



(1) **EC-TYPE EXAMINATION CERTIFICATE**

- (2) Equipment or protective system intended for use in potentially explosive atmospheres - Directive 94/9/EC
- (3) EC-Type Examination Certificate Number: **KEMA 05ATEX1030**
- (4) Equipment or protective system: **Profibus PA/Foundation Fieldbus Transmitter Type KMU-40Ex/1GD**
- (5) Manufacturer: **Hans Turck GmbH und Co. KG**
- (6) Address: **Witzleben Straße 7, D-45472 Mülheim a.d. Ruhr, Germany**
- (7) This equipment or protective system 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 or protective system 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 report no. 2080524-1.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- EN 50014 : 1997 + A1, A2 EN 50020 : 2002 EN 50284 : 1999**
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system 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 or protective system according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.
- (12) The marking of the equipment or protective system shall include the following:



**II 1 GD EEx ia IIC T4 ... T6 T65 °C ... T105 °C or
II 2 (1) GD EEx ib [ia] IIC T4 ... T6 T65 °C ... T105 °C**

Arnhem, 29 April 2005
KEMA Quality B.V.

C.G. van Es
Certification Manager

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ACCREDITED BY THE
DUTCH COUNCIL FOR
ACCREDITATION



(13) **SCHEDULE**
(14) **to EC-Type Examination Certificate KEMA 05ATEX1030**

(15) **Description**

Profibus PA/Foundation Fieldbus Transmitter Type KMU-40Ex/1GD, for mounting in an enclosure (form B according to DIN43729), is used to convert the temperature measurement signal of a temperature sensor into an electrical signal. The transmitter is connected to a Profibus PA Fieldbus or to a Foundation Fieldbus.

Ambient temperature range -40 °C ... +85 °C.
Refer to the electrical data for the relation between the maximum ambient temperature T_a and the temperature class.
Refer to the installation instructions for the relation between the specified maximum surface temperature T 65 °C ... T 105 °C of the enclosure and the ambient temperature.

Electrical data

Fieldbus input circuit in type of protection intrinsic safety EEx ia IIC, only for connection to a certified intrinsically safe fieldbus, with following maximum values:

$$\begin{aligned} U_i &= 30 \text{ V} \\ I_i &= 120 \text{ mA} \\ P_i &= 0,84 \text{ W} \end{aligned}$$

$T_a \leq 85 \text{ °C}$	Temperature class T4
$T_a \leq 70 \text{ °C}$	Temperature class T5
$T_a \leq 60 \text{ °C}$	Temperature class T6

or

$$\begin{aligned} U_i &= 30 \text{ V} \\ I_i &= 300 \text{ mA} \\ P_i &= 1,3 \text{ W} \end{aligned}$$

$T_a \leq 75 \text{ °C}$	Temperature class T4
$T_a \leq 65 \text{ °C}$	Temperature class T5
$T_a \leq 45 \text{ °C}$	Temperature class T6

or for connection to a certified intrinsically safe FISCO fieldbus system, in accordance with IEC TS 60079-27, with following maximum values:

$$\begin{aligned} U_i &= 17,5 \text{ V} \\ I_i &= 250 \text{ mA} \\ P_i &= 2,0 \text{ W} \end{aligned}$$

$T_a \leq 85 \text{ °C}$	Temperature class T4
$T_a \leq 60 \text{ °C}$	Temperature class T5
$T_a \leq 45 \text{ °C}$	Temperature class T6

or

$$\begin{aligned} U_i &= 15 \text{ V} \\ I_i &= \text{any} \\ P_i &= \text{any} \end{aligned}$$

$T_a \leq 85 \text{ °C}$	Temperature class T4
$T_a \leq 60 \text{ °C}$	Temperature class T5
$T_a \leq 45 \text{ °C}$	Temperature class T6

(13) **SCHEDULE**
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or in type of protection intrinsic safety EEx ib IIC, only for connection to a certified intrinsically safe fieldbus, with following maximum values:

$$\begin{aligned} U_i &= 30 \text{ V} \\ I_i &= 250 \text{ mA} \\ P_i &= 5,32 \text{ W} \end{aligned}$$

$T_a \leq 85 \text{ }^\circ\text{C}$	Temperature class T4
$T_a \leq 75 \text{ }^\circ\text{C}$	Temperature class T5
$T_a \leq 60 \text{ }^\circ\text{C}$	Temperature class T6

or for connection to a certified intrinsically safe FISCO fieldbus system, in accordance with IEC TS 60079-27, with following maximum values:

$$\begin{aligned} U_i &= 17,5 \text{ V} \\ I_i &= \text{any} \\ P_i &= \text{any} \end{aligned}$$

$T_a \leq 85 \text{ }^\circ\text{C}$	Temperature class T4
$T_a \leq 75 \text{ }^\circ\text{C}$	Temperature class T5
$T_a \leq 60 \text{ }^\circ\text{C}$	Temperature class T6

The effective internal capacitance and the effective internal inductance of the Fieldbus input circuit are:

$$\begin{aligned} C_i &= 2 \text{ nF} \\ L_i &= 1 \text{ } \mu\text{H} \end{aligned}$$

Sensor circuit in type of protection intrinsic safety EEx ia IIC, (terminals 3, 4, 5 and 6) with following maximum values:

$$\begin{aligned} U_o &= 5,7 \text{ V} \\ I_o &= 8,4 \text{ mA} \\ P_o &= 12 \text{ mW} \\ C_o &= 40 \text{ } \mu\text{F} \\ L_o &= 200 \text{ mH} \end{aligned}$$

Installation Instructions

The sensor circuit is not infallibly galvanically isolated from the fieldbus input circuit. However, the galvanic isolation between the circuits is capable of withstanding a test voltage of 500 Vac during 1 minute.

For applications in explosive atmospheres caused by gases, vapours or hazes:

The Transmitter Type KMU-40Ex/1GD must be mounted in a metal enclosure in order to provide a degree of ingress protection of at least IP 20.

If the transmitter is installed in a potentially explosive atmosphere where equipment category 1 G is required and if the enclosure in which the transmitter is mounted is made of aluminium, then the requirements of EN 50284, clause 4.3.1 must be taken into account.

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For applications in explosive atmospheres caused by air/dust mixtures:

The transmitter Type KMU-40Ex/1GD must be mounted in a metal enclosure (form B according to DIN43729) providing a degree of ingress protection of at least IP6X in accordance with EN 60529, that is suitable for the application and is correctly installed.

Cable entries and blanking elements shall be used that are suitable for the application and correctly installed.

For an ambient temperature $\geq 60 \text{ }^\circ\text{C}$, heat resistant cables shall be used with a rating of at least 20 K above the ambient temperature.

The surface temperature of the enclosure is equal to the ambient temperature plus 20 K, for a dust layer with a thickness up to 5 mm.

(16) **Report**

KEMA No. 2080524-1.

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

None

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

Covered by the standards listed at (9).
 For the use of the apparatus in hazardous areas in which category 1 D or 2 D equipment is required, EN 61241-0:2004 + pr AA and draft IEC 61241-11:2004 have been used as a guide.

(19) **Test documentation**

As listed in Test Report No. 2080524-1.

Konformitätserklärung Nr. 3201 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

Profibus PA / Foundation Fieldbus Transmitter Typ KMU-40Ex/1GD

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

EN 61326 / 1998; A1 / 1999

und wo anwendbar
and where applicable

EN 50014 + A1 +A2 / 1997 EN 50020 / 2002 EN 50284 / 1999

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

EMV - Richtlinie	/ EMC Directive	89 / 336 / EWG	3. Mai 1989
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 05 ATEX 1030

Mülheim, den 22.11.05

(i.V. W. Stoll)

Ort und Datum der Ausstellung /
Place and date of issue

Name und Unterschrift des Befugten /
Name and signature of authorized person