



# General Information

## Protection Techniques



### Protection Techniques

The following shall be acceptable protection technique for electrical and electronic equipment in hazardous (classified) locations.

#### Class I Locations

Protection Methods	U.S. Acceptable Cert. Document
<b>Div. 1</b>	
• Explosionproof	UL 1203
• Intrinsically safe ( 2 fault )	UL 913
• Purged / pressurized ( Type X or Y )	NFPA 496
<b>Div. 2</b>	
• Nonincendive	UL 1604
• Non-sparking device	UL 1604
• Oil immersion	UL 698
• Purged / pressurized ( Type Z )	NFPA 496
• Hermetically sealed	UL 1604
• Any Class I Div. 1 method	—
• Any Class I Zone 0, 1, or 2 method	—

#### Class II Locations

Protection Methods	U.S. Acceptable Cert. Document
<b>Div. 1</b>	
• Dust-ignitionproof	UL 1203
• Intrinsically safe	UL 913
• Pressurized	NFPA 496
<b>Div. 2</b>	
• Dusttight	UL 1604
• Nonincendive	UL 1604
• Non-sparking device	UL 1604
• Any Class II Div. 1 method	—

#### Class III Locations

- Using of equipment suitable for Class II, Division 2 location.

#### Protection Techniques for Class I, Zone 0, 1 and 2

Area	Protection Methods	U.S.	IEC	Europe
<b>Zone 0</b>	• Intrinsically safe, 'ia' (2 fault)	UL 2279, Pt. 11	IEC 60079-11	EN 50020
	• Class I, Div. 1 intrinsically safe (2 fault) method	UL 913	—	—
<b>Zone 1</b>	• Encapsulation, 'm'	UL 2279, Pt. 18	IEC 60079-18	EN 50028
	• Flameproof, 'd'	UL 2279, Pt. 1	IEC 60079-1	EN 50018
	• Increased safety, 'e'	UL 2279, Pt. 7	IEC 60079-7	EN 50019
	• Intrinsically safe, 'ib' (1 fault)	UL 2279, Pt. 11	IEC 60079-11	EN 50020
	• Oil immersion, 'o'	UL 2279, Pt. 6	IEC 60079-6	EN 50015
	• Powder filling, 'q'	UL 2279, Pt. 5	IEC 60079-5	EN 50017
	• Purged / pressurized, 'p'	—	IEC 60079-2	EN 50016
	• Any Class I, Zone 0 method	—	—	—
<b>Zone 2</b>	• Nonincendive, 'nC'	UL 2279, Pt. 15	IEC 60079-15	prEN 50021
	• Non-sparking device, 'nA'	UL 2279, Pt. 15	IEC 60079-15	prEN 50021
	• Restricted breathing, 'nR'	UL 2279, Pt. 15	IEC 60079-15	prEN 50021
	• Hermetically sealed, 'nC'	UL 2279, Pt. 15	IEC 60079-15	prEN 50021
	• Any Class I, Zone 0 or 1 method	—	—	—
	• Any Class I, Div. 1 or 2 method	—	—	—