



Certificate of Compliance

Certificate: 70004139

Master Contract: 169790

Project: 70004139

Date Issued: July 29, 2014

Issued to: Pepperl+Fuchs GmbH

Lilienthalstrasse 200

Mannheim, 68307

Germany

Attention: Michael Oestreicher

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Eshwar Kashyap

Issued by: Eshwar Kashyap

PRODUCTS

CLASS 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - - For Hazardous Locations - Certified to US Standards

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations

Class I, Division 2, Groups A, B, C, and D, Temp. Code T4:

AEx / Ex e ib mb [ia Ga] IIC T4 Gb:

AEx / Ex e ib mb [ia IIIC Da] IIC T4 Gb:

Associated equipment for Class I, Division 1, Groups A, B, C, D, Class II, Division 1, Groups E, F, G and Class III, Division 1:

Ta: -40°C to +70°C

Fieldbus Barrier type R4D0-FB-IA**.****, rated 16-32Vdc, max. 3.6W providing intrinsically safe circuits to up to 12 separate outputs when installed as per drawing 116-0400. The equipment has the following entity parameters at terminals 1(+,-) ... 12(+,-):



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Uo/Voc	17.10 V
Io/Isc	248.55 mA
Po/Pout	1063 mW
Ri	68.80 Ω
Ci	Negligible
Li	Negligible
Co/Ca (IIC)	367 nF
Lo/La (IIC)	0.47 mH
Co/Ca (IIB)	2150 nF
Lo/La (IIB)	2.0 mH
Co/Ca (IIA)	8800 nF
Lo/La (IIA)	4.0 mH

Note: These above values are only applicable, if the internal inductance L_{ior} the internal capacitance C_i of the connected equipment is $\leq 1\%$ of the above specified values. If L_{ias} well as C_i of the connected equipment are $> 1\%$ of the specified values, the specified values of L_o and C_o shall be reduced to 50 %.

The reduced capacitance of the external circuit (capacitance of the cable + internal capacitance of the connected equipment) shall not exceed 1 μ F for groups IIA, IIB and IIC and 600 nF for group IIC.

For use of the Fieldbus Barrier in a fieldbus-system:

Up to 32 FISCO field devices can be connected to each output. All field devices shall be passive (non-supplying).

For each field device:

Maximum internal capacitance $C_i = 5$ nF

Maximum internal inductance $L_i = 10$ μ H

The used fieldbus cable needs to be in the following range:

Loop resistance $R_c = 15 \dots 150$ Ω /km

Loop inductance $L_c = 0.4 \dots 1$ mH/km

Capacitance $C_c = 45 \dots 200$ nF/km



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On each output circuit a maximum cable length of 1 km for group IIC and 5 km for groups IIA, IIB and IIIC may be connected. If more than one device is connected, the spur cable to each device must be shorter than 60m. The maximum cable length must include all spur cables.

In accordance with the Entity-concept of Foundation Fieldbus FF-816:

Up to 6 field devices of type 111, 112, 511 or 512 may be connected to each output. All field devices shall be passive (non-supplying).

For each field device:

Maximum internal capacitance $C_i = 5 \text{ nF}$

Maximum internal inductance $L_i = 20 \text{ } \mu\text{H}$

The used fieldbus cable needs to be in the following range:

Loop resistance $R_c = 15 \dots 150 \text{ } \Omega/\text{km}$

Loop inductance $L_c = 0.4 \dots 1 \text{ mH}/\text{km}$

Capacitance $C_c = 45 \dots 200 \text{ nF}/\text{km}$

On each output circuit a maximum cable length of 1 km for group IIC and 1.9 km for groups IIA, IIB and IIIC may be connected. If more than one device is connected, the spur cable to each device must be shorter than 60 m. The maximum cable length must include all spur cables.

Conditions of Certification:

- This device is an OPEN type equipment that must be used within a suitable end-use system enclosure. The suitability of the enclosure is subject to investigation by the local authority having jurisdiction at the time of installation. The Fieldbus Barrier has to be mounted in a suitable, separately certified enclosure. The temperature inside the enclosure shall not exceed the permissible ambient temperature of the Fieldbus Barrier.
- The Fieldbus barrier must be supplied by a Class 2 or limited-energy source in accordance with CSA 61010-1 3rd Edition.
- For Zone 1 (EPL Gb) installations: The end-user supplied external enclosure has to carry the warning “WARNING – NON-INTRINSICALLY SAFE CIRCUITS PROTECTED BY INTERNAL IP30 COVER” in English and French.



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APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 0-M91 (R2001)	General Requirements – Canadian Electrical Code, Part II
CAN/CSA C22.2 No. 61010-1-12	Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use - Part 1: General Requirements - Third Edition
CAN/CSA-C22.2 No. 60079-0:11	Explosive Atmospheres - Part 0: Equipment - General requirements
CAN/CSA-C22.2 No. 60079-7:12	Explosive Atmospheres – Part 7: Equipment protection by increased safety "e"
CAN/CSA-C22.2 No. 60079-11:14	Explosive Atmospheres – Part 11: Equipment protection by intrinsic safety "i"
CAN/CSA-C22.2 No. 60079-18:12	Explosive Atmospheres – Part 18: Equipment protection by encapsulation "m"
CSA Std. C22.2 No. 213-M1987	Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations
ANSI/ISA-61010-1 3rd Edition	Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use - Part 1: General Requirements - Third Edition
UL 913 (8th Edition)	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II and III, Division 1, Hazardous Locations
ANSI/ISA-12.12.01-2013	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
ANSI/UL 60079-0:13	Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements
ANSI/UL 60079-7:08	Explosive Atmospheres – Part 7: Equipment protection by increased safety "e"
ANSI/UL 60079-11:13	Electrical apparatus for Explosive Gas Atmospheres - Part 11: Intrinsic Safety "i"
ANSI/UL 60079-18:12	Explosive atmospheres - Part 18: Equipment protection by encapsulation "m"