

CATALOG

**Hazlux®**

Hazardous location lighting  
products and accessories



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**Thomas & Betts is now ABB  
Installation Products, but our long  
legacy of quality products and  
innovation remains the same. From  
connectors that help wire buildings  
on Earth to cable ties that help put  
machines in space, we continue to  
work every day to make, market,  
design and sell products that  
provide a smarter, safer and more  
reliable flow of electricity, from  
source to socket.**



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# Choosing the right partner

## For your hazardous location lighting project

When you're looking for hazardous location lighting, you need an experienced partner you can trust. Someone who will accompany you every step of the way and provide expert advice and exceptional service. The ABB sales team has been doing just that for close to a century.

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01 Since 2001, the ABB Hazlux manufacturing facility has been ISO 9001, 1400 and OHSAS 18001 compliant.

### Engineering expertise at your fingertips

Our product engineers are readily available to answer all your technical questions, and partner with you in selecting the best lighting solution to reach your goals.

### High standards of quality control

Quality is built into every product at every step of the process, from design to final assembly. Each product is inspected and tested to ensure that it meets our strict quality standards, and then professionally packed so that your order will arrive intact at your installation site.

### Product customization

We design and manufacture all units under one roof, giving us unparalleled capabilities to customize lighting fixtures to meet your specific needs.

### Reduced lead time

We produce what you need when you need it in our state-of-the-art North American Center of Excellence. We can easily accommodate both large and small production runs with a fast turnaround — no waiting for shipments from overseas.

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01



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A sustainable development policy is in effect at the ABB production facility to reduce our carbon footprint and minimize the environmental impact of our operations. Through a series of initiatives, reductions in water usage, water bottles, electricity and natural gas, packaging and pallets have already been realized.



# Lighting selection method

## The right fixture in the right place

### 01 Select a fixture that meets your Class, Division and Group requirements.

For example : Class I, Division 2, Group D

### 02 Determine the T-number for your selected fixture.

Be sure it is for the specific wattage, ballast housing, optical assembly and ambient temperature. Use the published information in this catalog or contact your Hazlux sales representative.

### 03 Determine the maximum allowable temperature for the hazardous materials.

Class I Gas	Ignition temperature for the specific gas (from NFPA497M)
Class II Dust	Group E: 200 °C
	Group F: 200 °C
	Group G: 165 °C
	Or ignition temperature of dust if lower
	Above from NEC table 500-3(F)

### 04 Compare T-number (from step 2) to maximum allowable temperature (from step 3).

If T-number is cooler than the maximum allowable temperature, the selected fixture is suitable.

If T-number is hotter than the maximum allowable temperature, the selected fixture is not suitable.

T-number table

Class I, II, Div. 1, 2 T-number	Max. temperature °C
T1	450
T2	300
T2A	280
T2B	260
T2C	230
T2D	215
T3	200
T3A	180
T3B	165
T3C	160
T4	135
T4A	120
T5	100
T6	85



# Hazlux applications

We have a fixture for virtually any condition

Hazlux lighting fixtures are built to withstand the harsh environmental conditions that exist in real settings.

## Examples of hazardous locations

Chemical manufacturing and processing plants
Oil refineries
Oil drilling rigs
Offshore platforms
Pipeline pumping stations
Pulp and paper plants
Aluminum and copper smelting
Steel mills and foundries
Mining operations
Grain handling facilities
Flour, sugar and starch processing
Food processing plants
Paint and rubber manufacturing facilities
Marine and coastal facilities
Shipyards and shipbuilding plants
Power generation plants
Waste treatment facilities
Paint, chemical and plastic mixing/storage areas
Bulk truck terminals
Solvent/cleaning areas

## Hose-down and wet locations

- Certified for wet locations — NEMA 4X, IP66 (indoor and outdoor); UL1598A (marine), CSA and cULus Listed
- Superior gasketing system — both tank and globe gasketing systems withstand hose-down pressures
- Uninterrupted globe thread — assures positive seal
- Baked-on, dry epoxy coating — not paint but 100% dry solids
- Globes, refractors and finish designed to withstand thermal shock during hose down

## High-ambient temperature areas

- All standard fixtures are tested and listed for at least 40 °C ambient — even under heavy dust blanket and no air flow
- Exclusive heat sink design results in a cool operating fixture, extended ballast/lamp life and lower maintenance costs
- Unmatched selection of high-ambient temperature rated fixtures — contact your ABB representative for fixtures certified for 55 °C applications
- Steam spray and thermal shock resistant



Hose-down and wet locations



High-ambient temperature areas



Corrosion and abrasion



Ice and arctic conditions

**Corrosion and abrasion**

- Baked-on, dry epoxy coating — not paint but 100% dry solids
- Stainless steel external hardware
- Sand-blast resistant finish
- Superior silicone gasketing system on both tank and globe (other gasketing systems available for special corrosive applications such as phosphates)
- Aluminum components contain less than 0.4% copper for maximum corrosion resistance
- Special HazCote® corrosion fighter finish available for extremely corrosive areas; consult your ABB representative for details

**Ice and arctic conditions**

- Gasketing system and finish allow for expansion and contraction through wide temperature variations
- High-strength mechanical mountings withstand extra ice loading
- Tempered glassware available for extra thermal shock safety margin

**Vibration, seismic shock and vandalism**

- Vibration tested by UL and CSA
- Vibration-resistant hardware throughout fixture
- Screw retainers on guard ensure retention even if screws are not completely tightened
- Vibration-resistant globe thread and sealing system
- Optional refractors, high-strength tempered glass and silicone-coated globes for protection from vandalism

**Dust blanket**

- Tested and listed by UL and CSA
- Thermal performance is at 40 °C ambient; optional thermal performance to 55 °C ambient available (consult ABB)
- Cone pendant mount available (45° sloped sides) for areas where dust or other residue buildup is a problem
- Exclusive heat sink design — results in a cool operating fixture, extended ballast/lamp life and lower maintenance costs

**Marine-duty option**

- This feature is supplied as standard on most Hazlux® 3 fixtures
- Designed for abuse — hose down, arctic, hurricane, vibration and shock, high temperature, corrosion and other environmental conditions typical of adverse marine locations
- Exclusive combination of marine and hazardous location approvals on the same fixture line

**Wind**

- Wind-tunnel tested at McDonnell Douglas Corporation at air flow speeds in excess of 198 mph (320 km/h)
- Guard specially designed to secure reflector during high wind loading
- All fasteners are stainless steel
- High-strength mechanical mountings withstand strong wind loads



Vibration, seismic shock and vandalism



Dust blanket



Marine-duty option



Wind



# Hazlux® H3 LED

## Generation 2

A safe, dependable and rugged luminaire with an exclusive design that maximizes heat dissipation and offers excellent performance.

### CLASSIFICATION

<b>CLASS I</b>	
Division 2	Groups A, B, C, D
Zone 2	Groups IIC, IIB, IIA
<b>CLASS II</b>	
Division 1*	Groups E, F, G*
Division 2	Groups F, G
<b>CLASS III</b>	

\* Contact your ABB sales representative to verify classification

Field-replaceable driver

Life expectancy: 50,000 to 100,000 hours

Maximizes heat dissipation for higher T-ratings, extended life in extreme ambient temperatures and extra safety

Baked epoxy powder finishes and stainless steel exposed hardware for corrosion resistance

Dimming control 0–10 V DC standard

Hinged design for hands-free wiring

Light output from 5,600 up to 20,100 lumens

### CERTIFICATIONS



Not all DL Series are DLC qualified. For all qualified products, please visit: [www.designlights.org/qpl](http://www.designlights.org/qpl)



UL 844

NEMA

4X

**ENERGY SAVINGS**

**15%**  
higher  
efficacy  
lm/W

## Hazlux® H3 LED Generation 2

### Key features and benefits

#### Hinged design for hands-free wiring

Easy tank access allows Hazlux® lighting fixtures to be maintained quickly and safely. The hinged lid is designed to support the weight of the tank, leaving both the installer's hands free.

#### Robust construction

Cast copper-free aluminum construction offers corrosion resistance in a strong and durable fixture. Baked epoxy powder finishes and stainless steel exposed hardware provide additional corrosion resistance.

#### Field-replaceable driver

The driver is designed in its own compartment so it can be easily replaced in the field.

#### Impressive life expectancy

Life expectancy of 50,000 to 100,000 hours.

#### Certifications

Easily identifiable nameplate displays third-party certification for all electrical and hazardous location ratings as required by the National Electrical Code, Canadian Electrical Code, OSHA regulations and CUL to provide peace of mind, confirming that the correct lighting fixture with the required certifications is in place.

#### Versatile optics include internal reflector options for light distribution

The Hazlux H3 LED Generation 2 fixture is available with a thermal-resistant globe and a variety of internal reflectors with 35°, 45° and 65° beam angles.

#### 6 kV combi-wave surge rating

ANSI C82.77-5 CAT C low compliant

ANSI surge type	Differential mode (L-N)	Common mode (L-G, N-G, LandN-G)
1.2/50 $\mu$ s combination wave (w/t 2 $\Omega$ )	6 kV	6 kV

#### High efficacy luminaire

Model	AC Power (W)	Lumens	Lm/W
DL005	37	5,600	151
DL007	48	7,500	156
DL010	74	10,500	142
DL015	103	15,800	153
DL017	115	17,300	150
DL020	138	20,100	146

#### Better temperature codes

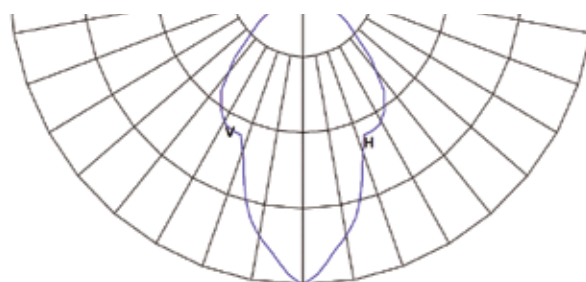
With an exclusive design that maximizes heat dissipation, Hazlux LED fixtures lower internal temperature allows for higher T-rating and extended LED and driver life in extreme ambient temperatures. With the entire luminaire acting as a heat sink, Hazlux LED fixtures allow for better performance.

#### Temperature codes

	Class I Zone 2 Groups IIC, IIB, IIA	Class I Division 2 Groups A, B, C, D	Class II Groups E, F, G	Simultaneous Class I Division 2 and Class II
<b>Glass globe DL005, DL007, DL010</b>				
Ambient temp. 40°C	T5	T5	T6	T5
Ambient temp. 55°C	T4	T4A	T6	T4A
<b>Glass globe DL005, DL007, DL010 with internal reflector I3, I4, I6</b>				
Ambient temp. 40°C	T4	T4A	T6	T4A
<b>Glass globe DL015, DL017, DL020</b>				
Ambient temp. 40°C	T4	T4A	T4A	T4A
<b>Optic type cut DL005, DL007, DL010</b>				
Ambient temp. 40°C	T5	T5	T5*	T5*
Ambient temp. 55°C	T4	T4A	T4A*	T4A*
<b>Optic type cut DL015, DL017, DL020</b>				
Ambient temp. 40°C	T4	T4A	T4A*	T4A*

\* Cut reflector: Class II, Division 2, Groups F, G

#### Beam angles



## Hazlux® H3 LED Generation 2

Build your luminaire



### 01 Choose a mounting option



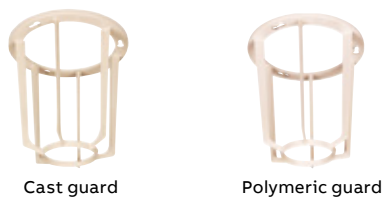
### 02 Add ballast tank



### 03 Choose a globe or refractor



### 04 Choose a guard (N/A for CUT)





## Hazlux® H3 LED Generation 2

### Numbering system

LED driver tank						Optics		Mounting		Options		Certification
DL	0	10	E	UN	0	TG	C	C2	E	T	I6	U
1	2	3	4	5	6	7	8	9	10	11	12	13

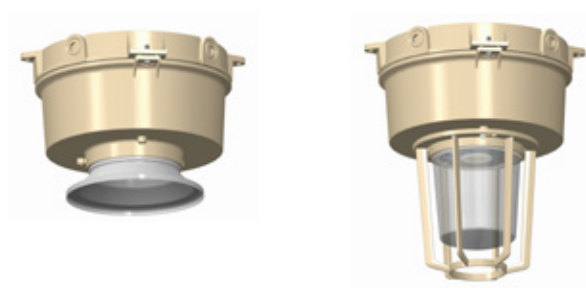
#### 01. LED driver tank

Part	Part number	Description
1 Fixture series	DL	Hazlux H3 Gen 2
2 Fixture	0	Standard fixture
3 Lumen output	05	5,600 lumens, 37 W
	07	7,500 lumens, 48 W
	10	10,500 lumens, 74 W
	15	15,800 lumens, 103 W
	17	17,300 lumens, 115 W
	20	20,100 lumens, 138 W
4 Driver circuit	E	Electronic LED driver with dimming 0–10 VDC
5 Voltage / Frequency	UN	Universal 120–277 V AC 50/60 Hz (voltage range includes 208 V, 220 V, 240 V etc.)
	UN2	Universal 347/480 V AC 50/60 Hz
6 LED Driver housing style	0	Standard housing
	S	Standard housing with stainless-steel insert

#### 02. Optics

Part	Part number	Description
7 Optical assembly <sup>1</sup>	TG	Thermal shock-resistant globe
	R1	Type i glass refractor globe
	R3	Type iii glass refractor globe
	R5	Type v glass refractor globe
	CUT	Dark sky cut-off polycarbonate flat lens
	Blank	No guard
8 Guard option	C	Cast aluminum guard
	L	Polymeric guard

<sup>1</sup> For silicone coating, add prefix "S" before the first digit. Not applicable to CUT.



#### 03. Mounting

Part	Part number	Description
9 Mounting style	A2	¾" Cone-top pendant
	A3	1" Cone-top pendant
	B2	¾" Wall
	B3	1" Wall
	C2	¾" Ceiling mount / pendant
	C3	1" Ceiling mount / pendant
	L4	1¼" Straight stanchion
	L5	1½" Straight stanchion
	P2	¾" Rigid pendant
	P3	1" Rigid pendant
	S4	1¼" 25° Angle stanchion
	S5	1½" 25° Angle stanchion
	Blank	No mounting (to replace existing fixt.)
	E	Unipak™ with LED lamp

#### 04. Options

Part	Part number	Description
11 Special options	T	Hazcote® black custom anti-corrosion coating (consult factory)
	G	Grey color option
12 Light distribution options	I3	Internal reflector 35° beam angle <sup>2</sup>
	I4	Internal reflector 45° beam angle <sup>2</sup>
	I6	Internal reflector 65° beam angle <sup>2</sup>
	K	Special Kelvin color temperature (consult factory)

<sup>2</sup> DL005, DL007 and DL010 only, maximum 40 °C (104 °F) ambient temperature

#### 05. Certification

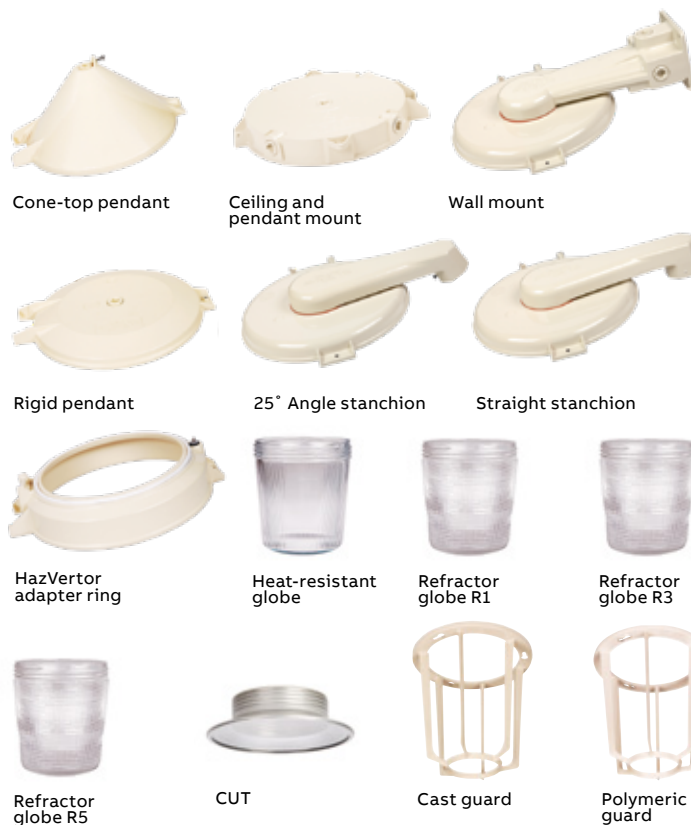
Part	Part number	Description
13 Certification	(blank)	Canadian market
	U	U.S market

## Hazlux® H3 LED Generation 2

### Individual components

#### Mounting options<sup>1</sup>

Part number	Description	Conduit hub size (in.)
VA2	Cone-top pendant	$\frac{3}{4}$
VA3		1
VC2	Ceiling and pendant mount	$\frac{3}{4}$
VC3		1
VB2-VIB	Wall mount	$\frac{3}{4}$
VB3-VIB		1
P2	Rigid pendant	$\frac{3}{4}$
P3		1
VS4-VIB	25° Angle stanchion	$1\frac{1}{4}$
VS5-VIB		$1\frac{1}{2}$
VL4-VIB	Straight stanchion	$1\frac{1}{4}$
VL5-VIB		$1\frac{1}{2}$
HV3*	Hazvertor™ adapter ring ceiling, pendant <sup>2</sup> and straight stanchion top hats (APM2, APM3, CM2, CM3, PM5, and QM25) <sup>2</sup>	–
HV4*	Hazvertor™ adapter ring stanchion angle mount (JM5 style) <sup>2</sup>	–
HV5*	Hazvertor™ adapter ring wall mount (TWM2 and TWM3 styles <sup>2)</sup>	–



#### Globes or refractors

Part number	Description
VGT15	Heat-resistant prismatic glass globe
VGL15R1	IES type I refractor globe
VGL15R3	IES type III refractor globe
VGL15R5	IES type V refractor globe
CUT	Dark sky cut-off reflector with polycarbonate flat lens

#### Guards

Part number	Description
VGU22	Cast guard
VGU22P	Polymeric guard

<sup>1</sup> For stainless steel inserts, please add "SI" to part no. (ex:VA2SI).

<sup>2</sup> HV3, HV4 and HV5 Hazvertor adapter rings are CSA/CSAus certified and intended for use with Crouse-Hinds® top hats indicated. They are not compatible with HPM2 top hats.

Crouse-Hinds is a registered trademark of Cooper Technologies Company.

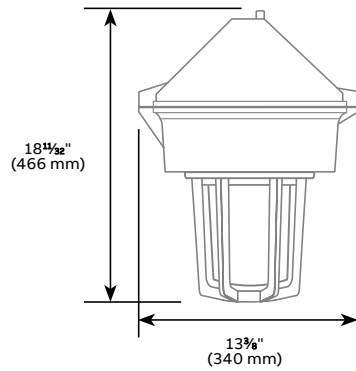
#### LED drivers

Part number	Driver
DL005	183.0024-005
DL007	183.0024-007
DL010	183.0024-010
DL015	183.0026-015
DL017	183.0026-017
DL020	183.0026-020

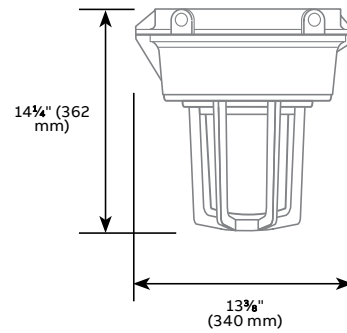
## Hazlux® H3 LED Generation 2

Dimensions — housing with mounting top, globe and guard

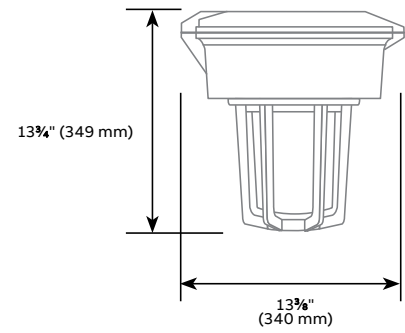
**Cone-top pendant**



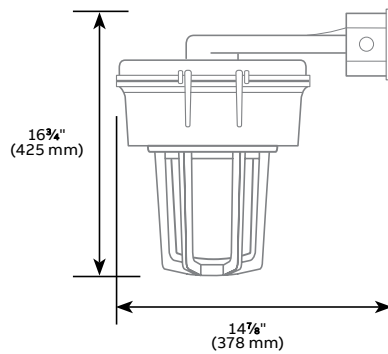
**Ceiling and pendant mount**



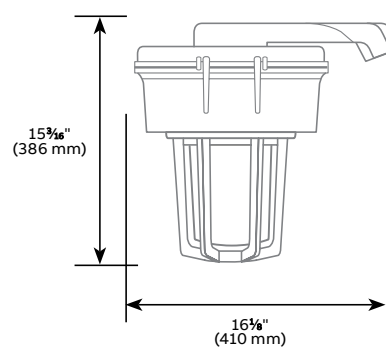
**Rigid pendant mount**



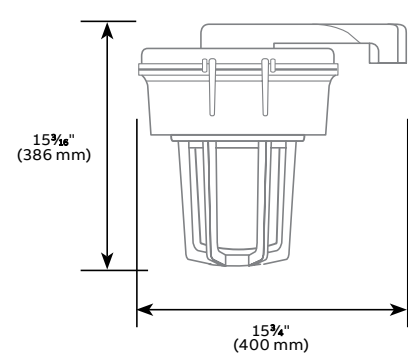
**Wall mount**



**25° Angle stanchion**



**Straight stanchion**





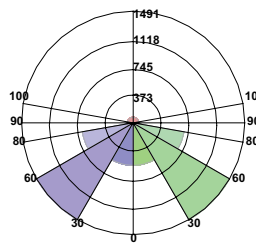
## Hazlux® H3 LED Generation 2

Photometry reference data — ceiling mount

### Standard globe

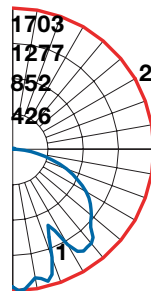
Catalog number	DL005EUN0-TGC2
Luminaire lumens	5,764
Luminaire efficacy rating (LER)	156
Input watts	37.01
Spacing criterion	0.88
Spacing criterion (90–270)	0.88
Spacing criterion (diagonal)	1.52

### Luminaire classification system



BUG rating : B2-U3-G1

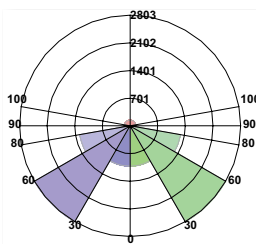
### Candlepower curve



### Standard globe

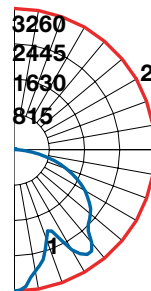
Catalog number	DL010EUN0-TGC2
Luminaire lumens	10,739
Luminaire efficacy rating (LER)	148
Input watts	72.44
Spacing criterion	0.82
Spacing criterion (90–270)	0.82
Spacing criterion (diagonal)	1.46

### Luminaire classification system



BUG rating : B3-U3-G2

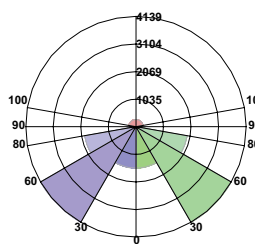
### Candlepower curve



### Standard globe

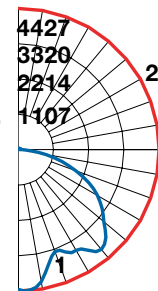
Catalog number	DL015EUN0-TGC2
Luminaire lumens	16,110
Luminaire efficacy rating (LER)	155
Input watts	103.66
Spacing criterion	1.32
Spacing criterion (90–270)	1.32
Spacing criterion (diagonal)	1.58

### Luminaire classification system



BUG rating : B3-U3-G3

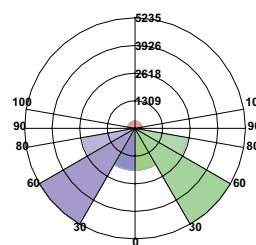
### Candlepower curve



### Standard globe

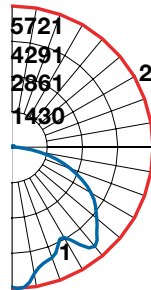
Catalog number	DL020EUN0-TGC2
Luminaire lumens	20,530
Luminaire efficacy rating (LER)	148
Input watts	139.02
Spacing criterion	1.10
Spacing criterion (90–270)	1.10
Spacing criterion (diagonal)	1.56

### Luminaire classification system



BUG rating : B4-U3-G3

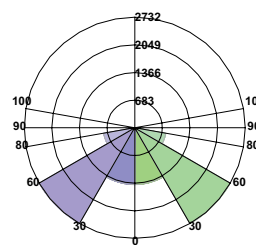
### Candlepower curve



### CUT reflector

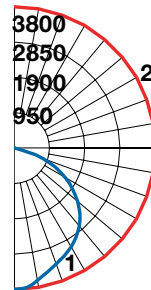
Catalog number	DL010EUN0-CUTC2
Luminaire lumens	9,846
Luminaire efficacy rating (LER)	136
Input watts	72.47
Spacing criterion	1.22
Spacing criterion (90–270)	1.22
Spacing criterion (diagonal)	1.38

### Luminaire classification system



BUG rating : B3-U0-G1

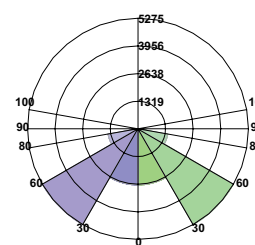
### Candlepower curve



### CUT reflector

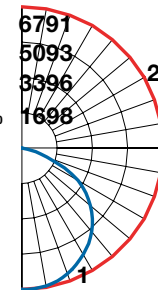
Catalog number	DL020EUN0-CUTC2
Luminaire lumens	18,841
Luminaire efficacy rating (LER)	136
Input watts	138.8
Spacing criterion	1.30
Spacing criterion (90–270)	1.30
Spacing criterion (diagonal)	1.42

### Luminaire classification system



BUG rating : B4-U0-G1

### Candlepower curve



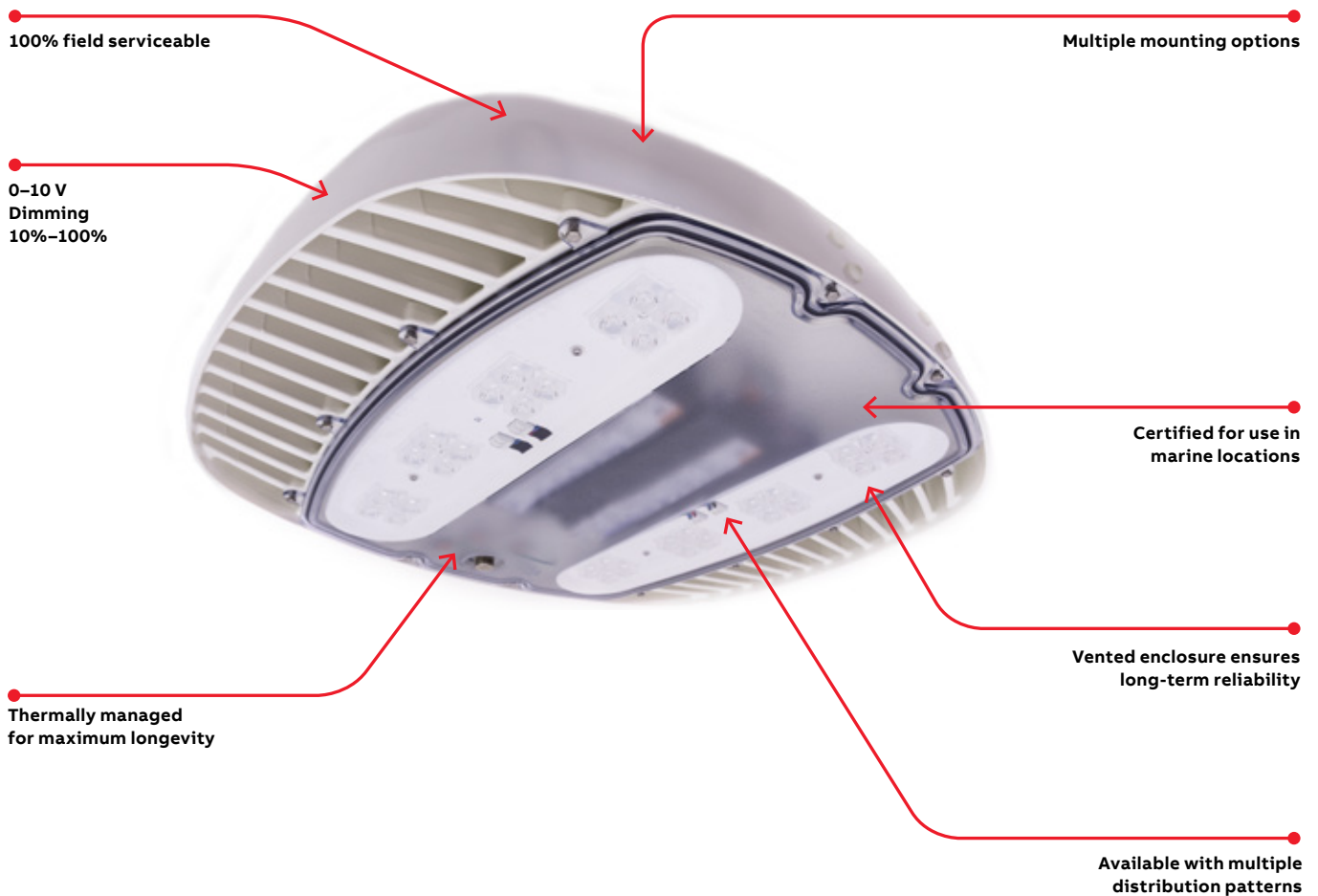
# FMR

## LED

These multi-functional and feature-rich fixtures are capable of both meeting and exceeding the demands of the food processing industry, industrial and commercial environments and architectural applications.

### CLASSIFICATION

<b>CLASS I</b>	
Division 2	Groups A, B, C, D
Zone 2	Groups IIC
<b>CLASS II</b>	
Division 2	Groups F, G
Zone 22	Groups IIIB
<b>CLASS III</b>	
Contact your ABB sales representative to verify classification	



### CERTIFICATIONS



Not all DL Series are DLC qualified. For all qualified products, please visit: [www.designlights.org/qpl](http://www.designlights.org/qpl)



UL 844  
UL 8750

## FMR LED

### Key features and benefits

#### Housing

- Copper-free high-pressure die-cast aluminum
- Lens and case are designed to withstand severe impact
- Gore® vented pressure equalization

#### Finish

- Polyurethane multi-layer powder coating with anti-graffiti properties suitable for interior and exterior surfaces
- Easy cleaning and very smooth to prevent particulate from accumulating
- Resistant to impact, humidity and high chlorine environments
- Superior surface bonding to prevent dripping

#### Power supplies

- Two independent power supplies for increased reliability
- Two input power ranges for flexibility
- Built-in temperature control adjusts power output in case of extreme ambient temperatures in order to maintain illumination while protecting the luminaire
- High performance LED drivers for better efficiency and up to 100,000 hours of maintenance-free operation (LM-80)
- Built-in junction box with ¾" NPT entry for electrical termination within sealed cavity

#### Thermal management

- Surface area ensures LEDs are kept running at maximum efficiency in temperatures up to 55 °C
- Unique heat sink design creates increased airflow for optimal LED and power supply operating temperatures

#### CREE LEDs

- Proven reliability and high efficiency
- Superior CRI (90+)

#### Electrical ratings

Luminance	Rated wattage (watts)	Rated voltage (volts)	Frequency (Hz)	Rated current (amps)
FMR10	107	120–277	50/60	1.11–0.48
	129	347–480	50/60	0.43–0.31
FMR15	145	120–277	50/60	1.42–0.61
	145	347–480	50/60	0.47–0.34
FMR20	190	120–277	50/60	1.74–0.75
	187	347–480	50/60	0.59–0.42
FMR25	247	120–277	50/60	2.18–0.95
	248	347–480	50/60	0.74–0.53
FMR30	312	120–277	50/60	2.82–1.22
	310	347–480	50/60	0.96–0.70

#### Applications

High mast  
 Parking lots  
 Tunnels  
 Loading docks  
 Swimming pools  
 High bay  
 Food processing  
 Coolers and freezers  
 Inspection  
 Meat processing  
 Quality control areas  
 Packaging areas  
 Hangars  
 Storage facilities  
 Oil and gas processing  
 Agricultural  
 Marine/wet environments  
 Chemical/industrial facilities

#### Light engine

- Metal core printed circuit board
- Fault tolerant and fail-over design ensures reliability and resilience to damage





## FMR LED

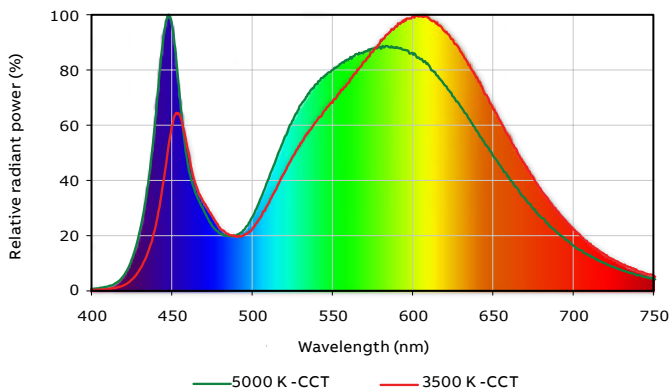
### Key features and benefits

#### Temperature range chart

Luminance	Rated voltage (volts)	Ambient temp (°C)	Optical models	Ambient temp (°C)	Flood models	All models
			Class I, Div 2 T-Codes		Class I, Div 2 T-codes	Class II, Div 2 T-codes
FMR10	120–277	-40 to 55	T3C	-40 to 55	T4A	T5
	347–480	-40 to 54	T3C	-40 to 51	T4	T5
FMR15	120–277	-40 to 55	T3C	-40 to 55	T4A	T5
	347–480	-40 to 54	T3C	-40 to 51	T4	T5
FMR20	120–277	-40 to 55	T3C	-40 to 55	T4A	T5
	347–480	-40 to 54	T3C	-40 to 51	T4	T5
FMR25	120–277	-40 to 51	T3C	-40 to 55	T4A	T5
	347–480	-40 to 44	T3B	-40 to 50	T4A	T5
FMR30	120–277	-40 to 43	T3	-40 to 42	T4A	T5
	347–480	-40 to 43	T3	-40 to 40	T3	T5

#### Color temperature

Available standard in 3500 K and 5000 K color temperatures, with additional color temperatures available from 2700 to 6500 K.

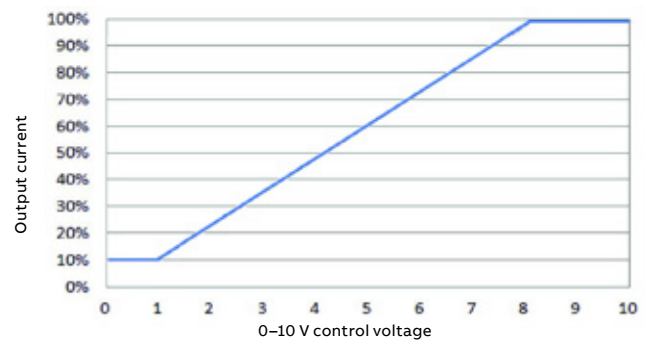


#### Light engine

- Metal core printed circuit board
- Fault-tolerant and fail-over design ensures reliability and resilience to damage

#### Dimming

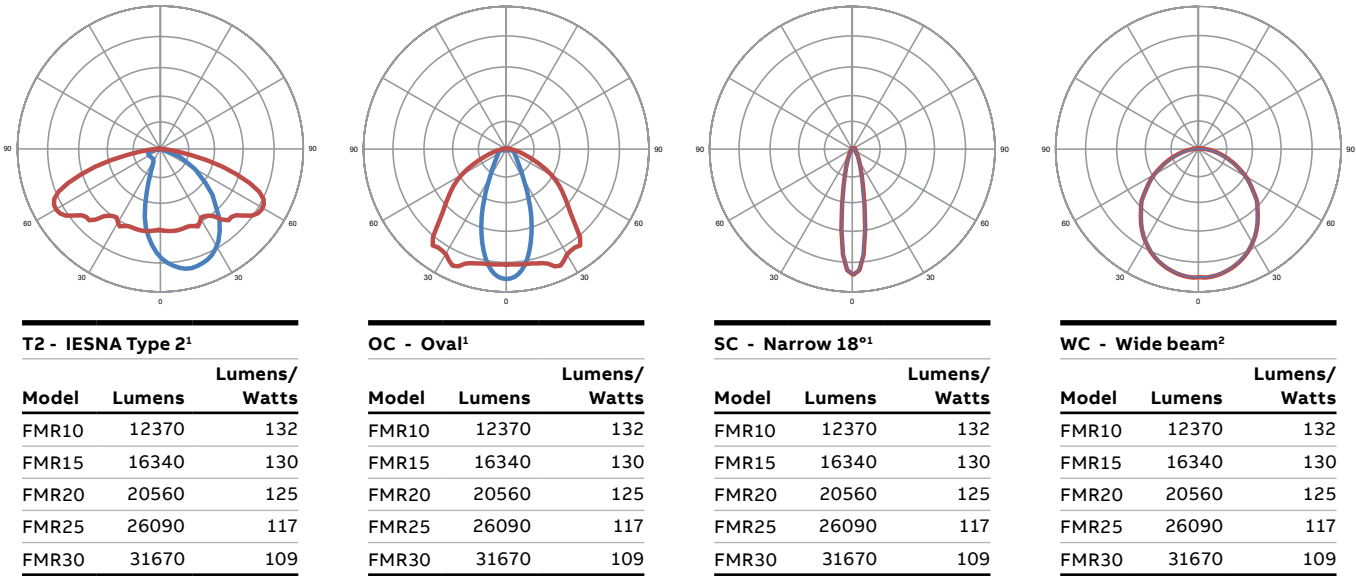
Driver will source a maximum of 200  $\mu$ A for control needs. A controller must sink current from 0–10 V control leads. Dimming output from 10%–100%.



FMR LED

Key features and benefits

Modular optics



Standard offering above, 13 alternate optical profiles available upon request.  
Contact sales representative for further details. Minimum order quantities, additional costs and lead times may incur.

1. Denotes 'optical' model  
2. Denotes 'flood' model

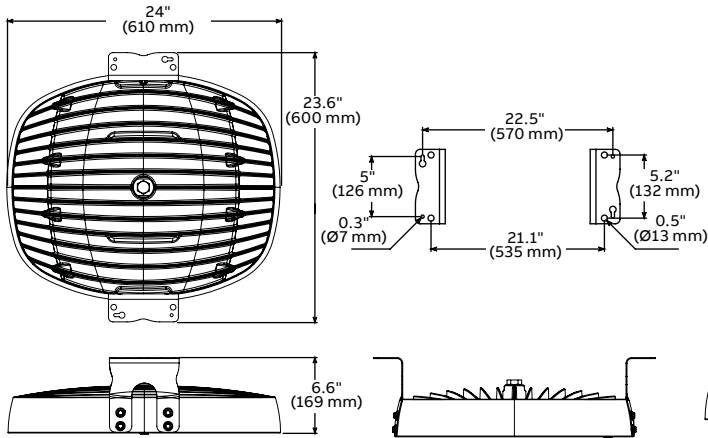


## FMR LED

### Mounting options

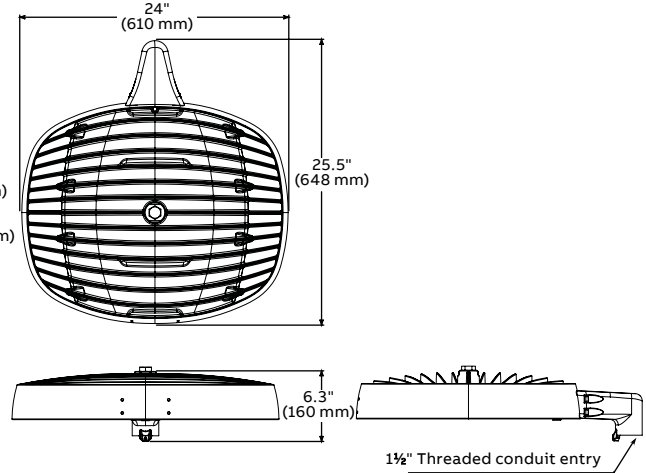
#### Surface/suspended mount (included standard)

16.8 kg | 37 lbs



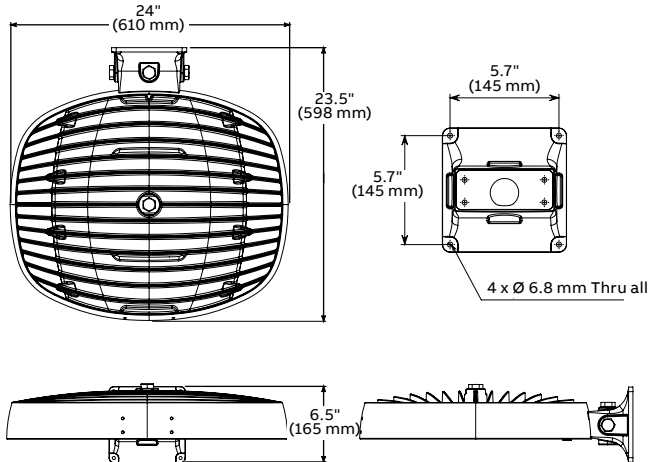
#### FMR-PM (optional accessory)

17.3 kg | 38 lbs



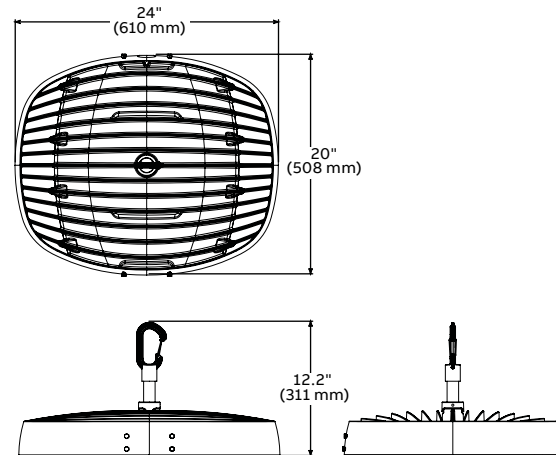
#### Wall mount FMR-WM (optional accessory)

17.7 kg | 39 lbs



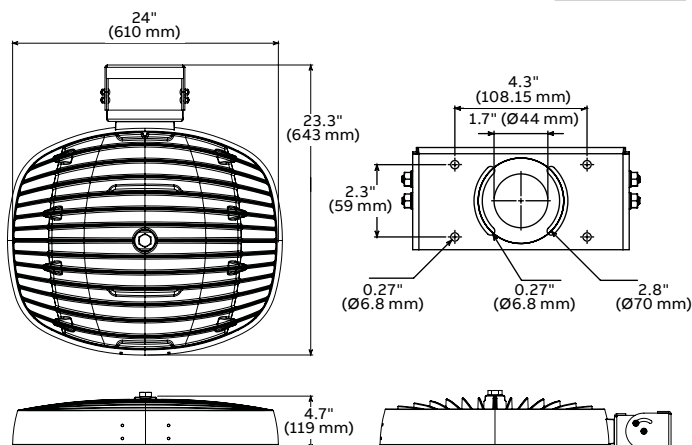
#### Hanging pendant FMR-HK (optional accessory)

16.4 kg | 36 lbs



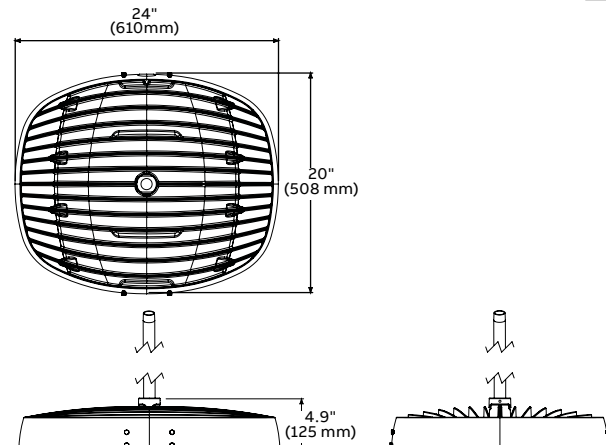
#### Yoke mount FMR-YM (optional accessory)

16.8 kg | 37 lbs



#### Conduit mount FMR-CM (optional accessory)

16.4 kg | 36 lbs



FMR LED

Numbering system

Lighting fixture						
FMR30	WC	W	35	AC	HL	U
1	2	3	4	5	6	7

01. Fixture

Part	Part number	Description
1 Model	FMR10	12370 Lumens
	FMR15	16490 Lumens
	FMR20	20730 Lumens
	FMR25	26610 Lumens
	FMR30	31670 Lumens
2 Optics*	WC	Wide beam (no optics) <sup>6</sup>
	T2	IESNA Type 2 <sup>5</sup>
	OC	Oval, 26° x 108° <sup>5</sup>
	SC	Spot 18° <sup>5</sup>
3 Finish	W	White
4 Color	35	Warm white (3500 K) — CRI 80
	35H	Warm white (3500 K) — CRI 90
	50	Cool white (5000 K) — CRI 70
	50H	Cool white (5000 K) — CRI 90
5 Power	AC	120 to 277 V AC
	HV	347 to 480 V AC
6 Location	HL	Hazardous location
7 Market		Canadian market
	U	US market

02. Mounting options (order separately)

Part	Part number	Description
Mounting type	FMR-WM	Wall mount <sup>4</sup>
	FMR-HK	Hanging pendant
	FMR-PM	Pole mount <sup>4</sup>
	FMR-YM	Yoke mount <sup>3,4</sup>
	FMR-YK	High vibration yoke <sup>2,3,4</sup>
Color	WT	White finish

- Notes
- 1. Minimum order quantities, additional costs and lead times may incur.
  - 2. Custom finishes and high vibration yoke mount are not available for NSF certified units.
  - 3. Yoke mount only available in stainless steel finish.
  - 4. IDA Fixture Seal of Approval only applies to fixtures with a CCT of 3000 K or less, and have fixed mounts aiming the fixture perpendicular to the ground.
  - 5. Denotes 'optical' model
  - 6. Denotes 'flood' model
- \* All optics are clear (not frosted).





# SMR LED

The unique combination of flexibility and robust design allows the implementation of this light fixture in various new or existing facilities. The SMR not only exceeds the expectations of an HID replacement, but establishes a new benchmark in versatility for industrial LED lighting.

## CLASSIFICATION

<b>CLASS I</b>	
Division 2	Groups A, B, C, D, T4
Zone 2	Group IIC
<b>CLASS II</b>	
Division 2	Groups F, G
Zone 22	
<b>CLASS III</b>	
	T4A

Contact your ABB sales representative to verify classification



## CERTIFICATIONS



Not all DL Series are DLC qualified. For all qualified products, please visit: [www.designlights.org/qpl](http://www.designlights.org/qpl)



UL 1598  
UL 844

## SMR LED

### Key features and benefits

#### Features

- Extremely robust
- Thermally managed for longevity
- Easy field angle adjustment
- -40 to 55 °C operating range
- Lifespan up to 100,000 hours
- Sealed to IP66
- Extreme vibration resistance

#### Junction box

- Direct heat transfer from power supply to external case for optimal performance
- Plenty of wiring space for optional accessories
- ¾" NPT entry
- IP 66/67 rated, suitable for wet locations

#### Thermal management

- Ample surface area of head ensures LEDs are kept running at maximum efficiency, even at 55 °C temperature
- Unique heat sink design creates increased airflow for optimal LED and power supply operating temperature
- Physical separation of electronics for increased system reliability
- Perimeter band adds ruggedness and channels heat through fins with laminar flow principles

#### Light engine

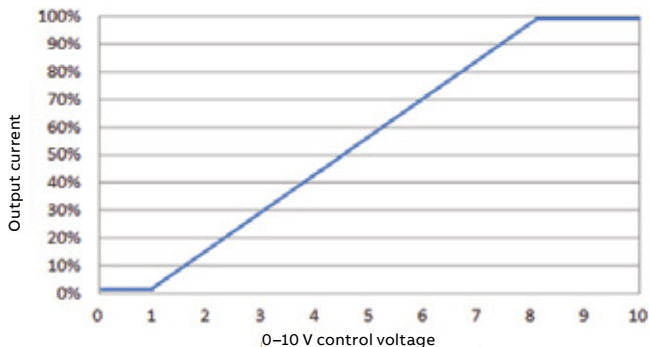
- Metal core printed circuit board
- Modular optics

#### Output

3050 to 6265 lumens

#### Dimming

Driver will source a maximum of 200 µA for control needs. A controller must sink current from 0–10 V control leads. Dimming output from 1–100%.

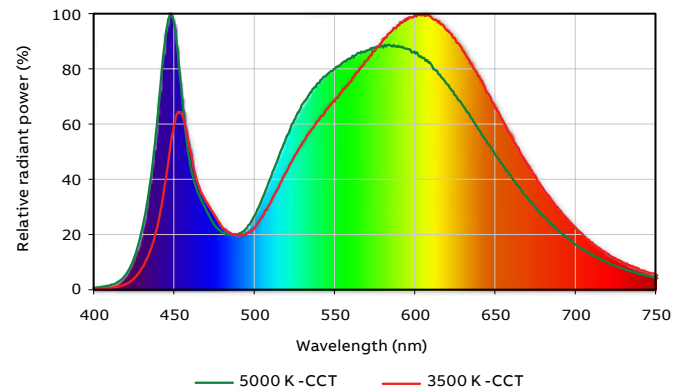


#### Applications

Hazardous locations
Indoor lighting
Tunnel lighting
Industrial facilities
Refinery and petrochemical facilities

#### Color temperature

Available standard 5000 K, with additional color temperatures available from 2700 to 6500 K.



#### Nichia LEDs

- Proven reliability
- High efficiency
- Several CCT options for added design flexibility

#### Housing

- Copper-free high pressure die-cast aluminum case
- Triple-layer coating suitable for marine applications
- Physical separation between power supply and LEDs
- Lens and case are designed to withstand severe impact

#### Power supplies

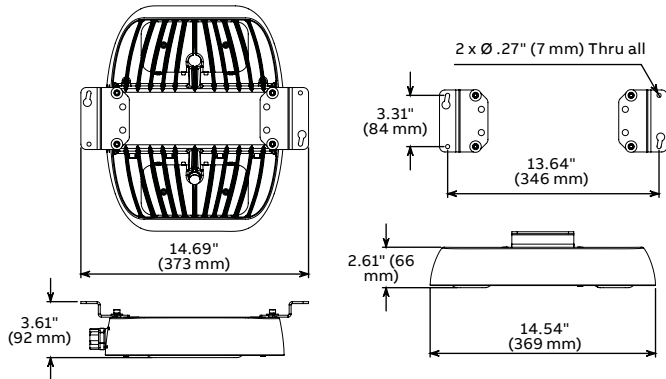
- Two input ranges for ultimate flexibility
- Utilizes high performance LED drivers for better efficiency and up to 100,000 hours of maintenance-free operation
- Built-in junction box with ¾" NPT entry

## SMR LED

### Mounting options

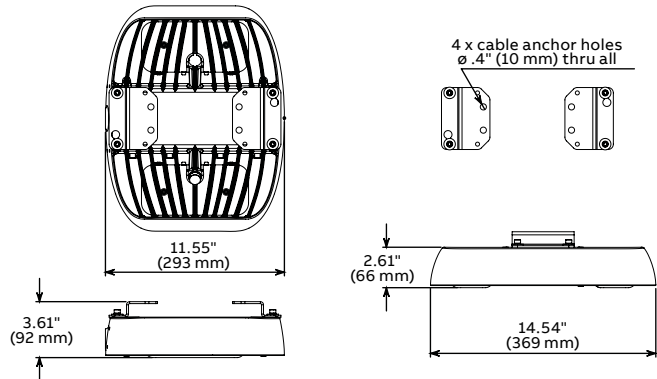
#### Surface mount (included standard)

5.3 kg | 11.7 lbs



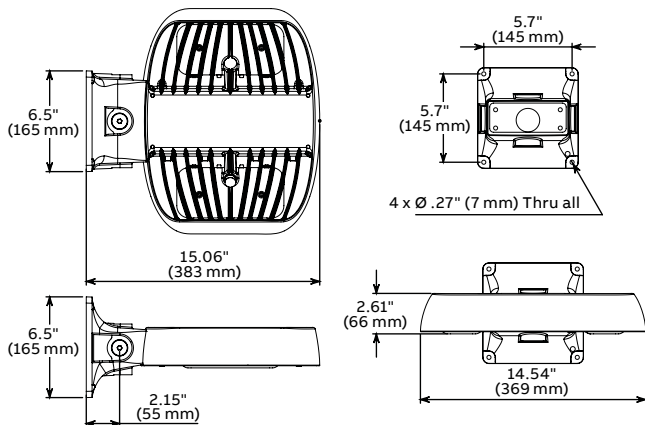
#### Suspended mount (included standard)

5.3 kg | 11.7 lbs



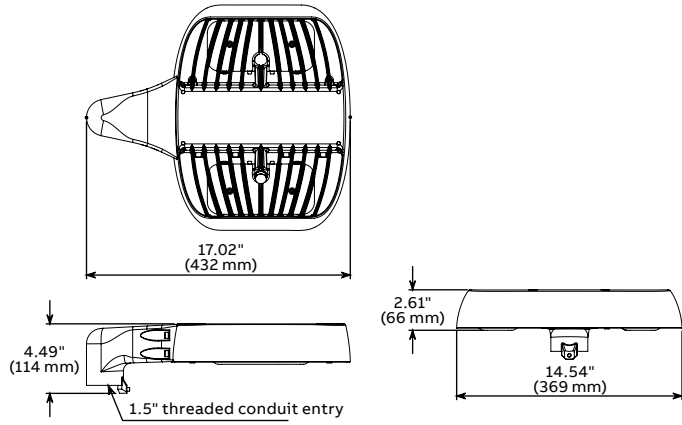
#### Wall pack mount (optional accessory)

6.8 kg | 15 lbs



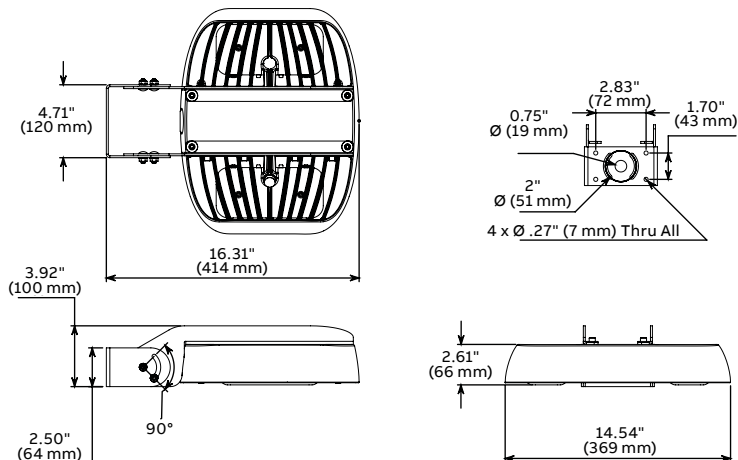
#### Pole mount SMR-PM (optional accessory)

5.6 kg | 12.4 lbs



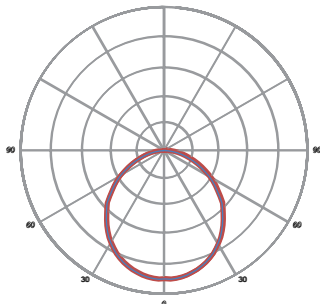
#### Yoke mount SMR-YM (optional accessory)

6.3 kg | 13.9 lbs



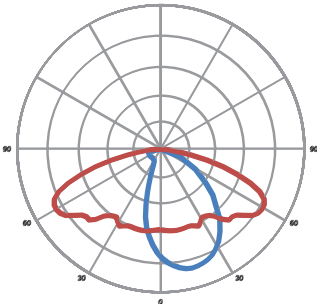
## SMR LED<sup>1</sup>

### Optic options



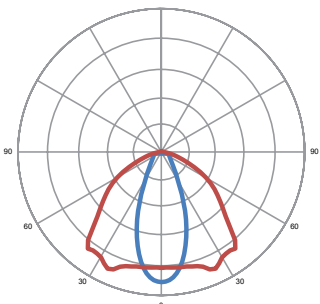
**WF - Wide beam (no optic)**

Model	Lumen output (CW)
SMR3	3050
SMR6	5650



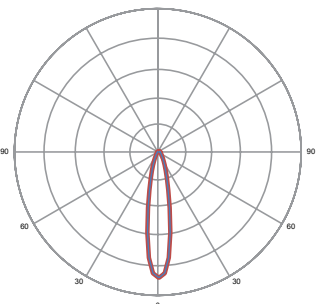
**T2F - IESNA Type 2**

Model	Lumen output (CW)
SMR3	2980
SMR6	5520



**OF - Oval 26° x 108°**

Model	Lumen output (CW)
SMR3	3290
SMR6	6090



**SF - Spot 18°**

Model	Lumen output (CW)
SMR3	3380
SMR6	6265

Standard offering above, 13 alternate optical profiles available upon request.

Contact sales representative for further details. Minimum order quantities, additional costs and lead times may incur.



### Numbering system

Custom  
**optics**  
available

Custom  
**finish**  
available

#### Lighting fixture

SMR6	WF	GY	CW	AC	HL	U
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

#### 01. Lighting fixture

Part	Part number	Description
<b>1</b> Model	<b>SMR3</b>	3380 Lumens
	<b>SMR6</b>	6265 Lumens
<b>2</b> Optics*	<b>2F</b>	IESNA Type 2
	<b>OF</b>	Oval 26° x 108°
	<b>SF</b>	Spot 15°
	<b>WF</b>	Wide (no optic)
<b>3</b> Finish	<b>GY</b>	Gray
<b>4</b> Color	<b>CW</b>	Cool white (5000 K)
<b>5</b> Power	<b>AC</b>	120 to 277 V AC
	<b>HV</b>	347 V AC
<b>6</b> Location	<b>HL</b>	Hazardous location
<b>7</b> Market		Canadian market
	<b>U</b>	US market

#### 02. Mounting options (order separately)

Part	Part number	Description
Mounting type	<b>SMR-WM</b>	Wall pack mount <sup>3</sup>
	<b>SMR-PM</b>	Pole mount <sup>3</sup>
	<b>SMR-YM</b>	Yoke mount <sup>2,3</sup>
Color	<b>GY</b>	Gray only

#### Notes

1. Minimum order quantities, additional costs and lead times may incur.
2. Yoke mount only available in stainless steel finish.
3. IDA Fixture Seal of Approval only applies to fixtures with a CCT of 3000K or less, and have fixed mounts aiming the fixture perpendicular to the ground.

\* All optics are "frosted" style.



# WNL LED

A durable and robust linear luminaire designed to replace conventional fluorescent fixtures in industrial, commercial and tunnel applications.

## CLASSIFICATION

<b>CLASS I</b>	
Division 2	Groups A, B, C, D
Zone 2	Group IIC
<b>CLASS II</b>	
Division 2	Groups F, G
Zone 22	Group IIB
<b>CLASS III</b>	

Contact your ABB sales representative to verify classification

0–10 V dimming  
1%–100%

Multiple light output options to  
replace fluorescent fixtures

IP66 vented enclosure eliminates pressure  
differentials for reliable sealing

Easy field angle  
adjustment  
with optional  
swivel mount

Surface or suspension  
mounting

## CERTIFICATIONS



UL 1598  
UL 1598A

## WNL LED

### Key features and benefits

#### Features

- 100% field serviceable
- Minimum CRI of 70
- Up to 115 lumen/watt delivered
- -40 to 46 °C operating range
- IP66 vented enclosure

#### Finish

- Powder coated end caps
- Polycarbonate lens resistant to impacts with an integral hinge part of the fixture
- Ideal for dirty, wet and corrosive environments

#### Housing

- Copper-free high-pressure die-cast aluminum end caps and extruded aluminum body
- Suitable for wet locations (IP67)
- Lens and case are designed to withstand severe impact and vibration
- Vented enclosure eliminates pressure differentials and ensures reliable sealing

#### Output

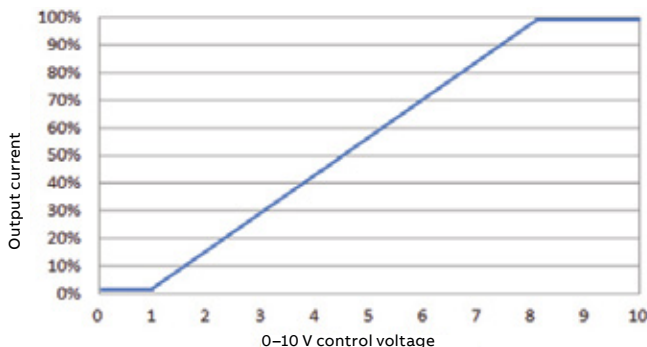
- 3,970 up to 14,313 lumens
- 0–10 V dimmable

#### Mounting

- Versatile brackets allow for several mounting styles:
  - Surface mount
  - Suspended mount
  - Angle adjustable mount

#### Dimming

Driver will source a maximum of 200  $\mu$ A for control needs. A controller must sink current from 0–10 V control leads.

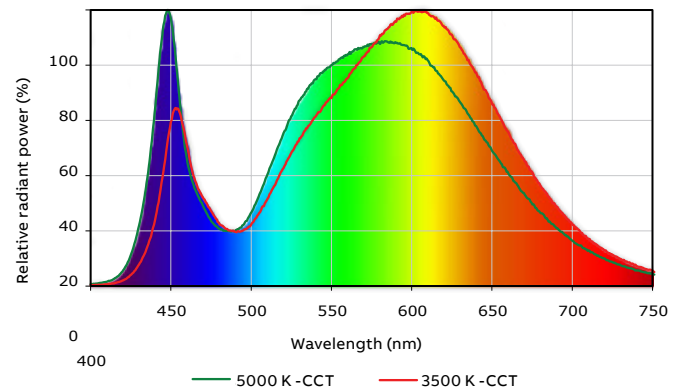


#### Applications

Tunnels  
Interior fluorescent replacement  
Loading docks

#### Color temperature

Available standard in 3500 K and 5000 K color temperatures, with additional color temperatures available from 2700 to 6500 K.



#### Light engine

- Metal core printed circuit board
- Fault tolerant and fail-over design ensures reliability and resilience to damage

#### Nichia LEDs

- Proven reliability
- High efficiency
- Available standard in 3,500 K and 5,000 K with additional custom choices from 2,700 K to 6,500 K available for special order

#### Power supplies

- Two input power ranges for flexibility
- Over voltage, over temperature and short circuit protection
- Built-in junction box with 3/4" NPT entry for electrical termination within sealed cavity
- Transient/surge protection: IEEE C62.41 4 kV/4 kV

# WNL LED

## Mounting options

### Surface mount



### Suspended mount



Two 6.5 mm x 10 mm slots on each end for suspension hardware (not provided).

### Angle adjustable mount (optional)

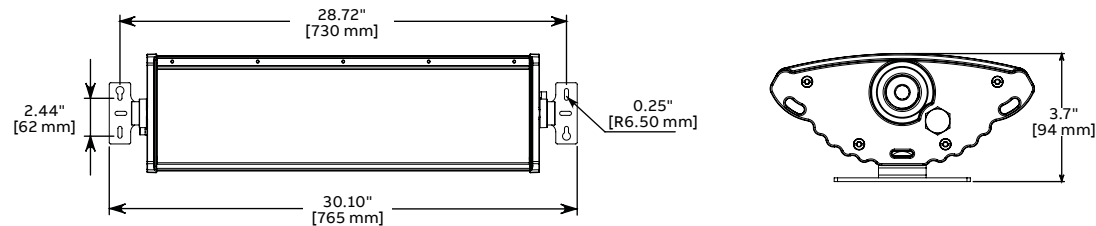


Easy field 360° angle adjustment with 3 mm hex key.

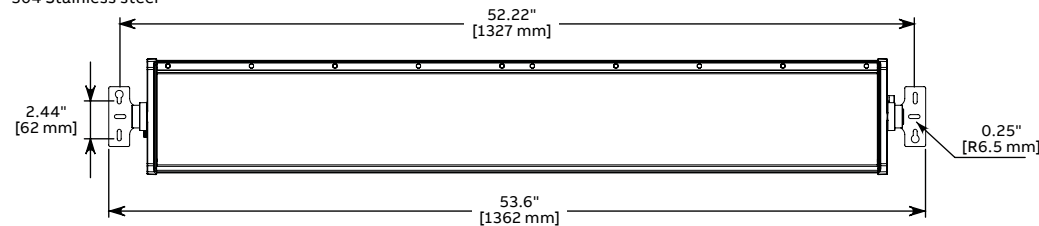
### Surface/suspended mount (optional accessory)

NL2 : 5.1 kg | 11.3 lbs    NL4 : 10 kg | 22 lbs

**WNL2 - surface mount** 5.3 kg | 12 lbs (included standard)  
304 Stainless steel



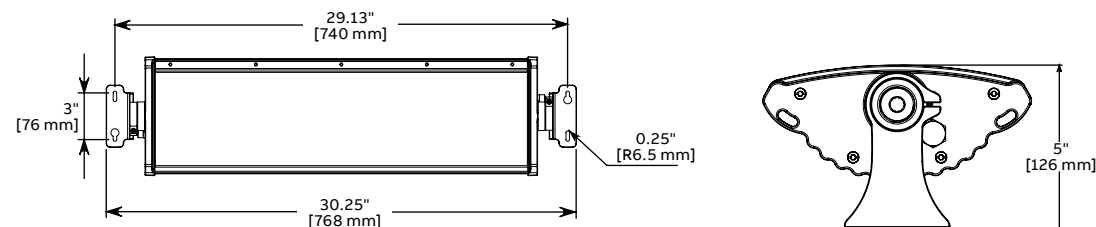
**WNL4 - surface mount** 8.6 kg | 19 lbs (included standard)  
304 Stainless steel



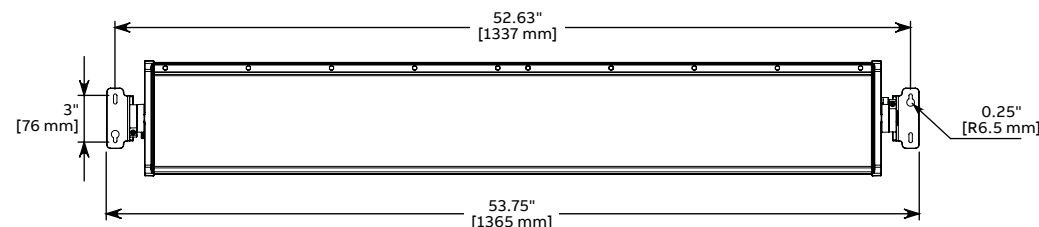
### Adjustable mount (WNL-AM)

NL2 : 5.1 kg | 11.3 lbs    NL4 : 10 kg | 22 lbs

**WNL2 - angle adjustable mount (WNL-AM)** 5.3 kg | 12 lbs (optional accessory)



**WNL4 - angle adjustable mount (WNL-AM)** 8.6 kg | 19 lbs (optional accessory)



WNL LED

Fixture comparison

Size	T12								T8				T5				
	4 foot		8 foot		4 foot				8 foot		4 foot						
Length																	
Rating	Standard		Standard	High output	Standard		High output	Standard	High output	Standard		High output					
Lamp quantity	2-Lamp	4-Lamp	2-Lamp	2-Lamp	2-Lamp	4-Lamp	6-Lamp	2-Lamp	2-Lamp	2-Lamp	2-Lamp	4-Lamp	6-Lamp	2-Lamp	4-Lamp		
Est. power	74	133	158	237	62	112	184	86	112	153	59	118	117	120	240		
Est. lumens LED cross	3,200	6,400	6,000	8,100	3,200	6,400	8,600	4,300	8,800	9,100	3,200	6,400	9,600	6,600	13,200		
Model	Lumens																
WNL2-S	3,970	X		X				X		X							
WNL2-H	5,143	X															
WNL2-X	7,965	X		X		X				X					X		
WNL4-S	8,697	X		X		X		X	X			X		X			
WNL4-H	10,470	X														X	

Numbering system

Lighting fixture								
WNL4	X	WC	GY	50		AC	HL	U
1	2	3	4	5	6	7	8	9

01. Lighting fixture

Part	Part number	Description
1 Model	WNL2	2 foot
	WNL4	4 foot
2 Output	S	Standard
	H	High output
	X	Extra high output (not available with NL4)
3 Optic	WC	Wide (no optics)
4 Finish	GY	Gray
5 Color	50	Cool white (5,000 K)
	35	Warm white (3,500 K)
6 Mount		Surface mount
	AM	Adjustable mount
7 Power	AC	120 to 277 V AC
	HV	347 to 480 V AC
8 Location	HL	Hazardous location
9 Market		Canadian market
	U	US market





# LGS LED

Light weight, extremely durable and water-tight linear strip fixtures to withstand the most demanding hazardous location environments.

## CLASSIFICATION

<b>CLASS I</b>	
Division 2	Groups A, B, C, D
Zone 2	Group IIC
<b>CLASS II</b>	
Division 2	Groups F, G
Zone 22	
<b>CLASS III</b>	
Contact your ABB sales representative to verify classification	

Available in 100° wide beam profile (AC and DC) and 30° wide beam profile (DC)

Easy field angle adjustment

Lifespan up to 60,500 hours (AC) and 100,000 hours (DC)

Compatible with most ELV dimmers (AC)

IP66 Gore® vented enclosure

Available in multiple lengths

## CERTIFICATIONS



UL 844  
UL 1598  
UL 2108  
UL 8750

## LGS LED

### Key features and benefits

#### Mounting

- Fixture has two mount options:
  - End brackets that allow for easy field adjustable 360° rotation
  - Carriage bolts for mounting to surfaces

#### Housing

- Extruded aluminum and copper-free aluminum casting
- Hard anodizing body and super-durable powdercoat end caps suitable for rugged outdoor environments
- Custom brackets available upon request
- Polycarbonate lens designed to withstand severe impacts (Passes 7J impact exceeding IK08 requirements).

#### CREE LEDs

- Proven reliability
- High efficiency
- Superior CRI
- Available in standard 5,000 K and 3,500 K with custom color and dual color options available for special order

#### Power supplies

- Utilizes high performance LED drivers for better efficiency and up to 100,000 hours of maintenance-free operation
- 12 V or 24 V DC input options can run directly off of vehicle or facility low voltage DC

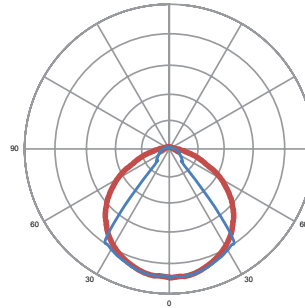
#### Thermal management

- Heat-sink designed for optimal heat dissipation

#### Color temperature

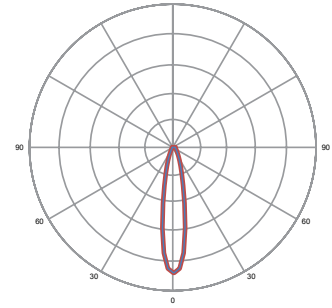
Available standard in 5000 K, with additional color temperatures available from 2700 to 6500 K.

#### Optic options



#### W - Wide 100°

Model	Lumen output (CW)
LGS-1	586
LGS-2	1172
LGS-3	1758
LGS-4	2289



#### N - Narrow 30° (DC Only)

Model	Lumen output (CW)
LGS-1	559
LGS-2	1118
LGS-3	1677
LGS-4	2236

#### Light engine

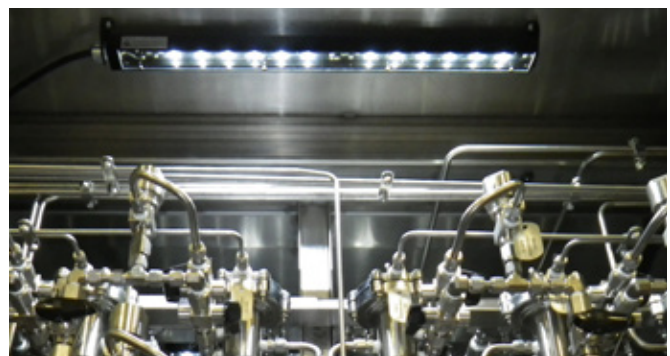
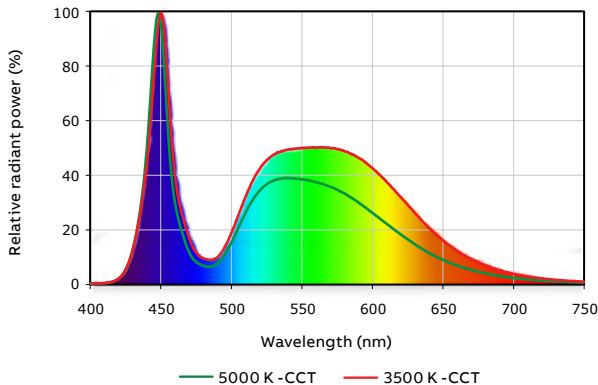
- Metal core printed circuit board
- Modular optics
- Linear drive circuits used in DC versions produce no flicker or high frequency electronic noise
- AC units produce light at 120 Hz with no visible flicker and no high frequency switching noise

#### Reflector

- High efficiency internal reflector maximizes output

#### Electronics enclosure

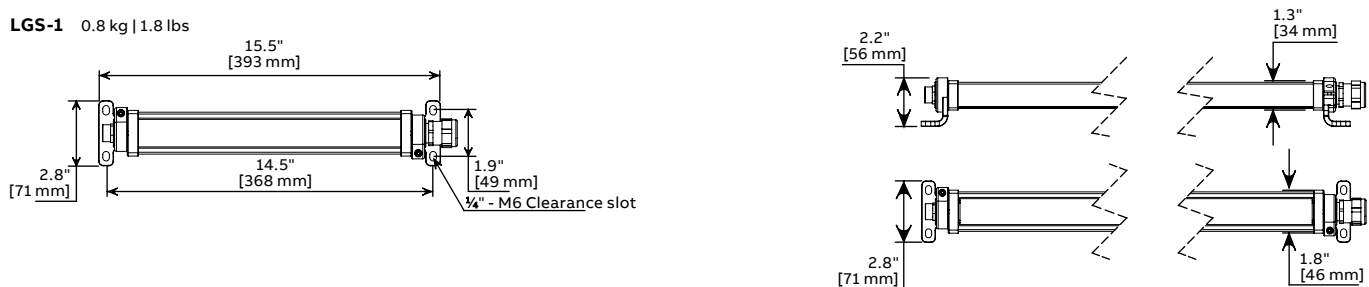
- Direct transfer of heat from printed circuit board to the casing to maximize lifetime and reliability
- Suitable for wet location
- Unique case design utilizes compression for sealing and eliminates fasteners on the front face
- All LGS models will be factory sealed and provided with a T&B cable gland and 3' flying lead; external junction box not supplied (customers are not permitted to open the LGS fixtures, as it permanently compromises the seal)



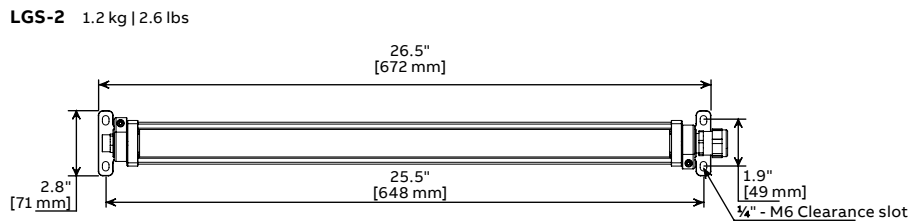
# LGS LED

## Dimensions

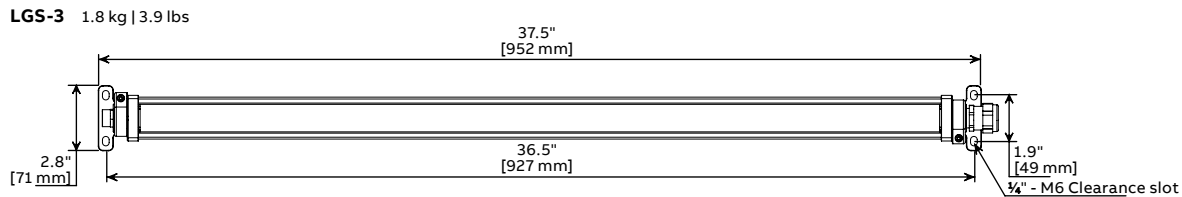
**LGS-1** 0.8 kg | 1.8 lbs



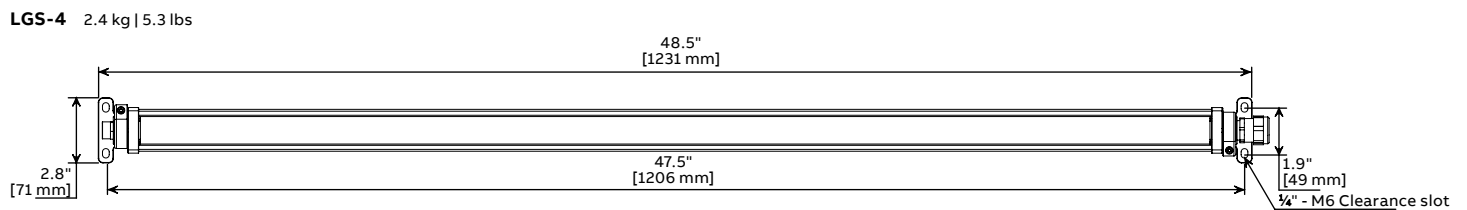
**LGS-2** 1.2 kg | 2.6 lbs



**LGS-3** 1.8 kg | 3.9 lbs



**LGS-4** 2.4 kg | 5.3 lbs

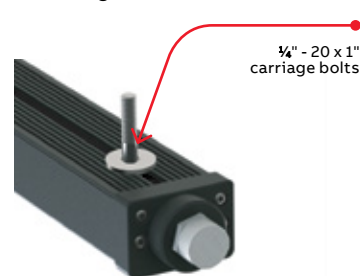


## Mounting options

**A - Adjustable mounting bracket**



**B - Carriage bolt/surface mount**



LGS LED

Numbering system



Lighting fixture							
LGS-1	W	BLK	C	A	12	HL	U
1	2	3	4	5	6	7	8

01. Lighting fixture

Part	Part number	Description
1 Model	LGS-1	586 Lumens output (CW)
	LGS-2	1172 Lumens output (CW)
	LGS-3	1758 Lumens output (CW)
	LGS-4	2289 Lumens output (CW)
2 Optic	W	Wide 100°
	N	Narrow 30° (DC version only)
3 Finish	BLK	Black
4 Color	C	Cool white (5000 K)
	W	Warm white (3500 K)
5 Mount	A	Adjustable
	B	Carriage bolt
6 Power	12	11–16 V DC
	24	21–28 V DC
	120	120 V AC
7 Location	HL	Hazardous location
8 Market		Canadian market
	U	US market



# Hazlux<sup>®</sup> 8

## FDL

An energy-efficient, broad-beamed, high-intensity flood light designed to be used in hazardous, marine or low-bay outdoor conditions.

### CLASSIFICATION

CLASS I	
Division 2	Groups A, B, C, D
CLASS II	
Division 2	Groups F, G

Contact your ABB sales representative to verify classification

#### Selection of mounting styles

- Ceiling
- Pendant
- Yoke
- Wall
- Stanchion
- Angled stanchion

Multiple distribution patterns, type V



Designed for outdoor, hazardous, marine, low-bay and flood applications

50 W (6400 lumens)  
80 W (9000 lumens )  
105 W (11000 lumens)

### CERTIFICATIONS



UL 1598  
UL 844





## Hazlux® 8 FDL

### Key features and benefits

#### Features

- Energy-efficient alternative to hazardous location metal halide and high pressure sodium
- Designed for outdoor, hazardous, marine, low-bay and flood applications
- Gray powder coat finish
- Multiple distribution patterns, type V
- Selection of frosted film, 16°, 70° or 120° lens
- CCT of 5000 K
- Selection of mounting style
- Tamper-proof screws
- > 120,000 hours rated lifetime projection (L70)

#### Construction

- Cooper-free cast aluminum housing
- Captive stainless steel fasteners and insert
- 24 high-power LEDs

#### Electrical

- 50 W (6400 lumens), 80 W (9000 lumens), 105 W (11000 lumens)
- 120–277 V
- 277–480 V (6400 lumens only)

#### Options

- Mounting: ceiling, pendant, yoke, wall, straight or angled stanchion
- Cord with blunt end
- Lens guard
- Black or white finish

#### Thermal performance data

Model	Rated ambient temperature (°C)	Class I, Div 2 operating temperature code (160 °C)	Class II, Div 2 operating temperature code (100 °C)
FDL05	50	T3C	T5
FDL08	50	T3C	T5
FDL10	50	T3C	T5

#### Photometry

##### Reference data

Catalog number	FDL10UNC1-N
Luminaire lumens	12,059
Input watts	106.6
NEMA type	2 H x 2 V
Maximum candela	117901
Maximum candela angle	0H 0V
Horizontal beam angle (50%)	15.3
Vertical beam angle (50%)	15.2
Horizontal field angle (10%)	28.6
Vertical field angle (10%)	28.3

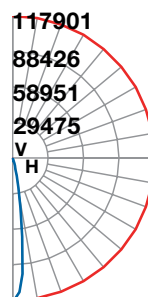
##### Reference data

Catalog number	FDL10UNC1-M
Luminaire lumens	10,714
Input watts	106.1
NEMA type	6 H x 6 V
Maximum candela	9539.4
Maximum candela angle	0H 0V
Horizontal beam angle (50%)	68.2
Vertical beam angle (50%)	68.2
Horizontal field angle (10%)	100.1
Vertical field angle (10%)	100.5

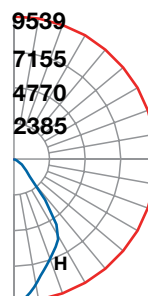
##### Reference data

Catalog number	FDL10UNC1-W
Luminaire lumens	11,025
Input watts	107
NEMA type	6 H x 6 V
Maximum candela	4241
Maximum candela angle	0H -47.5V
Horizontal beam angle (50%)	87.3
Vertical beam angle (50%)	120.2
Horizontal field angle (10%)	106.4
Vertical field angle (10%)	129.6

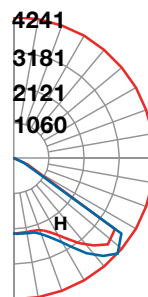
#### Axial candela display



#### Axial candela display



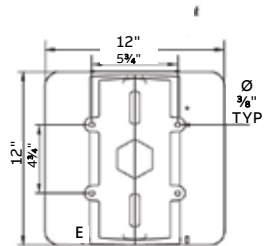
#### Axial candela display



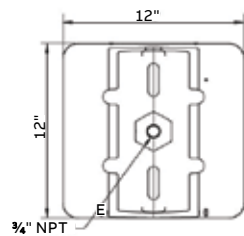
## Hazlux® 8 FDL

### Dimensions

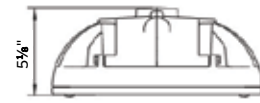
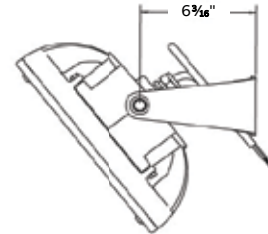
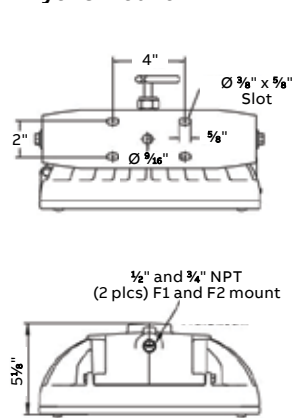
#### C1 and C2 ceiling mount (ceiling spacers provided)



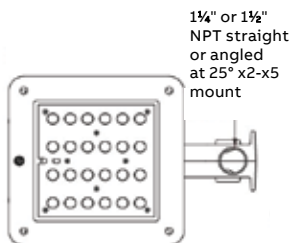
#### P2 pendant mount



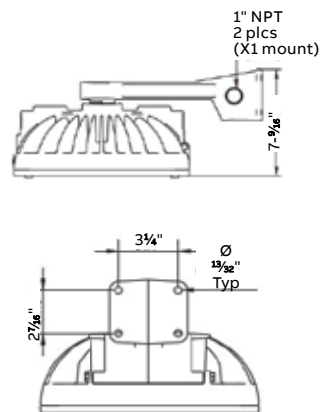
#### Y1 yoke mount



#### L4-S4 L5-S5 wall/stanchion mount



#### B3 mount



### Numbering system

#### Lighting fixture

FDL	10	UN	Y1	M	LG
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

#### 01. Lighting fixture

Part	Part number	Description
<b>1</b> Fixture series	<b>FDL</b>	Hazlux flood lights LED Class I Div 2
<b>2</b> Lumen	<b>05</b>	6,400 Lumen (50 watts)
	<b>08</b>	9,000 Lumen (80 watts)
	<b>10</b>	11,000 Lumen (105 watts)
<b>3</b> Voltage	<b>UN</b>	120–277 V
	<b>UN2</b>	277–480 V (on 05 model only)
<b>4</b> Mounting style	<b>C1</b>	Ceiling 1/2"
	<b>C2</b>	Ceiling 3/4"
	<b>P2</b>	Pendant 3/4"
	<b>Y1</b>	Yoke mount 1/2"
	<b>B3</b>	Wall mount 1"
	<b>L4</b>	Stanchion 1 1/4"
	<b>S4</b>	Angled stanchion 1 1/4"
	<b>L5</b>	Stanchion 1 1/2"
	<b>S5</b>	Angled stanchion 1 1/2"
<b>5</b> Optics	<b>F</b>	Frosted film
	<b>N</b>	Narrow 16° FWHM
	<b>M</b>	Medium 70° FWHM
	<b>W</b>	Wide 120° FWHM
<b>6</b> Options	<b>IG</b>	Lens guard
	<b>PW</b>	Pre-wired 3' cord with blunt end (Y1 mount only)
	<b>GRY</b>	Gray powder coat finish
	<b>BLK</b>	Black powder coat finish
	<b>WHT</b>	White powder coat finish







# HRS

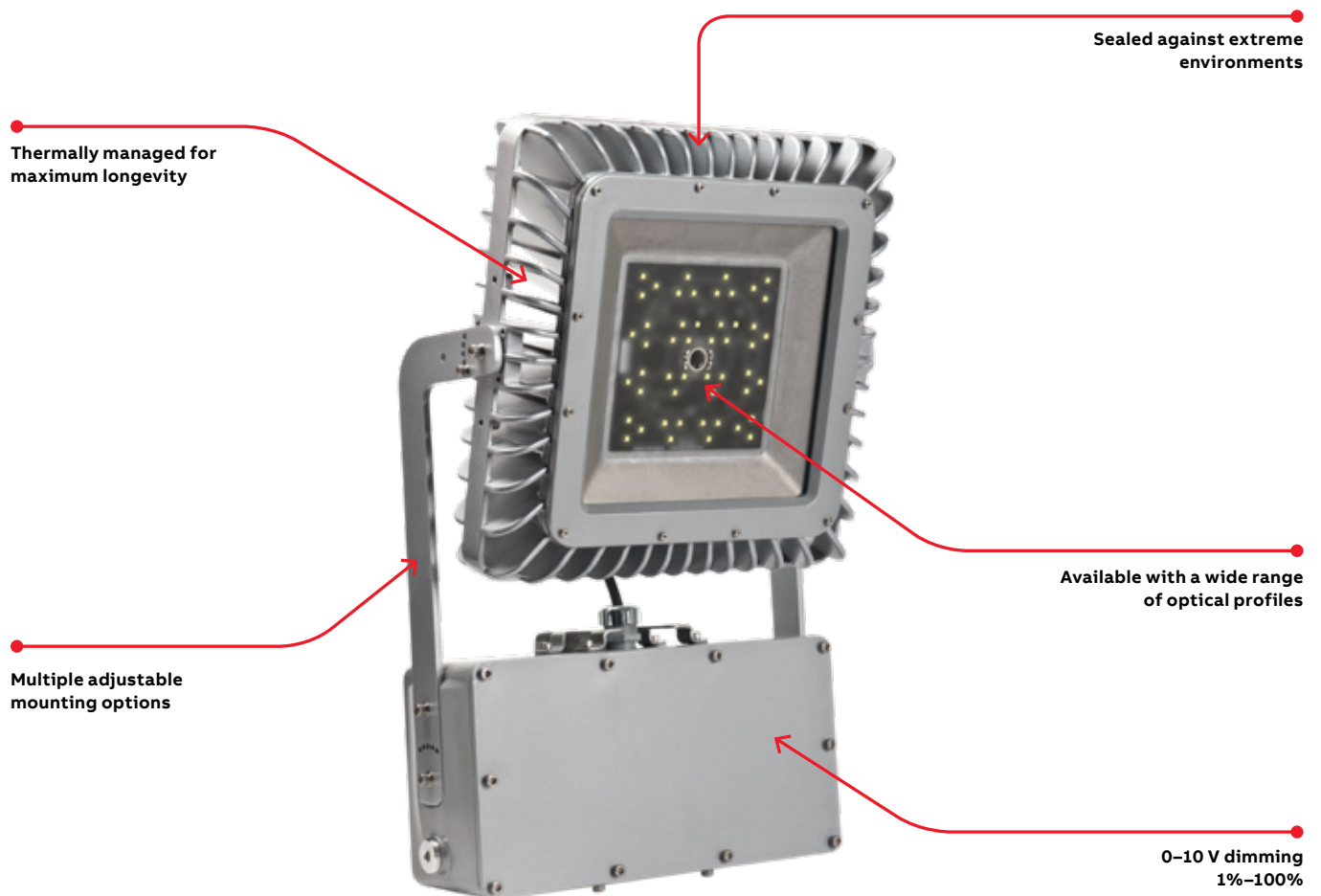
## LED

An adjustable, adaptable and versatile LED luminaire to replace and exceed the performance of the traditional 400 W fixture in hazardous locations.

### CLASSIFICATION

CLASS I	
Division 2	Groups A, B, C, D
Zone 2	Groups IIC
CLASS II	
Division 2	Groups F, G
Zone 22	
CLASS III	

Contact your ABB sales representative to verify classification



### CERTIFICATIONS



Not all DL Series are DLC qualified.  
For all qualified products, please  
visit: [www.designlights.org/qpl](http://www.designlights.org/qpl)



UL 844  
UL 1598  
UL 1598A



## HRS LED

### Key features and benefits

#### Features

- Extremely robust
- Thermally managed for longevity
- Easy angle adjustment in the field
- Up to -40 °C to 55 °C ambient temperature range
- Lifespan up to 100,000 hours
- Sealed to IP66 and marine rated

#### Output

- 9908 to 28,560 lumens
- Standard 5000 K color temperature (additional color temperatures available)

#### CREE LEDs

- Proven reliability
- High efficacy
- Superior CRI (90+ available depending on color temperature and project requirements)

#### Light engine

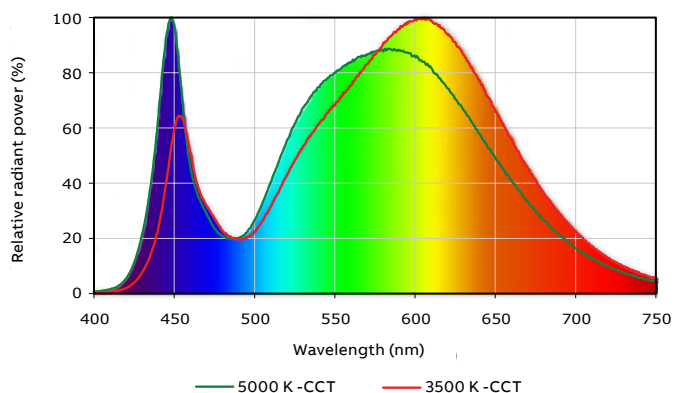
- Metal core printed circuit board with CREE LEDs
- Fault-tolerant and fail-over design ensures reliability and resilience to damage

#### Junction box

- Direct heat transfer from power supply to external case for optimal performance
- Plenty of wiring space for optional accessories
- Four ¾" NPT entries
- IP66 environmental protection

#### Color temperature

Available standard 5000 K, with additional color temperatures available from 2700 to 6500 K.



#### Applications

- High bay lighting
- Indoor lighting
- Tunnel lighting
- Industrial and hazardous location facilities
- Exterior/interior marine applications

#### Power supplies

- Built-in temperature control module
- Utilizes industry-leading LED drivers for high efficacy and long term durability for up to 100,000 hours of maintenance-free operation

#### Thermal management

- Ample surface area of head ensures LEDs are kept running at maximum efficacy, even in 55 °C environments
- Head is separate from junction box to further optimize thermal management
- Perimeter band adds ruggedness for hazardous locations and channels heat through fins with laminar flow principles





## HRS LED

### Key features and benefits

#### Bracket

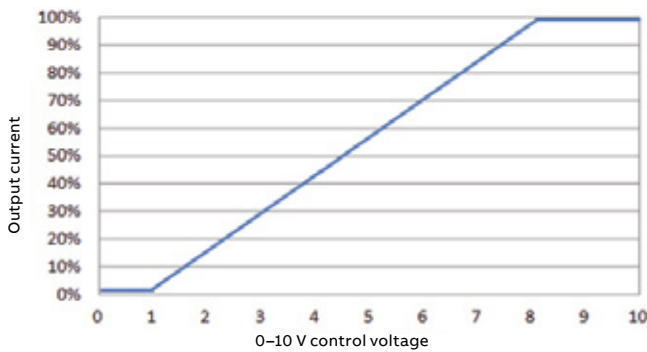
- Versatile bracket allows ceiling surface-mount and wall pack style mounting
- Standard with every high bay and wall pack version
- 2 $\frac{3}{8}$ " Pole mount available

#### Housing

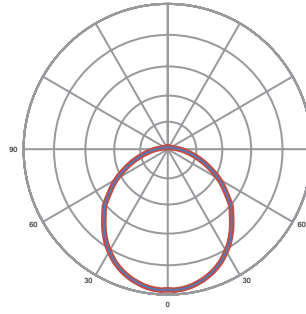
- Copper-free high pressure die-cast aluminum fixture head and box
- Polyester powder coating for protection
- Additional four  $\frac{1}{4}$ "-20 mounting holes on back of head for custom applications

#### Optic options

Driver will source a maximum of 200  $\mu$ A for control needs.  
A controller must sink current from 0–10 V control leads.

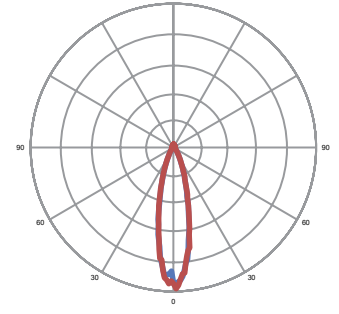


#### Optic options (standard offering)



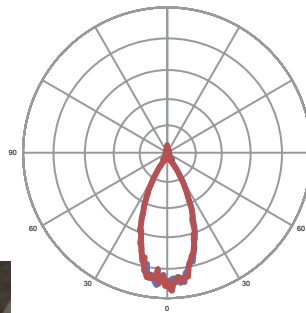
##### WF - Wide beam (no optics)

Model	Lumens
HRS10	11000
HRS15	16420
HRS20	18557
HRS25	25112
HRS30	28560



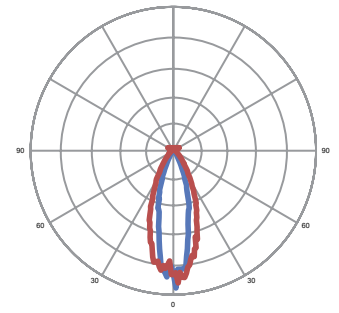
##### N - Narrow 25°

Model	Lumens
HRS10	9908
HRS15	14780
HRS20	18140
HRS25	—
HRS30	—



##### M - Medium 40°

Model	Lumens
HRS10	9908
HRS15	14780
HRS20	18140
HRS25	—
HRS30	—

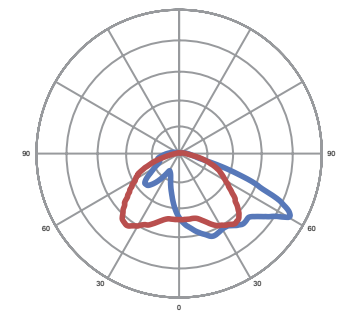


##### O - Oval 27° x 42°

Model	Lumens
HRS10	9908
HRS15	14780
HRS20	18140
HRS25	—
HRS30	—

#### 2 - IESNA Type 2

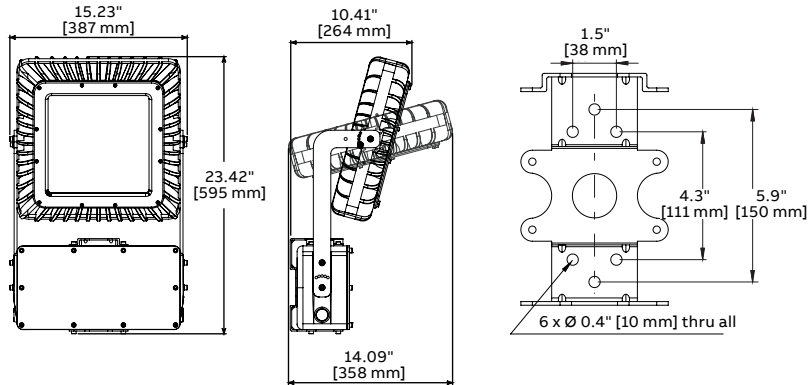
Model	Lumens
HRS10	9908
HRS15	14780
HRS20	18140
HRS25	—
HRS30	—



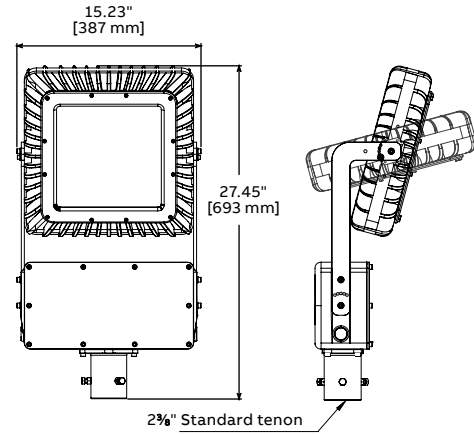
## HRS LED

### Mounting options

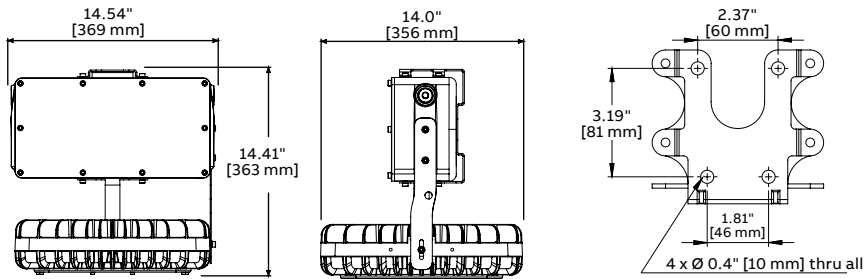
#### Wall mount 16.3 kg | 36 lbs



#### Pole mount 16.3 kg | 36 lbs

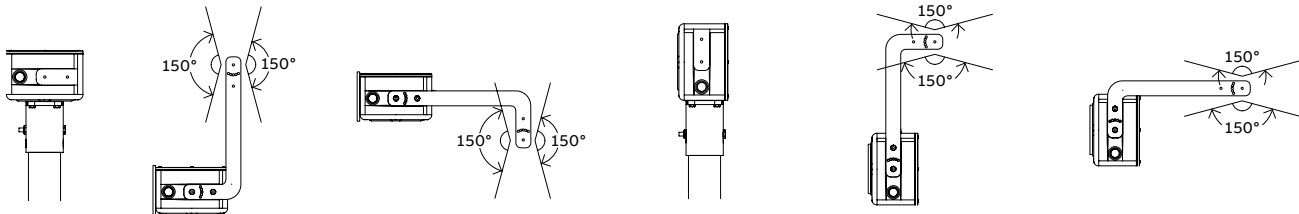


#### High bay 16.3 kg | 36 lbs



#### Adjustable brackets

Class II Division 2 orientations unable to be any further upwards than perpendicular to the horizon.



HRS LED

Numbering system



Lighting fixture							
HRS30	WF	GY	CW	WL	AC	HL	U
1	2	3	4	5	6	7	8

01. Lighting fixture

Part	Part number	Description
1 Model	HRS10	11000 Lumens
	HRS15	16420 Lumens
	HRS20	18557 Lumens
	HRS25	25112 Lumens
	HRS30	28560 Lumens
2 Optic	WF	Wide (no optic)
	M	Medium 40° *
	N	Narrow 25° *
3 Finish	GY	Gray
4 Color	CW	Cool white (5000 K)
5 Mount	WL	Wall mount
	PL	Pole mount
	HB	High bay
6 Power	AC	120–277 V AC
	HV	347–480 V AC
7 Location	HL	Hazardous location
8 Market		Canadian market
	U	US market

\* Not available for HRS25 and HRS30

## VE series

### Hazardous location exit — Class I Div 2

#### Features and benefits

- Energy efficient: Consumes less than 2.5 watts in any configuration. Exit sign illuminated by long-life, energy-efficient LEDs.
- Single-face heavy-duty ⅝" thick aluminum back plate. Polyvinyl chloride frame, with built-in gasket to prevent water infiltration. Will not dent, peel, rust or corrode. The sealed, heavy-duty, vandal-resistant polycarbonate faceplate features an evenly illuminated legend. The fully gasketed faceplate is fastened with stainless steel tamper-resistant screws. Self contained; batteries and circuitry are located inside the exit housing.
- Available with sealed, maintenance-free nickel-cadmium batteries that provide 90 minutes of emergency operation. Batteries recharge per UL 924 requirements.
- AC and self-powered models have universal, 2-wire input 120 V to 277 V AC, 60 Hz.
- Tamper-resistant, hermetically sealed magnetic test switch for self-powered models.
- Diagnostic/self-test (non-audible) circuitry is standard on all self-powered models. This circuitry is programmed to ensure the exit sign's readiness and reliability by continuously monitoring every critical function of the unit. If a problem occurs, a single "service required" indicator illuminates immediately. A detailed diagnostic display that will further indicate the nature of the fault is located on the inside of the exit sign, out of sight from the general public. The self-test will test the unit for a minimum of 30 seconds every 30 days, 30 minutes every 60 days and 90 minutes annually.
- Can be wall, end or ceiling mounted. Comes standard with an industrial-grade, die-cast aluminum electrical box with ½" electrical conduit entry on both sides and at the top. Each unit comes standard with one tamper-proof driver bit.
- Legend and chevron comply with UL requirements. Evaluated to UL 844 standard for Class I Division 2, Groups A, B, C and D. Temperature code: T6 (maximum 185 °F/85 °C). Evaluated to UL 924 and UL 1598 standards. Suitable for cold-weather: -4 °F/-20 °C (self-powered model, "CW" option) and -40 °F/-40 °C (AC only).



#### Applications

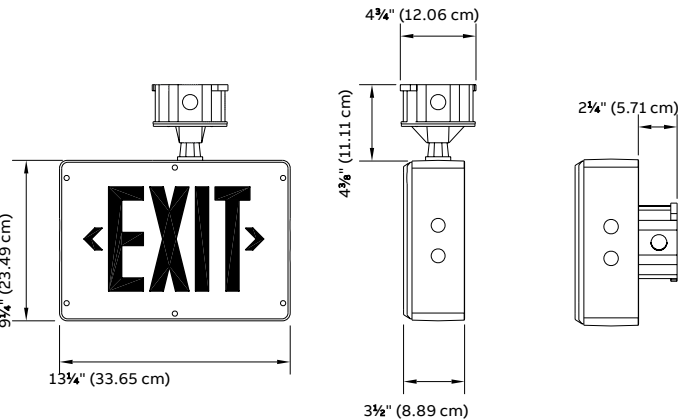
Manufacturing plants
Chemical plants
Paint shops
Gas stations
Moisture, dirt or dust concerns
Oil refineries
Wet or corrosive conditions

VE series

Hazardous location exit — Class I Div 2

Dimensions

Dimensions are approximate and subject to change.



Power consumption

Model		AC specs	DC specs	
AC-only red	120 to 277 V AC	Less than 2 W	—	—
AC-only green	120 to 277 V AC	Less than 1.5 W	—	—
Self-powered red	120 to 277 V AC	Less than 2 W	Ni-Cd battery	Min. 90 minutes
Self-powered green	120 to 277 V AC	Less than 2.5 W	Ni-Cd battery	Min. 90 minutes

\*Note: Cold-weather option does not consume additional power.

Accessories (order as a separate item)

Description	Part number
Tamper-proof bit (extra)	690.0454-H

Numbering system



Lighting fixture

VE	1	03	GG	R	D	CW
1	2	3	4	5	6	7

01. Lighting fixture

Part	Part number	Description
1 Series	VE	AC/DC
	VEN	Self-powered (Ni-Cd)
2 Faces(s)	1	Single (ceiling/wall mount)
	2	Double (ceiling mount only)
3 Voltage	03	120 to 277 V 60 HZ
4 Color of body/face	GG	Gray/Gray
5 Legend	R	Red
	G	Green
6 Diagnostic	Blank	Diagnostic (non-audible)
	D	Diagnostic audible (self-powered only)
7 Options	CW	Cold weather (-4 °F/ -20 °C for self-powered) (-40 °C for AC/DC)



## VC combo series

### Hazardous location exit — Class 1 Div 2

#### Features and benefits

- Exit sign module is illuminated by long-life, energy-efficient LEDs. Fully field adjustable lamp head assembly comes standard with a selection of two (2) MR16 halogen lamps for optimum illumination over the path of egress. Lamps are shielded by a cast aluminum housing and a polycarbonate cover.
- Rugged PVC body will not dent, peel or corrode. The sealed faceplate has a heavy-duty, vandal-resistant polycarbonate cover and is fastened with stainless steel tamper-resistant screws. The polyvinyl chloride frame has a built-in gasket to prevent water infiltration. The heavy-duty  $\frac{1}{8}$ " thick aluminum back plate has keyholes for secure wall-mount installation.
- Available with sealed, maintenance-free nickel-cadmium, or nickel-metal hydride batteries.
- Fully automatic pulse charger offers 120/277 V AC, 60 Hz, current limiting temperature compensation, short circuit-proof, low voltage battery disconnect, brownout protection and standard solid state transfer feature. The test switch is magnetically operated.
- Ambient temperature: 10 °C to 40 °C (50 °F to 104 °F.)
- Advanced diagnostic (non-audible) circuitry is standard on all self-powered models. This circuitry is programmed to ensure the combination unit's readiness and reliability by continuously monitoring every critical function of the unit. If a problem occurs, a single "service required" indicator illuminates immediately. A detailed diagnostic display that will further indicate the nature of the fault is located on the inside of the exit sign, out of sight from the general public. The self test will test the unit for a minimum of 30 seconds every 30 days, 30 minutes every 60 days and 90 minutes annually.
- Designed for wall-mount installation only with a  $\frac{1}{2}$ " electrical conduit entry on both sides and at the top.
- Evaluated to UL 924 standard and to UL 844 standard for hazardous locations: Class I Division 2, Groups A, B, C and D. A range of lamp ratings is available for different temperature codes.



#### Applications

Manufacturing plants
Chemical plants
Paint shops
Gas stations
Moisture, dirt or dust concerns
Oil refineries
Wet or corrosive conditions

Emergency lighting

VC combo series

Numbering system



Lighting fixture					
VC	L1	03	GG	R	DA
1	2	3	4	5	6

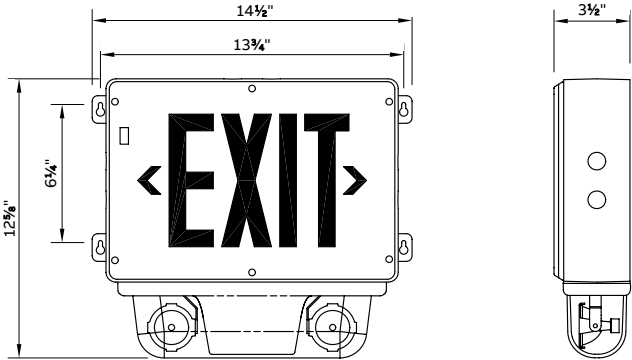
01. Lighting fixture

Part	Part number	Description
1 Series/capacity	VC	6 V-20 W, Ni-Cd
	VC12N	12 V-24 W, Ni-Cd
	VC12H	12 V-40 W, NiMH
2 Lamp/wattage	L1	6 V-4 W, 2x MR16 LED (199 Lm)
	L7	12 V-4 W, 2x MR16 LED (220 Lm)
	L9	12 V-5 W, 2x MR16 LED (340 Lm)
	M12	12 V-12 W, 2x MR16 (135 Lm)
	M10	6 V-10 W, 2x MR16 (77 Lm)
	MH20	12 V-20 W, 2x MR16-IR (417 Lm)
3 Voltage	03	120/277 V 60 Hz
4 Housing/face color	GG	Gray/gray
5 Legend color	R	Red legend
	G	Green legend
6 Diagnostics options	Blank	Diagnostic (non-audible)
	DA	Advanced diagnostics (audible)

Power consumption chart

Model	AC input (V AC)	Maximum		Stand-by		Unit rating*			
		Current (A)	Power (W)	Current (A)	Power (W)	1½ hours	2 hours	3 hours	4 hours
VC	120/277	0.15/0.07	16	0.09/0.03	8	20	15	—	—
VC12N	120/277	0.30/0.08	29	0.13/0.05	10	24	18	12	—
VC12H	120/277	0.30/0.08	29	0.13/0.05	10	40	30	20	12

\*Watts to 87½ of rated battery voltage.



Accessories (order as a separate item)

Description	Part number
Additional special bit for tamper-proof screws	690.0454-H

## VB series

### Hazardous location battery unit — Class 1 Div 2

#### Features and benefits

- Evaluated to the UL 844 standard for Class I Division 2, Groups A, B, C and D
- A range of lamp ratings is available for different temperature codes
- Evaluated to UL 924 standard
- Certified for use in damp locations
- Ambient temperature: 10 °C to 40 °C (50 °F to 104 °F)
- Advanced diagnostics non-audible standard
- Lead-calcium batteries are sealed, maintenance-free, with up to 72 W emergency power
- Choice of MR16 LED or halogen lamps, shielded by a clear polycarbonate cover
- Two MR16 LED lamps illuminate up to a 60 ft. path of egress
- Remote load capacity: Illuminate up to a 420 ft. path of egress with LED remote heads
- Heavy-duty ½" thick aluminum back plate with keyholes for secure wall-mount installation
- Built-in microcontroller-based battery charger and self-test/self-diagnostic circuitry
- ¾" electrical conduit entry on both sides and at the top
- Certified for use in damp locations

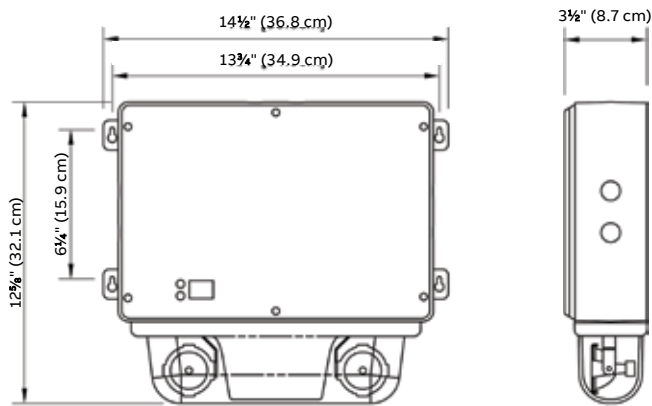


## VB series

Hazardous location battery unit — Class 1 Div 2

### Dimensions

Dimensions are approximate and subject to change.



### Temperature codes (ambient temperature 40 °C)

Lamp rating	Temperature code	Max. temperature	Replacement part number
6 V-4 W	T4A	248 °F/120 °C	580.0097-H
6 V-10 W	T3C	320 °F/160 °C	580.0079-H
12 V-4 W	T4A	248 °F/120 °C	580.0080-H
12 V-5 W	T4A	248 °F/120 °C	580.0104-H
12 V-12 W	T3A	356 °F/180 °C	580.0080-H
12 V-20 W-H	T2D	419 °F/215 °C	580.0068-H

Note: Use qualified replacement lamps to avoid risk of over-heating.

### Power consumption

Model	Input voltage (V AC)	Current (A)	Wattage capacity				
			1 1/2 hours	2 hours	3 hours	4 hours	8 hours
VB0618	120/277	0.17 / 0.09	18	12	9	—	—
VB1236		0.30 / 0.15	36	27	18	14	—
VB1260		0.30 / 0.15	60	45	30	24	12
VB1272		0.30 / 0.15	72	54	36	28	14

## Numbering system



### Lighting fixture

VB0618	L1	03	G	DA	T1
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

### 01. Lighting fixture

Part	Part number	Description
<b>1</b> Series	<b>VB0618</b>	6 V-18 W, Lead-Calcium
	<b>VB1236</b>	12 V-36 W, Lead-Calcium
	<b>VB1260</b>	12 V-60 W, Lead-Calcium
	<b>VB1272</b>	12 V-72 W, Lead-Calcium
<b>2</b> Lamps	<b>L1</b>	6 V-4 W, 2x MR16 LED (199 Lm)
	<b>L7</b>	12 V-4 W, 2x MR16 LED (220 Lm)
	<b>L9</b>	12 V-5 W, 2x MR16 LED (340 Lm)
	<b>M10</b>	6 V-10 W, 2x MR16 (77 Lm)
	<b>M12</b>	12 V-12 W, 2x MR16 (135 Lm)
	<b>MH20</b>	12 V-20 W, 2x MR16-IR (417 Lm)
	<b>0</b>	No heads
	<b>03</b>	120/277 V 60 Hz
<b>3</b> Voltage	<b>03</b>	120/277 V 60 Hz
<b>4</b> Color	<b>-G</b>	Gray housing
<b>5</b> Diagnostics option	<b>Blank</b>	Diagnostic (non-audible)
	<b>DA</b>	Diagnostics audible
<b>6</b> Options	<b>T1</b>	Time delay 5 minutes
	<b>T2</b>	Time delay 10 minutes
	<b>T3</b>	Time delay 15 minutes
	<b>T4</b>	Time delay 20 minutes
	<b>T5</b>	Time delay 30 minutes

## VR combo series

### Remote fixture for hazardous locations — Class 1 Div 2

#### Features and benefits

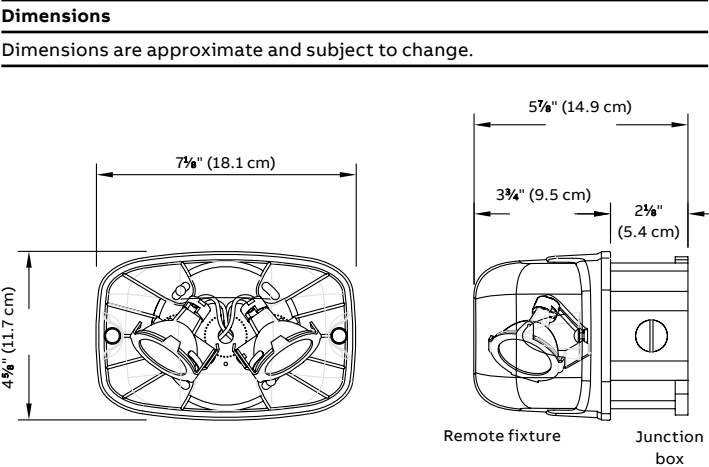
- Available with single or double lamp heads with high-efficiency MR16 halogen lamps of 10 W, 12 W or 20 W (see how to order information) and MR16 high-output LEDs (4 W, 5 W and 6 W)
- Die-cast aluminum back plate with gasket; clear polycarbonate cover, UV and impact resistant
- Input voltage: 6 V, 12 V
- Easy installation on a 4" octagonal box (included); comes standard with tamper-proof screws and bit
- Evaluated to UL 844 standard for Class I Division 2, Groups A, B, C and D; temperature codes: T3B (10 W and 12 W MR16 lamps) and T2C (20 W MR16 lamps) and T4A and T5 MR16 LED.
- Extreme operational temperature range: -40 °F to 104 °F (-40 °C to 40 °C)
- Indoor use
- Fully adjustable tool-less aiming swivel
- Tool-less easy lamp replacement
- Surface mount
- Conduit entry ½" NPT





VR combo series

Remote fixture for hazardous locations — Class 1 Div 2



Numbering system



Lighting fixture			
VR	L1	6	G
1	2	3	4

01. Lighting fixture

Part	Part number	Description
1 Series	VR	Single, C1D2
	VRD	Double, C1D2
2 Lamp type/wattage	L1	6 V-4 W, MR16 LED (199 Lm)
	L7	12 V-4 W, MR16 LED (220 Lm)
	L9	12 V-5 W, MR16 LED (340 Lm)
	L10	12 V-6 W, MR16 LED (540 Lm)
	M10	6 V-10 W, MR16 (77 Lm)
	M12	12 V-12 W, MR16 (135 Lm)
	MH20	12 V-20 W, MR16-IR (417 Lm)
3 Voltage	Blank	LED lamp*
	6	6 V
	12	12 V
4 Color	G	Gray

\*Not required for LED lamp

Lamp selection chart and temperature code

Lamp suffix	Voltage	Wattage	Lumens	Replacement number	Temperature code	Max. temperature (°C)
M10	6	10	77	580.0079-H	T3B	165
M12	12	12	135	580.0080-H	T3B	165
M20H	12	20-H	417	580.0068-H	T2C	230
L1	6	4	199	580.0097-H	T4A	120
L7	12	4	220	580.0093-H	T5	100
L9	12	5	340	580.0104-H	T4A	120
L10	12	6	540	580.0106-H	T4	135

# MR16 LED

## Overview



200–220-Lumen  
4 W MR16 LED



340–Lumen 5  
W MR16 LED



540–590 Lumen  
6 W MR16 LED

### MR16 LED illumination

With the remarkable technology development in the last decade, the light emitting diode (LED) is becoming the preferred solution in lighting applications. The emergency lighting industry is no exception: today virtually every new product introduced to market includes “white light” LEDs for emergency illumination. Extremely efficient and long-lasting, LED lamps become the natural alternative to incandescent lamps due to three main advantages:

- Lamp efficacy: 50–100 lumens per watt compared to 15–30 lumens per watt of the best halogen lamp, allowing for smaller batteries and units and/or remote capacity.
- Operational life: 30,000+ hours, equivalent to a lifetime warranty in emergency lighting.
- Lower lamp temperature: 80 °C to 120 °C (176 °F to 248 °F) is a huge benefit for lighting in hazardous locations.

### 200–220-Lumen 4 W MR16 LED

Leading the technology trend, Hazlux offers a complete series of 4 W MR16 LED lamps available for all the standard battery voltages: 6 V, 12 V, 24 V and 120 V. With up to 30,000 hours of operational life and a luminous flux of typically 200 to 220 lumens, they are available with most emergency heads designed to hold an MR16 lamp and meet the majority of illumination specifications. For example: one pair of LED emergency heads installed at a height of 7.5 ft. illuminates a 6 ft. by 55 ft. path of egress.

### 340 Lumen 5 W MR16 LED

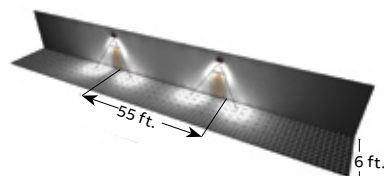
Keeping pace with technology, in 2012 we introduced a 12 V-5 W MR16 LED lamp. With a typical luminous flux of 340 lumens, this lamp has the same lighting performance as a 20 W high-output halogen MR16. A twin emergency head installed at a height of 7.5 ft. illuminates 70 ft. path of egress

### 540–590 Lumen 6 W MR16 LED

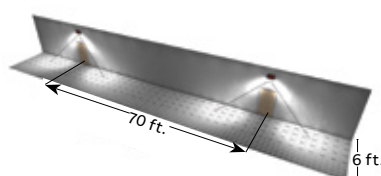
A 6 W MR16 LED lamp delivers up to 590 lumens for an average spacing in emergency lighting of 106 feet with an efficacy of 98.3 Lm/W. This is more than 6 times the efficacy of a MR16 35W halogen with similar light output. This lamp can deliver the highest linear foot of illumination per watt on a path of egress. Spacing in ft./watt for the LED version is 8.83 ft. compared to 1.37 ft. for a MR16 35 W.

### MR16 LED lamp benefits

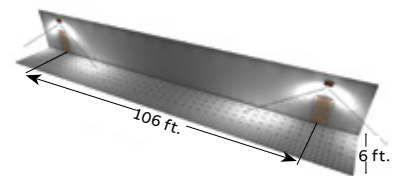
- Reduces total cost of ownership by using fewer fixtures due to superior illumination, thus reducing installation costs and future maintenance of the entire system.
- UL-recognized components.
- Available for standard battery voltages 6 V, 12 V and 24 V as well as 120 V operation.
- Energy-efficient LED MR16 lamp provides lighting performance equivalent to a much higher watt halogen MR16 lamp.
- Reduces required battery capacity by 75%, for battery units and remote heads.
- Small profile, compact white lighting is ideal for architectural applications.
- Typical 30,000 hours of operational life.
- Vibration-resistant LED stands up to industrial environments.
- Ideal for indoor and outdoor use.



55-ft. path of egress 2 X 4 W MR16 LED  
Based on an average of 1 foot candle



70-ft. path of egress 2 x 5 W MR16 LED  
Based on an average of 1 foot candle



106-ft. path of egress 2 x 6 W MR16 LED  
Based on an average of 1 foot candle

## MR16 LED

### Case study

#### Fewer MR16 LED units required

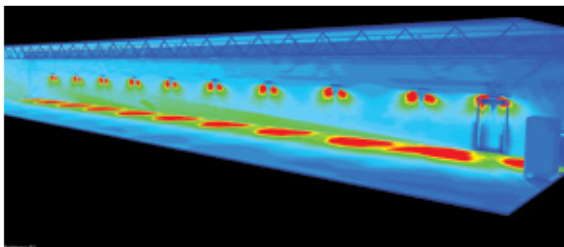
**Emergency lighting units with MR16 LED lamps provide the same illumination at floor level using significantly fewer units.**

- Reduced installation costs, requiring less product and labor.
- Reduced energy costs, keeping batteries charged at full capacity to be ready to respond to an emergency situation at any time.

- Reduced maintenance and testing cost with fewer units to maintain and test in the emergency lighting system.
- Reduced lamp replacement cost. LED lamps have a 30,000+ hour lamp life compared to only a few hundred hours, which is typical for incandescent lamps.
- Reduced environmental impact with less product materials, less batteries, less transportation, less packaging, less labor and less waste.

#### Compare

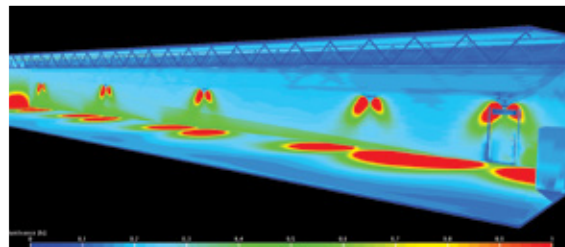
Where the building code requires an average of 1 foot-candle and a minimum of 0.1 foot-candle at floor level along the path of egress on a 150' x 9' x 9' corridor with an egress door at one end, a 150' x 6' path of egress, and a 7.5' unit mounting height:



9 twin lamp heads required.

#### Standard wedge-base 9 W incandescent lamp

Standard emergency lighting units with 9 W wedge-base incandescent lamps requires a total of 10 double-head units or remotes.



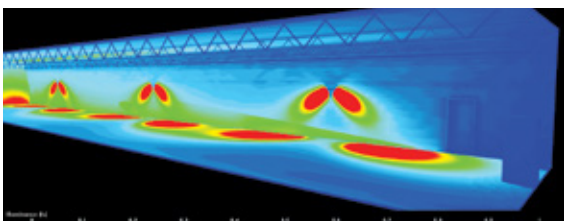
Only 5 dual lamp heads required.

#### 4 W MR16 LED lamps

Same standard emergency lighting units with 4 W MR16 LED lamps requires a total of 5 double-head units or remotes.

#### MR16 LED lamps

Lamp suffix	Voltage	Wattage	Lumens	Replacement #
LA	6	4	130	580.0097-E
LG	12	4	170	580.0093-E



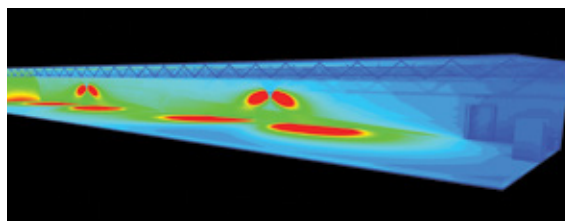
Only 3 dual lamp heads required.

#### 5 W MR16 LED lamps

Same standard emergency lighting units with 5 W MR16 LED lamps requires a total of 3 double-head units or remotes.

#### 5 W MR16 LED lamps

Lamp suffix	Voltage	Wattage	Lumens	Replacement #
LI	12	5	340	580.0104-E



Only 2 dual lamp heads required.

#### New! 6 W MR16 LED lamps

Same standard emergency lighting units with 6 W MR16 LED lamps requires a total of 2 double-head units or remotes.

#### 6 W MR16 LED LAMPS

Lamp suffix	Voltage	Wattage	Lumens	Replacement #
LJ	12	6	540	580.0106-E

# Quick pole assembly

## Key features and benefits

### Features and benefits

- Sphere-shaped quick knuckle features round edges, preventing injuries and containment build-up of components
- The quick-release mechanism is activated using one hand and one pull pin
- The quick pole assembly blocks at a 90° angle when the pull pin reaches the stopper
- All quick knuckle hardware is made of stainless steel
- All mounting brackets hardware are hot-dip galvanized steel

### Quick pole assembly

- Operates in any kind of weather
- Overall length is 10 ft. (3 m)
- Pole trade size is 1½" threaded NPT
- Aluminum pole trade size is 2" threaded NPT
- Top pole section is 70" (1.78 m) long
- Lower pole section is 50" (1.27 m) long
- Set screws secure top and bottom section into the quick knuckle

### Quick knuckle assembly

- Rotates 180° (90° left and right) around knuckle's center axis, allowing freedom of installation and easy adjustment
- Easy one-man operation — after center bolt is loosened, use the pull pin to lock and unlock the assembly
- Pre-finished with tape to ease wiring

### Brackets

- Universal mounting for 2" to 3" angle iron railings
- Quick mounting brackets can be installed inside or outside the guardrails
- Quick knuckle assembly should be mounted above hand rail, allowing the pole sections to rotate before final positioning



01  
The quick pole assembly blocks at a 90° angle.



Safety first
One-person operation
No ladders or lifts required
Simplified maintenance
Hot-dipped galvanized steel and aluminum finishes
Frees up catwalks and walkways during maintenance
Epoxy-coated finishes available
Suitable for 180 km/h winds as per AASHTO LTS-4 2001
Steel pole threads are treated and protected to prevent galvanic reaction as per AASHTO LTS-4 2001

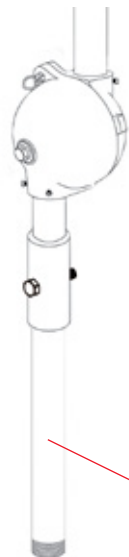


### Standard kit

- Overall height of 10' (3 m)
- 1½" NPT threads at both ends (1½" O.D. pipe)
- Rotating quick knuckle assembly
- Installed with two rail angle iron mounting brackets, allowing the pole section to rotate before final positioning

**Q-P-5-10-N** (Galvanized 1½" O.D. pipe)  
**Q-P-A-5-10-N** (Aluminum 2½" O.D. pipe)  
**Standard Kit**

Bracket sold separately



### Retrofit kit

- Overall maximum and predetermined height of 10' (3 m) once assembled
- Can be adapted to existing pole
- Upgrades existing assembly with quick and easy maintenance features
- See instruction sheets provided with product for installation details
- Rotating quick knuckle assembly
- Steel and aluminum adapter sleeve (2" ID) fits over standard 1¼" NPT (1.66" OD) or 1½" NPT (1.90" OD) pipe

**RQ-P-5-10-N** (Galvanized 1½" O.D. pipe)  
**RQ-P-A-5-10-N** (Aluminum 2½" O.D. pipe)  
**Retrofit Kit**

Customer existing pipe (not supplied)



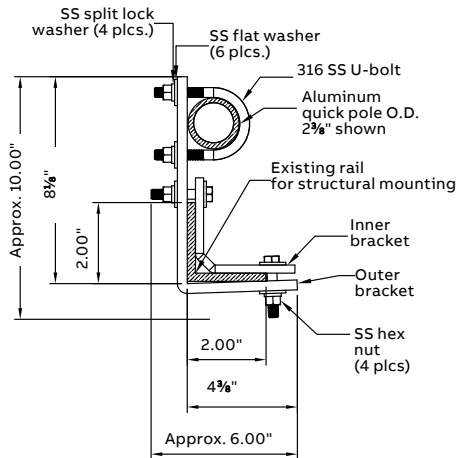
## Quick pole assembly

### Universal bracket kit

#### Stainless steel (aluminum pole)

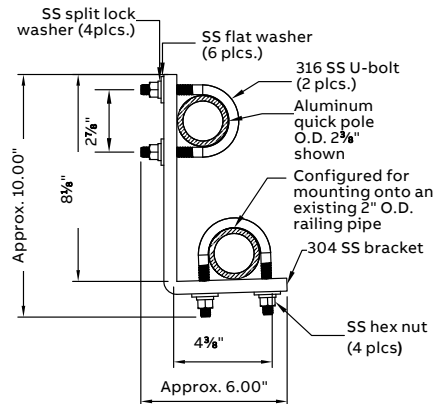
##### AMB-QP-A-BKT-N

Bracket for structural angle mounting



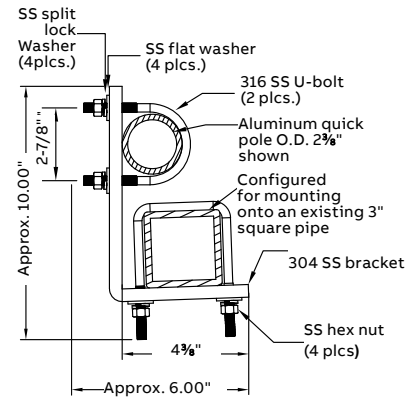
##### RMB-QP-A-BKT-N

Bracket for structural pole mounting



##### RMB-QP-A-BKT-3

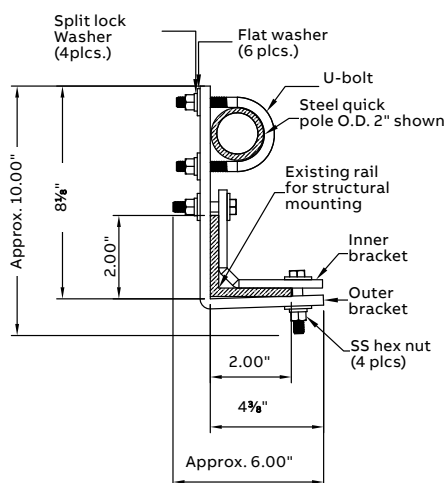
Bracket for structural square mounting



#### Galvanized steel

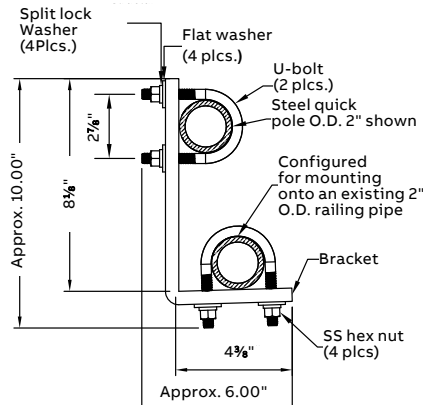
##### AMB-QP-BKT-N

Bracket for structural angle mounting



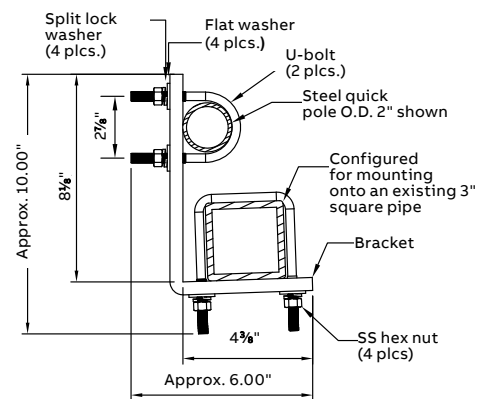
##### RMB-QP-BKT-N

Bracket for structural pole mounting



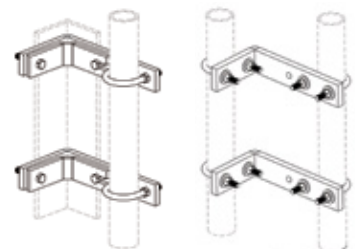
##### RMB-QP-BKT-3

Bracket for structural square mounting



#### Universal bracket kit

- Quick bolt-on installation, no welding or drilling
- Can be attached to angle iron guardrails up to 3"
- Supplied to be installed on tubular structures 2" O.D. or less but designed for up to 2 3/8" U-bolt in both positions
- Allows the pole sections to rotate before final positioning





# Hazardous locations

## Classification

Areas where the possibility of explosion and fire is created by the presence of flammable gases, vapors, liquids, dust, fibers or flyings.

### Class I — Gases, vapors or liquids

Class I locations are those in which flammable gases, flammable liquid-produced vapors or combustible liquid-produced vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.

#### Typical Class I locations

Petroleum refineries and gasoline storage and dispensing areas  
Industrial firms that use flammable liquids in dip tanks for parts cleaning or other operations  
Petrochemical companies that manufacture chemicals from gas and oil  
Dry cleaning plants where vapors from cleaning fluids can be present  
Companies that have spraying areas where they coat products with paint or plastics  
Aircraft hangars and fuel serving areas  
Utility gas plants and operations involving storage and handling of liquified petroleum gas or natural gas

### Class II — Combustible dusts

Class II locations are those that are hazardous because of the presence of combustible dust.

#### Typical Class II locations

Grain elevators, flour and feed mills  
Plants that manufacture, use or store magnesium or aluminum powders  
Plants that have chemical or metallurgical processes: producers of plastics, medicines and fireworks, etc.  
Producers of starch or candies  
Spice-grinding plants, sugar plants and cocoa plants  
Coal preparation plants and other carbon handling or processing areas

### Class III — Fibers and flyings

Class III locations are those that are hazardous because of the presence of easily ignitable fibers or where materials producing combustible flyings are handled, manufactured or used, but in which such fibers/flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitable mixtures.

#### Typical Class III locations

Textile mills, cotton gins, cotton seed mills and flax processing plants  
Any plant that shapes, pulverizes or cuts wood and creates sawdust or flyings

Fibers and flyings are not likely to be suspended in the air but can collect around machinery or on lighting fixtures and where heat, a spark or hot metal can ignite them.

### Division 1 — Normally hazardous

Hazardous gases, vapors or dusts are present under normal operation conditions or during frequent repair and maintenance activity.

### Groups A, B, C, D

The gases and vapors of Class I locations are broken into four groups by the code A, B, C and D. These materials are grouped according to the ignition temperature of the substance, its explosion pressure and other flammable characteristics.

### Groups E, F, G

Class II dust locations groups E, F and G are classified according to the ignition temperature and the conductivity of the hazardous substance.

### Division 2 — Not normally hazardous

Hazardous gases, vapors or dusts are not present under normal operating conditions.

#### Area classification | Divisions versus Zones

Continuous hazard	Intermittent hazard	Hazard under abnormal conditions
Zone 0	Zone 1	Zone 2
Division 1		Division 2

These are simplified definitions. Complete data is in the U.S. National Electrical Code (NEC) and the Canadian Electrical Code (CEC)

## Ignition temperatures

### Group classifications

**Ignition temperatures and group classifications for flammable gases and vapors**

Autoignition temperature				Autoignition temperature			
Material	Group	Degrees F	Degrees C	Material	Group	Degrees F	Degrees C
Acetaldehyde	C	347	175	Di-N-Propylamine	C	570	299
Acetic Acid	D	867	464	Diacetone Alcohol	D	1118	603
Acetic Anhydride	D	600	316	o-Dichlorobenzene	D	1198	647
Acetone	D	869	465	1,1-Dichloroethane	D	820	438
Acetone Cyanohydrin	D	1270	688	1,2-Dichloroethylene	D	860	460
Acetonitrile	D	975	524	Dicylopentadiene	C	937	503
Acetylene	A	581	305	Diethyl Benzene	D	743–842	395–450
Acrolein (Inhibited)	B (C)	455	285	Diethyl Ether	C	320	160
Acrylic Acid	D	820	438	Diethylamine	C	594	312
Acrylonitrile	D	898	481	Diethylene Glycol Monobutyl Ether	C	442	228
Allyl Alcohol	C	713	378	Diethylene Glycol Monomethyl Ether	C	465	241
Allyl Chloride	D	905	485	n-n-Dimethyl Aniline	C	700	371
Alpha-Methyl Styrene	D	1066	574	Dimethyl Formamide	D	833	455
Ammonia	D	928	498	Dimethyl Sulfate	D	370	188
n-Amyl Acetate	D	680	360	Dimethylamine	C	752	400
Aniline	D	1139	615	1,4-Dioxane	C	356	180
Benzene	D	928	498	Dipentene	D	458	237
Benzyl Chloride	D	1085	1085	Dodecene	D	491	255
1,3-Butadiene	B (D)	788	420	Du-Isopropylamine	C	600	316
Butane	D	550	288	Epichlorohydrin	C	772	411
1-Butanol	D	650	343	Ethane	D	882	472
2-Butanol	D	761	405	Ethanol	D	685	363
n-Butyl Acetate	D	790	421	Ethyl Acetate	D	800	427
n-Butyl Acrylate (Inhibited)	D	559	293	Ethyl Acetate (Inhibited)	D	702	372
Butylamine	D	594	312	Ethyl Benzene	D	810	432
Butylene	D	725	385	Ethyl Chloride	D	966	519
n-Butyraldehyde	C	425	218	Ethyl Formate	D	851	455
n-Butyric Acid	D	830	443	2-Ethyl Hexanol	D	448	231
Carbon Disulfide	*	194	90	2-Ethyl Hexyl Acrylate	D	485	252
Carbon Monoxide	C	1128	609	Ethyl Mercaptan	C	572	300
Chlorobenzene	D	1099	593	Ethylamine	D	725	385
Cresol	D	1038–1110	559–599	Ethylene	C	842	450
Crotonaldehyde	C	450	232	Ethylene Chlorohydrin	D	797	425
Cumene	D	795	424	Ethylene Dichloride	D	775	413
Cyclohexane	D	473	245	Ethylene Glycol Monobutyl Ether	C	460	238
Cyclohexanol	D	572	300	Ethylene Glycol Monobutyl Ether Acetate	C	645	340
Cyclohexanone	D	473	245	Ethylene Glycol Monoethyl Ether	C	455	235
Cyclohexene	D	471	244	Ethylene Glycol Monoethyl Ether Acetate	C	715	379
Cyclopropane	D	938	503	Ethylene Glycol Monomethyl Ether	D	545	285
p-Cymene	D	817	436	Ethylene Oxide	B (C)	804	429
n-Decanol	D	550	288	Ethylenediamine	D	725	385
Decene	D	455	235	Ethylenimine	C	608	320
Di-Isobutyl Ketone	D	745	396	2-Ethylhexaldehyde	C	375	191
Di-Isobutylene	D	736	391	Formaldehyde (Gas)	B	795	429

\*Carbon Disulfide has characteristics which require safeguards beyond those required for any of the above groups

## Ignition temperatures

### Group classifications

**Ignition temperatures and group classifications for flammable gases and vapors**

Material	Group	Autoignition temperature		Material	Group	Autoignition temperature	
		Degrees F	Degrees C			Degrees F	Degrees C
Fuel Oils	D	410–765	210–407	Monoethanolamine	D	770	410
Furfural	C	600	316	Monoisopropanolamine	D	705	374
Furfuryl Alcohol	C	915	490	Monomethyl Aniline	C	900	482
Gasoline	D	536–880	280–471	Monomethyl Hydrazine	C	382	194
Heptane	D	399	204	Morpholine	C	590	310
Heptene	D	500	260	Naphtha (Coal Tar)	D	531	277
Hexane	D	437	225	Naphtha (Petroleum)	D	550	288
2-Hexanone	D	795	424	Nitrobenzene	D	900	482
Hexenes	D	473	245	Nitroethane	C	778	414
Hydrazine	C	74–518	23–270	Nitromethane	C	785	418
Hydrogen	B	968	520	2-Nitropropane	C	802	428
Hydrogen Cyanide	C	1000	538	1-Nitropropane	C	789	421
Hydrogen Sulfide	C	500	260	Nonane	D	401	205
Iso-Butyl Acetate	D	790	421	Octane	D	403	206
Iso-Octyl Aldehyde	C	387	197	Octene	D	446	230
Isoamyl Acetate	D	680	360	Pentane	D	470	243
Isoamyl Alcohol	D	662	350	1-Pentanol	D	572	300
Isobutyl Acrylate	D	800	427	2-Pentanone	D	846	452
Isobutyraldehyde	C	385	196	1-Pentene	D	527	275
Isophorone	D	860	460	Propane	D	842	450
Isoprene	D	428	220	2-Propanol	D	750	399
Isopropyl Acetate	D	860	460	1-Propanol	D	775	413
Isopropyl Ether	D	830	443	Propionaldehyde	C	405	207
Isopropylamine	D	756	402	Propionic Acid	D	870	466
Kerosene	D	410	210	Propionic Anhydride	D	545	285
Liquified Petroleum Gas	D	761–842	405–450	N-Propyl Acetate	D	842	450
Mesityl Oxide	D	652	344	N-Propyl Ether	C	419	215
Methane	D	999	537	Propyl Nitrate	B	347	175
Methanol	D	725	385	Propylene	D	851	455
Methyl Acetate	D	850	454	Propylene Dichloride	D	1035	537
Methyl Acrylate	D	875	468	Propylene Oxide	B (C)	840	449
Methyl Ether	C	662	350	Pyridine	D	900	482
Methyl Ethyl Ketone	D	759	404	Styrene	D	914	490
Methyl Formal	C	460	238	Tetrahydrofuran	C	610	321
Methyl Formate	D	840	449	Tetrahydronaphthalene	D	725	385
Methyl Isobutyl Ketone	D	840	449	Toluene	D	896	480
Methyl Isocyanate	D	994	534	Turpentine	D	488	253
Methyl Methacrylate	D	792	422	Unsymmetrical Dimethyl Hydrazine (Udmh)	C	480	249
Methyl N-Amyl Ketone	D	740	393	Valeraldehyde	C	432	222
2-Methyl-1-Propanol	D	780	416	Vinyl Acetate	D	756	402
2-Methyl-2-Propanol	D	892	478	Vinyl Chloride	D	882	472
Methylamine	D	806	430	Vinyl Toluene	D	921	494
Methylcyclohexane	D	482	250	Vinylidene Chloride	D	1058	570
Methylcyclohexanol	D	565	296	Xylenes	D	867–984	464–529

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