



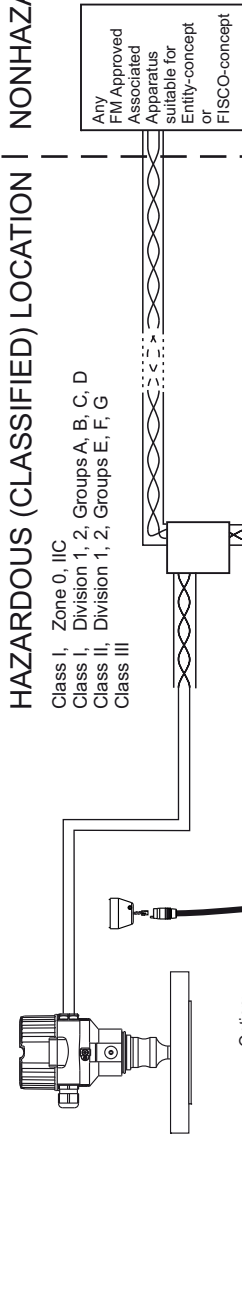
FM Control Drawing 960014202-B

Cerabar M PMC51, PMP51, PMP55
PA, FF



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



The devices are FM Certified as Single Seal per ANSI/ISA 12.27.01 as tabulated below, therefore installation of external secondary seals is not required.

Single Seal	Model	MWP*	Limited to:	
			Process Temperature**	Process Temperature**
	PMP51, PMP55	400 bar (5800 psi)	-40°C...+100°C	
	PMC51	40 bar (600 psi)	-40°C...+125°C	

* Limitations of the Maximum Working Pressure (MWP) are marked on the nameplate and must be considered!
** Limitations of the process temperature range depending on the used version are specified in the applicable technical information of the manufacturer and must be considered!
PMP55 allows higher process temperatures depending on the used diaphragm seal.
This is allowable provided the above specified process temperatures are guaranteed at the sensor close to the enclosure (location of primary seal) for these types.

Cerabar 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 V_{max}), the current (I_i or I_{max}) and the power (P_i or P_{max}) which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal or greater than the voltage (U_o or V_o or V_t), the current (I_o or I_o or I_t) and the power (P_o or P_{max}) levels which can be delivered by the associated apparatus considering faults and applicable factors. In addition, the maximum unprotected capacitance (C_i) and inductance (L_i) of each apparatus (other than the termination) connected to the fieldbus must be less than or equal to 5 nF and 10 µH 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 V_o or V_t) 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 µA for each connected device. Separately powered equipment needs a galvanic isolation to assure that the intrinsically safe fieldbus circuit remains passive.

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 · line/line + 0.5 C' · line/screen, if both lines are floating or C = C' · line/line + C' · line/screen,
length of spur cable: 30 m length of trunk cable: 1 km length of splice: 1 m
At the end of the trunk cable an approved inductive line termination with the following parameters is suitable:
R = 90...100 Ohm, C = 0...2.2 µF.
One of the allowed terminations might already be integrated in the associated apparatus.

NONHAZARDOUS LOCATION

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

Cerabar M with electronic insert for PROFIBUS PA/FOUNDATION Fieldbus (Entity-Concept)		Cerabar M with electronic insert for PROFIBUS PA/FOUNDATION Fieldbus (FISCO-Concept)	
U _i (V _{max}) = 24 V	Temperature classification T6	U _i (V _{max}) = 17.5 V	Temperature classification T6
I _i (I _{max}) = 250 mA	Max. ambient temperature 40°C	I _i (I _{max}) = 500 mA	Max. ambient temperature 40°C
P _i (P _{max}) = 1.2 W	104°F	P _i (P _{max}) = 5.5 W	104°F
C _i ≤ 5 nF	Leakage current ≤ 50 µA	C _i ≤ 5 nF	Leakage current ≤ 50 µA
L _i ≤ 10 µH		L _i ≤ 10 µH	
	Min. ambient temp. -40°C (optional -50°C)		Min. ambient temp. -40°C (optional -50°C)

Any FM Approved Termination with
R = 90...100 Ω
C = 0...2.2 µF

Intrinsically safe installations

Intrinsically safe for Cl. I, II, III, Div. 1, Gr. ABCDEFG, AEx ia IIC T6

1. FM Approved apparatus must be installed in accordance with manufacturer instructions.
2. FM Approved associated apparatus must meet the following requirements:
U_o or V_o or V_t ≤ U_i (V_{max}) and I_o or I_o or I_t ≤ I_i (I_{max}) and P_o or P_{max} ≤ P_i (P_{max}).
3. The maximum non-hazardous area voltage must not exceed 250 V.
4. The installation must be in accordance with the National Electrical Code NFPA 70 (NEC) and ANSI/ISA - RP 12.06.01 (except chapter 5).
5. Be aware of multiple earthing of screen. The screen must be connected in accordance with National Electrical Code.
6. Caution: Use only supply wires suitable for 5°C above surrounding temperature.
7. Warning: Substitution of components may impair intrinsic safety.
8. The polarity for connecting PA+ (1) and PA- (2) is of no importance due to an internal rectifier.
9. Avoid electrostatic charging of plastic surfaces; plastic process connections or coatings.

Division 2 and Zone 2 installation

Nonincendive Class I, Div. 2, Group A, B, C, D Hazardous Location Installation (not for separated housing)

10. Installation shall be in accordance with NEC using threaded conduits or other wiring methods in accordance with articles 500 to 510.
Intrinsic safety barrier not required. Max. supply voltage 32 V. For T-code see table.
11. Warning: Explosion Hazard - Do not disconnect equipment unless power has been switched off or the area is known to be non hazardous.
12. Nonincendive field wiring installation
The Nonincendive Field Wiring Circuit Concept allows interconnection of nonincendive field wiring apparatus with associated nonincendive field wiring apparatus or associated apparatus not specifically examined in combination as a system using any of the wiring methods permitted for unclassified locations, when V_{max} ≤ V_{oc} or V_t, C_i ≤ C_i + C_{cab}, L_a ≤ L_i + L_{cab}.
Transmitter parameters are as follows: V_{max} = 32 VDC; C_i ≤ 5 nF; L_i ≤ 10 µH; I_{max} = see note 13.
13. For these current controlled circuit, the parameter I_{max} is not required and need not to be aligned with parameter I_{sc} and I_t of the nonincendive field wiring or associated apparatus. Warning: Substitution of Components may impair suitability for Class I, Div. 2.
14. The transmitter is suitable to be installed according the FISCO (former FNICO) concept.

Class II, III installation

DIP for Class II and III, Div. 1, Group E, F, G Hazardous Location Installation (not for separated housing)

15. Installation of transmitter wiring according to NEC using threaded conduits or other wiring methods in accordance with articles 500 to 510.