(1) # EC-TYPE EXAMINATION CERTIFICATE

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC**

(3) EC-Type Examination Certificate Number: **KEMA 02ATEX1090 X** Issue Number: **4**

(4) Equipment: **Two Wire Proximity Sensors Type ...-....-.Y1.-..... / ....**

(5) Manufacturer: **Hans Turck GmbH & Co. KG**

(6) Address: **Witzlebenstrasse 7, 45466 Mülheim an der Ruhr, Germany**

(7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.

The examination and test results are recorded in confidential test report number 212040300.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0 : 2006 **EN 60079-11 : 2007** **EN 60079-26 : 2004**
EN 61241-0 : 2006 **EN 61421-11 : 2006**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

II 1 G Ex ia IIC T4 ... T6 or
II 2 G Ex ia IIC T4 ... T6 or
II 1 D Ex iaD 20 IP67 T 95 °C or **T 115 °C**

This certificate is issued on December 18, 2008 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B.V.

C.G. van Es
Certification Manager

Page 1/2

KEMA Quality B.V. Utrechtseweg 310, 6812 AR Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands
T +31 26 3 56 20 00 F +31 26 3 52 58 00 customer@kema.com www.kema.com Registered Arnhem 09085396

(13) # SCHEDULE

(14) **to EC-Type Examination Certificate KEMA 02ATEX1090 X** Issue No. **4**

(15) **Description**

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.

Category II 1 G only applies to the Constructional Variants shown in table 15.2 of annex 1.

Ambient temperature range -25 °C ... +70 °C for all models,
with the exceptions shown in table 15.3 of annex 1.

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

For potentially explosive atmospheres caused by the presence of combustible dust, the maximum surface temperature T for 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.

(16) **Test Report**

KEMA No. 212040300.

(17) **Special conditions for safe use**

For application in explosive atmospheres, where category 2G apparatus is required:
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. This warning applies only when the sensor is used as group IIC apparatus. In this case precautions have to be taken that the risk of electrostatic charging of the enclosure is excluded.

For the ambient temperature range, see (15).

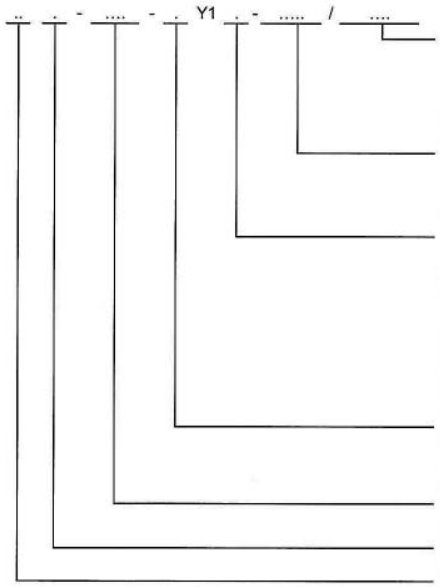
(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. 212040300.

Original language english, german translation shown in italics
Originalsprache Englisch, Übersetzung auf Deutsch wird in Kursivschrift gezeigt



Identification of special variant, listed in table 15.3 where relevant for the type of protection (optional)
Kennzeichnung von Sonderausführungen, genannt in Tabelle 15.3 wenn relevant für die Explosionsschutz (optional)
Type of connector.
Blank for integral cable
Typ des Anschlußsteckers.
Leer für integriertes Anschlußkabel.
LED Indicator or PT present:
Blank = None installed
X = LED installed
PT = Temperature measurement installed (for Bi.-ISM-.Y1PT-...../.... only)
Leuchtdiode-Indikator oder PT vorhanden:
leer = keiner installiert
X = Leuchtdiode installiert
PT = Temperaturmessung installiert (nur für Bi.-ISM-.Y1PT-...../....)
Number of NAMUR proximity switches installed (optional)
Anzahl von NAMUR Näherungsschalter installiert (optional)
Constructional Variant
Gehäuse Bauform
Switching distance in mm
Schaltabstand 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
Funktionsprinzip:
Bi = induktiv, bündig einbaubar
BC = kapazitiv, bündig einbaubar
Ni = induktiv, nicht bündig einbaubar
NC = kapazitiv, nicht bündig einbaubar
BIM = magnetisch betätigt
Si = induktive, schlitzförmig

Table 1 Type Group related to the Constructional Variant *Typ-Gruppe in Beziehung zu dem Bauform*

Annex 1 to: Test Report No. 212030400, KEMA 02ATEX1090 X Issue 4
Applicant: Hans Turck GmbH & Co. KG
Equipment: Two Wire Proximity Sensors Type ...-....-.Y1.-..... / ....

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

Table 15.1 Relation between Constructional Variant and Type Group. *Beziehung Typ-Gruppe zum Bauform.*

Constructional Variant *Bauform*	Constructional Variant *Bauform*	Constructional Variant *Bauform*	Constructional Variant *Bauform*
DS20	G18...Y1...	ISM	M30...Y1...
G05	G18...Y1X..	M12...Y1...	M30...Y1X..
G08	G30...Y1...	M12...Y1X..	Q10S
G12...Y1...	G30...Y1X..	M18...Y1...	QF5,5
G12...Y1X..	H6,5	M18...Y1X..	

Table 15.2 Relation between Constructional Variant and Category II 1 G *Beziehung Typ-Gruppe und Kategorie II 1 G*

Category *Kategorie*	Model code *Typenbezeichnung*	Ambient temperature range *Umgebungstemperaturbereich*
II 1 G, II 2 G	...-....-.Y1.-..... / S80	-25 °C ... +80 °C
II 2 G	...-....-.Y1.-..... / S85	-25 °C ... +85 °C
II 1 G, II 2 G	...-....-.Y1.-..... / S97	-40 °C ... +70 °C
II 2 G	...-....-.Y1.-..... / S100	-25 °C ... +100 °C

Table 15.3 Exceptions in ambient temperature range. *Ausnahmen für Umgebungstemperaturbereich.*

Electrical data *Elektrische Daten*

For models BC.-....-.Y1.-..... / .... and NC.-....-.Y1.-..... / .... the effective internal inductance L_i as listed in tables 15.5, 15.7, 15.9 and 15.11 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.

Für die Typen BC.-....-.Y1.-..... / .... und NC.-....-.Y1.-..... / .... ist die wirksame innere Induktivität L_i wie erwähnt in Tabellen 15.5, 15.7, 15.9 und 15.11 nicht zutreffend. Statt dessen ist L_i vernachlässigbar klein für diese Typen.

Für Doppelsensoren, welche in Typ-Gruppen AD, GD und MD eingestuft sind, gelten die elektrischen Daten pro Sensor-Stromkreis.
Für Typ Bi.-ISM-.Y1PT-..... / ...., gelten die erwähnten Werte von U_i und I_i pro Sensorstromkreis und der erwähnte Wert von P_i gilt als Maximalwert für beide Stromkreise zusammen.

Type Groups A, AD, G and GD, *Typ-Gruppen A, AD, G und GD*:
Supply and output signal *Speisungs- und Signalstromkreis*:
in type of protection intrinsic safety Ex ia IIC or Ex iaD, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.4.
in Zündschutzart Eigensicherheit Ex ia IIC oder Ex iaD, nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis, mit Höchstwerten wie erwähnt in Tabelle 15.4.

Maximum ambient temperature *Maximale Umgebungs temperatur*	Category *Kategorie*	Temperature class *Temperatur klasse*	U_i (Vdc)	I_i (mA) (resistively limited) *(widerstands limitiert)*	P_i (mW)
+100 °C	II 2 G	T4	20	60	200
+85 °C	II 2 G	T5	20	60	200
+80 °C	II 1 G, II 2 G	T5	20	60	200
+70 °C	II 1 G, II 2 G	T6	20	60	200
+70 °C	II 1 D	-	20	60	200

Table 15.4 Temperature class and circuit parameters for Type Groups A, AD, G and GD.
Temperaturklasse und Stromkreisparameter für Typ-Gruppen A, AD, G und GD.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.5. *Die wirksame innere Kapazität C_i und die wirksame innere Induktivität L_i können aus Tabelle 15.5 ermittelt werden.*

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

Table 15.5 Effective C_i and L_i. *Wirksame C_i und L_i.*

KEMA

Annex 1 to: Test Report No. 212030400, KEMA 02ATEX1090 X Issue 4
Applicant: Hans Turck GmbH & Co. KG
Equipment: Two Wire Proximity Sensors Type ...-....-.Y1.-..... / ....

Type Groups M, MD and S *Typ-Gruppen M, MD und S*:
Supply and output signal *Speisungs- und Signalstromkreis*:
in type of protection intrinsic safety Ex ia IIC or Ex iaD, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.6.
in Zündschutzart Eigensicherheit Ex ia IIC oder Ex iaD, nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis, mit Höchstwerten wie erwähnt in Tabelle 15.6.

Maximum ambient temperature *Maximale Umgebungs temperatur*	Category *Kategorie*	Temperature class *Temperatur klasse*	U_i (Vdc)	I_i (mA) (resistively limited) *(widerstands limitiert)*	P_i (mW)
+100 °C	II 2 G	T4	20	60	200
+80 °C	II 1 G, II 2 G	T4	20	60	200
+85 °C	II 2 G	T5	20	60	130
+80 °C	II 1 G, II 2 G	T5	20	60	130
+70 °C	II 1 G, II 2 G	T6	20	60	130
+70 °C	II 1 D	-	20	60	130

Table 15.6 Temperature class and circuit parameters for Type Groups M, MD and S.
Temperaturklasse und Stromkreisparameter für Typ-Gruppen M, MD und S.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.7. *Die wirksame innere Kapazität C_i und die wirksame innere Induktivität L_i können aus Tabelle 15.7 ermittelt werden.*

Type Group *Typ-Gruppe*	C_i (nF)	L_i (μH)
M, MD	150	150
S	250	350

Table 15.7 Effective C_i and L_i. *Wirksame C_i und L_i.*

Type Group K Typ-Gruppe K:
Supply and output signal *Speisungs- und Signalstromkreis*:
in type of protection intrinsic safety Ex ia IIC or Ex iaD, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.8.
in Zündschutzart Eigensicherheit Ex ia IIC oder Ex iaD, nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis, mit Höchstwerten wie erwähnt in Tabelle 15.8.

Maximum ambient temperature *Maximale Umgebungs temperatur*	Category *Kategorie*	Temperature class *Temperatur klasse*	U_i (Vdc)	I_i (mA) (resistively limited) *(widerstands limitiert)*	P_i (mW)
+100 °C	II 2 G	T4	20	60	200
+80 °C	II 1 G, II 2 G	T4	20	60	200
+85 °C	II 2 G	T5	20	60	80
+80 °C	II 1 G, II 2 G	T5	20	60	80
+70 °C	II 1 G, II 2 G	T5	20	60	200
+70 °C	II 1 G, II 2 G	T6	20	60	80
+70 °C	II 1 D	-	20	60	80
+60 °C	II 1 G, II 2 G	T6	20	60	150
+60 °C	II 1 D	-	20	60	150

Table 15.8 Temperature class and circuit parameters for Type Group K.
Temperaturklasse und Stromkreisparameter für Typ-Gruppe K.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.9. *Die wirksame innere Kapazität C_i und die wirksame innere Induktivität L_i können aus Tabelle 15.9 ermittelt werden.*

Type Group *Typ-Gruppe*	C_i (nF)	L_i (μH)
K	150	150

Table 15.9 Effective C_i and L_i. *Wirksame C_i und L_i.*

Type Groups AX and GX *Typ-Gruppen AX und GX*:
Supply and output signal *Speisungs- und Signalstromkreis*:
in type of protection intrinsic safety Ex ia IIC or Ex iaD, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.10.
in Zündschutzart Eigensicherheit Ex ia IIC oder Ex iaD, nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis, mit Höchstwerten wie erwähnt in Tabelle 15.10.

Maximum ambient temperature *Maximale Umgebungs temperatur*	Category *Kategorie*	Temperature class *Temperatur klasse*	U_i (Vdc)	I_i (mA) (resistively limited) *(widerstands limitiert)*	P_i (mW)
+100 °C	II 2 G	T4	20	50	200
+80 °C	II 1 G, II 2 G	T4	20	50	200
+70 °C	II 1 G, II 2 G	T4	20	60	200
+85 °C	II 2 G	T5	20	20	200
+80 °C	II 1 G, II 2 G	T5	20	20	200
+70 °C	II 1 G, II 2 G	T5	20	40	200
+70 °C	II 1 G, II 2 G	T6	20	20	200
+70 °C	II 1 D	-	20	60	200

Table 15.10 Temperature class and circuit parameters for Type Groups AX and GX.
Temperaturklasse und Stromkreisparameter für Typ-Gruppen AX und GX.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.11. *Die wirksame innere Kapazität C_i und die wirksame innere Induktivität L_i können aus Tabelle 15.11 ermittelt werden.*

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. *Wirksame C_i und L_i.*

Konformitätserklärung Nr. 3174-1 M

Declaration of Conformity

Diese Konformitätserklärung entspricht der Europäischen Norm EN 45014 "Allgemeine Kriterien für Konformitätserklärungen von Anbietern". Die Grundlage der Kriterien sind internationale Dokumente, insbesondere ISO/IEC Leitfaden 22, 1982: "Information on manufacturer's declaration of conformity with standards or other technical specifications".

This "Declaration of Conformity" complies with the European Standard EN 45014 "General criteria for a supplier's declaration of conformity". These criteria are based on the relevant international documentation, particularly the ISO/IEC Guide 22, 1982: "Information on the manufacturer's declaration of conformity with standards or other technical specifications".

Wir/ We HANS TURCK GMBH & CO KG
WITZLEBENSTR. 7, D - 45472 MÜLHEIM A.D. RUHR

erklären in alleiniger Verantwortung, dass die Produkte
declare under our sole responsibility that the products

NAMUR Sensoren nach EN 60947-5-6 Typenreihe …-….-.Y1.-…../….

auf die sich die Erklärung bezieht, mit den folgenden Normen übereinstimmen
to which this declaration relates are in conformity with the following standards

EN 60947-5-6:2000

und wo anwendbar
and where applicable

EN 60079-0:2006 EN 60079-11:2007 EN 60079-26:2004
EN 61241-0:2006 EN 61241-11:2006

Gemäß den Bestimmungen der Richtlinie (falls zutreffend)
Following the provisions of Directive (if applicable)

EMV - Richtlinie	/ EMC Directive	2004 / 108 / EG	15. Dez. 2004
Richtlinie ATEX 100a	/ Directive ATEX 100a	94 / 9 / EG	23. März 1994

Weitere Normen
additional standards

Aussteller der EG-Baumusterbescheinigung:
KEMA Quality B.V.
Utrechtseweg 310, 6812AR Arnhem, NL
Kenn-Nr. 0344, Registriernummer: KEMA 02 ATEX 1090 X

Kennzeichnung: Ex II 1 G oder II 2 G oder II 1 D (typenabhängig)

Mülheim, den 19.10.07 i.V. W. Stoll (i.V. W. Stoll)

Ort und Datum der Austellung / Place and date of issue
Name und Unterschrift des Befugten / Name and signature of authorized person

7_3f12a.doc Stand: 001 vom 01.08.06