



# Shunt-Diode Safety Barriers

## Specifications

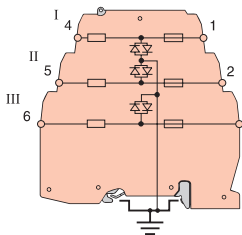
Three Channel, Alternating Potential, Low Level									
Type	Application Number*	Channel Number	V <sub>WKG</sub> @10 A leakage (V)	V <sub>MAX</sub> (V)	Maximum end-to-end resistance (	Fuse / (fuse disc.) rating (mA)	Approval: CI I, II, II: Division 1; Groups -	Wiring Diagram**	ID Number
MZ56A	6	I	0.3 (1 μA)	2.3	24	100	A-G	1	K1012
		II	0.3 (1 μA)	2.3	24 <sup>a</sup>	100	A-G		
		III	0.3 (1 μA)	2.3	24 <sup>a</sup>	100	A-G		
* Applications begin on page 10							** Wiring Diagrams located on facing page		
<sup>a</sup> 24 Ω ± 0.15 Ω at 20°C, channels track within 0.15 Ω from -20° to 60°C.									
Dual Channel, Alternating Potential, Higher Level									
MZ61AV	8	I	7.2	8.5	384	50	A-G	2	K1016
		II	7.2	8.5	384	50			
MZ61AV1	7, 8	I	7.2	8.8	393	(50)	A-G	2	K1017
		II	7.2	8.8	393	(50)			
MZ61A2	7	I	7.2	8.3	115	80	A-G	2	K1015
		II	7.2	8.3	115	80			
MZ64A2	7	I	10.0	11.1	1048	50	A-G	2	K1020
		II	10.0	11.1	1048	50			
MZ66AV	8	I	9.8	10.9	97.2	80	A-G	2	K1022
		II	9.8	10.9	97.2	80			
MZ66AV1	7	I	9.8	11.2	110.1	(50)	A-G	2	K1023
		II	9.8	11.2	110.1	(50)			
Dual Channel, Alternating Potential, Star Connected									
MZ60A	3, 4, 5, 6	I	7.2	8.5	101	50	A-G	3	K1013
		II	7.2	8.5	101	50			
MZ60A1	3, 4, 5, 6	I	7.2	8.8	110.1	(50)	A-G	3	K1014
		II	7.2	8.8	110.1	(50)			
MZ65A2	- - -	I	12.0	13.0	131	50	A-G	3	K1021
		II	12.0	13.0	131	50			
MZ78A2	- - -	I	+24.0/-22.3	+25.9/-23.8	640	50	A-G	3	K1025
		II	+24.0/-22.3	+25.9/-23.8	640	50			
Active Barrier for 2-wire 4-20 mA Loops and "Smart" Transmitters									
Type	Supply Voltage	Channel Number	Supply current @ 20 mA loop current	Voltage available to transmitter and lines	Safe area load	Output Current	Accuracy	Wiring Diagram**	ID Number
MZ06R1	20-35 VDC	- - -	40 mA with 28 V supply	16.0 V @ 20 mA with 250 Ω load 11.25 V @ 20 mA with 500 Ω load	0-500 Ω	0-23.6 mA	±2 μA (4-20 mA)	4	K1000
MZ06R2			45 mA with 24 V supply					4	
	60 mA with 20 V supply	4							
* Applications begin on page 10							** Wiring Diagrams located on facing page		
Active Barrier for Discrete Inputs									
Type/ID Number	Supply Voltage	Channel Number	Supply Current	Voltage drop	Output Current	Leakage to ground	Wiring Diagram**	ID Number	
MZ07P2	10-35 VDC	I	At V <sub>S</sub> < 26 V: I <sub>out</sub> + 1.5 mA	Terminals 1 to 4: [(I <sub>out</sub> × 348 Ω) + 1.2]V	Up to 35 mA	1.5 mA max.	5	K1002	
		II	At V <sub>S</sub> > 28 V: Limited to 50 mA	Terminals 2 to 5: [(I <sub>out</sub> × 31 Ω) + 0.9]V					
							** Wiring Diagrams located on facing page		
Active Barrier for Discrete Outputs									
MZ08P2	10-35 VDC	- - -	At V <sub>S</sub> < 26 V: I <sub>out</sub> + 1.5 mA At V <sub>S</sub> > 28 V: Limited to 50 mA	Terminals 1 to 4: [(I <sub>out</sub> × 348 Ω) + 1.2]V	Up to 35 mA	1.5 mA max.	6	K1003	

## Wiring Diagrams

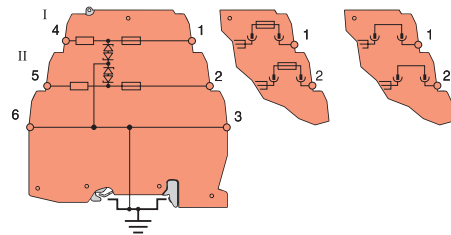
Note:  
The represented color of each unit is not the actual color of the safety barrier.  
MZ barriers are only available in yellow.

Note:  
Roman numerals refer to the channel number while the English numbers refer to the wiring ports.

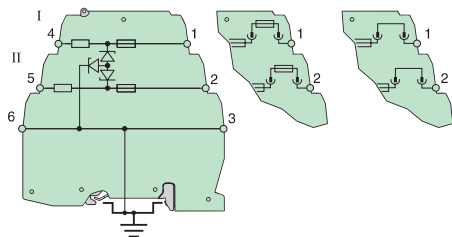
1) Three Channel - Low Level



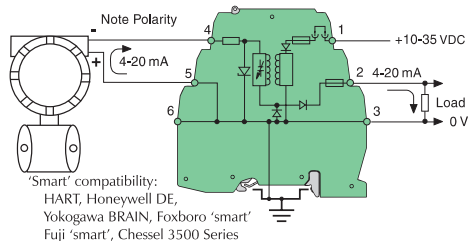
2) Dual Channel - High Level



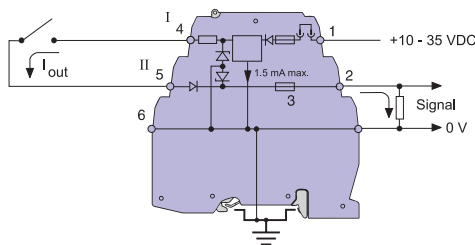
3) Dual Channel - Star Connected



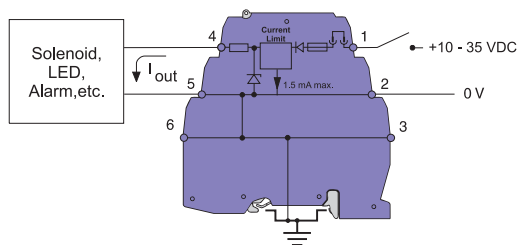
4) Active Barrier for 2-wire mA Loops



5) Active Barrier for Discrete Inputs



6) Active Barrier for Discrete Outputs



## Approvals

		Factory Mutual					Canadian Standards Association				
		Entity Parameters					Entity Parameters				
Model	Channel	Voc (Vt)	Isc (It)	Ca AB/CE/DFG	La AB/CE/DFG	Voc (Vt)	Isc (It)	Ca AB/CE/DFG	La AB/CE/DFG	Voc max	min
MZ56A	I	2	173	1000/3000/8000	0.75/5.4/9.99	2	173	1000/3000/8000	0.75/5.4/9.99	2	11.56
	Any 2	(4)	(346)	404/1214/3239	0.34/1.42/2.52	4	346	404/1214/3239	0.34/1.42/2.52	-	-
	I, II, III	(4)	(519)	404/1214/3239	0.15/0.66/1.12	4	519	404/1214/3239	0.15/0.66/1.12	-	-
MZ61A2	Each	9	100	5.0/15.0/40.0	3.6/10.8/28.8	9	100	5.0/15.0/40.0	3.6/10.8/28.8	9	90
	I & II	(18)	(200)	0.42/1.26/3.36	0.52/4.20/7.6	18	200	0.42/1.26/3.36	0.52/4.20/7.6	-	-
MZ61AV, MZ61AV1	Each	9	25	4.6/13.8/36.8	52.0/156/416	9	25	4.6/13.8/36.8	52.0/156/416	9	350
	I & II	(18)	(52)	0.42/1.26/3.36	13.0/39.0/104	18	52	0.42/1.26/3.36	13.0/39.0/104	-	-
MZ64A2	Each	12	12	1.6/4.8/12.8	230/690/1840	12	12	1.6/4.8/12.8	230/690/1840	12	1000
	I & II	(24)	(24)	0.2/0.6/1.6	60/180/480	24	24	0.2/0.6/1.6	60/180/480	-	-
MZ66AV, MZ66AV1	Each	12	148	1.8/5.4/14.4	1.27/4.8/12.8	12	148	1.8/5.4/14.4	1.27/4.8/12.8	12	75
	I & II	22.3	296	0.2/0.6/1.6	0.2/1.02/2.72	22.3	296	0.2/0.6/1.6	0.2/1.02/2.72	-	-
MZ65A2	Each	15	150	0.75/2.25/6.0	1.39/4.95/13.2	15	150	0.75/2.25/6.0	1.39/4.95/13.2	15	100
	I & II	15	300	0.75/2.25/6.0	0.2/0.96/2.56	15	300	0.75/2.25/6.0	0.2/0.96/2.56	-	-
MZ78A2	Each	28	47	0.13/0.39/1.04	16/48/128	28	47	0.13/0.39/1.04	16/48/128	28	600
	I & II	(28)	(94)	0.13/0.39/1.04	4.2/12.6/33.6	28	94	0.13/0.39/1.04	3.0/9.0/24.0	-	-
MZ60A, MZ60A1	Each	9	120	4.5/13.5/36.0	2.5/7.5/20.0	9	120	4.5/13.5/36.0	2.5/7.5/20.0	9	75
	I & II	(9)	(240)	4.5/13.5/36.0	0.29/1.95/5.2	9	240	4.5/13.5/36.0	0.29/1.95/5.2	-	-
MZ06R1, MZ06R2	I	27.8	92	0.14/0.43/1.16	4.27/17.1/34.9	28	93	0.13/0.39/1.04	4.2/12.6/33.6	28	300
	II	28	0	0.13/0.39/1.04	61.5/227/506	28	0	0.13/0.39/1.04	61.5/227/506	28	diode
MZ07P2	I	28	93	0.13/0.39/1.04	4.2/12.6/33.6	28	93	0.13/0.39/1.04	3.0/9.0/24.0	28	300
	I & II	(30)	(93)	0.12/0.36/0.97	4.2/12.6/33.6	30	93	0.12/0.36/0.97	3.0/9.0/24.0	-	-
MZ08P2	I	28	93	0.13/0.39/1.04	4.2/12.6/33.6	28	93	0.13/0.39/1.04	3.0/9.0/24.0	28	93