



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx BVS 19.0022X

Issue No: 0

Certificate history:

Issue No. 0 (2019-05-28)

Status: **Current**

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Date of Issue: **2019-05-28**

Applicant: **WIK A Alexander Wiegand SE & Co. KG**
Alexander-Wiegand-Straße 30
63911 Klingenberg
Germany

Equipment: **Temperature transmitter type T15.*-A****.*...* and T16.*-A****.*...***
Optional accessory:

Type of Protection: **Intrinsic Safety "i", Type of protection "n", Increased Safety "e"**

Marking:
See Annex

Approved for issue on behalf of the IECEx
Certification Body:

Jörg Koch

Position:

Head of Certification Body

Signature:
(for printed version)

Date:


28.5.19

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
On the safe side.



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Manufacturer: **WIKA Alexander Wiegand SE & Co. KG**
Alexander-Wiegand-Straße 30
63911 Klingenberg
Germany

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-7 : 2017 Edition:5.1	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[DE/BVS/ExTR19.0033/00](#)

Quality Assessment Report:

[DE/BVS/QAR07.0010/13](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Subject and Type

T15.*-A****.*...*
T16.*-A****.*...*

Type code

a.b-Ac****.*...*

a Series:

T15, model for RTD (resistance temperature detector) sensors

T16, model for TC (thermocouple) sensors

b Type of enclosure:

H = Head mounting

R = DIN rail mounting

c Equipment protection:

I = EPL Ga or Da, intrinsic safety Ex ia

C = EPL Gc, intrinsic safety Ex ic

N = EPL Gc, non-sparking Ex nA

E = EPL Gc, increased safety Ex ec

The asterisks '*' are not relevant for explosion protection.

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex



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EQUIPMENT (continued):

Description

The temperature transmitters type T15.*-A***-...* and type T16.*-A***-...* convert resistance or voltage signals into a 4-20 mA signal. There are two mechanical versions:

Type T15.H-A***-...*, type T16.H-A***-...* for head mounting and
Type T15.R-A***-...*, type T16.R-A***-...* 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 intrinsically 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.

T15.*-AC***-...*

The IS sensor circuit (optionally 2-wire, 3-wire or 4-wire configuration) of models T15.*-AC***-...* is intended to supply intrinsically safe RTD sensor devices in EPL Gc (Zone 2) areas.

T16.*-AC***-...*

The IS sensor circuit (2-wire only) of models T16.*-AC***-...* is intended for measurement of intrinsically safe thermocouple signals in EPL Gc (Zone 2) areas.

T15.*-AN***-...*

The transmitters convert resistance signals into a 4 to 20 mA current loop. The sensor circuit (optionally 2-wire, 3-wire or 4-wire configuration) of models T15.*-AN***-...* is intended to supply RTD sensor devices in EPL Gc (Zone 2) areas.

T16.*-AN***-...*

The transmitters convert voltage signals into a 4 to 20 mA current loop. The sensor circuit (2-wire only) of models T16.*-AN***-...* is intended for measurement of thermocouple signals in EPL Gc (Zone 2) areas.

T15.*-AE***-...*

The transmitters convert resistance signals into a 4 to 20 mA current loop. The sensor circuit (optionally 2-wire, 3-wire or 4-wire configuration) of models T15.*-AE***-...* is intended to supply RTD sensor devices in EPL Gc (Zone 2) areas.

T16.*-AE***-...*

The transmitters convert voltage signals into a 4 to 20 mA current loop. The sensor circuit (2-wire only) of models T16.*-AE***-...* is intended for measurement of thermocouple signals in EPL Gc (Zone 2) areas.

Parameters

See Annex

Annex:

[BVS_19_0022X_WIKA_Annex.pdf](#)



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Marking Plate:

Type	T15.H-AI***-...*	T15.R-AI***-...*
Ex marking:	Ex ia IIC T6...T4 Ga Ex ia IIIC T135°C Da	Ex ia [ia Ga] IIC T6...T4 Gb Ex ia [ia Da] IIIC T135°C Db

Type	T16.H-AI***-...*	T16.R-AI***-...*
Ex marking:	Ex ia IIC T6...T4 Ga Ex ia IIIC T135°C Da	Ex ia [ia Ga] IIC T6...T4 Gb Ex ia [ia Da] IIIC T135°C Db

Type	T15.*-AE***-...*	T15.*-AN***-...*	T15.*-AC***-...*
Ex marking:	Ex ec IIC T6...T4 Gc	Ex nA IIC T6...T4 Gc	Ex ic IIC T6...T4 Gc

Type	T16.*-AE***-...*	T16.*-AN***-...*	T16.*-AC***-...*
Ex marking:	Ex ec IIC T6...T4 Gc	Ex nA IIC T6...T4 Gc	Ex ic IIC T6...T4 Gc

Specific Conditions of Use:

1. All types

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

2. Types T15.*-AC*-...*, T16.*-AC***-...*, T15.*-AI***-...* and T16.*-AI***-...***

- The transmitter shall be mounted in an enclosure in accordance with IEC 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 IP54 in accordance with IEC 60079-0 for areas requiring EPL Da, Db or Dc.
- During the installation internal wiring, clearances, creepage distances and separations have to be considered according to IEC 60079-11.

3. Types T15.*-AN*-...* and T16.*-AN***-...***

- The transmitter shall be mounted in an enclosure fulfilling at least IP54 in accordance with IEC 60079-0 and IEC 60079-15.
- During the installation clearances, creepage distances and separations have to be considered according to IEC 60079-15.
- The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1.
- Maximum overvoltage Category II according to IEC 60664-1 is permitted for the circuits.

4. Types T15.*-AE*-...* and T16.*-AE***-...***

- The transmitter shall be mounted in an enclosure fulfilling at least IP54 in accordance with IEC 60079-0 and IEC 60079-7.
- During the installation clearances, creepage distances and separations have to be considered according to IEC 60079-7.
- The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1.
- Maximum overvoltage Category II according to IEC 60664-1 is permitted for the circuits.

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Parameters

1.1 T15.*-AI***-...*, T15.*-AC***-...*

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

Parameters	Transmitter models	
	T15.*-AI***-...*, T15.*-AC***-...*	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 μ H	20 μ H

1.1.2 Sensor circuit

Parameters		Transmitter models	
		T15.*-AI***-*...*	T15.*-AC***-*...*
Marking		Ex ia IIC/IIB/IIA Ex ia IIIC	Ex ic IIC/IIB/IIA
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	180 nF
	IIB/IIIC	0.520 µF	1.37 µF
	IIA	1.70 µF	5.40 µF
Max. external inductance L _o	IIC	1 mH	2 mH
	IIB/IIIC	1 mH	2 mH
	IIA	1 mH	2 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.			

1.1.3 Ambient temperature range

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

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1.2 T16.*-AI***-...*, T16.*-AC***-...*

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

Parameters	Transmitter models	
	T16.*-AI***-...*, T16.*-AC***-...*	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 μ H	20 μ H

1.2.2 Sensor circuit

Parameters		Transmitter models	
		T16.*-AI***-...*	T16.*-AC***-...*
Marking		Ex ia IIC/IIB/IIA Ex ia IIIC	Ex ic IIC/IIB/IIA
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	280 µF
	IIB/IIIC	495 µF	995 µF
	IIA	995 µF	995 µF
Max. external inductance L _o	IIC	95 mH	95 mH
	IIB/IIIC	95 mH	95 mH
	IIA	95 mH	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.			

1.2.3 Ambient temperature range

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

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1.3 T15.*-AN***-...*, T15.*-AE***-...*

1.3.1 Supply and signal circuit (4 -20 mA current loop)

Parameters	Transmitter models	
	T15.*- AN***-...*	T15.*- AE***-...*
Terminals	+ / -	+ / -
Nominal input voltage U	DC 35 V	DC 35 V
Nominal input current I	21.5 mA	21.5 mA

1.3.2 Sensor circuit

Parameters	Transmitter models	
	T15.*- AN***-...*	T15.*- AE***-...*
Marking	Ex nA IIC/IIB/IIA	Ex ec IIC/IIB/IIA
Terminals	1 - 4	
Nominal output power P	0.334 mW	
Nominal output voltage U	DC 3.34 V	
Nominal output current I	0.1 mA	

1.3.3 Ambient temperature range

Application	Ambient temperature range	Temperature class
Group II	$-40\text{ °C} \leq T_{\text{amb}} \leq +85\text{ °C}$	T4
	$-40\text{ °C} \leq T_{\text{amb}} \leq +70\text{ °C}$	T5
	$-40\text{ °C} \leq T_{\text{amb}} \leq +55\text{ °C}$	T6

1.4 T16.*-AN***-...*, T16.*-AE***-...*

1.4.1 Supply and signal circuit (4 -20 mA current loop)

Parameters	Transmitter models	
	T16.*- AN***-...*	T16.*- AE***-...*
Terminals	+ / -	+ / -
Nominal input voltage U	DC 35 V	DC 35 V
Nominal input current I	21.5 mA	21.5 mA

1.4.2 Sensor circuit

Parameters	Transmitter models	
	T16.*- AN***-...*	T16.*- AE***-...*
Marking	Ex nA IIC/IIB/IIA	Ex ec IIC/IIB/IIA
Terminals	1 - 4	
Nominal output power P	0.258 mW	
Nominal output voltage U	DC 2.575 V	
Nominal output current I	0.1 mA	

1.4.3 Ambient temperature range

Application	Ambient temperature range	Temperature class
Group II	$-40\text{ °C} \leq T_{\text{amb}} \leq +85\text{ °C}$	T4
	$-40\text{ °C} \leq T_{\text{amb}} \leq +70\text{ °C}$	T5
	$-40\text{ °C} \leq T_{\text{amb}} \leq +55\text{ °C}$	T6