Honeywell

STT 3000 Series STT150

Programmable Temperature Transmitter
Models STT15R, STT15S

EN0I-6063
9/05

Specification

Overview

The **STT150** is part of the STT 3000 Family of microprocessor-based transmitters that also includes the higher performance STT250 and STT350 Series.

The STT150 units offer very competitive performance and high reliability all in a very compact module.

Choose the model to meet your application needs:

- **STT15R** for RTD or Thermocouple measurement using isolated tip sensors.
- **STT15S** for applications requiring both galvanic isolation and intrinsic safety approvals.

A wide selection of accessories including digital indicators, DIN rail mounting clips, surge protection, sensors and flame/explosion proof housings are available to complete your thermal solutions. Contact your Honeywell Distributor.

Both models support the same wide range of primary sensor types, are 2-wire loop powered and provide a 4-20 mA output linearized to temperature. Leadwire compensation is provided for RTD sensors and internal digital cold junction compensation is provided for Thermocouples. Millivolt and Ohms sensor inputs can also be used.

Figure 1 – STT150 Transmitter

Features

The Series STT150 models are designed to meet the DIN Form B housing requirements and fit in most housings available on the market.

- Suitable for 2- or 3-wire RTD measurement.
- Accepts input signal from a wide choice of primary sensor to satisfy varying application requirements.
- Open/short circuit sensor detection.
- Internal electronics system validation and advanced diagnostics.
- Polynomial sensor linearization for mV and Ohms type inputs, including Cold Junction Correction.
- Every unit contains the original factory information to allow the user to print the calibration certificate with the configuration toolkit

Performance Under Reference Conditions*

The table below provides a comprehensive overview of the transmitter output accuracy. The stated accuracy is valid for any range setting within the rated range.

*Sensor***	*Accuracy, °C or % of span (whichever is greater)*		*Rated Range °C / °F*	*Minimum Span °C / °F*	*Standards*
Pt100, Pt200	0.5°C / 0.9°F	0.1%	-200 to 850° / -328 to 1562°	25° / 45°	IEC 60751 (ITS-90) α=0.00385
Pt100J	0.5°C / 0.9°F	0.1%	-200 to 640° / -328 to 1184°	25° / 45°	JISC 1604-81 α=0.00392
J	1°C / 1.8°F	0.1%	-200 to 1200° / -328 to 2192°	50° / 90°	IEC 60584-1(ITS-90)
K, N	1°C / 1.8°F	0.1%	-200 to 1300° / -328 to 2372°	50° / 90°	IEC 60584-1(ITS-90)
E	1°C / 1.8°F	0.1%	-200 to 1000° / -328 to 1832°	50° / 90°	IEC 60584-1(ITS-90)
T	1°C / 1.8°F	0.1%	-230 to 400° / -382 to 752°	50° / 90°	IEC 60584-1(ITS-90)
B**	2°C / 3.6°F	0.1%	0 to 1820° / 32 to 3308°	50° / 90°	IEC 60584-1(ITS-90)
R, S	2°C / 3.6°F	0.1%	-50 to 1760° / -58 to 3200°	50° / 90°	IEC 60584-1(ITS-90)
Ω	0.50Ω	0.05%	0 to 2000Ω	10Ω	
mV	25μV	0.05%	-20 to 120mV	5mV	

*Accuracies include all calibration, hysteresis repeatability and conformity errors.

**The maximum range for all sensors are those which are defined by the standard, except for Ω and mV where maximum range is equal to rated range.

*** Accuracy not guaranteed for temperatures lower than 500°C (932°F).

Description

The STT150 transmitters are suitable as replacements for any conventional temperature transmitters in use today. It is particularly suited for replacing home run compensation cabling to give lower installed cost and improved accuracy. The memory contains the characteristics of most commonly used temperature sensors. You can easily use a Windows-based PC tool in combination with an RS232 interface, to configure the transmitter for any of these sensors and it will automatically correct for their associated non-linearities. Accuracies stated in Performance Under Rated Conditions are available merely by selecting the sensor type and range.

Performance Specifications

- Cold Junction Accuracy: ±0.75°C (±1.35°F).
- Total Reference Accuracy: Accuracy + CJ accuracy (T/C only).
- Ambient Temperature Effect (per 10°C/18°F change from reference): For RTD ±0.1% of span and for T/C /mV ±0.15% of span.
- Cold Junction ambient temperature effect: 40:1 rejection for ambient temperature changes from reference.
- Total output ambient temperature effect: Ambient temperature effect + CJ effect (T/C only).
- Power supply voltage effect: 0.005% of maximum span per volt.
- Stability/time drift: 0.05% of maximum span per year.

Operating Conditions

Parameter	Reference Condition	Rated Condition	Operative Limits	Storage
Ambient Temp °C(°F)	23 (73.4)	-40 to +85 (-40 to +185)	-50 to +85 (-58 to +185)	-50 to +100 (-58 to +212)
Humidity % RH	10 to 55	5 to 95	5 to 100	5 to 100

Supply Voltage:	9 to 35 Vdc at terminals	**Output Current[1]:**	Overrange: 3.8 to 20.8 mA, Failsafe Limits: <3.6, >21.8
Vibration:	Max. 4G over 15 to 200 Hz	**Shock:**	Maximum of 40G

[1] Overrange and failsafe limits can be set to any value between 3.6 mA and 23 mA to meet applicable standards e.g. Namur NE43.

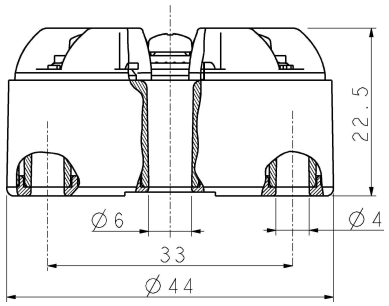
Additional Parameters

- Output: 4-20mA.
- Adjustment range: No limits to adjustments within the Maximum Range and Minimum Span.
- Damping time constant: Adjustable from 0 to 100 seconds digital damping.
- Output response time: 1 second to reach 63% of final value with 0 second damping.
- Output update time: 0.5 second approximately.
- Input/Output galvanic isolation: 500 Vac (STT15S only).
- Sensor Open Circuit: Open circuit/burnout detection is user selectable.
- Common mode rejection: 110dB from 50Hz to 50 KHz.
- Series mode rejection: 40dB for 50 or 60Hz ±0.5Hz (with internal software filter set to local power line frequency).

Condensed Model Selection Guide

Programmable Temperature Transmitter Module
Russian Certificate of Pattern Approval N° 2064 of Jan. 1998

Non-Isolated 4-20 mA Output		**STT15R**
Intrinsically Safe / Isolated 4-20 mA Output		**STT15S**
FM	Intrinsically Safe Class I, Div 1, Groups A, B, C, D	
	Non-Incendive Class I, Div 2, Groups A, B, C, D	
CSA	Intrinsically Safe Class I, II, III, Div 1, Groups A-G	



Module Dimensions (in mm)

The STT150 can be ordered preconfigured from your Honeywell Representative. If local configuration is desired the optional SCT 3000 Configuration Software and RS232 Interface are required. Contact your Honeywell Representative.

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Specifications are subject to change without notice

Industrial Measurement and Control

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In Asia Pacific: Honeywell Asia Pacific Inc., Suite 3213-25 Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong, Tel. (852) 2829-8298
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