

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: **5**

(4) Equipment: **Solenoid / alarm driver, Type 9203B1.., Type 9203B2.. and Type 9203A...**

(5) Manufacturer: **PRElectronics A/S**

(6) Address: **Lerbakken 10, 8410 Rønne, 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 number NL/KEM/ExTR09.0001/04.

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

EN 60079-0 : 2012 + A11

EN 60079-11 : 2012

EN 60079-15 : 2010

(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	(type 9203B...)
II (1) D	[Ex ia Da] IIIC	(type 9203B...)
I (M1)	[Ex ia Ma] I	(type 9203B...)
II 3 G	Ex nA nC IIC T4 Gc	(type 9203A... and type 9203B...)

This certificate is issued on 24 February 2015 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.

R. Schuller
Certification Manager

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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 07ATEX0147 X**

Issue No. 5

(15) **Description**

Solenoid / Alarm drivers, Type Type 9203B1.., Type 9203B2.. and Type 9203A..., 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 9203.... is supplied via terminals, 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 1 to EC-Type Examination Certificate KEMA 07ATEX0147 X, issue 5.

Installation instructions

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

(16) **Test Report**

No. NL/KEM/ExTR09.0001/04.

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

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 in accordance with EN 60529, and providing a pollution degree 2 or better, as defined in EN 60664-1. 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.

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

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. NL/KEM/ExTR09.0001/04.

Annex 1 to Certificate of Conformity IECEx KEM 09.0001 X, issue 4
Annex 1 to IECEx Test Report NL/KEM/ExTR09.0001/04
Annex 1 to EC-Type Examination Certificate KEMA 07ATEX0147 X, issue 5

Electrical data

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

Digital input (terminals 11, 12 and 13, 14): $U \leq 28 \text{ Vdc}$

Status-Relay output (terminals 33, 34):

$U \leq 32 \text{ Vac}$ or 32 Vdc , $I \leq 0.5 \text{ Aac}$ or $I \leq 1 \text{ Adc}$ respectively.

If the Pulse Isolator is installed outside the hazardous area, the following data for the relay contacts apply:

$U \leq 110 \text{ Vdc}$ or 125 Vac , $I \leq 0.3 \text{ Adc}$ or $I \leq 0.5 \text{ Aac}$ respectively.

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

Solenoid / Alarm driver, Type 9203A..., output circuits (terminals 41 ... 44 resp. 51 ... 54):
in type of protection Ex nA, with $U_{max} = 28 \text{ V}$, $I_{max} = 135 \text{ mA}$ and $P_{max} = 0.95 \text{ W}$.

Solenoid / Alarm driver, Type 9203B1.. and Type 9203B2.. 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:

9203B1A, 9203B1B Terminal 41-42, resp. Terminal 51-52			C_o	L_o	L_o/R_o
U_o	28V	IIC	80nF	4.2mH	54 μ H/ Ω
I_o	93 mA	IIB	640nF	16.8mH	218 μ H/ Ω
P_o	0.65W	IIA	2.1 μ F	32.6mH	436 μ H/ Ω
		I	3.76 μ F	32.6mH	436 μ H/ Ω

9203B2A Terminal 41-42			C_o	L_o	L_o/R_o
U_o	28V	IIC	80nF	2.69mH	44 μ H/ Ω
I_o	115mA	IIB	640nF	10.8mH	176 μ H/ Ω
P_o	0.81W	IIA	2.1 μ F	20.8mH	353 μ H/ Ω
		I	3.76 μ F	20.8mH	353 μ H/ Ω

9203B1A, 9203B1B Terminal 41-43 resp. Terminal 51-53			C_o	L_o	L_o/R_o
U_o	28V	IIC	80nF	3.5mH	54 μ H/ Ω
I_o	100mA	IIB	640nF	14.2mH	218 μ H/ Ω
P_o	0.70W	IIA	2.1 μ F	27.6mH	436 μ H/ Ω
		I	3.76 μ F	27.6mH	436 μ H/ Ω

9203B2A Terminal 41-43			C_o	L_o	L_o/R_o
U_o	28V	IIC			
I_o	125mA	IIB	640nF	9.1mH	163 μ H/ Ω
P_o	0.88W	IIA	2.1 μ F	17.6mH	327 μ H/ Ω
		I	3.76 μ F	17.6mH	327 μ H/ Ω

Annex 1 to Certificate of Conformity IECEX KEM 09.0001 X, issue 4
Annex 1 to IECEX Test Report NL/KEM/ExTR09.0001/04
Annex 1 to EC-Type Examination Certificate KEMA 07ATEX0147 X, issue 5

9203B1A,9203B1B Terminal 41-44 resp. Terminal 51-54			C _o	L _o	L _o /R _o
U _o	28V	IIC	80nF	2.9mH	46μH/Ω
I _o	110mA	IIB	640nF	11.8mH	184μH/Ω
P _o	0.77W	IIA	2.1μF	22.8mH	369μH/Ω
		I	3.76μF	22.8mH	369μH/Ω

9203B2A Terminal 41-44			C _o	L _o	L _o /R _o
U _o	28V	IIC			
I _o	135mA	IIB	640nF	7.8mH	150μH/Ω
P _o	0.95W	IIA	2.1μF	15.1mH	301μH/Ω
		I	3.76μF	15.1mH	301μH/Ω

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.

Type designation

Detailed Nomenclature of the approved Solenoid / Alarm driver, Type 9203B1.., Type 9203B2.. and Type 9203A... is as follows:

Type	Installation	Current Output	Channels	Input
9203	Non Ex / Zone 2 :A	Low current :1	Single :A	Standard :-
			Double :B	PNP :1
	Ex-Barrier / Zone 2 :B	High current :2	Single :A	NPN :2