

## HAZARDOUS LOCATION LIGHTING BASICS

### CLASSES

### DIVISIONS

### GROUPS

**Class I: Gases**

Areas in which flammable gases or vapors in the air in sufficient quantities to ignite or explode.

**Class II: Dust**

Areas in which combustible dust may be suspended in the air or accumulates on electrical equipment in quantities sufficient to ignite or explode.

**Class III: Fibers**

Areas in which easily ignitable fibers or flyings are present. Typically fibers and flyings are not suspended in the air, but can collect around machinery or on lighting fixtures.

**Division 1: Always Present**

Areas in which ignitable concentrations of hazards exist under normal operation conditions and/or where hazard is caused by frequent maintenance or repair work or frequent equipment failure.

**Division 2: Not Normally Present**

Areas in which ignitable concentrations of hazards are normally in closed containers or closed systems. Hazards may be present due to accidental rupture or breakdown of such containers or systems.

**Class I: Gases**

Group A - Acetylene  
Group B - Hydrogen  
Group C - Ethylene  
Group D - Propane

**Class II: Dusts**

Group E - Electrically conductive dust  
Group F - Carbonaceous dust  
Group G - Agricultural and polymer dust

### IEC ZONE CLASSIFICATIONS

IEC publication 60079-10 uses Zones to define the guidelines for classifying hazardous areas.

Zone 0 - Areas where explosive gas atmosphere is continuously present or present for long periods of time.

Zone 1 - Areas where explosive gas atmosphere is likely to occur in normal operation or can be expected to be present frequently.

Zone 2 - Areas where explosive gas atmosphere is not likely to occur and if it does, it will only be present for a short period of time.

Zone 20 - Areas in which a combustible dust, as a cloud, is present continuously or frequently during normal operations in sufficient quantities to produce an explosive mixture.

Zone 21 - Areas in which a combustible dust, as a cloud, is likely to occur during normal operations in sufficient quantities to produce an explosive mixture.

Zone 22 - Areas in which combustible dust, as a cloud, is not likely to occur, but may occur infrequently and persist for only short

### COMPARISON

### UL STANDARDS

Hazardous Material	NEC U.S.	IEC
Gas or Vapor	Class I, Division 1	Zone 0, 1
	Class I, Division 2	Zone 2
Dust	Class II, Division 1	Zone 20
	Class II, Division 2	Zone 22
Fibers or Flyings	Class III, Division 1	No Equivalent
	Class III, Division 2	No Equivalent

Number	Certified Usage
844	Lighting fixtures for use in hazardous classified areas
924	Emergency lighting
1598	Lighting fixtures approved for wet locations
1598A	Lighting approved for use on marine vessels. Salt water corrosive rated
8750	LED safety

### IP CODES

**1st Number: Solid Objects****2nd Number: Liquids**

0 - No protection	0 - No protection
1 - Objects greater than 50mm	1 - Vertically dripping
2 - Objects greater than 12.5mm	2 - Dripping up to 15°
3 - Objects greater than 2.5mm	3 - Limited spraying
4 - Objects greater than 1mm	4 - Splashing from all directions
5 - Dust protected	5 - Hosing jets from all directions
6 - Dust proof	6 - Strong hosing jets from all directions
	7 - Temporary immersion
	8 - Continuous immersion
	9K - Steam-jet cleaning

### IK RATINGS

IK Code	Level of Protection Achieved
IK00	Not protected
IK01	Protected against 0.14 joules impact.
IK02	Protected against 0.2 joules impact
IK03	Protected against 0.35 joules impact.
IK04	Protected against 0.5 joules impact.
IK05	Protected against 0.7 joules impact.
IK06	Protected against 1 joules impact.
IK07	Protected against 2 joules impact.
IK08	Protected against 5 joules impact.
IK09	Protected against 10 joules impact.
IK10	Protected against 20 joules impact.

### T-CODES

Maximum Operating Temperatures	Temperature Class (T-Code)
450 °C 842 °F	T1
300 °C 572 °F	T2
280 °C 536 °F	T2A
260 °C 500 °F	T2B
230 °C 446 °F	T2C
215 °C 419 °F	T2D
200 °C 392 °F	T3
180 °C 356 °F	T3A
165 °C 329 °F	T3B
160 °C 320 °F	T3C
135 °C 275 °F	T4
120 °C 248 °F	T4A
100 °C 212 °F	T5
85 °C 185 °F	T6



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LIGHTING™  
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# Hazardous Lighting

## Rectangle Series H1

For explosion proof environments

Class I Division 1, Group C, D Class I Division 2, Group A, B, C, D Class II Division 1, Group E, F, G Class II Division 2, Group F, G Class III Class I, Zone 1, Group IIB Class I, Zone 2, Group IIC Zone 21, Zone 22



## Rectangle Series H2

For harsh and hazardous environments

Class I Division 2, Group A, B, C, D Class II Division 1, Group E, F, G Class II Division 2, Group F, G Class III Class I, Zone 2, Group IIC Zone 21, Zone 22

Wattage: 80W 100W 150W 200W  
Lumens (Lm): 12,800, 16,000, 24,000, 32,000  
Warranty: LEDs 10 Years, Driver 7 Years



## Rectangle Series Twin H1

For explosion proof environments

Class I Division 1, Group C, D Class I Division 2, Group A, B, C, D Class II Division 1, Group E, F, G Class II Division 2, Group F, G Class III Class I, Zone 1, Group IIB Class I, Zone 2, Group IIC Zone 21, Zone 22



## Rectangle-Mini Series H1

FOR LOW WATTAGE EXPLOSION PROOF APPLICATIONS

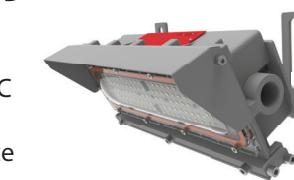
Class I Division 1, Group B, C, D Class I Division 2, Group A, B, C, D Class II Division 1, Group E, F, G Class II Division 2, Group F, G Class III Class I, Zone 1, Group IIB+H2 Class I, Zone 2, Group IIC Zone 21, Zone 22



Wattage: 20W 40W 60W  
Lumens (Lm): 2,800, 5,600, 8,400  
Warranty: LEDs 10 Years, Driver 7 Years

## Pack Series

For hazardous environments for wall applications



Class I Division 2, Group A, B, C, D Class II Division 1, Group E, F, G Class II Division 2, Group F, G Class III Class I, Zone 2, Group IIC Zone 21  
Zone 22 Simultaneous Presence

Wattage: 20W 30W  
Lumens (Lm): 3,400, 5,100  
Warranty: LEDs 10 Years, Driver 7 Years



## Industrial Lighting

### Cool MF Series

High Temperature Light to 90°C

Wattage: 100W 150W 200W 300W 450W  
Lumens (Lm): 18,000 24,000 32,000 48,000 72,000  
Warranty: Limited system warranty



### Flood ML Series

LED High Bay/Flood Light

Wattage: 100W 150W 200W 300W 400W 600W  
Lumens (Lm): 16,000 24,000 32,000 48,000 96,000  
Warranty: 5 years warranty



### Jelly Jar Series

Jelly Jar style light for corrosive & hazardous locations

Class I Division 2, Group A, B, C, D Class II Division 1, Group E, F, G Class II Division 2, Group F, G Class III Class I, Zone 2, Group IIC

Wattage: 10W 20W 30W  
Lumens (Lm): 1,600 2,900 4,350  
Warranty: LEDs 10 Years, Driver 7 Years



### Exit Series

Hazardous Area Emergency Light & Exit Sign Combo  
See specification sheet for options

Class I Division 2, Group A, B, C, D  
Class III  
Class I, Zone 2, Group IIC



## Rectangle Series Twin H2

For hazardous environments

Class I Division 2, Group A, B, C, D Class II Division 1, Group E, F, G Class II Division 2, Group F, G Class III Class I, Zone 2, Group IIC Zone 21, Zone 22



Wattage: 300W 400W  
Lumens (Lm): 48,000, 64,000  
Warranty: LEDs 10 Years, Driver 7 Years

## Rectangle-Mini Series H2

For a lower wattage, compact hazardous location light

Class I Division 2, Groups A, B, C, D Class II Division 1, Groups E, F, G Class III Class I, Zone 2, Group IIC Zone 21, Zone 22



Wattage: 20W 40W 60W  
Lumens (Lm): 3,200, 6,400, 9,600  
Warranty: LEDs 10 Years, Driver 7 Years

## Circle-Max Series

For corrosive & hazardous locations



Class I Division 2, Group A, B, C, D Class II Division 1, Group E, F, G Class II Division 2, Group F, G Class III Class I, Zone 2, Group IIC Zone 21, Zone 22

Wattage: 80W 100W 150W 200W  
Lumens (Lm): 13,600 17,000 25,500 34,000  
Warranty: LEDs 10 Years, Driver 7 Years



## Circle-Mini Series

For corrosive & hazardous locations

Class I Division 2, Group A, B, C, D Class II Division 1, Group E, F, G Class II Division 2, Group F, G Class III Class I, Zone 2, Group IIC Zone 21, Zone 22

Wattage: 40W 60W  
Lumens (Lm): 6,500 10,200  
Warranty: LEDs 10 Years, Driver 7 Years