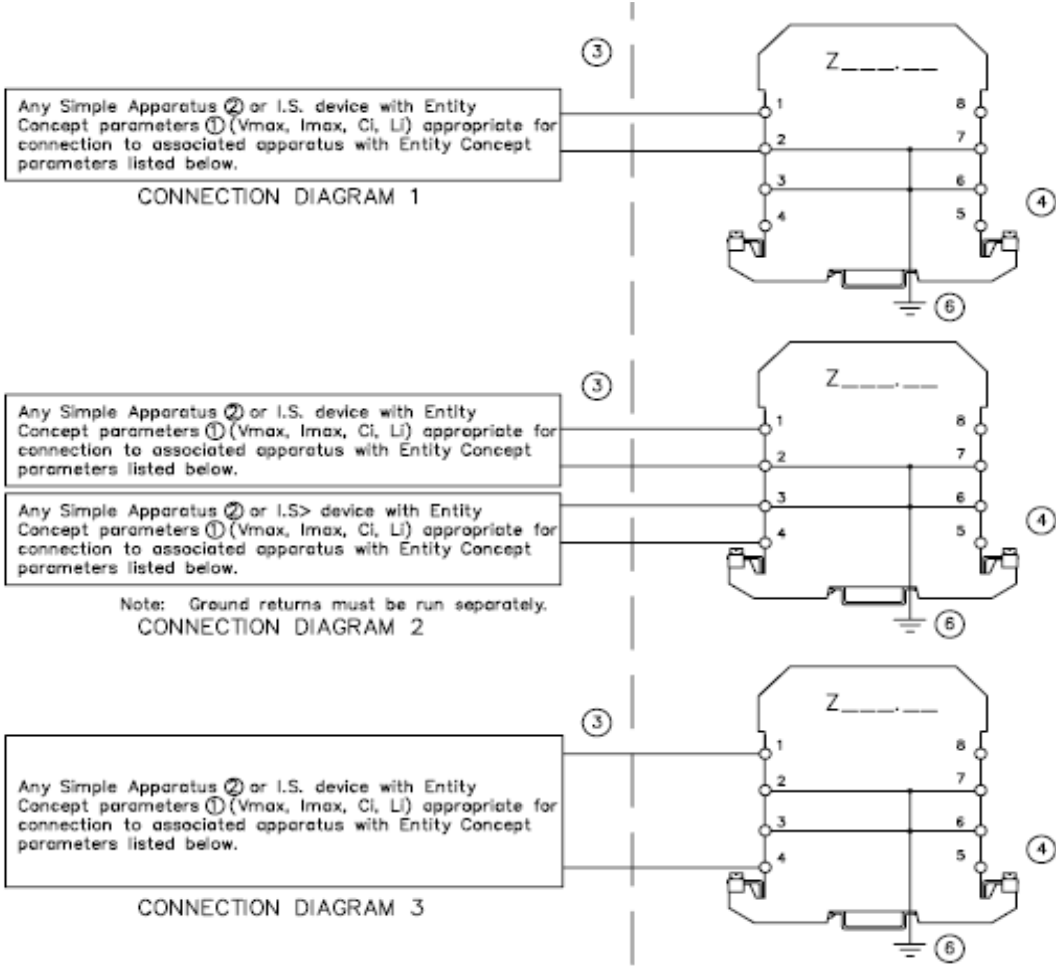


HAZARDOUS AREA
 CLASS I, DIVISION 1 } Applicable Groups
 CLASS II, DIVISION 1 } per Table Below
 CLASS III, DIVISION 1
 or
 CLASS I, ZONE 0 AND 1, IIC

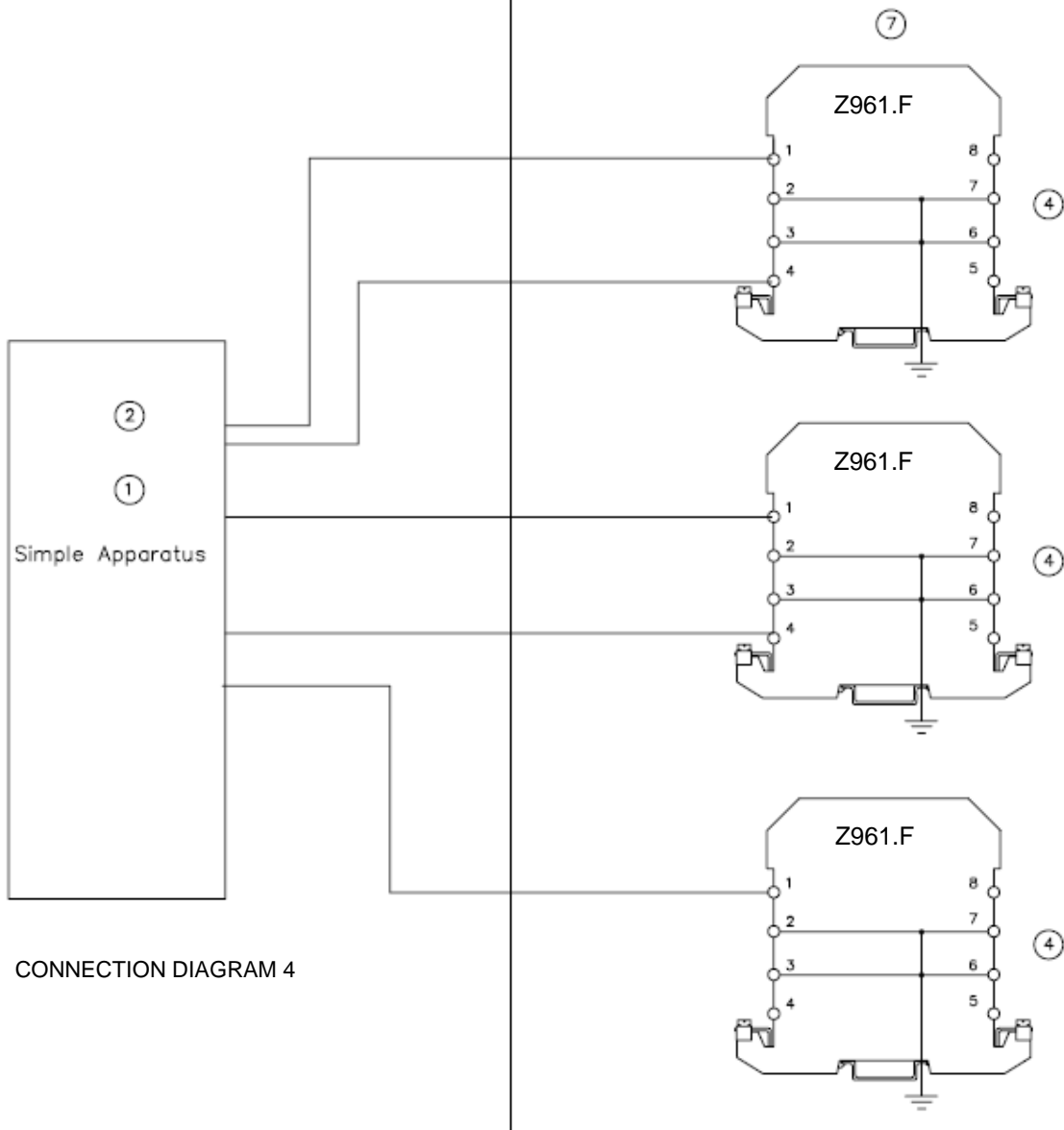
NON-HAZARDOUS AREA (5)
 or
 CLASS I, DIVISION 2, GROUPS A,B,C,D (5)
 or
 CLASS I, ZONE 2 GROUP IIC (5)



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CLASS I, DIVISION 1, GROUPS A,B,C,D
 CLASS II, DIVISION 1, GROUPS E,F,G
 CLASS III, DIVISION 1
 or
 CLASS I, ZONE 0 AND 1, IIC

NON-HAZARDOUS AREA
 or
 CLASS I, DIVISION 2, GROUPS A,B,C,D
 or
 CLASS I, ZONE 2 GROUP IIC



CONNECTION DIAGRAM 4


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TABLE 1 – ENTITY PARAMETERS

MODEL NUMBER	TERMINALS	Voc (Uo) [V]	Isc (Io) [mA]	Vt(V)	It(mA)	Groups Ca (µF)			Groups La(mH)		
						A,B	C,E	D,F,G	A,B	C,E	D,F,G
Z715.F	1,2	14.7	150	-	-	0.62	3.86	14.9	1.58	6.32	12.64
Z728.F	1,2	28	93	-	-	0.083	0.65	2.15	4.11	16.44	32.88
Z728.H.F	1,2	28	120	-	-	0.083	0.65	2.15	2.46	9.87	19.75
Z765.F	1,2	14.7	150	-	-	0.62	3.86	14.9	1.58	6.32	12.64
	3,4	14.7	150	-	-	0.62	3.86	14.9	1.58	6.32	12.64
	1,2,3,4	-	-	14.7	300	0.62	3.86	14.9	0.39	1.58	3.16
Z779.F	1,2	28	93	-	-	0.083	0.65	2.15	4.11	16.44	32.88
	3,4	28	93	-	-	0.083	0.65	2.15	4.11	16.44	32.88
	1,2,3,4	-	-	28	186	-	0.65	2.15	-	4.11	8.22
Z779.H.F	1,2	28	120	-	-	0.083	0.65	2.15	2.46	9.87	19.75
	3,4	28	120	-	-	0.083	0.65	2.15	2.46	9.87	19.75
	1,2,3,4	-	-	28	238	-	0.65	2.15	-	2.46	4.93
Z787.F	1,2	28	93	-	-	0.083	0.65	2.15	4.11	16.44	32.88
	3,4	28	0	-	-	0.083	0.65	2.15	1000	1000	1000
	1,2,3,4	-	-	28	93	0.083	0.65	2.15	4.11	16.44	32.88
Z787.H.F	1,2	28	120	-	-	0.083	0.65	2.15	2.46	9.87	19.75
	3,4	28	0	-	-	0.083	0.65	2.15	1000	1000	1000
	1,2,3,4	-	-	28	120	0.083	0.65	2.15	2.46	9.87	19.75
Z815.F	1,2	14.7	150	-	-	0.62	3.86	14.9	1.58	6.32	12.64
Z828.F	1,2	28	93	-	-	0.083	0.65	2.15	4.11	16.44	32.88
Z828.H.F	1,2	28	120	-	-	0.083	0.65	2.15	2.46	9.87	19.75
Z865.F	1,2	14.7	150	-	-	0.62	3.86	14.9	1.58	6.32	12.64
	3,4	14.7	150	-	-	0.62	3.86	14.9	1.58	6.32	12.64
	1,2,3,4	-	-	14.7	300	0.62	3.86	14.9	0.39	1.58	3.16
Z879.F	1,2	28	93	-	-	0.083	0.65	2.15	4.11	16.44	32.88
	3,4	28	93	-	-	0.083	0.65	2.15	4.11	16.44	32.88
	1,2,3,4	-	-	28	186	-	0.65	2.15	-	4.11	8.22
Z879.H.F	1,2	28	120	-	-	0.083	0.65	2.15	2.46	9.87	19.75
	3,4	28	120	-	-	0.083	0.65	2.15	2.46	9.87	19.75
	1,2,3,4	-	-	28	238	-	0.65	2.15	-	2.46	4.93
Z887.F	1,2	28	93	-	-	0.083	0.65	2.15	4.11	16.44	32.88
	3,4	28	0	-	-	0.083	0.65	2.15	1000	1000	1000
	1,2,3,4	-	-	28	93	0.083	0.65	2.15	4.11	16.44	32.88
Z887.H.F	1,2	28	120	-	-	0.083	0.65	2.15	2.46	9.87	19.75
	3,4	28	0	-	-	0.083	0.65	2.15	1000	1000	1000
	1,2,3,4	-	-	28	120	0.083	0.65	2.15	2.46	9.87	19.75
Z960.F	1,2	9.94	203	-	-	3.0	20.0	100.0	0.86	3.45	6.90
	3,4	9.94	203	-	-	3.0	20.0	100.0	0.86	3.45	6.90
	1,2,3,4	-	-	9.94	406	3.0	20.0	100.0	0.21	0.86	1.72
Z961.F (Single module installation)	1,2	8.7	89	-	-	5.9	50.0	1000	4.48	17.95	35.91
	3,4	8.7	89	-	-	5.9	50.0	1000	4.48	17.95	35.91
	1,2,3,4	-	-	17.4	178 @ 8.7V	0.346	2.02	8.40	1.12	4.48	8.97
Z961.F (Installation as detailed in Diagram 4))	1,4	-	-	17.4	213	0.346	2.02	8.40	0.78	3.13	6.26
Z966.F	1,2	12	82	-	-	1.41	9.00	36.0	5.28	21.15	42.30
	3,4	12	82	-	-	1.41	9.00	36.0	5.28	21.15	42.30
	1,2,3,4	-	-	24	164 @ 12V	0.125	0.93	3.35	1.32	5.28	10.57

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Notes:

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} (or U_o), I_{sc} (or I_o) and P_o for the associated apparatus are less than or equal to V_{max} (U_i) and I_{max} (I_i) for the intrinsically safe apparatus and the approved values of C_a (C_o) and L_a (L_o) for the associated apparatus are greater than $C_i + C_{cable}$ and $L_i + L_{cable}$, respectively, for the intrinsically safe apparatus.

The parameters in Table 1 apply when one of the two conditions below is given:

- The total L_i of the external circuit (excluding the cable) is $< 1\%$ of the L_o value or
- The total C_i of the external circuit (excluding the cable) is $< 1\%$ of the C_o value.


The parameters in Table 1 are reduced to 50% when both of the two conditions below are given:

- The total L_i of the external circuit (excluding the cable) $> 1\%$ of the L_o and
- The total C_i of the external circuit (excluding the cable) $> 1\%$ of the C_o .


Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1 μ F for C, D (IIB) and 600nF for A, B (IIC).

Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in Note 1. Cable capacitance, C_{cable} , plus intrinsically safe equipment capacitance, C_i must be less than the marked capacitance, C_a (or C_o), shown on any associated apparatus used. The same applies for inductance (L_{cable} , L_i and L_a or L_o , respectively). Where the cable capacitance and inductance per foot are not known, the following values shall be used: $C_{cable} = 60$ pF/ft., $L_{cable} = 0.2$ μ H/ft.

2. Simple Apparatus: An electrical component or combination of components of simple construction with well defined electrical parameters that does not generate more than 1.5 volts, 100 milliamps, and 25 milliwatts, or a passive component that does not dissipate more than 1.3 watts and is compatible with the intrinsic safety of the circuit in which it is used (USA). A switch non-inductive resistive device or thermocouple (Canada).
3. Wiring methods must be in accordance with the electrical code of the country in use. Barriers with multiple intrinsically safe field wiring pairs shall be installed as separate intrinsically safe circuits. Power, inputs and outputs must be in accordance with Class I, Division 2 wiring methods of National Electrical Code ANSI/NFPA 70, Canadian Electrical Code C22.1 or in accordance with the authority having jurisdiction. Intrinsically safe circuits must be wired and separated in accordance with Article 504.20 or other local codes, as applicable.
4. Barriers shall not be connected to any device which uses or generates internally any voltage in excess of 250V Rms or DC unless the device has been determined to adequately isolate the voltage from the barrier.

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5. The barriers are rated 'Nonincendive'. If the barriers are intended to be mounted in a Division 2 location, they must be mounted in an enclosure with a minimum ingress protection of IP2X. If the barriers are intended to be mounted in a Zone 2 location that is subject to contamination by water or dust, they must be mounted in an enclosure with a minimum ingress protection of IP54. If the barriers are intended to be mounted in a Zone 2 indoor location that is not subject to contamination by water or dust, they must be mounted in an enclosure with a minimum ingress protection of IP4X. The enclosure must be able to accept Division 2 / Zone 2 wiring methods. A temperature rating of T4 applies to all nonincendive rated barriers.
 In Class I, Division 2 installations, the subject equipment shall be mounted within a tool-secured enclosure which is capable of accepting one or more of the Class I, Division 2 wiring methods specified in the National Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code (C22.1), as applicable.
 In Class I, Zone 2 installations, the subject equipment shall be mounted within a tool-secured enclosure which is capable of accepting one or more of the Class I, Zone 2 wiring methods specified in the National Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code (C22.1), as applicable. The equipment shall be installed in an enclosure with a minimum ingress protection rating of IP54 unless the apparatus is intended to be afforded an equivalent degree of protection by location.
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 the 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:
- DIN rail must be standard 35mm DIN rail (35mm ± 0.3mm).
 - Any corrosion on the DIN rail must be removed and the DIN rail must be checked for the standard tolerance of 35mm ± 0.3mm.
 - A continuity check must be conducted between the DIN rail and any ground terminal on the barrier, terminals 2,3,6,7 or the wire clamp terminals at the base of the barrier.
 - Connect 35mm DIN rail to the ground electrode using hardware suitable to provide a ground path resistance of less than 1 ohm.
7. Up to 5 channels Z961.F can be connected to a simple apparatus as shown in connection diagram 4.
8. **WARNING:** Substitution of components may impair intrinsic safety.
AVERTISSEMENT: La substitution de composants peut compromettre la sécurité intrinsèque.
 For Zone 2 installations, ensure protection of supply terminals against transient voltages exceeding 140% of the rated supply voltage.

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