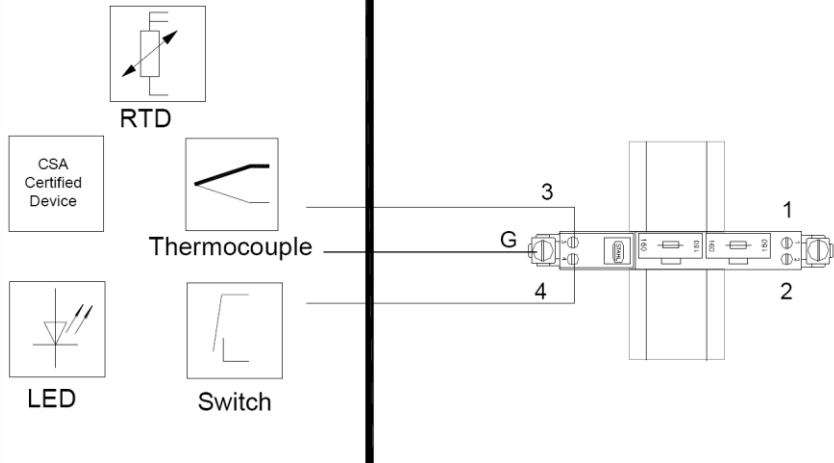


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Class I, II, III, Div. 1, Group A - G
or Class I, Zone 0, Group IIC/IIB
Hazardous Locations

Nonhazardous or Class I, Div. 2, Group A, B, C, D
or Class I, Zone 2, Group IIC
Hazardous Locations

Intrinsically Safe Apparatus
or Simple Apparatus



The Intrinsic Safety Barriers are associated apparatus located in a Nonhazardous or Class I, Div. 2, Group A, B, C, D or Class I, Zone 2, Group IIC locations and provide intrinsically safe connections for device(s) located in Class I, Div. 1, Group A, B, C, D; Class II, Div. 1, Group E, F, G; Class III, Div. 1; or Class I, Zone 0, Group IIC/IIB Hazardous (Classified) Locations.

Notes:

- Intrinsically safe apparatus may be switches, thermocouples, LEDs, RTDs, or a CSA Certified System or Entity device connected in accordance with the manufacturer's installation instructions.
- For Entity concept use the appropriate parameters from above to ensure the following:

$$U_o \text{ or } V_{oc} \leq V_{max} \quad C_o \text{ or } C_a \geq C_i + C_{leads}$$

$$I_o \text{ or } I_{sc} \leq I_{max} \quad L_o \text{ or } L_a \geq L_i + L_{leads}$$
- Electrical apparatus connected to the non-IS side of barrier should not use or generate voltages > 250 V (U_{max}).
- Installation should be in accordance with The Canadian Electrical Code, Part I.
- The system shall be installed in a suitable enclosure per the Authority Having Jurisdiction.
- Maximum barrier operating temperature is 60°C except as follows:
 $T_a = 50^\circ\text{C}$: 9002/77-220-146-001
 9002/77-220-296-001

WARNING: DO NOT DISCONNECTED NON I.S. CIRCUITS OR REPLACE FUSES UNLESS POWER HAS BEEN REMOVED OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

AVERTISSEMENT: NE DÉCONNECTER DES CIRCUITS NON INTRINSÈQUES OU REMPLACER DES FUSIBLES QUE S'ILS SONT HORS TENSION OU SI L'ATMOSPHÈRE EST EXEMPTÉ DE CONCENTRATIONS INFLAMMABLES.

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F 4830 503

			Date	Name	Certification drawing Intrinsic Safety Barrier Type 9002/...-...-...-1	Scale
			Drawn by	Tobey		none
			Checked	Bagusch		Sheet 1 of 3
02	25.08.2020	T. Stahl	STAHL		90 026 11 31 2	Agency
01	13.03.2009	Einsiedler				CSA
Index	Date	Name	Rep. f.		Rep. t.	A4


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F 4830 503

Model Number	TERMINAL	Entity Parameters						Entity Parameters					
					Groups						Groups		
		Voc	Isc	Po	A, B, E	C, D, F, G	Rmin	Vmax	Uo	Io	Po	IIC	IIB / IIA
		[V]	[mA]	[W]	La / Ca	Lb / Cb	[Ω]	[V]	[V]	[mA]	[W]	Lo / Co	Lb / Cb
9002/00-120-024-001	3 to GND	-11.6	-11.4	0.04	247 / 1.8	826 / 5.5	1020	-11.6	12	12	0.04	240 / 1.41	850 / 9
	4 to GND	-11.6	-11.4	0.04	247 / 1.8	826 / 5.5	1020	-11.6	12	12	0.04	240 / 1.41	850 / 9
	3 & 4	12.4	23	0.07	64 / 1.4	226 / 4.3			12.7	24	0.07	63 / 1.1	230 / 7.1
9002/00-260-138-001	3 to GND	-25.8	-82	0.57	5.3 / 0.17	21 / 0.5	330	-25.8	26	87	0.57	2.7 / 0.099	15.5 / 0.77
	4 to GND	-20.1	-49	0.26	14.7 / 0.31	54 / 0.96	430	-20.1	20	51	0.26	14 / 0.22	54 / 1.41
	3 & 4	27.4	132	0.85	8.9 / 0.43	1.9 / 0.43			27.4	138	0.85	0.81 / 0.087	5.1 / 0.67
9002/00-280-186-001	3 to GND	-28	-91	0.65	4.5 / 0.14	18.1 / 0.43	330	-28	28	93	0.65	2 / 0.083	13 / 0.65
	4 to GND	-28	-91	0.65	4.5 / 0.14	18.1 / 0.43	330	-28	28	93	0.65	2 / 0.083	13 / 0.65
	3 & 4	30.4	183	1.3	N / A	5 / 0.34			30.1	186	1.3	N / A	2.8 / 0.551
9002/10-187-020-001	3 to GND	9.3	19.8	0.05	83.4 / 4.3	301 / 12.9	475	9.3	9.33	20	0.05	90 / 3.9	330 / 29
	4 to GND	9.3	19.8	0.05	83.4 / 4.3	301 / 12.9	475	9.3	9.33	20	0.05	90 / 3.9	330 / 29
	3 & 4	18.7	22	0.09	68.3 / 0.39	248 / 1.17			18.7	20	0.09	90 / 0.27	330 / 1.64
9002/10-187-270-001	3 to GND	9.3	251.8	0.63	0.27 / 4.3	2.4 / 12.9	39	9.3	9.33	270	0.63	0.23 / 3.9	2.2 / 29
	4 to GND	9.3	251.8	0.63	0.27 / 4.3	2.4 / 12.9	39	9.3	9.33	270	0.63	0.23 / 3.9	2.2 / 29
	3 & 4	18.7	278.8	1.26	0.21 / 0.39	2 / 1.17			18.7	270	1.26	0.23 / 0.27	2.2 / 1.64
9002/10-210-030-001	3 to GND	10.5	30	0.08	40 / 2.41	150 / 16.8	350	10.5	10.5	30	0.08	40 / 2.41	150 / 16.8
	4 to GND	10.5	30	0.08	40 / 2.41	150 / 16.2	350	10.5	10.5	30	0.08	40 / 2.41	150 / 16.8
	3 & 4	21	30	0.16	40 / 0.188	150 / 1.27			21	30	0.16	40 / 0.188	150 / 1.27
9002/11-120-024-001	3 to GND	11.6	11.4	0.04	247 / 1.8	862 / 5.5	1020	11.6	12	12	0.04	240 / 1.41	850 / 9
	4 to GND	11.6	11.4	0.04	247 / 1.8	862 / 5.5	1020	11.6	12	12	0.04	240 / 1.41	850 / 9
	3 & 4	12.4	23	0.07	64 / 1.4	226 / 4.3			12.7	24	0.07	63 / 1.1	230 / 7.1
9002/11-130-360-001	3 to GND	13	321	1.04	0.19 / 1	1.6 / 6.2	41	13	13	321	1.04	0.19 / 1	1.6 / 6.2
	4 to GND	1.6	39	0.016	24 / 100	91 / 1000	41	1.6	1.6	39	0.016	24 / 100	91 / 1000
	3 & 4	13.7	360	1.17	0.17 / 0.79	1.3 / 5			13.3	360	1.17	0.17 / 0.79	1.3 / 5
9002/11-137-029-001	3 to GND	13.7	14.5	0.05	160 / 0.79	560 / 5	945	13.7	13.7	14.5	0.05	160 / 0.79	560 / 5
	4 to GND	13.7	14.5	0.05	160 / 0.79	560 / 5	945	13.7	13.7	14.5	0.05	160 / 0.79	560 / 5
	3 & 4	14.4	29	0.1	43 / 0.67	160 / 4.18			14.4	29	0.1	43 / 0.67	160 / 4.18
9002/11-199-030-001	3 to GND	19.9	14.4	0.075	157 / 0.34	511 / 1.0	1400	19.9	19.9	15	0.075	160 / 0.223	560 / 1.42
	4 to GND	19.9	14.4	0.075	157 / 0.34	511 / 1.0	1400	19.9	19.9	15	0.075	160 / 0.223	560 / 1.42
	3 & 4	20.6	29	0.15	40.5 / 0.30	149 / 0.9			20.6	30	0.15	40 / 0.223	150 / 1.42
9002/11-260-138-001	3 to GND	25.8	82	0.57	5.3 / 0.17	21. / 0.5	330	25.8	26	87	0.57	2.7 / 0.099	15.5 / 0.77
	4 to GND	20.1	49	0.26	14.7 / 0.32	54 / 0.96	430	20.1	20	51	0.26	14 / 0.22	54 / 1.41
	3 & 4	27.4	132	0.85	1.9 / 0.14	8.9 / 0.43			27.4	138	0.85	0.81 / 0.087	5.1 / 0.67
9002/11-280-112-001	3 to GND	28	109	0.76	1.3 / 0.083	9 / 0.65	257	28	28	109	0.76	1.3 / 0.083	9 / 0.65
	4 to GND	28	3	0.02	50 / 0.083	150 / 0.65	14K	28	28	3	0.02	50 / 0.083	150 / 0.65
	3 & 4	30.1	112	0.78	0.76 / 0.065	8.4 / 0.551			28.7	112	0.78	0.76 / 0.065	8.4 / 0.551
9002/11-280-186-001	3 to GND	28	91	0.65	4.5 / 0.14	18.1 / 0.43	330	28	28	93	0.65	2 / 0.083	13 / 0.65
	4 to GND	28	91	0.65	4.5 / 0.14	18.1 / 0.43	330	28	28	93	0.65	2 / 0.083	13 / 0.65
	3 & 4	30.4	183	1.3	N / A	5 / 0.34			30.1	186	1.3	N / A	2.8 / 0.551
9002/11-280-244-001	3 to GND	28	184	1.29	N / A	2.9 / 0.65	152	28	28	184	1.29	N / A	2.9 / 0.65
	4 to GND	28	60	0.42	N / A	25 / 0.65	480	28	28	60	0.42	N / A	25 / 0.65
	3 & 4	28.7	244	1.71	N / A	1.1 / 0.62			28.3	244	1.71	N / A	1.1 / 0.62
9002/11-280-293-001	3 to GND	28	91	0.63	4.5 / 0.14	18.1 / 0.43	330	25.8	28	89	0.63	2.2 / 0.083	14 / 0.65
	4 to GND	9.6	181	0.43	0.7 / 4.2	5.2 / 12.7	56	9.6	9.56	180	0.43	0.6 / 3.6	5 / 26
	3 & 4	28.8	272	1.05	0.23 / 0.13	2.2 / 0.4			28.7	269	1.05	N / A	0.56 / 0.62
9002/11-280-293-021	3 to GND	28	91	0.63	4.5 / 0.14	18.1 / 0.43	330	25.8	28	89	0.63	2.2 / 0.083	14 / 0.65
	4 to GND	9.6	181	0.43	0.7 / 4.2	5.2 / 12.7	56	9.6	9.56	180	0.43	0.6 / 3.6	5 / 26
	3 & 4	28.8	272	1.05	0.23 / 0.13	2.2 / 0.4			28.7	269	1.05	N / A	0.56 / 0.62
9002/13-199-225-001	3 to GND	19.8	220.3	1.1	0.35 / 0.33	3.1 / 1	95	19.8	19.9	222	1.1	0.39 / 0.223	3.18 / 1.42
	4 to GND	8.6	0	0.015	1000 / 5.5	1000 / 16.5	*	8.6	19.9	3	0.015	1000 / 0.223	1000 / 1.42
	3 & 4	20.7	221	1.12	0.35 / 0.3	2.8 / 0.9			20.2	225	1.12	0.37 / 0.213	3.15 / 1.38
9002/13-252-121-041	3 to GND	25.1	120.1	0.74	2.5 / 0.17	9.8 / 0.51	220	25.1	25.2	118	0.74	1.3 / 0.107	7.4 / 0.82
	4 to GND	25.1	0	0.02	1000 / 0.17	1000 / 0.51	*	25.1	25.2	0	0.02	50 / 0.107	150 / 0.82
	3 & 4	25.9	120	0.76	2.5 / 0.104	9.8 / 0.42			25.5	121	0.76	1.25 / 0.104	7.35 / 0.8
9002/13-280-093-001	3 to GND	28	91	0.63	4.4 / 0.14	17.2 / 0.43	330	28	28	90	0.63	2.2 / 0.083	14 / 0.65
	4 to GND	28	0	0.021	1000 / 0.14	1000 / 0.43	*	28	28	3	0.021	50 / 0.083	150 / 0.65
	3 & 4	30.4	91	0.651	4.4 / 0.1	17.2 / 0.3			28.3	93	0.651	2 / 0.08	13 / 0.636
9002/13-280-100-041	3 to GND	28	99	0.68	3.7 / 0.13	14.4 / 0.39	300	28	28	97	0.679	1.8 / 0.083	12 / 0.65
	4 to GND	28	0	0.021	1000 / 0.13	1000 / 0.39	*	28	28	0	0.021	50 / 0.083	150 / 0.65
	3 & 4	28.8	99	0.7	3.7 / 0.11	14.4 / 0.33			28.3	100	0.7	1.55 / 0.08	11 / 0.635
9002/13-280-110-001	3 to GND	28	110	0.749	2.9 / 0.13	11.6 / 0.39	270	28	28	107	0.749	1.35 / 0.083	9.6 / 0.65
	4 to GND	28	0	0.021	1000 / 0.13	1000 / 0.39	*	28	28	3	0.021	50 / 0.083	150 / 0.65
	3 & 4	28.8	110	0.77	2.9 / 0.11	11.6 / 0.33			28.3	110	0.77	1.25 / 0.08	9 / 0.635

* designates diode return

			Date	Name	Certification drawing Intrinsic Safety Barrier Type 9002/...-...-...-1 90 026 11 31 2	Scale
			Drawn by	Tobey		none
			Checked	Bagusch		Sheet
					90 026 11 31 2	Agency
02	25.08.2020	T. Stahl				CSA
01	13.03.2009	Einsiedler				
Index	Date	Name			Rep. f.	Rep. t.
						A4

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Model Number	TERMINAL	Entity Parameters					Entity Parameters						
		Groups					Groups						
		V _{oc}	I _{sc}	P _o	A, B, E	C, D, F, G	R _{min}	V _{max}	U _o	I _o	P _o	IIC	IIB / IIA
		[V]	[mA]	[W]	L _a / C _a [mH]/[µF]	L _a / C _a [mH]/[µF]	[Ω]	[V]	[V]	[mA]	[W]	L _o / C _o [mH]/[µF]	L _o / C _o [mH]/[µF]
9002/13-280-188-001	3 to GND	28	185	1.295	N / A	2.85 / 0.65	151	28	28	185	1.295	N / A	2.85 / 0.65
	4 to GND	28	3	0.021	N / A	150 / 0.65	9333	28	28	3	0.021	N / A	150 / 0.65
	3 & 4	28.3	188	1.316	N / A	2.7 / 0.635			28.3	188	1.316	N / A	2.7 / 0.635
9002/22-016-383-111	3 to GND	0.8	239	0.038	0.55 / 1800	4.1 / 1800	4.22	0.8	0.8	191.5	0.038	0.54 / 100	4.4 / 1000
	4 to GND	0.8	239	0.038	0.55 / 1800	4.1 / 1800	4.22	0.8	0.8	191.5	0.038	0.54 / 100	4.4 / 1000
	3 & 4	1.6	380.6	0.077	0.16 / 1800	1.1 / 1800			1.6	383	0.077	0.16 / 100	0.96 / 1000
9002/22-032-300-111	3 to GND	1.6	150	0.06	2.2 / 1800	8.7 / 1800	13	1.6	1.6	150	0.06	1.3 / 100	7 / 1000
	4 to GND	1.6	150	0.06	2.2 / 1800	8.7 / 1800	13	1.6	1.6	150	0.06	1.3 / 100	7 / 1000
	3 & 4	3.2	311	0.12	0.26 / 1800	2.3 / 1800			3.2	300	0.12	0.2 / 100	1.8 / 1000
9002/22-048-442-111	3 to GND	2.4	221	0.133	0.4 / 100	3.19 / 1000	10.9	7.4	2.4	221	0.133	0.4 / 100	3.19 / 1000
	4 to GND	2.4	221	0.133	0.4 / 100	3.19 / 1000	10.9	7.4	2.4	221	0.133	0.4 / 100	3.19 / 1000
	3 & 4	4.8	442	0.266	0.12 / 100	0.54 / 1000			4.8	442	0.266	0.12 / 100	0.54 / 1000
9002/22-158-200-001	3 to GND	7.9	100	0.198	4 / 8.8	15 / 115	79	7.9	7.9	100	0.198	4 / 8.8	15 / 115
	4 to GND	7.9	100	0.198	4 / 8.8	15 / 115	79	7.9	7.9	100	0.198	4 / 8.8	15 / 115
	3 & 4	15.8	200	0.395	0.5 / 0.478	4 / 2.88			15.8	200	0.395	0.5 / 0.478	4 / 2.88
9002/22-240-024-001	3 to GND	11.3	11.4	0.04	258 / 2	899 / 6	1020	11.3	12	12	0.04	240 / 1.41	850 / 9
	4 to GND	11.3	1.9	0.04	258 / 2	899 / 6	1020	11.3	12	12	0.04	240 / 1.41	850 / 9
	3 & 4	22.6	23	0.08	67 / 0.23	236 / 0.7			24	24	0.08	41 / 0.125	145 / 0.93
9002/22-240-160-001	3 to GND	11.3	76	0.24	6.5 / 2	25 / 6	160	11.3	12	80	0.24	6 / 1.41	22 / 9
	4 to GND	11.3	1.9	0.24	6.5 / 2	25 / 6	160	11.3	12	80	0.24	6 / 1.41	22 / 9
	3 & 4	22.6	152	0.48	1.2 / 0.23	7.1 / 0.7			24	160	0.48	0.7 / 0.125	4 / 0.93
9002/33-280-000-001	3 to GND	28	0	0	1000 / 0.14	1000 / 0.43	*	28	28	0	0	1000 / 0.083	1000 / 0.65
	4 to GND	28	0	0	1000 / 0.14	1000 / 0.43	*	28	28	0	0	1000 / 0.083	1000 / 0.65
	3 & 4	28.5	0	0	1000 / 0.14	1000 / 0.4			28	0	0	1000 / 0.083	1000 / 0.65
9002/34-280-000-001	3 to GND	19.8	0	0	1000 / 0.33	1000 / 1	*	19.8	20	0	0	1000 / 0.22	1000 / 1.41
	4 to GND	7.9	0	0	1000 / 9.1	1000 / 27.4	*	7.9	8	0	0	1000 / 8.4	1000 / 100
	3 & 4	27.7	0	0	1000 / 0.14	1000 / 0.42			28	0	0	1000 / 0.083	1000 / 0.65
9002/77-093-040-001	3 to GND	9.3	20	0.05	90 / 4.1	330 / 31	475	9.4	9.3	20	0.05	90 / 4.1	330 / 31
	4 to GND	9.3	20	0.05	90 / 4.1	330 / 31	475	9.4	9.3	20	0.05	90 / 4.1	330 / 31
	3 & 4	9.3	40	0.09	23 / 4.1	87 / 31			9.3	40	0.09	23 / 4.1	87 / 31
9002/77-093-300-001	3 to GND	9.3	150	0.35	1.3 / 4.1	7 / 31	68	9.4	9.3	150	0.35	1.3 / 4.1	7 / 31
	4 to GND	9.3	150	0.35	1.3 / 4.1	7 / 31	68	9.4	9.3	150	0.35	1.3 / 4.1	7 / 31
	3 & 4	9.3	300	0.7	0.2 / 4.1	1.8 / 31			9.3	300	0.7	0.2 / 4.1	1.8 / 31
9002/77-100-400-001	3 to GND	9.9	190	0.5	0.59 / 3.3	4.6 / 9.9	56	9.9	10	200	0.5	0.5 / 3	4 / 20.2
	4 to GND	9.9	190	0.5	0.59 / 3.3	4.6 / 9.9	56	9.9	10	200	0.5	0.5 / 3	4 / 20.2
	3 & 4	9.9	380	1	0.16 / 3.3	0.9 / 9.9			10	400	1	0.15 / 3	0.8 / 20.2
9002/77-150-300-001	3 to GND	14.5	140	0.56	1.6 / 0.58	8.1 / 2.5	110	14.5	15	150	0.56	1.3 / 0.58	7 / 3.55
	4 to GND	14.5	140	0.56	1.6 / 0.58	8.1 / 2.5	110	14.5	15	150	0.56	1.3 / 0.58	7 / 3.55
	3 & 4	14.5	280	1.13	0.21 / 0.58	2 / 2.5			15	300	1.13	0.2 / 0.58	1.8 / 3.55
9002/77-220-146-001	3 to GND	21.8	70	0.4	7.4 / 0.25	28.5 / 0.76	330	21.8	22	73	0.4	7 / 0.165	26 / 1.14
	4 to GND	21.8	70	0.4	7.4 / 0.25	28.5 / 0.76	330	21.8	22	73	0.4	7 / 0.165	26 / 1.14
	3 & 4	21.8	140	0.8	1.6 / 0.25	8.1 / 0.76			22	146	0.8	1.4 / 0.165	7.4 / 1.14
9002/77-220-296-001	3 to GND	21.8	145	0.81	1.4 / 0.25	7.6 / 0.76	160	21.8	22	148	0.81	1.35 / 0.165	7.2 / 1.14
	4 to GND	21.8	145	0.81	1.4 / 0.25	7.6 / 0.76	160	21.8	22	148	0.81	1.35 / 0.165	7.2 / 1.14
	3 & 4	21.8	290	1.63	N / A	1.8 / 0.76			22	296	1.63	0.24 / 0.165	1.84 / 1.14
9002/77-280-094-001	3 to GND	28.1	44	0.33	18.5 / 0.14	67 / 0.41	680	28.1	28	47	0.33	10.1 / 0.083	30 / 0.65
	4 to GND	28.1	44	0.33	18.5 / 0.14	67 / 0.41	680	28.1	28	47	0.33	10.1 / 0.083	30 / 0.65
	3 & 4	28.1	88	0.66	4.8 / 0.14	19 / 0.4			28	94	0.66	1.96 / 0.083	12.5 / 0.65

* designates diode return

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			Date	Name	<p style="text-align: center;">Certification drawing Intrinsic Safety Barrier Type 9002/...-...-...-1</p>	Scale
			Drawn by	Tobey		none
			Checked	Bagusch		Sheet
02	25.08.2020	T. Stahl			90 026 11 31 2	Agency
01	13.03.2009	Einsiedler				CSA
Index	Date	Name			Rep. f.	Rep. t.
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