



Member of the FM Global Group

FM Approvals
1151 Boston Providence Turnpike
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CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

9113Ba Temperature / mA Converter

AIS/I,II,III/1/ABCDEFG - 9113QF01; Entity
I/O/[AEx ia] IIC - 9113QF01; Entity
NI/II/2/ABCD/T4; -20 °C ≤ Ta ≤ +60 °C
I/2/AEx nA nC [ia] IIC T4, -20 °C ≤ Ta ≤ +60 °C

a = Channels (A= Single; B = Double)

Single Channel Entity Parameters: CH1 (terminal 41,42,43,44) and CH2 (terminal 51,52,53,54)

Input: Ui (Vmax) = 10 V, Ii (Imax) = 30 mA, Pi = 75 mW, Ci = 30 nF, Li = 820 nH

Output: Uo (Voc) = 8.7 V, Io (Isc) = 18.4 mA, Po = 40 mW, Lo/Ro 892 μH/Ω

Table with 3 columns: Classification, Co (Ca), and Lo (La). Rows include Class I, Zone 0, Group IIC; Class I, Division 1, Groups A & B; Class I, Zone 0, Group IIB; Class I & II, Division 1, Groups C & E; Class I, Zone 0, Group IIA; 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: Ui: 10 V, Ii: 30 mA, Pi = 75 mW, Ci: 15 nF, Li: 1.7 μH

Output: Vt (Uo): 17.4 V, It (Io): 18.4 mA, Po: 80 mW, Lo/Ro 445 μH/W

Table with 3 columns: Classification, Co (Ca), and Lo (La). Rows include Class I, Zone 0, Group IIC; Class I, Division 1, Groups A & B; Class I, Zone 0, Group IIB; Class I & II, Division 1, Groups C & E; Class I, Zone 0, Group IIA; Class I, II, III Division 1, Groups D, F, & G.

Status Relay. terminal (33,34)

Voltage max: 125 VAC / 110 VDC

Power max: 62.5 VA / 32 W

Current max: 0.5 AAC / 0.3 ADC

Zone 2 installation:

Voltage max: 32 VAC / 32 VDC

Power max: 16 VA / 32 W

Current max: 0.5 AAC / 1 ADC

Special Conditions of Use:



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- 1) *In Class I, Division 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, 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).*
- 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.*

Equipment Ratings:

Associated apparatus with intrinsically safe (entity) connections to Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations per control drawing 9113QF01.

Associated apparatus with intrinsically safe (entity) connections to Class Zone 0, Group IIC Hazardous (Classified) Locations per control drawing 9113QF01.

Nonincendive / suitable for Class I, Division 2, Groups A, B, C and D Hazardous (Classified) Locations, T4 at T ambient of -20°C to 60°C.

Non-sparking and sparking apparatus for Class I, Zone2, Group IIC Hazardous (Classified) Locations, T ambient of -20°C to 60°C.

FM Approved for:

PR electronics A/S
DK-8410 Ronde, Denmark



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This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	1998
Class 3610	2007
Class 3611	2004
Class 3810	2005
ANSI/ISA-12.00.01	1999
ANSI/ISA-12.02.01	2002
ANSI/ISA 61010-1	2004

Original Project ID: 3038279

Approval Granted: April 20, 2010

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
120607			

FM Approvals LLC

J. E. Marquedan
Group Manager, Electrical

19 June 2012
Date



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CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

This certificate is issued for the following equipment:

9113Ba Temperature / mA Converter

AIS/I,II,III/1/ABCDEFG - 9113QF01; Entity
I/O/[Ex ia] IIC - 9113QF01; Entity
NI/II/2/ABCD/T4; $-20\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$
I/2/Ex nA nC [ia] IIC T4, $-20\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$

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

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

Class I, Zone 0, Group IIC	C_o (Ca) = 5 μF	L_o (La) = 100 mH
Class I, Division 1, Groups A & B		
Class I, Zone 0, Group IIB	C_o (Ca) = 50 μF	L_o (La) = 300 mH
Class I & II, Division 1, Groups C & E		
Class I, Zone 0, Group IIA	C_o (Ca) = 1000 μF	L_o (La) = 700 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 V, I_i : 30 mA, P_i = 75 mW, C_i : 15 nF, L_i : 1.7 μH

Output: V_t (U_o): 17.4 V, I_t (I_o): 18.4 mA, P_o : 80 mW, L_o/R_o 445 $\mu\text{H}/\Omega$

Class I, Zone 0, Group IIC	C_o (Ca) = 0.3 μF	L_o (La) = 80 mH
Class I, Division 1, Groups A & B		
Class I, Zone 0, Group IIB	C_o (Ca) = 1.6 μF	L_o (La) = 250 mH
Class I & II, Division 1, Groups C & E		
Class I, Zone 0, Group IIA	C_o (Ca) = 8 μF	L_o (La) = 600 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 VA / 32 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 VA / 32 W

Current max: 0.5 A_{AC} / 1 A_{DC}



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Special Conditions of Use:

- 1) *In Class I, Division 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, Division 2 wiring methods specified in the Canadian Electrical Code (C22.1).*
- 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 Canadian Electrical Code (C22.1).*
- 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) *It is the responsibility of the manufacturer to provide warning markings in French where required by local jurisdictions.*
- 5) *Install in environments rated Pollution Degree 2 or better; overvoltage category I or II.*

Equipment Ratings:

Associated apparatus with intrinsically safe (entity) connections to Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations per control drawing 9113QF01.

Associated apparatus with intrinsically safe (entity) connections to Class Zone 0, Group IIC Hazardous (Classified) Locations per control drawing 9113QF01.

Nonincendive / suitable for Class I, Division 2, Groups A, B, C and D Hazardous (Classified) Locations, T4 at T ambient of -20°C to 60°C.

Non-sparking and sparking apparatus for Class I, Zone2, Group IIC Hazardous (Classified) Locations, T ambient of -20°C to 60°C.

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DK-8410 Ronde, Denmark



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This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

CAN/CSA C22.2 No. 157	1992
CAN/CSA C22.2 No. 213	1987
CAN/CSA-E60079-0	2002
CAN/CSA-E60079-11	2002
CAN/CSA C22.2 No. 1010-1	2004

Original Project ID: 3038279C

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Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
120607	June 19, 2012		

FM Approvals LLC

J.E. Marquedant
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