

CERTIFICATE OF CONFORMITY



- HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
- Certificate No:** FM19US0059X
- Equipment:** 9113A Temperture / mA Converter
(Type Reference and Name) 9113B Temperture / mA Converter
- Name of Listing Company:** PR electronics A/S
- Address of Listing Company:** Lerbakken 10
Roende
DK-8410
Denmark
- The examination and test results are recorded in confidential report number:
3038279 dated 20th April 2010
- 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
- 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.
- 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

13 May 2020

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
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



US Certificate Of Conformity No: FM19US0059X

10. Equipment Ratings:

9113A 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.

9113B 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:

9113A 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

9113B 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 [ia] IIC
Class I, Zone 2, AEx nA nC [ia] IIC T4
Ta = -20°C to +60°C
Installation Drawing: 9113QF01

12. **Description of Equipment:**

General – The 9113 Temperature / mA Converter is designed for industrial and Hazardous (Classified) Location applications. The 9113 Temperature / mA Converter 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 three transformers. The 9113 Temperature / mA Converter 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.

9113Aa Temperature / mA Converter
a: Channels (A = Single; B = Double)

9113Ba Temperature / mA Converter
a: Channels (A = Single; B = Double)

Single Channel Entity Parameters: CH1 (terminal 41,42,43,44) and CH2 (terminal 51,52,53,54)
Input: $U_i (V_{max}) = 10 V$, $I_i (I_{max}) = 30 mA$, $P_i = 75 mW$, $C_i = 30 nF$, $L_i = 820 nH$

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Output: $U_o (V_{oc}) = 8.7 \text{ V}$, $I_o (I_{sc}) = 18.4 \text{ mA}$, $P_o = 40 \text{ mW}$, $L_o/R_o = 892 \mu\text{H}/\Omega$

Class I, Zone 0, Group IIC	$C_o (C_a) = 5 \mu\text{F}$	$L_o (L_a) = 100 \text{ mH}$
Class I, Division 1, Groups A & B		
Class I, Zone 0, Group IIB	$C_o (C_a) = 50 \mu\text{F}$	$L_o (L_a) = 300 \text{ mH}$
Class I & II, Division 1, Groups C & E		
Class I, Zone 0, Group IIA	$C_o (C_a) = 1000 \mu\text{F}$	$L_o (L_a) = 700 \text{ mH}$
Class I, II, III Division 1, Groups D, F, & G		

Single Channel Entity Parameters: CH1 (terminals 42,43) in series with CH2 (terminals 52,53) Input:
 $U_i: 10 \text{ V}$, $I_i: 30 \text{ mA}$, $P_i = 75 \text{ mW}$, $C_i: 15 \text{ nF}$, $L_i: 1.7 \mu\text{H}$
Output: $V_t (U_o): 17.4 \text{ V}$, $I_t (I_o): 18.4 \text{ mA}$, $P_o: 80 \text{ mW}$, $L_o/R_o = 445 \mu\text{H}/\Omega$

Class I, Zone 0, Group IIC	$C_o (C_a) = 0.3 \mu\text{F}$	$L_o (L_a) = 80 \text{ mH}$
Class I, Division 1, Groups A & B		
Class I, Zone 0, Group IIB	$C_o (C_a) = 1.6 \mu\text{F}$	$L_o (L_a) = 250 \text{ mH}$
Class I & II, Division 1, Groups C & E		
Class I, Zone 0, Group IIA	$C_o (C_a) = 8 \mu\text{F}$	$L_o (L_a) = 600 \text{ mH}$
Class I, II, III Division 1, Groups D, F, & G		

Status Relay. terminal (33,34)
Voltage max: $125 V_{AC} / 110 V_{DC}$
Power max: $62.5 \text{ VA} / 32 \text{ W}$
Current max: $0.5 A_{AC} / 0.3 A_{DC}$

Zone 2 installation:
Voltage max: $32 V_{AC} / 32 V_{DC}$
Power max: $16 \text{ VA} / 32 \text{ W}$
Current max: $0.5 A_{AC} / 1 A_{DC}$

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.

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SCHEDULE

US Certificate Of Conformity No: FM19US0059X

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	<u>Supplement 2:</u> Report Reference: - PR452213 dated 28 th June 2019. Description of the Change: Update the standards to current editions. Add 9113A model variation. Update certificate to latest format.
13 th May 2020	<u>Supplement 3:</u> PR452213 dated 28 th June 2019. Description of the Change: Correction of typographical error to the original project number

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CERTIFICATE OF CONFORMITY



- HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
- Certificate No:** FM19CA0032X
- Equipment:** 9113A Temperture / mA Converter
(Type Reference and Name) 9113B Temperture / mA Converter
- Name of Listing Company:** PR electronics A/S
- Address of Listing Company:** Lerbakken 10
Roende
DK-8410
Denmark
- The examination and test results are recorded in confidential report number:

3038279 dated 20th April 2010
- 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

- 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.
- 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.
- Equipment Ratings:

9113A

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

13 May 2020

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Canadian Certificate Of Conformity No: FM19CA0032X

9113B

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:

9113A

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

Ex nA nC IIC T4 Gc

Ta = -20°C to +60°C

9113B

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: 9113QF01

12. **Description of Equipment:**

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

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Class I, II, III Division 1, Groups D, F, & G		

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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

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