



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

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|----------------------------------------------|------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Certificate No.: | IECEX KEM 06.0036X | Issue No: 4 | Certificate history: Issue No. 4 (2016-04-08) Issue No. 3 (2013-05-24) Issue No. 2 (2010-12-31) Issue No. 1 (2008-12-18) Issue No. 0 (2006-12-18) |
| Status: | Current | Page 1 of 5 | |
| Date of Issue: | 2016-04-08 | | |
| Applicant: | Hans Turck GmbH & Co. KG Witzlebenstraße 7 45472 Mülheim an der Ruhr Germany | | |
| Electrical Apparatus: Optional accessory: | Two Wire Proximity Sensors TypesY1...../..... | | |
| Type of Protection: | Intrinsic Safety | | |
| Marking: | Ex ia IIC T4 ... T6 Ga or Ex ia IIC T4 ... T6 Gb or Ex ia IIIC T95°C or T115 °C Da | | |

Approved for issue on behalf of the IECEx
Certification Body:

R. Schuller

Position:

Certification Manager

Signature:
(for printed version)



Date:

2016-04-08

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Certificate issued by:

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





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

Additional Manufacturing
location(s):

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 electrical apparatus 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 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0
IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate does not indicate compliance with electrical 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/ExTR06.0032/00 NL/KEM/ExTR06.0032/01 NL/KEM/ExTR06.0032/02
NL/KEM/ExTR06.0032/03 NL/KEM/ExTR06.0032/04

Quality Assessment Report:

DE/PTB/QAR06.0012/03



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Two Wire Proximity Sensors TypeY1-..... / 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 TypeY1-..... / is characterised as shown in table 1 of annex 1.

The range of Two Wire Proximity Sensors TypeY1-..... / 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.

CONDITIONS OF CERTIFICATION: 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.



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EQUIPMENT (continued):

For application in explosive dust atmospheres, the maximum surface temperature T of the Two-Wire Proximity Sensors in Type Groups AX and GX is 115 °C and for all other Two Wire Proximity Sensors T is 95 °C at a maximum ambient temperature of 70 °C.

Electrical data

See annex 1.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

- Decrease of minimum ambient temperature to -55 °C for types ...-Y1- /S1280.
- Add conditions of certification.
- IEC 60079-26 removed

Annex:

[217680000-Annex to IECEx KEM 06.0036X Issue 4.pdf](#)

Annex 1 to Certificate of Conformity IECEX KEM 06.0036X, issue 4
 Annex 1 to IECEX Test report NL/KEM/ExTR06.0032/04
 Annex 1 to KEMA 02ATEX1090 X, issue 7

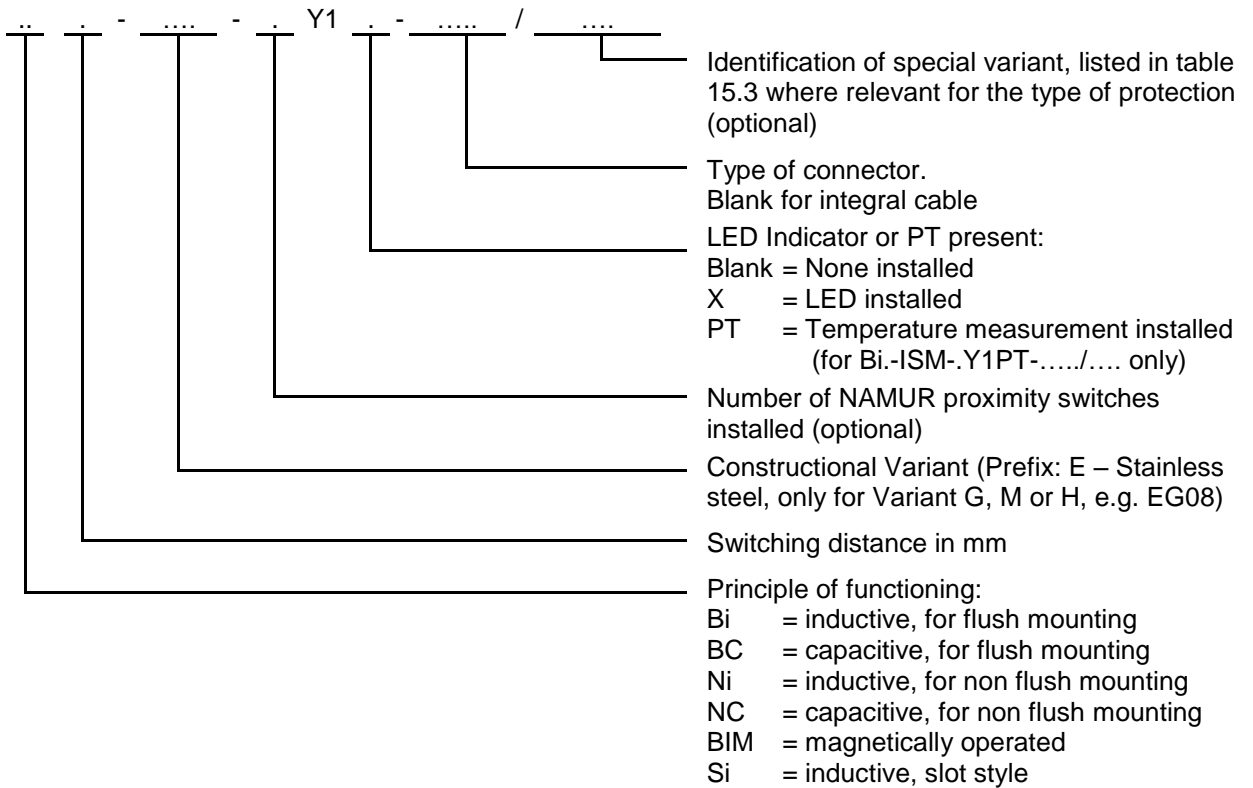


Table 1 Model code breakdown.

**Annex 1 to Certificate of Conformity IECEX KEM 06.0036X, issue 3 and
IECEX Test report NL/KEM/ExTR06.0032/03**

| 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.

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 | - | 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 .

Annex 1 to Certificate of Conformity IECEx KEM 06.0036X, issue 3 and IECEx Test report NL/KEM/ExTR06.0032/03

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 | - | 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 | 250 | - | 20 | 60 | 80 |
| +60 °C | 0 and 1 | T6 | 20 | 60 | 150 |
| +60 °C | 20 | - | 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, issue 3 and IECEx Test report NL/KEM/ExTR06.0032/03

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 | - | 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 | - | 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 .