

Translation

(1) **EU-Type Examination Certificate**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**



(3) **Certificate Number** TÜV 18 ATEX 211392 X **issue:** 00

(4) for the product: Thermometer TR... / TC...

(5) of the manufacturer: WIKA Alexander Wiegand SE & Co. KG

(6) Address: Alexander-Wiegand-Straße 30, 63911 Klingenberg
Germany

Order number: 8000478384

Date of issue: 2018-11-15

(7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 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 ATEX Assessment Report No. 18 203 211392.

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

EN IEC 60079-0:2018

EN 60079-7:2015

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 for 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 equipment. These are not covered by this certificate.

(12) The marking of the product shall include the following:

 **II 2 G Ex eb IIC T6...T1 Gb or II 2 G Ex eb IIC + CH4 T6...T1 Gb**
II 2 D Ex tb IIIC TX °C Db

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body


Roder

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(13) **SCHEDULE**

(14) **EU-Type Examination Certificate No. TÜV 18 ATEX 211392 X issue 00**

(15) **Description of product**

The thermometer type TR... (resistance sensor) and TC... (thermocouple element) consists of a welded tubing or a mineral-sheathed cable or a ceramic insulated thermowire, with the temperature sensor inside which is embedded in a ceramic powder, in a heat resistant casting compound, a cement compound or a thermal conductance paste.

The thermometer type TR.../TC... will be mounted to a certified enclosure (TÜV 18 ATEX 211394 U) manufactured by WIKA series 1/4000, series 7/8000 or series 5/6000. The enclosure and covers are made of stainless steel or aluminum. The cover could be optionally provided with a glass lens (window).

Alternatively the thermometers TR.../TC... can be mounted into other suitable certified enclosures in accordance with the applicable requirements of EN 60079-0, EN 60079-7 and EN 60079-31.

Optionally, a suitable certified transmitter respectively a suitable certified current loop indicator may be placed inside the enclosure.

The permissible ambient temperatures are depending on the marking of the temperature class, the used enclosure and the installation of an optionally used transmitter and/or a digital display. In this case the special conditions for safe use must be considered. The lower temperature limit is -40 °C for the thermometer type TR.... (resistance sensor) or TC.... (thermocouple), for special versions -60 °C. This also applies to the thermometer type TR.... (resistance sensor) or TC.... (thermocouple), which is installed in a certified housing (TÜV 18 ATEX 211394 U) of the WIKA series 1/4000, 7/8000 or 5/6000.

For the connection of a thermometer and a transmitter and /or a digital display the minor values of the ambient temperature limits and the temperature class with the highest cipher is valid.

The thermometer must be suitable for the thermal and mechanical stress within the process.

As the case may be a thermowell with a proper minimum wall thickness may be used.

Type code

Thermometer type:

X - XXXX - X...
 X
a **bcd*** - *...*

The asterisks "*" are not ex-relevant.

a Series:

TR (resistance sensor) / TC (thermocouple element)

b A = ATEX, I = IECEX, N = NAMUR, Z = Non-Ex

All other letters of alphabet and numbers 0 till 9 excluded the letters N and Z are reserved characters for other approvals additional to ATEX and IECEX

c E = Ex e

N = Ex nA

T = Ex t (only in combination with other type of ignition protection like Ex e or Ex nA)

d Gas zones

Dust zones

C = Zone 1

G = Zone 21

D = Zone 2

H = Zone 22

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Electrical data

Electrical data without built-in transmitter or digital display

Sensor circuit:

$$U_{\max} = \text{d.c } 10 \text{ V}$$

$$I_{\max} = 9 \text{ mA}$$

$$P_{\max} (\text{at the sensor}) = 15 \text{ mW}$$

For the use of multiple sensors and simultaneous operation the summation of all single power dissipation may not exceed the maximum permissible power dissipation. The maximum permissible power shall be limited to 15 mW.

Electrical data with built-in transmitter or digital display

For the sensor circuit the above specified values corresponding to the group II resp. group III apply. The used transmitter/ digital display shall be provided with their own EU-Type Examination Certificate in accordance to EN. The installation conditions and the electrical connection values shall be taken from the corresponding EU-Type Examination Certificate and shall be considered.

Multipoint thermometers built up from several shell elements

For the isolated single element the above specified values are valid. For elements which are considered as grounded due to their construction the specified values apply for the sensors in sum.

Application in methane atmospheres

Due to the higher minimum ignition energy of methane, the devices may also used into thereby caused explosive gas atmospheres. The device is optionally marked with IIC + CH₄.

Thermal data

For applications that require EPL Gb equipment

For applications without transmitter (digital displays) requiring instruments of group II, the following temperature class classification and ambient temperature ranges apply:

Marking	Temperature class	Ambient temperature range (T _a)*	Maximum surface temperature (T _{max}) at the tip of the probe or thermowell
II 2 G Ex eb IIC T6 Gb oder II 2 G Ex eb IIC + CH ₄ T6 Gb	T6	-40 °C ... +80 °C ¹⁾ or -60 °C ... +80 °C ²⁾	T _M (medium temperature) + self-heating (4 K)
II 2 G Ex eb IIC T5...T1 Gb oder II 2 G Ex eb IIC + CH ₄ T5...T1 Gb	T5...T1	-40 °C ... +80 °C ¹⁾ or -60 °C ... +85 °C ²⁾	

* Depending on enclosure configuration

¹⁾ Wika enclosure versions 1/4000; 5/6000 and 7/8000 standard-lid gasket (-40°C), Potting: KAGER 4439 (-40 °C) (-tubing version)

²⁾ Wika enclosure versions 1/4000; 5/6000 and 7/8000 special-lid gasket (-60 °C), Potting: WEVOPUR PD4 (-60 °C) (MI-cable and tubing version)

For the installation of a transmitter and/or a digital display the special conditions for safe use shall be considered.

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For applications that require EPL Db equipment

For applications without transmitter (digital displays) requiring instruments of group III, the following surface temperatures and ambient temperature ranges apply:

Marking	Ambient temperature range (T_a)*	Maximum surface temperature (T_{max}) at the tip of the probe or thermowell
II 2 D Ex tb IIIC TX °C Db	-40 °C ... +80 °C ¹⁾ or -60 °C ... +85 °C ²⁾	T_M (medium temperature) + self-heating (4 K)

* Depending on enclosure configuration

¹⁾ Wika enclosure versions 1/4000; 5/6000 and 7/8000 standard-lid gasket (-40°C), Potting: KAGER 4439 (-40 °C) (-tubing version)

²⁾ Wika enclosure versions 1/4000; 5/6000 and 7/8000 special-lid gasket (-60 °C), Potting: WEVOPUR PD4 (-60 °C) (MI-cable and tubing version)

For the installation of a transmitter and/or a digital display the special conditions for safe use shall be considered.

(16) Drawings and documents are listed in the ATEX Assessment Report No. 18 203 211392

(17) Specific Conditions for Use

1. The alternatively used enclosures, optionally suitable transmitters or suitable digital displays shall be provided with their own certification in accordance to EN 60079-0, EN 60079-7 and EN 60079-31. The installation conditions, the electrical connection values, the temperature class respectively the maximum surface temperatures of devices for the use in explosive dust atmospheres and the permissible ambient temperature shall be taken from the corresponding certification and shall be considered.
2. Other blanking elements as well as cable glands, if used, have to be separately assessed and certified in accordance with EN 60079-7 and EN 60079-31. In the end-use application the degree of protection min IP54 / IP6X shall be maintained in accordance with EN 60079-0 and in compliance with EN 60529.
3. The temperature resistance of the connecting cables, the connection heads, the cable entries and if necessary the blanking connectors shall be at least as high as the maximum permissible ambient temperature and shall be at least as low as the minimum permissible ambient temperature.
4. A reverse heat flow from the process exceeding the permissible ambient temperature of the transmitter, the digital display or the enclosure is not allowed and shall be avoided by a suitable thermal insulation or a suitable neck length of the tubing.
5. The cable sensor shall be fitted with kink protection and strain relief. They must be connected to ground through their installation. For tube type cable probes (without MI-Cable), the temperature range of the wire insulation shall be considered for operating.
6. The ambient temperature range depending on temperature class resp. surface temperature is to be taken from the operating instructions.

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- (18) Essential Health and Safety Requirements
No additional ones

- End of Certificate -