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 07ATEX0147 X** Issue Number: **4**

(4) Equipment: **Solenoid / alarm driver, Type 9203B1A, Type 9203B1B and Type 9203B2A**

(5) Manufacturer: **PR Electronics**

(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) 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/ExTR09.0001/**.

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

EN 60079-0 : 2009	**EN 60079-11 : 2007**	**EN 60079-15 : 2005**
EN 60079-26 : 2007	**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 Ga] IIC/IIB/IIA
II (1) D [Ex ia Da] IIIC
I (M1) [Ex ia Ma] I

This certificate is issued on 16 January 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

DEKRA Certification B.V. Utrechtseweg 310, 6812 AR Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands
T +31 26 3 56 20 00 F +31 26 3 52 58 00 www.dekra-certification.com Registered Arnhem 09085396

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 07ATEX0147 X** Issue No. **4**

(15) **Description**

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.

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 ... 31,2 Vdc.

Digital input (terminals 11, 12 and 13, 14): U ≤ 28 Vdc

Status-Relay output (terminals 33, 34):
U ≤ 32 Vac or 32 Vdc, I ≤ 0,5 Aac or I ≤ 1 Adc respectively.
If the Pulse Isolator 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).

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/IIIC/I, with following maximum values:
U_o = 28 V; C_o = 80 nF (IIC) or 640 nF (IIB) or 2,1 µF (IIA) or 3,76 µF (I);
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) or 47 mH (I);
L_o/R_o = 54 µH/Ω (IIC) or 218 µH/Ω (IIB) or 436 µH/Ω (IIA) or 717 µH/Ω (I);
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) or 46 mH (I);
L_o/R_o = 50 µH/Ω (IIC) or 201 µH/Ω (IIB) or 402 µH/Ω (IIA) or 667 µH/Ω (I);
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) or 38 mH (I);
L_o/R_o = 46 µH/Ω (IIC) or 184 µH/Ω (IIB) or 369 µH/Ω (IIA) or 607 µH/Ω (I);
For group IIIC, the parameters of group IIB apply.

Solenoid / Alarm driver, Type 9203B2A, output circuits (terminals 41 ... 44):
in type of protection intrinsic safety Ex ia IIC/IIB/IIA/IIIC/I, with following maximum values:
U_o = 28 V; C_o = 80 nF (IIC) or 640 nF (IIB) or 2,1 µF (IIA) or 3,76 µF (I);
and for terminals 41, 42 (group IIC/IIB/IIA/IIIC/I):

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 07ATEX0147 X** Issue No. **4**

I_o = 115 mA; P_o = 0,81 W;
L_o = 2,69 mH (IIC) or 10,8 mH (IIB) or 20,8 mH (IIA) or 33 mH (I);
L_o/R_o = 44 µH/Ω (IIC) or 176 µH/Ω (IIB) or 353 µH/Ω (IIA) or 578 µH/Ω (I);
and for terminals 41, 43 (group IIB/IIA/IIIC/I):
I_o = 125 mA; P_o = 0,88 W;
L_o = 9,1 mH (IIB) or 17,6 mH (IIA) or 28 mH (I);
L_o/R_o = 163 µH/Ω (IIB) or 327 µH/Ω (IIA) or 533 µH/Ω (I);
and for terminals 41 ... 44 (group IIC/IIB/IIA/IIIC/I):
I_o = 135 mA; P_o = 0,95 W;
L_o = 7,80 mH (IIB) or 15,1 mH (IIA) or 24 mH (I);
L_o/R_o = 150 µH/Ω (IIB) or 301 µH/Ω (IIA) or 493 µH/Ω (I);
For group IIIC, the parameters of group IIB apply.

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

Installation instructions

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

(16) **Test Report**

No. NL/KEM/ExTR09.0001/**.

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

The Solenoid / Alarm driver 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 Solenoid / Alarm driver is installed in an explosive atmosphere where the use of apparatus of equipment category 3 G is required, the following specific conditions of use apply:

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 Pulse Isolator, may not be damaged and shall be free of dust and moisture.

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

Assured by compliance with the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. NL/KEM/ExTR09.0001/**.