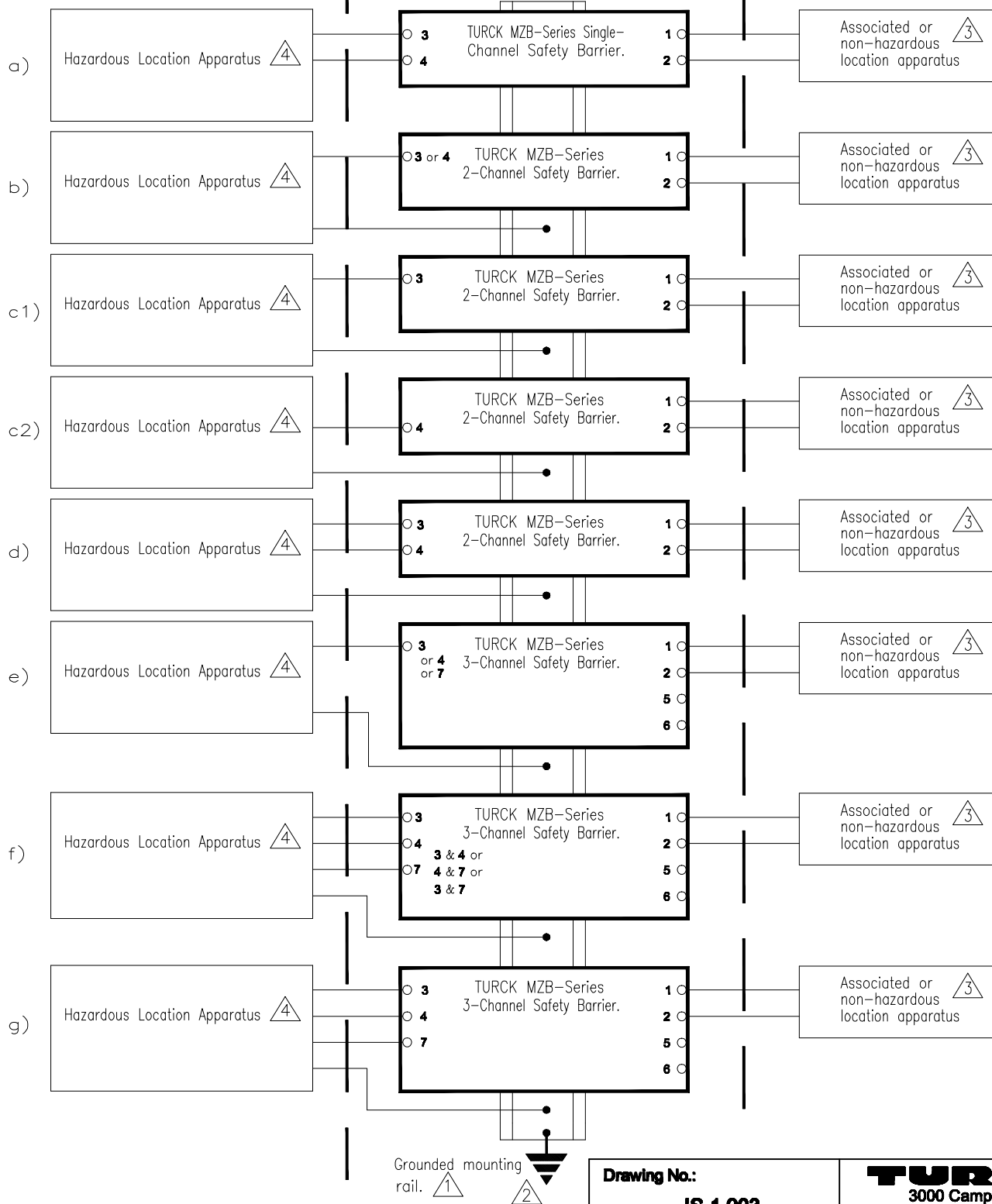


HAZARDOUS LOCATION
CLASS I, II, III; DIVISION 1
Groups A,B,C,D,E,F,G or Class I;
Zone 0,1,2 Groups IIC,IIB,IIA 

NON-HAZARDOUS LOCATION OR
HAZARDOUS (CLASSIFIED) LOCATION
CLASS I; DIVISION 2, GROUPS A,B,C,D
or CLASS I; Zone 2 GROUPS IIC,IIB,IIA

NON-HAZARDOUS LOCATION



Drawing No.:

IS-1.903

TURCK

3000 Campus Drive
Plymouth, MN 55441
Phone: (763) 553-7300

Title:

Control Drawing for FM Approved
MZB Series Barriers

Scale: NONE

Sheet 1 of 6

A	Release	BVL	5/1/08
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HAZARDOUS LOCATION

CLASS I, II, III; DIVISION 1

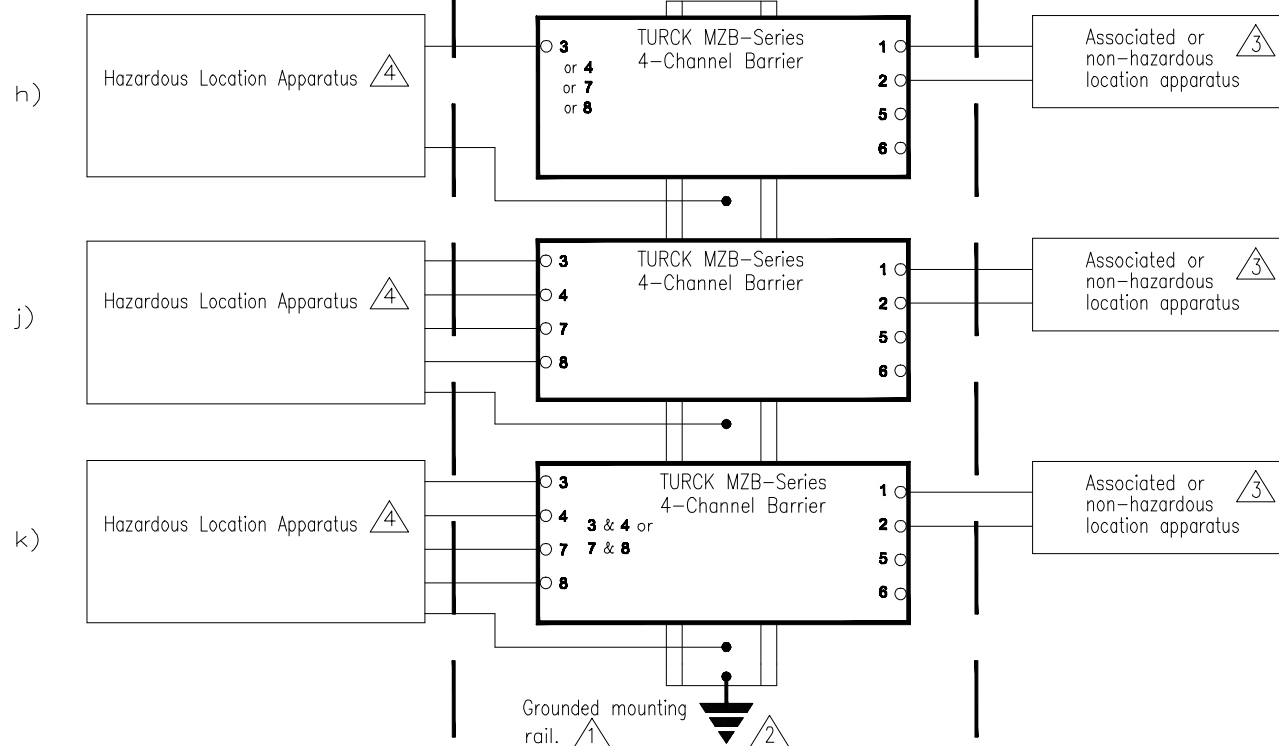
Groups A,B,C,D,E,F,G or Class I;

Zone 0,1,2 Groups IIC,IIB,IIA NON-HAZARDOUS LOCATION or
HAZARDOUS (CLASSIFIED) LOCATION

CLASS I; DIVISION 2, GROUPS A,B,C,D

or CLASS I; Zone 2 GROUPS IIC,IIB,IIA

NON-HAZARDOUS LOCATION



CONFIGURATIONS

- a) Single channel barrier to one device with ground return.
- b) Dual channel barrier, each channel to separate devices with separate ground returns.
- c1) Dual channel barrier, first channel (power channel on diode return barriers) to separate device with separate ground return.
- c2) Dual channel barrier, second channel (power channel on diode return barriers) to separate device with separate ground return.
- d) Dual channel barrier, both channels to the same device with or without ground return.
- e) Three channel barrier, each channel to separate devices with separate ground returns.
- f) Three channel barrier, two channels to same device with or without ground return and one channel to separate device with separate ground return.
- g) Three channel barrier, three channels to same device with or without ground return.
- h) 1st, 2nd, 3rd, or 4th channel of a four channel barrier, each channel to separate devices with separate ground returns.
- j) Four channel barrier, all channels to same device with or without ground return.
- k) Four channel barrier, channels 1 and 2 or channels 3 and 4 to same device with or without ground return.

Notes:

-  1 Turck MZB Series shunt diode barriers must be secured to a DIN 'T' section (35x27x7.5mm) mounting rail. Rails constructed of aluminum or aluminum-based alloys must not be used. The mounting rail must be provided with at least one grounding terminal (two are recommended) which should be situated at each end of the rail. These terminals are to be used for the intrinsic safety grounding and must be capable of accommodating conductors up to 12 AWG (4mm in cross-section).
-  2 The intrinsic safety grounding system must be such that when installed the ground loop impedance (including the mounting rail) does not exceed 1.0 ohm.
-  3 The nonhazardous (safe) location or Division 2/Zone 2 equipment must not generate or use voltages (U_m) in excess of 250V rms or dc.

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Notes (continued):

4. The hazardous location equipment may be:
- FM approved equipment suitable for the location in which it is to be installed, with correct entity parameters, or
 - Simple apparatus.

If the simple apparatus consists only of switches, then the entity parameter table on subsequent sheets of this drawing applies without any temperature limitation.

If the simple apparatus consists of thermocouples, light emitting diodes or resistance temperature devices, with or without switches, then the maximum output power (Po) from the barrier connected to simple apparatus must not exceed the following:

Maximum barrier output power (Po)	Maximum ambient Temperature (Ta) where simple apparatus is located
1.3 Watts	40°C
1.2 Watts	60°C
1.0 Watts	80°C

5. Barriers must be installed in suitable equipment enclosure meeting requirements of ANSI/ISA S82.02.01 or in compliance with the enclosure, mounting, spacing, and segregation requirements of the ultimate application.

6. MZB Series shunt diode safety barriers are associated apparatus, and when mounted in an appropriate enclosure may be installed in the following locations:

- Nonhazardous locations
- Class I, Division 2, Groups A, B, C or D; or Class I, Zone 2, Group IIC, IIB or IIA hazardous locations:

When installed in a FM Approved or NRTL listed, dust-ignitionproof enclosure, the barriers may also be installed in the following locations:

- Class II, Division 2, Groups F or G hazardous locations, T4 temperature code
- Class III, Division 2, hazardous locations, T4 temperature code

7. For guidance on the installation refer to ANSI/ISA RP12.6 "Wiring Practices for Hazardous (Classified) Locations Instruments, Part I: Intrinsic Safety" and the National Electrical Code (ANSI/NFPA 70)

8. Entity parameters for barriers listed in the parameters table must be used to determine the suitability of the barrier for connection to hazardous location apparatus. The following must be observed:

$$V_{OC} \text{ or } V_t(U_O) \leq V_{MAX}(U_i)$$

$$I_{SC} \text{ or } I_t(I_O) \leq I_{MAX}(I_i)$$

$$P_O \leq P_i$$

$$L_a(L_O) \geq L_{cable} + L_i \text{ or } L_a/R_a(L_O/R_O) \geq L_{cable}/R_{cable} \text{ and } L_a/R_a(L_O/R_O) \geq L_i/R_i$$

9. Certain barriers are not permitted as associated apparatus for Div 1, Groups A, B or Zones 0,1 Group IIC. Refer to entries with asterisks in the following table.

10. When fitted in a nonhazardous location, the barriers may be used at the same maximum ambient temperature as when installed in Division 2 or Zone 2.

WARNING

The following precautions must be taken when MZB Series shunt diode barriers are installed in in Division 2 or Zone 2 hazardous locations.

- Barriers must not be fitted to or removed from the DIN rail unless power is off or the location is known to be nonhazardous.
- Plug in terminals on nonhazardous side of the barriers as well as the bus power terminal jumper of barriers fitted with the bus power feature, must not be inserted or removed unless power is off or the location is known to be nonhazardous.

A	Release	BVL	5/1/08	Drawing No.:	IS-1.903
Rev	Description	Drft	Date	Scale: NONE	Sheet 3 of 6

Barrier Model Terminals	Configuration	V _{oc} or U _o (V)	I _{sc} or I _o (mA)	V _t or U _o (V)	I _t or I _o (mA)	P _o (W)	C _a or C _o (uF) AB(IIC)/CE(IIB)/DFG(IIA)	L _a or L _o (mH) AB(IIC)/CE(IIB)/DFG(IIA)	L _a /R _a or L _o /R _o (uH/Ohms) AB(IIC)/CE(IIB)/DFG(IIA)
MZB06 3 – 4	a	28	93	–	–	0.65	0.083/0.65/2.15	4.2/12.6/33.6	56/210/444
MZB10P 3 – 4	a	10	200	–	–	0.5	3.0/20/100	0.91/2.72/7.25	74/310/627
MZB15P 3 – 4	a	15	150	–	–	0.56	0.58/3.55/14.0	1.45/7.22/14	66/263/544
MZB15PX 3 – 4	a	15	291	–	–	1.09	0.58/3.55/14.0	0.33/0.99/2.64	28/140/280
MZB28P 3 – 4	a	28	93	–	–	0.65	0.083/0.65/2.15	4.2/12.6/33.6	56/210/444
MZB28PX 3 – 4	a	28	119	–	–	0.83	0.083/0.65/2.15	2.5/7.53/20	44/168/354
MZB29PX 3 – 4	a	28	170	–	–	1.19	*/0.65/2.15	*/5.65/11.34	*/127/260
MZB41R 3 – 4	d	–	–	10	19	0.039	2.86/20.0/100	96/365/696	742/1900/1900
MZB42T 3 – 4	d	–	–	10	19	0.039	2.86/20.0/100	96/365/696	742/1900/1900
MZB43R 3 – 4 or 7 – 8	k	–	–	10	19	0.039	2.86/20.0/100	96/365/696	742/1900/1900
MZB43R 3–4–7–8	j	–	–	10	38	0.078	2.73/19.9/100	25/91/193	184/694/1323
MZB44T 3 – 4 or 7 – 8	k	–	–	10	19	0.039	2.86/20.0/100	96/365/696	742/1900/1900
MZB44T 3–4–7–8	j	–	–	10	38	0.078	2.73/19.9/100	25/91/193	184/694/1323
MZB45R 3 – 4	d	–	–	10	19	0.039	2.86/20.0/100	96/365/696	742/1900/1900
MZB56A 3–gnd or 4–gnd or 7–gnd	e	3	300	–	–	0.225	100/1000/1000	0.46/1.37/3.66	145/722/1442
MZB56A 3–4 or 4–7 or 3–7	f	–	–	6	600	0.45	40/1000/1000	0.13/0.39/1.03	69/206/548
MZB56A 3–4–7	g	–	–	6	900	0.675	40/1000/1000	0.06/0.19/0.49	44/131/349
MZB58P 3 – gnd	c1	7.5	750	–	–	1.4	11.1/174/1000	0.07/0.20/0.54	26/77/206
MZB58P 4 – gnd	c2	7.5	750	–	–	1.4	11.1/174/1000	0.07/0.20/0.54	26/77/206
MZB58P 3 – 4	d	–	–	7.9	1500	2.8	8.8/115/1000	0.02/0.05/0.14	10/30/81
MZB60A 3–gnd or 4–gnd	b	10	200	–	–	0.5	3.0/20.2/100	0.91/2.72/7.25	74/310/627
MZB60A 3 – 4	d	–	–	10	400	1.0	3.0/20.2/100	0.2/1.0/1.8	35.6/142.2/284.4
MZB61A 3–gnd or 4–gnd	b	9	100	–	–	0.225	4.9/40/500	3.72/15/500	163/616/1299

* Not permitted for Groups A/B (IIC)

A	Release	BVL	5/1/08	Drawing No.:	IS–1.903
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Barrier Model Terminals	Configuration	V _{oc} or U _o (V)	I _{sc} or I _o (mA)	V _t or U _o (V)	I _t or I _o (mA)	P _o (W)	C _a or C _o (uF) AB(IIC)/CE(IIB)/DFG(IIA)	L _a or L _o (mH) AB(IIC)/CE(IIB)/DFG(IIA)	L _a /R _a or L _o /R _o (uH/Ohms) AB(IIC)/CE(IIB)/DFG(IIA)
MZB61A 3 – 4	d	–	–	18	200	0.45	0.31/1.78/7.6	0.91/2.72/7.2	62/258/522
MZB61AX 3–gnd or 4–gnd	b	9	26	–	–	0.58	4.9/40/500	56/208/419	613/2382/2778
MZB61AX 3 – 4	d	–	–	18	52	0.115	0.31/1.78/7.6	14/55/116	236/870/1747
MZB64A 3–gnd or 4–gnd	b	12	12	–	–	0.036	1.41/9/36	240/932/1000	1000/1000/1000
MZB64A 3 – 4	d	–	–	24	24	0.072	0.125/0.93/3.35	61/226/452	360/1398/1500
MZB65A 3–gnd or 4–gnd	b	15	150	–	–	0.56	0.58/3.55/14.0	1.45/7.22/14.0	66/263/544
MZB65A 3 – 4	d	–	–	15	300	1.12	0.58/3.55/14.0	0.32/0.95/2.54	31.6/126.4/252.8
MZB66A 3–gnd or 4–gnd	b	12	80	–	–	0.24	1.41/9/36	5.8/23/48	151/556/1174
MZB66A 3 – 4	d	–	–	24	160	0.48	0.125/0.93/3.35	1.47/4.4/11	58/234/481
MZB66AX 3–gnd or 4–gnd	b	12	157	–	–	0.471	1.41/9/36	1.47/4.4/11	78/313/644
MZB66AX 3 – 4	d	–	–	24	314	0.942	0.125/0.93/3.35	0.34/1.02/2.71	29/87/231
MZB67P 3–gnd or 4–gnd	b	15	150	–	–	0.56	0.58/3.55/14	1.45/7.22/14	66/263/544
MZB67P 3 – 4	d	–	–	15	300	1.125	0.58/3.55/14	0.32/0.95/2.54	22/108/216
MZB79P 3–gnd or 4–gnd	b	28	93	–	–	0.65	0.083/0.65/2.15	4.2/12.6/33.6	56/210/444
MZB79P 3 – 4	d	–	–	28.3	186	1.3	*/0.63/2.09	*/4.1/7.9	*/108/217
MZB87P 3 – gnd	c1	28	93	–	–	0.65	0.083/0.65/2.15	4.2/12.6/33.6	56/210/444
MZB87P 4 – gnd	c2	28	0	–	–	–	0.083/0.65/2.15	–	–
MZB87P 3 – 4	d	–	–	29.4	93	0.65	0.071/0.587/1.91	4.2/12.6/33.6	56/210/444
MZB87PX 3 – gnd	c1	28	119	–	–	0.835	0.083/0.65/2.15	2.5/7.53/20	44/168/354
MZB87PX 4 – gnd	c2	28	0	–	–	–	0.083/0.65/2.15	2.5/7.53/20	44/168/354
MZB87PX 3 – 4	d	–	–	28.5	119	0.835	0.078/0.627/2.05	2.5/7.53/20	44/168/354
MZB89P 3–gnd or 7–gnd	h	28	46.5	–	–	0.33	0.083/0.65/2.15	16/63/133	106/393/781

* Not permitted for Groups A/B (IIC)

A	Release	BVL	5/1/08	Drawing No.:	IS–1.903
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Barrier Model Terminals	Configuration	V _{oc} or U _o (V)	I _{sc} or I _o (mA)	V _t or U _o (V)	I _t or I _o (mA)	P _o (W)	C _a or C _o (uF) AB(IIC)/CE(IIB)/DFG(IIA)	L _a or L _o (mH) AB(IIC)/CE(IIB)/DFG(IIA)	L _a /R _a or L _o /R _o (uH/Ohms) AB(IIC)/CE(IIB)/DFG(IIA)
MZB89P 4-gnd or 8-gnd	h	28	0	—	—	0	0.083/0.65/2.15	—	—
MZB89P 3-4 & 7-8	j	—	—	28	93	0.65	0.083/0.65/2.15	4.2/12.6/33.6	56/210/444
MZB89P 3-4 or 7-8	k	—	—	28	46.5	0.33	0.083/0.65/2.15	16/63/133	106/393/781

A	Release	BVL	5/1/08	Drawing No.:	IS-1.903
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