



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	<b>IECEx BAS 18.0075X</b>	Page 1 of 5	<u>Certificate history:</u> <a href="#">Issue 1 (2020-08-03)</a> <a href="#">Issue 0 (2018-12-05)</a>
Status:	<b>Current</b>	Issue No: 2	
Date of Issue:	2020-09-18		
Applicant:	<b>Thermo Electric Company Inc</b> 1193 McDermott Drive West Chester PA, 19380 <b>United States of America</b>		
Equipment:	<b>Series of CH, SF, RM and TSC temperature probe, transmitter and enclosure head assemblies</b>		
Optional accessory:			
Type of Protection:	<b>Flameproof, Increased Safety &amp; Dust</b>		
Marking:	<b>See Certificate Schedule for Certification Marking Details</b>		

Approved for issue on behalf of the IECEx  
Certification Body:

**R S Sinclair**

Position:

**Technical Manager**

Signature:  
(for printed version)

18.9.2020

Date:

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**United Kingdom**





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Manufacturer: **Thermo Electric Company Inc**  
1193 McDermott Drive  
West Chester  
PA, 19380  
**United States of America**

Additional manufacturing locations: **TE-Thermo Electric Company India Pvt. Ltd.**  
Plot No. 362, Sector-7,  
IMT Manesar 122050  
**India**

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

**IEC 60079-0:2017** Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

**IEC 60079-1:2014-06** Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition:7.0

**IEC 60079-11:2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

**IEC 60079-31:2013** Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:2

**IEC 60079-7:2015** Explosive atmospheres – Part 7: Equipment protection by increased safety "e"  
Edition:5.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[GB/BAS/ExTR18.0231/00](#)

[GB/BAS/ExTR20.0083/00](#)

[GB/BAS/ExTR20.0126/00](#)

Quality Assessment Reports:

[GB/BAS/QAR17.0016/01](#)

[GB/ITS/QAR19.0014/00](#)



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## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The temperature probes of above types are designed for multiple types of protection as detailed below:

The CH assembly for Ex db and Ex eb application is comprising of a CH temperature probe with a collar brazed or welded on the probe outer sheath which makes the flameproof joint between the probe and the spring loaded fitting. The assembly of CH probe and the spring loaded fitting is then completed by a flameproof enclosure head which is either fitted with a terminal block or intrinsic safety equipment certified transmitter. Similarly the same temperature probe, excluding of collar arrangement, is fitted into a metallic enclosure head connected to either a terminal block or intrinsic safety equipment certified transmitter for Ex ia and ic applications. For preventing the "Ex i" assembly from mechanical damage the temperature probe is secured by standard type nipple or union fittings and thermowell.

The SF assembly for Ex db and Ex eb application is comprising of a SF temperature probe which is brazed or welded to a seal fitting and the probe conductors are soldered to wires which the electrical connection is potted by STYCAST compound in the seal fitting. The assembly of probe and seal fitting is then completed by a flameproof enclosure head which is either fitted with a terminal block or intrinsic safety equipment certified transmitter. The probe may be provided with additional fixing devices such as compression fitting for the purpose of connecting the assembly onto processes. Similarly the same arrangement as described above, can be used for Ex ia and ic applications, however a non-flameproof version of the same metallic enclosure may be utilised.

The RM assembly for Ex db and Ex eb applications comprise of a RM temperature probe fitted with a compression fitting to connect the assembly to processes. The probe outer sheath is brazed or welded to a metallic ferrule and the probe conductors are welded to a flexible flying lead cable wires. The electrical connection is then secured inside the ferrule by STYCAST 2651 compound. The assembly of temperature probe and flexible flying lead cable is then completed by connecting onto a flameproof enclosure head via approved barrier cable gland which is either fitted with a terminal block or intrinsic safety equipment certified transmitter. The assembly may be provided with thermowell to prevent the temperature probe from mechanical damage. Similarly, the same arrangement as described above, can be used for Ex ia and ic applications, however a non-flameproof version of the same metallic enclosure may be utilised.

The TSC assembly for Ex db and Ex eb application is available in two optional assemblies. The first assembly is the series ExTSC-3, comprising of a TC or RTD temperature probe, which can be secured by optional support tube fitted with equipment certified compression fittings and adaptor reducer. The assembly is then completed by connecting onto a flameproof enclosure head which is fitted with a terminal block for terminating the electrical connections. The second assembly is the series ExTSC-2, comprising of a TC or RTD temperature probe, which is mechanically secured by a series of fitting assemblies such as threaded flameproof joint housing, equipment certified compression fitting and adaptor reducers and standard type 1/2" pipe union and 1/2" pipe nipple, all of which can be connected onto an optional flanged connection. Similarly, the same arrangement as described above, except series ExTSC-2 which is detailed below, can be used for Ex ia and ic applications. The series ExTSC-2 difference is in the fitting arrangement which comprises of two 3/4" NPT nipples in which one is connected onto the flameproof enclosure head and connected to the other nipple via a 3/4" NPT union. The temperature probe is fitted onto a plate inside the union by a compression fitting and the end of the nipple assembly is fitted with a reducer which can be fitted onto an optional flanged connection.

The temperature probe and enclosure housing are rated for IP66

## SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Enclosure housings of cast iron are not permitted for ambient temperatures lower than -20°C.
2. Enclosure housings of light metal or aluminium are not permitted for EPL Ga application.
3. Enclosure housing unused openings shall be fitted with suitably certified blanking element with IP66 ratings.
4. At least 40% of each cross sectional area should remain free.
5. The SF range of compression type cable glands, PTFE or graphite thread tape shall be applied to the entry threads as per manufacturer instruction.
6. All the relevant specific condition of use associated with intrinsic safety certified transmitters as listed in the description, see table above, should be fully met by the final assembly.
7. Regular cleaning should be conducted to prevent accumulation of dust layers.
8. External sources of heating and cooling may be present. These must be limited to prevent the rated ambient temperature and the temperature rating of the equipment being exceeded.



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## Equipment (continued):

The terminal block Ex db and Ex eb assembly is rated up to 35V, 300mA; the associated intrinsically safe circuits provide a level of protection of Ex ia and Ex ib. The intrinsically safe parameters from the incorporated intrinsically transmitter are incorporated with marking plate of the **CH, SF, RM, TSC** models. Refer to manufacturer's drawings for the list of approved transmitters that can be used in the enclosure head assembly. This assessment has considered sensor cable (RTDs, thermocouples) lengths up to 610mm for cable parameters for levels of protection Ex ia and ic; the certification drawings require the manufacturer to verify that for cable lengths exceeding 610mm do not exceed the output capacitances and inductances (cable parameters of 200pF/m and 1uH/m). For the models **CH, SF, RM and TSC**, the sensor cables are installed in a sensing rod that has been evaluated to requirements for increased safety for resistance trace heaters; the sensing rod is capable of withstanding dielectric strength testing of 570 VAC, impact and crush testing. Therefore, it is considered that for levels of protection Ex ia and ib it does not need not have any applied faults amongst the sensor wires; for the sensing rod provides a robust mechanical protection and sufficient insulation between the cores and frame of the sensing rod.

The various configurations of the equipment have the following Certification markings.

Flameproof / Increased Safety & Dust Certified Models	Ex db eb IIC T5/T6 Gb (-50°C/-40°C ≤ T <sub>a</sub> ≤ +60°C/+65°C/+70°C/+75°C/+80°C/+85°C) Ex tb IIIC T95°C/T90°C/T85°C/T70°C Db (-50°C/-40°C/-30°C ≤ T <sub>a</sub> ≤ +60°C/+65°C/+70°C/+80°C/+85°C)
Intrinsic Safety 'ia' Models	Ex ia IIC T4/T5/T6 Ga (-55°C/-50°C/-40°C ≤ T <sub>a</sub> ≤ +35°C/+45°C/+50°C/+55°C/+60°C/+70°C) Ex ia IIIC T <sub>200</sub> 95°C/85°C/60°C Da (-50°C/-40°C ≤ T <sub>a</sub> ≤ +35°C/+45°C/+55°C/+60°C/+70°C)
	Ex ia IIIC T135°C Db (-30°C ≤ T <sub>a</sub> ≤ +60°C/+70°C)
Intrinsic Safety 'ic' Models	Ex ic IIC T6 Gc (-40°C ≤ T <sub>a</sub> ≤ +55°C) Ex ic IIIC T85°C Dc (-40°C ≤ T <sub>a</sub> ≤ +55°C)

The actual temperature classification / maximum surface temperature & associated ambient temperature range markings on the equipment is dependent on the configuration of the equipment. Refer to equipment marking for full markings.



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## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)** **Variation 2.1**

To permit the addition of alternative transmitters.

In order to document the different temperature classification and associated ambient temperature ranges of the different models now listed on the certificate, the Certificate Schedule has been revised to include a summary of the possible certification markings. Reference to this summary has been added to the marking section on page 1 of the certificate.

## **Variation 2.2**

To permit correction of the marked input parameters for the terminal block variants of the equipment.

ExTR: **GB/BAS/ExTR20.0126/00**

File Reference: **20/0283**