



Translation

# EU-Type Examination Certificate Supplement 5

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

EU-Type Examination Certificate Number: **BVS 03 ATEX E 292 X**

Product: **Temperaturfühler type 4,68,\*\*,\*\*; 4,69,\*\*,\*\* und Exia,\*,\*\*,\*\***

Manufacturer: **Dittmer Temperaturfühler GmbH & Co. KG**

Address: **Carl Zeiss-Strasse 19, 47475 Kamp-Lintfort, Germany**

This supplementary certificate extends EU-Type Examination Certificate No. BVS 03 ATEX E 292 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

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 03.2191 EU.

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

**EN IEC 60079-0:2018**

**EN 60079-11:2012**

**EN 60079-26:2015**

**General requirements**

**Intrinsic Safety "i"**

**Equipment with equipment protection level (EPL) Ga**

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.

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.

The marking of the product shall include the following:

For types 4,68,\*\*,\*\* and 4,69,\*\*,\*\*



**II 2G Ex ia IIC T4/T6 Gb**

**I M2 Ex ia I Mb**

**II 2D Ex ia IIIC T<sub>200</sub> 135°C Db**

For type Exia,\*,\*\*,\*\*



**II 1/2G Ex ia IIC T4/T6 Ga/Gb**

**II 1/2D Ex ia IIIB T<sub>200</sub> 135°C Da/Db (Pt100)**

**II 1/2D Ex ia IIIB T<sub>200</sub> 100°C Da/Db (Thermoelement)**

DEKRA Testing and Certification GmbH  
Bochum, 2020-06-30

Signed: Jörg-Timm Kilisch

Managing Director



13 **Appendix**

14 **EU-Type Examination Certificate**

**BVS 03 ATEX E 292 X  
Supplement 5**

15 **Product description**

15.1 **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.

15.2 **Description**

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 Category 2G- or 2D- or M2-equipment. The temperature sensors type Exia,\*,\*\*,\*\* are installed into the separation wall (e.g. container wall, pipe) separating areas 1G/2G resp. 1D/2D.

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.



**Reason for the supplement**

- 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.
- The name of the manufacturer has been changed in Dittmer Temperaturfühler GmbH & Co. KG, formerly Dittmer GbR.

**15.3 Parameters**

Note for following versions:

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  $-40\text{ °C} \dots +200\text{ °C}$ ).

A sufficient thermal decoupling to explosive areas has to be ensured.

**15.3.1 Versions type 4,68,\*\*,\*\* and type 4,69,\*\*,\*\* for applications in areas with 2G and M2-requirements**

**15.3.1.1 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	$-40\text{ °C} \dots +80\text{ °C}$
	Group II, T6	$-40\text{ °C} \dots +55\text{ °C}$

\*) 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



15.3.1.2 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

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

15.3.2.1 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

15.3.2.2 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	$\mu$ H/m

### 15.3.3 Variants type Exia,\*,\*\*,\*\* for applications in areas with 1/2G-requirements

#### 15.3.3.1 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

#### 15.3.3.2 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

15.3.4 Variants type Exia,\*,\*\*,\*\* for applications in areas with 1/2D-requirements

15.3.4.1 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	

15.3.4.2 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 <sub>I</sub>	550/650/750 mW *)
T <sub>a</sub>	-40 °C...+40 °C (P <sub>I</sub> = 750 mW) -40 °C...+70 °C (P <sub>I</sub> = 650 mW) -40 °C...+95 °C (P <sub>I</sub> = 550 mW)

Internal effective capacitance  
Internal effective inductance

C<sub>i</sub>  
L<sub>i</sub>

negligible  
negligible

16 **Report Number**

BVS PP 03.2191 EU, as of 19.06.2020

17 **Special Conditions for Use**

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.

18 **Essential Health and Safety Requirements**

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

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, 2020-06-30  
BVS-Ben/Mu A 20200261



Managing Director