PD688 & PD689 FM APPROVED & CSA CERTIFIED
Intrinsic Loop-powered Meter Safety Barrier Connections

SECTION	AGENCY	DESCRIPTION
1.0		General Notes
2.0	FM	Single or Dual Channel Positive Polarity Intrinsic Safety Barrier
3.0	CSA	Single or Dual Channel Intrinsic Safety Barrier Entity Installation

NOTE: *THIS IS AN AGENCY CONTROLLED DOCUMENT.*
NO CHANGES CAN BE MADE WITHOUT PRIOR APPROVAL.

1.0 GENERAL NOTES

1.1 Control room equipment must not use or generate more than 250 VRMS or VDC.

1.2 US installations must be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code (ANSI/NFPA 70). Canadian installations must be in accordance with the Canadian Electrical Code, Part 1.

1.3 Dust-tight conduit seals must be used when installed in Class II and Class III environments.

1.4 Hazardous location installation instructions for associated apparatus (barrier) must also be followed when installing this equipment.

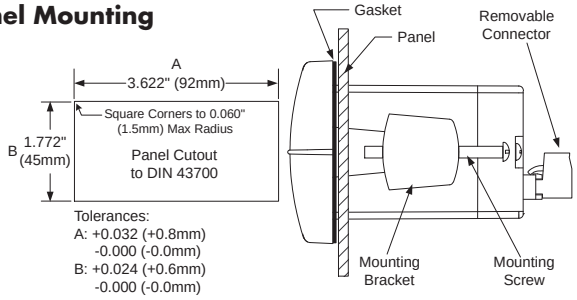
1.5 For safe installation of an FM Approved/CSA Certified transmitter in series with PD688/PD689 loop indicator, the hazardous location installation instructions for the transmitter, PD688/PD689 loop indicator, and associated apparatus (barrier) must be compatible.

1.6 PD688/PD689 indicator does not add capacitance or inductance to loop under normal or fault conditions.

1.7 Substitution of components may impair hazardous location safety.

1.8 Mounting screw torque shall not exceed 8 lb-in (0.9 Nm)

Panel Mounting



2.0 FM INSTALLATION WIRING DIAGRAM USING SINGLE OR DUAL CHANNEL INTRINSIC SAFETY BARRIER

Application Notes:

2.1 $U_i > U_o$ of single channel barrier or V_t of dual channel barrier

2.2 $I_i > I_o$ of single channel barrier or I_t of dual channel barrier

2.3 $P_i > P_o$ of single channel barrier or P_t of dual channel barrier

2.4 L_i plus interconnecting wiring < L_o of single or dual channel barrier

2.5 C_i plus interconnecting wiring < C_o of single or dual channel barrier

2.6 It is not necessary to use intrinsic safety barriers when installing the PD688/PD689 in Class I, II, III, Division 2, Groups ABCDFG, maximum input voltage = 30 VDC. Division 2 wiring methods must be used when not powering from a barrier.

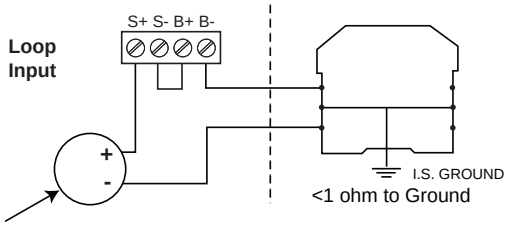
With Backlight

HAZARDOUS AREA

Class I, Div 1, 2, Groups ABCD
Class II, Div 1, Groups EFG
Class II, Div 2, Groups FG
Class III, Div 1, 2
Class I, Zone 0, Group IIC

NON-HAZARDOUS AREA

FM Entity Approved positive polarity single or dual-channel intrinsic safety barrier used in an approved configuration.



FM Entity Approved transmitter installed per transmitter manufacturer's Hazardous Location Installation Drawing.

PD688 & PD689 Entity Parameters:

U_i : 30 V; I_i : 175 mA; C_i : 0; L_i : 0; P_i : 1.0 W

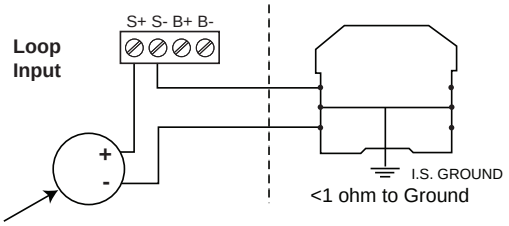
Without Backlight

HAZARDOUS AREA

Class I, Div 1, 2, Groups ABCD
Class II, Div 1, Groups EFG
Class II, Div 2, Groups FG
Class III, Div 1, 2
Class I, Zone 0, Group IIC

NON-HAZARDOUS AREA

FM Entity Approved positive polarity single or dual-channel intrinsic safety barrier used in an approved configuration.



FM Entity Approved transmitter installed per transmitter manufacturer's Hazardous Location Installation Drawing

PD688 & PD689 Entity Parameters:

U : 30 V; I_i : 175 mA; C_i : 0; L_i : 0; P_i : 1.0 W

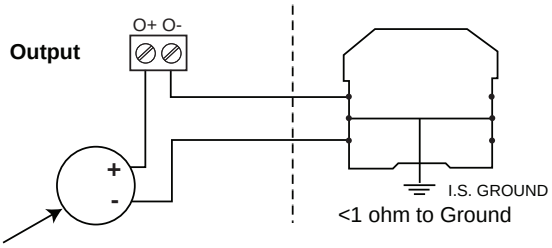
Open Collector Output

HAZARDOUS AREA

Class I, Div 1, 2, Groups ABCD
Class II, Div 1, Groups EFG
Class II, Div 2, Groups FG
Class III, Div 1, 2
Class I, Zone 0, Group IIC

NON-HAZARDOUS AREA

FM Entity Approved positive polarity single or dual-channel intrinsic safety barrier used in an approved configuration.



FM Entity Approved device installed per manufacturer's Hazardous Location Installation Drawing.

PD688 & PD689 Entity Parameters:

U_i : 30 V; I_i : 175 mA; C_i : 0; L_i : 0; P_i : 1.0 W

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3.0 CSA INSTALLATION WIRING DIAGRAM USING SINGLE OR DUAL CHANNEL INTRINSIC SAFETY BARRIER-ENTITY INSTALLATION

Application Notes:

3.1 Barrier parameters must meet the following requirements:

V_{oc} or $U_o \leq V_{max}$ or U_i

I_{sc} or $I_o \leq I_{max}$ or I_i; C_a or $C_o \geq C_i + C_{cable}$

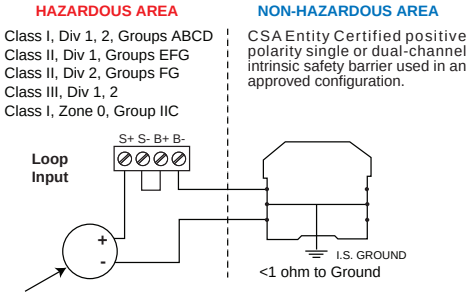
L_a or $L_o \geq L_i + L_{cable}$; $P_o < P_i$

3.2 For CSA Certification, barrier and transmitter must be CSA Certified with Entity Parameters and must be connected per manufacturer's instructions.

3.3 Class II & III environments require the installation of the meter into one of the following Precision Digital enclosures: PDA2407, PDA2408, PDA2409, or PDA2410.

3.4 It is not necessary to use intrinsic safety barriers when installing the PD688/PD689 in Class I, II, III, Division 2, Groups ABCDFG, maximum input voltage = 30 VDC. Division 2 wiring methods must be used when not powering from a barrier.

With Backlight

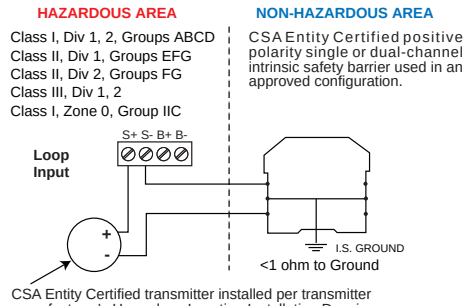


CSA Entity Certified transmitter installed per transmitter manufacturer's Hazardous Location Installation Drawing.

PD688 & PD689 Entity Parameters:

V_{max}: 30 V; I_{max}: 175 mA; C_i: 0; L_i: 0; P_i: 1.0 W

Without Backlight

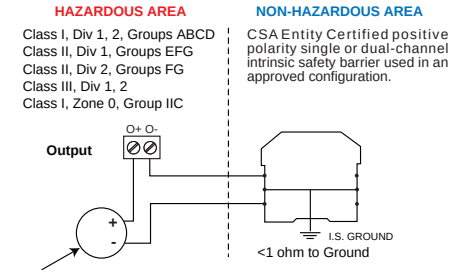


CSA Entity Certified transmitter installed per transmitter manufacturer's Hazardous Location Installation Drawing

PD688 & PD689 Entity Parameters:

V_{max}: 30 V; I_{max}: 175 mA; C_i: 0; L_i: 0; P_i: 1.0 W

Open Collector Output



CSA Entity Certified device installed per manufacturer's Hazardous Location Installation Drawing.

PD688 & PD689 Entity Parameters:

V_{max}: 30 V; I_{max}: 175 mA; C_i: 0; L_i: 0; P_i: 1.0 W

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