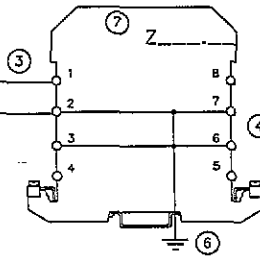


HAZARDOUS AREA
 CLASS I, DIVISION 1 } Applicable Groups
 CLASS II, DIVISION 1 } per Table Below
 CLASS III, DIVISION 1 }

NON-HAZARDOUS AREA (5)
 OR
 CLASS I, DIVISION 2, GROUPS ABCD (5)

Any Simple Apparatus (2) or approved device with Entity Concept parameters (1) (Vmax, Imax, Ci, Li) appropriate for connection to associated apparatus with Entity Concept parameters listed below.

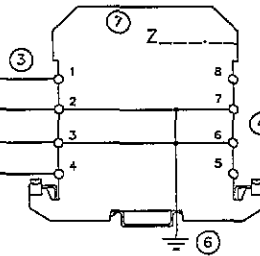
CONNECTION DIAGRAM 1



Any Simple Apparatus (2) or approved device with Entity Concept parameters (1) (Vmax, Imax, Ci, Li) appropriate for connection to associated apparatus with Entity Concept parameters listed below.

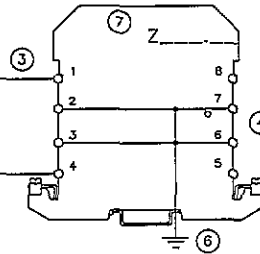
Any Simple Apparatus (2) or approved device with Entity Concept parameters (1) (Vmax, Imax, Ci, Li) appropriate for connection to associated apparatus with Entity Concept parameters listed below.

Note: Ground returns must be run separately.
 CONNECTION DIAGRAM 2



Any Simple Apparatus (2) or approved device with Entity Concept parameters (1) (Vmax, Imax, Ci, Li) appropriate for connection to associated apparatus with Entity Concept parameters listed below.

CONNECTION DIAGRAM 3

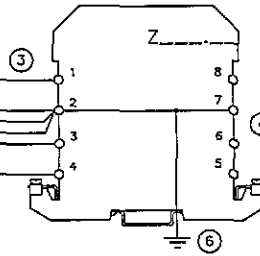


Any Simple Apparatus (2) or approved device with Entity Concept parameters (1) (Vmax, Imax, Ci, Li) appropriate for connection to associated apparatus with Entity Concept parameters listed below.

Any Simple Apparatus (2) or approved device with Entity Concept parameters (1) (Vmax, Imax, Ci, Li) appropriate for connection to associated apparatus with Entity Concept parameters listed below.

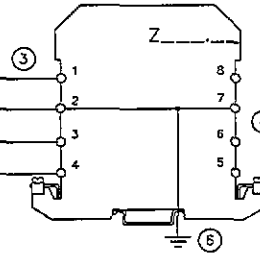
Any Simple Apparatus (2) or approved device with Entity Concept parameters (1) (Vmax, Imax, Ci, Li) appropriate for connection to associated apparatus with Entity Concept parameters listed below.

Note: Ground returns must be run separately.
 CONNECTION DIAGRAM 4



Any Simple Apparatus (2) or approved device with Entity Concept parameters (1) (Vmax, Imax, Ci, Li) appropriate for connection to associated apparatus with Entity Concept parameters listed below.

CONNECTION DIAGRAM 5



Certification Status		
Agency	Pending	Final
FM	X	X
CSA		
UL		

See installation notes, last sheet of drawing.

Revision	Date	Cons.	Resp.	Appr.	ECO No.	Product Part No.	Title
d	3-5-99	W.B.	W.B.	D.H.	ECO-2587		INSTALLATION DRAWING FOR FM APPROVED Z7..., Z8..., AND Z9.. ZENER BARRIERS
c	5-18-98	W.B.			ECO-2289		
b	1-7-98	J.M.			ECO-1699		
a	1-31-96	J.M.			ECO-1072		
						THIS DRAWING CONTAINS PROPRIETARY DATA. NO DISCLOSURE, REPRODUCTION, OR USE OF ANY PART MAY BE MADE EXCEPT BY WRITTEN PERMISSION.	
0	6-13-95	D.H.					Draw. 116-0118d
In.	Date	Cons.	Resp.	Appr.	Pepperl+Fuchs® Inc.	Repl.No. -	Sh. 1 of 5
						Twinsburg, OH 44087-2202	

TABLE 1 - ENTITY PARAMETERS

MODEL NUMBER	DIA. NO.	TERMINALS	V _{oc} (V)	I _{sc} (mA)	V _t (V)	I _t (mA)	GROUPS	C _e (UF)	L _o (mH)	
Z705 (Z805)	1	1-2	4.97 (-4.97)	507	-	-	A,B	1000	0.10	
							C,E	3000	0.17	
							D,F,G	8000	1.17	
Z710 (Z810) Z710.CL (Z810.CL)	1	1-2	9.77 (-9.77)	200	-	-	A,B	3.51	0.48	
							C,E	10.5	4.08	
							D,F,G	28.1	7.50	
Z713 (Z813)	1	1-2	15.75 (-15.75)	724	-	-	A,B	0.67	0.07	
							C,E	2.02	0.21	
							D,F,G	5.38	0.57	
Z715 (Z815) Z715.F (Z815.F) Z715.CL (Z815.CL)	1	1-2	15.2 (-15.2)	155	-	-	A,B	0.76	1.09	
							C,E	2.27	6.65	
							D,F,G	6.06	12.4	
Z715.1k (Z815.1k)	1	1-2	15.2 (-15.2)	15.5	-	-	A,B	0.76	1.37	
							C,E	2.27	480	
							D,F,G	6.06	1215	
Z722 (Z822) Z722.CL (Z822.CL)	1	1-2	22.7 (-22.7)	155	-	-	A,B	0.24	1.10	
							C,E	0.72	6.67	
							D,F,G	1.92	12.5	
Z726	1	1-2	27.0	159.0	-	-	A,B	-	-	
							C,E	0.46	6.36	
							D,F,G	1.24	11.87	
Z728 (Z828) Z728.F (Z828.F) Z728.CL (Z828.CL)	1	1-2	28.0 (-28.0)	93.0	-	-	A,B	0.13	3.91	
							C,E	0.39	15.9	
							D,F,G	1.04	32.1	
Z731	4	1-2	28.0	93.3	-	-	A,B	0.13	3.91	
							C,E	0.39	12.39	
							D,F,G	1.04	33.04	
	4	3-2, 4-2	7.14	1456	-	-	-	A,B	10.0	0.03
								C,E	30.0	0.09
								D,F,G	80.0	0.26
	5	1-2-3-4	-	-	30.0	1549.3	-	A,B	0.11	0.03
								C,E	0.33	0.09
								D,F,G	0.88	0.24
Z755 (Z855)	2	1-2, 3-4	4.97 (-4.97)	507	-	-	A,B	1000	0.10	
							C,E	3000	0.17	
							D,F,G	8000	1.17	
	3	1-4	-	-	5.97	1014	-	A,B	128	0.02
								C,E	385	0.05
								D,F,G	1026	0.15
Z757 (Z857)	2	1-2, 3-4	7.30 (-7.30)	745	-	-	A,B	12.3	0.03	
							C,E	36.8	0.09	
							D,F,G	98.2	0.29	
	3	1-4	-	-	8.30	1489	-	A,B	6.89	0.01
								C,E	20.7	0.02
								D,F,G	55.1	0.07
Z764 (Z864)	2	1-2, 3-4	11.9 (-11.9)	12.1	-	-	A,B	1.69	220	
							C,E	5.07	767	
							D,F,G	13.5	1966	
	3	1-4	-	-	12.9	24.3	-	A,B	1.28	57.0
								C,E	3.83	202
								D,F,G	10.2	495
Z765 (Z865)	2	1-2, 3-4	15.2 (-15.2)	155	-	-	A,B	0.76	1.09	
							C,E	2.27	6.65	
							D,F,G	6.06	12.4	
Z765.F (Z865.F)	3	1-4	-	-	16.2	309	A,B	0.62	0.20	
							C,E	1.87	1.56	
							D,F,G	4.98	3.13	
Z772 (Z872)	2	1-2, 3-4	22.7 (-22.7)	155	-	-	A,B	0.24	1.10	
							C,E	0.72	6.67	
							D,F,G	1.92	12.5	
	3	1-4	-	-	24.7	309	-	C,E	0.58	1.56
								D,F,G	1.55	3.14
								A,B	0.13	15.6
Z778 (Z878)	2	1-2, 3-4	28.0 (-28.0)	46.0	-	-	C,E	0.40	57.2	
							D,F,G	1.06	1.30	
							A,B	0.11	3.91	
	3	1-4	-	-	30.0	93.0	-	C,E	0.34	16.1
								D,F,G	0.91	32.7
								A,B	0.13	3.91
Z779 (Z879)	2	1-2, 3-4	28.0 (-28.0)	93.0	-	-	C,E	0.40	15.9	
							D,F,G	1.06	32.1	
							C,E	0.33	4.39	
Z779.F (Z879.F)	3	1-4	-	-	30.0	186	D,F,G	0.91	8.08	
							A,B	0.13	4.29	
							C,E	0.40	17.2	
Z786 (Z886)	2	1-2, 3-4	28.0 (-28.0)	0.0	-	-	D,F,G	1.06	35.1	
							A,B	0.11	4.29	
							C,E	0.34	17.2	
	3	1-4	-	-	30.0	0.0	-	A,B	0.11	4.29
								C,E	0.34	17.2
								D,F,G	0.91	35.1

Certification Status		
Agency	Pending	Final
FM	X	X
CSA		
UL		


d	3-6-89	W.B.	W.R.	D.H.	ECO-2587	Product Part No.	Title INSTALLATION DRAWING FOR FM APPROVED Z7... Z8... AND Z9... ZENER BARRIERS
c	5-18-98	W.B.			ECO-2289		
b	1-7-97	J.M.			ECO-1699		
a	1-31-96	J.M.			ECO-1072		
Revisions						ECO No.	THIS DRAWING CONTAINS PROPRIETARY DATA. NO DISCLOSURE, REPRODUCTION, OR USE OF ANY PART MAY BE MADE EXCEPT BY WRITTEN PERMISSION.
0	6-13-95	D.H.					
In.	Date	Cons.	Resp.	Appr.		Pepperl+Fuchs® Inc. Repi.No.	Draw. 116-0118d
						Twinsburg, OH 44087-2202	Sh. 2 of 5

TABLE 1 - ENTITY PARAMETERS

MODEL NUMBER	DIA. NO.	TERMINALS	V _{oc} (V)	I _{sc} (mA)	V _t (V)	I _t (mA)	GROUPS	C _a (UF)	L _o (mH)
Z787 (Z887)	2	1-2	28.0 (-28.0)	93.0	-	-	A,B	0.13	3.91
							C,E	0.40	15.9
							D,F,G	1.06	32.1
Z787.F (Z887.F)	2	3-4	28.0 (-28.0)	0.0	-	-	A,B	0.13	3.91
							C,E	0.40	15.9
							D,F,G	1.06	32.1
	3	1-4	-	-	30.0	93.0	A,B	0.11	3.91
							C,E	0.34	15.9
							D,F,G	0.91	32.1
Z788 (Z888)	2	1-2	28.0 (-28.0)	93.0	-	-	A,B	0.13	3.91
							C,E	0.40	15.9
							D,F,G	1.06	32.1
	2	3-4	9.77 (-9.77)	200	-	-	A,B	3.51	0.48
							C,E	10.5	4.08
							D,F,G	28.1	7.50
	3	1-4	-	-	29.0	293	A,B	0.12	0.21
							C,E	0.37	1.74
							D,F,G	0.98	3.43
Z788.R (Z888.R)	2	1-2	28.0 (-28.0)	93.0	-	-	A,B	0.13	3.91
							C,E	0.40	15.9
							D,F,G	1.06	32.1
	2	3-4	9.77 (-9.77)	200	-	-	A,B	3.51	0.48
							C,E	10.5	4.08
							D,F,G	28.1	7.50
	3	1-4	-	-	29.0	293	A,B	0.12	0.21
							C,E	0.37	1.74
							D,F,G	0.98	3.43
Z796 (Z896)	2	1-2	27.5 (-27.5)	87.7	-	-	A,B	0.15	4.71
							C,E	0.45	18.7
							D,F,G	1.19	38.4
	2	3-4	20.8 (-20.8)	51.0	-	-	A,B	0.30	13.6
							C,E	0.91	50.3
							D,F,G	2.44	115
	3	1-4	-	-	29.5	139	A,B	0.12	1.80
							C,E	0.38	8.13
							D,F,G	1.01	15.4
Z905	1	1-2	5.10	520	-	-	A,B	1000	0.09
							C,E	3000	0.13
							D,F,G	8000	1.11
Z910	1	1-2	10.3	210	-	-	A,B	2.89	0.42
							C,E	8.68	3.70
							D,F,G	23.1	6.79
Z915	1	1-2	15.5	158	-	-	A,B	0.71	1.02
							C,E	2.14	6.41
							D,F,G	5.70	12.0
Z915.1k	1	1-2	15.5	15.8	-	-	A,B	0.71	1.32
							C,E	2.14	4.62
							D,F,G	5.70	11.69
Z922	2	1-2, 3-4	11.4	225	-	-	A,B	2.00	0.35
							C,E	6.00	3.21
							D,F,G	16.0	5.91
	3	1-4	-	-	12.4	500	A,B	1.48	0.12
							C,E	4.45	0.42
							D,F,G	11.9	1.49
Z928	1	1-2	28.00	93.0	-	-	A,B	0.13	3.91
							C,E	0.40	15.9
							D,F,G	1.06	32.1
Z954	4	1-2, 2-3, 2-4	5.10	433	-	-	A,B	1000	0.13
							C,E	3000	0.51
							D,F,G	8000	1.60
	5	1,2,3,4	-	-	10.2	1300	A,B	2.97	0.01
							C,E	8.93	0.03
							D,F,G	23.8	0.09
Z955	2	1-2, 3-4	5.10	520	-	-	A,B	1000	0.09
							C,E	3000	0.13
							D,F,G	8000	1.11
	3	1-4	-	-	10.2	1040	A,B	2.99	0.01
							C,E	8.97	0.05
							D,F,G	23.9	0.15
Z960	2	1-2, 3-4	10.3	210	-	-	A,B	2.90	0.42
							C,E	8.68	3.70
							D,F,G	23.1	6.80
Z960.F	3	1-4	-	-	10.3	419	A,B	2.90	0.14
							C,E	8.68	0.59
							D,F,G	23.1	1.71
Z961	2	1-2, 3-4	9.0	91.8	-	-	A,B	5.01	4.30
							C,E	15.0	17.2
							D,F,G	40.1	35.1
Z961.F	3	1-4	-	-	18.0	184	A,B	0.43	0.62
							C,E	1.30	4.80
							D,F,G	3.46	8.84

Certification Status		
Agency	Pending	Final
FM	X	X
CSA		
UL		

d	3-6-99	W.B.	W.B.	D.H.	ECO-2587	Product Part No.	Title INSTALLATION DRAWING FOR FM APPROVED Z7.., Z8.., AND Z9.. ZENER BARRIERS
c	5-18-98	W.B.			ECO-2289		
b	1-7-97	J.M.			ECO-1699		
a	1-31-96	J.M.			ECO-1072		
Revisions					ECO No.	THIS DRAWING CONTAINS PROPRIETARY DATA. NO DISCLOSURE, REPRODUCTION, OR USE OF ANY PART MAY BE MADE EXCEPT BY WRITTEN PERMISSION.	
0	6-13-95	D.H.				Pepperl+Fuchs® Inc.	Draw. 116-0118d
In.	Date	Cons.	Resp.	Appr.		Twinsburg, OH 44087-2202	Sh. 3 of 5

TABLE 1 - ENTITY PARAMETERS

MODEL NUMBER	DIA. NO.	TERMINALS	V _{oc} (V)	I _{sc} (mA)	V _t (V)	I _t (mA)	GROUPS	C _o (UF)	L _o (mH)	
Z964	2	1-2, 3-4	12.4	12.6	-	-	A,B	1.45	204	
							C,E	4.35	714	
							D,F,G	11.6	1826	
	3	1-4	-	-	24.7	25.2	A,B	0.18	53.1	
							C,E	0.56	188	
							D,F,G	1.48	460	
Z965	2	1-2, 3-4	15.5	158	-	-	A,B	0.68	1.02	
							C,E	2.05	6.41	
							D,F,G	5.48	12.0	
	3	1-4	-	-	15.5	316	A,B	0.68	0.19	
							C,E	2.05	1.48	
							D,F,G	5.48	3.01	
Z966	2	1-2, 3-4	12.4	84.0	-	-	A,B	1.45	5.14	
							C,E	4.35	20.2	
							D,F,G	11.6	41.9	
	Z966.F	3	1-4	-	-	24.7	168	A,B	0.18	0.83
								C,E	0.56	5.69
								D,F,G	1.48	10.5
Z967	2	1-2, 3-4	17.3	147	-	-	A,B	0.49	1.31	
							C,E	1.47	7.33	
							D,F,G	3.92	13.8	
	3	1-4	-	-	17.3	294	A,B	0.49	0.21	
							C,E	1.47	1.77	
							D,F,G	3.92	3.48	
Z972	2	1-2, 3-4	22.7	75.5	-	-	A,B	0.23	6.36	
							C,E	0.69	24.6	
							D,F,G	1.84	51.9	
	3	1-4	-	-	22.7	151	A,B	0.23	1.19	
							C,E	0.69	6.96	
							D,F,G	1.84	13.0	
Z978	2	1-2, 3-4	28.0	46.0	-	-	A,B	0.13	15.6	
							C,E	0.38	57.2	
							D,F,G	1.02	130	
	3	1-4	-	-	28.0	93.0	A,B	0.13	3.99	
							C,E	0.38	16.1	
							D,F,G	1.02	32.7	
HIGH CURRENT VERSIONS										
Z728.H (Z828.H)	1	1-2	28.0 (-28.0)	119.2	-	-	C,E	0.40	10.2	
Z728.H.F (Z828.H.F)							D,F,G	1.06	19.7	
Z779.H (Z879.H)	2	1-2, 3-4	28.0 (-28.0)	119.2	-	-	C,E	0.40	10.2	
Z779.H.F (Z879.H.F)							D,F,G	1.06	19.7	
Z779.H.F (Z879.H.F)	3	1-4	-	-	30.0	235.5	C,E	0.33	2.67	
Z779.H.F (Z879.H.F)							D,F,G	0.88	4.97	
Z787.H (Z887.H)	2	1-2	28.0 (-28.0)	119.2	-	-	C,E	0.40	10.2	
Z787.H.F (Z887.H.F)		3-4	28.0 (-28.0)	0.0	-	-	D,F,G	1.06	19.7	
Z787.H.F (Z887.H.F)	3	1-4	-	-	30.0	119.2	C,E	0.40	78.9	
Z787.H.F (Z887.H.F)							D,F,G	1.06	183.4	
Z787.H.F (Z887.H.F)							C,E	0.33	10.2	
Z787.H.F (Z887.H.F)							D,F,G	0.92	19.7	
Z788.H (Z888.H)	2	1-2	28.0 (-28.0)	119.2	-	-	C,E	0.40	10.2	
Z788.H (Z888.H)		3-4	9.78 (-9.78)	199.6	-	-	D,F,G	1.06	19.7	
Z788.R.H (Z888.R.H)	2	3-4	9.78 (-9.78)	199.6	-	-	C,E	10.5	4.08	
Z788.R.H (Z888.R.H)							D,F,G	28.0	7.49	
Z788.R.H (Z888.R.H)	3	1-4	-	-	30.0	321.8	C,E	0.33	1.40	
Z788.R.H (Z888.R.H)							D,F,G	0.97	2.89	

Certification Status		
Agency	Pending	Final
FM	X	X
CSA		
UL		



d	3-5-89	W.B.	W.B.	D.H.	ECO-2587	Product Part No.	Title INSTALLATION DRAWING FOR FM APPROVED Z7... Z8... AND Z9.. ZENER BARRIERS	
c	5-18-98	W.B.			ECO-2289			
b	1-7-97	J.M.			ECO-1699			
a	1-31-96	J.M.			ECO-1072			
Revisions						ECO No.		THIS DRAWING CONTAINS PROPRIETARY DATA. NO DISCLOSURE, REPRODUCTION, OR USE OF ANY PART MAY BE MADE EXCEPT BY WRITTEN PERMISSION.
0	6-13-95	D.H.				Pepperl+Fuchs® Inc.	Repl.No.	
in.	Date	Cons.	Resp.	Appr.		Twinsburg, OH 44087-2202	-	
							Draw. No. 116-0118d	Sh. 4 of 5


TABLE 1 - ENTITY PARAMETERS

MODEL NUMBER	DIA. NO.	TERMINALS	V _{oc} (V)	I _{sc} (mA)	V _t (V)	I _t (mA)	GROUPS	C _a (UF)	L _a (mH)
Z961.H	2	1-2, 3-4	9.63	26.3	-	-	A,B	4.41	49.0
							C,E	13.25	174.0
							D,F,G	35.33	423.5
	3	1-4	-	-	18.50	52.50	A,B	0.40	12.88
							C,E	1.19	47.6
							D,F,G	3.18	106.6
Z966.H	2	1-2, 3-4	12.31	167.6	-	-	A,B	1.46	0.84
							C,E	4.39	5.72
							D,F,G	11.71	10.61
	3	1-4	-	-	24.63	335.10	C,E	0.55	1.25
							D,F,G	1.49	2.67

- ① 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 V_{oc} and I_{sc} or V_t and I_t of the associated apparatus are less than or equal to V_{max} and I_{max} of the intrinsically safe apparatus and the approved values of C_a and L_a of the associated apparatus are greater than C_i and L_i of the intrinsically safe apparatus plus all cable length.
- ② Simple Apparatus is defined as a device which neither generates or stores more than 1.2V, 0.1A, 20uJ or 25mW.
- ③ Wiring methods must be in accordance with the National Electrical Code, ANSI/NFPA 70, Article 504. Circuits shown connected to different I.S. field devices. Wiring must be separated in accordance with the NEC. For additional information refer to ISA RP12.6.
- ④ Barriers shall not be connected to any device which uses or generates any voltage in excess of 250V RMS or DC.
- ⑤ Barriers must be mounted in an enclosure which meets the requirements of ANSI/ISA-SB2.
- ⑥ Barriers must be connected to a suitable ground electrode per the National Electrical Code, ANSI/NFPA 70, Article 504. The resistance of the ground path must be less than 1 ohm. Any of terminals 2,3,6,7 or the two wire clamp terminals at the base of the barrier may be used for this purpose. Alternatively, the ground connection may be established by mounting the barrier on standard 35mm DIN rail, when meeting the following conditions:
 - a. DIN rail must be standard 35mm DIN rail (35mm ± 0.3mm).
 - b. Any corrosion on the DIN rail must be removed and the DIN rail must be checked for the standard tolerance of 35mm ± 0.3mm.
 - c. A continuity check must be conducted between the DIN rail and any ground terminal on the barrier, terminals 2,3,6,7 or the two wire clamp terminals at the base of the barrier.
 - d. Connect 35mm DIN rail to the ground electrode using hardware suitable to provide a ground path resistance of less than 1 ohm.
- ⑦  **WARNING** - Do not replace fuse while circuit is live unless location is known to be nonhazardous.

This applies to fuse replaceable zener barriers identified by the addition of a .F to the model number.

Certification Status		
Agency	Pending	Final
FM	X	X
CSA		
UL		

d	3-5-99	W.B.	W.B.	D.H.	ECO-2587	Product Part No.	Title INSTALLATION DRAWING FOR FM APPROVED Z7.., Z8.., AND Z9.. ZENER BARRIERS
c	5-18-98	W.B.			ECO-2289		
b	1-7-97	J.M.			ECO-1699		
a	1-31-96	J.M.			ECO-1072		
Revisions							
0	6-13-95	D.H.			ECO No.	THIS DRAWING CONTAINS PROPRIETARY DATA. NO DISCLOSURE, REPRODUCTION, OR USE OF ANY PART MAY BE MADE EXCEPT BY WRITTEN PERMISSION.	
In.	Date	Cons.	Resp.	Appr.	 Pepperl+Fuchs® Inc.	Repl.No.	Draw. 116-0118d
					Twinsburg, OH 44087-2202	-	Sh. 5 of 5