

## FM/cFM Installations

### Connections

NONHAZARDOUS LOCATION

or

HAZARDOUS (CLASSIFIED) LOCATION

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

NONHAZARDOUS LOCATION

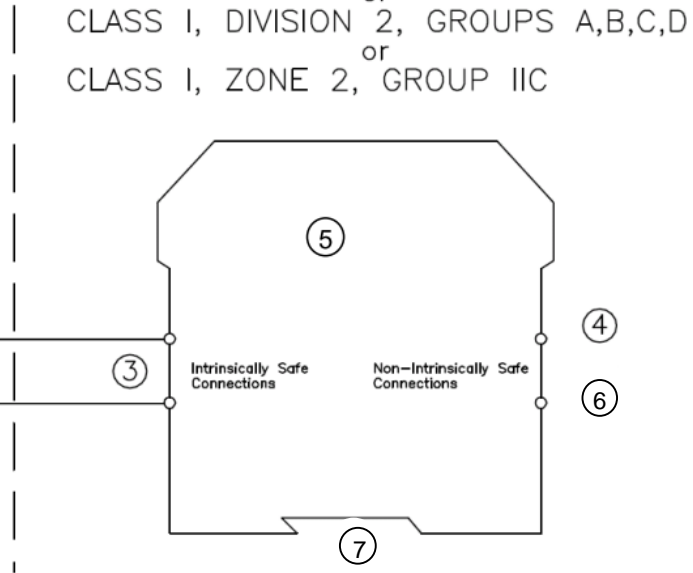
or

CLASS I, DIVISION 2, GROUPS A,B,C,D

or

CLASS I, ZONE 2, GROUP IIC

Any Simple Apparatus ② or approved device with Entity Concept ① parameters ( $V_{max}$ ,  $I_{max}$ ,  $C_i$ ,  $L_i$ ) appropriate for connection to Associated Apparatus with Entity Concept parameters listed in Table 1.



### 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  $U_0$ ) and  $I_{sc}$  (or  $I_0$ ) for the associated apparatus are less or equal to  $V_{max}$  ( $U_i$ ) and  $I_{max}$  ( $I_i$ ) for the intrinsically safe apparatus and the approved values of  $C_a$  ( $C_0$ ) and  $L_a$  ( $L_0$ ) for the associated apparatus are greater than  $C_i + C_{cable}$  and  $L_i + L_{cable}$ , respectively for the intrinsically safe apparatus.
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 is used.
3. Wiring methods must be in accordance with the electrical code of the country in use.
4. Barriers shall not be connected to any device which uses or generate internally any voltage in excess of 250V r.m.s or DC unless the device has been determined to adequately isolate the voltage from the barrier.
5. The barriers are rated 'Nonincendive'. If the barriers are intended to be mounted in a Division 2 / Zone 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 Division 2 / 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 Division 2 / 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.
6. For Zone 2 installations, ensure protection of supply terminals against transient voltages exceeding 140% of the rated supply voltage
7. Power feed modules KFD2-EB2\* maybe used in conjunction with power rail to energize P+F isolated barriers (KCD2 Series) when installed in accordance with Control Drawing 116-0160.

WARNING: Substitution of components may impair intrinsic safety and suitability for use in Class I, Division 2 / Zone 2  
 AVERTISSEMENT - La substitution de composants peut compromettre la sécurité intrinsèque et l'adéquation à une utilisation en Classe I, Div. 2/Zone 2.

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## Entity Parameters

Table 1:

Model Numbers	Terminals	ENTITY											
		Uo Voc	Io Isc	Po	Co(μF) GRPS			Lo(mH) GRPS			Lo / Ro (μH/Ω) GRPS		
					IIC A,B	IIB C,E,F,G	IIA D	IIC A,B	IIB C,E,F,G	IIA D	IIC A,B	IIB C,E,F,G	IIA D
KCD2-SR-Ex1.LB KCD2-SR-Ex1.LB.SP KCD2-SR-Ex2 KCD2-SR-Ex2.SP	1,2 3,4	10.5 V	17.1 mA	45 mW	2.41	16.8	75	121.5	486.3	972.7	792	3167	6334
KCD2-STC-Ex1 KCD2-STC-Ex1.SP	1+, 2-	25.2 V	100 mA	630 mW	0.1	0.81	2.8	3.5	14	28	n.a.	227	453
		Ci = 5.7 nF											
KCD2-SCD-Ex1 KCD2-SCD-Ex1.SP	1+, 2-	7.2 V	100 mA	25 mW	13.49	239	1000	3.5	14	28	1437	5746	11493
		Ui = 30V	li = 128 mA	n.a.									
KCD2-SCD-Ex1 KCD2-SCD-Ex1.SP	1+, 2-	25.2 V	100 mA	630 mW	0.1	0.81	2.8	3.5	14	28	n.a.	227	453
		Ci = 5.7 nF											
KCD0-SD-Ex1.1245 KCD0-SD-Ex1.1245.SP	1, 2	25.2 V	110 mA	693 mW	0.107	0.82	2.9	2.94	11.75	30	51	205	411

The values of Lo and Co listed in the table above are allowed if one of the following conditions is met:

- The total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- The total Ci of the external circuit (excluding the cable) is < 1% of the Co value.


The values of Lo and Co listed in the table above shall be reduced to 50% when both of the following conditions are met:

- the total Li of the external circuit (excluding the cable) is > 1% of the Lo value and
- the total Ci of the external circuit (excluding the cable) is > 1% of the Co value.

**Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1μF for IIA, IIB and 600nF for IIC.**

Enclosure temperature may exceed 70°C at operating ambient temperatures exceeding 56°C. Select field wiring with an insulation temperature rating that is suitable for the application.

Modules with multiple intrinsically safe field wiring pairs shall be installed as separate intrinsically safe circuits.

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