wide Web at: <http://www.honeywell.com>



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