

(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 02ATEX1318** Issue Number: **2**

(4) Equipment: **Profibus PA/Foundation Fieldbus Transmitter, Type 5350 B**

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

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

(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 212043500.

(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

EN 50020 : 2002
EN 60079-27: 2008

EN 50284 : 1999

(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 GD T65 °C ... T105 °C EEx ia IIC T4 ... T6

or

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

This certificate is issued on November 3, 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.

P.T. van Nijen
Certification Manager



(13) **SCHEDULE**

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(15) **Description**

Profibus PA/Foundation Fieldbus Transmitter Type 5350 B, 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 $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$.

Refer to the electrical data for the relation between the maximum ambient temperature T_a and the temperature class.

Electrical data

Fieldbus input circuit (terminals 1 and 2):

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

$U_i = 30\text{ V}$; $I_i = 120\text{ mA}$; $P_i = 0,84\text{ W}$.
 $T_a \leq 85\text{ }^{\circ}\text{C}$: Temperature class T4
 $T_a \leq 70\text{ }^{\circ}\text{C}$: Temperature class T5
 $T_a \leq 60\text{ }^{\circ}\text{C}$: Temperature class T6 or

$U_i = 30\text{ V}$; $I_i = 300\text{ mA}$; $P_i = 1,3\text{ W}$.
 $T_a \leq 75\text{ }^{\circ}\text{C}$: Temperature class T4
 $T_a \leq 65\text{ }^{\circ}\text{C}$: Temperature class T5
 $T_a \leq 45\text{ }^{\circ}\text{C}$: Temperature class T6

or for connection to a certified intrinsically safe circuit in accordance with FISCO, with following maximum values:

$U_i = 17,5\text{ V}$; $I_i = 250\text{ mA}$; $P_i = 2,0\text{ W}$.
 $T_a \leq 85\text{ }^{\circ}\text{C}$: Temperature class T4
 $T_a \leq 60\text{ }^{\circ}\text{C}$: Temperature class T5
 $T_a \leq 45\text{ }^{\circ}\text{C}$: Temperature class T6 or

$U_i = 15\text{ V}$; $I_i = \text{any}$ $P_i = \text{any}$.
 $T_a \leq 85\text{ }^{\circ}\text{C}$: Temperature class T4
 $T_a \leq 60\text{ }^{\circ}\text{C}$: Temperature class T5
 $T_a \leq 45\text{ }^{\circ}\text{C}$: Temperature class T6

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

$U_i = 30\text{ V}$; $I_i = 250\text{ mA}$; $P_i = 5,32\text{ W}$.
 $T_a \leq 85\text{ }^{\circ}\text{C}$: 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 circuit in accordance with FISCO, with following maximum values:

$U_i = 17,5\text{ V}$; $I_i = \text{any}$ $P_i = \text{any}$.
 $T_a \leq 85\text{ }^{\circ}\text{C}$: 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

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

$C_i = 2 \text{ nF}$; $L_i = 1 \text{ }\mu\text{H}$.

Sensor circuit (terminals 3, 4, 5 and 6):

in type of protection intrinsic safety EEx ia IIC, with following maximum values:

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

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.

The Transmitter must be mounted in an enclosure in order to provide a degree of 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.

For installation in a potentially explosive atmosphere caused by the presence of combustible dust, the installation instructions are as follows:

The transmitter Type 5350 B 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 DIN43729 that is providing a degree of 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.

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.

Routine tests

None.

(16) **Test Report**

KEMA No. 212043500.

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

None.



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

Covered by the standards listed at (9).

Additionally covered by EN 61241-0 : 2006 and EN 61241-11 : 2006.

(19) **Test documentation**

As listed in Test Report No. 212043500.