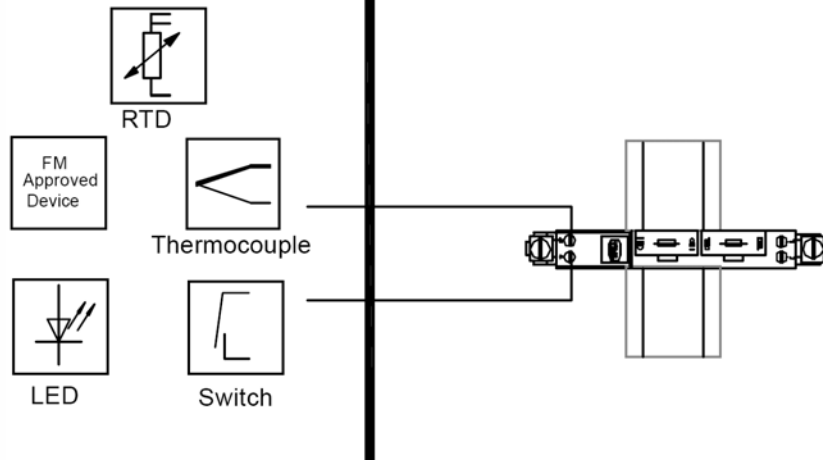


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Class I, II, III, Div. 1, Group A - G
or Class I, Zone 0, Group IIC/IIB
Hazardous Locations

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 an FM Approved 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:

$$V_t \text{ or } V_{OC} \leq V_{max} \qquad C_a \geq C_i + C_{leads}$$

$$I_t \text{ or } I_{SC} \leq I_{max} \qquad L_a \geq L_i + L_{leads}$$
- Electrical apparatus connected to non-IS side of barrier should not use or generate voltages > 250 V (U_{max}).
- Installation should be in accordance with Article 504/505 of the National Electrical Code, ANSI/NFPA 70 and ANSI/ISA RP 12.6.
- Use a general purpose enclosure meeting the requirements of ANSI/ISA S82.02.01 for use in nonhazardous locations.
- Maximum barrier operating temperature is 60°C except as follows:

$T_a = 50^\circ\text{C}$: 9001/0.-280-165-101
 9001/03-280-000-101
 9001/04-280-000-101
 9001/0.-280-280-101
 9001/51-280-091-141

$T_a = 40^\circ\text{C}$: 9001/51-280-110-141

WARNING: To prevent ignition of flammable or combustible atmospheres disconnect power before servicing

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			2002	Date	Name	Certification drawing Intrinsic Safety Barrier Type 9001/...-...-...-1 90 016 11 31 1	Scale
			Drawn by	3/2002	Tobey		none
			Checked	3/2002	Feindel		Sheet
					STAHL		1 of 6
02	11.03.09	Einsiedler					Agency
01	11/2004	RVT					FM
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BARRIER PART NO	V _{OC} (V)	I _{SC} (mA)	P _{max} (W)	La (Lo)	Grps. A, B, E	Grps. C, D, F, G
	U _O (V)	I _O (mA)	P _O (W)	Ca (Co)	Grp. IIC	Grp. IIB/IIA
9001/0.-050-050-101	5	50	62.5	Lo / mH	15	56
				Co / μF	100	1000
9001/0.-050-100-101	5	100	125	Lo / mH	4	15
				Co / μF	100	1000
9001/0.-050-150-101	5	150	187.5	Lo / mH	1.3	7
				Co / μF	100	1000
9001/0.-083-442-101	8.3	442	917.2	Lo / mH	0.12	0.5
				Co / μF	7.2	73
9001/0.-086-010-101	8.6	10	21.5	Lo / mH	300	1000
				Co / μF	6.2	55
9001/0.-086-020-101	8.6	20	43	Lo / mH	90	330
				Co / μF	6.2	55
9001/0.-086-050-101	8.6	50	107.5	Lo / mH	15	56
				Co / μF	6.2	55
9001/0.-086-075-101	8.6	75	161.3	Lo / mH	6.7	25
				Co / μF	6.2	55
9001/0.-086-100-101	8.6	100	215	Lo / mH	4	15
				Co / μF	6.2	55
9001/0.-086-150-101	8.6	150	322.5	Lo / mH	1.3	7
				Co / μF	6.2	55
9001/0.-086-270-101	8.6	270	580.5	Lo / mH	0.23	2.2
				Co / μF	6.2	55
9001/0.-086-390-101	8.6	390	838.5	Lo / mH	0.16	0.89
				Co / μF	6.2	55
9001/0.-126-020-101	12.6	20	63	Lo / mH	90	330
				Co / μF	1.15	7.4
9001/0.-126-050-101	12.6	50	157.5	Lo / mH	15	56
				Co / μF	1.15	7.4
9001/0.-126-075-101	12.6	75	236.3	Lo / mH	6.7	25
				Co / μF	1.15	7.4
9001/0.-126-100-101	12.6	100	315	Lo / mH	4	15
				Co / μF	1.15	7.4
9001/0.-126-140-101	12.6	140	441	Lo / mH	1.6	8
				Co / μF	1.15	7.4
9001/0.-126-150-101	12.6	150	472.5	Lo / mH	1.3	7
				Co / μF	1.15	7.4
9001/0.-137-065-101	13.7	65	222.6	Lo / mH	8.8	34
				Co / μF	0.79	5
9001/0.-158-005-101	15.8	5	19.75	Lo / mH	1000	1000
				Co / μF	0.478	2.88
9001/0.-158-150-101	15.8	150	592.5	Lo / mH	1.3	7
				Co / μF	0.478	2.88
9001/0.-168-007-101	16.8	7	29.4	Lo / mH	1000	720
				Co / μF	0.39	2.29
9001/0.-168-020-101	16.8	20	84	Lo / mH	90	330
				Co / μF	0.39	2.29
9001/0.-168-050-101	16.8	50	210	Lo / mH	15	56
				Co / μF	0.39	2.29
9001/0.-168-075-101	16.8	75	315	Lo / mH	6.7	25
				Co / μF	0.39	2.29
9001/0.-168-100-101	16.8	100	420	Lo / mH	4	15
				Co / μF	0.39	2.29


			2002	Date	Name	Certification drawing Intrinsic Safety Barrier Type 9001/...-...-...-...1 90 016 11 31 1	Scale	none
			Drawn by	3/2002	Tobey		Sheet	2 of 6
			Checked	3/2002	Feindel		Agency	FM
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BARRIER PART NO	V _{OC} (V)	I _{SC} (mA)	P _{max} (W)	La (Lo)	Grps. A, B, E	Grps. C, D, F, G
	U _O (V)	I _O (mA)	P _O (W)	Ca (Co)	Grp. IIC	Grp. IIB/IIA
9001/0.-199-010-101	19.9	10	49.75	Lo / mH	330	1000
				Co / μF	0.223	1.42
9001/0.-199-020-101	19.9	20	99.5	Lo / mH	90	330
				Co / μF	0.223	1.42
9001/0.-199-038-101	19.9	38	189.1	Lo / mH	26	95
				Co / μF	0.223	1.42
9001/0.-199-050-101	19.9	50	248.8	Lo / mH	15	56
				Co / μF	0.223	1.42
9001/0.-199-070-101	19.9	70	348.3	Lo / mH	7.5	28
				Co / μF	0.223	1.42
9001/0.-199-100-101	19.9	100	497.5	Lo / mH	4	15
				Co / μF	0.223	1.42
9001/0.-199-150-101	19.9	150	746.3	Lo / mH	1.3	7
				Co / μF	0.223	1.42
9001/0.-252-070-101	25.2	70	441	Lo / mH	4.5	25
				Co / μF	0.107	0.82
9001/0.-280-020-101	28	20	140	Lo / mH	50	50
				Co / μF	0.083	0.65
9001/0.-280-050-101	28	50	350	Lo / mH	8.5	25
				Co / μF	0.083	0.65
9001/0.-280-075-101	28	75	525	Lo / mH	3.3	21
				Co / μF	0.083	0.65
9001/0.-280-085-101	28	85	595	Lo / mH	2.4	16
				Co / μF	0.083	0.65
9001/0.-280-100-101	28	100	700	Lo / mH	1.6	11
				Co / μF	0.083	0.65
9001/0.-280-110-101	28	110	770	Lo / mH	1.2	9
				Co / μF	0.083	0.65
9001/0.-280-165-101	28	165	1155	Lo / mH	-	3.5
				Co / μF	-	0.65
9001/0.-315-020-101	31.5	20	157.5	Lo / mH	50	50
				Co / μF	0.056	0.41
9001/0.-315-050-101	31.5	50	393.8	Lo / mH	7.5	25
				Co / μF	0.056	0.41
9001/0.-315-070-101	31.5	70	551.3	Lo / mH	3.2	24
				Co / μF	0.056	0.41
9001/0.-398-020-101	39.8	20	199	Lo / mH	50	50
				Co / μF	0.03	0.26
9001/0.-398-050-101	39.8	50	497.5	Lo / mH	5.2	25
				Co / μF	0.03	0.26
9001/01-252-057-141	25.2	57	359.1	Lo / mH	6.3	25
				Co / μF	0.107	0.82
9001/01-252-060-141	25.2	60	378	Lo / mH	6.2	25
				Co / μF	0.107	0.82
9001/01-252-100-141	25.2	100	630	Lo / mH	2	11
				Co / μF	0.107	0.82
9001/02-016-015-101	1.6	15	6	Lo / mH	160	560
				Co / μF	100	1000
9001/02-016-050-101	1.6	50	20	Lo / mH	15	56
				Co / μF	100	1000
9001/02-016-050-111	1.6	50	20	Lo / mH	15	56
				Co / μF	100	1000


			2002	Date	Name	Certification drawing Intrinsic Safety Barrier Type 9001/...-...-...-... 1	Scale
			Drawn by	3/2002	Tobey		none
			Checked	3/2002	Feindel		Sheet
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BARRIER PART NO	V _{OC} (V)	I _{SC} (mA)	P _{max} (W)	La (Lo)	Grps. A, B, E	Grps. C, D, F, G
	U _O (V)	I _O (mA)	P _O (W)	Ca (Co)	Grp. IIC	Grp. IIB/IIA
9001/02-016-150-101	1.6	150	60	Lo / mH	1.3	7
				Co / μF	100	1000
9001/02-016-150-111	1.6	150	60	Lo / mH	1.3	7
				Co / μF	100	1000
9001/02-016-320-101	1.6	320	128	Lo / mH	0.19	1.6
				Co / μF	100	1000
9001/02-061-020-101	6.1	20	30.5	Lo / mH	90	330
				Co / μF	37	880
9001/02-061-050-101	6.1	50	76.25	Lo / mH	15	56
				Co / μF	37	880
9001/02-061-150-101	6.1	150	228.8	Lo / mH	1.3	7
				Co / μF	37	880
9001/02-093-003-101	9.3	3	6.975	Lo / mH	1000	1000
				Co / μF	4.1	31
9001/02-093-020-101	9.3	20	46.5	Lo / mH	90	330
				Co / μF	4.1	31
9001/02-093-030-101	9.3	30	69.75	Lo / mH	40	150
				Co / μF	4.1	31
9001/02-093-050-101	9.3	50	116.3	Lo / mH	15	56
				Co / μF	4.1	31
9001/02-093-075-101	9.3	75	174.4	Lo / mH	6.7	25
				Co / μF	4.1	31
9001/02-093-100-101	9.3	100	232.5	Lo / mH	4	15
				Co / μF	4.1	31
9001/02-093-120-101	9.3	120	279	Lo / mH	2.5	10
				Co / μF	4.1	31
9001/02-093-150-101	9.3	150	348.8	Lo / mH	1.3	7
				Co / μF	4.1	31
9001/02-093-250-101	9.3	250	581.3	Lo / mH	0.27	2.7
				Co / μF	4.1	31
9001/02-093-270-101	9.3	270	627.8	Lo / mH	0.23	2.2
				Co / μF	4.1	31
9001/02-093-390-101	9.3	390	906.8	Lo / mH	0.16	0.89
				Co / μF	4.1	31
9001/02-133-003-101	13.3	3	9.975	Lo / mH	1000	1000
				Co / μF	0.91	5.6
9001/02-133-020-101	13.3	20	66.5	Lo / mH	90	330
				Co / μF	0.91	5.6
9001/02-133-050-101	13.3	50	166.3	Lo / mH	15	56
				Co / μF	0.91	5.6
9001/02-133-075-101	13.3	75	249.4	Lo / mH	6.7	25
				Co / μF	0.91	5.6
9001/02-133-100-101	13.3	100	332.5	Lo / mH	4	15
				Co / μF	0.91	5.6
9001/02-133-120-101	13.3	120	399	Lo / mH	2.5	10
				Co / μF	0.91	5.6
9001/02-133-150-101	13.3	150	498.8	Lo / mH	1.3	7
				Co / μF	0.91	5.6
9001/02-175-020-101	17.5	20	87.5	Lo / mH	90	330
				Co / μF	0.339	1.97
9001/02-175-050-101	17.5	50	218.8	Lo / mH	15	56
				Co / μF	0.339	1.97
9001/02-175-075-101	17.5	75	328.1	Lo / mH	6.7	25
				Co / μF	0.339	1.97


			2002	Date	Name	Certification drawing		Scale
			Drawn by	3/2002	Tobey	Intrinsic Safety Barrier		none
			Checked	3/2002	Feindel	Type 9001/...-...-...-...-1		Sheet
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BARRIER PART NO	V _{OC} (V)	I _{SC} (mA)	P _{max} (W)	La (Lo)	Grps. A, B, E	Grps. C, D, F, G
	U _O (V)	I _O (mA)	P _O (W)	Ca (Co)	Grp. IIC	Grp. IIB/IIA
9001/02-175-100-101	17.5	100	437.5	Lo / mH	4	15
				Co / μF	0.339	1.97
9001/02-175-120-101	17.5	120	525	Lo / mH	2.5	10
				Co / μF	0.339	1.97
9001/02-175-150-101	17.5	150	656.3	Lo / mH	1.3	7
				Co / μF	0.339	1.97
9001/02-175-200-101	17.5	200	875	Lo / mH	0.5	4
				Co / μF	0.339	1.97
9001/02-196-010-101	19.6	10	49	Lo / mH	330	1000
				Co / μF	0.235	1.47
9001/02-196-020-101	19.6	20	98	Lo / mH	90	330
				Co / μF	0.235	1.47
9001/02-196-030-101	19.6	30	147	Lo / mH	40	150
				Co / μF	0.235	1.47
9001/02-196-050-101	19.6	50	245	Lo / mH	15	56
				Co / μF	0.235	1.47
9001/02-196-075-101	19.6	75	367.5	Lo / mH	6.7	25
				Co / μF	0.235	1.47
9001/02-196-100-101	19.6	100	490	Lo / mH	4	15
				Co / μF	0.235	1.47
9001/02-196-120-101	19.6	120	588	Lo / mH	2.5	10
				Co / μF	0.235	1.47
9001/02-196-125-101	19.6	125	612.5	Lo / mH	2.2	9
				Co / μF	0.235	1.47
9001/02-196-150-101	19.6	150	735	Lo / mH	1.3	7
				Co / μF	0.235	1.47
9001/02-224-020-101	22.4	20	112	Lo / mH	90	330
				Co / μF	0.156	1.09
9001/02-224-050-101	22.4	50	280	Lo / mH	15	56
				Co / μF	0.156	1.09
9001/02-224-075-101	22.4	75	420	Lo / mH	6.7	25
				Co / μF	0.156	1.09
9001/02-224-100-101	22.4	100	560	Lo / mH	4	15
				Co / μF	0.156	1.09
9001/02-224-120-101	22.4	120	672	Lo / mH	2.5	10
				Co / μF	0.156	1.09
9001/02-224-150-101	22.4	150	840	Lo / mH	1.3	7
				Co / μF	0.156	1.09
9001/02-280-015-101	28	15	105	Lo / mH	50	50
				Co / μF	0.083	0.65
9001/02-280-020-101	28	20	140	Lo / mH	50	50
				Co / μF	0.083	0.65
9001/02-280-050-101	28	50	350	Lo / mH	8.5	25
				Co / μF	0.083	0.65
9001/02-280-075-101	28	75	525	Lo / mH	3.4	21
				Co / μF	0.083	0.65
9001/02-280-090-101	28	90	630	Lo / mH	2.2	14
				Co / μF	0.083	0.65
9001/02-280-120-101	28	120	840	Lo / mH	-	7
				Co / μF	-	0.65
9001/02-307-075-101	30.7	75	575.6	Lo / mH	2.9	20
				Co / μF	0.062	0.53
9001/02-307-130-101	30.7	130	997.8	Lo / mH	-	5.4
				Co / μF	-	0.53


			2002	Date	Name	<p style="text-align: center;">Certification drawing</p> <p style="text-align: center;">Intrinsic Safety Barrier</p> <p style="text-align: center;">Type 9001/...-...-...-...-1</p> <p style="text-align: center; font-size: 24pt; font-weight: bold;">90 016 11 31 1</p>	Scale	none
			Drawn by	3/2002	Tobey		Sheet	5 of 6
			Checked	3/2002	Feindel		Agency	FM
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BARRIER PART NO	V _{OC} (V)	I _{SC} (mA)	P _{max} (W)	La (Lo)	Grps. A, B, E	Grps. C, D, F, G
	U _O (V)	I _o (mA)	P _O (W)	Ca (Co)	Grp. IIC	Grp. IIB/IIA
9001/02-412-040-101	41.2	40	412	Lo / mH	8	25
				Co / μF	0.03	0.287
9001/02-412-065-101	41.2	65	669.5	Lo / mH	-	23
				Co / μF	-	0.287
9001/02-412-095-101	41.2	95	978.5	Lo / mH	-	9
				Co / μF	-	0.287
9001/03-086-000-101	8.6	0	0	Lo / mH	1000	1000
				Co / μF	6.2	55
9001/03-168-070-101	16.8	0	0	Lo / mH	1000	1000
				Co / μF	0.39	2.29
9001/03-199-000-101	19.9	0	0	Lo / mH	1000	1000
				Co / μF	0.223	1.42
9001/03-280-000-101	28	0	0	Lo / mH	50	50
				Co / μF	0.083	0.65
9001/04-086-000-101	8.6	0	0	Lo / mH	1000	1000
				Co / μF	6.2	55
9001/04-168-000-101	16.8	0	0	Lo / mH	1000	1000
				Co / μF	0.39	2.29
9001/04-199-000-101	19.9	0	0	Lo / mH	1000	1000
				Co / μF	0.223	1.42
9001/04-280-000-101	28	0	0	Lo / mH	50	50
				Co / μF	0.083	0.65
9001/0.-158-270-101	15.8	270	1067	Lo / mH	0.23	2.2
				Co / μF	0.478	2.88
9001/0.-158-390-101	15.8	390	1541	Lo / mH	0.16	0.89
				Co / μF	0.478	2.88
9001/0.-199-270-101	19.9	270	1343	Lo / mH	0.23	2.2
				Co / μF	0.223	1.42
9001/0.-199-390-101	19.9	390	1940	Lo / mH	-	0.89
				Co / μF	-	1.42
9001/0.-280-280-101	28	280	1960	Lo / mH	-	0.6
				Co / μF	-	0.65
9001/02-172-270-101	17.2	270	1161	Lo / mH	0.23	2.2
				Co / μF	0.36	2.11
9001/02-172-390-101	17.2	390	1677	Lo / mH	0.16	0.89
				Co / μF	0.36	2.11
9001/02-217-270-101	21.7	270	1465	Lo / mH	-	2.2
				Co / μF	-	1.17
9001/02-217-390-101	21.7	390	2116	Lo / mH	-	0.89
				Co / μF	-	1.17
9001/02-308-230-101	30.8	230	1771	Lo / mH	-	0.7
				Co / μF	-	0.524
9001/51-280-091-141	28	91	637	Lo / mH	2.2	14
				Co / μF	0.083	0.65
9001/51-280-110-141	28	110	770	Lo / mH	1.2	9
				Co / μF	0.083	0.65

			2002	Date	Name	Certification drawing		Scale
			Drawn by	3/2002	Tobey	Intrinsic Safety Barrier		none
			Checked	3/2002	Feindel	Type 9001/...-...-...-1		Sheet
						90 016 11 31 1		6 of 6
02	11.03.09	Einsiedler						Agency
01	11/2004	RVT	Rep. f.		Rep. t.		FM	A4
Index	Date	Name						