



CSA Control Drawing 960014221 A

Deltapilot M FMB50/51/52/53
 PROFIBUS PA, FOUNDATION Fieldbus

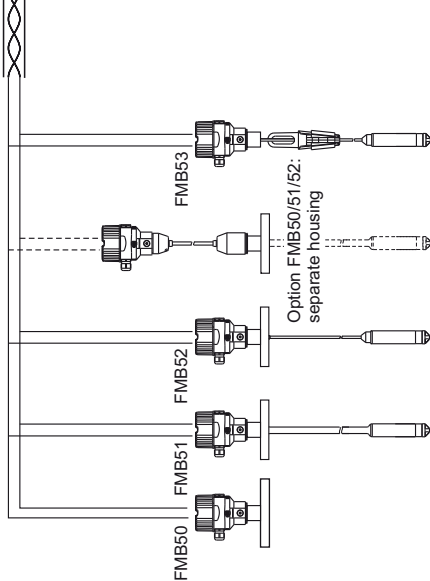
HAZARDOUS (CLASSIFIED) LOCATION

Class I, Zone 0, IIC
 Class I, Division 1, 2, Groups A, B, C, D
 Class II, Division 1, 2, Groups E, F, G
 Class III

Any
 CSA Approved
 Associated
 Apparatus
 suitable for
 Entity-concept
 or
 FISCO-concept

Deltapilot M with electronic insert for PROFIBUS PA/ FOUNDATION Fieldbus (Entity-Concept)	
U_i (Vmax) = 24 V I_i (Imax) = 250 mA P_i (Pmax) = 1.2 W $C_i \leq 5$ nF $L_i \leq 10$ μ H Leakage current ≤ 50 μ A	
Temperature classification	T6
Max. ambient temperature	40 °C 104 °F
Min. ambient temp: -40 °C (optional -50 °C)	

Deltapilot M with electronic insert for PROFIBUS PA/ FOUNDATION Fieldbus (FISCO-Concept)	
U_i (Vmax) = 17.5 V I_i (Imax) = 500 mA P_i (Pmax) = 5.5 W $C_i \leq 5$ nF $L_i \leq 10$ μ H Leakage current ≤ 50 μ A	
Temperature classification	T6
Max. ambient temperature	40 °C 104 °F
Min. ambient temp: -40 °C (optional -50 °C)	



Deltapilot M is suitable for the connection to a PROFIBUS PA/ FOUNDATION Fieldbus system according to the Entity- or FISCO-Concept (as described below).

FISCO-Concept

The FISCO-Concept allows interconnection of intrinsically safe apparatus to associated apparatus not specifically examined in such combination. The criteria for interconnection is that the voltage (U_i or Vmax), the current (I_i or Imax) and the power (P_i or Pmax) which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal or greater than the voltage (U_o or Voc or Vt), the current (I_o or Isc or It) and the power (P_o or Pmax) levels which can be delivered by the associated apparatus, considering faults and applicable factors. In addition, the maximum unprotected capacitance (Ci) and inductance (Li) of each apparatus (other than the termination) connected to the fieldbus must be less than or equal to 5 nF and 10 μ H respectively. In each segment only one active device, normally the associated apparatus, is allowed to provide the necessary energy for the fieldbus system. The voltage U_o (or Voc or Vt) of the associated apparatus has to be limited to the range of 14 V to 24 V d.c. All other equipment connected to the bus cable has to be passive, meaning that they are not allowed to provide energy to the system, except to a leakage current of 50 μ A for each connected device. Separately powered equipment needs a galvanic isolation to assure that the intrinsically safe fieldbus circuit remains passive.

Any
 CSA approved
 Intrinsically
 Safe Apparatus
 suitable for
 Entity-concept
 or
 FISCO concept

Any CSA approved Termination with
 $R = 90 \dots 100 \Omega$
 $C = 0 \dots 2.2 \mu F$

The cable used to interconnect the devices needs to have the parameters in the following range:

- loop resistance R': 15...150 Ohm/km
 - inductance per unit length L': 0.4...1 mH/km
 - capacitance per unit length C': 80...200 nF/km
 - $C = C' \cdot \text{line/line} + 0.5 C' \cdot \text{line/screen}$, if both lines are floating or $C' = C' \cdot \text{line/line} + C' \cdot \text{line/screen}$, if the screen is connected to one line
 - length of spur cable: 30 m
 - length of trunk cable: 1 km
 - length of splice: 1 m
- At each end of the trunk cable an approved infallible line termination with the following parameters is suitable:
 $R = 90 \dots 100 \Omega$ $C = 0 \dots 2.2 \mu F$.
- One of the allowed terminations might already be integrated in the associated apparatus.

NONHAZARDOUS LOCATION

INTRINSICALLY SAFE

- CLASS I, DIV.1, GROUPS A,B,C,D CLASS II, DIV.1, GROUPS E,F,G CLASS III: Ex ia IIC T6
- CSA certified apparatus must be installed in accordance with manufacturer instructions.
 - CSA certified associated apparatus must meet the following requirements:
 U_o or Voc or Vt $\leq U_i$ (Vmax) and I_o or Isc or It $\leq I_i$ (Imax) and P_o or Pmax $\leq P_i$ (Pmax).
 - The maximum non-hazardous area voltage must not exceed 250 V.
 - The installation must be in accordance with the Canadian Electrical Code or National Electrical Code (ANSI/NFPA70) and ISA RP 12.06.01.
 - Be aware of multiple earthing of screen. The screen must be connected in accordance with Canadian Electrical Code or National Electrical Code (ANSI/NFPA70) and ISA RP 12.06.01.

- Cautions: Use only supply wires suitable for 5 °C above surrounding temperature.
- Warning: Substitution of components may impair intrinsic safety.
- The polarity for connecting is of no importance due to an internal rectifier.
- Warning: Avoid electrostatic charging of plastic surfaces, plastic process connections or coatings.

Suitable for: CLASS I, DIV.2, GROUPS A,B,C,D CLASS II, DIV.1, GROUPS E,F,G
 HAZARDOUS LOCATION INSTALLATION
 1. Install per Canadian Electrical Code (CEC) or National Electrical Code (ANSI/NFPA70) and ISA RP 12.06.01.

- Intrinsic safety barrier not required. Max. supply voltage 32 V. For T-code see table.
 WARNING: Explosion Hazard - Do not disconnect equipment unless power has been switched off or the area is known to be Non-Hazardous.
 AVERTISSEMENT : Risque d'explosion - Ne pas débrancher tant que le circuit est sous tension, à moins qu'il s'agisse d'un emplacement non dangereux.
 WARNING: Explosion Hazard - Substitution of components may impair suitability for Class I, Div.2.
 AVERTISSEMENT : Risque d'explosion - La substitution de composant peut rendre ce matériel inacceptable pour les emplacements de Class I, Div.2.