



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx BAS 18.0075X

Issue No: 0

Certificate history:

[Issue No. 0 \(2018-12-05\)](#)

Status: **Current**

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Date of Issue: **2018-12-05**

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

Equipment: **Series of CH, SF, RM and TSC temperature probe, transmitter and enclosure head assemblies**

Optional accessory:

Type of Protection: **Flameproof, Increased Safety & Dust**

Marking:

Ex db eb IIC T6 Gb
(Ta = -40°C to +60°C)
Ex ia IIC T6 Ga
(Ta = -40°C to +60°C)
Ex ic IIC T6 Gc
(Ta = -40°C to +60°C)

Ex tb IIIC T85°C Db
Ex ia IIIC T85°C Da
Ex ic IIIC T85°C Dc


Approved for issue on behalf of the IECEx
Certification Body:

R S Sinclair

Position:

Technical Manager

Signature:
(for printed version)


5-12-18

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton, Derbyshire, SK17 9RZ
United Kingdom





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

Additional Manufacturing location(s):

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 apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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 Report:

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

Quality Assessment Report:

[GB/BAS/QAR17.0016/00](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The temperature probes are manufactured in four models CH, SF, RM and TSC of which they are coming with single (2 wires), duplex (4 Wires) and triplex (6 Wires) thermocouples and when fitted with RTD's they will be as single RTD's 2, 3 or 4 wires or Duplex RTD's 2 wires (4 in Total), 3 wires (6 in Total). The wires are potted at the end of the probes using STYCAST sealant.

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 contain a terminal block or intrinsic safety equipment certified transmitter. Similarly the same temperature probe, excluding of collar arrangement, is fitted into a flameproof enclosure head connected to either a terminal block or intrinsic safety equipment certified transmitter for Ex ia, ib or 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 solder 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, ib and ic applications.

The RM assembly for Ex db and Ex eb application comprised 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, ib and ic applications.

The TSC assembly for Ex db and Ex eb application is available in two optional assemblies. The first assembly is the series ExTSC-3, comprises 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, comprises of a TC or RTD temperature probe, which is mechanically secured by a series of fitting assemblies such as threaded flame 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, ib and ic applications. The series ExTSC-2 difference is in the fitting arrangement which is comprises of two 3/4" NPT nipple 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 ratings.

The 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 drawing ExSKG1474 for tabulated list below are detailing 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, ib and ic; the certification drawings require the manufacturer to verify that for cable lengths exceeding 610mm do 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 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.



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SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Enclosure housing of cast iron is not permitted for ambient temperature lower than -20°C.
2. Enclosure housing of light metal or aluminium is not permitted for EPL Ga application.
3. Enclosure housings shall not be used for applications with service temperature in excess of +160°C.
4. Enclosure housing unused opening shall be fitted with suitably certified blanking element with IP66 ratings.
5. At least 40% of each cross sectional area should remain free.
6. The SF range of compression type cable glands, PTFE or graphite thread tape shall be applied to the entry threads as per manufacturer instruction.
7. All the relevant specific condition of use associated with intrinsic safety certified transmitters as listed in the description, see table above, and should be fully met by the final assembly.
8. Regular cleaning should be conducted to prevent from accumulation of dust layers