IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.: **IECEx BVS 11.0007X**

Certificate history:
Issue 2 (2017-02-08)
Issue 1 (2015-06-01)
Issue 0 (2011-02-24)

Status: **Current**

Issue No: 3

Date of Issue: 2020-07-09

Applicant: **Dittmer Temperaturfühler GmbH & Co. KG**
Carl-Zeiss-Strasse 19
47475 Kamp-Lintfort
Germany

Equipment: **Temperature sensors types 4,68,**,** and 4,69,**,** and Exia,*,**,****

Optional accessory:

Type of Protection: **Intrinsic Safety "i", Equipment Protection Level (EPL) Ga**

Marking:

For type 4,68,**,** and type 4,69,**,**:
Ex ia IIC T4/T6 Gb
Ex ia I Mb
Ex ia IIIC T135°C Db

For type Exia,*,**,**: Variants with Pt100:
Ex ia IIC T4/T6 Ga/Gb
Ex ia IIIB T_{200} 135°C Da/Db

For type Exia,*,**,**: Variants with thermocouple:
Ex ia IIC T4/T6 Ga/Gb
Ex ia IIIB T_{200} 100°C Da/Db

Approved for issue on behalf of the IECEx Certification Body: **Jörg Koch**

Position: **Head of Certification Body**

Signature:
(for printed version)

Date:

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3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

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

DEKRA
On the safe side.

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Certificate No.: **IECEx BVS 11.0007X**

Date of issue: 2020-07-09 Issue No: 3

Manufacturer: **Dittmer Temperaturfühler GmbH & Co. KG**
Carl-Zeiss-Strasse 19
47475 Kamp-Lintfort
Germany

Additional manufacturing locations:

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 equipment 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 60079-26:2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga

This Certificate **does not** indicate compliance with 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/ExTR11.0015/03

Quality Assessment Report:

DE/BVS/QAR10.0013/07

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

Subject and type
See Annex

Description of the apparatus

The temperature sensors type 4,68,**,**
consist of a stainless steel measuring tube of variable length, which includes one or two temperature sensor resistors (Pt100) or one or two thermocouples.
The interconnection between the temperature-proof wiring inside the measuring tube and the permanently connected multicore cable providing open leads for external connections is sealed within a metallic adapter-sleeve.

The temperature sensors type 4,69,**,**
consist of a short piece of stainless steel measuring tube connected to a flexible special PTFE cable of various length. The measuring tube contains one or two temperature sensor resistors (Pt100) or one or two thermocouples.
The interconnection between the PTFE cable and the permanently connected multicore cable for external connections is sealed within a metallic adapter-sleeve.

The temperature sensors type Exia,*,**,**

consist of a stainless steel tube of various diameter and length, which includes one or two temperature sensor resistors (Pt100) or one or two thermocouples.
The stainless steel tube is screwed to the connection head. The temperature sensors are supplied via terminals inside the connection head.

The temperature sensors type 4,68,**,** and type 4,69,**,** are suitable for use in areas requiring Gb- or Db- or Mb-equipment.
The temperature sensors type Exia,*,**,** are installed into the separation wall (e.g. container wall, pipe) separating areas Ga/Gb resp. Da/Db.

The temperature sensors are simple apparatus. They contain only components that do not affect the intrinsic safety of the connected measuring circuit.
The intrinsically safe measuring circuit provides 2-wire, 3-wire or 4-wire configurations.

Listing of all components used referring to older standards
None

Parameters
See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:
For temperature sensor type Exia,*,**,**:
The installation into a separation wall between areas with Ga/Gb- resp. Da/Db-requirements has to be done in such a way, that all metallic parts are conductively connected to the metal container wall; or, if the container is made of plastic, that all insulated metal parts are connected to equipotential bonding.

The temperature sensors have to be installed into the separation wall with standardized connections. At the place of installation, technical tightness has to be ensured.

The separation wall (stainless steel tube) has a wall thickness < 1 mm. It has to be installed in such a way that it cannot be damaged by mechanical impact.

When the sensors are used in dust-explosive areas, a safe separation of the intrinsically safe circuit from earth is not ensured.

For temperature sensors type 4,68,**,** and type 4,69,**,**:
In dust-explosive areas, the sensors have to be installed in such a way, that intensive electrostatic charging is excluded.

When the sensors are used in dust-explosive areas, a safe separation of the intrinsically safe circuit from earth is not ensured.

The metallic measuring tube / piece of measuring tube and the metallic adapter-sleeve have to be included into the potential equalization.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
The apparatus are unchanged.

The equipment has been assessed in accordance with current standard versions.
Additional values for U_i and I_i were introduced.

The special conditions for use in dust applications have been changed. This no longer applies only to IIIC dusts, it applies to all dusts (IIIA, IIIB and IIIC).

The name of the applicant and manufacturer have been changed in Dittmer Temperaturfühler GmbH & Co. KG, formerly Dittmer GbR.

Annex:

BVS_11_0007X_Dittmer_Annex_issue3.pdf

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Certificate No.: **IECEx BVS 11.0007X issue No.: 3**
Annex

Subject and type

Temperature sensors type 4,68,**,** and type 4,69,**,** and type Exia,*,**,**

Temperature sensor type 4,68,**,**

Cable length	in mm*100	(max.	20000 mm)
Tube length	in mm*10	(max.	1000 mm)

Temperature sensor type 4,69,**,**

Cable length	in mm*100	(max.	20000 mm)
Tube length	in mm*100	(max.	5000 mm)

Temperature sensor type Exia,*,**,**

Tube diameter	in mm	(max.	15 mm)
Tube length	in mm*10	(max.	2000 mm)
Connection head variant J, B, D or V			

The temperature sensors include one resp. two Pt100 resistors or alternatively one resp. two thermocouples. The measuring method (Pt100 or thermocouple) is part of the marking.

Parameters

1 **Versions type 4,68,**,** and type 4,69,**,** for applications in areas with Gb and Mb-requirements**

1.1 Variants with one or two Pt100 resistors
2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit

Maximum input voltage	U_i	AC/DC	40	V
Maximum input current	I_i		40	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	16	V
Maximum input current	I_i		100	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	10	V
Maximum input current	I_i		250	mA
Maximum input power	P_i	in accordance with the following table		
Ambient temperature range	T_a	in accordance with the following table		

P_i	Group II, T4 and Group I	400 mW *)
	Group II, T6	90 mW *)
T_a	Group II, T4 and Group I	-40 °C…+80 °C
	Group II, T6	-40 °C…+55 °C

*) Sum value in case of two Pt100 resistors

Maximum recommended measuring current	I_n	3	mA
Internal effective capacitance	C_i	capacitance of the permanently connected cable	
Internal effective inductance	L_i	inductance of the permanently connected cable	

For the permanently connected cable, the following values apply:

Cable capacitance	C_c	135	pF/m
Cable inductance	L_c	0.65	µH/m

1.2 Variants with one or two thermocouples

Maximum input voltage	U_i	AC/DC	40	V
Maximum input current	I_i		40	mA

or alternatively

Maximum input voltage	U_i	AC/DC	16	V
Maximum input current	I_i		100	mA

or alternatively

Maximum input voltage	U_i	AC/DC	10	V
Maximum input current	I_i		250	mA

Maximum input power	P_i	400	mW
Ambient temperature range	T_a	in accordance with the following table	

T_a	Group II, T4 and Group I	-40 °C…+80 °C
	Group II, T6	-40 °C…+55 °C

Internal effective capacitance	C_i	capacitance of the permanently connected cable
Internal effective inductance	L_i	inductance of the permanently connected cable

For the permanently connected cable, the following values apply:

Cable capacitance	C_c	135	pF/m
Cable inductance	L_c	0.65	µH/m

2 **Versions type 4,68,**,** and type 4,69,**,** for applications in areas with Db-requirements**

2.1 Variants with one or two Pt100 resistors
2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit

Maximum input voltage	U_i	AC/DC	40	V
Maximum input current	I_i		40	mA

or alternatively

Maximum input voltage	U_i	AC/DC	16	V
Maximum input current	I_i		100	mA

or alternatively

Maximum input voltage	U_i	AC/DC	10	V
Maximum input current	I_i		250	mA

Maximum input power	P_i	in accordance with the following table
Ambient temperature range	T_a	in accordance with the following table

P_i	550/650/750 mW *)
T_a	-40 °C… +40 °C (P_i = 750 mW) -40 °C… +70 °C (P_i = 650 mW) -40 °C…+100 °C (P_i = 550 mW)

*) Sum value in case of two Pt100 resistors

Maximum recommended measuring current	I_n	3	mA
Internal effective capacitance	C_i	capacitance of the permanently connected cable	

Internal effective inductance	L_i	inductance of the permanently connected cable		
For the permanently connected cable, the following values apply:				
Cable capacitance	C_c		135	pF/m
Cable inductance	L_c		0.65	µH/m

2.2 Variants with one or two thermocouples

Maximum input voltage	U_i	AC/DC	40	V
Maximum input current	I_i		40	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	16	V
Maximum input current	I_i		100	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	10	V
Maximum input current	I_i		250	mA
Maximum input power	P_i	in accordance with the following table		
Ambient temperature range	T_a	in accordance with the following table		

P_i	550/650/750 mW *)
T_a	-40 °C…+40 °C (P_i = 750 mW) -40 °C…+70 °C (P_i = 650 mW) -40 °C…+95 °C (P_i = 550 mW)

Internal effective capacitance	C_i	capacitance of the permanently connected cable		
Internal effective inductance	L_i	inductance of the permanently connected cable		
For the permanently connected cable, the following values apply:				
Cable capacitance	C_c		135	pF/m
Cable inductance	L_c		0.65	µH/m

3 Variants type Exia,*,,** for applications in areas with Ga/Gb-requirements**

3.1 Variants with one or two Pt100 resistors
2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit

Maximum input voltage	U_i	AC/DC	40	V
Maximum input current	I_i		40	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	16	V
Maximum input current	I_i		100	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	10	V
Maximum input current	I_i		250	mA
Maximum input power	P_i	in accordance with the following table		
Ambient temperature range	T_a	in accordance with the following table		

P_i	T4	400 mW *)
	T6	90 mW *)
T_a	T4	-40 °C…+80 °C
	T6	-40 °C…+55 °C

*) Sum value in case of two Pt100 resistors

Maximum recommended measuring current	I_n		3	mA
Internal effective capacitance	C_i			negligible
Internal effective inductance	L_i			negligible

3.2 Variants with one or two thermocouples

Maximum input voltage	U_i	AC/DC	40	V
Maximum input current	I_i		40	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	16	V
Maximum input current	I_i		100	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	10	V
Maximum input current	I_i		250	mA
Maximum input power	P_i		400	mW
Ambient temperature range	T_a	in accordance with the following table		

T_a	T4	-40 °C…+80 °C
	T6	-40 °C…+55 °C

Internal effective capacitance	C_i		negligible
Internal effective inductance	L_i		negligible

4 Variants type Exia,*,,** for applications in areas with Da/Db-requirements**

4.1 Variants with one or two Pt100 resistors
2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit

Maximum input voltage	U_i	AC/DC	40	V
Maximum input current	I_i		40	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	16	V
Maximum input current	I_i		100	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	10	V
Maximum input current	I_i		250	mA
Maximum input power	P_i	in accordance with the following table		
Ambient temperature range	T_a	in accordance with the following table		

P_i	550/650/750 mW *)
T_a	-40 °C… +40 °C (P_i = 750 mW) -40 °C… +70 °C (P_i = 650 mW) -40 °C…+100 °C (P_i = 550 mW)

*) Sum value in the case of two Pt100 resistors

Maximum recommended measuring current	I_n		3		mA
Internal effective capacitance	C_i				negligible
Internal effective inductance	L_i				negligible

4.2 Variants with one or two thermocouples

Maximum input voltage	U_i	AC/DC	40	V
Maximum input current	I_i		40	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	16	V
Maximum input current	I_i		100	mA
or alternatively				
Maximum input voltage	U_i	AC/DC	10	V
Maximum input current	I_i		250	mA
Maximum input power	P_i	in accordance with the following table		
Ambient temperature range	T_a	in accordance with the following table		

P_i	550/650/750 mW *)
T_a	-40 °C…+40 °C (P_i = 750 mW) -40 °C…+70 °C (P_i = 650 mW) -40 °C…+95 °C (P_i = 550 mW)

Internal effective capacitance	C_i	negligible
Internal effective inductance	L_i	negligible

Note:
The ambient temperature ranges have to be respected in areas where an explosive atmosphere may be present.
In areas, where no explosive atmospheres are present, higher ambient temperatures are permissible (the temperature sensors are designed for a measuring range -40 °C…+200 °C).
A sufficient thermal decoupling to explosive areas has to be ensured.