Translation

1 # EU-Type Examination Certificate

2 **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU**

3 EU-Type Examination Certificate Number: **BVS 19 ATEX E 020 X**

4 Product: **Temperature transmitter** **type T15.*-AI***-*...*** **type T16.*-AI***-*...***

5 Manufacturer: **WIKA Alexander Wiegand SE & Co. KG**

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

7 This product and any acceptable variations thereto are specified in the appendix to this certificate and the documents referred to therein.

8 DEKRA Testing and Certification GmbH, Notified Body number 0158, 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 Report No. BVS PP 19.2066 EU.

9 The Essential Health and Safety Requirements are assured in consideration of:

EN IEC 60079-0:2018	**General requirements**
EN 60079-11:2012	**Intrinsic Safety "i"**

Except in respect of those requirements listed under item 18 of the appendix.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix 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:

Type T15.H-AI***-*...*
Type T16.H-AI***-*...*
II 1G Ex ia IIC T6...T4 Ga
II 1D Ex ia IIIC T135°C Da

Type T15.R-AI***-*...*
Type T16.R-AI***-*...*
II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb
II 2(1)D Ex ia [ia Da] IIIC T135°C Db

DEKRA Testing and Certification GmbH
Bochum, 2019-05-23

Signed: Jörg-Timm Kilisch

Managing Director

DAkkS Deutsche Akkreditierungsstelle D-ZE-17438-02-00

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13 **Appendix**

14 **EU-Type Examination Certificate**

BVS 19 ATEX E 020 X

15 **Product description**

15.1 **Subject and type**

Temperature transmitter

Type T15.H-AI***-*…* Type T15.R-AI***-*…*
Type T16.H-AI***-*…* Type T16.R-AI***-*…*

15.2 **Description**

The temperature transmitters type T15.*-AI***-*…* and type T16.*-AI***-*…* convert intrinsically safe (IS) resistance or voltage signals into an intrinsic safe 4-20 mA signal. There are two mechanical versions:

Type T15.H-AI***-*…*, type T16.H-AI***-*…* for head mounting and
type T15.R-AI***-*…*, type T16.R-AI***-*…* for DIN rail mounting.

T15.*-AI***-*…*
The IS sensor circuit (optionally 2-wire, 3-wire or 4-wire configuration) of models T15.*-AI* is intended to supply intrinsic safe RTD sensor devices in EPL Ga (Zone 0) or Da (Zone 20) areas.

T16.*-AI***-*…*
The IS sensor circuit (2-wire only) of models T16.*-AI* is intended for measurement of intrinsically safe thermocouple signals in EPL Ga (Zone 0) or Da (Zone 20) areas.

15.3 **Parameters**

15.3.1 **T15.*-AI***-*…***

15.3.1.1 **Intrinsically safe supply and signal circuit (4 -20 mA current loop)**

Parameters		Transmitter models	
		T15.*-AI***-*…*	T15.*-AI***-*…*
		Gas Application	Dust Application
Terminals		+ / -	+ / -
Maximum input voltage	U_i	DC 30 V	DC 30 V
Maximum input current	I_i	130 mA	130 mA
Maximum input power	P_i	800 mW	750/650/550 mW
Max. internal capacitance	C_i	18.4 nF	18.4 nF
Max. internal inductance	L_i	20 µH	20 µH

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15.3.1.2 **Sensor circuit**

Parameters		Transmitter models	
		T15.*-AI***-*...*	
Marking		Ex ia IIC/IIB/IIA Ex ia IIIC	
Terminals		1 - 4	
Maximum output voltage	U_o	DC 30	V
Maximum output current	I_o	8.2	mA
Maximum output power	P_o	62	mW
Max. external capacitance C_o	IIC	30	nF
	IIB/IIIC	0.520	µF
	IIA	1.70	µF
Max. external inductance L_o	IIC	1	mH
	IIB/IIIC	1	mH
	IIA	1	mH
Characteristics		Linear	

Remarks: U_o: maximum voltage of any wire versus the other three wires
I_o: maximum output current for worst case connection of the internal current limiting resistors
P_o: U_o x I_o divided by 4 (linear characteristic)

The IS supply and signal circuit and the IS sensor circuit are considered as galvanically connected to each other.

15.3.1.3 **Ambient temperature range**

Application	Ambient temperature range	Temperature class	Power P_i
Group IIC/IIB/IIA	-40 °C ≤ T_{amb} ≤ +85 °C	T4	800 mW
	-40 °C ≤ T_{amb} ≤ +70 °C	T5	800 mW
	-40 °C ≤ T_{amb} ≤ +55 °C	T6	800 mW
Group IIIC	-40 °C ≤ T_{amb} ≤ +40 °C	N / A	750 mW
	-40 °C ≤ T_{amb} ≤ +70 °C	N / A	650 mW
	-40 °C ≤ T_{amb} ≤ +85 °C	N / A	550 mW
N / A = not applicable			

15.3.2 **T16.*-AI***-*...***

15.3.2.1 **Intrinsically safe supply and signal circuit (4 -20 mA current loop)**

Parameters		Transmitter models	
		T16.*-AI***-*...*	T16.*-AI***-*...*
		Gas Application	Dust Application
Terminals		+ / -	+ / -
Maximum input voltage	U_i	DC 30 V	DC 30 V
Maximum input current	I_i	130 mA	130 mA
Maximum input power	P_i	800 mW	750/650/550 mW
Max. internal capacitance	C_i	7.8 nF	7.8 nF
Max. internal inductance	L_i	20 µH	20 µH

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15.3.2.2 **Sensor circuit**

Parameters		Transmitter models
		T16.*-AI***-*…*
Terminals		1 - 2
Maximum output voltage U_o		DC 6.6 V
Maximum output current I_o		4 mA
Maximum output power P_o		10 mW
Max. external capacitance C_o	IIC	21 µF
	IIB/IIIC	495 µF
	IIA	995 µF
Max. external inductance L_o	IIC	95 mH
	IIB/IIIC	95 mH
	IIA	95 mH
Characteristics		Linear

Remarks: U_o: maximum voltage of any wire versus the other three wires
I_o: maximum output current for worst case connection of the internal current limiting resistors
P_o: U_o x I_o divided by 4 (linear characteristic)

Due to separation requirements of the applied standards, IS supply- and signal-circuit and the IS sensor circuit shall be considered as being galvanically connected to each other. The functional separation is ensured.

15.3.2.3 **Ambient temperature range**

Application	Ambient temperature range	Temperature class	Power Pi
Group IIC/IIB/IIA	-40 °C ≤ T_{amb} ≤ +85 °C	T4	800 mW
	-40 °C ≤ T_{amb} ≤ +70 °C	T5	800 mW
	-40 °C ≤ T_{amb} ≤ +55 °C	T6	800 mW
Group IIIC	-40 °C ≤ T_{amb} ≤ +40 °C	N / A	750 mW
	-40 °C ≤ T_{amb} ≤ +70 °C	N / A	650 mW
	-40 °C ≤ T_{amb} ≤ +85 °C	N / A	550 mW
N / A = not applicable			

16 Report Number

BVS PP 19.2066 EU, as of 2019-05-23

17 Special Conditions for Use

17.1 The transmitter shall be mounted in an enclosure in accordance with EN 60079-11 suitable for the relevant installation area. The enclosure has to fulfil at least IP20 for areas requiring EPL Ga, Gb or Gc and IP 54 in accordance with EN 60079-0 for areas requiring EPL Da, Db or Dc.

17.2 During the installation internal wiring, clearances, creepage distances and separations have to be considered according to EN 60079-11.

17.3 The influence of power dissipation of other devices placed beside the transmitter has to been taken into account with regard to temperature rise of the transmitter's ambient temperature.

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18 Essential Health and Safety Requirements

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

For this product the standard EN IEC 60079-0:2018 is equivalent to the harmonized standard EN 60079-0:2012 + A11:2013 in terms of safety.

19 Drawings and Documents

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, 2019-05-23
BVS-Scho/Mu A 20180952

Managing Director

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