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CSA Control Drawing 960014223 B

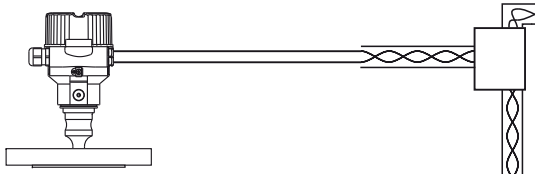
Cerabar M PMP51, PMP55
PROFIBUS PA, FOUNDATION Fieldbus
(XP/IS)

Endress+Hauser

People for Process Automation

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

Cerabar M with electronic insert for PROFIBUS PA/ FOUNDATION Fieldbus (Entity-Concept)

Ui (Vmax) = 24 V
Ii (Imax) = 250 mA
Pi (Pmax) = 1.2 W
Ci ≦ 5 nF Li ≦ 10 µH
Leakage current ≦ 50 µA

Temperature classification	T6	T4
Max. ambient temperature	40 °C 104 °F	70 °C 158 °F

Min. ambient temp: -40 °C (optional -50 °C)

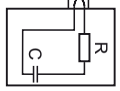
Cerabar M with electronic insert for PROFIBUS PA/ FOUNDATION Fieldbus (FISCO-Concept)

Ui (Vmax) = 17.5 V
Ii (Imax) = 500 mA
Pi (Pmax) = 5.5 W
Ci ≦ 5 nF Li ≦ 10 µH
Leakage current ≦ 50 µA

Temperature classification	T6	T4
Max. ambient temperature	40 °C 104 °F	70 °C 158 °F

Min. ambient temp: -40 °C (optional -50 °C)

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



Any CSA approved Termination with
R = 90...100 Ω
C = 0...2.2 µF

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 (Ui or Vmax), the current (Ii or Imax) and the power (Pi or Pmax) which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal or greater than the voltage (Uo or Voc or Vt), the current (Io or Isc or It) and the power (Po 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 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 Uo (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 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, 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...100 Ohm C = 0...2.2 µF.
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

1. CSA certifed apparatus must be installed in accordance with manufacturer instructions.
2. CSA certified associated apparatus must meet the following requirements:
   Uo or Voc or Vt ≤ Ui (Vmax) **and** Io or Isc or It ≤ Ii (Imax) **and** Po or Pmax ≤ Pi (Pmax).
3. The maximum non-hazardous area voltage must not exceed 250 V.
4. The installation must be in accordance with the Canadian Electrical Code or National Electrical Code (ANSI/NFPA70) and ISA RP 12.06.01.
5. 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.
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 is of no importance due to an internal rectifier.
9. Warning: Avoid electrostatic charging of plastic surfaces, plastic process connections or coatings.

The devices are CSA 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	Limited to: MWP*	Limited to: Process Temperature**
	PMP51, PMP55	400 bar (5800 psi)	-40 °C...+100 °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.

Install per Canadian Electrical Code or National Electrical Code (ANSI/NFPA70).
This device is suitable to be installed in accordance with the wiring methods of Division 1/ Zone 0 resp. Zone 20 for intrinsic safety (as defined above) and for Division 1/ Zone 1 for explosionproof protection.

For installations in accordance with the requirements of explosionproof protection the device is suitable for:

Explosionproof for Cl.I Div.1 Gp. BCD
Factory sealed, conduit seal is not required!

Max. supply voltage: 32 VDC
P ≤ 1.25 W

Ambient temperature range: -40 °C...+75 °C (optional Ta,min -50 °C)
Warning: Conductors shall be rated 10 °C above ambient.

Warning: Keep cover tight, while circuit is alive.
Warning: Changing the type of protection after first installation may impair the explosion protection.