



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx KEM 09.0052X issue No.:0 Certificate history:

Status: Current

Date of Issue: 2009-09-04 Page 1 of 3

Applicant: PR Electronics A/S  
Lerbakken 10  
8410 Rønne  
Denmark

Electrical Apparatus: Temperature / mA Converter, Type 9113BA and Type 9113BB  
Optional accessory: Display, Type 4501

Type of Protection: Ex n, [Ex ia], [Ex iaD]

Marking: Ex nA nC IIC T4 Gc  
[Ex ia Ga] IIC/IIB/IIA  
[Ex ia Da] IIIC

Approved for issue on behalf of the IECEx  
Certification Body:

C.G. van Es

Position:

Certification Manager

Signature:  
(for printed version)

  
\_\_\_\_\_

Date:

2009-09-04

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

KEMA Quality B.V.  
Utrechtseweg 310  
6812 AR Arnhem  
The Netherlands





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Page 2 of 3

Manufacturer: **PR Electronics A/S**  
Lerbakken 10  
8410 Rønde  
Denmark

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

<b>IEC 60079-0 : 2007-10</b> Edition: 5	Explosive atmospheres - Part 0: Equipment - General requirements
<b>IEC 60079-11 : 2006</b> Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
<b>IEC 60079-15 : 2005-03</b> Edition: 3	Electrical apparatus for explosive gas atmospheres Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus
<b>IEC 60079-26 : 2006</b> Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
<b>IEC 61241-11 : 2005</b> Edition: 1	Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'ID'

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

#### TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

Test Report:

NL/KEM/ExTR09.0053/00

Quality Assessment Report:

NL/KEM/QAR07.0004/01



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Page 3 of 3

## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

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.

Further details are included in Annex 1 to this certificate.

### CONDITIONS OF CERTIFICATION: YES as shown below:

If the Temperature / mA Converter is installed in an explosive atmosphere where equipment protection level Gc 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 (CoC IECEx KEM 08.0025 X) is applied.

**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.

**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 or Ex iaD, 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 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;  $C_o = 0.3$   $\mu$ 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 Ex iaD, the parameters of group IIB apply.