

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM20US0125X
3. **Equipment:** CH Series, SF Series, OS Series, and LT Series
(Type Reference and Name) Thermocouple/ RTD Sensors
4. **Name of Listing Company:** Thermo Electric Company Inc.
5. **Address of Listing Company:** 1193 McDermott Drive
West Chester, PA 19380
USA
6. The examination and test results are recorded in confidential report number:

3036581 dated 29th October 2010
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3615:2018, FM Class 3810:2018,
ANSI/NEMA 250:1991, ANSI/IEC 60529:2004, ANSI/UL 61010:2015
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
10. **Equipment Ratings:**

Explosionproof for Class I, Division 1, Groups A*, B, C and D; Dust-ignitionproof for Class II, Division 1, Groups E, F and G; Class III, Division 1; Flameproof for Class I, Zone 1, IIC T** hazardous (classified) locations, indoors and outdoors (Type 4/4X, IP66***) with an ambient temperature rating of -40°C to +85°C.
11. The marking of the equipment shall include:

Certificate issued by:



J.E. Marquedant
VP, Manager - Electrical Systems

5 October 2020

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
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Class I Division 1, Groups A*, B, C, D; T** Ta**; Type 4/4X, IP66***

Class II, Division 1, Groups E, F, G, Class III, Division 1; T** Ta**; Type 4X, IP66***

Class I, Zone 1, IIC, T** Gb Ta**, Type 4/4X***, IP66***

12. Description of Equipment:

General - Thermo Electric Company Inc manufactures a variety of Thermocouple and RTD sensors. The manufacturer configures the sensors with previously FM Approved enclosures and electronic transmitters. In some configurations the Thermocouple or RTD sensor may be supplied with only an enclosure and terminal blocks for customer connection. Thermo Electric manufacturer's the following Thermocouple or RTD sensor assemblies and accessories:

- Spring loaded
- Sealed fitting
- Thermowell with NPT threaded process connection
- Thermowell with 1/2 inch to 4 inch ANSI Rated Flanges
- Straight Thermowell's (up to 28 inches)
- 3 Thermowell's with varying tapers.

The Thermo Electric Thermocouples and RTD's are available in the following 4 configurations:

- CH Series, Center Hub Head
- OS Series, Off Set Hub Head
- LT Series, Assembly with Large Transmitters
- SF Series, assembly with Seal Fitting

Construction - The Thermocouples and RTD Sensor Assemblies are fabricated from Galvanized Steel, Black Iron, 304 Stainless Steel, or 316 Stainless Steel.

Ratings - The Thermocouples and RTD's are passive devices available with a variety of FM Approved enclosures, terminal blocks, and with enclosure and electronics. The Thermocouples and RTD's are rated for use in a variety ambient temperature ranges dependent upon the enclosures.

CHabcdefghijklmnCR. CH Series Thermocouple/RTD Sensor

a= Electronics Options DB (with terminal block **) or DT (with transmitter electronics**).

b= Connection Heads AE*, SE*, EA, ES, XD, or XW.

c= Conduit Opening 5, 7, or M.

d= Extension 2S, 4S, or 4X.

e= Material C, G, P, R, or X.

f= Extension Length XXX, or 1.5 to 10".

g= Sensor Type TC or CE.

h= Sensor Construction S or D.

i= Sheath Material R, J, or X.

j= Sensor G, U, 2, 3, or 4.

k= Sensor Length 000, XXX, or 1.5 to 36".

l= Process Connection A, B, C, X, or 0.

m= Thermowell Material N, P, R, J, X, or 0.

n= Thermowell Length 000, XXX, or 0.5 to 28".

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***SF*abcdefghCR. SF Series Thermocouple/RTD Sensor**

a= Electronics Options DB (with terminal block **) or DT (with transmitter electronics**).
b= Connection Heads AE*, SE*, EA, ES, XD, XW, UU (STT700), XX (STT700), UV (STT700), XZ (STT700), A (STT750/STT850), C (STT750/STT850), E (STT750/STT850), G (STT750/STT850)
c= Conduit Opening 5, 7, or M.
d= Sheath Material R, J, or X.
e= Sensor Type TC or CE.
f= Sensor Construction S or D.
g= Sensor G, U, 2, 3, or 4.
h= Sensor Length 000, XXX, or 0.5 to 28".

***OS*abcdefghijkmCR. OS Series Thermocouple/RTD Sensor**

a= Electronics Options DB (with terminal block **) or DT (with transmitter electronics**).
b= Conduit Opening 5, 7.
c= Extension 2S, 4S, or 4X.
d= Material C, G, P, R, or X.
e= Extension Length XXX, or 1.5 to 10".
f= Sensor Type TC or CE.
g= Sensor Construction S or D.
h= Sheath Material R, J, or X.
i= Sensor G, U, 2, 3, or 4.
j= Sensor Length 000, XXX, or 1.5 to 36".
k= Process Connection A, B, C, X, or 0.
l= Thermowell Material N, P, R, J, X, or 0.
m= Thermowell Length 000, XXX, or 0.5 to 28".

***LT*abcdefghijkmCR. LT Series Thermocouple/RTD Sensor**

a= Connection Housing UU (STT700), XX (STT700), UV (STT700), XZ (STT700), A (STT750/STT850), C (STT750/STT850), E (STT750/STT850), G (STT750/STT850)
b= Conduit Opening 5, 7, or M.
c= Extension 2S, 4S, or 4X.
d= Material C, G, P, R, or X.
e= Extension Length XXX, or 1.5 to 10".
f= Sensor Type TC or CE.
g= Sensor Construction S or D.
h= Sheath Material R, J, or X.
i= Sensor G, U, 2, 3, or 4.
j= Sensor Length 000, XXX, or 1.5 to 36".
k= Process Connection A, B, C, X, or 0.
l= Thermowell Material N, P, R, J, X, or 0.
m= Thermowell Length 000, XXX, or 0.5 to 28".

13. **Specific Conditions of Use:**

CH Series Thermocouple/RTD Sensor

- 1 *Enclosures are de-rated to Class I, Gas Groups B, C, & D, IIB + H₂, and Class II
- 2 ** Temperature Class (T-Codes)

DB Electronics Option:
T6 Ta = -50°C to +80°C

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DT Electronics Option; actual T-Code dependent upon specific electronics.

T6 Ta = -25°C to +60°C (STT17F-BS/BN, STT171-BS, STT17H-BS, STT173-BS)

T5 Ta = -25°C to +70°C (STT17F-BS/BN)

T4 Ta = -25°C to +85°C (STT171-BS, STT17H-BS, STT173-BS)

T1...T4 Ta= -25°C to +85°C (STT17F-BS/BN)

3 *** Type 4X, rating dependent upon enclosure, nipple extension and thermowell material.

4 ****IP66 dependent upon enclosure, thermowell required.

SF Series Thermocouple/RTD Sensor

1. * Enclosures are de-rated to Gas Groups B, C, & D and IIB + H₂.

2. ** Temperature Class (T-Codes)

DB Electronics Option:

T6 Ta = -50°C to +80°C

DT Electronics Option; actual T-Code dependent upon specific electronics.

T6 Ta = -25°C to +60°C (STT17F-BS/BN, STT171-BS, STT17H-BS, STT173-BS)

T5 Ta = -25°C to +70°C (STT17F-BS/BN)

T4 Ta = -25°C to +85°C (STT171-BS, STT17H-BS, STT173-BS)

T1...T4 Ta= -25°C to +85°C (STT17F-BS/BN)

T6 Ta = -40°C to +65°C (STT700) or Ta = -50°C to +65°C (STT750/STT850)

T5 Ta = -40°C to +85°C (STT700) or Ta = -50°C to +85°C (STT750/STT850)

T4 Ta = -50°C to +85°C (STT750/STT850)

3. *** Type 4X, rating dependent upon enclosure, nipple extension and thermowell material.

4. ****IP66 dependent upon enclosure.

5. When assembly equipped with STT700 transmitter + enclosure:

-Painted surface of the STT700 may store electrostatic charge and become a source of ignition in applications with a low relative humidity less than approximately 30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust or oil. Cleaning of the painted surface should only be done with a damp cloth.

-Consult the manufacturer for dimensional information on the flameproof joints for repair.

6. When assembly equipped with STT750/STT850 transmitter + enclosure:

-Painted surface of the STT750 or STT850 may store electrostatic charge and become a source of ignition in applications with a low relative humidity less than approximately 30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust or oil. Cleaning of the painted surface should only be done with a damp cloth.

-The enclosure is manufactured from low copper aluminum alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during Installation, particularly if equipment is installed a Zone 0 location.

-Consult the manufacturer for dimensional information on the flameproof joints for repair.

OS Series Thermocouple/RTD Sensor

1. ** Temperature Class (T-Codes)

DB Electronics Option:

T6 Ta = +80°C

DT Electronics Option; actual T-Code dependent upon specific electronics.

T6 Ta = -25°C to +60°C (STT17F-BS/BN, STT171-BS, STT17H-BS, STT173-BS)

T5 Ta = -25°C to +70°C (STT17F-BS/BN)

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T4 Ta = -25°C to +85°C (STT171-BS, STT17H-BS, STT173-BS)

T1...T4 Ta= -25°C to +85°C (STT17F-BS/BN)

2. *** 4X, dependent on nipple extension and thermowell material.

LT Series Thermocouple/RTD Sensor

1. ** Temperature Class (T-Codes)

T6 Ta = -40°C to +65°C (STT700) or Ta = -50°C to +65°C (STT750/STT850)

T5 Ta = -40°C to +85°C (STT700) or Ta = -50°C to +85°C (STT750/STT850)

T4 Ta = -50°C to +85°C (STT750/STT850)

2. *** Type 4X, dependent on nipple extension and thermowell material.

3. ****IP66, thermowell required

4. When assembly equipped with STT700 transmitter + enclosure:

-Painted surface of the STT700 may store electrostatic charge and become a source of ignition in applications with a low relative humidity less than approximately 30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust or oil. Cleaning of the painted surface should only be done with a damp cloth.

-Consult the manufacturer for dimensional information on the flameproof joints for repair.

5. When assembly equipped with STT750/STT850 transmitter + enclosure:

-Painted surface of the STT750 or STT850 may store electrostatic charge and become a source of ignition in applications with a low relative humidity less than approximately 30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust or oil. Cleaning of the painted surface should only be done with a damp cloth.

-The enclosure is manufactured from low copper aluminum alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during Installation, particularly if equipment is installed a Zone 0 location.

-Consult the manufacturer for dimensional information on the flameproof joints for repair.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
29 th October 2010	Original Issue.

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5 th October 2020	<p>Supplement 3: Report Reference: RR224064 dated 5th October 2020. Description of the Change: Addition of Honeywell Model STT700, STT750, and STT850 Temperature Transmitters. Revised the model code listing to include STT17x Series Transmitters which were already in use. Removed Honeywell Model STT250 and STT350 Series Transmitters. Reviewed and updated FM Class 3600, 3615, and 3810 Standards to the most current edition. Corrections to nameplate markings.</p>
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