

(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 03ATEX1535 X**

(4) Equipment or protective system: **2-Wire Programmable Transmitter Type 5333B, Type 5333C and Type 5333D**

(5) Manufacturer: **PR electronics A/S**

(6) Address: **Lerbakken 10, 8410 Rønne, Denmark**

(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. 2037943.

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

EN 50014 : 1997 + A1, A2
EN 50281-1-1 : 1998 + A1

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 or T6
T 80 °C ... T 105 °C

Arnhem, 12 July 2004
KEMA Quality B.V.



C.G. van Es
Certification Manager

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SCHEDULE

(13)

(14)

to EC-Type Examination Certificate KEMA 03ATEX1535 X

(15) **Description**

The 2-Wire Programmable Transmitter Type 5333B, Type 5333C and Type 5333D, suitable for mounting in an enclosure form B according to DIN 43729, is used to convert the temperature measurement signal of a resistive temperature sensor into a 4 ... 20 mA current signal with digital communication.

The relation between ambient temperature range, temperature class and maximum surface temperature "T" is shown in the table below.

Ambient temperature range	Temperature class	Maximum surface temperature "T"
-40 °C ... +85 °C	T4	105 °C
-40 °C ... +60 °C	T6	80 °C

Electrical data

Supply and input circuit in type of explosion protection intrinsic safety EEx ia IIC, only (terminals 1 and 2) for connection to a certified intrinsically safe circuit, with the following maximum values:

$$\begin{aligned}
 U_i &= 30 && \text{V} \\
 I_i &= 120 && \text{mA} \\
 P_i &= 0,84 && \text{W} \\
 C_i &= 1 && \text{nF} \\
 L_i &= 10 && \mu\text{H}
 \end{aligned}$$

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

$$\begin{aligned}
 U_o &= 27 && \text{V} \\
 I_o &= 7 && \text{mA} \\
 P_o &= 45 && \text{mW} \\
 C_o &= 90 && \text{nF} \\
 L_o &= 35 && \text{mH}
 \end{aligned}$$

The above mentioned circuits are galvanically connected with each other.

Installation instructions

The transmitter must be mounted in an enclosure in order to provide a degree of ingress protection of at least IP20.

The transmitter may only be installed in a potentially explosive atmosphere caused by the presence of combustible dust when mounted in a metal enclosure form B according to DIN 43729 that is providing a degree of ingress protection of at least IP 6X 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.

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Installation instructions (continued)

For an ambient temperature ≥ 60 °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. 2037943.

(17)

Special conditions for safe use

If the transmitter is installed in a potentially explosive atmosphere where equipment category 1G 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 shall be taken into account.

For ambient temperature range and electrical data, see (15).

(18)

Essential Health and Safety Requirements

Covered by the standards listed at (9).

The application of intrinsically safe circuits in a potentially explosive atmosphere caused by the presence of combustible dust has been assessed using draft IEC 61241-0 : 2002 and draft IEC 61241-11 : 2002 as a guide.

(19)

Test documentation

	<u>dated</u>
Drawing No. 5333-1008	03.01.2000
5333SMD (2 sheets)	10.09.2003
5333-9108	03.01.2000
5333-9008	03.01.2000
5333-3108	03.01.2000
5333-label-B.doc	04.06.2004
5333-label-C.doc	04.06.2004
5333-label-D.doc	04.06.2004
PB136RED (2 sheets)	06.06.2002
PB137RED (2 sheets)	06.06.2002
SM4442	25.01.2000