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 KEM 06.0036X**

Page 1 of 6

Issue No: 7

Certificate history:
Issue 6 (2022-02-07)
Issue 5 (2021-06-15)
Issue 4 (2016-04-08)
Issue 3 (2013-05-24)
Issue 2 (2010-12-31)
Issue 1 (2008-12-18)
Issue 0 (2006-12-18)

Status: **Current**

Date of Issue: 2023-06-08

Applicant: **Hans Turck GmbH & Co. KG**
Witzlebenstraße 7
45472 Mülheim an der Ruhr
Germany

Equipment: **Two Wire Proximity Sensors Types ...-....-.Y1.-...../....**

Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking: Ex ia IIC T4 ... T6 Ga or
Ex ia IIC T4 ... T6 Gb and/or
Ex ia IIIC T95 °C or T115 °C Db or
Ex ia IIIC T_{200} 135 °C Da

Approved for issue on behalf of the IECEx Certification Body: **R. Schuller**

Position: **Certification Manager**

Signature: (for printed version)

Date: (for printed version) 2023-06-08

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:

DEKRA Certification B.V.
Meander 1051
6825 MJ Arnhem
Netherlands

IECEx Certificate of Conformity

Manufacturer: **Hans Turck GmbH & Co KG**
Witzlebenstraße 7, 45472 Mülheim an der Ruhr
Germany

Manufacturing locations:

TURCK Beierfeld GmbH
Am Bockwald 2
08344 Grünhain-Beierfeld
Germany

Turck Automation Technology Sp. Z.o.o
Erazma Plewinskiego 18
20-277 Lublin
Poland

Interprox SA
Rue du Stand 63
Delémont 2800
Switzerland

See following pages for more 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 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

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:

NL/KEM/ExTR06.0032/06

Quality Assessment Report:

DE/PTB/QAR06.0013/10

IECEx Certificate of Conformity

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

Two Wire Proximity Sensors Type ...-….-.Y1.-….. / …. are used for initiation of signalling or switching functions on a preset distance value being reached.

The model code of the range of Two Wire Proximity Sensors Type ...-….-.Y1.-….. / …. is characterised as shown in table 1 of annex 1.

The range of Two Wire Proximity Sensors Type ...-….-.Y1.-….. / …. consists of various constructional variants classified into ten Type Groups.

The identification of the applicable Type Group is related to the Constructional Variant and can be determined from table 15.1 of annex 1.

Only the Constructional Variants shown in table 15.2 of annex 1 are of Equipment Protection Level (EPL) Ga.

The temperature class of the different Sensor models, depending on ambient temperature, Ii and Pi, can be determined from tables 15.4, 15.6, 15.8, 15.10 and 15.12 (see annex 1), using table 15.1 in annex 1 for the type group designation.

SPECIFIC CONDITIONS OF USE: YES as shown below:
Ambient temperature range -25 °C … +70 °C for all models, with the exceptions shown in table 15.3 of annex 1.

For use in an area requiring equipment with EPL Ga:
If part of the enclosure is made of plastic and the projected surface area is greater than 4 cm² for apparatus of group IIC, 25 cm² for apparatus of group IIB or 50 cm² for apparatus of group IIA, the sensor is accompanied with a warning to avoid static charging. In this case, precautions have to be taken that the risk of electrostatic charging of the enclosure is excluded.

For use in an area requiring equipment with EPL Gb, for group IIC:
If part of the enclosure is made of plastic and the projected surface area is greater than 20 cm², the sensor is accompanied with a warning to avoid static charging. In this case precautions have to be taken that the risk of electrostatic charging of the enclosure is excluded.

The Two Wire Proximity Sensors used in a potentially explosive atmospheres caused by the presence of combustible dust, must be mounted in such a way that they are protected against impact.

IECEx Certificate of Conformity

Equipment (continued):

For potentially explosive atmospheres caused by the presence of combustible dust with ambient temperatures up to 70 °C, for EPL Db the maximum surface temperature for the Two Wire Proximity Sensors in Type Groups AX and GX is 115 °C and for all other Two Wire Proximity Sensors is 95 °C, for EPL Da the maximum surface temperature for all sensor Type groups is 135 °C.

Electrical data
See annex 1.

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Additional manufacturing location.

IECEx Certificate of Conformity

Additional manufacturing locations:

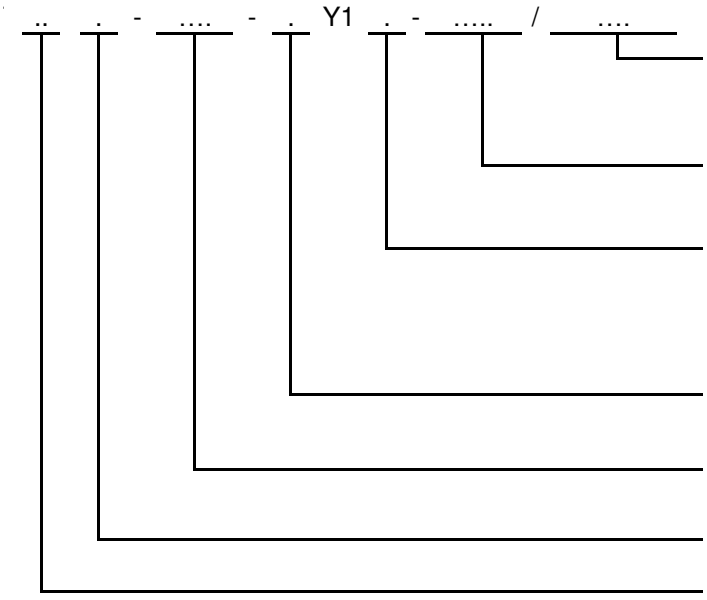
Werner Turck GmbH & Co. KG
Goethestraße 7
58553 Halver
Germany

Turck (Tianjin) Technology Co. Ltd.
No.23 Hongyuan Road, Xiqing District
Tianjin, 300381
China

Annex:

226336400-Annex to IECEx KEM 06.0036X Issue 6.pdf

Annex 1 to Certificate of Conformity IECEx KEM 06.0036X
Annex 1 to IECEx Test report NL/KEM/ExTR06.0032/06
Annex 1 to KEMA 02ATEX1090 X, issue 8



Identification of special variant, listed in table 15.3 where relevant for the type of protection (optional)

Type of connector.
Blank for integral cable

LED Indicator or PT present:
Blank = None installed
X = LED installed
PT = Temperature measurement installed (for Bi.-ISM-.Y1PT-...../.... only)

Number of NAMUR proximity switches installed (optional)

Constructional Variant (Prefix: E – Stainless steel, only for Variant G, M or H, e.g. EG08)

Switching distance in mm

Principle of functioning:
Bi = inductive, for flush mounting
BC = capacitive, for flush mounting
Ni = inductive, for non flush mounting
NC = capacitive, for non flush mounting
BIM = magnetically operated
Si = inductive, slot style

Table 1 Model code breakdown.

Annex 1 to Certificate of Conformity IECEx KEM 06.0036X
Annex 1 to IECEx Test report NL/KEM/ExTR06.0032/06
Annex 1 to KEMA 02ATEX1090 X, issue 8

Constructional Variant	Type Group	Constructional Variant	Type Group	Constructional Variant	Type Group	Constructional Variant	Type Group
AKT	A	.G182	A	K11…Y1X..	AX	PST	M
BKT	S	.G19…Y1…	A	K12	A	Q06	M
BKT31A	S	.G19…Y1X..	AX	K14	A	Q08	M
BRY	GD	.G20…Y1…	A	K20…Y1…	A	Q10	A
CA25	G	.G20…Y1X..	AX	K20…Y1X..	AX	Q10S	A
CA40	G	.G28	A	K30	A	Q11	M
CK40	G	.G30…Y1…	A	K33	G	Q11S	A
CP40	G	.G30…Y1X..	AX	K34	G	Q12	A
CP80	G	.G47	G	K40	G	Q14	A
DS13,5	AD	.GS880	M	K90…Y1…	G	Q20	A
DS20	AD	.H04	K	K90…Y1X..	GX	Q25	G
DSC26	MD	.H08	M	.M12…Y1…	A	Q30	G
DSU26	AD	.H12	A	.M12…Y1X..	AX	Q42	G
DSU35	AD	.H6,5	K	M12EE	A	Q5.5	K
FMG	K	H14	A	.M18…Y1…	A	Q6.5	K
FST	M	H6,5-2	K	.M18…Y1X..	AX	Q80	G
.G05	K	HLM	M	.M30…Y1…	A	QF5,5	K
.G08	M	.HS540	K	.M30…Y1X..	AX	QN26	G
.G10	M	.HS865	M	.MP …Y1…	G	QST	M
.G12…Y1…	A	IKE	A	.MP …Y1X..	GX	S12…Y1…	A
.G12…Y1X..	AX	IKT	A	NST	M	S12…Y1X..	AX
.G13	A	INT	K	P12…Y1…	A	S18…Y1…	A
.G14…Y1…	A	ISM	A	P12…Y1X..	AX	S18…Y1X..	AX
.G14…Y1X..	AX	K08...Y1...	S	P18…Y1…	A	S30…Y1…	A
.G18…Y1…	A	K08…Y1X..	SX	P18…Y1X..	AX	S30…Y1X..	AX
.G18…Y1X..	AX	K09	S	P30…Y1…	A	T12	A
.G180	A	K10	S	P30…Y1X..	AX	UNT	K
.G181	A	K11…Y1…	A	PSM	M		

Table 15.1 Relation between Constructional Variant and Type Group.

Constructional Variant	Constructional Variant	Constructional Variant	Constructional Variant
DS20	.G30…Y1…	K08	.M18…Y1X..
G05	.G30…Y1X..	K08...Y1...	.M30…Y1…
G08	H14	K08...Y1X..	.M30…Y1X..
.G12…Y1…	.H6,5	K14	Q10S
.G12…Y1X..	H6,5-2	.M12…Y1…	QF5,5
.G18…Y1…	INT	.M12…Y1X..	
.G18…Y1X..	ISM	.M18…Y1…	

Table 15.2 Relation between Constructional Variant and Zone 0.

Zone	Model code	Ambient temperature range
0 and 1	...-….-.Y1.-….. / S80	-25 °C to +80 °C
1	...-….-.Y1.-….. / S85	-25 °C to +85 °C
0 and 1	...-….-.Y1.-….. / S97	-40 °C to +70 °C
1	...-….-.Y1.-….. / S100	-25 °C to +100 °C
0 and 1	...-….-.Y1.-….. / S1280	-55 °C to +70 °C

Table 15.3 Exceptions in ambient temperature range.

Annex 1 to Certificate of Conformity IECEx KEM 06.0036X
Annex 1 to IECEx Test report NL/KEM/ExTR06.0032/06
Annex 1 to KEMA 02ATEX1090 X, issue 8

Electrical data

For models BC.-….-.Y1.-….. / …. and NC.-….-.Y1.-….. / …. the effective internal inductance L_i as listed in tables 15.5, 15.7, 15.9, 15.11 and 15.13 below does not apply. Instead L_i is negligibly small for these models.

For Dual Sensors, which are in Type Groups AD, GD and MD, the listed electrical data apply per sensor circuit.
For Sensor Models Bi.-ISM-.Y1PT-…../…. the listed values of U_i and I_i apply per sensor circuit and the listed value of P_i applies as a maximum value for both circuits combined.

Type Groups A, AD, G and GD, :
Supply and output signal :
In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.4.

Maximum ambient temperature	Zone	Temperature class	U_i (Vdc)	I_i (mA) (resistively limited)	P_i (mW)
+100 °C	1	T4	20	60	200
+85 °C	1	T5	20	60	200
+80 °C	0 and 1	T5	20	60	200
+70 °C	0 and 1	T6	20	60	200
+70 °C	20 and 21	-	20	60	200

Table 15.4 Temperature class and circuit parameters for Type Groups A, AD, G and GD.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.5.

Type Group	C_i (nF)	L_i (µH)
A, AD	150	150
G, GD	250	350

Table 15.5 Effective C_i and L_i.

Type Groups M, MD and S :
Supply and output signal:
In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.6.

Maximum ambient temperature	Zone	Temperature class	U_i (Vdc)	I_i (mA) (resistively limited)	P_i (mW)
+100 °C	1	T4	20	60	200
+80 °C	0 and 1	T4	20	60	200
+85 °C	1	T5	20	60	130
+80 °C	0 and 1	T5	20	60	130
+70 °C	0 and 1	T6	20	60	130
+70 °C	20 and 21	-	20	60	130

Table 15.6 Temperature class and circuit parameters for Type Groups M, MD and S.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.7.

Type Group	C_i (nF)	L_i (µH)
M, MD	150	150
S	250	350

Table 15.7 Effective C_i and L_i.

Type Group K Typ-Gruppe K:
Supply and output signal :
In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.8.

Maximum ambient temperature	Zone	Temperature class	U_i (Vdc)	I_i (mA) (resistively limited)	P_i (mW)
+100 °C	1	T4	20	60	200
+80 °C	0 and 1	T4	20	60	200
+85 °C	1	T5	20	60	80
+80 °C	0 and 1	T5	20	60	80
+70 °C	0 and 1	T5	20	60	200
+70 °C	0 and 1	T6	20	60	80
+70 °C	20 and 21	-	20	60	80
+60 °C	0 and 1	T6	20	60	150
+60 °C	20 and 21	-	20	60	150

Table 15.8 Temperature class and circuit parameters for Type Group K.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.9.

Type Group	C_i (nF)	L_i (µH)
K	150	150

Table 15.9 Effective C_i and L_i.

Annex 1 to Certificate of Conformity IECEx KEM 06.0036X
Annex 1 to IECEx Test report NL/KEM/ExTR06.0032/06
Annex 1 to KEMA 02ATEX1090 X, issue 8

Type Groups AX and GX :
Supply and output signal :
In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.10.

Maximum ambient temperature	Zone	Temperature class	U_i (Vdc)	I_i (mA) (resistively limited)	P_i (mW)
+100 °C	1	T4	20	50	200
+80 °C	0 and 1	T4	20	50	200
+70 °C	0 and 1	T4	20	60	200
+85 °C	1	T5	20	20	200
+80 °C	0 and 1	T5	20	20	200
+70 °C	0 and 1	T5	20	40	200
+70 °C	0 and 1	T6	20	20	200
+70 °C	20 and 21	-	20	60	200

Table 15.10 Temperature class and circuit parameters for Type Groups AX and GX.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.11.

Type Group Typ-Gruppe	C_i (nF)	L_i (µH)
AX	150	150
GX	250	350

Table 15.11 Effective C_i and L_i.

Type Group SX :
Supply and output signal :
In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.12.

Maximum ambient temperature	Zone	Temperature class	U_i (Vdc)	I_i (mA) (resistively limited)	P_i (mW)
+100 °C	1	T4	20	50	200
+80 °C	0 and 1	T4	20	50	200
+85 °C	1	T5	20	20	130
+80 °C	0 and 1	T5	20	20	130
+70 °C	0 and 1	T6	20	20	130
+70 °C	20 and 21	-	20	60	130

Table 15.12 Temperature class and circuit parameters for Type Group SX.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.13.

Type Group	C_i (nF)	L_i (µH)
SX	250	350

Table 15.13 Effective C_i and L_i.