

# CERTIFICATE

## (1) EC-Type Examination

(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: **3**

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

(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) DEKRA Certification 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 no. NL/KEM/ExTR09.0053/\*\*.

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

**EN 60079-0 : 2009  
EN 60079-26 : 2007**

**EN 60079-11 : 2012**

**EN 60079-15 : 2005**

(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 Ga] IIC/IIB/IIA  
II (1) D [Ex ia Da] IIIC  
I (M1) [Ex ia Ma] I**

This certificate is issued on 24 July 2012 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.

DEKRA Certification B.V.

C.G. van Es  
Certification Manager

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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 07ATEX0148 X**

Issue No. 3

(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 Gc.

**Electrical data**

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

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

Status output (terminals 33, 34):

Relay contacts,  $U \leq 32$  Vdc or 32 Vac,  $I \leq 1$  Adc or  $I \leq 0,5$  Aac respectively.

If the Temperature / mA Converter is installed outside the hazardous area, the following data for the relay contacts apply:  $U \leq 110$  Vdc or 125 Vac,  $I \leq 0,3$  Adc or  $I \leq 0,5$  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/IIIC/I, with following maximum values:

$U_o = 8,7$  V;  $I_o = 18,4$  mA;  $P_o = 40$  mW;  $C_o = 5$   $\mu$ F (IIC) or 50  $\mu$ F (IIB) or 1000  $\mu$ F (IIA);

$L_o = 100$  mH (IIC) or 300 mH (IIB) or 700 mH (IIA);  $L_o/R_o = 892$   $\mu$ H/ $\Omega$  (all groups);

$U_i = 10$  V;  $I_i = 30$  mA;  $C_i = 30$  nF;  $L_i = 820$  nH;

for group IIIC, the parameters of group IIB apply;

for group I, the parameters of group IIA 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/IIIC/I, with following maximum values:

$U_o = 17,4$  V;  $I_o = 18,4$  mA;  $P_o = 80$  mW;  $C_o = 0,3$   $\mu$ F (IIC) or 1,6  $\mu$ F (IIB) or 8  $\mu$ F (IIA);

$L_o = 80$  mH (IIC) or 250 mH (IIB) or 600 mH (IIA);  $L_o/R_o = 445$   $\mu$ H/ $\Omega$  (all groups);

$U_i = 10$  V;  $I_i = 30$  mA;  $C_i = 15$  nF;  $L_i = 1.7$   $\mu$ H;

for group IIIC, the parameters of group IIB apply;

for group I, the parameters of group IIA apply.

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 07ATEX0148 X**

Issue No. 3

**Installation instructions**

The instructions provided with the equipment shall be followed in detail to assure safe operation.

(16) **Test Report**

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

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

The Temperature / mA Converter shall be installed in a controlled environment with suitably reduced pollution, limited to pollution degree 2 or better.

The non-intrinsically safe circuits may only be connected to an overvoltage category I or II power source, as defined in EN60664-1.

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.

(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/\*\*.