Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-TYPE EXAMINATION CERTIFICATE

(Translation)

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 03 ATEX 2041 X **Issue: 1**

(4) Product: Widerstandsthermometer und Thermoelemente

(5) Manufacturer: electrotherm Gesellschaft für Sensorik und thermische Messtechnik mbH

(6) Address: Gewerbepark 6, 99331 Geratal OT Geraberg, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the 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.

The examination and test results are recorded in the confidential Test Report PTB Ex 20-20130.

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

(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 in accordance to the Directive 2014/34/EU. 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:

II 1/2 G Ex ia IIC T1...T6 Ga/Gb or **II 2/3 G Ex ia IIC T1...T6 Gb/Gc**

Konformitätsbewertungsstelle, Sektor Explosionsschutz Braunschweig, October 21, 2020
On behalf of PTB:

Dr.-Ing. F. Lienesch
Direktor und Professor

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 03 ATEX 2041 X, Issue: 1**

(15) Description of Product

The resistance thermometers and thermocouples of types 2 through 9, 2G, 3G, 2F, 3F, 4F and the supplementary protective tube with measuring elements 260, 285, 360 and 370 are used to measure the temperature inside of containers, conduits, apparatus and systems.

For relationship between temperature class and maximum permissible range of the ambient temperature, reference is made to the following table.

temperature class	max. ambient temperature T_{amb}
T1...T4	-20 °C ... +80 °C
T5	-20 °C ... +55 °C
T6	-20 °C ... +40 °C

The surface temperature at the connection head shall not exceed 80 °C.

Category-1/2-apparatus

The connection heads of the resistance thermometers are installed in hazardous areas requiring apparatus of category 2.

The sensor tips with the resistance thermometers and thermocouples are installed in hazardous areas for which apparatus of category 1 are required.

For applications requiring category-1/2-apparatus the permissible temperature and the process pressure of the media shall range from -20 °C to +60 °C or 0.8 bar to 1.1 bar respectively. If the operating conditions at the sensor deviate from these values, it is to be considered that the sensor (even in case of failure) does not show any temperature rise and that the operating company is responsible for the safe operation of the system as regards pressures and temperatures of the media used. The operating conditions for operation without explosive mixtures shall be taken from the manufacturer´s instructions.

Category-2/3-apparatus

The connection heads of the resistance thermometers are installed in hazardous areas requiring apparatus of category 3.

The sensor tips with the resistance thermometers and thermocouples are installed in hazardous areas for which apparatus of category 2 are required.

This includes the types 340 (resistance thermometer), 240 (thermocouple) as well as all thermocouple types with non-sheathed measuring elements according to the type key (see operating instructions).

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 03 ATEX 2041 X, Issue: 1

Category-2-apparatus

The connection heads of the resistance thermometers are installed in hazardous areas requiring apparatus of category 2.

The sensor tips with the resistance thermometers and thermocouples are installed in hazardous areas for which apparatus of category 2 are required.

Electrical Data

Supply circuit ..... only for connection to a certified intrinsically safe circuit

Maximum values:

U_i = 30 V
I_i = 50 mA
P_i = 200 mW

C_i negligibly low
L_i negligibly low

Changes with respect to previous issues:

- Adaptation to the current state of standards
- Revision of the type label, the safety description and the operating manuals
- Supplementation of the marking for category 2/3 application and extension with respect to the temperature classes.
- Extension of the special conditions for safe use
- Change of the company address
- Increase of the maximum input voltage
- Introduction of new diameters and thread types
- According to DIN EN 60751:2009 the marking of the accuracy classes for measuring resistors in resistance thermometers has been changed
- Introduction of thermocouples of type "N"
- Summary of the specifications from the initial certificate, the supplements issued and the above-mentioned modifications to represent the current state of production

(16) Test Report PTB Ex 20-20130

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 03 ATEX 2041 X, Issue: 1

(17) Specific conditions of use

If the resistance thermometers and thermocouples are to be optionally equipped with certified intrinsically safe transmitters, it shall be ensured that the maximum permissible values specified above are not exceeded.

The protective tube of each resistance thermometer and thermocouple shall be included in the recurring pressure test of the container or conduit respectively.

The resistance thermometers and thermocouples shall only be operated within the permissible range of the ambient temperature corresponding to the respective temperature class. These can be taken from the table above.

With installation and operation of thermocouples of types 2 through 9, 2G, 3G, 2F, 3F and supplementary protective tube with measuring elements without sheath insulation of types 260 and 285 which are connected to the equipotential bonding conductor, equipotential bonding shall be ensured along the cable run inside and outside the hazardous area.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle Sektor Explosionsschutz — Braunschweig, October 21, 2020
On behalf of PTB:

Dr.-Ing. F. Lienesch
Direktor und Professor