

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 09.0001X issue No.:1

Status: **Current**

Certificate history:
Issue No. 1 (2009-12-23)
Issue No. 0 (2009-1-16)

Date of Issue: **2009-12-23** Page 1 of 4

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

Electrical Apparatus: **Solenoid / Alarm driver, Type 9203B1A, Type 9203B1B and Type 9203B2A**
Optional accessory: **Display module, Type 4501**

Type of Protection: **Ex i, Ex n**

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

Approved for issue on behalf of the IECEx
Certification Body:

C.G. van Es

Position:

Certification Manager

Signature:
(for printed version)

Date:

2009-12-23

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:

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





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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 : 2007-10 Edition: 5	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2006 Edition: 5	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
IEC 61241-0 : 2004 Edition: 1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
IEC 61241-11 : 2005 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:

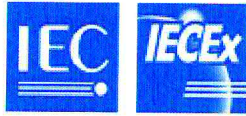
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[NL/KEM/ExTR09.0001/00](#)
[NL/KEM/ExTR09.0001/01](#)

Quality Assessment Report:

[NL/KEM/QAR07.0004/01](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Solenoid / Alarm drivers Type 9203B1A, Type 9203B1B and Type 9203B2A, for rail mounting, are 24 V powered isolating barriers, converting digital signals from PLC's and other equipment into signals for driving valves, solenoids and light emitting diodes located in an explosive atmosphere.

Solenoid / Alarm driver Type 9203B.. 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 Solenoid / Alarm driver.

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

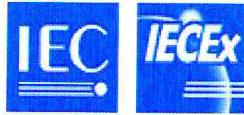
Electrical data:

See Annex: "PR9203 electrical data.pdf".

CONDITIONS OF CERTIFICATION: YES as shown below:

The Solenoid / Alarm driver 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 fulfil the same requirements.

Removable Display Module 4501, when connected to the Solenoid / Alarm driver, 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 (IECEx Certificate of Conformity IECEx KEM 08.0025X) is used.



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

Issue 1:

Small constructional changes of the equipment, and the electrical data is extended with the values of Co, Lo and Lo/Ro for groups IIB and IIA; changed equipment marking due to the application of latest versions of standards.

Electrical Data:

Supply (terminals 31, 32 and rear contacts): $U = 19.2 \dots 31.2$ Vdc.

Digital input (terminals 11, 12 and 13, 14):
 $U \leq 60$ Vdc

Status Relay (terminals 33, 34):
 $U \leq 32$ Vdc or 32 Vac, $I \leq 1$ Adc or $I \leq 0.5$ Aac

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

Solenoid / Alarm driver, Type 9203B1A and Type 9203B1B, output circuits (terminals 41 ... 44 and 51 ... 54):

in type of protection intrinsic safety Ex ia IIC/IIB/IIA or Ex iaD, with following maximum values:

$U_o = 28$ V; $C_o = 80$ nF (IIC) or 640 nF (IIB) or 2.1 μ F (IIA);

and for terminals 41, 42 and 51, 52:

$I_o = 93$ mA; $P_o = 0.65$ W; $L_o = 4.2$ mH (IIC) or 16.8 mH (IIB) or 32.6 mH (IIA);

$L_o/R_o = 54$ μ H/ Ω (IIC) or 218 μ H/ Ω (IIB) or 436 μ H/ Ω (IIA);

and for terminals 41, 43 and 51, 53:

$I_o = 100$ mA; $P_o = 0.70$ W; $L_o = 3.5$ mH (IIC) or 14.2 mH (IIB) or 27.6 mH (IIA);

$L_o/R_o = 50$ μ H/ Ω (IIC) or 201 μ H/ Ω (IIB) or 402 μ H/ Ω (IIA);

and for terminals 41 ... 44 and 51 ... 54:

$I_o = 110$ mA; $P_o = 0.77$ W; $L_o = 2.9$ mH (IIC) or 11.8 mH (IIB) or 22.8 mH (IIA);

$L_o/R_o = 46$ μ H/ Ω (IIC) or 184 μ H/ Ω (IIB) or 369 μ H/ Ω (IIA);

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

Solenoid / Alarm driver, Type 9203B2A, output circuits (terminals 41 ... 44):

in type of protection intrinsic safety Ex ia IIC/IIB/IIA or Ex iaD, with following maximum values:

$U_o = 28$ V; $C_o = 80$ nF (IIC) or 640 nF (IIB) or 2.1 μ F (IIA);

and for terminals 41, 42:

$I_o = 115$ mA; $P_o = 0.81$ W; (group IIC); $L_o = 2.69$ mH (IIC) or 10.8 mH (IIB) or 20.8 mH (IIA);

$L_o/R_o = 44$ μ H/ Ω (IIC) or 176 μ H/ Ω (IIB) or 353 μ H/ Ω (IIA);

and for terminals 41, 43:

$I_o = 125$ mA; $P_o = 0.88$ W; (group IIB); $L_o = 9.1$ mH (IIB) or 17.6 mH (IIA);

$L_o/R_o = 163$ μ H/ Ω (IIB) or 327 μ H/ Ω (IIA);

and for terminals 41 ... 44:

$I_o = 135$ mA; $P_o = 0.95$ W; (group IIB); $L_o = 7.80$ mH (IIB) or 15.1 mH (IIA);

$L_o/R_o = 150$ μ H/ Ω (IIB) or 301 μ H/ Ω (IIA);