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 TUN 21.0005X**	Page 1 of 3	Certificate history:
Status:	**Current**	Issue No: 0	
Date of Issue:	2022-07-29		
Applicant:	**Müller Industrie-Elektronik GmbH** Justus-von-Liebig-Starβe 24 31535 Neustadt am Rübenberge **Germany**		
Equipment:	**See Attachment to IECEx TUN 21.0005X issue No.0**		
Optional accessory:			
Type of Protection:	**Intrinsic Safety**		
Marking:	See Attachment to IECEx TUN 21.0005X issue No.0		

Approved for issue on behalf of the IECEx Certification Body: **Jan Ewald**

Position: **Deputy Head of the IECEx Certification Body**

Signature: (for printed version)

Date: (for printed version)

TÜV NORD

Digital unterschrieben von Ewald Jan
Datum: 2022.07.29 09:22:28 +02'00'

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 www.iecex.com or use of this QR Code.

Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1, 30519 Hannover
Germany

TÜV NORD

IECEx Certificate of Conformity

Manufacturer: **Müller Industrie-Elektronik GmbH**
Justus-von-Liebig-Starβe 24
31535 Neustadt am Rübenberge
Germany

Manufacturing locations: **Müller Industrie-Elektronik GmbH**
Justus-von-Liebig-Starβe 24
31535 Neustadt am Rübenberge
Germany

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 60079-26:2021-02 Edition:4.0	Explosive atmospheres - Part 26: Equipment with Separation Elements or combined Levels of Protection

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/TUN/ExTR21.0017/00

Quality Assessment Report:

DE/TUN/QAR14.0005/05

IECEx Certificate of Conformity

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

See Attachment to IECEx TUN 21.0005X issue No.0

SPECIFIC CONDITIONS OF USE: YES as shown below:
1. The single wires and the free cable ends have to be comply with the requirements of clause 9 of IEC 60079-14.

2. For EPL Ga/Gb applications, reverse heat flow from the process exceeding the permissible ambient temperature is not allowed and shall be avoided by suitable thermal insulation or suitable neck length of the tubing.

3. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts have to be secured effectively against these dangers.

4. For EPL Ga/Gb applications any ignition hazards caused by impact or friction has to be excluded.

5. The ambient temperature range depending on temperature class is to be taken from the operating instructions.

6. The medium tangent materials have to be resistant to the media.

7. For EPL Ga/Gb applications the whole device shall be mounted in a way that allows an installation that results in a sufficient tight joint (IP66 or IP67) or a flameproof joint (IEC 60079-1) in the direction of the less endangered area.

8. The installation in the partition wall between areas with EPL Ga/Gb requirements has to be carried out in such a way that all metal parts are conductively connected to the metallic container wall, or in the case of containers made of plastic, all insulated metal parts have to be included in the potential equalization.

9. For EPL Ga, EPL Ga/Gb and EPL Gb applications, the temperature sensor type MITS Ex, the universal transmitter type MIUT-Ex, the level sensor type MELS-FTEx, the pressure sensor type MEPS-TEx and the temperature sensor type METS-WTEx have to be installed and used in such a way that electrostatic charges due to operation, maintenance and cleaning are excluded.

Only for EPL Ga applications, the Universal transmitter type UH-ATUEx resp. the Resistor cable sensor type WT-K1GEx, resp. the Sheated cable resistance thermometer type WT-MK1GEx, resp. the Thermocouple cable sensor type TE-K1GEx, resp. the Sheated cable thermocouple type TE-MK1GEx resp. the Temperature sensor type MKTS-Ex resp. the nameplates of all variants have be installed and used in such a way that electrostatic discharges are excluded.

Annex:

Attachment to IECEx TUN 21.0005X issue No.0 Review.pdf

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

General product information:

Description:

- **Universal transmitter type ADMA-UCEx**

The universal transmitter can be designed in several variants with different electrical connections. As an output signal, either an intrinsically safe 2-wire output (4 – 20 mA) is available, or an intrinsically safe 3-wire output (0–10 V).

- **Temperature sensor type MITS-Ex**

The temperature sensor MITS-Ex can be designed in several variants with different electrical connections. The output signal is either the sensor signal directly, an intrinsically safe 2-wire output (4 – 20 mA), or an intrinsically safe 3-wire output (0–10 V).

- **Universal transmitter type MIUT-Ex**

The MIUT-Ex is an universal transmitter with which the signals of many different sensor types, such as bridge sensors, RTDs, thermocouples and others, are measured and scaled.
The universal transmitter can be designed in several variants with different electrical connections. As an output signal, either an intrinsically safe 2-wire output (4 – 20 mA) is available, or an intrinsically safe 3-wire output (0–10 V).

- **Universal transmitter type UH-ATUEx**

The UH-ATUEx is a universal transmitter for mounting in connection heads with which the signals of many different sensor types,.B such as dms, RTDs, thermocouples and others, are measured and scaled. As an output signal an intrinsically safe 2-wire output (4 – 20 mA) is available.

- **Level sensor type MELS-FTEx**

The MELS-FTEx is a level sensor and can be designed in several variants with different process and electrical connections. Either an intrinsically safe 2-wire output (4 - 20 mA) or an intrinsically safe 3-wire output (0-10 V) is available as an output signal.

- **Pressure sensor type MEPS-TEx**

The MEPS-TEx is a pressure sensor and can be designed in several variants with different process and electrical connections. As an output signal, either an intrinsically safe 2-wire output (4 – 20 mA) is available, or an intrinsically safe 3-wire output (0–10 V).

- **Temperature sensor type METS-WTEx**

The METS-WTEx is a resistance temperature sensor and can be designed in several variants with different process and electrical connections. As an output signal, either an intrinsically safe 2-wire output (4 – 20 mA) is available, or an intrinsically safe 3-wire output (0–10 V).

- **Temperature sensor type MKTS-Ex**

The MKTS-Ex is a temperature sensor and can be designed in several variants with different electrical connections, installation lengths, process connections and sensor elements. The output signal is an intrinsically safe 2-wire output (4 – 20 mA), an intrinsically safe 3-wire output (0–10 V), or the sensor signal directly (without measuring amplifier).

- **Thermocouple cable sensor type TE-K1GEx**

The TE-K1G-Ex is an intrinsically safe thermocouple cable sensor with the option of a screw in clamp. Furthermore, there are several options for the design of the protective tube and the connection cable. As an output signal, the direct sensor signal of a thermocouple of type J or K is available.

- **Sheated cable thermocouple type TE-MK1GEx**

The TE-MK1G-Ex is an intrinsically safe sheated cable thermocouple with the option of a screw-in clamp. Furthermore, there are several options for the design of the protective tube and the connection cable. As an output signal, the direct sensor signal of a thermocouple of type J or K is available.

- **Thermocouple with terminal head B type TE-MR1GEx**

The temperature sensor TE-MR1G-Ex can be designed in several variants as both a screw-in and an immersion sensor with screw-in clamp. Furthermore, there are several options for the type of the protective tube and the process connection. As an output signal, the direct sensor signal of one or two thermocouples of type K or J is available.

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

- **Resistor cable sensor type WT-K1GEx**

The WT-K1GEx is an intrinsically safe resistance cable sensor with the option of a compression fitting. Furthermore, there are several options for the design of the protective tube as well as the connection cable. The direct sensor signal of one or two Pt100 or Pt1000, in 2-, 3- or 4-wire connection, is available as output signal.

- **Sheated cable resistance thermometer type WT-MK1GEx**

The WT-MK1G-Ex is an intrinsically safe sheated cable resistance thermometer with the option of a screw in clamp. Furthermore, there are several options for the design of the protective tube and the connection cable. As an output signal, the direct sensor signal of one or two Pt100 or Pt1000 in 2-, 3- or 4-wire version is available.

- **Resistance thermometer with connection head B type WT-MR1GEx**

The WT-MR1GEx temperature sensor can be designed in several variants both as a screw-in and as an immersion sensor with screw-in clamp. Furthermore, there are several options for the execution of the protective tube and the process connection. As an output signal, the direct sensor signal of one or two Pt100 or Pt1000 in 2-, 3- or 4-wire version is available.

Type code:

Variants	Marking
• Universal transmitter type ADMA-UCEx • Universal transmitter type MIUT-Ex • Universal transmitter type UH-ATUEx	Ex ia [ia] IIC T6…T1 Ga Ex ia [ib] IIC T6…T1 Gb
• Temperature sensor type MITS-Ex	Ex ia IIC T6…T1 Ga Ex ia IIC T6…T1 Gb
• Level sensor type MELS-FTEx • Pressure sensor type MEPS-TEx • Temperature sensor type METS-WTEx • Temperature sensor type MKTS-Ex • Thermocouple cable sensor type TE-K1GEx • Sheated cable thermocouple type TE-MK1GEx • Thermocouple with terminal head B type TE-MR1GEx • Resistor cable sensor type WT-K1GEx • Sheated cable resistance thermometer type WT-MK1GEx • Resistance thermometer with connection head B type WT-MR1GEx	Ex ia IIC T6…T1 Ga Ex ia IIC T6…T1 Ga/Gb Ex ia IIC T6…T1 Gb

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

Electrical data:

<u>All variants with Transmitter applications:</u>

Supply	In type of protection intrinsic safety Ex ia IIC
(Plug)	Only for connection to certified intrinsically safe circuits.
(Terminals)	Maximum values:
	U_i = 30 V
	I_i = 110 mA
	P_i = 1 W
Effective internal capacitance C_i	Capacitance of the 330m-Cable = 66 nF
Effective internal inductance L_i	Inductance of the 330m-Cable = 330 µH

<u>ADMA-UCEx, MIUT-Ex and UH-ATUEx with Transmitter applications</u>:

Output circuit	In type of protection intrinsic safety Ex ia IIC resp.
U+, S+, S-, AGnd	Ex ib IIC with following maximum values:
(M12; 4-pin; Socket)	
(Terminals)	
	U_o = 4.1 V
	I_o = 51 mA
	P_o = 52 mW
	Characteristic line: Linear
	Effective internal capacitance C_i is negligibly small
	Effective internal inductance L_i is negligibly small

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be found in the following table:

Ex ia IIC	L_o	23 mH	10 mH	0.5 mH	0.2 mH
Ex ib IIC	C_o	1.7 µF	3 µF	6.4 µF	8.1 µF

<u>All variants with transmitter applications (UH-ATUEx excluded):</u>

Output circuit	In type of protection intrinsic safety Ex ia IIC resp.
(Voltage output only)	Ex ib IIC with following maximum values:
Uout	
(Plug)	
(Cable tail)	
(Terminals)	
	U_o = 12.6 V
	I_o = 48 mA
	P_o = 148 mW
	Characteristic line: Linear
	Effective internal capacitance C_i is negligibly small
	Effective internal inductance L_i is negligibly small

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be found in the following table:

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

Ex ia IIC	L_o	22 mH	10 mH	0.5 mH	0.2 mH
Ex ib IIC	C_o	0.22 µF	0.36 µF	0.86 µF	0.97 µF

MITS-Ex; MKTS-Ex; TE-K1GEx; TE-MK1GEx; TE-MR1G-Ex; WT-K1GEx; WT-MK1GEx and WT-MR1G-Ex without Transmitter applications:

Supply (Cable tail)	In type of protection intrinsic safety Ex ia IIC Only for connection to certified intrinsically safe circuits. Maximum values:
	U_i = 30 V I_i = 100 mA P_i = 100 mW
Effective internal capacitance C_i	Capacitance of the 330m-Cable = 66 nF
Effective internal inductance L_i	Inductance of the 330m-Cable = 330 µH

Thermal data:

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

For EPL Ga or EPL Gb applications, the permissible ambient temperature range depending on the variant and temperature class is given in the following tables:

Variant: Universal transmitter type ADMA-UCEx:

Temperature class	Ambient temperature range (With Current output (2-wire))
T1	-40 °C … +75 °C
T2	-40 °C … +75 °C
T3	-40 °C … +75 °C
T4	-40 °C … +75 °C
T5	-40 °C … +(95 °C - P_i x 45 K/W); max. +75 °C
T6	-40 °C … +(80 °C - P_i x 45 K/W); max. +75 °C

Temperature class	Ambient temperature range (With Voltage output (3-wire))
T1	-40 °C … +50 °C
T2	-40 °C … +50 °C
T3	-40 °C … +50 °C
T4	-40 °C … +50 °C
T5	-40 °C … +(95 °C - P_i x 55 K/W); max. +50 °C
T6	-40 °C … +(80 °C - P_i x 55 K/W); max. +50 °C

Variant: Temperature sensor type MITS-Ex:

Temperature class	Ambient temperature range (With Transmitter and Current output (2-wire))
T1	-20 °C … +75 °C
T2	-20 °C … +75 °C
T3	-20 °C … +75 °C
T4	-20 °C … +75 °C
T5	-20 °C … +(95 °C - P_i x 45 K/W); max +75 °C
T6	-20 °C … +(80 °C - P_i x 45 K/W); max +75 °C

Temperature class	Ambient temperature range (With Transmitter and Voltage output (3-wire))
T1	-20 °C … +50 °C
T2	-20 °C … +50 °C
T3	-20 °C … +50 °C
T4	-20 °C … +50 °C
T5	-20 °C … +(95 °C - P_i x 55 K/W); max +50 °C
T6	-20 °C … +(80 °C - P_i x 55 K/W); max +50 °C

Temperature class	Ambient temperature range (Without Transmitter)
T1	-20 °C … +90 °C
T2	-20 °C … +90 °C
T3	-20 °C … +90 °C
T4	-20 °C … +90 °C
T5	-20 °C … +(95 °C - P_i x 200 K/W); max +90 °C
T6	-20 °C … +(80 °C - P_i x 200 K/W); max +80 °C

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

Variant: Universal transmitter type MIUT-Ex:

Temperature class	Ambient temperature range (With Transmitter and Current output (2-wire))
T1	-20 °C … +75°C
T2	-20 °C … +75°C
T3	-20 °C … +75°C
T4	-20 °C … +75°C
T5	-20 °C … +(95 °C – P_i x 45 K/W); max. +75 °C
T6	-20 °C … +(80 °C – P_i x 45 K/W); max. +75 °C

Temperature class	Ambient temperature range (With Transmitter and Voltage output (3-wire))
T1	-20 °C … +50°C
T2	-20 °C … +50°C
T3	-20 °C … +50°C
T4	-20 °C … +50°C
T5	-20 °C … +(95 °C – P_i x 55 K/W); max. +50 °C
T6	-20 °C … +(80 °C – P_i x 55 K/W); max. +50 °C

Variant: Universal transmitter type UH-ATUEx (No 3-wire voltage output available):

Temperature class	Ambient temperature range (With Transmitter and Current output (2-wire))
T1	-20 °C … +75°C
T2	-20 °C … +75°C
T3	-20 °C … +75°C
T4	-20 °C … +75°C
T5	-20 °C … +(95 °C – P_i x 45 K/W); max. +75 °C
T6	-20 °C … +(80 °C – P_i x 45 K/W); max. +75 °C

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

For EPL Ga or EPL Ga/Gb or EPL Gb with transmitter applications, the permissible temperature range at the electronics/at the measuring sensor depends on the variant and the temperature class of the following tables:

Variant: Level sensor type MELS-FTEx:

Temperature class	Ambient temperature range (With Transmitter and Current output (2-wire))	Medium temperature range (Reed switch)
T1	-20 °C … +75 °C	0 °C … +100 °C
T2	-20 °C … +75 °C	0 °C … +100 °C
T3	-20 °C … +75 °C	0 °C … +100 °C
T4	-20 °C … +75 °C	0 °C … +100 °C
T5	-20 °C … +(95 °C - P_i x 45 K/W); max. +75 °C	0 °C … +85 °C
T6	-20 °C … +(80 °C - P_i x 45 K/W); max. +75 °C	0 °C … +70 °C

Temperature class	Ambient temperature range (With Transmitter and Voltage output (3-wire))	Medium temperature range (Reed switch)
T1	-20 °C … +50 °C	0 °C … +100 °C
T2	-20 °C … +50 °C	0 °C … +100 °C
T3	-20 °C … +50 °C	0 °C … +100 °C
T4	-20 °C … +50 °C	0 °C … +100 °C
T5	-20 °C … +(95 °C - P_i x 55 K/W); max. +50 °C	0 °C … +85 °C
T6	-20 °C … +(80 °C - P_i x 55 K/W); max. +50 °C	0 °C … +70 °C

Variant: Pressure sensor type MEPS-TEx:

Temperature class	Ambient temperature range (With Transmitter and Current output (2-wire))	Medium temperature range (Tip of pressure sensor)
T1	-20 °C … +75 °C	0 °C … +100 °C
T2	-20 °C … +75 °C	0 °C … +100 °C
T3	-20 °C … +75 °C	0 °C … +100 °C
T4	-20 °C … +75 °C	0 °C … +100 °C
T5	-20 °C … +(95 °C - P_i x 45 K/W); max. +75 °C	0 °C … +85 °C
T6	-20 °C … +(80 °C - P_i x 45 K/W); max. +75 °C	0 °C … +70 °C

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

Temperature class	Ambient temperature range (With Transmitter and Voltage output (3-wire))	Medium temperature range (Reed switch)
T1	-20 °C … +50 °C	0 °C … +100 °C
T2	-20 °C … +50 °C	0 °C … +100 °C
T3	-20 °C … +50 °C	0 °C … +100 °C
T4	-20 °C … +50 °C	0 °C … +100 °C
T5	-20 °C … +(95 °C - P_i x 55 K/W), max. +50 °C	0 °C … +85 °C
T6	-20 °C … +(80 °C - P_i x 55 K/W), max. +50 °C	0 °C … +70 °C

Variant: Temperature sensor type METS-WTEx:

Temperature class	Ambient temperature range (With Transmitter and Current output (2-wire))	Medium temperature range (Measuring sensor)
T1	-20 °C … +75 °C	-50 °C … +425 °C
T2	-20 °C … +75 °C	-50 °C … +275 °C
T3	-20 °C … +75 °C	-50 °C … +180 °C
T4	-20 °C … +75 °C	-50 °C … +115 °C
T5	-20 °C … +(95 °C - P_i x 45 K/W); max. +75 °C	-50 °C … +80 °C
T6	-20 °C … +(80 °C - P_i x 45 K/W); max. +75 °C	-50 °C … +65 °C

Temperature class	Ambient temperature range (With Transmitter and Voltage output (3-wire))	Medium temperature range (Measuring sensor)
T1	-20 °C … +50 °C	-50 °C … +425 °C
T2	-20 °C … +50 °C	-50 °C … +275 °C
T3	-20 °C … +50 °C	-50 °C … +180 °C
T4	-20 °C … +50 °C	-50 °C … +115 °C
T5	-20 °C … +(95 °C - P_i x 55 K/W); max. +50 °C	-50 °C … +80 °C
T6	-20 °C … +(80 °C - P_i x 55 K/W); max. +50 °C	-50 °C … +65 °C

Variant: Temperature sensor type MKTS-Ex:

Temperature class	Ambient temperature range (With Transmitter and Current output (2-wire))	Medium temperature range (With Transmitter)
T1	-40 °C … +75 °C	-50 °C … +425 °C
T2	-40 °C … +75 °C	-50 °C … +275 °C
T3	-40 °C … +75 °C	-50 °C … +180 °C
T4	-40 °C … +75 °C	-50 °C … +115 °C
T5	-40 °C … +(95 °C - P_i x 45 K/W); max. +75 °C	-50 °C … +80 °C
T6	-40 °C … +(80 °C - P_i x 45 K/W); max. +75 °C	-50 °C … +65 °C

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

Temperature class	Ambient temperature range (With Transmitter and Voltage output (3-wire))	Medium temperature range (Measuring sensor)
T1	-40 °C … +50 °C	-50 °C … +425 °C
T2	-40 °C … +50 °C	-50 °C … +275 °C
T3	-40 °C … +50 °C	-50 °C … +180 °C
T4	-40 °C … +50 °C	-50 °C … +115 °C
T5	-40 °C … +(95 °C - P_i x 55 K/W); max. +50 °C	-50 °C … +80 °C
T6	-40 °C … +(80 °C - P_i x 55 K/W); max. +50 °C	-50 °C … +65 °C

Temperature class	Ambient temperature range (Without Transmitter)	Medium temperature range (Without Transmitter)
T1	-50 °C … +100 °C	-50 °C … +(440 °C - P_i x 200 K/W)
T2	-50 °C … +100 °C	-50 °C … +(290 °C - P_i x 200 K/W)
T3	-50 °C … +100 °C	-50 °C … +(195 °C - P_i x 200 K/W)
T4	-50 °C … +100 °C	-50 °C … +(130 °C - P_i x 200 K/W)
T5	-50 °C … +95 °C	-50°C … +(95 °C - P_i x 200 K/W)
T6	-50 °C … +80 °C	-50 °C … +(80 °C - P_i x 200 K/W)

For EPL Ga or EPL Ga/Gb or EPL Gb without transmitter applications, the permissible temperature range at the connection cable or at the connection head B/at the measuring sensor can be taken from the following tables depending on the variant and the temperature class:

Variant: Thermocouple cable sensor type TE-K1GEx:

Temperature class	Ambient temperature range (Connection cable)			
	Clamp fitting			
	GVxxxxx0xxx	GVxxxxx1xxx	GVxxxxx2xxx GVxxxxx3xxx	GVxxxxx4xxx
T1	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +250 °C	-60 °C … +440 °C
T2	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +250 °C	-60 °C … +290 °C
T3	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +195 °C	-60 °C … +195 °C
T4	-5 °C…+70 °C	-45 °C…+130 °C	-75 °C … +130 °C	-60 °C … +130 °C
T5	-5 °C…+70 °C	-45 °C…+95 °C	-75 °C … +95 °C	-60 °C … +95 °C
T6	-5 °C…+70 °C	-45 °C…+80 °C	-75 °C … +80 °C	-60 °C … +80 °C

Note: The ambient temperature range depends on the cable type:
PVC: -5...+70°C / Silicone: -45...+180 °C / PTFE: -75...+250 °C / Glass silk/VA braid: -60...+550 °C

Temperature class	Medium temperature range (Measuring sensor)
T1	-200 °C … +(440 °C - P_i x 200 K/W)
T2	-200 °C … +(290 °C - P_i x 200 K/W
T3	-200 °C … +(195 °C - P_i x 200 K/W)
T4	-200 °C … +(130 °C - P_i x 200 K/W)
T5	-200 °C … +(95 °C - P_i x 200 K/W)
T6	-200 °C … +(80 °C - P_i x 200 K/W)

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

Variant: Sheated cable thermocouple type TE-MK1GEx:

Temperature class	Ambient temperature range (Connection cable)			
	Clamp fitting			
	GTxxxxx0xxx	GTxxxxx1xxx	GTxxxxx2xxx GTxxxxx3xxx	GTxxxxx4xxx
T1	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +250 °C	-60 °C … +440 °C
T2	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +250 °C	-60 °C … +290 °C
T3	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +195 °C	-60 °C … +195 °C
T4	-5 °C…+70 °C	-45 °C…+130 °C	-75 °C … +130 °C	-60 °C … +130 °C
T5	-5 °C…+70 °C	-45 °C…+95 °C	-75 °C … +95 °C	-60 °C … +95 °C
T6	-5 °C…+70 °C	-45 °C…+80 °C	-75 °C … +80 °C	-60 °C … +80 °C

Note: The ambient temperature range depends on the cable type:
PVC: -5...+70°C / Silicone: -45...+180 °C / PTFE: -75...+250 °C / Glass silk/VA braid: -60...+550 °C

Temperature class	Medium temperature range (Measuring sensor)
T1	-200 °C … +(440 °C - P_i x 200 K/W)
T2	-200 °C … +(290 °C - P_i x 200 K/W
T3	-200 °C … +(195 °C - P_i x 200 K/W)
T4	-200 °C … +(130 °C - P_i x 200 K/W)
T5	-200 °C … +(95 °C - P_i x 200 K/W)
T6	-200 °C … +(80 °C - P_i x 200 K/W)

Variant: Thermocouple with terminal head B type TE-MR1G-Ex:

Temperature class	Ambient temperature range (Connection head B)	Medium temperature range (Measuring sensor)
T1	-40 °C … +100°C	-200 °C … +(440 °C - P_i x 200 K/W)
T2	-40 °C … +100°C	-200 °C … +(290 °C - P_i x 200 K/W
T3	-40 °C … +100°C	-200 °C … +(195 °C - P_i x 200 K/W)
T4	-40 °C … +100°C	-200 °C … +(130 °C - P_i x 200 K/W)
T5	-40 °C … +95 °C	-200 °C … +(95 °C - P_i x 200 K/W)
T6	-40 °C … +80 °C	-200 °C … +(80 °C - P_i x 200 K/W)

For EPL Ga or EPL Ga/Gb or EPL Gb without transmitter applications, the following temperature classifications and ambient temperature ranges apply:

Variant: Resistor cable sensor type WT-K1GEx:

Temperature class	Ambient temperature range (Connection cable)			
	Clamp fitting			
	GXxxxxxxx0xxx	GXxxxxxxx1xxx	GXxxxxxxx2xxx GXxxxxxxx3xxx	GXxxxxxxx4xxx
T1	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +250 °C	-60 °C … +440 °C
T2	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +250 °C	-60 °C … +290 °C
T3	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +195 °C	-60 °C … +195 °C
T4	-5 °C…+70 °C	-45 °C…+130 °C	-75 °C … +130 °C	-60 °C … +130 °C
T5	-5 °C…+70 °C	-45 °C…+95 °C	-75 °C … +95 °C	-60 °C … +95 °C
T6	-5 °C…+70 °C	-45 °C…+80 °C	-75 °C … +80 °C	-60 °C … +80 °C

Note: The ambient temperature range depends on the cable type:
PVC: -5...+70°C / Silicone: -45...+180 °C / PTFE: -75...+250 °C / Glass silk/VA braid: -60...+550 °C

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

Temperature class	Medium temperature range (Measuring sensor)
T1	-200 °C … +(440 °C - P_i x 200 K/W)
T2	-200 °C … +(290 °C - P_i x 200 K/W
T3	-200 °C … +(195 °C - P_i x 200 K/W)
T4	-200 °C … +(130 °C - P_i x 200 K/W)
T5	-200 °C … +(95 °C - P_i x 200 K/W)
T6	-200 °C … +(80 °C - P_i x 200 K/W)

Variant: Sheated cable resistance thermometer type WT-MK1GEx:

Temperature class	Ambient temperature range (Connection cable)			
	Clamp fitting			
	GUxxxxxxx0xxx	GUxxxxxxx1xxx	GUxxxxxxx2xxx GUxxxxxxx3xxx	GUxxxxxxx4xxx
T1	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +250 °C	-60 °C … +440 °C
T2	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +250 °C	-60 °C … +290 °C
T3	-5 °C…+70 °C	-45 °C…+180 °C	-75 °C … +195 °C	-60 °C … +195 °C
T4	-5 °C…+70 °C	-45 °C…+130 °C	-75 °C … +130 °C	-60 °C … +130 °C
T5	-5 °C…+70 °C	-45 °C…+95 °C	-75 °C … +95 °C	-60 °C … +95 °C
T6	-5 °C…+70 °C	-45 °C…+80 °C	-75 °C … +80 °C	-60 °C … +80 °C

Note: The ambient temperature range depends on the cable type:
PVC: -5...+70°C / Silicone: -45...+180 °C / PTFE: -75...+250 °C / Glass silk/VA braid: -60...+550 °C

Temperature class	Medium temperature range (Measuring sensor)
T1	-200 °C … +(440 °C - P_i x 200 K/W)
T2	-200 °C … +(290 °C - P_i x 200 K/W
T3	-200 °C … +(195 °C - P_i x 200 K/W)
T4	-200 °C … +(130 °C - P_i x 200 K/W)
T5	-200 °C … +(95 °C - P_i x 200 K/W)
T6	-200 °C … +(80 °C - P_i x 200 K/W)

Variant: Resistance thermometer with connection head B type WT-MR1G-Ex:

Temperature class	Ambient temperature range (Connection head B)	Medium temperature range (Measuring sensor)
T1	-40 °C … +100 °C	-200 °C … +(440 °C - P_i x 200 K/W)
T2	-40 °C … +100 °C	-200 °C … +(290 °C - P_i x 200 K/W
T3	-40 °C … +100 °C	-200 °C … +(195 °C - P_i x 200 K/W)
T4	-40 °C … +100 °C	-200 °C … +(130 °C - P_i x 200 K/W)
T5	-40 °C … +95 °C	-200 °C … +(95 °C - P_i x 200 K/W)
T6	-40 °C … +80 °C	-200 °C … +(80 °C - P_i x 200 K/W)

TÜV NORD CERT GmbH
Hannover Office
Am TÜV 1
30519 Hannover
Germany

Specific Conditions of Use:

1. The single wires and the free cable ends have to be comply with the requirements of clause 9 of IEC 60079-14.

2. For EPL Ga/Gb applications, reverse heat flow from the process exceeding the permissible ambient temperature is not allowed and shall be avoided by suitable thermal insulation or suitable neck length of the tubing.

3. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts have to be secured effectively against these dangers.

4. For EPL Ga/Gb applications any ignition hazards caused by impact or friction has to be excluded.

5. The ambient temperature range depending on temperature class is to be taken from the operating instructions.

6. The medium tangent materials have to be resistant to the media.

7. For EPL Ga/Gb applications the whole device shall be mounted in a way that allows an installation that results in a sufficient tight joint (IP66 or IP67) or a flameproof joint (IEC 60079-1) in the direction of the less endangered area.

8. The installation in the partition wall between areas with EPL Ga/Gb requirements has to be carried out in such a way that all metal parts are conductively connected to the metallic container wall, or in the case of containers made of plastic, all insulated metal parts have to be included in the potential equalization.

9. For EPL Ga, EPL Ga/Gb and EPL Gb applications, the temperature sensor type MITS Ex, the universal transmitter type MIUT-Ex, the level sensor type MELS-FTEx, the pressure sensor type MEPS-TEx and the temperature sensor type METS-WTEx have to be installed and used in such a way that electrostatic charges due to operation, maintenance and cleaning are excluded.
   Only for EPL Ga applications, the Universal transmitter type UH-ATUEx resp. the Resistor cable sensor type WT-K1GEx, resp. the Sheated cable resistance thermometer type WT-MK1GEx, resp. the Thermocouple cable sensor type TE-K1GEx, resp. the Sheated cable thermocouple type TE-MK1GEx resp. the Temperature sensor type MKTS-Ex resp. the nameplates of all variants have be installed and used in such a way that electrostatic discharges are excluded.