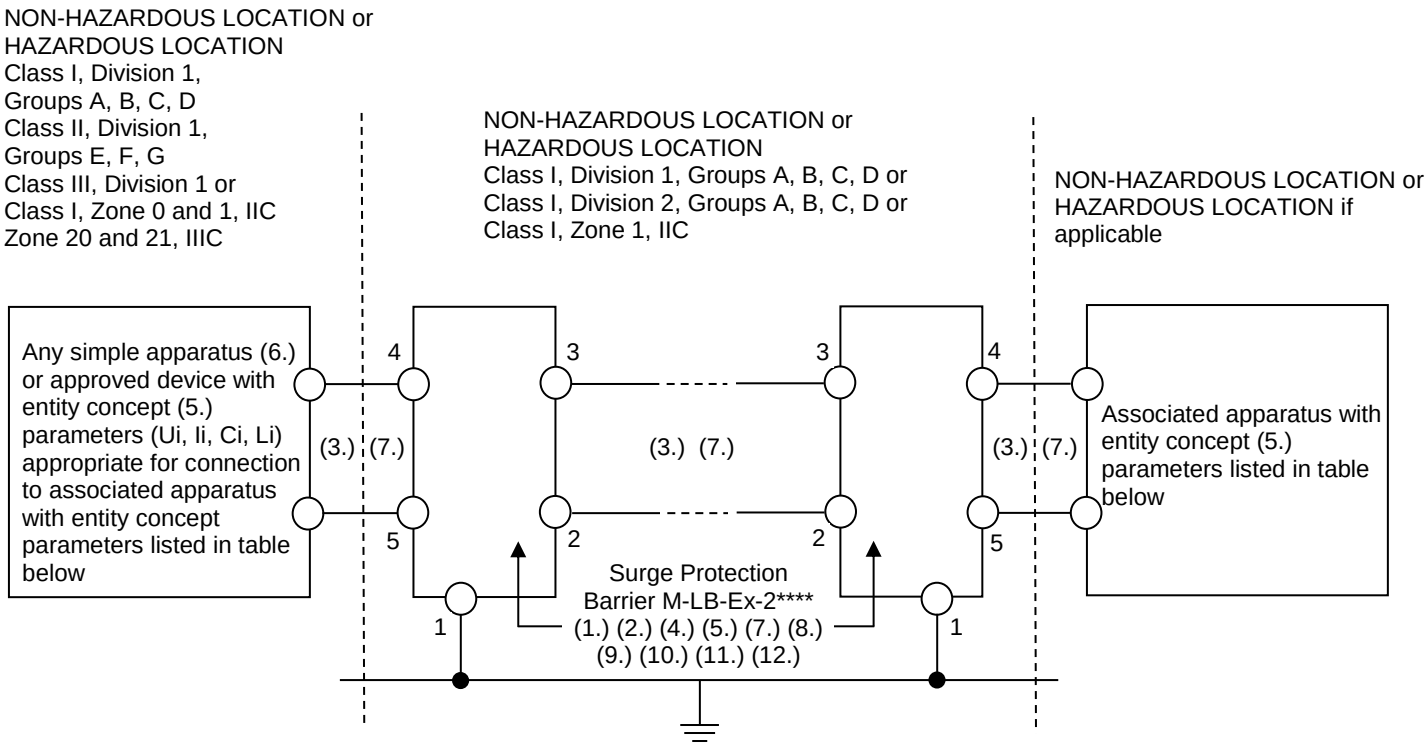
Connections



Notes

1. The Surge Protection Barriers are connected in intrinsically safe signal loops and are rated “intrinsically safe” for use in Class I, Division 1 or Zone 1 and are rated “nonincendive” for use in Class I, Division 2 or Zone 2, temperature classes T4, T5, T6. Temperature class depends on maximum Imax (Ii) current and Pi power, see ratings below.

2. The device is designed to protect equipment from damage caused by indirect effects of lightning or other transient overvoltages. This protection is achieved by diverting the increased transient current and limiting the voltage during the duration of the overvoltage surge. The system is not intrinsically safe during the transient overvoltage but the high potential differences are reduced at the connected devices.

3. The protection level of the connected circuit is not changed by the Surge Protection Barrier.

4. The suitability of installation of the Surge Protection Barrier in a specific Division / Zone is determined by the connected signal circuit.

5. The Entity Concept allows interconnection of intrinsically safe apparatus with associated apparatus not specifically examined in combination as a system when the approved values of Voc (or Uo) and Isc (or Io) for the associated apparatus are less than or equal to Vmax (Ui) and Imax (Ii) for the intrinsically safe apparatus and the approved values of Ca(Co) and La(Lo) for the associated apparatus are greater than Ci + Ccable and Li + Lcable, respectively, for the intrinsically safe apparatus,
   Where Ccable = 60pF/ft (for two or three core cables), if unknown
   Where Lcable = 0.20uH/ft (for two or three core cables), if unknown

6. Simple apparatus: an electrical component or combination of components of simple construction with well-defined electrical parameters that does not generate more than 1.5 V, 100mA, 25mW, or is a passive component that does not disipate more than 1.3W and is compatible with the intrinsic safety of the circuit in which it is used.

7. The Surge Protection Barriers may also be connected to nonincendive field wiring. A temperature rating of T4, T5 or T6 applies depending on maximum Imax (Ii) current, see current rating below.

8. Surge Protection Barriers type M-LB-Ex-2**4* are used to protect grounded signal lines. They provide a defined protection level from line to earth by connecting the signal lines to earth via suppressor diodes. Typical application is in connection with zener barriers.
Surge Protection Barriers type M-LB-Ex-2**2* are used to protect not grounded signal lines. They are connected with earth via gas discharge tube only. This results in a greater insulation voltage from line to earth. Typical application is in connection with galvanic isolators.
Apparatus (all models) does not provide isolation from earth in accordance with UL 60079-11/6.3.13.

9. Apparatus must be installed in accordance with this control drawing, applicable requirements of National Code (ANSI/NFPA 70), in particular, articles 501 and 504 for installation in the United States, or Section 18 of the Canadian Electrical Code for installations in Canada.

10. Equipment is open type and shall be mounted in a suitable for intended end use application tool-secured Listed enclosure with a minimum flame rating of V-0 or better (IP20 minimum). For United States, the enclosure shall be capable of accepting one of the wiring methods specified in ANSI/NFPA 70, articles 501 and 504.

11. Mount the devices in the same orientation on the DIN mounting rail. Use the insulation spacer M-LB-2800 as the termination of a device series for closing the open side wall. Secure the insulation spacer on the DIN mounting rail against shifting or falling over. For example, use terminal block USLKG5.

12. The permitted ambient temperature range is -40°C to 80°C.

Entity Parameters

Model	Terminals	Vmax (Ui) (V)	Imax (Ii) (mA)	Pi (W) *	Li (µH)	Ci (nF)
M-LB-Ex-211**	2, 3 4, 5	6	400 (see current rating)	1,4 (see power rating)	20	0
M-LB-Ex-214**		30				

Parameters Voc (Uo), Isc (Io) and Po are determined by the parameters of the circuit to which the Surge Protection Barrier is connected.

* If installed in Division 2 / Zone 2 the parameter Pi = any

Current and power ratings:

Mounting in Division 2 / Zone 2 requiring temperature class T4 or in non-hazardous areas

Max. ambient temperature	**40°C**	**50°C**	**60°C**	**70°C**	**80°C**
Imax (Ii)	400 mA	325 mA	250 mA	175 mA	100 mA
Pi	any	any	any	any	any
Linear interpolation between these values is permitted					

Mounting in Division 2 / Zone 2 requiring temperature class T5

Max. ambient temperature	**40°C**	**50°C**	**60°C**	**70°C**	**80°C**
Imax (Ii)	280 mA	210 mA	140 mA	70 mA	0 mA
Pi	any	any	any	any	any
Linear interpolation between these values is permitted					

Mounting in Division 2 / Zone 2 requiring temperature class T6

Max. ambient temperature	**40°C**	**50°C**	**60°C**	**70°C**
Imax (Ii)	280 mA	210 mA	140 mA	70 mA
Pi	any	any	any	any
Linear interpolation between these values is permitted				

Mounting in Division 1 / Zone 1 requiring temperature class T4

Max. ambient temperature	40°C	50°C	60°C	70°C	80°C
Imax (Ii)	400 mA	325 mA	250 mA	175 mA	100 mA
Pi	1,4 W	1,3 W	1,2 W	1,1 W	1 W
Linear interpolation between these values is permitted					

Mounting in Division 1 / Zone 1 requiring temperature class T5

Max. ambient temperature	40°C	50°C	60°C	70°C	80°C
Imax (Ii)	280 mA	210 mA	140 mA	70 mA	0 mA
Pi	0,35 W	0,26 W	0,17 W	0,08 W	0 W
Linear interpolation between these values is permitted					

Mounting in Division 1 / Zone 1 requiring temperature class T6

Max. ambient temperature	40°C	50°C	60°C	65°C
Imax (Ii)	280 mA	210 mA	140 mA	70 mA
Pi	0,3 W	0,21 W	0,17 W	0,07 W
Linear interpolation between these values is permitted				

WARNING - Substitution of components may impair intrinsic safety
AVERTISSEMENT - La substitution de composants peut compromettre la sécurité intrinsèque