



QPS Evaluation Services Inc
 Testing, Certification and Field Evaluation Body
 Accredited in Canada, the USA, and Internationally

File LR1594

CERTIFICATE OF COMPLIANCE
 (ISO TYPE 3 CERTIFICATION SYSTEM)

Issued to	Dittmer Temperaturfühler GmbH & Co. KG
Address	Carl-Zeiss-Straße 19 47475 Kamp-Lintfort NRW Germany
Project Number	LR1594-1
Product	Temperature Sensor
Model Number	See Annex below
Ratings	See Annex below
Applicable Standards	See Annex below
Factory/Manufacturing Location	Same as Applicant

Statement of Compliance: The product(s) identified in this Certificate and described in the Report covered under the above referenced project number have been investigated and found to be in compliance with the relevant requirements of the above referenced standard(s). As such, they are eligible to bear the QPS Certification Mark shown below, in accordance with the provisions of QPS's Service Agreement.



Issued By: Dave Adams, P. Eng.
 Manager, Hazardous Locations [Ex Equipment] Department

Signature: 

Date: May 15, 2020

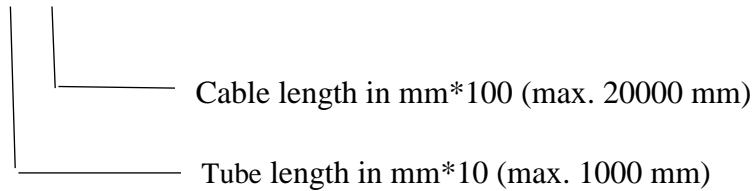


Annex

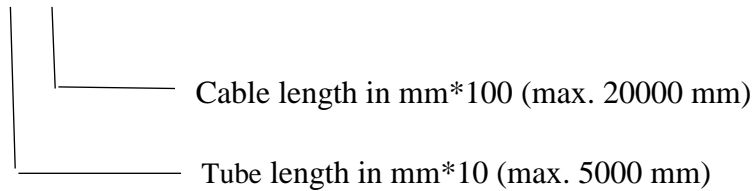
Model Numbers

The temperature sensors type 4,68,,**, 4,69,**,** and Exia,**,****

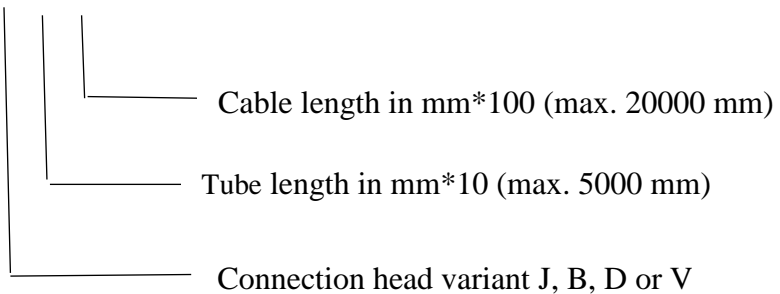
The temperature sensors type 4,68,**,**



The temperature sensors type 4,69,**,**



The temperature sensors type Exia,**,**



Temperature sensor type 7..**.**

- Type 7.01.**.**, 7.02.**.**, 7.03.**.** and 7.04.**.** = temperature range -40 °C up to +95 °C
- Type 7.11.**.**, 7.22.**.**, 7.33.**.** and 7.44.**.** = temperature range -40 °C up to +195 °C
- Type 7.01.**.** and 7.11.**.** = diameter of head 30 mm
- Type 7.02.**.** and 7.22.**.** = diameter of head 40 mm
- Type 7.03.**.** and 7.33.**.** = diameter of head 55 mm
- Type 7.04.**.** and 7.44.**.** = diameter of head 75 mm
- Type 7.**.05.** up to 7.**.14.** = pipe diameter 05 up to 14 mm
- Type 7.**.**. xx
- xx= nominal length and number of PT 100 in plain text

Temperature sensor type nA-4.48..** and nA-4.91.**.****

- nA-4.48.**.) **) **)
- **) Tube length in mm x 10 (max. 1000 mm)
- **) Wire length in mm x 100 (max. 20000 mm)



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nA-4.91.**1) **2)
 **1) Flexible length in mm x 100 (max. 5000 mm)
 **2) Wire length in mm x 100 (max. 20000 mm)

Ratings:

4,69,,** , 4,68,**,****
 "INTRINSICALLY SAFE/À SÉCURITÉ INTRINSÈQUE"
 Class I Division 1 - 2 Gr. ABCD T4/T6
 Class II Division 1 GR EFG
 Class I Zone 0, AEx ia IIC T4/T6 Gb
 Zone 20, AEx ia IIIC T135°C Db
 Class I, Zone 2 IIA T3
 Ex ia IIC T4/T6 Gb
 Ex ia IIIC T135°C Db

Exia,,** w pt100**
 "INTRINSICALLY SAFE/À SÉCURITÉ INTRINSÈQUE"
 Class I Division 1 - 2 Gr. ABCD T4/T6
 Class II Division 1 GR EFG
 Class I Zone 0, AEx ia IIC T4/T6 Ga/Gb
 Zone 20, AEx ia IIIC T135°C Da/Db
 Ex ia IIC T4/T6 Ga/Gb
 Ex ia IIIC T135°C Da/Db
 Class I, Zone 2 IIA T3

Exia,,** w thermocouple**
 "INTRINSICALLY SAFE/À SÉCURITÉ INTRINSÈQUE"
 Class I Division 1 - 2 Gr. ABCD T4/T6
 Class II Division 1 GR EFG
 Class I Zone 0, AEx ia IIC T4/T6 Ga/Gb
 Zone 20, AEx ia IIIC T100°C Da/Db
 Ex ia IIC T4/T6 Ga/Gb
 Ex ia IIIC T100°C Da/Db
 Class I, Zone 2 IIA T3

Versions type 4,68,**,** and type 4,69,**,** for applications in areas with Gb and Mb-requirements					
IEC parameter / Equivalent division parameter		Variants with one or two Pt100 resistors 2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit		Variants with one or two thermocouples	
		Alternative 1	Alternative 2	Alternative 1	Alternative 2
Ui/ Vmax		40VDC or 40VAC	10VDC or 40VAC	40VDC or 40VAC	10VDC or 40VAC
Ii/ Imax		40mA	250mA	40mA	250mA
Pi	Group II, T4 and Group I	400 mW *		400 mW *	
	Group II, T6	90 mW *			
Ta	Group II, T4 and Group I	-40 °C...+80 °C		-40 °C...+80 °C	
	Group II, T6	-40 °C...+55 °C		-40 °C...+55 °C	
Maximum recommended measuring current In		3mA		N/A	
Ci= capacitance of the permanently connected cable		135 pF/m		135 pF/m	
Li= inductance of the permanently connected cable		0.65 µH/m		0.65 µH/m	

* Sum value in case of two Pt100 resistors or two thermocouples



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Versions type 4,68,**,** and type 4,69,**,** for applications in areas with Db-requirements					
IEC parameter / Equivalent division parameter		Variants with one or two Pt100 resistors 2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit		Variants with one or two thermocouples	
		Alternative 1	Alternative 2	Alternative 1	Alternative 2
Ui/ Vmax		40VDC or 40VAC	10VDC or 40VAC	40VDC or 40VAC	10VDC or 40VAC
Ii/ Imax		40mA	250mA	40mA	250mA
Pi		550/650/750 mW *		550/650/750 mW *	
Ta	550 mW *	-40 °C...+40 °C		-40 °C...+40 °C	
	650 mW *	-40 °C...+70 °C		-40 °C...+70 °C	
	750 mW *	-40 °C...+100 °C		-40 °C...+95 °C	
Maximum recommended measuring current In		3mA		N/A	
Ci= capacitance of the permanently connected cable		135 pF/m		135 pF/m	
Li= inductance of the permanently connected cable		0.65 µH/m		0.65 µH/m	

* Sum value in case of two Pt100 resistors or two thermocouples

Variants type Exia,**,** for applications in areas with Ga/Gb-requirements					
IEC parameter / Equivalent division parameter		Variants with one or two Pt100 resistors 2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit		Variants with one or two thermocouples	
		Alternative 1	Alternative 2	Alternative 1	Alternative 2
Ui/ Vmax		40VDC or 40VAC	10VDC or 40VAC	40VDC or 40VAC	10VDC or 40VAC
Ii/ Imax		40mA	250mA	40mA	250mA
Pi	T4	400mW *		400mW *	
	T6	90mW *			
Ta	T4	-40 °C...+80 °C		-40 °C...+80 °C	
	T6	-40 °C...+55 °C		-40 °C...+55 °C	
Maximum recommended measuring current In		3mA		N/A	
Ci		negligible		negligible	
Li		negligible		negligible	

* Sum value in case of two Pt100 resistors or two thermocouples

Versions type 4,68,**,** and type 4,69,**,** for applications in areas with Db-requirements					
IEC parameter / Equivalent division parameter		Variants with one or two Pt100 resistors 2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit		Variants with one or two thermocouples	
		Alternative 1	Alternative 2	Alternative 1	Alternative 2
Ui/ Vmax		40VDC or 40VAC	10VDC or 40VAC	40VDC or 40VAC	10VDC or 40VAC
Ii/ Imax		40mA	250mA	40mA	250mA
Pi		550/650/750 mW *		550/650/750 mW *	
Ta	550 mW *	-40 °C...+40 °C		-40 °C...+40 °C	
	650 mW *	-40 °C...+70 °C		-40 °C...+70 °C	
	750 mW *	-40 °C...+100 °C		-40 °C...+95 °C	
Maximum recommended measuring current In		3mA		N/A	
Ci		negligible		negligible	
Li		negligible		negligible	

* Sum value in case of two Pt100 resistors or two thermocouples



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Class I Zone 1, AEx db IIC T* Gb
 Zone 21, A Ex tb IIIC T* Db
 Ex db IIC T* Gb
 Ex tb IIIC T* Db
 *See tables below for temperature

Parameters
 Maximum measurement voltage up to 12 V
 Measurement current up to 3 mA
 Thermoelectric voltage at 200 °C up to 15 mV
 Power up to 120 mW

Temperature code and permissible media temperatures for Group II and Group III

Permissible media temperature (max.)	Ambient temperature range	Minimum distance for mounting	Tcode	Maximum surface temperature
80 °C	-40 °C up to + 60 °C	-	T6	T 80 °C
90 °C	-40 °C up to + 60 °C	-	T5	T 90 °C
130 °C	-40 °C up to + 60 °C	50 mm	T4	T 130 °C
195 °C	-40 °C up to + 60 °C	50 mm	T3	T 195 °C

Permissible surface temperature and media temperatures for Group I

Permissible media temperature (max.)	Ambient temperature range	Minimum distance for mounting
150 °C	-40 °C up to + 60 °C	50 mm

Type nA-4.48..** and type nA-4.91.**.****

Class I Division 2 Gr. ABCD T4
 Class II Division 2 GR FG
 Class I Zone 2, AEx nA IIC T4 Gc
 Ex nA IIC T4 Gc
 Class I, Zone 2 IIA T3

Design with one or two Pt100 Resistors
 Voltage Ui 40 V AC/DC
 Current Ii 40 mA
 Power Pi 300 mW *)
 Measuring current max. In 3 mA
 Inner capacity Ci 75 pF/m
 Inner inductivity Li 0.6 µH/m
 *) Total value for two Pt100 resistors

Design with one or two thermocouples
 Voltage Ui 40 V AC/DC
 Uo (200 °C) 15 mV
 Current Ii 40 mA
 Power Pi 900 mW *)
 Inner capacity Ci 75 pF/m
 Inner inductivity Li 0.6 µH/m
 *) Total value for two thermocouples

Thermal data
 Measuring temperature range at sensor tip: -40 °C up to +130 °C



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Ambient temperature range:
 Sensor type 4.48.**.** -40 °C ≤ Tamb ≤ +100 °C
 Sensor type 4.91.**.** -40 °C ≤ Tamb ≤ +80 °C

Applicable Standards

Standard Number	Edition	Title
CSA C22.2 No. 60079-0:19	Fourth	Explosive atmospheres — Part 0: Equipment — General requirements
CSA-C22.2 NO. 60079-1:16	Third	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
CSA-C22.2 NO. 60079-11:14	Second	Explosive atmospheres — Part 11: Equipment protection by intrinsic safety "i"
CSA-C22.2 NO. 60079-15:18	Third	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
CSA-C22.2 NO. 60079-31:15	Second	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
CSA-C22.2 NO. 61010-1-12	Third	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
UL 60079-0	Seventh	UL Standard for Safety Explosive atmospheres – Part 0: Equipment – General requirements
UL 60079-1	Seventh	UL Standard for Safety Explosive Atmospheres – Part 1: Equipment Protection by Flameproof Enclosures "d"
UL 60079-11	Sixth	UL Standard for Safety Explosive Atmospheres – Part 11: Equipment Protection by Intrinsic Safety "i"
UL 60079-15	Fourth	UL Standard for Safety Explosive atmospheres – Part 15: Equipment protection by type of protection "n"
UL 60079-31	Second	UL Standard for Safety Explosive Atmospheres – Part 31: Equipment Dust Ignition Protection by Enclosure "t"
UL 61010-1	Third	UL Standard for Safety Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements