(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 07ATEX0148 X** Issue Number: **2**

(4) Equipment: **Temperature / mA Converter, Type 9113BA and Type 9113BB**

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

(6) Address: **Lerbakken 10, 8410 Rønde, 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 NL/KEM/ExTR09.0053/**.

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

| | | |
|---|---|---|
| **EN 60079-0 : 2006** | **EN 60079-11 : 2007** | **EN 60079-15 : 2005** |
| **EN 60079-26 : 2007** | **EN 61241-0 : 2006** | **EN 61241-11 : 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/IIB/IIA**
**or**
**II (1) D [Ex iaD]**

This certificate is issued on December 23, 2009 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



PRODUCTS RvA C 001



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(13) # SCHEDULE

(14) **to EC-Type Examination Certificate KEMA 07ATEX0148 X** Issue No. **2**

(15) **Description**

Temperature / mA Converters, Type 9113BA and Type 9113BB, for rail mounting are 24 V powered 1 channel (Type 9113BA) or 2 channel (Type 9113BB) isolating barriers, interfacing temperature sensors or current sources located in an explosive atmosphere.

The Temperature / mA Converter is supplied via terminals at the front of the module, or via Power Rail Type 9400. Removable display module 4501 can be used for programming of the Converter.

Ambient temperature range -20 °C to +60 °C.

**Marking**

The equipment marking may additionally include the code II 3 G Ex nA nC IIC T4.

**Electrical data**

Supply (terminals 31, 32 and rear contacts): U = 19,2 ... 31,2 Vdc.

Outputs (terminals 11, 12 and 13, 14):
I = 0 ... 20 mA or 4 ... 20 mA

Status output (terminals 33, 34):
Relay contacts, U ≤ 32 Vdc or 32 Vac, I ≤ 1 Adc or I ≤ 0,5 Aac respectively.
If the Temperature / mA Converter is installed outside the hazardous area, the following data for the relay contacts apply: U ≤ 110 Vdc or 125 Vac, I ≤ 0,3 Adc or I ≤ 0,5 Aac respectively

For all circuits above: $U_m$ = 253 Vac (max. frequency 400 Hz).

Sensor circuits (terminals 41 ... 44 respectively 51 ... 54):
in type of protection intrinsic safety Ex ia IIC/IIB/IIA or Ex iaD, with following maximum values:
$U_o$ = 8,7 V; $I_o$ = 18,4 mA; $P_o$ = 40 mW; $C_o$ = 5 µF (IIC) or 50 µF (IIB) or 1000 µF (IIA);
$L_o$ = 100 mH (IIC) or 300 mH (IIB) or 700 mH (IIA); $L_o/R_o$ = 892 µH/Ω (all groups);
$U_i$ = 10 V; $I_i$ = 30 mA; $C_i$ = 30 nF; $L_i$ = 820 nH;
for Ex iaD, the parameters of group IIB apply.

The intrinsically safe sensor circuits are infallibly galvanically isolated from each other and from the non-intrinsically safe circuits.

Sensor circuits, when combined to one circuit (terminals 41 ... 44 and 51 ... 54):
in type of protection intrinsic safety Ex ia IIC/IIB/IIA or Ex iaD, with following maximum values:
$U_o$ = 17,4 V; $I_o$ = 18,4 mA; $P_o$ = 80 mW; $C_o$ = 0,3 µF (IIC) or 1,6 µF (IIB) or 8 µF (IIA);
$L_o$ = 80 mH (IIC) or 250 mH (IIB) or 600 mH (IIA); $L_o/R_o$ = 445 µH/Ω (all groups);
$U_i$ = 10 V; $I_i$ = 30 mA; $C_i$ = 15 nF; $L_i$ = 1.7 µH;
for Ex iaD, the parameters of group IIB apply.

**Installation instructions**

The instructions, provided by the manufacturer, shall be followed in detail to assure safe operation of the equipment.

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 07ATEX0148 X** Issue No. **2**

(16) **Test Report**

KEMA No. NL/KEM/ExTR09.0053/**.

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

If the Temperature / mA Converter is installed in an explosive atmosphere where the use of apparatus of equipment category 3 G is required, the following special conditions for safe use apply:

The Temperature / mA Converter shall be installed in an enclosure in type of protection Ex n or Ex e, providing a degree of protection of at least IP54. Cable entry devices and blanking elements shall fulfill the same requirements.

Removable Display Module 4501, when connected to the Temperature / mA Converter, may not be damaged and shall be free of dust and moisture.

Supply via the mounting rail is only allowed if Power Rail Type 9400 with Power Control Unit Type 9410 (Type Examination Certificate KEMA 07ATEX0152 X) is applied.

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

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. NL/KEM/ExTR09.0053/**.