

1 **EU - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres  
Directive 2014/34/EU**

3 EU - Type Examination Certificate Number: **Baseefa18ATEX0114X – Issue 4**

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

5 Manufacturer: **Thermo Electric Company Inc**

6 Address: **1193 McDermott Drive, West Chester, PA, 19380 USA**

7 This re-issued certificate extends EU Type Examination Certificate No. Baseefa18ATEX0114X to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

8.1 The original certificate was issued by SGS Baseefa Ltd (UK Notified Body 1180). It, and any supplements previously issued by SGS Baseefa Ltd have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

The examination and test results are recorded in confidential Report No. **See certificate history.**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN IEC 60079-0:2018 EN 60079-1:2014 EN IEC 60079-7:2015 + A1:2018 EN 60079-11:2012  
EN 60079-31:2014**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following :

**Various configurations of markings listed in section 15 below.**

SGS Fimko Oy Customer Reference No. **7572**

Project File No. **23/0327**

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## **Schedule**

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### **Certificate Number Baseefa18ATEX0114X – Issue 4**

#### **15 Description of Product**

The product description is revised 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 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 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 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 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 wire. 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, 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 ½” pipe union and ½” 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 is comprises of two ¾” NPT nipple in which one is connected onto the flameproof enclosure head and connected to the other nipple via a ¾” 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 ic. The intrinsically safe parameters from the incorporated intrinsically safe transmitters 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 ic 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	⊕ II 2GD	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	⊕ II 1GD	Ex ia IIC T4/T5/T6 Ga (-50°C/-40°C ≤ T <sub>a</sub> ≤ +35°C/+45°C/+55°C/+60°C/+70°C) Ex ia IIIC T <sub>200</sub> 95°C/85°C Da (-50°C/-40°C ≤ T <sub>a</sub> ≤ +35°C/+45°C/+55°C/+60°C/+70°C)
	⊕ II 1G	Ex ia IIC T4 Ga (-40°C ≤ T <sub>a</sub> ≤ +70°C)
	⊕ II 1G	Ex ia IIC T4/T5/T6 Ga (-55°C/-40°C ≤ T <sub>a</sub> ≤ +42°C/+45°C/+50°C/+60°C/+70°C)
	⊕ II 2D	Ex ia IIIC T135°C/85°C/60°C Db (-30°C/-40°C ≤ T <sub>a</sub> ≤ +45°C/+60°C/+70°C/+80°C)
	⊕ II 2G	Ex ia IIC T4 Gb (-40°C ≤ T <sub>a</sub> ≤ +75°C)
	⊕ II 1D	Ex ia IIIC T <sub>200</sub> 105°C Da (-40°C ≤ T <sub>a</sub> ≤ +75°C)
Intrinsic Safety 'ic' Models	⊕ II 3GD	Ex ic IIC T6 Gc (-40°C ≤ T <sub>a</sub> ≤ +49°C/+55°C) Ex ic IIIC T105°C/85°C Dc (-40°C ≤ T <sub>a</sub> ≤ +80°C/+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.

## 16 Report Number

See certificate history.

## 17 Specific Conditions of Use

- Enclosure housings of cast iron are not permitted for ambient temperatures lower than -20°C.
- For assemblies with aluminium connection heads, for EPL Ga applications, special care must be taken to prevent impact and friction sparks from aluminium head which can be ignition sources.
- Enclosure housing unused openings shall be fitted with suitably certified blanking element with IP66 ratings.
- At least 40% of each cross-sectional area should remain free.
- 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.

## 18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
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1.2.7	Protection against other hazards (LVD type requirements, etc.)
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

## 19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
ExSKG1474	1 to 7	J	1/17/2024	Approved transmitters for ATEX and IECEx assemblies

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
A/D6260	1 of 1	A	18/05/2007	Flame Path Fitting
A/D6261	1 of 1	A	27/04/2007	Flame Path Collar
A/D7757	1 of 1	(Init'l)	11/6/19	Seal Fitting
B/57982	1 of 1	(Int'l)	12/9/2018	Flame Path Assembly
ExC/57253 SHT. 1	1 of 2	G	4/25/22	CH Series Assembly, Ex d
ExC/57253 SHT. 2	2 of 2	G	4/25/22	CH Series Assembly, Ex i
ExC/57255 SHT. 1	1 of 2	G	4/25/22	SF Series Assembly, Ex d
ExC/57255 SHT. 2	2 of 2	G	4/25/22	SF Series Assembly, Ex i
ExC/57301 SHT. 1	1 of 2	G	4/25/22	RM Series Assembly
ExC/57301 SHT. 2	2 of 2	G	4/25/22	RM Series Assembly
ExC/57346 SHT. 1	1 of 2	E	4/25/22	TS-2 Series Tube Skin, Ex d
ExC/57346 SHT. 2	2 of 2	E	4/25/22	TS-3 Series Tube Skin, Ex d
ExCD7017	1 of 1	A	05/23/2017	Flame Path Fitting Assembly
ExSKG1471	1 to 2	E	4/26/22	Special instructions for safe use (Ex d & Ex i)
ExSKG1477	1 of 1	(Int'l)	7/1/15	Potting Compound
ExSKG1502	1 of 1	E	8/21/2020	Approved Heads and Accessories for Ex d

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 18.0075X.

20 Certificate History

Certificate No.	Date	Comments
Baseefa18ATEX0114X	5 December 2018	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0:2012 +A11:2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-11:2012 EN 60079-31:2014 is documented in Test Report No. GB/BAS/ExTR18.0231/00 for project 16/0278.
Baseefa18ATEX0114X/1	3 August 2020	<p><u>Variation 1.1</u> The product description was revised.</p> <p><u>Variation 1.2</u> The equipment Covered by this certificate has been reviewed against the requirements of EN IEC 60079-0: 2018 where applicable in respect to the differences from EN 60079-0: 2012+A11: 2013.</p> <p><u>Variation 1.3</u> Revised list of Specific Conditions of Use.</p> <p><u>Variation 1.4</u> Minor revisions to description and associated drawings to allow the use of alternative sealing fittings and to allow non-flameproof versions of the metallic enclosure to be utilized on Ex i certified variations of the equipment.</p> <p><u>Variation 1.5</u> Addition of an alternative manufacturing location: TE Thermo Electric Company India Pvt. Ltd. Plot No. #362, Sector-7, IMT Manesar – 122050, Gurgaon, Haryana, India</p> <p>See report GB/BAS/ExTR20.0083/00 for project 20/0232.</p>
Baseefa18ATEX0114X Issue 2	18 September 2020	<p>This issue of the certificate incorporates previously issued primary &amp; supplementary certificates into one certificate and permits the addition of alternative transmitters and correction of the marked input parameters for terminal block variants of the equipment.</p> <p>The Certificate Schedule was revised to list the certification markings for all variants of the equipment. See Certification Report GB/BAS/ExTR20.0126/00 (held with IECEx Certificate No. IECEx BAS 18.0075X Iss. 2), Project file 20/0283.</p>
Baseefa18ATEX0114X Issue 3	21 November 2022	<p>To confirm that the current design meets the requirements of EN 60079-7:2015+A1:2018. To permit minor changes to drawings not affecting the certification assessment. To revise list of Specific Conditions of Use.</p> <p>Report GB/BAS/ExTR22.0152/00. Project File No. 22/0328.</p>
Baseefa18ATEX0114X Issue 4	14 February 2024	<p>To permit the addition of alternative transmitters, and to permit changes to the markings of transmitters that have updated certificates.</p> <p>Report GB/SGS/ExTR23.0116/00 for project no. 23/0327</p>
For drawings applicable to each issue, see original of that issue.		