

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM19US0057X
3. **Equipment:**
(Type Reference and Name) 9203A Solenoid / Alarm Driver
9203B Solenoid / Alarm Driver
4. **Name of Listing Company:** PR electronics A/S
5. **Address of Listing Company:** Lerbakken 10
Roende
DK-8410
Denmark
6. The examination and test results are recorded in confidential report number:
3035277 dated 19th June 2009
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:
FM Class 3600:2018, FM Class 3610:2018, FM Class 3611:2018, FM Class 3810:2018,
ANSI/ISA-12.12.01-2015, ANSI/ISA 60079-0:20013, ANSI/ISA 60079-11:2014, ANSI/ISA 60079-15:2013,
ANSI/ISA 61010-1:2012
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:

J.E. Marquedant
VP, Manager, Electrical Systems

28 June 2019

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
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10. Equipment Ratings:

9203A

Nonincendive for use in Class I, Division 2, Groups A, B, C, D Hazardous (Classified) Locations.
Nonsparking for use in Class I, Zone 2, Group IIC Hazardous (Classified) Locations.

9203B Nonincendive for use in Class I, Division 2, Groups A, B, C, D with intrinsically safe connections to Classes I, II, III, Division 1, Groups A, B, C, D, E, F, G Hazardous (Classified) Locations. Nonsparking for use in Class I, Zone 2, Group IIC with intrinsically safe connections to Class I, Zone 0, Groups IIC Hazardous (Classified) Locations.

11. The marking of the equipment shall include:

9203A

Class I Division 2, Groups A, B, C, D; T4,
Class I, Zone 2, AEx nA nC IIC T4
Ta = -20°C to +60°C

9203B

Class I Division 2, Groups A, B, C, D; T4,
Provides IS outputs to Class I, II, III, Division 1, Groups A, B, C, D, E, F, G
Class I, Zone 0, AEx [ja] IIC
Class I, Zone 2, AEx nA nC [ja] IIC T4
Ta = -20°C to +60°C
Installation Drawing: 9203QF01

12. **Description of Equipment:**

General - The 9203 Solenoid / Alarm Driver is designed for industrial and Hazardous (Classified) Location applications. The 9203 Solenoid / Alarm Driver for rail mounting are 24V powered single or dual channel isolating barrier, converting digital signals from PLC's and other equipment into signals for driving valves, solenoids and light emitting diodes located in an explosive atmosphere. The 9203 Solenoid / Alarm Driver is supplied via terminals at the front of the module or via Power Rail Type 9400. A removal display module 4501 can be used for programming of the Pulse Isolator. The galvanic isolation between the intrinsic safe circuits and the non-intrinsic safe circuits is done with a transformer. The 9203 Solenoid / Alarm Driver is designed to be installed in a closed locked equipment cabinet providing a degree of protection of at least IP54. Cable entry devices and blanking elements shall fulfill the same requirements.

Ratings - The equipment is rated for use in a process temperature range of -20°C to +60°C.

9203Aabc Solenoid / Alarm Driver

a: Contact (1=low current; 2=high current)

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b: Channels (A= Single; B = Double)
 c: Input (- = Standard, 1 = PNP, 2 = NPN)

9203Babc Solenoid / Alarm Driver

a: Contact (1=low current; 2=high current)
 b: Channels (A= Single; B = Double)
 c: Input (- = Standard, 1 = PNP, 2 = NPN)

| Module 9203B1A & 9203B1B Terminal 41-41 / 51-52 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | 80nF | 4.2mH | 54μH/Ω |
| Io/Isc | 93mA | IIB or C, E, F | 640nF | 16.8mH | 218 μH/Ω |
| Po | 0.65W | IIA or D, G | 2.1μF | 32.6mH | 436 μH/Ω |

| Module 9203B1A & 9203B1B Terminal 41-43 / 51-53 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | 80nF | 3.5mH | 50μH/Ω |
| Io/Isc | 100mA | IIB or C, E, F | 640nF | 14.2mH | 201 μH/Ω |
| Po | 0.7W | IIA or D, G | 2.1μF | 27.6mH | 402 μH/Ω |

| Module 9203B1A & 9203B1B Terminal 41-44 / 51-54 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | 80nF | 2.9mH | 46μH/Ω |
| Io/Isc | 110mA | IIB or C, E, F | 640nF | 11.8mH | 184μH/Ω |
| Po | 0.77W | IIA or D, G | 2.1μF | 22.8mH | 369μH/Ω |

| Module 9203B2A & 9203B2B Terminal 41-42 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | 80nF | 2.69mH | 44μH/Ω |
| Io/Isc | 115mA | IIB or C, E, F | 640nF | 10.8mH | 176μH/Ω |
| Po | 0.81W | IIA or D, G | 2.1μF | 20.8mH | 353μH/Ω |

| Module 9203B2A & 9203B2B Terminal 41-43 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | | | |
| Io/Isc | 125mA | IIB or C, E, F | 640nF | 9.1mH | 163μH/Ω |
| Po | 0.88W | IIA or D, G | 2.1μF | 17.6mH | 327μH/Ω |

| Module 9203B2A & 9203B2B Terminal 41-44 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|--|--|-------|-------|-------------------|
| | | | | | |

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|--------|-------|----------------|-------|--------|---------|
| Uo/Voc | 28V | IIC or A, B | | | |
| Io/Isc | 135mA | IIB or C, E, F | 640nF | 7.8mH | 150µH/Ω |
| Po | 0.95W | IIA or D, G | 2.1µF | 15.1mH | 301µH/Ω |

13. Specific Conditions of Use:

1. In Class I, Division 2 installations, the subject equipment shall be mounted within a too-secured enclosure which is capable of accepting one or more of the Class I, Division 2 wiring methods specified in the National Electrical Code (ANSI/NFPA 70).
2. In Class I, Zone 2 installations, the subject equipment shall be mounted within a tool secured enclosure which is capable of accepting one or more of the Class I, Zone 2 wiring methods specified in the National Electrical Code (ANSI/NFPA 70). Where installed in outdoor or potentially wet locations, the enclosure shall, at a minimum, meet the requirements of IP54.
3. In Class I, Zone 2 installations, the installer shall ensure protection of supply terminals against transient voltages exceeding 140% of the rated supply voltage.
4. Install in environments rated Pollution Degree 2 or better; overvoltage category I or II.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

| Date | Description |
|----------------------------|--|
| 28 th June 2019 | Supplement 4: Report Reference: - PR452213 dated 28 th June 2019 Description of the Change: Update the standards to current editions. Add 9203A model variation. Update certificate to latest format. |

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CERTIFICATE OF CONFORMITY



1. **HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
2. **Certificate No:** FM19CA0030X
3. **Equipment:** 9203A Solenoid / Alarm Driver
(Type Reference and Name) 9203B Solenoid / Alarm Driver
4. **Name of Listing Company:** PR electronics A/S
5. **Address of Listing Company:** Lerbakken 10
Roende
DK-8410
Denmark
6. The examination and test results are recorded in confidential report number:
3035277 dated 19th June 2009
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:
CSA-C22.2 No. 213-2015, CSA-C22.2 No. 60079-0:2015, CSA-C22.2 No. 60079-11:2014,
CSA-C22.2 No. 60079-15: 2016, CAN/CSA-C22.2 No. 61010-1:2012
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
10. **Equipment Ratings:**
9203A
Nonincendive for use in Class I, Division 2, Groups A, B, C, D Hazardous Locations. Nonsparking for use in Group IIC Gc Hazardous Locations.

Certificate issued by:

J.E. Marquedant
VP, Manager, Electrical Systems

28 June 2019

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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9203B

Nonincendive for use in Class I, Division 2, Groups A, B, C, D with intrinsically safe connections to Classes I, II, III, Division 1, Groups A, B, C, D, E, F, G Hazardous Locations; Nonsparking for use in Group IIC Gc with intrinsically safe connections to Groups IIC Ga Hazardous Locations.

11. The marking of the equipment shall include:

9203A

Class I Division 2, Groups A, B, C, D; T4,

Ex nA nC IIC T4 Gc

Ta = -20°C to +60°C

9203B

Class I Division 2, Groups A, B, C, D; T4,

Provides IS outputs to Class I, II, III, Division 1, Groups A, B, C, D, E, F, G

Ex [ia Ga] IIC

Ex nA nC [ia Ga] IIC T4 Gc

Ta = -20°C to +60°C

Installation Drawing: 9203QF01

12. **Description of Equipment:**

General - The 9203 Solenoid / Alarm Driver is designed for industrial and Hazardous (Classified) Location applications. The 9203 Solenoid / Alarm Driver for rail mounting are 24V powered single or dual channel isolating barrier, converting digital signals from PLC's and other equipment into signals for driving valves, solenoids and light emitting diodes located in an explosive atmosphere. The 9203 Solenoid / Alarm Driver is supplied via terminals at the front of the module or via Power Rail Type 9400. A removal display module 4501 can be used for programming of the Pulse Isolator. The galvanic isolation between the intrinsic safe circuits and the non-intrinsic safe circuits is done with a transformer. The 9203 Solenoid / Alarm Driver is designed to be installed in a closed locked equipment cabinet providing a degree of protection of at least IP54. Cable entry devices and blanking elements shall fulfill the same requirements.

Ratings - The equipment is rated for use in a process temperature range of -20°C to +60°C.

9203Aabc Solenoid / Alarm Driver

a: Contact (1=low current; 2=high current)

b: Channels (A= Single; B = Double)

c: Input (- = Standard, 1 = PNP, 2 = NPN)

9203Babc Solenoid / Alarm Driver

a: Contact (1=low current; 2=high current)

b: Channels (A= Single; B = Double)

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c: Input (- = Standard, 1 = PNP, 2 = NPN)

| Module 9203B1A & 9203B1B Terminal 41-41 / 51-52 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | 80nF | 4.2mH | 54μH/Ω |
| Io/Isc | 93mA | IIB or C, E, F | 640nF | 16.8mH | 218 μH/Ω |
| Po | 0.65W | IIA or D, G | 2.1μF | 32.6mH | 436 μH/Ω |

| Module 9203B1A & 9203B1B Terminal 41-43 / 51-53 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | 80nF | 3.5mH | 50μH/Ω |
| Io/Isc | 100mA | IIB or C, E, F | 640nF | 14.2mH | 201 μH/Ω |
| Po | 0.7W | IIA or D, G | 2.1μF | 27.6mH | 402 μH/Ω |

| Module 9203B1A & 9203B1B Terminal 41-44 / 51-54 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | 80nF | 2.9mH | 46μH/Ω |
| Io/Isc | 110mA | IIB or C, E, F | 640nF | 11.8mH | 184μH/Ω |
| Po | 0.77W | IIA or D, G | 2.1μF | 22.8mH | 369μH/Ω |

| Module 9203B2A & 9203B2B Terminal 41-42 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | 80nF | 2.69mH | 44μH/Ω |
| Io/Isc | 115mA | IIB or C, E, F | 640nF | 10.8mH | 176μH/Ω |
| Po | 0.81W | IIA or D, G | 2.1μF | 20.8mH | 353μH/Ω |

| Module 9203B2A & 9203B2B Terminal 41-43 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | 640nF | 9.1mH | 163μH/Ω |
| Io/Isc | 125mA | IIB or C, E, F | 640nF | 9.1mH | 163μH/Ω |
| Po | 0.88W | IIA or D, G | 2.1μF | 17.6mH | 327μH/Ω |

| Module 9203B2A & 9203B2B Terminal 41-44 | | | Co/Ca | Lo/La | Lo/Ro or La/Ra |
|--|-------|----------------|-------|--------|-------------------|
| Uo/Voc | 28V | IIC or A, B | | | |
| Io/Isc | 135mA | IIB or C, E, F | 640nF | 7.8mH | 150μH/Ω |
| Po | 0.95W | IIA or D, G | 2.1μF | 15.1mH | 301μH/Ω |

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Canadian Certificate Of Conformity No: FM19CA0030X

13. Specific Conditions of Use:

1. In Class I, Division 2 installations, the subject equipment shall be mounted within a too-secured enclosure which is capable of accepting one or more of the Class I, Division 2 wiring methods specified in the Canadian Electrical Code (C22.1).
2. In Zone 2 installations, the subject equipment shall be mounted within a tool secured enclosure which is capable of accepting one or more of the Zone 2 wiring methods specified in the Canadian Electrical Code (C22.1). Where installed in outdoor or potentially wet locations, the enclosure shall, at a minimum, meet the requirements of IP54.
3. In Zone 2 installations, the installer shall ensure protection of supply terminals against transient voltages exceeding 140% of the rated supply voltage.
4. Install in environments rated Pollution Degree 2 or better; overvoltage category I or II.
5. It is the responsibility of the manufacturer to provide warning markings in French where required by local jurisdictions.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

| Date | Description |
|----------------------------|---|
| 28 th June 2019 | <u>Supplement 4:</u> Report Reference: - PR452213 dated 28 th June 2019 Description of the Change: Update the standards to current editions. Add 9203A model variation. Update certificate to latest format. |

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