

**[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 **IBExU09ATEX1090 X** | Issue 1
- [4] Product: **Resistance thermometer and thermocouples**
Type: System Rüster BR, System Rüster BI, System Rüster KF and System Rüster WI
- [5] Manufacturer: Paul Rüster & Co. GmbH
- [6] Address: Dorfplatz 11
14532 Stahnsdorf
GERMANY
- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 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.
- The examination and test results are recorded in the confidential test report IB-18-3-0094.
- [9] Compliance with the essential health and safety requirements has been assured by compliance with: EN 60079-0:2012+A11:2013 and EN 60079-11:2012 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:

II 2G Ex ia IIC T6 – T2 Gb
 II 2D Ex ia IIIC TX Db

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By order

Dipl.-Ing. [FH] Henker



(notified body number 0637)

Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2018-07-25

[13]

Schedule

[14]

Certificate number IBExU09ATEX1090 X | Issue 1

[15]

Description of product

The thermometers are used for the temperature measurement in the mechanical engineering and plant construction. They consist of a protective tube with integrated temperature sensors and a head form with connector socket or permanently connected compensating cable.

Maximum permissible temperatures:

The temperature sensors have in air a resistance of heat transfer from the surface of the sensor tip close to the electrically supplied sensor of maximum 48 K/W at a minimum sensor diameter of 6 mm. The thermal resistance of sensor diameters > 3.2 mm...5.9 mm is 105 K/W.

When using the sensors in dust explosive atmospheres the temperature value TX can be determined with the following formula:

$$TX = \text{process temperature} + \text{self-heating} + \text{safety factor}$$

Measuring temperature range: -55 °C to maximum +250 °C

Maximum media temperature:

- 77,9 °C (T6)
- 92,9 °C (T5)
- 127,9 °C (T4)
- 192,9 °C (T3)
- 250 °C (T2)

Max. ambient temperature
at the head form

System BI +70 °C
System BR depends on the cable to +250 °C

Electrical data:

Measuring current/
Supply current circuit

in type of protection intrinsic safety Ex ia IIC or Ex ia IIIC

$$U_i \leq 30 \text{ V}$$

$$P_i \leq 1 \text{ W}$$

Effective internal inductivity

$$L_i < 1 \mu\text{H/m}$$

Effective internal capacity

$$C_i < 180 \text{ pF/m}$$

Sensors

Pt100/ Pt1000/ Ni100/ Ni1000/ Ni1000 Tk5000

Thermocouples J, K, L, N, S, E, R, B, T

PTC, NTC

Circuit type

2-, 3- or 4-conductor circuit

Variations compared to EC-Type Examination Certificate and its amendments:

Variation 1

The Resistance thermometer and thermocouples are also suitable for the use in potential dust explosive atmospheres.

Variation 2

The minimum permitted ambient temperature is -55 °C.

[16]

Test report

The test results are recorded in the confidential test report IB-18-3-0094 of 2018-07-25.

The test documents are part of the test report and they are listed there.

Summary of the test results

The Resistance thermometer and thermocouples mentioned under [4] still fulfil the requirements of explosion protection for electrical equipment of group II and category 2G or 2D in type of protection intrinsic safety "i".

[17] Specific conditions of use

- For installation and operation of the thermometers, the specifications in the operating instructions must be observed.
- The maximum permissible media temperatures depend on the fault power of the supply and can be taken out of the operating instructions. The maximum permissible ambient temperatures must be guaranteed by measurements during erecting.
- The electrical connection must be made in accordance with EN 60079-11, section 6.2.
- Dust deposits > 50 mm must be avoided. For dust thicknesses < 50 mm, the notes from EN 60079-14 must be observed.

[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 test report:

None

[19] Drawings and Documents

The documents are listed in the test report.

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Freiberg, 2018-07-25