



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

Certificate No.: IECEx KEM 09.0052X issue No.:2

Status: **Current**

Date of Issue: **2012-07-24** Page 1 of 4

Certificate history:
Issue No. 2 (2012-7-24)
Issue No. 1 (2009-12-15)
Issue No. 0 (2009-9-4)

Applicant: **PR Electronics A/S**
Lerbakken 10
8410 Rønede
Denmark

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

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

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

Approved for issue on behalf of the IECEx
Certification Body:

C.G. van Es

Position:

Certification Manager

Signature:
(for printed version)

Date:

2012-07-24

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](http://www.iecex.com).

Certificate issued by:

DEKRA Certification B.V.
Utrechtseweg 310
6812 AR Arnhem
The Netherlands

All testing, inspection, auditing and certification activities of the former KEMA Quality are an integral part of the DEKRA Certification Group.





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Manufacturer: **PR Electronics A/S**
Lerbakken 10
8410 Rønne
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:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011-06 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2005-03 Edition: 3	Electrical apparatus for explosive gas atmospheres Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga

*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:

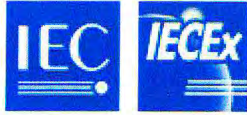
[NL/KEM/ExTR09.0053/00](#)

[NL/KEM/ExTR09.0053/01](#)

[NL/KEM/ExTR09.0053/02](#)

Quality Assessment Report:

[NL/KEM/QAR07.0004/03](#)



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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:

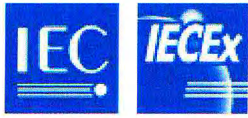
The Temperature / mA Converter shall be installed in a controlled environment with suitably reduced pollution, limited to pollution degree 2 or better.

The non-intrinsically safe circuits may only be connected to an overvoltage category I or II power source, as defined in IEC60664-1.

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.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 01-> 02:

- application of annex F of the IEC60079-11: 2011. As a result, the fuse does not need to be encapsulated in a plastic box anymore, and therefore the PCB-layout changed
- assessment for mines susceptible to firedamp
- upgrade to the IEC60079-0: 2011 and IEC60079-11: 2011

Annex 1 to Certificate of Conformity IECEx KEM 09.0052X, issue 2

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/IIIC/I, with following maximum values:

$U_o = 8.7$ V; $I_o = 18.4$ mA; $P_o = 40$ mW; $C_o = 5$ μ F (IIC) or 50 μ F (IIB) or 1000 μ F (IIA);

$L_o = 100$ mH (IIC) or 300 mH (IIB) or 700 mH (IIA); $L_o/R_o = 892$ μ H/ Ω (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; $C_o = 0.3$ μ F (IIC) or 1.6 μ F (IIB) or 8 μ F (IIA);

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

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

for group IIIC, the parameters of group IIB apply;

for group I, the parameters of group IIA apply.