



CSA INTERNATIONAL

Certificate of Compliance

Certificate: 1284580

Master Contract: 159930

Project: 2170801

Date Issued: 2009/05/01

Issued to: R. Stahl, Incorporated

9001 Knight Rd
Houston, TX 77054
USA

Attention: Manfred Kaiser

The products listed below are eligible to bear the CSA Mark shown



Issued by: Donald Theroux

Authorized by: Patricia Pasemko, Operations
Manager

PRODUCTS

CLASS 2258 03 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non -
Incendive Systems - For Hazardous Locations

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For
Hazardous Locations

2258 03 PROCESS CONTROL EQUIPMENT Intrinsically Safe and Non Incendive Systems - For Hazardous
Locations



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Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III:

- Zener Barrier Devices, Type 9002 series model numbers are in the form 9002/ab-ccc-ddd-ee1 as shown below. Provides intrinsically safe circuits with parameters as tabulated below, when connected per installation drawing 9002611312. These devices must be mounted in a suitable enclosure in non-hazardous locations or Class I, Div. 2, Group A, B, C, D hazardous locations. Maximum safe area voltage must not exceed 250Vrms.

Type 9002/...	Trml	Vmax (V)	Rmin (ohms)
	3-gnd	11.6	1020
00-120-024-001	4-gnd	11.6	1020
	3-4	-	-
	3-gnd	25.8	330
00-260-138-001	4-gnd	20.1	430
	3-4	-	-
	3-gnd	28.0	330
00-280-186-001	4-gnd	28.0	330
	3-4	-	-
	3-gnd	9.3	475
10-187-020-001	4-gnd	9.3	475
	3-4	-	-
	3-gnd	9.3	39
10-187-270-001	4-gnd	9.3	39
	3-4	-	-
	3-gnd	10.5	350
10-210-030-001	4-gnd	10.5	350
	3-4	-	-



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	3-gnd	11.6	1020
11-120-024-001	4-gnd	11.6	1020
	3-4	-	-
	3-gnd	13.0	41
11-130-360-001	4-gnd	1.6	41
	3-4	-	-
	3-gnd	13.7	945
11-137-029-001	4-gnd	13.7	945
	3-4	-	-
	3-gnd	19.9	1400
11-199-030-001	4-gnd	19.9	1400
	3-4	-	-
	3-gnd	25.8	330
11-260-138-001	4-gnd	20.1	430
	3-4	-	-
	3-gnd	28.0	257
11-280-112-001	4-gnd	28.0	14k
	3-4	-	-
	3-gnd	28.0	330
11-280-186-001	4-gnd	28.0	330
	3-4	-	-
	3-gnd	28.0	152
11-280-244-001	4-gnd	28.0	480
	3-4	-	-



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	3-gnd	28.0	330
11-280-293-001	4-gnd	9.6	56
	3-4	-	-
	3-gnd	28.0	330
11-280-293-021	4-gnd	9.6	56
	3-4	-	-
	3-gnd	19.8	95
13-199-225-001	4-gnd	8.6	*
	3-4	-	-
	3-gnd	25.1	220
13-252-121-041	4-gnd	25.1	*
	3-4	-	-
	3-gnd	28.0	330
13-280-093-001	4-gnd	28.0	*
	3-4	-	-
	3-gnd	28.0	300
13-280-100-041	4-gnd	28.0	*
	3-4	-	-
	3-gnd	28.0	270
13-280-110-001	4-gnd	28.0	*
	3-4	-	-
	3-gnd	28.0	151
13-280-188-001	4-gnd	28.0	9333
	3-4	-	-



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	3-gnd	0.8	4.22
22-016-383-111	4-gnd	0.8	4.22
	3-4	-	-
	3-gnd	1.6	13
22-032-300-111	4-gnd	1.6	13
	3-4	-	-
	3-gnd	2.4	10.9
22-048-442-111	4-gnd	2.4	10.9
	3-4	-	-
	3-gnd	7.9	79
22-158-200-001	4-gnd	7.9	79
	3-4	-	-
	3-gnd	11.3	1020
22-240-024-001	4-gnd	11.3	1020
	3-4	-	-
	3-gnd	11.3	160
22-240-160-001	4-gnd	11.3	160
	3-4	-	-
	3-gnd	28.0	*
33-280-000-001	4-gnd	28.0	*
	3-4	-	-
	3-gnd	19.8	*
34-280-000-001	4-gnd	7.9	*
	3-4	-	-



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	3-gnd	9.4	475
77-093-040-001	4-gnd	9.4	475
	3-4	-	-
	3-gnd	9.4	68
77-093-300-001	4-gnd	9.4	68
	3-4	-	-
	3-gnd	9.9	56
77-100-400-001	4-gnd	9.9	56
	3-4	-	-
	3-gnd	14.5	110
77-150-300-001	4-gnd	14.5	110
	3-4	-	-
	3-gnd	21.8	330
77-220-146-001	4-gnd	21.8	330
	3-4	-	-
	3-gnd	21.8	160
77-220-296-001	4-gnd	21.8	160
	3-4	-	-
	3-gnd	28.1	680
77-280-094-001	4-gnd	28.1	680
	3-4	-	-

2258 04 PROCESS CONTROL EQUIPMENT Intrinsically Safe, Entity - For Hazardous Locations



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Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III:

- Zener Barrier Devices, Type 9002 series model numbers are in the form 9002/ab-ccc-ddd-ee1 as shown below. Provides intrinsically safe circuits with parameters as tabulated below, when connected per installation drawing 9002611312. These devices must be mounted in a suitable enclosure in non-hazardous locations or Class I, Div. 2, Group A, B, C, D hazardous locations. Maximum safe area voltage must not exceed 250Vrms.

Type 9002/....	Trml	Vmax (V)	Rmin (ohms)
	3-gnd	11.6	1020
00-120-024-001	4-gnd	11.6	1020
	3-4	-	-
	3-gnd	25.8	330
00-260-138-001	4-gnd	20.1	430
	3-4	-	-
	3-gnd	28.0	330
00-280-186-001	4-gnd	28.0	330
	3-4	-	-
	3-gnd	9.3	475
10-187-020-001	4-gnd	9.3	475
	3-4	-	-
	3-gnd	9.3	39
10-187-270-001	4-gnd	9.3	39
	3-4	-	-
	3-gnd	10.5	350
10-210-030-001	4-gnd	10.5	350
	3-4	-	-
	3-gnd	11.6	1020



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11-120-024-001	4-gnd	11.6	1020
	3-4	-	-
	3-gnd	13.0	41
11-130-360-001	4-gnd	1.6	41
	3-4	-	-
	3-gnd	13.7	945
11-137-029-001	4-gnd	13.7	945
	3-4	-	-
	3-gnd	19.9	1400
11-199-030-001	4-gnd	19.9	1400
	3-4	-	-
	3-gnd	25.8	330
11-260-138-001	4-gnd	20.1	430
	3-4	-	-
	3-gnd	28.0	257
11-280-112-001	4-gnd	28.0	14k
	3-4	-	-
	3-gnd	28.0	330
11-280-186-001	4-gnd	28.0	330
	3-4	-	-
	3-gnd	28.0	152
11-280-244-001	4-gnd	28.0	480
	3-4	-	-
	3-gnd	28.0	330



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11-280-293-001	4-gnd	9.6	56
	3-4	-	-
	3-gnd	28.0	330
11-280-293-021	4-gnd	9.6	56
	3-4	-	-
	3-gnd	19.8	95
13-199-225-001	4-gnd	8.6	*
	3-4	-	-
	3-gnd	25.1	220
13-252-121-041	4-gnd	25.1	*
	3-4	-	-
	3-gnd	28.0	330
13-280-093-001	4-gnd	28.0	*
	3-4	-	-
	3-gnd	28.0	300
13-280-100-041	4-gnd	28.0	*
	3-4	-	-
	3-gnd	28.0	270
13-280-110-001	4-gnd	28.0	*
	3-4	-	-
	3-gnd	28.0	151
13-280-188-001	4-gnd	28.0	9333
	3-4	-	-
	3-gnd	0.8	4.22



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22-016-383-111	4-gnd	0.8	4.22
	3-4	-	-
	3-gnd	1.6	13
22-032-300-111	4-gnd	1.6	13
	3-4	-	-
	3-gnd	2.4	10.9
22-048-442-111	4-gnd	2.4	10.9
	3-4	-	-
	3-gnd	7.9	79
22-158-200-001	4-gnd	7.9	79
	3-4	-	-
	3-gnd	11.3	1020
22-240-024-001	4-gnd	11.3	1020
	3-4	-	-
	3-gnd	11.3	160
22-240-160-001	4-gnd	11.3	160
	3-4	-	-
	3-gnd	28.0	*
33-280-000-001	4-gnd	28.0	*
	3-4	-	-
	3-gnd	19.8	*
34-280-000-001	4-gnd	7.9	*
	3-4	-	-
	3-gnd	9.4	475



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77-093-040-001	4-gnd	9.4	475
	3-4	-	-
	3-gnd	9.4	68
77-093-300-001	4-gnd	9.4	68
	3-4	-	-
	3-gnd	9.9	56
77-100-400-001	4-gnd	9.9	56
	3-4	-	-
	3-gnd	14.5	110
77-150-300-001	4-gnd	14.5	110
	3-4	-	-
	3-gnd	21.8	330
77-220-146-001	4-gnd	21.8	330
	3-4	-	-
	3-gnd	21.8	160
77-220-296-001	4-gnd	21.8	160
	3-4	-	-
	3-gnd	28.1	680
77-280-094-001	4-gnd	28.1	680
	3-4	-	-

* designates diode return

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III:

- Zener Barrier Devices, Type 9002; provides intrinsically safe circuits with parameters as tabulated below, when connected per installation drawing 9002611312. These devices must be mounted in a suitable enclosure in



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non-hazardous locations or Class I, Div. 2, Group A, B, C, D hazardous locations. Maximum safe area voltage must not exceed 250Vrms.

Type 9002/...	Trml	Voc (V)	Isc (mA)	Po (W)	Ca(uF)		La (mH)	
					A,B,E	C,D,F,G	A,B,E	C,D,F,G
	3-gnd	11.6	11.4	0.04	1.8	5.5	247	826
00-120-024-001	4-gnd	11.6	11.4	0.04	1.8	5.5	247	826
	3-4	12.4	23	0.07	1.4	4.3	64	226
	3-gnd	25.8	82	0.54	0.17	0.5	5.3	21
00-260-138-001	4-gnd	20.1	49	0.245	0.31	0.96	14.7	54
	3-4	27.4	132	0.785	0.43	0.43	8.9	1.9
	3-gnd	28.0	91	0.65	0.14	0.43	4.5	18.1
00-280-186-001	4-gnd	28.0	91	0.65	0.14	0.43	4.5	18.1
	3-4	30.4	183	1.3	-	0.34	-	5
	3-gnd	9.3	19.8	0.05	4.3	12.9	83.4	301
10-187-020-001	4-gnd	9.3	19.8	0.05	4.3	12.9	83.4	301
	3-4	18.7	22	0.09	0.39	1.17	68.3	248
	3-gnd	9.3	251.8	0.63	4.3	12.9	0.27	2.4
10-187-270-001	4-gnd	9.3	251.8	0.63	4.3	12.9	0.27	2.4
	3-4	18.7	278.8	1.26	0.39	1.17	0.21	2.0
	3-gnd	10.5	30	0.08	2.41	16.8	40	150
10-210-030-001	4-gnd	10.5	30	0.08	2.41	16.2	40	150
	3-4	21.0	30	0.16	0.188	1.27	40	150
	3-gnd	11.6	11.4	0.04	1.8	5.5	247	862
11-120-024-001	4-gnd	11.6	11.4	0.04	1.8	5.5	247	862



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	3-4	12.4	23	0.07	1.4	4.3	64	226
	3-gnd	13	321	1.04	1	6.2	0.19	1.6
11-130-360-001	4-gnd	1.6	39	0.016	100	1000	24	91
	3-4	13.7	360	1.17	0.79	5	0.17	1.3
	3-gnd	13.7	14.5	0.05	0.79	5	160	560
11-137-029-001	4-gnd	13.7	14.5	0.05	0.79	5	160	560
	3-4	14.4	29	0.1	0.67	4.18	43	160
	3-gnd	19.9	14.4	0.075	0.34	1	157	511
11-199-030-001	4-gnd	19.9	14.4	0.075	0.34	1	157	511
	3-4	20.6	29	0.15	0.30	0.9	40.5	149
	3-gnd	25.8	82	0.54	0.17	0.5	5.3	21
11-260-138-001	4-gnd	20.1	49	0.245	0.32	0.96	14.7	54
	3-4	27.4	132	0.785	0.14	0.43	1.9	8.9
	3-gnd	28	109	0.76	0.083	0.65	1.3	9
11-280-112-001	4-gnd	28	3	0.02	0.083	0.65	50	150
	3-4	30.1	112	0.78	0.065	0.551	0.76	8.4
	3-gnd	28	91	0.65	0.14	0.43	4.5	18.1
11-280-186-001	4-gnd	28	91	0.65	0.14	0.43	4.5	18.1
	3-4	30.4	183	1.3	-	0.34	-	5
	3-gnd	28	184	1.29	-	0.65	-	2.9
11-280-244-001	4-gnd	28	60	0.42	-	0.65	-	25
	3-4	28.7	244	1.71	-	0.62	-	1.1
	3-gnd	28	91	0.63	0.14	0.43	4.5	18.1
11-280-293-001	4-gnd	9.6	181	0.43	4.2	12.7	0.7	5.2



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	3-4	28.8	272	1.05	0.13	0.4	0.23	2.2
	3-gnd	28	91	0.63	0.14	0.43	4.5	18.1
11-280-293-021	4-gnd	9.6	181	0.43	4.2	12.7	0.7	5.2
	3-4	28.8	272	1.05	0.13	0.4	0.23	2.2
	3-gnd	19.8	220.3	1.1	0.33	1	0.35	3.1
13-199-225-001	4-gnd	8.6	0	0.015	5.5	16.5	1000	1000
	3-4	20.7	221	1.12	0.3	0.9	0.35	2.8
	3-gnd	25.1	120.1	0.74	0.17	0.51	2.5	9.8
13-252-121-041	4-gnd	25.1	0	0.02	0.17	0.51	1000	1000
	3-4	25.9	120	0.76	0.104	0.42	2.5	9.8
	3-gnd	28	91	0.63	0.14	0.43	4.4	17.2
13-280-093-001	4-gnd	28	0	0.021	0.14	0.43	1000	1000
	3-4	30.4	91	0.651	0.1	0.3	4.4	17.2
	3-gnd	28	99	0.68	0.13	0.39	3.7	14.4
13-280-100-041	4-gnd	28	0	0.021	0.13	0.39	1000	1000
	3-4	28.8	99	0.7	0.11	0.33	3.7	14.4
	3-gnd	28	110	0.749	0.13	0.39	2.9	11.6
13-280-110-001	4-gnd	28	0	0.021	0.13	0.39	1000	1000
	3-4	28.8	110	0.77	0.11	0.33	2.9	11.6
	3-gnd	28	185	1.295	-	0.65	-	2.85
13-280-188-001	4-gnd	28	3	0.021	-	0.65	-	150
	3-4	28.3	188	1.316	-	0.635	-	2.7
	3-gnd	0.8	239	0.038	1800	1800	0.55	4.1
22-016-383-111	4-gnd	0.8	239	0.038	1800	1800	0.55	4.1



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	3-4	1.6	380.6	0.077	1800	1800	0.16	1.1
	3-gnd	1.6	150	0.06	1800	1800	2.2	8.7
22-032-300-111	4-gnd	1.6	150	0.06	1800	1800	2.2	8.7
	3-4	3.2	311	0.12	1800	1800	0.26	2.3
	3-gnd	2.4	221	0.133	100	1000	0.4	3.19
22-048-442-111	4-gnd	2.4	221	0.133	100	1000	0.4	3.19
	3-4	4.8	442	0.266	100	1000	0.12	0.54
	3-gnd	7.9	100	0.198	8.8	115	4	15
22-158-200-001	4-gnd	7.9	100	0.198	8.8	115	4	15
	3-4	15.8	200	0.395	0.478	2.88	0.5	4
	3-gnd	11.3	11.4	0.04	2.0	6	258	899
22-240-024-001	4-gnd	11.3	1.9	0.04	2.0	6	258	899
	3-4	22.6	23	0.08	0.23	0.7	67	236
	3-gnd	11.3	76	0.24	2.0	6	6.5	25
22-240-160-001	4-gnd	11.3	1.9	0.24	2.0	6	6.5	25
	3-4	22.6	152	0.48	0.23	0.7	1.2	7.1
	3-gnd	28	0	0	0.14	0.43	1000	1000
33-280-000-001	4-gnd	28	0	0	0.14	0.43	1000	1000
	3-4	28.5	0	0	0.14	0.4	1000	1000
	3-gnd	19.8	0	0	0.33	1	1000	1000
34-280-000-001	4-gnd	7.9	0	0	9.1	27.4	1000	1000
	3-4	27.7	0	0	0.14	0.42	1000	1000
	3-gnd	9.3	20	0.05	4.1	31	90	330
77-093-040-001	4-gnd	9.3	20	0.05	4.1	31	90	330



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	3-4	9.3	40	0.09	4.1	31	23	87
	3-gnd	9.3	150	0.35	4.1	31	1.3	7
77-093-300-001	4-gnd	9.3	150	0.35	4.1	31	1.3	7
	3-4	9.3	300	0.7	4.1	31	0.2	1.8
	3-gnd	9.9	190	0.5	3.3	9.9	0.59	4.6
77-100-400-001	4-gnd	9.9	190	0.5	3.3	9.9	0.59	4.6
	3-4	9.9	380	1	3.3	9.9	0.16	0.9
	3-gnd	14.5	140	0.56	0.58	2.5	1.6	8.1
77-150-300-001	4-gnd	14.5	140	0.56	0.58	2.5	1.6	8.1
	3-4	14.5	280	1.13	0.58	2.5	0.21	2.0
	3-gnd	21.8	70	0.4	0.25	0.76	7.4	28.5
77-220-146-001	4-gnd	21.8	70	0.4	0.25	0.76	7.4	28.5
	3-4	21.8	140	0.8	0.25	0.76	1.6	8.1
	3-gnd	21.8	145	0.81	0.25	0.76	1.4	7.6
77-220-296-001	4-gnd	21.8	145	0.81	0.25	0.76	1.4	7.6
	3-4	21.8	290	1.63	-	0.76	-	1.8
	3-gnd	28.1	44	0.33	0.14	0.41	18.5	67
77-280-094-001	4-gnd	28.1	44	0.33	0.14	0.41	18.5	67
	3-4	28.1	88	0.66	0.14	0.4	4.8	19

Ex nA[ia] IIC/IIB T4:

- Zener Barrier Devices, Type 9002; provides intrinsically safe circuits with parameters as tabulated below, when connected per installation drawing 9002611312. These devices must be mounted in a suitable enclosure in non-hazardous locations or Class I, Zone 2, Group IIC hazardous locations. Maximum safe area voltage must not exceed 250Vrms.



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Entity Parameters

Type 9002/...	Trml	Uo	Io	Po (W)	Co(uF)		Lo(mH)	
		(V)	(mA)		IIC	IIB/IIA	IIC	IIB/IIA
00-120-024-001	3-gnd	12	12	0.04	1.41	9	240	850
	4-gnd	12	12	0.04	1.41	9	240	850
	3-4	12.7	24	0.07	1.1	7.1	63	230
00-260-138-001	3-gnd	26	83	0.54	0.099	0.77	2.7	15.5
	4-gnd	20	49	0.245	0.22	1.41	14	54
	3-4	27.4	132	0.785	0.087	0.67	0.81	5.1
00-280-186-001	3-gnd	28	93	0.65	0.083	0.65	2	13
	4-gnd	28	93	0.65	0.083	0.65	2	13
	3-4	30.1	186	1.3	-	0.551	-	2.8
10-187-020-001	3-gnd	9.33	20	0.05	3.9	29	90	330
	4-gnd	9.33	20	0.05	3.9	29	90	330
	3-4	18.7	20	0.09	0.27	1.64	90	330
10-187-270-001	3-gnd	9.33	270	0.63	3.9	29	0.23	2.2
	4-gnd	9.33	270	0.63	3.9	29	0.23	2.2
	3-4	18.7	270	1.26	0.27	1.64	0.23	2.2
10-210-030-001	3-gnd	10.5	30	0.08	2.41	16.8	40	150
	4-gnd	10.5	30	0.08	2.41	16.8	40	150
	3-4	21	30	0.16	0.188	1.27	40	150
	3-gnd	12	12	0.04	1.41	9	240	850



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11-120-024-001	4-gnd	12	12	0.04	1.41	9	240	850
	3-4	12.7	24	0.07	1.1	7.1	63	230
	3-gnd	13	321	1.04	1	6.2	0.19	1.6
11-130-360-001	4-gnd	1.6	39	0.016	100	1000	24	91
	3-4	13.3	360	1.17	0.79	5	0.17	1.3
	3-gnd	13.7	14.5	0.05	0.79	5	160	560
11-137-029-001	4-gnd	13.7	14.5	0.05	0.79	5	160	560
	3-4	14.4	29	0.1	0.67	4.18	43	160
	3-gnd	19.9	15	0.075	0.223	1.42	160	560
11-199-030-001	4-gnd	19.9	15	0.075	0.223	1.42	160	560
	3-4	20.6	30	0.15	0.223	1.42	40	150
	3-gnd	26	83	0.54	0.099	0.77	2.7	15.5
11-260-138-001	4-gnd	20	49	0.245	0.22	1.41	14	54
	3-4	27.4	132	0.785	0.087	0.67	0.81	5.1
	3-gnd	28	109	0.76	0.083	0.65	1.3	9
11-280-112-001	4-gnd	28	3	0.02	0.083	0.65	50	150
	3-4	28.7	112	0.78	0.065	0.551	0.76	8.4
	3-gnd	28	93	0.65	0.083	0.65	2	13
11-280-186-001	4-gnd	28	93	0.65	0.083	0.65	2	13
	3-4	30.1	186	1.3	-	0.551	-	2.8
	3-gnd	28	184	1.29	-	0.65	-	2.9
11-280-244-001	4-gnd	28	60	0.42	-	0.65	-	25
	3-4	28.3	244	1.71	-	0.62	-	1.1
	3-gnd	28	89	0.63	0.083	0.65	2.2	14



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11-280-293-001	4-gnd	9.56	180	0.43	3.6	26	0.6	5
	3-4	28.7	269	1.05	-	0.62	-	0.56
	3-gnd	28	89	0.63	0.083	0.65	2.2	14
11-280-293-021	4-gnd	9.56	180	0.43	3.6	26	0.6	5
	3-4	28.7	269	1.05	-	0.62	-	0.56
	3-gnd	19.9	222	1.1	0.223	1.42	0.39	3.18
13-199-225-001	4-gnd	19.9	3	0.015	0.223	1.42	1000	1000
	3-4	20.2	225	1.12	0.213	1.38	0.37	3.15
	3-gnd	25.2	118	0.74	0.107	0.82	1.3	7.4
13-252-121-041	4-gnd	25.2	0	0.02	0.107	0.82	50	150
	3-4	25.5	121	0.76	0.104	0.8	1.25	7.35
	3-gnd	28	90	0.63	0.083	0.65	2.2	14
13-280-093-001	4-gnd	28	3	0.021	0.083	0.65	50	150
	3-4	28.3	93	0.651	0.08	0.636	2	13
	3-gnd	28	97	0.679	0.083	0.65	1.8	12
13-280-100-041	4-gnd	28	0	0.021	0.083	0.65	50	150
	3-4	28.3	100	0.7	0.08	0.635	1.55	11
	3-gnd	28	107	0.749	0.083	0.65	1.35	9.6
13-280-110-001	4-gnd	28	3	0.021	0.083	0.65	50	150
	3-4	28.3	110	0.77	0.08	0.635	1.25	9
	3-gnd	28	185	1.295	-	0.65	-	2.85
13-280-188-001	4-gnd	28	3	0.021	-	0.65	-	150
	3-4	28.3	188	1.316	-	0.635	-	2.7
	3-gnd	0.8	191.5	0.038	100	1000	0.54	4.4



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22-016-383-111	4-gnd	0.8	191.5	0.038	100	1000	0.54	4.4
	3-4	1.6	383	0.077	100	1000	0.16	0.96
	3-gnd	1.6	150	0.06	100	1000	1.3	7
22-032-300-111	4-gnd	1.6	150	0.06	100	1000	1.3	7
	3-4	3.2	300	0.12	100	1000	0.2	1.8
	3-gnd	2.4	221	0.133	100	1000	0.4	3.19
22-048-442-111	4-gnd	2.4	221	0.133	100	1000	0.4	3.19
	3-4	4.8	442	0.266	100	1000	0.12	0.54
	3-gnd	7.9	100	0.198	8.8	115	4.0	15
22-158-200-001	4-gnd	7.9	100	0.198	8.8	115	4.0	15
	3-4	15.8	200	0.395	0.478	2.88	0.5	4
	3-gnd	12	12	0.04	1.41	9	240	850
22-240-024-001	4-gnd	12	12	0.04	1.41	9	240	850
	3-4	24	24	0.08	0.125	0.93	41	145
	3-gnd	12	80	0.24	1.41	9	6	22
22-240-160-001	4-gnd	12	80	0.24	1.41	9	6	22
	3-4	24	160	0.48	0.125	0.93	0.7	4
	3-gnd	28	0	0	0.083	0.65	1000	1000
33-280-000-001	4-gnd	28	0	0	0.083	0.65	1000	1000
	3-4	28	0	0	0.083	0.65	1000	1000
	3-gnd	20	0	0	0.22	1.41	1000	1000
34-280-000-001	4-gnd	8	0	0	8.4	100	1000	1000
	3-4	28	0	0	0.083	0.65	1000	1000
	3-gnd	9.3	20	0.05	4.1	31	90	330



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77-093-040-001	4-gnd	9.3	20	0.05	4.1	31	90	330
	3-4	9.3	40	0.09	4.1	31	23	87
	3-gnd	9.3	150	0.35	4.1	31	1.3	7
77-093-300-001	4-gnd	9.3	150	0.35	4.1	31	1.3	7
	3-4	9.3	300	0.7	4.1	31	0.2	1.8
	3-gnd	10	200	0.5	3	20.2	0.5	4
77-100-400-001	4-gnd	10	200	0.5	3	20.2	0.5	4
	3-4	10	400	1	3	20.2	0.15	0.8
	3-gnd	15	150	0.56	0.58	3.55	1.3	7
77-150-300-001	4-gnd	15	150	0.56	0.58	3.55	1.3	7
	3-4	15	300	1.13	0.58	3.55	0.2	1.8
	3-gnd	22	73	0.4	0.165	1.14	7	26
77-220-146-001	4-gnd	22	73	0.4	0.165	1.14	7	26
	3-4	22	146	0.8	0.165	1.14	1.4	7.4
	3-gnd	22	148	0.81	0.165	1.14	1.35	7.2
77-220-296-001	4-gnd	22	148	0.81	0.165	1.14	1.35	7.2
	3-4	22	296	1.63	0.165	1.14	0.24	1.84
	3-gnd	28	47	0.33	0.083	0.65	10.1	30
77-280-094-001	4-gnd	28	47	0.33	0.083	0.65	10.1	30
	3-4	28	94	0.66	0.083	0.65	1.96	12.5

Zener Barrier Devices, Type 9002 series model numbers are in the form 9002/ab-ccc-ddd-ee1 as shown below.

9002 / ab-ccc-ddd-ee1

a – Position A



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- = 0 - barrier negative potential
- = 1 - barrier positive potential
- = 2 - barrier alternating potential
- = 3 - diode return diode (+)
- = 4 - diode return diode (-)
- = 7 - star connected barrier

b – Position B

- = 0 - barrier positive potential
- = 1 - barrier positive potential
- = 2 - barrier alternating potential
- = 3 - diode return diode (+)
- = 4 - diode return diode (-)
- = 7 - star connected barrier

ccc = safe maximum voltage for the interconnection of positions A and B U_0 in 1/10 V.

ddd = safe short circuit current for the interconnection of positions A and B I_0 in mA.

ee = variants without influence on explosion protection.

Notes:

- These barriers are for mounting in a suitable enclosure in non-hazardous or Class I, Div. 2 locations and must be grounded through a copper busbar or equivalent by means of the grounding post provided. Field wiring to the hazardous locations must not exceed the values given in the manufacturer's instructions and primary circuit potentials must not exceed 250Vrms.



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- Barrier parameters indicate max voltage and, where applicable, minimum resistance and are applicable in an ambient of up to 60 Deg C except as follows:
 - Model 9002/77-220-146-001 ambient of up to 50 Deg C.
 - Model 9002/77-220-296-001 ambient of up to 50 Deg C.

Hazardous area terminals 3 and 4 of all barriers provide intrinsically safe circuits when connected to non-inductive resistance devices, switches, LEDs or thermocouples; or CSA Certified equipment installed per manufacturer's instructions.

APPLICABLE REQUIREMENTS

CAN/CSA Standard C22.2 No. 0-M91 (Reaffirmed 2001) - General Requirements - Canadian Electrical Code, Part II

CAN/CSA-60079-0:07 - Electrical apparatus for explosive gas atmospheres – Part 0: General requirements

CAN/CSA-E60079-11:02 (Reaffirmed 2006) - Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety "i"

CAN/CSA-E60079-15:02 (Reaffirmed 2006) - Electrical apparatus for explosive gas atmospheres - Part 15: Type of protection "n"

CSA Standard C22.2 No. 213-M1987 (Reaffirmed 2008) - Non-incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations

CAN/CSA Standard C22.2 No. 157-92 (Including update No. 2, June, 2003) - Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations



Supplement to Certificate of Compliance

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The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
2170801	2009/05/01	Update of Report 1284580 to correct typographical errors in report and certification documents for 9002 series of Zener barriers.
2148728	2009/04/09	Update of Report 1284580 to reflect changes to drawings and resistor changes for 9002 series of Zener barriers.