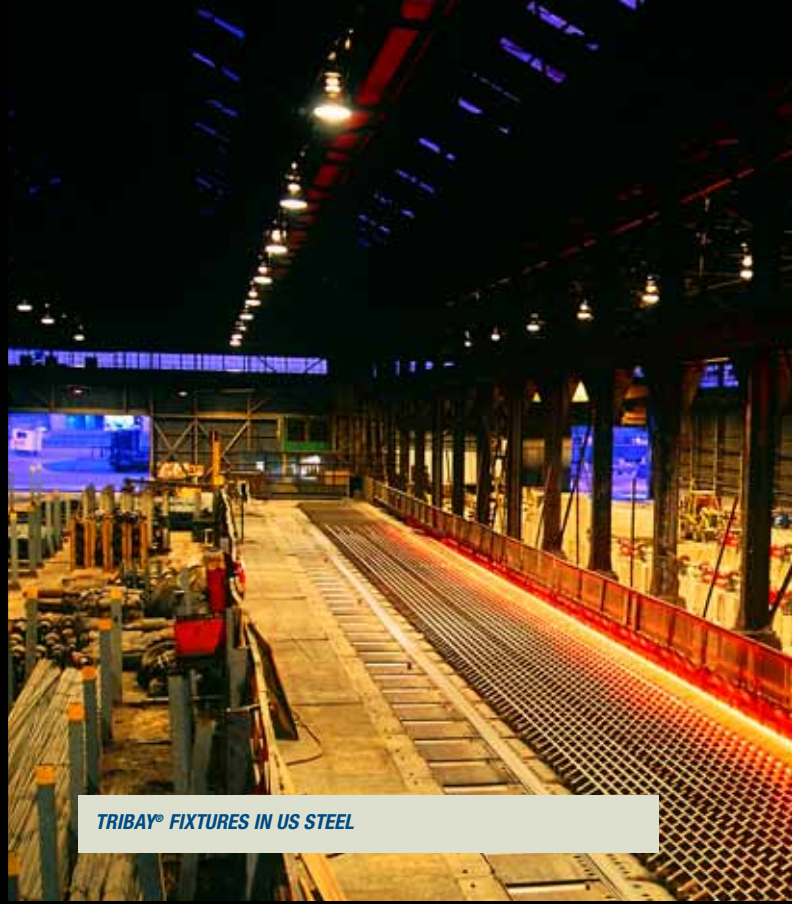
Hubbell Industrial Lighting

Complete Product & Reference Guide

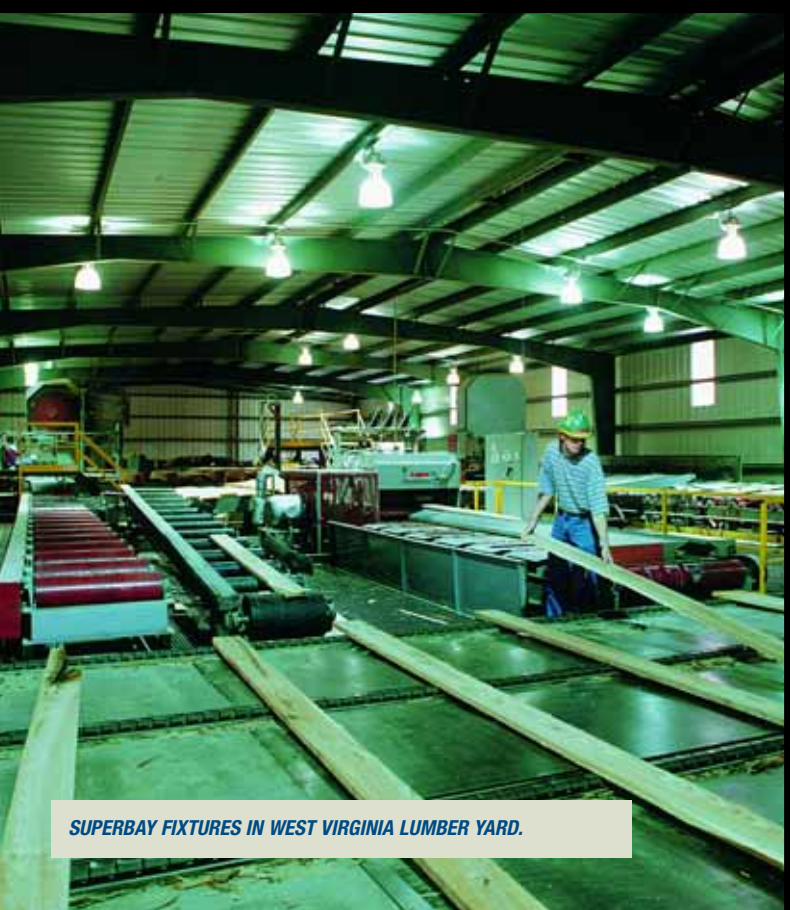
HUBBELL®

Industrial Lighting

TRIBAY® SUPERWATT® FIXTURES IN MACK TRUCK ASSEMBLY AREA



TRIBAY® FIXTURES IN US STEEL



SUPERBAY FIXTURES IN WEST VIRGINIA LUMBER YARD.

SUPERWATT® FIXTURES IN RR DONNELLY PRINTING PLANT

NO ONE KNOWS HOW TO LIGHT CRITICAL WORK AREAS BETTER.

Since Harvey Hubbell's invention of the electrical wall plug and socket over 100 years ago, Hubbell has been engineering tough, hardworking products designed for the real world. Products ready to survive in high temperatures, wet and dirty environments, and where a variety of lighting requirements exist, from general warehousing to assembling small, precise electrical components.

Building on this expertise, Hubbell Lighting has pioneered many innovations in lighting optics and ballast/lamp systems designed to save your operation both energy and maintenance dollars over the life of their operation. For over 40 years, our industrial luminaires have lit vast warehouses, complex machinery, large mass merchandisers, and a wide range of process and assembly industries.

What makes an industrial workplace different

Lighting the "Industrial" environment is not always an easy task. Because of a wide variety of operations and tasks, the specifier must consider many elements which work to impact the amount of light reaching a work surface as well as its quality.

Additionally, in the overall cost of the system are maintenance/service issues which are determined by choice of ballast, optic, lamp, and the impact of temperature, accumulative dirt and moisture levels within your workplace environment.

So, with upwards of 25 possible items to consider, from mounting height to IES lumen standards, yes, it can sometimes be a complex assignment. However, by looking at the task, quality and quantity of light, and expectations on maintenance costs, the process of system selection can be streamlined.

Critical items can be gathered into three areas: quality, quantity and life cycle costs of your system which includes energy and maintenance/operation issues.

SO, HOW MUCH LIGHT DO I NEED? Standard footcandle (fc) ratings have been set by the IESNA (Illuminating Engineering Society of North America) and provide guidelines for your use. The chart on page 8 breaks out "tasks" into six basic levels of lighting, from public spaces to that of low contrast, small-sized parts assembly operations. By reviewing this chart you'll gain a reference point for your specific need.

Additionally, IES lists "average" lumen and footcandle levels. The charts on pages 8 and 9 are general guidelines for target-maintained illuminance values.

Patented Expertise. Hubbell holds over 30 important patents that let you increase workplace efficiency and lower your maintenance costs.

TITLE	PATENT NUMBER
START, HOT RESTART AND OPERATING LAMP CIRCUIT	4,763,044
FAILING LAMP MONITORING AND DEACTIVATING CIRCUIT	4,810,936
HIGH WATTAGE HID LAMP CIRCUIT	4,890,041
END-OF-LIFE LAMP STARTER DISABLING CIRCUIT	5,019,751
LAMP STARTING CIRCUIT	5,047,694
CONTROLLED-CURRENT LAMP STARTING CIRCUIT	5,210,471
STEP-DIMMING MAGNETIC REGULATOR FOR DISCHARGE LAMP	5,216,333
IMPROVED LOW LOSS BALLAST SYSTEM	5,309,065
LAMP STARTING CIRCUIT	5,321,338
LAMP STARTING CIRCUIT	5,594,308
APPARATUS FOR DIMMING ... OF ELECTRO-REG SYSTEM	5,663,612
LAMP DRIVEN VOLTAGE TRANSFORMATION AND BALLAST SYSTEM	5,825,139
REDUCED DUTY CYCLE H.I.D. LAMP IGNITOR	5,886,481
EMERGENCY LIGHTING FOR HIGH INTENSITY DISCHARGE LAMPS	5,955,843
MULTI-VOLTAGE BALLAST & DIMMING CIRCUITS FOR A LAMP DRIVEN VOLTAGE TRANSFORMATION & BALLASTING SYSTEM	5,962,988
INTEGRATED FOLD-UP REFLECTOR BRACKETS	6,024,470
HIGH-INTENSITY DISCHARGE IGNITOR FOR USE WITH HIGH-PRESSURE SODIUM LAMPS AND BALLASTS	6,091,208

TITLE	PATENT NUMBER
LIGHTING CONTROL SYSTEM FOR DISCHARGE LAMPS	6,114,816
LOW COST HIGHBAY	6,123,435
EXTERNALLY MOUNTABLE DISCHARGE LAMP IGNITION CIRCUITRY INCORPORATING A VISUAL DIAGNOSTIC INDICATOR	6,127,782
HOUSING FOR LUMINAIRE	D433,520
IMPROVED, LOW LOSS, ELECTRONIC BALLAST	6,166,492
HIGH INTENSITY DISCHARGE BALLAST POWER LEVEL CONVERSION METHOD	6,320,328
IES TYPE 5 DISTRIBUTION, OPTICAL ASSEMBLY, VERTICAL BASE-UP LAMP	6,338,564
CRANE LIGHT	6,388,392
FLUORESCENT HIGH BAY DESIGN	D465,869
TEXTURED DIFFUSE SURFACE APPLICATION TO GLASS REFLECTOR	6,494,596
HIGH-INTENSITY DISCHARGE IGNITOR PULSE DETECTOR	6,534,988
REGULATING BALLAST FOR H.I.D. LAMPS	6,545,429
REMOTE DISCHARGE LAMP IGNITION CIRCUITRY	6,597,128
UNIVERSAL SODIUM IGNITOR DISABLE CIRCUIT	6,642,673
LAMP IGNITOR CIRCUIT W/ NOVEL PULSE CESSATION FUNCTION	6,724,155
MULTIPLE BALLAST AND LAMP CONTROL SYSTEM	6,731,080

HOW TO USE THIS CATALOG

You have in your hands a complete reference guide on how to light industrial and other large size spaces. Highlights of what is inside are:

- Recommended Illuminance Values
- Complete product pages to cover all industrial applications
- Information on EPAct
- Information on unique Hubbell Industrial Electronic Ballasts
- Why use HID
- Good three dimensional lighting products
- Dimming systems
- Flexible Wiring systems
- Information on Extreme environment products
- Information on Ingress Protection (IP)
- Information on Hazardous location Products
- Quick Estimators to help determine the number of fixtures required
- HID Ballast electrical data
- Completely new HID ballast troubleshooting guide
- Thumbnail photometrics

Backing up this guide is your local Hubbell Lighting Representative and our field sales team. As always, innovation is a constant process at Hubbell Industrial lighting and specifications may change over time.

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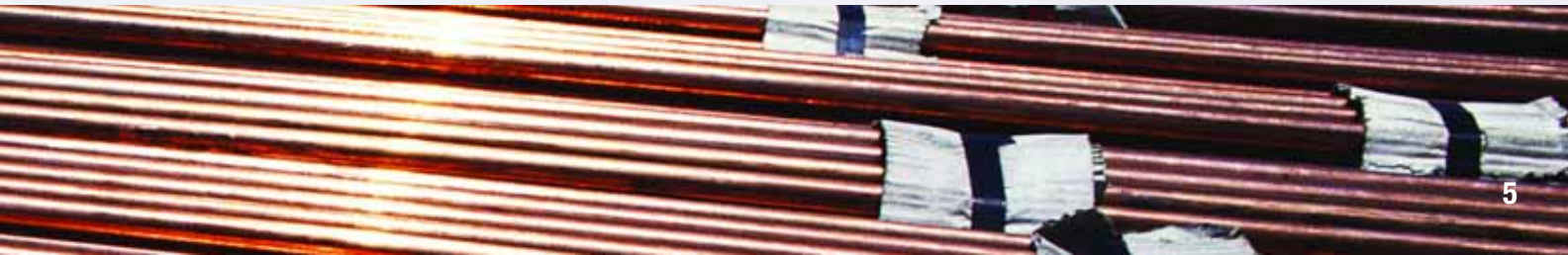


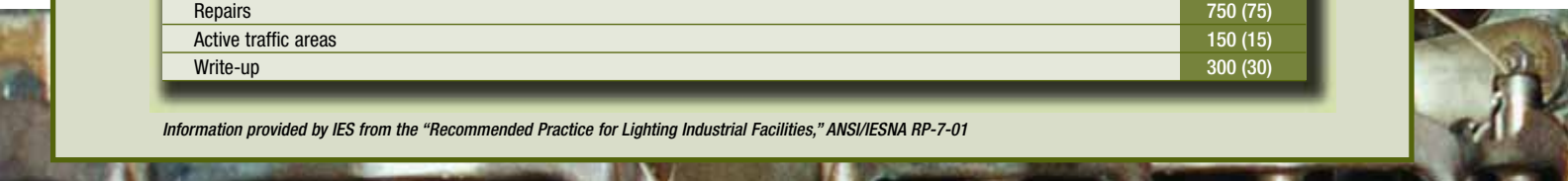
RECOMMENDED ILLUMINANCE VALUES

(TARGET MAINTAINED) FOR INDUSTRIAL LIGHTING DESIGN

Values for industrial areas/activities - interior

AREA / ACTIVITY	LUX (FC)[1]
AIRCRAFT MAINTENANCE	
Docking – all activities required to dock	750 (75)
Cleaning, prime painting, final painting exterior	750 (75)
Modifications or repairs to systems	750 (75)
Ramp lighting	30 (3)
Predocking activities	750 (75)
Preparing to dedock	300 (30)
Specialty shops (instruments, electrical, plastics, upholstery, parts inspection)	1500 (150)
Systems operations and functional checks requiring activation of aircraft power systems to perform	750 (75)
System repairs after operations and close up preparation	750 (75)
System restoration or new system component installation	750 (75)
AIRCRAFT MANUFACTURING – FABRICATION (preparation for assembly)	
Drilling, riveting, screw fastening	750 (75)
Layout and template work, shaping and smoothing small parts for fuselage, wing sections, cowling, etc.	750 (75)
Scribing	1500 (150)
Plating	300 (30)
AIRCRAFT MANUFACTURING – GENERAL	
Rough easy seeing	300 (30)
Rough difficult seeing	750 (75)
Medium	750 (75)
Fine	1500 (150)
Extra fine	3000 (300)
First manufacturing operations (sheet metal) (see Sheet Metal Works)	
Flight test and delivery area	30 (3)
BREWERIES	
Brew house	300 (30)
Boiling and keg washing	300 (30)
Filling (bottles, cans, kegs)	300 (30)
ELECTRICAL EQUIPMENT MANUFACTURING	
Impregnating	300 (30)
Insulating: coil winding	750 (75)
FLOUR MILLS	
Rolling, sifting, purifying	750 (75)
Packing	300 (30)
Product control	1500 (150)
Cleaning screens, man lifts, aisleways, walkways, bin checking	300 (30)
FOUNDRIES	
Annealing (furnaces)	300 (30)
Cleaning	300 (30)
Core making: fine	1500 (150)
Core making: medium	750 (75)
Grinding and chipping	1500 (150)
Molding: medium	1500 (150)
Molding: large	750 (75)
Pouring	750 (75)
Sorting	750 (75)
Cupola	150 (15)
Shakeout	300 (30)
GARAGES – SERVICE	
Repairs	750 (75)
Active traffic areas	150 (15)
Write-up	300 (30)

Information provided by IES from the "Recommended Practice for Lighting Industrial Facilities," ANSI/IESNA RP-7-01



AREA / ACTIVITY	LUX (FC)[1]
MEAT PACKING	
Slaughtering	300 (30)
Cleaning, cutting, cooking, grinding, canning, packing	300 (30)
PAINT MANUFACTURING	
Processing	300 (30)
Mix comparison	1500 (150)
POULTRY INDUSTRY	
Brooding, production, and laying houses	
Feeding, inspection, cleaning	150 (15)
Charts and records	300 (30)
Thermometers	300 (30)
Hatcheries	
General area and loading platform	150 (15)
Inside incubators	300 (30)
Dubbing station	1500 (150)
Sexing	7500 (750)
Fowl processing plant	
General (including killing and unloading area)	750 (75)
Government inspection station and grading stations	750 (75)
Unloading and killing area	750 (75)
PRINT INDUSTRIES	
Printing plants	
Color inspection and appraisal	1500 (150)
Machine composition	750 (75)
Composing room	750 (75)
Presses	750 (75)
Imposing stones	1500 (150)
Proofreading	1500 (150)
SHEET METAL WORKS	
Miscellaneous machines, ordinary bench work	750 (75)
Presses, shears, stamps, spinning, medium bench work	750 (75)
Punches	750 (75)
Tin plate inspection, galvanized	1500 (150)
Scribing	1500 (150)
TEXTILE MILLS	
Staple fiber preparation	
Stock dyeing, tinting	300 (30)
Sorting and grading (wool and cotton)	750 (75)[2]
Yarn manufacturing	
Opening and picking (chute feed)	300 (30)
Carding (non-woven web formation)	300 (30)[3]
Drawing (gilling, pin drafting)	300 (30)
Combing	300 (30)[3]
Roving (slubbing, fly frame)	750 (75)
Spinning (cap spinning, twisting, texturing)	750 (75)
Yarn preparation	
Winding, quilling, twisting	750 (75)
Warping (beaming, sizing)	1500 (150)[2]
Warp tie-in or drawing-in (automatic)	750 (75)

1 Industry representatives have established this table of single illuminance values. Illuminance values for specific operations can also be determined by using illuminance values for similar tasks and activities.
2 Supplementary lighting should be provided in this space to product the higher levels required for specific seeing tasks involved.
3 Additional lighting needs to be provided for maintenance only.

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Electronic Enclosed
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Superbay Sealed &
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Superbay 23"
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Superbay 19"
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Superbay 19"
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Electronic 22" Glass
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Superbay 16" Glass
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WHAT MAKES LIGHTING AN INDUSTRIAL WORKPLACE DIFFERENT

Determination of Illuminance Categories

ORIENTATION AND SIMPLE VISUAL TASKS

VISUAL PERFORMANCE IS LARGELY UNIMPORTANT

These tasks are found in public spaces where reading and visual inspection are only occasionally performed. Higher levels are recommended for tasks where visual performance is occasionally important.

A	Public spaces	30 lx (3 fc)
B	Simple orientation for short visits	30 lx (3 fc)
C	Working spaces where simple visual tasks are performed	30 lx (3 fc)

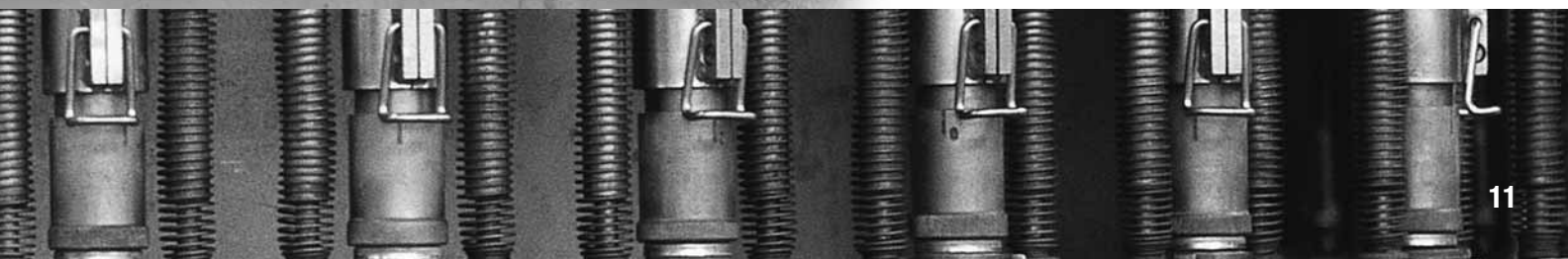
COMMON VISUAL TASKS

VISUAL PERFORMANCE IS IMPORTANT

These tasks are found in commercial, industrial and residential applications. Recommended illuminance levels differ because of the characteristics of the visual task being illuminated. Higher levels are recommended for tasks with critical elements of low contrast or small size.

D	Performance of visual tasks of high contrast and large size	300 lx (30 fc)
E	Performance of visual tasks of high contrast and small size, or visual tasks of low contrast and large size	500 lx (50 fc)
F	Performance of visual tasks of low contrast and small size	1000 lx (100 fc)

Information provided by IES from the "Recommended Practice for Lighting Industrial Facilities," ANSI/IESNA RP-7-01



ENERGY SAVINGS

V-Spec

True 3D vertical surface lighting with the efficiency of an electronic ballast and superior color rendering, all from Hubbell Lighting. Perfect for Retail settings.

See pages 84-85 for more detail.

- Better lumen maintenance allows less fixtures
- Delivers 70% more mean lumens per watt than standard MH
- Multi wattage 250,300,320,350, or 400 watt MH or CMH
- Operates on 208-277V
- Up to 55° ambient temperature

EL Series

Perfect all around option for those applications that require electronic ballasts. Wide variety of optics available. Features Hubbell's Electronic E-Reg. Can dim to 50% of full light with simple 0-10V controls.

See pages 77-80 for more detail.

- Glass, Acrylic and Spun Aluminum optic options available
- 320 350 and 400 watt available
- Intellivolt 200 – 277V
- Integral 120V quartz tap and relay
- 0-10V dimming down to 50% of full light output

Electronic Superwatt & Lightwatt

Industry leading optical performance with fully controllable electronic ballast.

- 320, 350 and 400 watt MH
- Wet or damp location
- Up to 55° ambient temperatures
- Industry leading optics for efficient horizontal and vertical illumination

Electro-Reg®

The Electro-Reg® system provides long lamp life, more consistent output through out life and better color control than metal halide operated on standard CWA ballasts.

See page 83 for more detail.

- Double lamp life
- Hot Re-Strike in 2-4 minutes
- Better color and output stability
- Operates down to -40°C

Pulse Smart

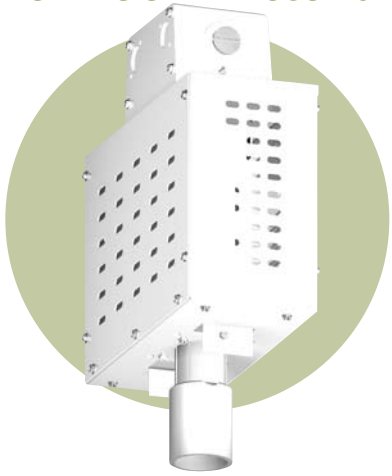
Hubbell Lighting does it again. Although a standard MH fixture is good, and a pulse start system is more efficient, our 750 watt PulseSMART system uniquely combines the best lamp, ballast and fixture technology available.

See pages 88-89 for more detail.

- Very efficient, only 28 watts loss on a 750 watt system
- Fits into the economical Superbay ballast housing
- Available in 277V

ELECTRONIC BALLASTS

EL SERIES STEEL HOUSING



Introducing EL Series Electronic Ballast

The new Hubbell Industrial Lighting EL Series E-Reg® Electronic Ballast delivers a new level of HID performance:

- Lower operating and maintenance costs.
- Better lumen maintenance – light output depreciation cut 30%-50%.
- Fewer fixtures needed to light the same space over standard MH.
- Energy savings of more than 40% per year.
- Variable dimming to 50% of lamp power.

More Lumens

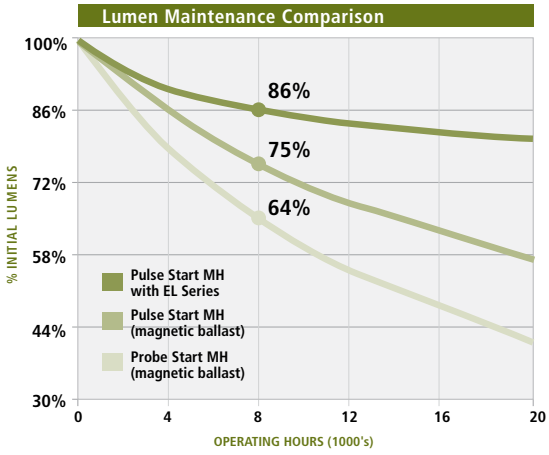
- Electronic HID raises the performance of pulse start lamps to a new level.
- Electronic HID systems deliver 35% more light at mean lumen output than traditional probe-start systems and nearly 50% more light by end of life.

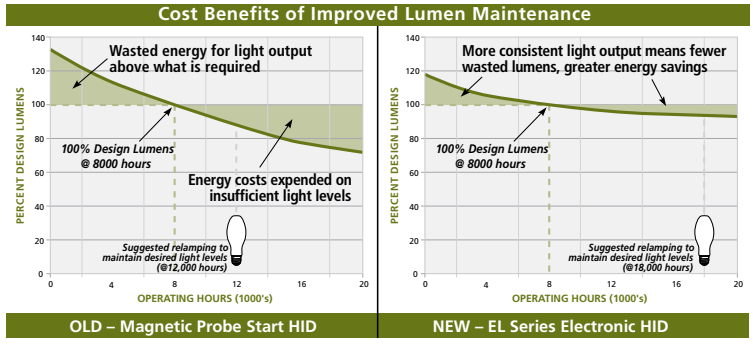
More Energy Efficient

- Electronic HID systems are far more efficient, reducing operating costs up to 40% per year when compared to probe-start systems.

More Savings to the Bottom Line

- Regardless of the way you compare the products, Electronic HID represents the best solution for delivering great lighting at a great price.



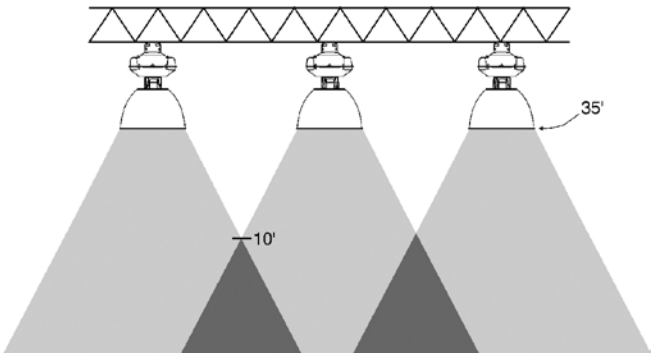


10-Year Overall Cost of Ownership = 36% Reduction

Consider an example of lighting a new 300 ft. x 300 ft. retail space with a 24 ft. ceiling to a minimum illumination level of 100 footcandles at a work-plane height 30 inches. Never has a new technology had the potential to contribute so significantly to the bottom line. Even with the EL's higher initial cost, the savings over a 10-year operating cycle can be as high as 36%, as the following model illustrates:

	400W Probe Start Magnetic CWA	400W Pulse Start Magnetic SCWA	400W Pulse Start Electronic E-Reg®
Mean Lumens per Lamp	23,400	31,000	37,000
Input Watts per Fixture	458	452	425
Number of Fixtures Required	462	352	295
Fixture Cost, each	$150	$175	$275
Lamp Cost, each	$15	$25	$25
Fixture Cost, total	$69,300	$61,600	$81,125
Lamp Cost, total	$6,930	$8,800	$7,375
Installation Labor	$23,100	$17,600	$14,750
Installation Materials	$138,600	$105,600	$88,500
Total Installed Cost	$237,930	$193,600	$191,750
Savings	———	18.6%	19.4%
Annual Energy Costs (@ $0.10/KWH)	$105,798	$79,552	$62,688
Savings	———	25%	41%
10 Year Lamp Replacements and Cleanings	$46,200	$44,000	$36,875
Savings	———	5%	20%
10 Year Cost of Ownership	$1,342,110	$1,033,120	$855,500
Savings	———	23%	36%
Savings vs. 400W Probe Start	———	$308,990	$486,610

HIGHBAY VS. LOWBAY LIGHTING

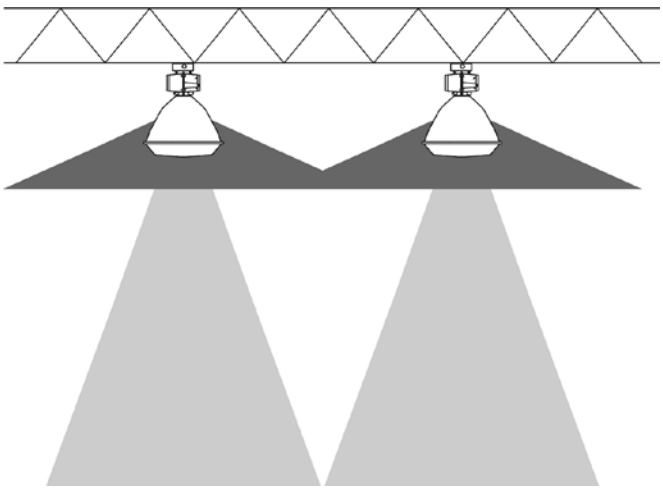


Industrial areas can be divided into low bay and high bay applications. A low bay area is generally one where mounting heights are 20 feet (6 meters) or less, and a high bay area is one where mounting heights are over 20 feet (6 meters).

Highbay Fixtures are designed to deliver the maximum amount of light onto the work plane. They are not recommended for mounting heights below 20 ft. To accommodate these higher mounting heights, highbay fixtures feature reflectors that produce a concentrated light beam, providing effective horizontal task illumination. If mounted below 20 ft., highbay fixtures can cause glare, eye fatigue, harsh shadows, and dark spots on the work plane.

High bay luminaires use reflectors to direct light downward. Low bay luminaires generally include a refractor to spread out the light for even light distribution and low luminaire brightness. The refractor may be used alone or in combination with a reflector.

Lowbay Fixtures are designed to deliver a more evenly spread light onto the work plane. The reflector of low bay fixtures has an acrylic lens on the bottom to diffuse the light and provide excellent horizontal and vertical illumination. This helps to reduce glare while providing a wider beam pattern to accommodate for lower mounting heights.



Spacing to Mounting Height Ratio

Spacing to mounting height ratio (S/MH) determines the optimal spacing between fixture centers for uniform lighting. If the spacing between fixtures exceeds the optimal spacing determined with the S/MH ratio, then dark spots may occur on the work plane. All indoor HID fixtures have a S/MH ratio.

Optimal spacing is calculated by multiplying the S/MH ratio by the mounting height. For example: If the S/MH ratio is 1.5 and the mounting height is 15 ft., then the distance between fixtures should not exceed 1.5 x 15, or 22.5 feet.

Recommended Mounting Heights for HID	
Wattage	**Recommended Mounting Height**
1000 Watt	35′ to 40′ Highbay
300 to 400 Watt	20′ to 40′ Highbay
175 to 250 Watt	12′ to 20′ Lowbay
70 to 150 Watt	8′ to 15′ Lowbay

SUPERBAY

The Superbay Series is designed for many years of demanding, heavy-duty industrial service. Typical applications include heavy and light industrial plants, warehouses, and aircraft hangers as well as retail.

Ballast Module

Rugged, two piece, die cast aluminum with corrosion resistant Lektrocote® white finish. All electrical components are mounted directly to the ballast module for maximum heat dissipation and cooler operation.

Additional Features

Quick and easy to install. UL Listed for 55°C ambient operation and damp locations. Porcelain mogul base socket. 40°C for 1000 watt.

Accessories

Accessories are available for the Superbay Series. They must be ordered separately and installed in the field.

Mounting Accessories

Mounting accessories are available for the Superbay Series. They must be ordered separately. See Options and Accessories or Power Hook / Mounting Accessories.

Options

Options for the Superbay Series are factory installed. Order with fixture by adding suffix. See Options and Accessories, pages 60-70.

Superbay luminaires are not for outdoor use or wind buffeted locations.

TRIBAY®

HG22 Glass Optics

WA Prismatic Acrylic
(22" and 25")

Superwatt® Optic

Controlux Optic

New Generation of Specification Grade Industrial Lighting

Three key features define the Tribay:
- 65°C rating for high ambient locations
- Wet location standard (not available with OU, HG16, HG22 or WA optics)
- Specification grade ballast housing handles all wattages up through 1000W

Tribay offers a variety of optics for all highbay and lowbay needs, whatever the industry – from textiles to automotive, paper mill to retail.

Additional Features

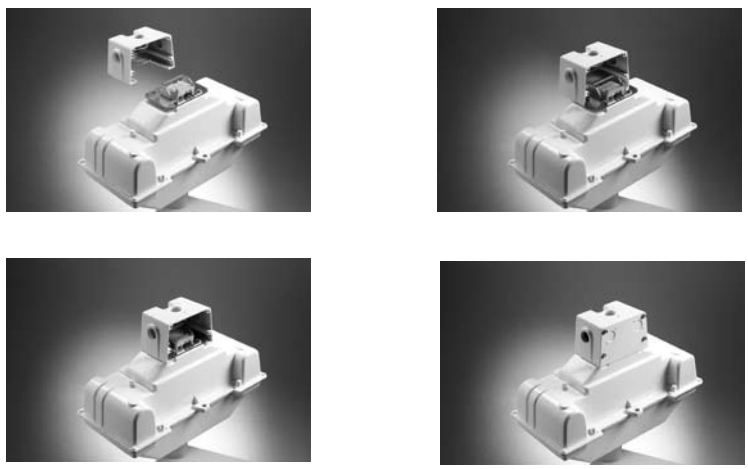
- High performance acrylic reflectors free from glare and harsh shadows for unsurpassed visual comfort are available
- Energy-Saving switch level dimming option
- Corrosion resistant hardware
- Electro-Reg® 2.0 metal halide system available (the efficiency of HPS, with white light performance)
- Superior 600W Super Sodium™ available (30,000+ hours lamp life, quick cold start, instant hot restrike)

Broad Range of Ballast Technology

- CWA, Mag-Reg, PLA, CWA, SCWA
- Electro-Reg®, Isolated Secondary
- Quad-Tap®, Tri-Tap®, 220V 50Hz
- Remote/Offset ballast housing option for restricted luminaire height applications
- 65°C ambient temperature rating on highbays - standard 250 and 400 watt – ideal for harsh environment; ensures longer ballast life

Hubbell Quick-Zone™

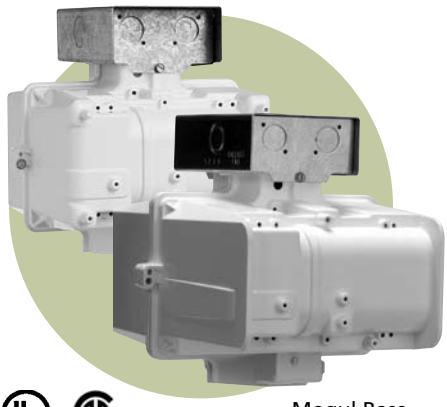
UL listed for electrical make and break under load. Replaces power hooks for instant installation or removal and replacement of luminaires. Pendant or ceiling through-wire mounting. Mounting box may be shipped ahead of luminaires for installation. The Quick-Zone disconnect is UL listed for all system voltages and is marked upon installation with the correct line voltage. Only 3 15/16" high, it saves almost eight inches of additional mounting height needed for conventional power hooks. All entry hubs are threaded 3/4". See mounting method under Options and refer to Accessories section for separate shipment of Quick-Zone boxes.



Quick-Zone

SUPERBAY

BALLAST HOUSINGS



Mogul Base

Features

Rugged, two-piece, die cast aluminum ballast housing with corrosion resistant Lektrocote® white finish. Electrical components are mounted directly to the aluminum housing for cool operation and long life.

SPECIFICATIONS 150-450 WATT

- Fits with any of fourteen different optical systems.
- Ballasts are high power factor with 180° Class H insulation.

SPECIFICATIONS 750 WATT PULSE SMART

- Uses new 750 watt Pulse Start lamp.
- Fits with any of seven different optical systems.
- Must use GE lamps: Hubbell #261-0726-9901 clear or #261-0722-9901 coated

SPECIFICATIONS 1000 WATT

- Fits with any of four different optical systems.
- Ballasts are high power factor with 180° Class H insulation.

LISTINGS

- Superbay ballast housings are certified to UL 1598, CSA 22.2 No. 250.0-00 and tested to 55°C ambient operation.
- 1000 watt Superbay ballast housing is certified to CSA 22.2 (40°C ambient operation).
- Suitable for damp locations

Ordering Information

Example: BLA - 400 - H - 8 - WH

Series Watts Source Volts Color

150-450 WATT

Series
BLA Superbay Series
Wattage
150 150 watt Pulse Start MH or HPS
175 175 watt MH or Pulse Start MH
200 200 watt Pulse Start MH only
250 250 watt MH, Pulse Start MH or HPS
320 320 watt Pulse Start MH only
350 350 watt Pulse Start MH or Electro-Reg®
400 400 watt MH, Pulse Start MH, HPS or Electro-Reg®
450 450 watt Pulse Start MH only
Source
H Metal Halide
S High Pressure Sodium
W Pulse Start Metal Halide
E Electro-Reg® (40°C)
Voltage
1 120V Electro-Reg®
2 208V Electro-Reg®
3 240V Electro-Reg®
4 277V Electro-Reg®
5 480V Electro-Reg®
6 Tri-Tap® - 120/277/347V (not available on E-Reg®)
7 600V (isolated secondary only)
8 Quad-Tap® (multi-tap) - 120/208/240/277V (not available on E-Reg®)
F 347V (single voltage only)
Color
WH White (standard)
GR Gray (optional)

750 WATT PULSE SMART

Series
BL Superbay Series
Wattage
750 750 watt Quasi Resonant MH
Source
Q Quasi Resonant MH
Voltage
4 277V
Optics
LM 29" Lowbay (40°C)
SD 19" Reflector w/ downlight (55°C)
SU 19" Reflector w/ uplight (55°C)
WA22 22" Clear Prismatic Acrylic (30°C)
CH-OU60 23" Reflector w/ uplight (55°C) (requires BL-FLUSH-MT-KIT)
WA25 25" Clear Prismatic Acrylic (35°C)
EG 19" Spun Aluminum Highbay (55°C)
Color
WH White (standard)
GR Gray (optional)

1000 WATT

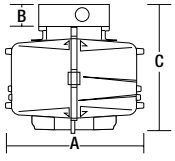
Series
BLA Superbay Series
Wattage
1000 1000 watt MH, Pulse Start MH or HPS
Source
H Metal Halide
S High Pressure Sodium
W Pulse Start Metal Halide
Voltage
5 480V
6 Tri-Tap® - 120/277/347V
8 Quad-Tap® (multi-tap) - 120/208/240/277V
Color
WH White (standard)
GR Gray (optional)

NOTE: MV lamp will operate on MH ballast.
NOTE: Energy Saving Linear Reactor Pulse Start ballast available, consult factory. 277V only.
NOTE: Options must be added as suffix to Catalog Number. Accessories must be ordered separately.
NOTE: Pulse Smart (quasi-resonant) ballasts cannot be dimmed.

For a complete list of options and accessories see pages 60 to 70.

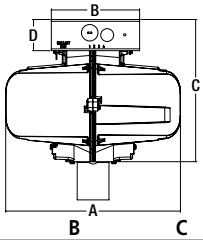
Dimensions

150-450 & 750 WATT



	A	B	C
Slick-On®	9 1/2" 241 mm	2" 51 mm	9 1/2" 241 mm
Quick-On®	9 1/2" 241 mm	1 1/8" 29 mm	8 5/8" 219 mm

1000 WATT



	A	B	C	D
Slick-On®	11 7/8" 301.6 mm	6" 152.4 mm	9 11/16" 246.2 mm	2 1/8" 53.9 mm
Quick-On®	11 7/8" 301.6 mm	6" 152.4 mm	9 11/16" 246.2 mm	1 1/8" 29 mm

Slick-On® Bracket Pendant, Ceiling, Through-Wire Mounting (shipped optional)

Quick-On® Bracket Pendant Mount (shipped standard)

SUPERBAY OPTICS

Ordering Information: BL Optical Assembly Modules

Catalog Number	Description	Diameter	Weight lbs. (kg)
BL-AL[1]	19″ Aisle lighter reflector	19″	2.5 (1.1)
BL-BI[2]	14″ Highbay reflector	14″	1.75 (0.8)
BL-EG	19″ Enclosed and gasketed reflector	19″	6.75 (3.1)
BL-LB1	23″ Lowbay reflector/refractor	23″	8.25 (3.7)
BL-PA2[3]	16″ Prismatic acrylic reflector	16″	3 (1.4)
BL-SD[1]	19″ Highbay downlight reflector	19″	2.25 (1)
BL-SU[1]	19″ Highbay reflector with uplight	19″	2.25 (1)
BL-OU60[6]	23″ Highbay reflector	23″	5.0 (2.2)
BL-WA25[5]	25″ Prismatic acrylic reflector	25″	8.25 (3.7)
CH-SW	Superwatt® optics	22″	10 (4.5)
CH-LM	29″ Lowbay reflector/refractor	29″	10.75 (4.9)
BL-WA22[4]	22″ Clear prismatic acrylic reflector	22″	6.5 (3)
BL-WW22[4]	22″ Opaque prismatic acrylic reflector	22″	6.5 (3)

1 Requires BL-LR19 when used with "E" or "S" rated lamps.
2 Requires BL-LR-14 when used with "E" or "S" rated lamps.
3 Requires BL-PK_ENC when used with "E" or "S" rated lamps.
4 Requires WA2-ENC, WA22-CDL, WA22-DLR when used with "E" or "S" rated lamps. If used with 400W, reduces thermal listing to 40°C.
5 Requires WA25-DLR when used with "E" or "S" rated lamps.
6 Requires CH-ENC-23 when used with "E" or "S" rated lamps.

Glass Highbay Units

BL-1510S8-HGX-16-WH
BL-175H8-HGX-16-ENC-WH
BL-250H8-HGX-16-ENC-WH
BL-250S8-HGX-16-WH
BL-320W8-HGX-16-WH
BL-350W8-HGX-16-WH
BL-400H8-HGX-16-WH
BL-400S8-HGX-16-WH
BL-400W8-HGX-16-WH
BL-150S8-HGX-22-WH
BL-175H8-HGX-22-ENC-WH
BL-250S8-HGX-22-WH
BL-320W8-HGX-22-WH
BL-350W8-HGX-22-WH
BL-400H8-HGX-22-WH
BL-400S8-HGX-22-WH
BL-400W8-HGX-22-WH
HG-ENC-22

BL-HGO16 BL-HGE16

BL-HGO22 BL-HGE22

BL-HGX16 and BL-HGX22 require a special ballast housing.

BL-OU60

BL-AL

BL-BI

BL-PA2

BL-SD

BL-SU

BL-EG

BL-LB1

BL-WA25

CH-SW

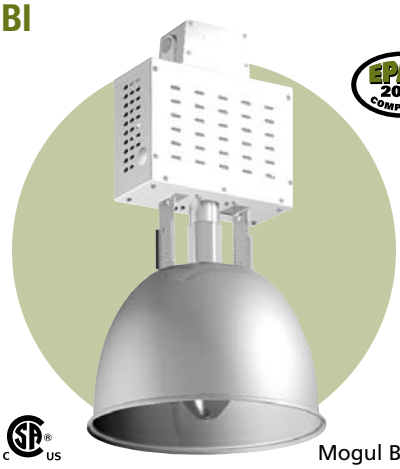
CH-LM

BL-WA22

BL-WW22

EL SERIES

BI



Mogul Base

Features

The EL Series BI is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

The EL Series BI wwfeatures an Anodal® finished 14" diameter spun aluminum reflector for improved optical performance. Field adjustable brackets provide narrow, medium and wide lighting distributions for application flexibility.

Steel housing with white polyester powder coat finish. All electrical components are positioned to assure unit will hang straight. Housing is ventilated for optimal thermal performance.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertical oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Ordering Information

Example: EL - 400 - W - 4 - M - BI

Series Watts Ballast/ Volts Mounting Optics

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

Mounting Method
- **D** Quick Zone™ Electrical Disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

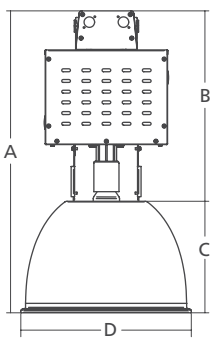
Optics
- **NM** No Optics, housing made for BI reflector
- **BI** 14" spun aluminum highbay reflector with uplight

Bottom Enclosure
- **BL-LR-14** Bottom Enclosure

Color
- **WH** White (standard)

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
25 15/16"	16 3/8"	9 9/16"	14 11/16"
658 mm	415 mm	243 mm	372 mm

EL SERIES

EG

Mogul Base

Features

The EL Series EG is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

The EL-EG 19" diameter reflector system excludes dirt and dust, maintaining desired performance. It is white polyester powder coated and has a clear glass bottom lens. Note: shown with optional CFB (charcoal filter breather) on reflector.

Steel housing with white polyester powder coat finish. All electrical components are positioned to assure unit will hang straight. Housing is ventilated for optimal thermal performance.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertical oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Ordering Information

Example: EL - 350 - W - 4 - M - EG

Series Watts Ballast/ Volts Mounting Optics

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

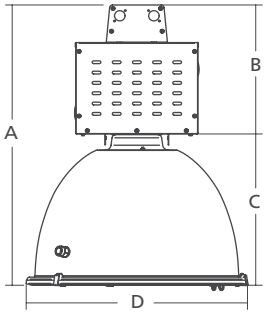
Mounting Method
- **D** Quick Zone™ Electrical Disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect - wiring box shipped not with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

Optics
- **NM** No Optics, housing made for EG reflector
- **EG** 19" spun aluminum highbay enclosed & gasketed reflector

Color
- **WH** White (standard)

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
29 15/16"	11 1/2"	13 1/2"	19"
761 mm	292 mm	342 mm	483 mm

EL SERIES

SU/SD/AL

Mogul Base

Features

The EL Series SU/SD/AL is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

The SU optic is ideally suited for new construction or retrofit lighting. The uplight component softens the overall brightness difference between the luminaire and surrounding area. The SD optic is an Anodal® finished 19" spun aluminum reflector engineered for applications requiring downlight only. The AL optic economically lights the vertical surfaces of warehouses and storage area stacks.

Steel housing with white polyester powder coat finish. All electrical components are positioned to assure unit will hang straight. Housing is ventilated for optimal thermal performance.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertical oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Ordering Information

Example: EL - 400 - W - 4 - M - SU

Series Watts Ballast/ Volts Mounting Optics

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

Mounting Method
- **D** Quick Zone™ Electrical Disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

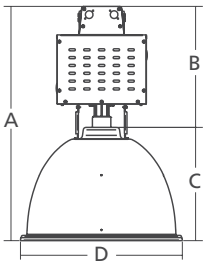
Optics
- **NM** No Optics, housing made for SU/SD/AL reflector
- **SU** 19" spun aluminum highbay reflector with uplight
- **SD** 19" spun aluminum highbay reflector with downlight only
- **AL** 19" spun aluminum highbay aisle lighter reflector

Bottom Enclosure
- **BL-LR-19** Bottom Enclosure

Color
- **WH** White (standard)

For a complete list of options and accessories see pages 60 to 70.

Dimensions



SU

A	B	C	D
28 1/4"	16 11/32"	11 15/16"	19"
718 mm	415 mm	303 mm	483 mm

SD

A	B	C	D
28 1/4"	14 31/32"	13 5/16"	19"
718 mm	380 mm	338 mm	483 mm

AL

A	B	C	D
27 1/2"	14 7/32"	13 5/16"	19"
699 mm	361 mm	338 mm	483 mm

TRIBAY®

EU/OU

Features

Heavy-duty, die cast Lektrocote® aluminum ballast housing stands up to the toughest environments for years of maintenance-free industrial service. Optically superior 19" Anodal® finished aluminum reflector.

Extended thermal certification (65°C) assures long service life for ballast and electrical components. Optional Quick-Zone® electrical disconnect sets a new convenience standard for installation and maintenance. Available with energy-saving Electro-Reg® ballast (250W, 350W and 400W).

EU suitable for wet locations, OU suitable for damp locations. 250 to 400W requires minimum 90°C supply wire. 400W plus to 1000W requires minimum 105°C supply wires.

Mogul Base

Ordering Information

Example: CH - 40 - H - 8 - M - OU

Series | Watts | Ballast | Volts | Mount | Optics

Series
- **CH** Tribay

Wattage
- **25** 250W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **32** 320W Pulse Start MH only
- **35** 350W Pulse Start MH or Electro-Reg[2, 3]
- **40** 400W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **45** 450W Pulse Start MH only
- **75** 750W Pulse Start MH only[4]

Ballast/Lamp System
- **E** Electro-Reg®[1, 3]
- **H** MH - Standard PLA
- **M** HPS, Mag-Reg® HPS
- **S** Standard CWA, AL, HPS
- **F** HPS, CWI (Canada)
- **D** MH, CWI (Canada)
- **W** Pulse Start MH

Voltage
- **1** 120V[2]
- **2** 208V. Not available in 250 & 350W Electro-Reg[2]
- **3** 240V. Not available in 250 & 350W Electro-Reg[2]
- **4** 277V[2]
- **5** 480V[2]
- **6** Tri-Tap® 120/277/347V (not available on Electro-Reg)
- **7** 600V (Isolated secondary only)
- **8** Quad-Tap® 120/208/240/277V (not available on Electro-Reg)
- **O** Less ballast and cap (250 & 400W only)
- **E** 220/240V 50 Hz
- **F** 347V[2]

Mounting Method
- **D** Quick Zone™ Electrical disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box (wiring box shipped as accessory - CH-B)
- **M** With wiring box (standard construction)

Optics
- **EU** 19" Enclosed Highbay Reflector (wet location)
- **OU** 19" Open Highbay Reflector (damp location)
- **NA** No Optics, enclosed highbay
- **NB** No Optics, open highbay

Bottom Enclosure
- **CH-ENC-19** Bottom Enclosure (OUonly)

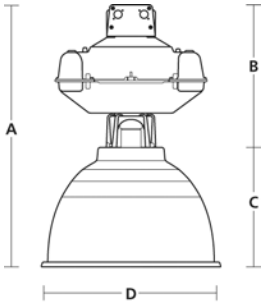
Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

1 250, 350 and 400W MH only
2 Single voltage designations for Electro-Reg, Mag-Reg or isolated secondary ballast only
3 Electro-Reg shipped standard with premium lamp included
4 55°C standard, for 65°C use -HA option

For a complete list of options and accessories see pages 60 to 70.

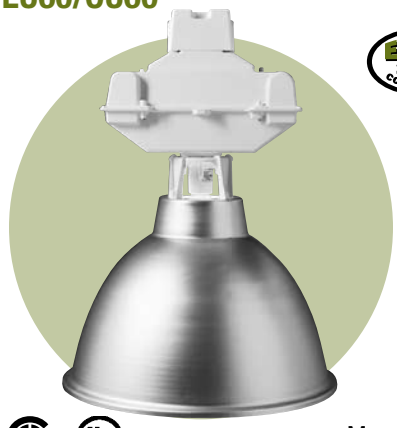
Dimensions



A	B	C	D
27 7/8"	15 13/16"	12 7/8"	19"
708 mm	386 mm	327 mm	483 mm

TRIBAY®

EU60/OU60



Mogul Base

Features

Heavy-duty, die cast Lektrocote® aluminum ballast housing stands up to the toughest environments for years of maintenance-free industrial service. Optically superior 23" Anodal® finished aluminum reflector.

Extended thermal certification (65°C) assures long service life for ballast and electrical components. Optional Quick-Zone® electrical disconnect sets a new convenience standard for installation and maintenance. Available with Electro-Reg® ballast (250W, 350W and 400W).

EU60 suitable for wet locations, OU60 suitable for damp locations. Minimum 105°C supply conductors.

Ordering Information

Example: CH - 10 - H - 4 - M - EU60

Series | Watts | Ballast | Volts | Mount | Optics

Series
- **CH** Tribay

Wattage
- **10** 1000W MH or Pulse Start MH or HPS[1]

Ballast/Lamp System
- **H** MH - Standard PLA
- **S** Standard CWA, AL, HPS
- **D** MH, CWI (Canada)
- **W** Pulse Start MH

Voltage
- **5** 480V
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)

Mounting Method
- **D** Quick Zone™ Electrical disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box (wiring box shipped as accessory - CH-B)
- **M** With wiring box (standard construction)

Optics
- **EU60** 23" Enclosed Highbay Reflector (wet location)
- **OU60** 23" Open Highbay Reflector (damp location)
- **NA** No Optics, enclosed highbay
- **NB** No Optics, open highbay

Bottom Enclosure
- **CH-ENC-23** Bottom Enclosure (OU only)

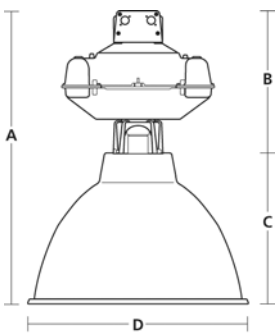
1 55°C standard, for 65°C use -HA option

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
30 13/16"	15 3/16"	15 5/8"	23"
783 mm	386 mm	397 mm	584 mm

SUPERBAY

BI 14" ALUMINUM

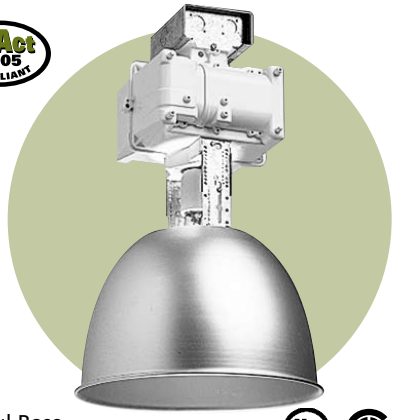
Features

The BI optic features an Anodal® finished 14" diameter spun aluminum reflector and two-piece, die cast aluminum ballast housing. Field adjustable brackets provide narrow, medium and wide lighting distributions for application flexibility.

Rugged, two-piece, die cast aluminum ballast housing with corrosion-resistant Lektrocote® white finish.

Unit Pack Catalog Logic BL400H8WHBIUPL (lamp included in Unit Pack) available.

Up to 55°C ambient. Suitable for damp location. Minimum 90°C supply conductors.



Mogul Base

Ordering Information

Example: BL - 400 - H - 8 - BI - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg
- **450** Pulse Start MH only

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg® (40°C)

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® (120, 277, 347V)
- **7** 600V (isolated secondary only)
- **8** Quad Tap® (120, 208, 240, 277V)

Optics
- **BI** 14" Spun aluminum highbay reflector with uplight

Bottom Enclosure
- **BL-LR-14** Bottom Enclosure

Color
- **WH** White (standard)
- **GR** Gray (optional)

Note MV lamp will operate on MH ballast.

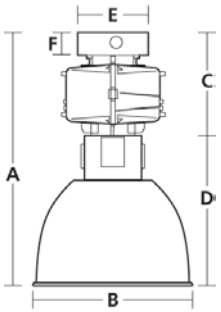
Note Energy Saving Linear Reactor Pulse Start ballast available - consult factory. 277V only.

Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



	A	B	C	D	E	F
Slick-On®	22 3/16" - 24 7/16"	14 1/4"	9 1/2"	9 7/16"	9 1/2"	2"
	564 - 621 mm	362 mm	241 mm	240 mm	241 mm	51 mm
Quick-On®	21 5/16" - 23 9/16"	14 1/4"	8 5/8"	9 7/16"	9 7/16"	1 1/8"
	541 - 598 mm	362 mm	219 mm	240 mm	240 mm	29 mm

SUPERBAY

EG 19" ALUMINUM

Mogul Base

Features

The Superbay EG 19" diameter reflector system excludes dirt and dust, maintaining desired performance. It is Lektrocoted and has a clear glass bottom lens.

Two-piece, die cast aluminum ballast housing with corrosion-resistant Lektrocote® white finish. All electrical components are mounted directly to the ballast module for maximum heat dissipation and cooler operation.

Quick and easy to install. Porcelain mogul base socket.

Standard mounting method is the Quick-On® with the larger Slick-On® available.

Up to 55°C ambient. Suitable for damp location. Minimum 90°C supply conductors.

Ordering Information

Example: BL - 350 - W - 8 - EG - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg
- **450** 450W Pulse Start MH only
- **750** 750W Quasi Resonant

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg®
- **Q** Quasi Resonant (277V only)

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **F** 347V

Optics
- **EG** 19" Spun aluminum highbay enclosed and gasketed reflector

Color
- **WH** White (standard)
- **GR** Gray (optional)

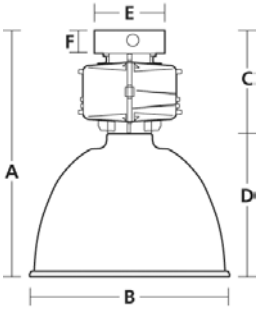
Note MV lamp will operate on MH ballast.

Note Energy Saving Linear Reactor Pulse Start ballast available - consult factory. 277V only.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



	A	B	C	D	E	F
Slick-On®	22 3/4"	19"	9 1/2"	13 1/4"	9 1/2"	2"
	578 mm	483 mm	241 mm	337 mm	241 mm	51 mm
Quick-On®	21 7/8"	19"	8 5/8"	13 1/4"	9 1/2"	1 1/8"
	556 mm	483 mm	219 mm	337 mm	241 mm	29 mm

SUPERBAY

OU60 23" ALUMINUM

Features

The Superbay OU60 Series is ideally suited for new construction or retrofit lighting.

The uplight component softens the overall brightness difference between the luminaire and surrounding areas. Rugged, two-piece, die cast aluminum ballast housing with corrosion-resistant Lektrocote® white finish.

Field-adjustable brackets provide multiple lighting distributions for applications requiring narrow, medium or wide beam spread.

Standard mounting method is the Quick-On® with the larger Slick-On® available.

Up to 35°C ambient. Suitable for damp location. Minimum 90°C supply conductors.

Ordering Information

Example: BL - 1000 - W - 8 - OU60 - WH

Series | Watts | Source | Volts | Optics | Color

Series
BL Superbay Series

Wattage
1000 1000W MH, Pulse Start MH or HPS

Source
H Metal Halide
S High Pressure Sodium
W Pulse Start Metal Halide

Voltage
5 480V
6 Tri-Tap® (120, 277, 347V)
8 Quad Tap® (120, 208, 240, 277V)

Optics
OU60 23" Spun aluminum highbay reflector with uplight

Bottom Enclosure
CHENC23 Bottom enclosure

Color
WH White (standard)
GR Gray (optional)

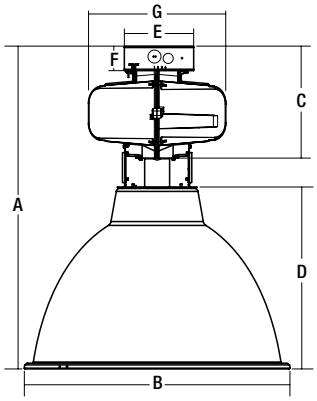
Note MV lamp will operate on MH ballast.

Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



	A	B	C	D	E	F	G
Slick-on®	27 1/8"-29 1/8"	23"	9 3/4"	15 3/4"	6"	2 1/8"	11 7/8"
	689-740 mm	584.2 mm	246.4 mm	400 mm	152.4 mm	54 mm	301.5 mm
Quick-on®	27 7/8"-29 7/8"	23"	9 3/4"	15 3/4"	6"	2 1/8"	11 7/8"
	708-761 mm	584.2 mm	246.4 mm	400 mm	152.4 mm	54 mm	301.5 mm

SUPERBAY

SU/SD/AL

Mogul Base

Features

The SU optic is ideally suited for new construction or retrofit lighting. The uplight component softens the overall brightness difference between the luminaire and surrounding area. The SD optic is an Anodal® finished 19" spun aluminum reflector engineered for applications requiring downlight only. The AL optic economically lights the vertical surfaces of warehouses and storage area stacks.

Rugged, two-piece, die cast aluminum ballast housing with corrosion-resistant Lektrocote® white finish.

Field adjustable reflector provides multiple lighting distributions.

Standard mounting is the Quick-On® with the larger Slick-On® available.

Up to 55°C ambient. Suitable for damp location. Minimum 90°C supply conductors.

Ordering Information

Example: BL - 400 - W - 8 - AL - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg
- **450** 450W Pulse Start MH only

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg® (40°C)

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **F** 347V

Optics
- **SU** 19" Spun aluminum highbay reflector with uplight
- **SD** 19" Spun aluminum highbay reflector with downlight only
- **AL** 19" Spun aluminum highbay aisle lighter reflector

Bottom Enclosure
- **BL-LR-19** Bottom enclosure

Color
- **WH** White (standard)
- **GR** Gray (optional)

Note MV lamp will operate on MH ballast.

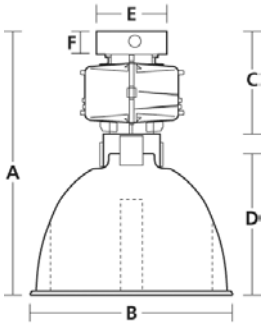
Note Energy Saving Linear Reactor Pulse Start ballast available - consult factory. 277V only.

Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



SU

	A	B	C	D	E	F
Slick-On®	23 5/8" - 25 7/8"	18 3/4"	9 1/2"	11 3/4"	9 1/2"	2"
	600 - 657 mm	476 mm	241 mm	298 mm	241 mm	51 mm
Quick-On®	22 3/8" -25"	18 3/4"	8 5/8"	11 3/4"	9 1/2"	1 1/8"
	578 - 635 mm	476 mm	219 mm	298 mm	241 mm	29 mm

SD

	A	B	C	D	E	F
Slick-On®	23 5/8" - 25 7/8"	18 3/4"	9 1/2"	13 1/4"	9 1/2"	2"
	600 - 657 mm	476 mm	241 mm	337 mm	241 mm	51 mm
Quick-On®	22 3/8" - 25"	18 3/4"	8 5/8"	13 1/4"	9 1/2"	1 1/8"
	578 - 635 mm	476 mm	219 mm	337 mm	241 mm	29 mm

AL

	A	B	C	D	E	F
Slick-On®	23 5/8" - 25 7/8"	18 7/8"	9 1/2"	13 1/4"	9 1/2"	2"
	600 - 657 mm	479 mm	241 mm	337 mm	241 mm	51 mm
Quick-On®	22 3/4" - 25"	18 7/8"	8 5/8"	13 1/4"	9 1/2"	1 1/8"
	578 - 635 mm	479 mm	219 mm	337 mm	241 mm	29 mm

UTILITY HIGHBAY

BL400HB/BL400HBQ

Features

The BL400HB is ideal for warehouses, work shops, auto maintenance, factories, etc. and for applications with ceiling heights of 15-30 ft.

Die-cast housing with protective white powder paint finish. Easy mounting box for 3/4" conduit. Cast safety hook included for hanging. 400 watt metal halide, 120/208/240/277 volt, HPF CWA ballast. Lamp included. Unit pack available.

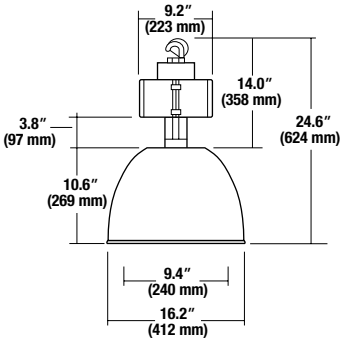
16" aluminum reflector with three position mounting for various distribution spreads. Glass bottom lens and retaining clamp band allows use with standard, stock metal halide lamps.

NEC 2005 compliant. UL listed for use in damp locations.

Ordering Information

Catalog Number	Description
BL4000HB	Highbay Unit Pack, 400 watt MH, Multi-Tap w/ optic, lamp, & hook
BL4000HBQ	Highbay Unit Pack, 400 watt MH, Multi-Tap w/ optic, lamp, & hook - QSS

Dimensions



EL SERIES

LB1

Mogul Base

Features

The EL Series LB1 is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

Reflector is spun, high purity, heavy-gauge aluminum with white Lektrocote® paint finish inside and out. Hinged and latched with corrosion-resistant steel hardware. Computer-designed acrylic refractor (polycarbonate available) is UV stabilized for long life and durability. Refractor provides square distribution to enhance uniformity and increase fixture spacing.

Steel housing with white polyester powder coat finish. All electrical components are positioned to assure unit will hang straight. Housing is ventilated for optimal thermal performance.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertically oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Ordering Information

Example: EL - 400 - W - 4 - M - BI

Series | Watts | Ballast/ | Volts | Mounting | Optics

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

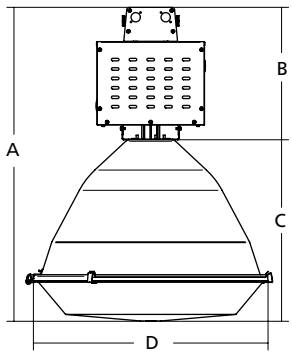
Mounting Method
- **D** Quick Zone™ Electrical Disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

Optics
- **NN** No Optics, housing made for LB1 optics
- **LB1** 23" Spun Aluminum Lowbay with bottom lens refractor

Color
- **WH** White (standard)

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
30 5/8"	12 15/16"	17 3/4"	22 15/16"
778 mm	328 mm	450 mm	581 mm

EL SERIES

LM

Features

The EL Series LM is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

The EL-LM Series is designed for many years of demanding, heavy-duty industrial service. Ideally suited for low to medium mounting heights in areas requiring good horizontal uniformity and high vertical illumination. LM's low brightness refractor produces wide distribution without harsh shadows while projecting light into machinery for optimum yet comfortable visibility.

29" spun aluminum with white Lektrocote® finish. Hinged and latched with corrosion-resistant steel hardware for ease in relamping. Computer-designed acrylic refractor (polycarbonate available) is UV stabilized for long life and durability. Prismatic refractor provides square distribution to enhance uniformity and increase fixture spacing.

Steel housing with white polyester powder coat finish. All electrical components are positioned to assure unit will hang straight. Housing is ventilated for optimal thermal performance.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertically oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Mogul Base

Ordering Information

Example: EL - 400 - W - 4 - M - BI

Series Watts Ballast/ Volts Mounting Optics

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

Mounting Method
- **D** Quick Zone™ Electrical Disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

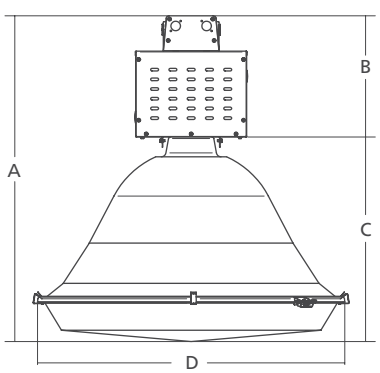
Optics
- **NE** No Optics, housing made for LM optic
- **LM** 29" Spun Aluminum Lowbay with bottom lens enclosure

Color
- **WH** White (standard)

Max Ambient Temperature Chart	
Wattage	Controlux
320 MH	55°C
350 MH	55°C
400 MH	55°C

For a complete list of options and accessories see pages 60 to 70.

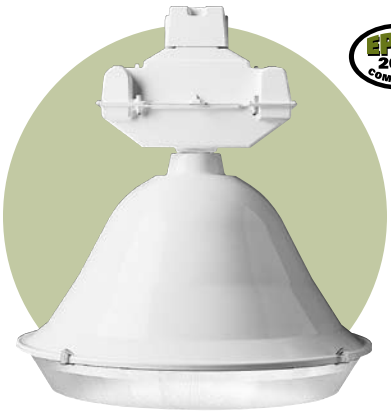
Dimensions



A	B	C	D
30 7/8"	11 1/2"	19 3/8"	29 1/8"
784 mm	292 mm	492 mm	739 mm

TRIBAY®

LM



Mogul Base

Features

The Tribay Series LM is designed to provide superb workplace visual comfort and high vertical footcandles with state-of-the-art ballast/lamp systems. A precision optical design with very low surface brightness allows low mounting of this luminaire (10 to 25 feet).

Square distribution improves overall illumination uniformity with 2:1 or greater fixture spacing. The Tribay LM Series is particularly well suited for industrial areas where machinery or other vertical obstructions may cause shadows or uneven illumination with standard luminaires.

Up to 65°C ambient. Suitable for wet locations. 250 to 400W requires minimum 90°C supply wire. 400W plus to 750W requires minimum 105°C supply wires.

Ordering Information

Example: CH - 40 - W - 5 - M - LM

Series | Watts | Ballast | Volts | Mount | Optics

Series
- **CH** Tribay

Wattage
- **25** 250W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **32** 320W Pulse Start MH only
- **35** 350W Pulse Start MH or Electro-Reg[2, 3]
- **40** 400W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **45** 450W Pulse Start MH only
- **60** 600W HPS only (Instant restrike Super Sodium)
- **75** 750W Pulse Start MH only

Ballast/Lamp System
- **E** Electro-Reg®[1, 3]
- **H** MH - Standard PLA
- **M** HPS, Mag-Reg® HPS
- **S** Standard CWA, AL, HPS
- **F** HPS, CWI (Canada)
- **D** MH, CWI (Canada)
- **W** Pulse Start MH

Voltage
- **1** 120V[2]
- **2** 208V. Not available in 250W Electro-Reg[2]
- **3** 240V
- **4** 277V[2]
- **5** 480V[2]
- **6** Tri-Tap® 120/277/347V (not available on Electro-Reg)
- **7** 600V (Isolated secondary only)
- **8** Quad-Tap® 120/208/240/277V (not available on Electro-Reg)
- **O** Less ballast and cap (250 & 400W only)
- **E** 220/240V 50 Hz
- **F** 347V[2]

Mounting Method
- **D** Quick Zone™ Electrical disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box (wiring box shipped as accessory - CH-B)
- **M** With wiring box (standard construction)

Optics
- **LM** Lowbay Optics
- **NE** No Optics, housing for LM reflector

1 250, 350 and 400W MH only

2 Single voltage designations for Electro-Reg, Mag-Reg or isolated secondary ballast only

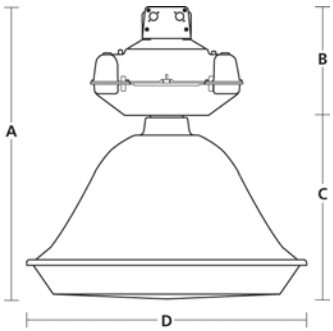
3 Electro-Reg shipped standard with premium lamp included

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

Max Ambient Temperature Chart	
Wattage	**LM**
250 HPS	65°C
400 HPS	55°C
600 HPS	45°C
250 MH	65°C
320 MH	55°C
350 MH	55°C
400 MH	55°C
450 MH	50°C
750 MH	40°C

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
31 1/2"	11 7/8"	19 5/8"	29 1/8"
800 mm	302 mm	498 mm	740 mm

SUPERBAY

LB1

Features

The Superbay LB1 is suited for low to medium mounting heights in areas requiring good horizontal uniformity and high vertical illumination. The LB1 Series' low brightness refractor produces wide light distribution without harsh shadows, projecting light into machinery for optimum yet comfortable visibility. Ideal for food processing, automotive assembly, manufacturing and warehouse applications.

Reflector is spun, high purity, heavy-gauge aluminum with white Lektrocote® paint finish inside and out. Hinged and latched with corrosion-resistant steel hardware. Computer-designed acrylic refractor (polycarbonate available) is UV stabilized for long life and durability. Refractor provides square distribution to enhance uniformity and increase fixture spacing. Up to 55° ambient.

Unit Pack Catalog Logic BL400H8WHLB1UPL (lamp included in Unit Pack).

Porcelain mogul base socket. Meets UL 1598, CSA No. 22.2.

Mogul Base

Ordering Information

Example: BL - 320 - W - 5 - LB1 - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg
- **450** 450W Pulse Start MH only

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg® (40°C)

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **F** 347V

Optics
- **LB1** 23" Spun aluminum lowbay with bottom lens refractor

Color
- **WH** White (standard)
- **GR** Gray (optional)

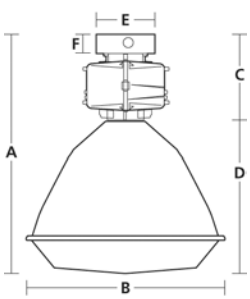
Note MV lamp will operate on MH ballast.

Note Energy Saving Linear Reactor Pulse Start ballast available - consult factory. 277V only.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



	A	B	C	D	E
Slick-On®	27"	23 1/8"	9 1/2"	17 1/2"	2"
	686 mm	587 mm	241 mm	444 mm	51 mm
Quick-On®	26 1/8"	23 1/8"	8 5/8"	17 1/2"	1 1/8"
	664 mm	587 mm	219 mm	444 mm	29 mm

SUPERBAY

LM

Mogul Base

Features

The Superbay LM Series is designed for many years of demanding, heavy-duty industrial service. Ideally suited for low to medium mounting heights in areas requiring good horizontal uniformity and high vertical illumination. LM's low brightness refractor produces wide distribution without harsh shadows while projecting light into machinery for optimum yet comfortable visibility. Typical applications include assembly areas, warehouses, food processing plants, automotive applications, storage areas and maintenance garages.

29" spun aluminum with white Lektrocote® finish. Hinged and latched with corrosion-resistant steel hardware for ease in relamping. Computer-designed acrylic refractor (polycarbonate available) is UV stabilized for long life and durability. Prismatic refractor provides square distribution to enhance uniformity and increase spacing.

Up to 55°C ambient. Suitable for damp location.

Ordering Information

Example: BL - 450 - W - 8 - LM - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg
- **450** 450W Pulse Start MH only
- **750** 750W Quasi Resonant (40°C)

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg® (40°C)
- **Q** Quasi Resonant (277V only)

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **F** 347V

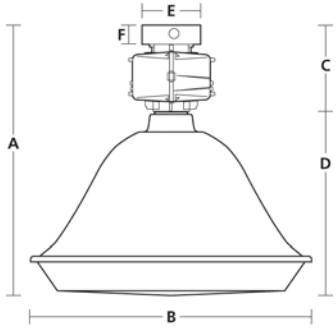
Optics
- **LM** 29" Spun aluminum lowbay with bottom lens refractor

Color
- **WH** White (standard)
- **GR** Gray (optional)

Note MV lamp will operate on MH ballast.
Note Energy Saving Linear Reactor Pulse Start ballast available - consult factory. 277V only.
Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



	A	B	C	D	E	F
Slick-On®	28 3/4"	28 1/2"	9 1/2"	19 3/8"	9 1/2"	2"
	730 mm	724 mm	241 mm	492 mm	241 mm	51 mm
Quick-On®	27 7/8"	28 1/2"	8 5/8"	19 3/8"	9 1/2"	1 1/8"
	708 mm	724 mm	219 mm	492 mm	241 mm	29 mm

MICROLUX®

ML

Features

- Computer designed, injection molded, UV stabilized acrylic refractor permanently spun into a specular anodized aluminum reflector provides low brightness, high vertical illumination, and efficiencies of over 80%
- The refractor projects a square light distribution for superior horizontal footcandle uniformity
- Three plated steel latches retain the optical system to the housing
- Rugged, heavy-duty, die cast housing has a durable white Lektrocote® finish to provide cooler operating temperatures for longer electrical component life
- High power factor (HPF), class H insulated, 60 Hz ballast operates down to -20°F (MH) and -40°F (HPS). Ballast is heat sunk to its die cast housing for optimum heat dissipation
- Completely enclosed and gasketed
- Certified to UL 1598, CSA 22.2 No. 250.0-00, suitable for wet locations
- Porcelain mogul base socket, 4KV rated
- Optional NSF certified to NSF standard C-2 (add "-FP" to end of catalog number)
- 55°C ambient operating temperatures (for 250W MH, 40°C standard) and UL wet location listed

Mogul Base

Ordering Information

Example: ML - P - 175 - H - 8 - AR - WH

Series	Mount	Watts	Source	Volts	Refractor	Color

Series
- **ML** Microlux® Series

Mounting
- **P** Pendant mount
- **C** Ceiling thru-wire box

Wattage
- **070** 70W HPS
- **100** 100W HPS
- **150** 150W HPS or Pulse Start MH
- **175** 175W MH or Pulse Start MH
- **250** 250W MH, HPS or Pulse Start MH

Source
- **H** Metal Halide[1]
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide

Voltage
- **5** 480V
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)

Refractor
- **AR** Acrylic refractor
- **PR** Polycarbonate refractor

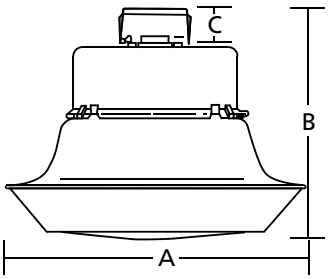
Color
- **WH** White (standard)
- **GR** Gray (optional)

1 MV lamp will operate on MH ballast.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C
23 5/8"	14 1/2"	2 7/8"
600 mm	368 mm	73 mm

UTILITY LOWBAY

BL400LB/BL400LBQ SERIES

Features

The BL400LB is ideal for warehouses, work shops, auto maintenance, factories, etc. and for applications with ceiling heights of 15-30 ft.

Die-cast housing with protective white powder paint finish. Easy mounting box for 3/4" conduit. Cast safety hook included for hanging. 400 watt metal halide, 120/208/240/277 volt, HPF CWA ballast. Lamp included. Unit pack available.

16" aluminum reflector with white powder paint finish for corrosion resistance and uniform distribution. Drop acrylic refractor and clamp band allows use with standard, stock metal halide lamps. Provides lamp image shielding from below.

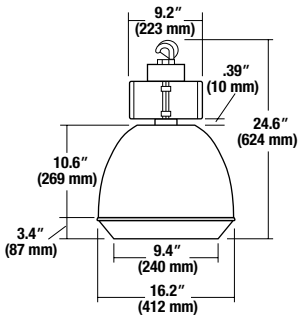
NEC 2005 compliant. UL listed for use in damp locations.

Ordering Information

Catalog Number	Description
BL400LB	Lowbay Unit Pack, 400 watt MH, Multi-Tap w/ optic, lamp, & hook
BL400LBQ	Lowbay Unit Pack, 400 watt MH, Multi-Tap w/ optic, lamp, & hook - QSS

For a complete list of options and accessories see pages 60 to 70.

Dimensions



EL SERIES

HGX-16/HGX-22

Features

The EL Series HGX16/HGX-22 is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

The HGE-16/HGE-22 and HGO-16/HGE-22 Series glass reflectors are manufactured from shock and impact resistant borosilicate glass, providing good uplight and three dimensional lighting. These high quality glass optics come with a specially designed ballast housing engineered for maximum performance.

The reflector is mounted to the ballast housing by a combination of die cast aluminum socket housing and rigid, zinc-coated wire form. The die cast aluminum socket housing is available as an open unit (HGO-16) or as an enclosed unit (HGE-16). The open unit allows airflow through the inside of the glass optic to help maintain a clean reflector. The open unit is damp location listed. The enclosed unit seals off the top of the glass optic to prevent dirt and dust from entering the reflector and is damp location listed. To seal the bottom, order lens shown below. Both glass optics offer the best resistance to the widest variety of corrosive industrial chemicals and are easily cleaned and maintained.

Steel housing with white polyester powder coat finish. All electrical components are positioned to assure unit will hang straight. Housing is ventilated for optimal thermal performance.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertically oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Mogul Base

GLASS

Ordering Information

Example: EL - 400 - W - 4 - M - BI

Series | Watts | Ballast/ | Volts | Mounting Optics

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

Mounting Method
- **D** Quick Zone™ Electrical Disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect - wiring box shipped not with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

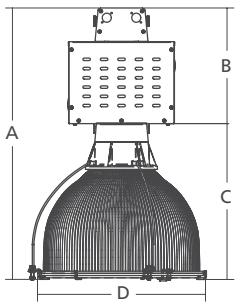
Optics
- **NH** No Optics, housing made for HGX-16
- **NI** No Optics, housing made for HGX-22
- **HGE-16** 16" Glass Reflector/Enclosed (lower luminaire retainer included standard)
- **HGO-16** 16" Glass Reflector/Open (lower luminaire retainer included standard)
- **HGE-22** 22" Glass Reflector/Enclosed (lower luminaire retainer included standard)
- **HGO-22** 22" Glass Reflector/Open (lower luminaire retainer included standard)

Bottom Enclosure Glass
- **HGENC16** Bottom Enclosure
- **HGENC22** Bottom Enclosure

Color
- **WH** White (standard)

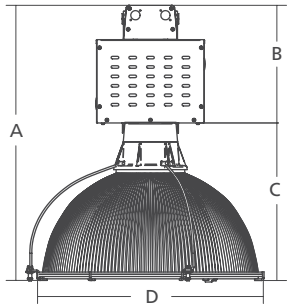
For a complete list of options and accessories see pages 60 to 70.

Dimensions



HGX-16

A	B	C	D
27"	11 1/2"	15 1/2"	16 11/16"
685 mm	292 mm	393 mm	424 mm



HGX-22

A	B	C	D
26 7/8"	11 1/2"	15 3/8"	22 1/16"
682 mm	292 mm	390 mm	560 mm

TRIBAY®

HGX-16/HGX-22

Mogul Base

Features

The HGE-16/HGE-22 and HGO-16/HGE-22 Series glass reflectors are manufactured from shock and impact resistant borosilicate glass, providing good uplight and three dimensional lighting.

The reflector is mounted to the ballast housing by a combination of die cast aluminum socket housing and rigid, zinc-coated wire form. The die cast aluminum socket housing is available as an open unit (HGO-16/HGO-22) or as an enclosed unit (HGE-16/HGE-22). The open unit allows air flow through the inside of the glass optic to help maintain a clean reflector. The open unit is damp location listed. The enclosed unit seals off the top of the glass optic to prevent dirt and dust from entering the reflector and is wet location listed. To seal the bottom, order lens shown below. Both glass optics offer the best resistance to the widest variety of corrosive industrial chemicals and are easily cleaned and maintained. Lower luminaire retainer is included.

65°C ambient. Suitable for wet locations.

GLASS

Ordering Information

Example: CH - 40 - W - 8 - M - HGE-16

Series | Watts | Ballast | Volts | Mount | Optics

Series
- **CH** Tribay

Wattage
- **25** 250W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **32** 320W Pulse Start MH only
- **35** 350W Pulse Start MH or Electro-Reg[2, 3]
- **40** 400W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **45** 450W Pulse Start MH only
- **60** 600W HPS only (Instant restrike Super Sodium)
- **75** 750W Pulse Start MH only[4]
- **10** 1000W MH or Pulse Start MH (BT37 compact lamp included)

1 250, 350 and 400W MH only

2 Single voltage designations for Electro-Reg, Mag-Reg or isolated secondary ballast only

3 Electro-Reg shipped standard with premium lamp included.

4 80k lumen lamp included standard

Note Bottom enclosures are required unless lamps are designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

Ballast/Lamp System
- **E** Electro-Reg®[1, 3]
- **H** MH - Standard PLA
- **M** HPS, Mag-Reg® - HPS
- **S** Standard CWA, AL, HPS
- **F** HPS, CWI (Canada)
- **D** MH, CWI (Canada)
- **W** Pulse Start MH

Voltage
- **1** 120V[2]
- **2** 208V. Not available in 250 & 350W Electro-Reg[2]
- **3** 240V. Not available in 250 & 350W Electro-Reg[2]
- **4** 277V[2]
- **5** 480V[2]
- **6** Tri-Tap® 120/277/347V (not available on Electro-Reg)
- **7** 600V (Isolated secondary only)
- **8** Quad-Tap® 120/208/240/277V (not available on Electro-Reg)
- **O** Less ballast and cap (250 & 400W only)
- **E** 220/240V 50 Hz
- **F** 347V

Mounting Method
- **D** Quick Zone™ Electrical disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box (wiring box shipped as accessory - CH-B)
- **M** With wiring box (standard construction)

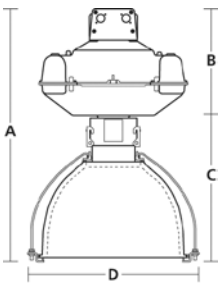
Optics

Medium to Wide Distribution
- **HGE-16** 16" Borosilicate glass reflector/ enclosed optic
- **HGO-16** 16" Borosilicate glass reflector/ open optic

Narrow Distribution
- **HGE-22** 22" Borosilicate glass reflector/ enclosed optic
- **HGO-22** 22" Borosilicate glass reflector/ open optic
- **HG-ENC-XX** Tempered Glass Enclosure
- **NF** No Optics, housing made for glass reflector

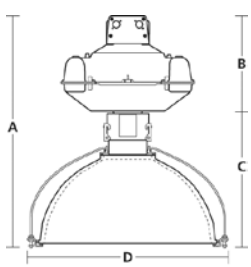
For a complete list of options and accessories see pages 60 to 70.

Dimensions



HGX-16

A	B	C	D
27"	11 7/8"	15 1/8"	18 5/8"
686 mm	302 mm	384 mm	473 mm



HGX-22

A	B	C	D
26 7/8"	11 7/8"	15"	24 1/16"
683 mm	302 mm	381 mm	611 mm

SUPERBAY

HGO-16/HGO-22

Features

The HGE-16/HGE-22 and HGO-16/HGE-22 Series glass reflectors are manufactured from shock and impact resistant borosilicate glass, providing good uplight and three dimensional lighting. These high quality glass optics come with a specially designed ballast housing engineered for maximum performance.

The reflector is mounted to the ballast housing by a combination of die cast aluminum socket housing and rigid, zinc-coated wire form. The die cast aluminum socket housing is available as an open unit (HGO-16/HGO-22) or as an enclosed unit (HGE-16/HGE-22). The open unit allows airflow through the inside of the glass optic to help maintain a clean reflector. The open unit is damp location listed. The enclosed unit seals off the top of the glass optic to prevent dirt and dust from entering the reflector and is damp location listed. To seal the bottom, order lens shown below. Both glass optics offer the best resistance to the widest variety of corrosive industrial chemicals and are easily cleaned and maintained.

Slick-On™ is standard mounting method and a lower luminaire retainer is included.

Mogul Base

Ordering Information

Example: BL - 320 - W - 8 - HGE-16 - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg
- **450** 450W Pulse Start MH only

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg® (40°C)

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **F** 347V

Optics

Medium to Wide Distribution
- **HGE-16** 16" Glass Reflector/Enclosed (lower luminaire retainer included standard)
- **HGO-16** 16" Glass Reflector/Open (lower luminaire retainer included standard)

Narrow Distribution
- **HGE-22** 22" Borosilicate glass reflector/ enclosed optic
- **HGO-22** 22" Borosilicate glass reflector/ open optic
- **HG-ENC** Tempered Glass Enclosure

Color
- **WH** White (standard)
- **GR** Gray (optional)

Note MV lamp will operate on MH ballast.

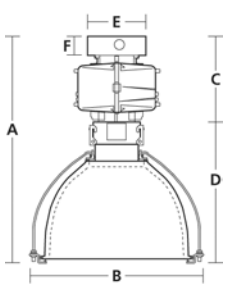
Note Energy Saving Linear Reactor Pulse Start ballast available - consult factory. 277V only.

Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

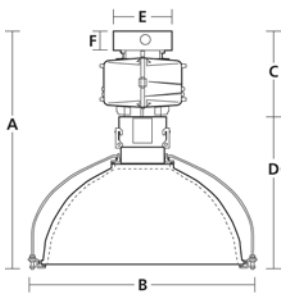
Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



HGX-16



HGX-22

HGX-16

	A	B	C	D	E	F
Slick-On®	24 5/8"	18 11/16"	9 1/2"	15 1/8"	9 1/2"	2"
	625 mm	475 mm	241 mm	384 mm	241 mm	51 mm

HGX-22

	A	B	C	D	E	F
Slick-On®	24 1/2"	24"	9 1/2"	15"	9 1/2"	2"
	622 mm	610 mm	241 mm	381 mm	241 mm	51 mm

ELECTRONIC SUPERWATT®/LIGHTWATT®

SWX/LWX

Features

Superwatt and Lightwatt are engineered with high performance, industry leading optics and they are now available with Electronic ballasting. This gives you all of the benefits of the conventional magnetic ballasted units with a fully electronic, controllable, ballast.

The Superwatt operates from 208V to 277V and accept lamps from 250 watt to 400 watt in Pulse Start. For mounting versions and options see page 52.

The Lightwatt also operates from 208V to 277V with a a 150 watt Pulse Start. For Mounting versions and options see page 53.

SWX and LWX are CSA listed.

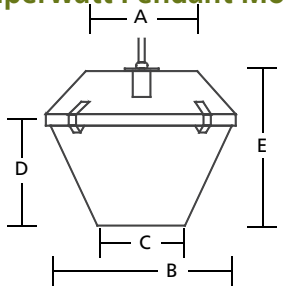
Ordering Information

Catalog Number	Description
	Superwatt
SWD-EB-AP-WH	Superwatt, damp with electronic ballast, acrylic, pendant mount
SWD-EB-AC-WH	Superwatt, damp with electronic ballast, acrylic, ceiling mount
SWW-EB-AP-WH	Superwatt, wet with electronic ballast, acrylic, pendant mount
SWW-EB-AC-WH	Superwatt, wet with electronic ballast, acrylic, ceiling mount
	Lightwatt
LWJ-EB-A-WH	Lightwatt, junction box, electronic ballast, acrylic
LWP-EB-A-WH	Lightwatt, pendant, electronic ballast, acrylic
LWC-EB-A-WH	Lightwatt, ceiling, electronic ballast, acrylic

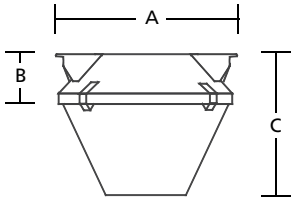
For a complete list of options and accessories see pages 60 to 70.

Dimensions

Superwatt Pendant Mount



Superwatt Surface Mount



(For mounting on concrete and steel only)

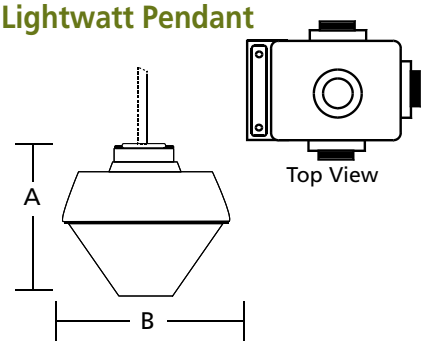
Superwatt Pendant Mount

A	B	C	D	E
13 1/8"	22 1/2"	10 1/4"	11 9/16"	17 7/8"
333 mm	572 mm	260 mm	294 mm	454 mm

Superwatt Surface Mount

A	B	C
24 1/4"	6 15/16"	17 7/8"
616 mm	176 mm	454 mm

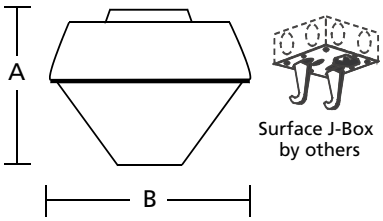
Lightwatt Pendant



Can be balanced for mounting on swivel hangers, sloped ceilings, etc.

A	B
14"	14 3/4"
356 mm	375 mm

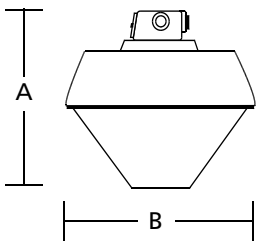
Lightwatt J-Box Mounting



Mounting on a 4" square or octagonal box

A	B
12 1/4"	14 3/4"
311 mm	375 mm

Lightwatt Ceiling Thru-Wire



A	B
14 1/4"	14 3/4"
362 mm	375 mm

V-SPEC
SW SERIES

Features

V-Spec® sets the standard in maximum vertical surface illumination and color rendering. All the qualities you need plus energy savings. Perfect for the retail environment.

LOWER OPERATING COSTS

- 10-point improvement in Lamp Lumen Maintenance allows for lower wattage lamps in retrofits or less fixtures in new construction.
- A high-efficiency electronic ballast with a high-output PulseArc® lamp delivers 70% more mean lumens per watt than probe start metal halide lamps and 20% more mean lumens per watt than pulse start metal halide lamps.

APPLICATION VERSATILITY

- Ballast housing design solves thermal, EMI, UL and mounting concerns.
- Multi-wattage capability – one ballast runs 250, 300, 320, 350 or 400 watt quartz metal halide or ceramic metal halide lamps.
- Runs on 208-277 volts.
- 55°C ambient temperature.

IMPROVING QUALITY OF LIGHT

- Significantly reduces lamp color shift typical with HID lamps.
- Virtually eliminates flickering.

NOTE: PulseArc® is a registered trademark of GE, Inc.

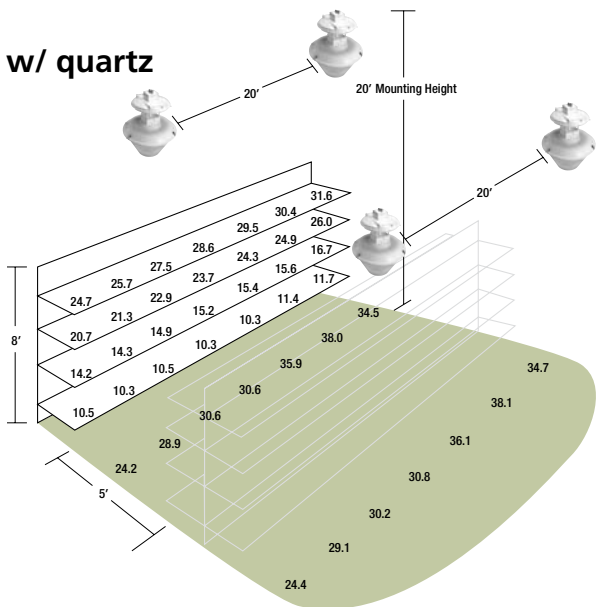
Ordering Information

Part # UM25-40W-208-277 — **V-Spec housing**

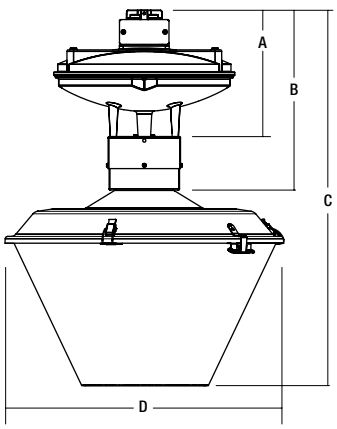
Part # UM25-40W-208-277-QS — **V-Spec housing w/ quartz**

Part # CH-SW — **SW optics**

With industry-leading engineered optics, V-Spec® delivers not only floor (horizontal) footcandles but also critical shelf (vertical) illumination. More light on your products means improved customer satisfaction and sales.



Dimensions



A	B	C	D
10 7/32″	30 5/16″	14 1/2″	22 1/2″
259 mm	769.6 mm	368.3 mm	572 mm

EL SERIES

PA2

Mogul Base

Features

The EL Series PA2 is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

Designed for lower wattage and lower mounting heights. EL-PA2 Series 16" diameter acrylic reflector combines attractive appearance with superb performance.

Field-adjustable brackets allow for medium to wide lighting distributions. For best performance and visual comfort, coated lamps are recommended.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertically oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Ordering Information

Example: EL - 400 - W - 4 - M - BI

Series Watts Ballast/ Volts Mounting Optics

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

Mounting Method
- **D** Quick Zone™ Electrical Disconnect wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

Optics
- **NP** No Optics, housing made for PA2 optics
- **PA2** 16" Prismatic Acrylic Reflector

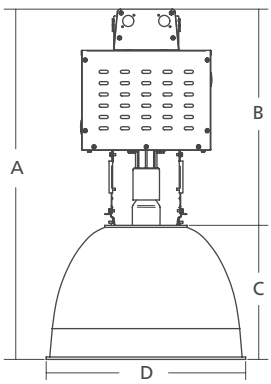
Bottom Enclosure
- **BL-PK-ENC** Bottom Enclosure
- **PA2-CDL** Conical Bottom Enclosure
- **PA2-DLR** Drop Lens Bottom Enclosure

Color
- **WH** White (standard)

Max Ambient Temperature Chart		
Wattage	BL-PA2 Open	BL-PA2 Enclosed
150	55°C	55°C
175	55°C	55°C
200	55°C	55°C
250	55°C	50°C
320	50°C	40°C
350	50°C	40°C
400	50°C	40°C

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
24 1/2"	17 5/8"	10 15/16"	16 1/4"
723 mm	447 mm	277 mm	412 mm

EL SERIES

WA22/WW22

Features

The EL Series WA22/WW22 is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

The WA22 Series is designed for low to medium mounting heights in task areas demanding excellent vertical and horizontal illumination. The light-weight prismatic acrylic reflector generates wide, uniform light distribution with minimum glare and reduces harsh shadows on vertical work surfaces. Acrylic composition of the reflector versus glass enhances work place safety.

Injection molded UV-stabilized acrylic. Field adjustable socket brackets allow for medium to wide distribution patterns. Use coated (diffuse) lamps for optimum photometric performance. Unit shown with optional WA22-CDL conical bottom enclosure.

Steel housing with white polyester powder coat finish. All electrical components are positioned to assure unit will hang straight. Housing is ventilated for optimal thermal performance.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertically oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Mogul Base

Ordering Information

Example: EL - 400 - W - 4 - M - WA22

Series Watts Ballast/ Volts Mounting Optics

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

Mounting Method
- **D** Quick Zone™ Electrical Disconnect wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

Optics
- **ND** No Optics, housing made for WA22/WW22 optics
- **WA22** 22" Wide Acrylic Reflector
- **WW22** 22" Opaque Prismatic Acrylic

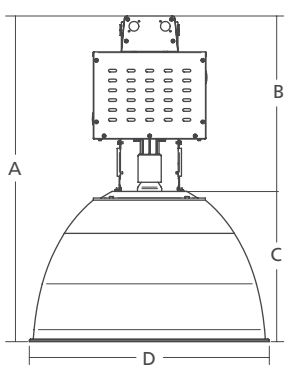
Bottom Enclosure
- **WA2-ENC** Bottom Enclosure
- **WA22-CDL** Conical Bottom Enclosure
- **WA22-DLR** Drop Lens Bottom Enclosure

Color
- **WH** White (standard)

Max Ambient Temperature Chart		
Wattage	Open	Enclosed
320	55°C	40°C
350	55°C	40°C
400	55°C	40°C

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
30 7/16"	16 7/16"	14 1/16"	22 7/16"
772 mm	416 mm	356 mm	569 mm

EL SERIES

WA25

Mogul Base

Features

The EL Series WA25 is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

The WA25 Series is designed for 20 to 30 foot mounting heights in areas that call for efficient three-dimensional illumination as well as good looks.

Field adjustable socket brackets allow for medium to wide distribution patterns. For optimum performance and visual comfort, coated lamps are recommended.

Steel housing with white polyester powder coat finish. All electrical components are positioned to assure unit will hang straight. Housing is ventilated for optimal thermal performance.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertically oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Ordering Information

Example: EL - 400 - W - 4 - M - WA25

Series | Watts | Ballast/ | Volts | Mounting | Optics

ACRYLIC

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

Mounting Method
- **D** Quick Zone™ Electrical Disconnect wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

Optics
- **NL** No Optics, housing made for WA25 optics
- **WA25** 25" Wide Acrylic Reflector

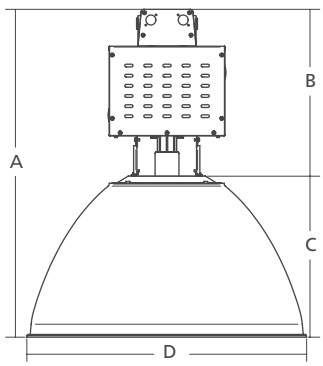
Bottom Enclosure
- **WA25-ENC** Bottom Enclosure
- **WA25-DLR** Drop Lens Bottom Enclosure

Color
- **WH** White (standard)

Max Ambient Temperature Chart		
Wattage	Open	Enclosed
320	55°C	40°C
350	55°C	40°C
400	55°C	40°C

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
29 3/4"	15 3/16"	14 5/8"	25 3/8"
755 mm	384 mm	371 mm	644 mm

EL SERIES

SW

Features

The EL Series SW is ideal for light manufacturing areas, warehouse and retail aisles. Steel ballast housings should be used in areas with minimal airborne contaminants.

Superwatt 2.0 is designed to deliver comfortable, high efficiency illumination for both vertical as well as horizontal surfaces. With its 2.2:1 spacing-to-mounting height ratio, it is well suited for low and medium mounting height applications requiring three-dimensional, high illumination.

27% uplight softens the brightness difference between luminaire and surrounding areas. The maximum downward candlepower is projected at 45° from vertical for wide distribution and the greatly reduced candlepower above 65° minimizes direct glare.

Steel housing with white polyester powder coat finish. All electrical components are positioned to assure unit will hang straight. Housing is ventilated for optimal thermal performance.

Electronic ballast is 100% factory tested. Ballast will operate pulse start lamps only, from 200-277V.

Glazed porcelain, vertically oriented, mogul-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated. Protected version with pink exclusionary socket available.

Listed to U.S. and Canadian safety standards.

Mogul Base

Ordering Information

Example: EL - 400 - W - 4 - M - SW

Series Watts Ballast/ Volts Mounting Optics

Series
- **EL** Electronic Highbay Series

Wattage
- **32** 320 watt Pulse Start MH
- **35** 350 watt Pulse Start MH
- **40** 400 watt MH, Pulse Start MH

Ballast/Lamp System
- **W** Pulse Start Metal Halide

Voltage
- **2** 208V
- **3** 240V
- **4** 277V

Mounting Method
- **D** Quick Zone™ Electrical Disconnect wiring box shipped with fixture
- **E** Quick Zone™ Electrical Disconnect wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box
- **M** With wiring box (standard construction)

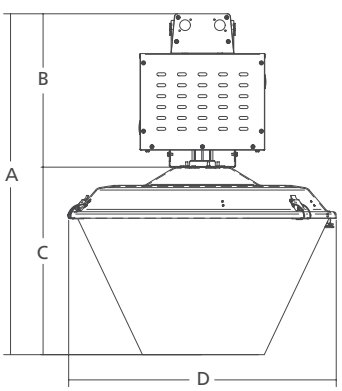
Optics
- **NC** No Optics, housing made for SW optics
- **SW** Superwatt® Optics

Color
- **WH** White (standard)

Max Ambient Temperature Chart	
Wattage	Superwatt
320 MH	45°C
350 MH	40°C
400 MH	40°C

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
28 3/4"	12 15/16"	15 13/16"	22 9/16"
729 mm	328 mm	401 mm	572 mm

DECORATIVE HIGHBAY

HID SERIES

Features

The Decorative Highbay is designed for retail stores, restaurants, cafeterias, gymnasiums, convention centers, auditoriums, and other large public spaces that require highly versatile, energy efficient light sources. The Decorative Highbay uses a single HID source. With optional multi-switch legs or dimming capabilities and instant-on operation, it offers virtually unlimited light level configurations.

Housing is spun, heavy-gauge aluminum ballast compartment. This design ensures maximum cooling of the heat sensitive electronic components and promotes long, maintenance-free fixture life.

Optics include an injection molded prismatic acrylic design with over 94% optical efficiency and 25% uplight. A white painted, low glare, spun aluminum reflector is also available.

May be attached to a 1/2" or 3/4" pendant or bracket. Optional hook, loop, power hook receptacle, cord and plug and other convenience options are available.

Ballast housing is white powder coat. Optional powder coat finishes are available at an additional cost.

UL listed for wet locations. C-UL listed for Canada.

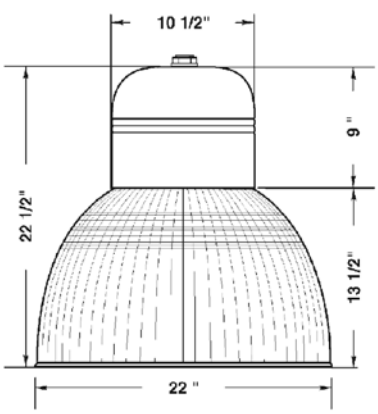
Ordering Information

Catalog Number	Description
	Ballast Pods
HDH250H8WH	Decorative Highbay, 250 watt MH, Quad-Tap®, white
HDH320W8WH	Decorative Highbay, 320 watt PS, Quad-Tap®, white
HDH400H8WH	Decorative Highbay, 400 watt MH, Quad-Tap®, white
	Reflectors
AR22	22" Acrylic Reflector
SP20	20" Spun Aluminum Reflector

ACRYLIC

For a complete list of options and accessories see pages 60 to 70.

Dimensions



TRIBAY®

WA22/WW22

Features

The WA22 Series is designed for low to medium mounting heights in task areas demanding excellent vertical and horizontal illumination. The lightweight prismatic acrylic reflector generates wide, uniform light distribution with minimum glare and reduces harsh shadows on vertical work surfaces. Acrylic composition of the reflector versus glass enhances work place safety.

Injection molded UV-stabilized acrylic. Field adjustable socket brackets allow for medium to wide distribution patterns. Use coated (diffuse) lamps for optimum photometric performance. Unit shown with optional WA22-CDL conical bottom enclosure.

55°C ambient. Suitable for damp locations. Minimum 90°C supply conductors.

Mogul Base

Ordering Information

Example: CH - 40 - W - 5 - M - WA22

Series | Watts | Ballast | Volts | Mount | Options

Series
- **CH** Tribay

Wattage
- **25** 250W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **32** 320W Pulse Start MH only
- **35** 350W Pulse Start MH or Electro-Reg[2, 3]
- **40** 400W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **45** 450W Pulse Start MH only
- **75** 750W Pulse Start MH only

Ballast/Lamp System
- **E** Electro-Reg®[1, 3]
- **H** MH - Standard PLA
- **M** HPS Mag-Reg® HPS
- **S** Standard CWA, AL, HPS
- **F** HPS, CWI (Canada)
- **D** MH, CWI (Canada)
- **W** Pulse Start MH

Voltage
- **1** 120V[2]
- **2** 208V. Not available in 250 & 350W Electro-Reg[2]
- **3** 240V. Not available in 250 & 350W Electro-Reg[2]
- **4** 277V[2]
- **5** 480V[2]
- **6** Tri-Tap® 120/277/347V (not available on Electro-Reg)
- **7** 600V (Isolated secondary only)
- **8** Quad-Tap® 120/208/240/277V (not available on Electro-Reg)
- **O** Less ballast and cap (250 & 400W only)
- **E** 220/240V 50 Hz
- **F** 347V

Mounting Method
- **D** Quick Zone™ Electrical disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box (wiring box shipped as accessory - CH-B)
- **M** With wiring box (standard construction)

Options
- **WA22** 22" Clear Acrylic Prismatic Reflector
- **WW22** 22" Opaque Prismatic Acrylic
- **ND** No Optics, housing for WA22 reflector

Bottom Enclosure
- **WA2-ENC** Bottom Enclosure
- **WA22-CDL** Conical Bottom Enclosure
- **WA22-DLR** Drop Lens Bottom Enclosure

1 250, 350 and 400W MH only

2 Single voltage designations for Electro-Reg, Mag-Reg or isolated secondary ballast only

3 Electro-Reg shipped standard with premium lamp included

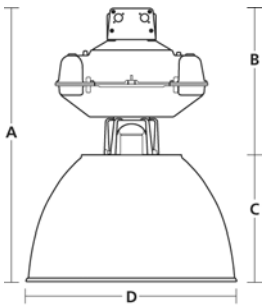
Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

Max Ambient Temperature Chart		
Wattage	Open	Enclosed
250	55°C	50°C
320	55°C	40°C
350	55°C	40°C
400	55°C	40°C
450	50°C	30°C
750	30°C	N/A

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
29 3/16"	15 3/16"	14"	22 1/2"
741 mm	386 mm	356 mm	572 mm

TRIBAY®

WA25

Mogul Base

Features

The WA25 Series is designed for 20 to 30 foot mounting heights in areas that call for efficient three-dimensional illumination as well as good looks.

Field adjustable socket brackets allow for medium to wide distribution patterns. For optimum performance and visual comfort, coated lamps are recommended.

Certified for 55°C ambient operation for lamps up to 400 watts (for open units). Suitable for damp locations. 250 to 400W requires minimum 90°C supply wire. 400W plus to 1000W requires minimum 105°C supply wires.

Ordering Information

Example: CH - 40 - H - 8 - M - WA25

Series | Watts | Ballast | Volts | Mount | Optics

Series
- **CH** Tribay

Wattage
- **25** 250W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **32** 320W Pulse Start MH only
- **35** 350W Pulse Start MH or Electro-Reg[2, 3]
- **40** 400W MH, Pulse Start MH, HPS or Electro-Reg[2, 3]
- **45** 450W Pulse Start MH only
- **60** 600W HPS only
- **75** 750W Pulse Start MH only
- **10** 1000W MH or Pulse Start MH

Ballast/Lamp System
- **E** Electro-Reg®[1, 3]
- **H** MH - Standard PLA
- **M** HPS, Mag-Reg® HPS
- **S** Standard CWA, AL, HPS
- **F** HPS, CWI (Canada)
- **D** MH, CWI (Canada)
- **W** Pulse Start MH

Voltage
- **1** 120V[2]
- **2** 208V. Not available in 250 & 350W Electro-Reg[2]
- **3** 240V. Not available in 250 & 350W Electro-Reg[2]
- **4** 277V[2]
- **5** 480V[2]
- **6** Tri-Tap® 120/277/347V (not available on Electro-Reg)
- **7** 600V (Isolated secondary only)
- **8** Quad-Tap® 120/208/240/277V (not available on Electro-Reg)
- **O** Less ballast and cap (250 & 400W only)
- **E** 220/240V 50 Hz
- **F** 347V[2]

Max Ambient Temperature Chart		
Wattage	Open	Enclosed
250	55°C	55°C
320	55°C	40°C
350	55°C	40°C
400	55°C	40°C
450	55°C	35°C
600	40°C	25°C
750	35°C	25°C
1000	25°C	N/A

Mounting Method
- **D** Quick Zone™ Electrical disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box (wiring box shipped as accessory - CH-B)
- **M** With wiring box (standard construction)

Optics
- **NC** No Optics, housing made for WA25
- **WA25** 25" Clear Prismatic Acrylic Reflector

Bottom Enclosure
- **WA25-ENC** Bottom Enclosure
- **WA25-DLR** Drop Lens Bottom Enclosure

1 250, 350 and 400W MH only

2 Single voltage designations for Electro-Reg, Mag-Reg or isolated secondary ballast only

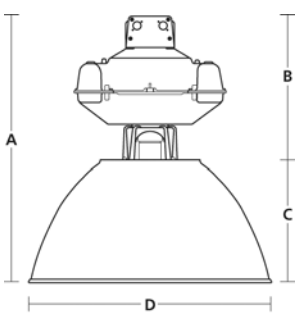
3 Electro-Reg shipped standard with premium lamp included

Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

For a complete list of options and accessories see pages 60 to 70.

Dimensions



A	B	C	D
29 11/16"	15 3/16"	14 1/2"	25 1/4"
754 mm	386 mm	368 mm	641 mm

ACRYLIC

TRIBAY®

SW

Features

The Superwatt Tribay Series is the answer to medium mounting height applications where you need to maximize both vertical and horizontal illumination. Its refractor provides up to 95% efficiency with 27% uplight that softens the brightness difference between the fixture and the surrounding areas. Maximum downward candle power is at 55 degrees from vertical for wide distribution and the lighting of vertical work surfaces. The Tribay is available in Metal Halide, High Pressure Sodium, Pulse Start and Electro-Reg® ballasts from 250 to 450 watts.

Suitable for wet locations. Minimum 90°C supply conductors.

EPAct 2005 COMPLIANT

Ordering Information

Example: CH - 25 - E - 1 - D - SW

Series | Watts | Ballast | Volts | Mount | Optics

Series
- **CH** Tribay

Wattage
- **25** 250W MH, Pulse Start MH, HPS or Electro-Reg[2]
- **32** 320W Pulse Start MH only
- **35** 350W Pulse Start MH or Electro-Reg[2]
- **40** 400W MH, Pulse Start MH, HPS or Electro-Reg[2]
- **45** 450W Pulse Start MH only

Ballast/Lamp System
- **E** Electro-Reg® 2.0[1, 3]
- **H** MH - Standard PLA
- **M** HPS Mag-Reg®
- **S** Standard CWA, AL, HPS
- **F** HPS, CWI (Canada)
- **D** MH, CWI (Canada)
- **W** Pulse Start MH

Voltage
- **1** 120V[2]
- **2** 208V[2]
- **3** 240V[2]
- **4** 277V[2]
- **5** 480V[2]
- **6** Tri-Tap® 120/277/347V (not available on Electro-Reg)
- **7** 600V (Isolated secondary only)
- **8** Quad-Tap® 120/208/240/277V (not available on Electro-Reg)
- **E** 220/240V 50 Hz
- **F** 347V[2]

Mounting Method
- **D** Quick Zone™ Electrical disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box (wiring box shipped as accessory - CH-B)
- **M** With wiring box (standard construction)

Optics
- **SW** Superwatt® Optics
- **NC** No Optics, housing made for Superwatt®

1 Includes factory installed lamp.

2 Includes system optimized lamp. Electro-Reg shipped standard with factory installed premium lamp.

3 SLD is not compatible with Electro-Reg.

ACRYLIC

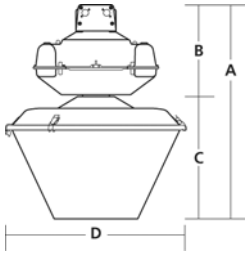
Accessories - Order Separately

Catalog Number	Description
CH-B	Wiring box with no electrical disconnect
CH-Q	Wiring box with electrical disconnect
CH-TLRX5	Top Luminaire Retainer - for field installation
CH-F	Single Fuse Kit - 120, 277, 347V (fuses not included)
CH-FF	Double Fuse Kit - 208, 240, 480V (fuses not included, not suitable in Canada)

Max Ambient Temperature Chart

Wattage	Controlux
250 HPS	65°C
400 HPS	55°C
250 MH	65°C
320 MH	50°C
350 MH	45°C
400 MH	40°C
450 MH	35°C

Dimensions



A	B	C	D
27 5/8"	11 7/8"	15 3/4"	22 1/2"
702 mm	302 mm	400 mm	572 mm

SUPERBAY

PA2

Mogul Base

Features

Designed for lower wattage and lower mounting heights. The PA2 Series 16" diameter acrylic reflector combines attractive appearance with superb performance.

Field-adjustable brackets allow for medium to wide lighting distributions. For best performance and visual comfort, coated lamps are recommended.

Up to 55°C ambient. Suitable for damp location. Minimum 90°C supply conductors.

Ordering Information

Example: BL - 250 - W - 8 - PA2 - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg®

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **F** 347V

Optics
- **PA2** 16" Prismatic acrylic reflector

Bottom Enclosure
- **BL-PK-ENC** Bottom Enclosure
- **PA2-CDL** Conical Bottom Enclosure
- **PA2-DLR** Drop Lens Bottom Enclosure

Color
- **WH** White (standard)
- **GR** Gray (optional)

Note MV lamp will operate on MH ballast.

Note Energy Saving Linear Reactor Pulse Start ballast available, 277V only - Consult factory.

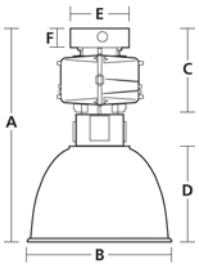
Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

Max Ambient Temperature Chart		
Wattage	BL-PA2 Open	BL-PA2 Enclosed
150	55°C	55°C
175	55°C	55°C
200	55°C	55°C
250	55°C	50°C
320	50°C	40°C
350	50°C	40°C
400	50°C	40°C

For a complete list of options and accessories see pages 60 to 70.

Dimensions



	A	B	C	D	E	F
Slick-On®	24 1/2" - 25 1/4"	16 1/4"	9 1/2"	11"	9 1/2"	2"
	622 - 635 mm	413 mm	241 mm	279 mm	241 mm	51 mm
Quick-On®	22 1/8" - 22 7/8"	16 1/4"	8 5/8"	11"	9 1/2"	1 1/8"
	562 - 581 mm	413 mm	219 mm	279 mm	241 mm	29 mm

SUPERBAY

GM22/WA22/WW22

Features

The GM22 22" acrylic is designed especially for demanding gym applications. Clear lighting grade acrylic allows about 20% uplight for a well-lit application.

The WA22 22" acrylic is designed as the economical solution to all non-impact applications. Clear lighting grade acrylic allows about 20% uplight for a well-lit application. Unit Pack available: #BL400H8WHWAUPL.

Use the WW22 22" diffuse acrylic for low glare applications. Limited uplight of about 10% allows more downlight for higher efficiencies.

All reflectors have field-adjustable reflector brackets for medium to wide lighting distributions. Use coated lamp for best performance. Follow ambient temperature guidelines for longer life.

Suitable for damp location. Minimum 90°C supply conductors.

Mogul Base

Ordering Information

Example: BL - 350 - W - 8 - WA22 - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg
- **450** 450W Pulse Start MH only
- **750** Quasi Resonant

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg®
- **Q** Quasi Resonant (277V only)

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **F** 347V

Optics
- **GM22** 22" Wide Acrylic Reflector made for gym applications
- **WA22** 22" Wide Acrylic Reflector
- **WW22** 22" Wide Translucent Acrylic Reflector

Bottom Enclosure
- **WA2-ENC** Bottom Enclosure
- **WA22-CDL** Conical Bottom Enclosure
- **WA22-DLR** Drop Lens Bottom Enclosure

Color
- **WH** White (standard)
- **GR** Gray (optional)

Note MV lamp will operate on MH ballast.

Note Energy Saving Linear Reactor Pulse Start ballast available - consult factory. 277V only.

Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

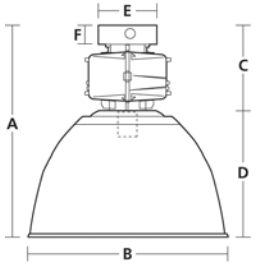
Max Ambient Temperature Chart

Wattage	Open	Enclosed
250	55°C	50°C
320	55°C	40°C
350	55°C	40°C
400	55°C	40°C
450	40°C	35°C

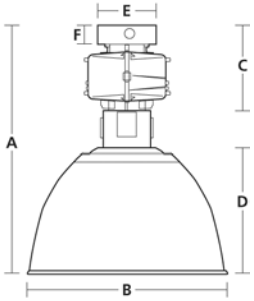
For a complete list of options and accessories see pages 60 to 70.

Dimensions

Flush Mount



Leg Mount



Leg Mount

	A	B	C	D	E	F
Slick-On®	25 3/4" - 28"	22 1/2"	9 1/2"	14"	9 1/2"	2"
	654 - 711 mm	572 mm	241 mm	356 mm	241 mm	51mm
Quick-On®	24 7/8" - 27 1/8"	22 1/2"	8 5/8"	14"	9 1/2"	1 1/8"
	632 - 689 mm	572 mm	219 mm	356 mm	241 mm	29 mm

Flush Mount

	A	B	C	D	E	F
Slick-On®	23 1/2"	22 1/2"	9 1/2"	14"	9 1/2"	2"
	597 mm	572 mm	241 mm	356 mm	241 mm	51 mm
Quick-On®	22 5/8"	22 1/2"	8 5/8"	14"	9 1/2"	1 1/8"
	575 mm	572 mm	219 mm	356 mm	241 mm	29 mm

SUPERBAY

WA25

Mogul Base

Features

WA25 acrylic reflector is designed for 15 to 30 foot mounting heights in areas that call for efficient three-dimensional illumination as well as good looks.

Field-adjustable brackets allow for medium to wide lighting distributions. For optimum performance and visual comfort, coated lamps are recommended.

UL listed for 55°C ambient operation for lamps up to 400 watts and CSA certified up to 750 watts.

Up to 55°C ambient. Suitable for damp location. Minimum 90°C supply conductors.

Ordering Information

Example: BL - 450 - W - 5 - WA25 - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg®
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg®
- **450** 450W Pulse Start MH only
- **750** 750W Quasi Resonant

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg®
- **Q** Quasi Resonant (277V only)

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **F** 347V

Optics
- **WA25** 25" Wide acrylic reflector

Bottom Enclosure
- **WA25-ENC** Bottom Enclosure
- **WA25-DLR** Drop Lens Bottom Enclosure

Color
- **WH** White (standard)
- **GR** Gray (optional)

Note MV lamp will operate on MH ballast.

Note Energy Saving Linear Reactor Pulse Start ballast available - consult factory. 277V only.

Note Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

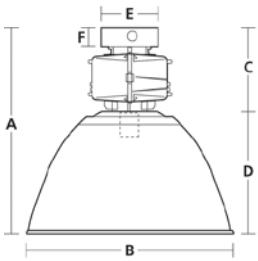
Max Ambient Temperature Chart

Wattage	Open	Enclosed
250	55°C	55°C
320	55°C	40°C
350	55°C	40°C
400	55°C	40°C
450	55°C	35°C
750	35°C	25°C

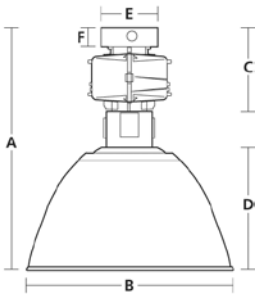
For a complete list of options and accessories see pages 60 to 70.

Dimensions

Leg Mount



Flush Mount



Leg Mount

	A	B	C	D	E	F
Slick-On®	26 5/16" - 28 1/16"	25 3/8"	9 1/2"	14 5/8"	9 1/2"	2"
	668 - 711 mm	645 mm	241 mm	371 mm	241 mm	51 mm
Quick-On®	25 7/16" - 27 11/16"	25 3/8"	8 5/8"	14 5/8"	9 1/2"	1 1/8"
	646 - 686 mm	645 mm	219 mm	371 mm	241 mm	29 mm

Flush Mount

	A	B	C	D	E	F
Slick-On®	24 1/8"	25 3/8"	9 1/2"	14 5/8"	9 1/2"	2"
	613 mm	645 mm	241 mm	371 mm	241 mm	51 mm
Quick-On®	23 1/4"	25 3/8"	8 5/8"	14 5/8"	9 1/2"	1 1/8"
	591 mm	645 mm	219 mm	371 mm	241 mm	29 mm

SUPERBAY

SW

Features

Superwatt optic is designed to deliver comfortable, high efficiency illumination for both vertical as well as horizontal surfaces. With its 2.2:1 spacing-to-mounting height ratio, it is well suited for low and medium mounting height applications like machine shops, assembly areas, aisle lighting and areas requiring three-dimensional, high illumination.

27% uplight softens the brightness difference between luminaire and surrounding areas. The maximum downward candlepower is projected at 45° from vertical for wide distribution and the greatly reduced candlepower above 65° minimizes direct glare.

Up to 55°C ambient. Suitable for damp location. Minimum 90°C supply conductors.

Mogul Base

Ordering Information

Example: BL - 400 - H - 8 - SW - WH

Series | Watts | Source | Volts | Optics | Color

Series
- **BL** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg®
- **450** 450W Pulse Start MH only

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg®

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg only
- **5** 480V Electro-Reg only
- **6** Tri-Tap® 120/277/347V (not available on Electro-Reg)
- **8** Quad-Tap® 120/208/240/277V (not available on Electro-Reg)
- **F** 347V

Optics
- **SW** Superwatt® optics

Color
- **WH** White (standard)
- **GR** Gray (optional)

Note MV lamp will operate on MH ballast.

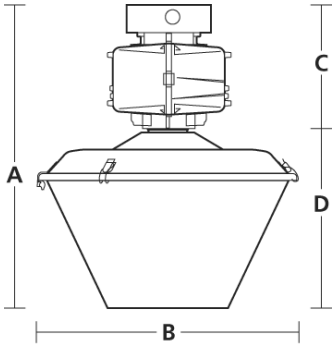
Note Energy Saving Linear Reactor Pulse Start ballast available - consult factory. 277V only.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

Max Ambient Temperature Chart	
Wattage	**Superwatt**
150 HPS	55°C
250 HPS	55°C
400 HPS	55°C
175 MH	55°C
200 MH	55°C
250 MH	55°C
320 MH	45°C
350 MH	40°C
400 MH	40°C

For a complete list of options and accessories see pages 60 to 70.

Dimensions



	A	B	C	D
Slick-On®	25 7/16"	22 1/2"	9 1/2"	15 15/16"
	646 mm	572 mm	241 mm	405 mm

SUPERWATT®

SWD/SWW HID

Mogul Base

Features

- Superwatt luminaire is designed to provide illumination on vertical as well as horizontal surfaces.
- The exclusive computer designed refractor has 95% efficiency.
- 27% uplight and greatly reduced glare.
- 2.2:1 spacing to mounting height
- Available in 175, 250, and 350W Electro-Reg®
- 27% uplight softens the brightness difference between luminaire and surrounding areas.
- The maximum downward candlepower is projected at 45° from vertical for wide distribution and the greatly reduced candlepower above 65° minimizes direct glare.
- Superwatt luminaire is shipped in one carton, wired, with lamp installed and ready to hang.
- SWW Series offers optional NSF certification to NSF Standard C-2 (-FP, shown below).
- Up to 55° ambient

Ordering Information

Example: SW - D - 400 - W - 8 - A - P - WH

Series | Listing | Watts | Ballast | Volts | Refractor | Mount | Color

Series
- **SW** Superwatt® Enclosed HID

Listing
- **D** Damp location
- **W** Wet location

Wattage
- **175** E-Reg® MH, Pulse Start MH[2]
- **200** Pulse Start MH only
- **250** E-Reg® MH, Pulse Start MH, HPS[2]
- **320** Pulse Start MH only
- **350** E-Reg® Pulse Start MH[2]
- **400** MH, Pulse Start MH, or HPS

Ballast/Lamp System
- **E** Electro-Reg® 175, 250, or 350W[2]
- **H** Metal Halide[3]
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide

Voltage
- **1** 120V Electro-Reg® only
- **2** 208V
- **3** 240V
- **4** 277V Electro-Reg® only
- **F** 347V Electro-Reg® only
- **5** 480V
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)

Refractor
- **A** Acrylic
- **P** Polycarbonate (HPS only)

Mounting
- **P** Pendant Mount
- **C** Ceiling Mount[4]

Color
- **WH** White (standard)
- **GR** Gray (optional)

Options
- **F(X)** Fusing[6]
- **HA** 55°C listing (250W only)
- **CXHLPX** Cord, Hook/Loop, and 20A plug[5, 6]
- **CHL** 2' exposed Cord Hook/Loop
- **QSS** Quartz Standby includes 150W lamp
- **QST** Quartz Time Delay, Includes 150W lamp
- **SLD-1** Switch Level Dimming with 120V control[7, 8]
- **SLD-2** Switch Level Dimming with 24V control[7, 8]
- **SLD-3** Switch Level Dimming with 277V control[7, 8]
- **LL** Less Lamp
- **S** Screw Down Refractor
- **EM** Emergency Quartz Lamp Socket
- **FP** National Sanitation Foundation Listed

1 Includes factory installed lamp.
2 Includes system optimized lamp. E-Reg® shipped standard with factory installed premium lamp.
3 MV lamp will operate on MH ballast.
4 Surface mounting units for mounting on concrete and steel only.
5 For cord length, replace first "X" with 2, 4, 6, 8, 10 or 12.
6 For voltage, replace second "X" with 1=120V, 2=277V, 3=240V, 4=277V, 5=480V, 6=347V.
7 For motion sensor and switch level interface panel accessories, see Controls.
8 SLD is not compatible with Electro-Reg®.

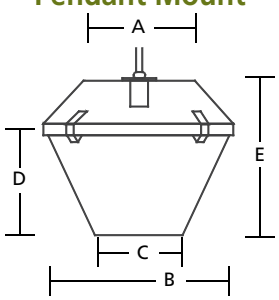
Accessories - Order Separately

Catalog Number	Description
SW-WG	Wireguard with safety chain.

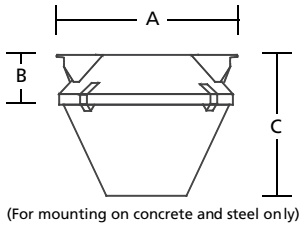
For a complete list of options and accessories see pages 60 to 70.

Dimensions

Pendant Mount



Surface Mount



(For mounting on concrete and steel only)

Pendant Mount

A	B	C	D	E
13 1/8"	22 1/2"	10 1/4"	11 9/16"	17 7/8"
333 mm	572 mm	260 mm	294 mm	454 mm

Surface Mount

A	B	C
24 1/4"	6 15/16"	17 7/8"
616 mm	176 mm	454 mm

LIGHTWATT®

LW HID

Features

- Lightwatt HID luminaire provides comfortable, high efficiency illumination on vertical and horizontal surfaces.
- Ideal for warehouses, shipping docks, stairwells, and especially for low ceiling areas.
- The Lightwatt® is the premium luminaire for parking garages where the refractor projects light into, underneath and between parked vehicles eliminating dangerous shadows.
- Lightwatt's photometric distribution provides over 15% uplight to soften the brightness difference between the luminaire and the surrounding areas and provide a three dimensional luminous environment.
- The computer designed refractor provides over 93% efficiency and spacing to mounting height ratio up to 1.9:1
- Lightwatt luminaire is shipped in one carton, lamp installed.
- Housing is 99% copper free aluminum with white Lektrocote® finish.
- Refractor is injection molded high performance acrylic.
- Up to 55°C ambient

Medium Base

Ordering Information

Example: LW - J - 175 - H - 8 - A - WH

Series | Mount | Watts | Lamp | Volts | Refractor | Color

Series
- **LW** Lightwatt[1]

Mounting
- **J** J-Box (damp location)[2]
- **P** Balanced Pendant (wet location)
- **C** Ceiling thru-wire (wet location)
- **B** Pipe wall bracket (wet location)
- **S** Stanchion Davit (wet location)

Wattage
- **070** MH, Pulse Start MH, or HPS (55°C)
- **100** MH, Pulse Start MH, or HPS (55°C)
- **150** Pulse Start MH or HPS (40°C)
- **175** MH, Pulse Start MH, E-Reg® (35°C)

Lamp Type
- **S** High Pressure Sodium
- **H** Metal Halide
- **E** E-Reg® (175W Metal Halide) only
- **W** Pulse Start MH

Voltage
- **1** 120V Electro-Reg® only
- **4** 277V Electro-Reg® only
- **5** 480V
- **6** Tri-Tap® 120/277/347V (not available on E-Reg)
- **8** Quad-Tap® 120/208/240/277V (not available on E-Reg)
- **F** 347V

Refractor
- **A** Acrylic
- **P** Polycarbonate (HPS only)

Color
- **WH** White Lektrocote® (standard)
- **GR** Gray Lektrocote®

Options
- **CHLPX** 2' Cord, Hook/Loop, 20A Twist-Lock® plug
- **F(X)** Fusing
- **LA** Latched Refractor
- **LL** Less Lamp
- **LTP** Tamper Resistant Screws
- **QSS** Quartz Standby includes 150W lamp
- **QST** Quartz Time Delay, Includes 150W lamp

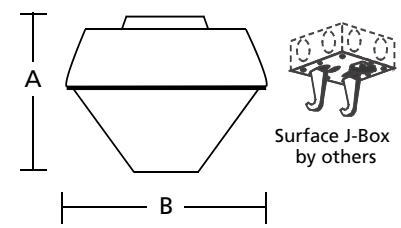
1 Lamp included.

2 Fast-Lock J-Box mounting-recessed J-Box requires installation of the included 1 1/2" extension ring.

ACRYLIC

For a complete list of options and accessories see pages 60 to 70.

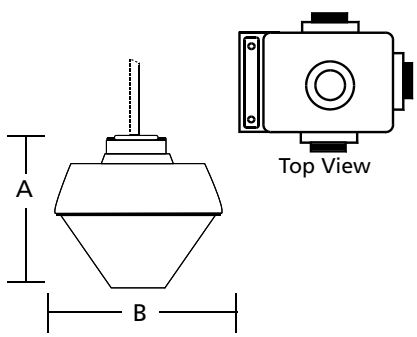
Dimensions



Mounting on a 4" square or octagonal box

J-Box Mounting

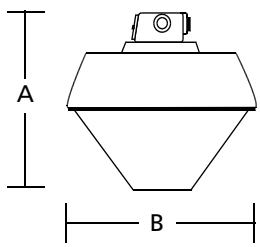
A	B
12 1/4"	14 3/4"
311 mm	375 mm



Can be balanced for mounting on swivel hangers, sloped ceilings, etc.

Pendant

A	B
14"	14 3/4"
356 mm	375 mm



Ceiling Thru-Wire

A	B
14 1/4"	14 3/4"
362 mm	375 mm

DECORATIVE CFL

CFL SERIES

Features

The Decorative Highbay is designed for retail stores, restaurants, cafeterias, gymnasiums, convention centers, auditoriums, and other large public spaces that require highly versatile, energy efficient light sources. The Decorative Highbay uses up to eight high output compact fluorescent lamps. With optional multi-switch legs or dimming capabilities and instant-on operation, it offers virtually unlimited light level configurations.

Housing is spun, heavy-gauge aluminum ballast compartment. This design ensures maximum cooling of the heat sensitive electronic components and promotes long, maintenance-free fixture life.

Optics include an injection molded prismatic acrylic design with over 94% optical efficiency and 25% uplight. White painted, low glare, spun aluminum reflector also available.

May be attached to a 1/2" or 3/4" pendant or bracket. Optional hook, loop, power hook receptacle, cord and plug and other convenience options are available.

Ballast housing is white powder coat. Optional powder coat finishes are available at an additional cost.

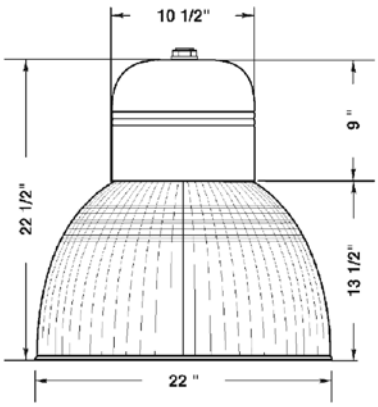
UL listed for wet locations. C-UL listed for Canada.

Ordering Information

Catalog Number	Description
	Ballast Pods
HDF642WH	Decorative Highbay, 6-42 watt PLT, universal voltage, white
HDF842WH	Decorative Highbay, 8-42 watt PLT, universal voltage, white
	Reflectors
AR22	22" Acrylic Reflector
SP20	20" Spun Aluminum Reflector

CFL

Dimensions



SUPERWATT®

SWF CFL

Features

- Instant On and Instant Re-strike – The compact fluorescent lamps are on as soon as they are energized
- Good Color – Compact Fluorescent lamps have a CRI of about 82
- Better Lumen Maintenance – Compact Fluorescent lamps have a flatter lumen maintenance curve
- Switch-able Dimming – Since each ballast powers two lamps, an eight lamp unit can be switched to provide 25%, 50%, 75% and 100% light output
- Fail safe light output – Since these are multiple lamp source units, they provide a measure of "fail safe" lighting that single source fixtures can not
- Shielding of Lamp Image – The Superwatt refractor does a good job of breaking up the lamp image
- Superwatt Appearance – In comparison to all of the other CFL highbays the Superwatt just plain looks better. In many applications this could tip the scales in your favor

Ordering Information Example:

Series		Lamp Type/Wattage	
SWF	Superwatt® Series Compact Fluorescent	**426**	(4) 26W PLT
		432	(4) 32W PLT
		442	(4) 42W PLT
		626	(6) 26W PLT
		632	(6) 32W PLT
		642	(6) 42W PLT
		826	(8) 26W PLT
		832	(8) 32W PLT
		842	(8) 42W PLT

Refractor	
A	Acrylic
P	Polycarbonate
Options	
INC	Incandescent Socket
LL	Less lamp
EM	One Emergency Ballast

Note All fixtures are wet location listed.

Note All fixtures are pendant mount.

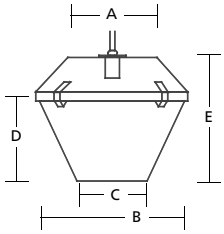
Note Voltage is Universal 120/277V 50/60Hz.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

Accessories - Order Separately

Catalog Number	Description
SW-WG	Wire Guard
A-Lens	Acrylic Bottom "Lift & Shift" Lens
P-Lens	Polycarbonate Bottom "Lift & Shift" Lens

Dimensions



	A	B	C	D	E
SWF	13 1/8"	22 1/2"	10 1/4"	11 9/16"	17 7/8"
	333 mm	572 mm	260 mm	294 mm	454 mm

LIGHTWATT®

LWF CFL

Features

- Instant On and Instant Re-Strike – The compact fluorescent lamps are on as soon as they are energized
- Good Color – Compact fluorescent lamps have a CRI of about 82
- Better Lumen Maintenance – Compact fluorescent lamps have a flatter lumen maintenance curve
- Shielding of Lamp Image – The refractor does a good job of breaking up the lamp image
- Appearance – In comparison to all of the other CF highbays the Lightwatt just plain looks better. In many applications this could tip the scales in your favor

Ordering Information

Example: LW - P - 084 - 4 - A - WH

Series | Mount | Watts | Volts | Refractor | Color

Series
- **LW** Lightwatt®

Mounting
- **J** J-Box (damp location)
- **P** Balanced Pendant (wet location); (damp location) with cord option[1]
- **C** Ceiling Thru-wire (wet location)
- **B** Pipe Wall Bracket (wet location)
- **S** Stanchion Davit (wet location)

Wattage
- **042** 1 x 42W
- **064** 2 x 32W
- **084** 2 x 42W

Voltage
- **1** 120V
- **4** 277V

Refractor
- **A** Acrylic
- **P** Polycarbonate

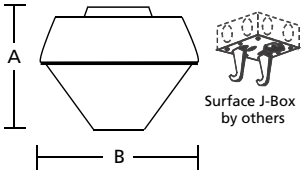
Color
- **WH** White Lektrocote®
- **GR** Gray Lektrocote®

1 Fast-Lock J-Box mounting-recessed J-Box requires installation of the included 1 1/2" extension ring.

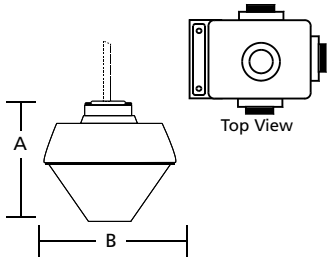
Note Lamp included.

Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

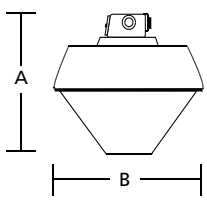
Dimensions



Mounting on a 4" square or octagonal box



Can be balanced for mounting on swivel hangers, sloped ceilings, etc.



J-Box Mounting

A	B
12 1/4"	14 3/4"
311 mm	375 mm

Pendant

A	B
14"	14 3/4"
356 mm	375 mm

Ceiling Thru-Wire

A	B
14 1/4"	14 3/4"
362 mm	375 mm

UTILITY WORKLIGHT

BL400WL/BL400WLEX

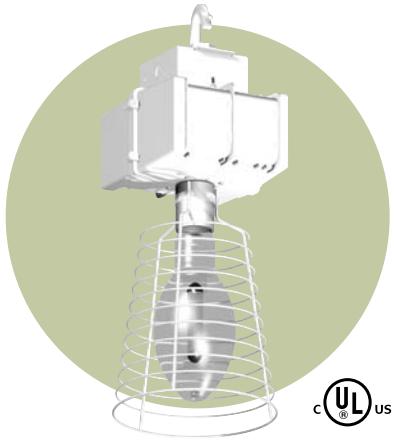
Features

The BL400WL is ideal for use as a construction or work light.

Die cast housing with protective white powder paint finish. Easy mounting box for 3/4" conduit. Cast safety hook included for hanging.

400 watt metal halide, 120/208/240/277 volt, HPF CWA ballast. Lamp included. Full wire guard to protect lamp during construction allows use of standard, stock metal halide lamps.

UL listed for use in damp locations.

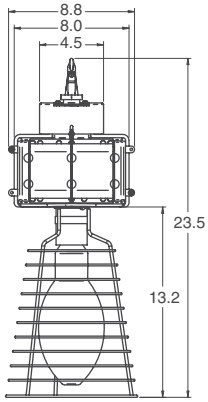


Ordering Information

Catalog Number	Description
BL400WL	Worklight Unit Pack, 400 watt MH, Multi-Tap w/ optic, lamp, & hook
BL400WLEX	Worklight Unit Pack, 400 watt MH, Multi-Tap w/ optic, open rated lamp, & hook

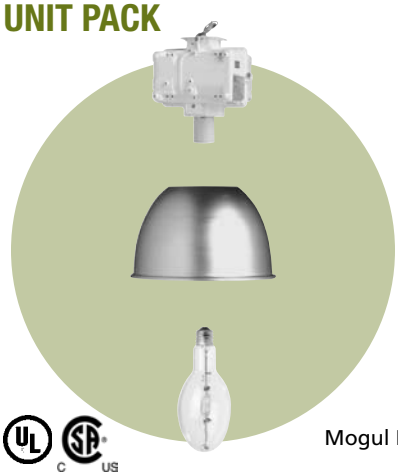
For a complete list of options and accessories see pages 60 to 70.

Dimensions



SUPERBAY

UNIT PACK



Mogul Base

Features

Unit Packs include ballast housing, optic, and lamp, packaged in a single carton for convenience.

Housing: two-piece, die cast aluminum. Corrosion resistant Lektrocote® finish. All electrical components mounted directly to the ballast module for maximum heat dissipation and cooler operation.

Optic: open 14" highbay (7" high BC reflector), enclosed 23" lowbay (LB1) or 22" acrylic (WA22). Adjustable light distribution lamp standard MH or HPS. 400 watt MH – clear (coated with 22" acrylic). 400 watt HPS – clear (coated with 22" acrylic).

Quad-Tap® ballast or new five tap (120/240/277/480V) ballast now available on Superbay Unit Packs. Exclusionary mogul base socket models also available.

UL and CSA approved for 55°C ambient operation. Suitable for damp locations.

Ordering Information

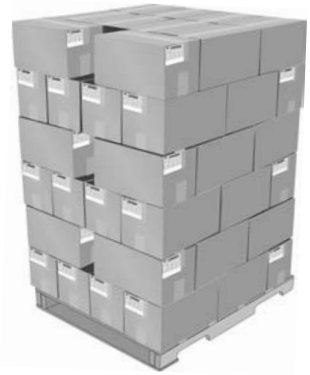
Catalog Number	Wattage	Voltage	Lamp Base	Lamp Included
		Metal Halide		
BL400HVWHLB1UPL	400	Five Tap	Mogul	Lamp Included
BL400H8BCEXUPL*	400	Quad-Tap	Exclusionary Mogul	Lamp Included
BL400HVWHBCUPL*	400	Five Tap	Mogul	Lamp Included
BL400H8WAEXUPL	400	Quad-Tap	Exclusionary Mogul	Lamp Included
BL400HVBCEXUP*	400	Five Tap	Exclusionary Mogul	Less Lamp
BL400HVBCEXUPL*	400	Five Tap	Exclusionary Mogul	Lamp Included
BL250H8WHBIUPL*	250	Quad-Tap	Mogul	Lamp Included
BL400HVWAEXUPL	400	Five Tap	Exclusionary Mogul	Lamp Included
BL400H8WHBIUPL*	400	Quad-Tap	Mogul	Lamp Included
BL400H8WHLB1UPL	400	Quad-Tap	Mogul	Lamp Included
BL400H8WHWAUPL	400	Quad-Tap	Mogul	Lamp Included
		High Pressure Sodium		
BL400S8WHBIUPL*	400	Quad-Tap	Mogul	Lamp Included
BL400S8WHLB1UPL	400	Quad-Tap	Mogul	Lamp Included
BL400S8WHWAUPL	400	Quad-Tap	Mogul	Lamp Included

* Optic is 7" high BC reflector

PACKAGING/FLUSH MOUNT

HIGHBAY/LOWBAY PACKAGING OPTIONS

Superbay



Single Pack
(standard)
60/Pallet

Job Pack
60/Pallet

BL400H8WHBIUPL

BL400H8WHLB1UPL

Unit Pack

BL400H8WHWAUPL

Tribay

Single Pack
(standard)
30/Pallet

Job Pack
30/Pallet

SUPERBAY FLUSHMOUNT

Features

Hubbell Lighting's Flush Mount Kit allows you to mount the reflectors shown below flush to the bottom of a Superbay housing. This eliminates the need for the adjustable Optic Mounting Kit and securely attaches the reflectors to any Superbay housing. All Flush Mount Kit units are UL damp location listed.

Any Superbay
Ballast Housing

\+

BL-FLUSH-MT-KIT

\+

Any 22" or 25"
Acrylic Reflector
WA22
WW22
WA25

Any 19" or 23"
Spun Aluminum
Reflector from
Tribay Series
EU
OU
EU69
OU60

=

CH-OU
22" Aluminum

BL-WA22
22" Acrylic

BL-WA25
25" Acrylic

OPTIONS & ACCESSORIES

TRIBAY MATRIX

Options

Factory installed — order with fixture by adding suffix.

PLUGS ARE TWIST-LOCK® TYPE AS MANUFACTURED BY HUBBELL WIRING DEVICES.

Suffix	Description	Tribay										
		HG16	HG22	WA22	WW22	WD22	WA25	CHEU	CHOU	CHLM	SW	RO
-AN	Anodized Housing/Reflector	•	•	•	•	•	•	•	•	•	•	•
-CFB	Charcoal Filter Breather							•		•	•	
-CXHLP(X)	Cord, Hook/Loop & Plug w/ Slick-On® Hanger	•	•	•	•	•	•	•	•	•	•	•
-CXHL(X)	Cord & Hook/Loop w/ Slick-On Hanger	•	•	•	•	•	•	•	•	•	•	•
-DFP	Dead Front Disconnect	•	•	•	•	•	•	•	•	•	•	
-EB	Encapsulated Ballast	•	•	•	•	•	•	•	•	•	•	•
-EX	Exclusionary Socket	•	•	•	•	•	•		•			
-F	Fusing	•	•	•	•	•	•	•	•	•	•	•
-GR	Gray Lektrocote® Finish	•	•	•	•	•	•	•	•	•	•	•
-HA	High Ambient	•	•					•	•			
-LL	Shipped Less Lamp	•	•									
-LRI	Lower Luminaire Retainer	std	std	•	•	•	•	•	•	•	•	•
-NMM	No Mounting Method	•	•	•	•	•	•	•	•	•	•	•
-P	High Strength Polycarbonate Refractor									•	•	
-RO	Remote Offset											•
-QSS	Quartz Standby System	•	•	•	•	•	•	•	•	•	•	•
-QST	Quartz Standby with Time Delay	•	•	•	•	•	•	•	•	•	•	•
-SLD	Switch Level Dimming	•	•	•	•	•	•	•	•	•	•	•
-TRI	Top Luminaire Retainer	•	•	•	•	•	•	•	•	•	•	•

Accessories

Field installed — order as a separate item.

Suffix	Description	Tribay										
		HG16	HG22	WA22	WW22	WD22	WA25	CHEU	CHOU	CHLM	SW	RO
BLA-C4HL	4' Cord Hook/Loop	•	•	•	•	•	•	•	•	•	•	•
CH-LLR	Lower Luminaire Retainer - 2' cable	std	std	•	•	•	•	•	•	•	•	•
CH-TLRX	Top Luminaire Retainer	•	•	•	•	•	•	•	•	•	•	•
CHF	Single Fusing	•	•	•	•	•	•	•	•	•	•	•
CHFF	Double Fusing (not for Canada)	•	•	•	•	•	•	•	•	•	•	•
CH-B	Wiring Box - no disconnect	•	•	•	•	•	•	•	•	•	•	•
CH-F-FUSE-KIT		•	•	•	•	•	•	•	•	•	•	•
CH-Q	Wiring Box - with disconnect (Quick Zone)	•	•	•	•	•	•	•	•	•	•	•
CH-ENC	Tempered Glass Lens Door							std	•			
FWG	Full Wire Guard for acrylic reflectors			•	•	•	•					
HG-FWG	Full Wire Guard for glass reflectors	•	•									
HG-ENC-XX	Tempered Glass Enclosure for HG16 & HG22	•	•									
HOOK/LOOP	Hook 3/4" NPS male	•	•	•	•	•	•	•	•	•	•	•
H3/4AL3/4	Swivel Aligner - with box	•	•	•	•	•	•	•	•	•	•	•
PHE	Die Cast Aluminum Power Hook	•	•	•	•	•	•	•	•	•	•	•
PHS	Specification Grade Power Hook - with 30" cord	•	•	•	•	•	•	•	•	•	•	•
SY3	Rugged Steel Power Hook	•	•	•	•	•	•	•	•	•	•	•
WA2-ENC	Flat 1/8" Acrylic Lens			•	•	•						
WA22-CDL	Conical Drop Prismatic Lens			•	•	•						
WA22-DLR	Drop Lens Refractor			•	•	•						
WA-T	Perforated Metal Top Enclosure			•	•	•	•					
WA25-DLR	Drop Lens Bottom Enclosure (for WA25 reflectors)						•					
WA25-ENC	Flat 1/8" Acrylic Bottom Enclosure for 25" reflectors						•					
WG	Wire Guard	WG16	WG23	WG23	WG23	WG23	WG25	WG19	WG19	WG29	WG-SW	

OPTIONS & ACCESSORIES

SUPERBAY MATRIX

Options

Factory installed — order with fixture by adding suffix.

PLUGS ARE TWIST-LOCK® TYPE AS MANUFACTURED BY HUBBELL WIRING DEVICES.

Suffix	Description	Superbay														
		HG16	HG22	PA2	WA22	WW22	WA25	SW	EG	LB1	LM	AL	BI	SU	SD	RO
-AN	Anodized Housing/Reflector	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
-CFB	Charcoal Filter Breather							•	•		•					
-CXHL	Cord, Hook/Loop w/ Quick-On® Hanger			•	•	•	•	•	•	•	•	•	•	•	•	•
-CXHLP(X)SO	Cord, Hook/Loop & Plug w/ Slick-On® Hanger	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
-CXHLSO	Cord & Hook/Loop w/ Slick-On Hanger	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
-DFP	Dead Front Disconnect	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
-EX	Exclusionary Socket	•	•	•	•	•	•					•	•	•	•	
-GR	Gray Lektrocote® Finish	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
-LRI	Lower Luminaire Retainer	std	std	•	•	•	•	•	•	•	•	•	•	•	•	•
-NMM	No Mounting Method			•	•	•	•	•	•	•	•	•	•	•	•	•
-P	High Strength Polycarbonate Refractor							•		•	•					
-QSS	Quartz Standby System	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
-QST	Quartz Standby with Time Delay	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
-SLD	Switch Level Dimming	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
-SO	Slick-On Thru Wire Outlet Box	std	std	•	•	•	•	•	•	•	•	•	•	•	•	•
-TRI	Top Luminaire Retainer	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Accessories

Field installed — order as a separate item.

Suffix	Description	Superbay														
		HG16	HG22	PA2	WA22	WW22	WA25	SW	EG	LB1	LM	AL	BI	SU	SD	RO
BLA-C4HL	4' Cord Hook/Loop	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
B-LLR	Lower Luminaire Retainer - 2' cable	std	std	•	•	•	•	•	•	•	•	•	•	•	•	•
B-TLR	Top Luminaire Retainer	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
B-FLUSH-MT-KIT	Adapter Bracket for BL-WA22 or BL-WA25				•	•	•									
BL-LR	Tempered Glass Lens (for BI and SU, SD, AL 175 & 250W)											•	•	•	•	
BL-PK-ENC	Flat 1/8" Acrylic Lens (for 175 & 250W MH)			•												
BL-QO	Quick-On® 3/4" Pendant Mount			•	•	•	•	•	•	•	•	•	•	•	•	•
BL-SOF	Slick-On® Single Fusing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
BL-SOFF	Slick-On® Double Fusing (not for Canada)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
FWG	Full Wire Guard for acrylic reflectors			•	•	•	•									
HG-FWG	Full Wire Guard for glass reflectors	•	•													
HG-ENC	Tempered Glass Enclosure for HG16 & HG22	•	•													
HOOK/LOOP	Hook 3/4" NPS male	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
H3/4AL3/4	Swivel Aligner - with box	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PHE	Die Cast Aluminum Power Hook	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PHS	Specification Grade Power Hook - with 30" cord	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SY3	Rugged Steel Power Hook	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
WA2-ENC	Flat 1/8" Acrylic Lens				•	•										
WA22-CDL	Conical Drop Prismatic Lens				•	•										
WA22-DLR	Drop Lens Bottom Enclosure				•	•										
WA25-DLR	Drop Lens Bottom Enclosure (for WA25 reflectors)						•									
WA25-ENC	Flat 1/8" Acrylic Bottom Enclosure for 25" reflectors						•									
WG	Wire Guard	WG16	WG23	WG16	WG23	WG23	WG25	SW-WG	WG19	WG23	WG29	WG19	WG14	WG19	WG19	

OPTIONS & ACCESSORIES

Options

Suffix	Description	Tribay	Superbay	Fig. #
-AN	Anodized Housing/Reflector	•		
-CFB	Charcoal Filter Breather (for enclosed reflectors only)	•	•	fig. 1
-C4HL	4' Cord, Hook/Loop - SO cord wired thru hook	•	•	fig. 4
-C6HL	6' Cord, Hook/Loop - SO cord wired thru hook	•	•	fig. 4
-C8HL	8' Cord, Hook/Loop - SO cord wired thru hook	•	•	fig. 4
-C10HL	10' Cord, Hook/Loop - SO cord wired thru hook	•	•	fig. 4
-C12HL	12' Cord, Hook/Loop - SO cord wired thru hook	•	•	fig. 4
-EB[1]	Encapsulated Ballast (for quiet operation)	•		fig. 3
-EM	Emergency Quartz Lamp Socket	•	•	fig. 5
-EX	Exclusionary Mogul Socket	•	•	fig. 2
-F1	Fusing 120 volt	•		
-F2	Fusing 208 volt (not for Canada)	•		
-F3	Fusing 240 volt (not for Canada)	•		
-F4	Fusing 277 volt	•		
-F5	Fusing 480 volt (not for Canada)	•		
-FF	Fusing 347 volt	•		
-GR	Gray Lektrocote® Finish on housing; replace -WH in catalog number		•	
-LL	Shipped Less Lamp (250, 350, 400 watt MH Electro-Reg® and 600 watt HPS only)	•		
-JP	Job Pack - master carton packaging of ballast housing to reduce corrugated waste disposal; for shipment to jobsite only		•	
-LRI[2]	Lower Luminaire Retainer (installed)	•	•	fig. 6, 7
-NMM	No Mounting Method - neither Slick-On® nor Quick-On® provided w/ luminaire; mounting method must be ordered as an accessory; option used for applications requiring mounting method supplied in advance of luminaire		•	
-P	High Strength Polycarbonate Refractor		•	
-PC	Polycarbonate Refractor (LM only)	•		
-QSS	Quartz Standby	•	•	
-QST	Quartz Standby with time delay	•	•	
-SLD-1	Switch Level Dimming with 120V control	•	•	
-SLD-2	Switch Level Dimming with 24V control	•	•	
-SLD-3	Switch Level Dimming with 277V control	•	•	
-SO	Slick-On® Thru Wire Outlet Box for 3/4" pendant or 1/2" or 3/4" side entry conduit			

SLICK-ON® THRU WIRE OUTLET BOX, SINGLE FUSE (INCL.)
for 3/4" pendant or side entry conduit

	X3=	120V	277V	347V
-SOF (X3)		**1**	**4**	**F**

SLICK-ON® THRU WIRE OUTLET BOX, DOUBLE FUSE (INCL.)
for 3/4" pendant or side entry conduit (not for Canada)

	X4=	208V	240V	480V
-SOFF (X4)		**2**	**3**	**5**

-TRI(X)	Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required.Shipped in housing carton. Specify length (X), recommended maximum slack is 3"	•	•

1 Tribay ballasts available with the EB option: CH250E4-X-XX, CH250H8-X-XX, CH250W8-X-XX, CH320W8-X-XX, CH650W8-X-XX, CH400E4-X-XX, CH400H8-X-XX, CH400W8-X-XX, CH10H8-X-XX, CH10W8-X-XX. Consult with factory for any other ballast wattage/type. Minimum quantities and additional charges will apply.

2 Luminaire retainers/safety cables reduce risk of equipment falling
NOTE: For specific applications, bottom enclosures may be required. For more information, please see specific lamp manufacturers' data and the NEMA white paper "Best Practices for Metal Halide Lighting Systems" posted on the NEMA web site (www.nema.org).

WARNING: Improper selection, installation, operation, servicing, removal, and disposal of lighting products may create serious hazardous including fires, explosions, shock, burns, cuts, impaired vision, falling objects, and environmental contamination. Reduce risks by using the guidance of licensed professionals throughout the product life cycle, and following individual product, component, and accessory safety instructions and labels.

We offer this in the interest of safety for our customers, who may not be aware of the potentially high risk involved in the misuse of these products.

See pages 66-70 for detailed drawings.

OPTIONS & ACCESSORIES

Accessories

Suffix	Description	Tribay	Superbay	Fig. #
B-LLR1	Lower Luminaire Retainer - 2' cable secures reflector to ballast housing		•	
B-TLR(6)1	6' Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required		•	
B-TLR(10)1	10' Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required		•	
B-TLR(12)1	12' Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required		•	
B-TLR(16)1	16' Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required		•	
BL-FLUSH-MT-KITADAPTER	Bracket for mounting BL-WA22/WA22 or BL-WA25/WA25 reflector flush to the bottom of the Superbay ballast housing		•	
BL-LR-142	Tempered Glass Lens - thermal shock & impact resistant; gasketed on corrosion-resistant steel lens ring (not dust tight) required for 175, 250, 320 & 350 watt metal halide luminaires; for BI reflector only		•	fig. 17
BL-LR-192	Tempered Glass Lens - thermal shock & impact resistant; gasketed on corrosion-resistant steel lens ring (not dust tight) required for 175, 250, 320 & 350 watt metal halide luminaires; for SU, SD & AL reflector only		•	fig. 17
BL-PK-ENC2	Flat 1/8" Acrylic Lens for PA2 16" reflector; required with 175, 250, 320 & 350 watt metal halide		•	fig. 18
BL-QO	Quick-On 3/4" pendant mount		•	
BL-SO	Slick-On Thru Wire Outlet Box for 3/4" pendant or 3/4, 1/2 side entry conduit		•	
BL-SOF	Slick-On Single Fusing (fuse not incl.) thru wire outlet box for 3/4" pendant or 3/4, 1/2 side entry conduit mount with single fuse holder		•	
BL-SOFF	Slick-On Double Fusing (fuses not incl.) thru wire outlet box for 3/4" pendant or 3/4, 1/2 side entry conduit mount with double fuse holder (not for Canada)		•	
CH-B	Wiring Box with no electrical disconnect	•		fig. 9
CH-Q	Wiring Box with electrical disconnect (Quick-Zone®)	•		fig. 10
CH-ENC-19	Tempered Glass Lens Door for open 19"	•		fig. 18
CH-ENC-23	Tempered Glass Lens Door for open 23"	•		fig. 18
CH-F	Single Fuse Kit - 120, 277, 347V (fuses not included)	•		fig. 8
CH-FF	Double Fuse Kit - 208, 240, 480V (fuses not included) (not for Canada)	•		fig. 8
CH-LLR	Lower Luminaire Retainer (for field installation)	•		fig. 12
CH-TLR6	6' Top Luminaire Retainer (for field installation)	•		fig. 13
CH-TLR10	10' Top Luminaire Retainer (for field installation)	•		fig. 13
CH-TLR12	12' Top Luminaire Retainer (for field installation)	•		fig. 13
CH-TLR16	16' Top Luminaire Retainer (for field installation)	•		fig. 13
FWG	Full Wire Guard for acrylic reflectors	•	•	fig. 20
HG-FWG	Full Wire Guard for glass reflectors	•	•	fig. 18
HGENC16	Flat Glass Bottom Enclosure for the HGE16 & HGO16	•	•	fig. 18
HGENC22	Flat Glass Bottom Enclosure for the HGE22 & HGO22	•	•	fig. 18
SW-WG	Superwatt® Full Wire Guard with safety chain	•		fig. 16
WA2-ENC	Flat Acrylic Bottom Closure for 22" prismatic acrylic reflector	•		fig. 18
WA2-ENC	22" Flat Acrylic Lens for WA acrylic reflector - 1/8" acrylic lens (40°C maximum operating temperature with lens in place in reflector)		•	fig. 18
WA22-CDL	Conical Drop Prismatic Lens for WA22 reflectors (40°C operation)	•		fig. 14
WA22-CDL2	22" Conical Acrylic Lens - conical drop lens for WA acrylic reflector		•	fig. 14
WA22-DLR	(40°C maximum operating temperature with lens in place in reflector) Drop Lens Refractor for WA22 reflectors (40°C operation)	•		fig. 19
WA22-DLR2	Dropped Lowbay Refractor Lens - for 22" WA reflector (40°C maximum operating temperature with lens in place in reflector)		•	fig. 19
WA25-DLR	Drop Lens Refractor for WA25 reflectors	•		fig. 19
WA25-DLR2	Dropped Lowbay Refractor Lens - for 25" WA reflector (40°C maximum operating temperature with lens in place in reflector)		•	fig. 19
WA25-ENC	Flat Acrylic Bottom Enclosure for 25" prismatic acrylic reflectors	•		fig. 18
WA-T	Perforated Metal Top Enclosure for WA22 and WA25 reflectors	•		fig. 11
WG-14	14" Wireguard - corrosion resistant, welded steel w/ center lamp access; can be used in combination with BL-LR-14		•	fig. 15
WG-16	16" Wireguard - corrosion resistant, welded steel w/ center lamp access		•	fig. 15
WG-19	19" Wireguard - corrosion resistant, welded steel w/ center lamp access		•	fig. 15
WG-23	23" Wireguard - corrosion resistant, welded steel w/ center lamp access		•	fig. 15
WG-29	29" Wireguard - corrosion resistant, welded steel w/ center lamp access		•	fig. 15
WG-16	Wire Guard for 16" highbay reflectors	•		fig. 15
WG-19	Wire Guard for 19" highbay reflectors	•		fig. 15
WG-23	Wire Guard for 23" highbay and 22" prismatic reflectors	•		fig. 15
WG-25	Wire Guard for 25" highbay reflectors	•		fig. 15
WG-29	Wire Guard for 29" highbay reflectors	•		fig. 15

1 Luminaire retainers/safety cables reduce risk of equipment falling.
2 Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

See pags 66-70 for detailed drawings.

OPTIONS & ACCESSORIES

Fixture Cord Logic

Example:	-C	4	HL	P	SO	F	4	15A
	Cord	Length	Hook/Loop	Plug	Mounting Box	Fuse	Voltage	Plug Amperage

CORD
- **C**

LENGTH
- **4** 16/3 SO cord, four feet long
- **6** 16/3 SO cord, six feet long
- **8** 16/3 SO cord, eight feet long
- **10** 16/3 SO cord, ten feet long
- **12** 16/3 SO cord, twelve feet long

HOOK/LOOP
- **HL** Die Cast Fixture Hook with loop closure

PLUG
- **BLANK** No plug required, only cord and hook/loop
- **P** Hubbell Twist Loc Plug

MOUNTING BOX
- **BLANK** Standard Quick-On mounting box
- **SO** Optional Slick-On mounting box (must be picked with fuse)

See pages 66-70 for line drawings.

FUSE
- **BLANK** No Fuse
- **F** Single Fuse mounted in Slick On cover
- **FF** Double Fuse mounted in Slick On cover

VOLTAGE
- **BLANK** No plug required, only cord and hook/loop
- **1** 120v Hubbell Twist-Lock® Plug
- **2** 208v Hubbell Twist-Lock® Plug
- **3** 240v Hubbell Twist-Lock® Plug
- **4** 277v Hubbell Twist-Lock® Plug
- **5** 480v Hubbell Twist-Lock® Plug
- **C** 347v Canadian Hubbell Twist-Lock® Plug

PLUG AMPERAGE
- **BLANK** 20 amp Hubbell Twist-Lock® Plug
- **15A** 15 amp Hubbell Twist-Lock® Plug

Popular Cord Set Options

C4HLP1
C4HLP4
C4HLP1-15A
C4HLP4-15A

Dead Front Plug Offerings

DFP[1]	SO w/ Slick-On® Hanger	F Single Fuse	F[2] Double Fuse	X Voltage	Catalog Number
DFP				1 (120V)	**DFP1**
DFP				4 (277V)	**DFP4**
DFP				5 (480V)	**DFP5**
DFP	SO			1 (120V)	**DFPSO1**
DFP	SO			4 (277V)	**DFPSO4**
DFP	SO			5 (480V)	**DFPSO5**
DFP	SO	F		1 (120V)	**DFPSOF1**
DFP	SO	F		4 (277V)	**DFPSOF4**
DFP	SO	F		5 (480V)	**DFPSOF5**
DFP	SO	F	F	1 (120V)	**DFPSOFF1**
DFP	SO	F	F	4 (277V)	**DFPSOFF4**
DFP	SO	F	F	5 (480V)	**DFPSOFF5**

1 Dead Front Plug includes Cord, Loop and Dead Front Disconnect Plug with Quick-On® Hanger – 15" SO cord factory wired to fixture; order with PHS-XXXL (see mounting accessories).
2 Not for Canada.

NEMA Configurations

Voltage	Description	Plugs[1] NEMA #	Plug #	Receptacles NEMA #
		20 Amp Plugs & Receptacles		
120	2 pole, 3 wire grounding	**L5-20P**	2311	**L5-20R**
208	2 pole, 3 wire grounding	**L6-20P**	2321	**L6-20R**
240	2 pole, 3 wire grounding	**L6-20P**	2321	**L6-20R**
277	2 pole, 3 wire grounding	**L7-20P**	2331	**L7-20R**
480	2 pole, 3 wire grounding	**L8-20P**	2341	**L8-20R**
		15 Amp Plugs & Receptacles		
120	2 pole, 3 wire grounding	**L5-15P**	4720C	**L5-15R**
208	2 pole, 3 wire grounding	**L6-15P**	4570C	**L6-15R**
240	2 pole, 3 wire grounding	**L6-15P**	4570C	**L6-15R**
277	2 pole, 3 wire grounding	**L7-15P**	4770C	**L7-15R**

1 CSA certified.
NOTE: All plugs are manufactured by Hubbell Wiring Device Division.

OPTIONS & ACCESSORIES

Mounting Accessories

(order separately)
Plugs are Twist-Lock® type as manufactured by Hubbell Wiring Devices.

Catalog #	Description
BLA-C4HLP-1	4' Cord, Hook/Loop and 120V 20A Twist-Lock® Plug
BLA-C4HLP-4	4' Cord, Hook/Loop and 277V 20A Twist-Lock® Plug
BLA-C4HLP1-15A	4' Cord, Hook/Loop and 120V 15A Twist-Lock® Plug
BLA-C4HLP4-15A	4' Cord, Hook/Loop and 277V 15A Twist-Lock® Plug
HOOK/LOOP[1]	Hook - cast aluminum 3/4" NPS male; includes safety screw; converts to Loop with strap included
H3/4AL3/4[1]	Swivel Aligner - complete with box for thru wiring; all hubs tapped for 3/4" conduit - 25° swivel
PHE-XXX[1]	Die Cast Aluminum Power Hook with 20A Twist-Lock® Receptacle – ceiling or 3/4" pendant mount, with 3/4" side entry for thru wiring 15" Cord, Hook/Loop & Twist-Lock® Plug (20 amp) included (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
PHE-XXX-L[2]	As above, except cord, loop & plug not included (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
PHS-XXX	Specification Grade Power Hook - 30" cord dead front plug & receptacle with isolated wiring chamber; ceiling or 3/4" pendant mount, with 3/4" side entry for thru wiring; special safety feature locks Hook/Loop onto bottom hook (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
PHS-XXX-L[1,3]	Specification Grade Power Hook - dead front receptacle with isolated wiring chamber; ceiling or 3/4" pendant mount, with 3/4" side entry for thru wiring; Cord, Hook/Loop and Dead Front Plug not included, must be ordered with luminaire (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
SY3-XXX-2	Rugged Steel Power Hook with 20A Twist-Lock® Receptacle - pendant or surface mount, 3/4" thru wiring capability; 30" Cord, Hook/Loop and Plug (20 amp) included (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
SY3-XXX-L[2]	Porta-Hook includes integral mounting hook and 20A Twist-Lock® Receptacle; 3/4" knockouts on top and two sides; Cord, Hook/Loop and Plug (20 amp) not included (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)

1 CSA certified.
2 Cord, Hook/Loop and Plug must be added to fixture as option, example: -C2HLP4.
3 Cord, Hook/Loop and Dead Front Plug must be added to fixture as option, example: -DFP4.
NOTE: Cord used with above accessories is 16/3 SOWA 105°C NEMA configurations.

See pages 66-70 for line drawings.

OPTIONS & ACCESSORIES

Options Details

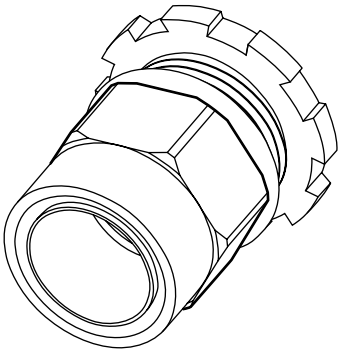


FIG. 1

-CFB

CHARCOAL FILTER
BREATHER
TRIBAY/SUPERBAY

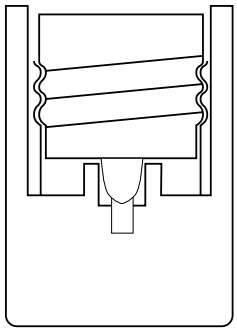


FIG. 2

-EX

EXCLUSIONARY
MOGUL SOCKET
TRIBAY/SUPERBAY

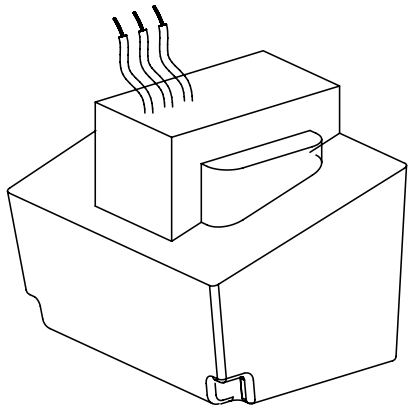


FIG. 3

-EB

ENCAPSULATED BALLAST
TRIBAY

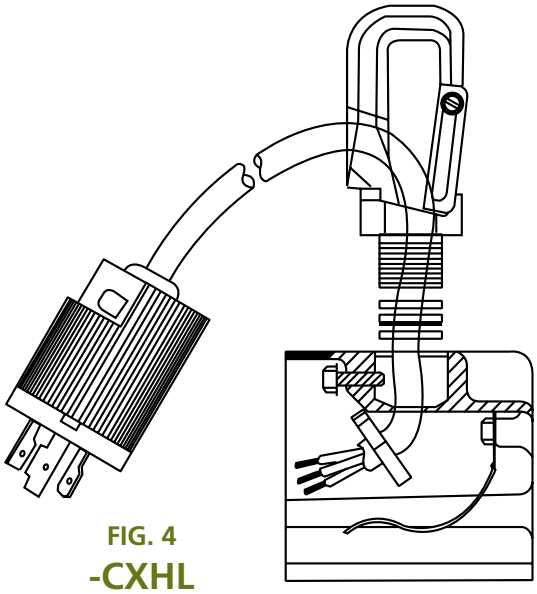


FIG. 4

-CXHL

CORD/HOOK/LOOP
TRIBAY

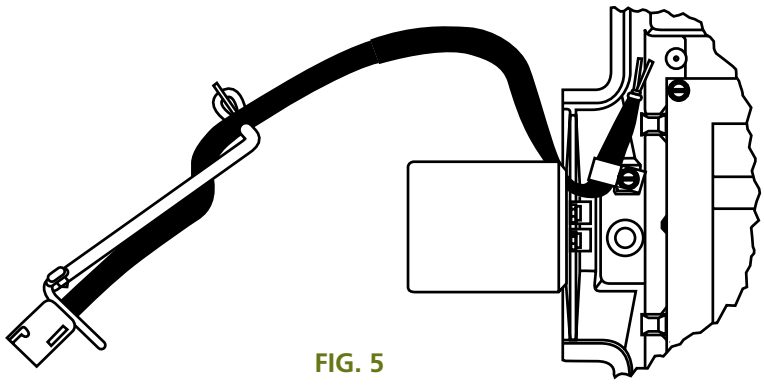


FIG. 5

-EM/-QSS/-QST

EM - EMERGENCY QUARTZ LAMP SOCKET
QSS - QUARTZ STANDBY
QST - QUARTZ STANDBY WITH TIE DELAY
TRIBAY/SUPERBAY

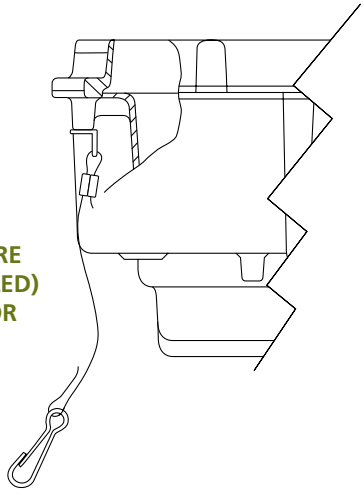


FIG. 6

-LRI

LOWER LUMINAIRE
RETAINER (INSTALLED)
LARGE REFLECTOR
TRIBAY

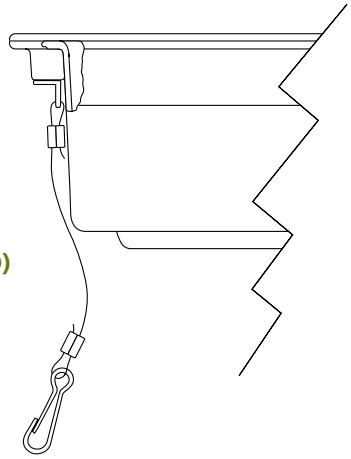


FIG. 7

-LRI

LOWER LUMINAIRE
RETAINER (INSTALLED)
SMALL REFLECTOR
TRIBAY

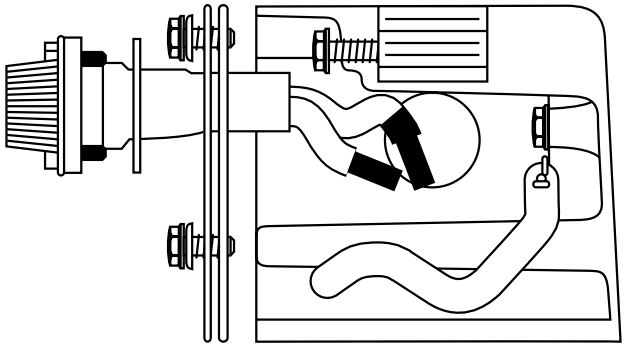


FIG. 8

CHF/CHFF

SINGLE/DOUBLE FUSE KIT
TRIBAY

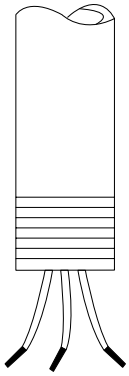


FIG. 9

CH-B

WIRING BOX WITH
NO ELECTRICAL
DISCONNECT
TRIBAY

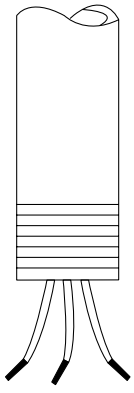
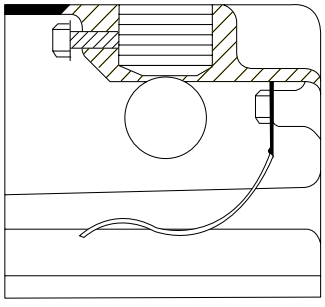
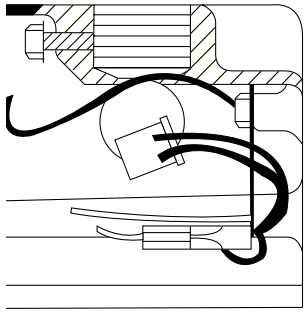


FIG. 10

CH-Q

WIRING BOX
WITH ELECTRICAL
DISCONNECT
(QUICK-ZONE®)
TRIBAY





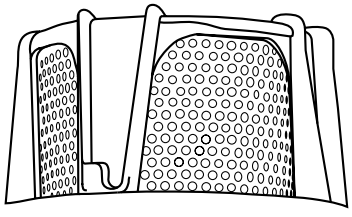


FIG. 11

WA-T

PERFORATED METAL
TOP ENCLOSURE
TRIBAY

OPTIONS & ACCESSORIES

Accessories Details

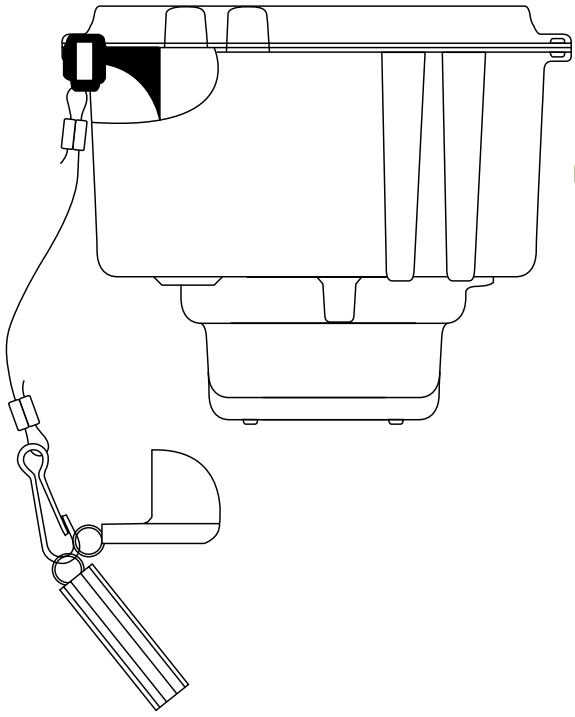


FIG. 12

CH-LLR

LOWER LUMINAIRE RETAINER
(FOR FIELD INSTALLATION)
TRIBAY

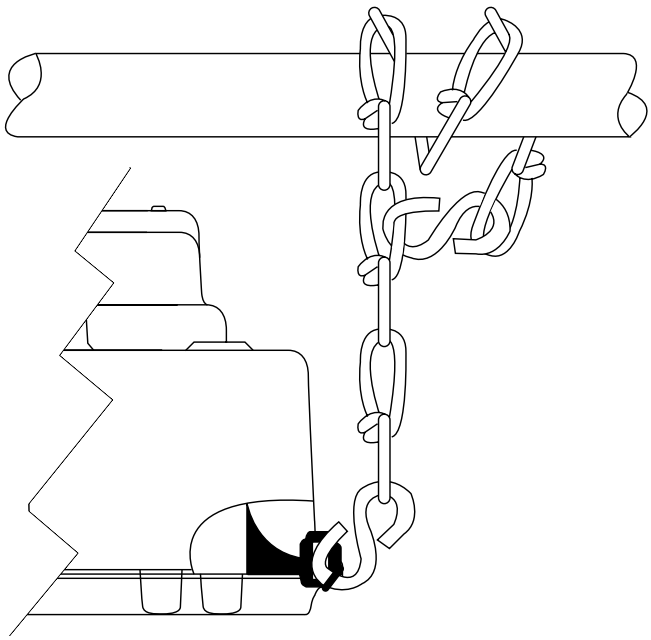


FIG. 13

CH-TLR

TOP LUMINAIRE RETAINER
(FOR FIELD INSTALLATION)
TRIBAY

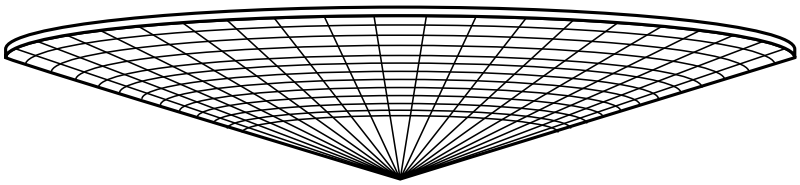


FIG. 14

WA22-CDL

CONICAL DROP PRISMATIC
LENS FOR WA22 REFLECTOR
TRIBAY/SUPERBAY

OPTIONS & ACCESSORIES

Accessories Details

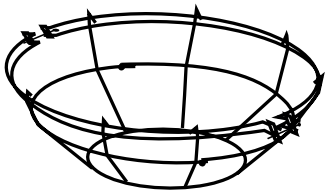


FIG. 15

WG-XX

WIRE GUARD FOR HIGHBAY REFLECTORS
TRIBAY/SUPERBAY

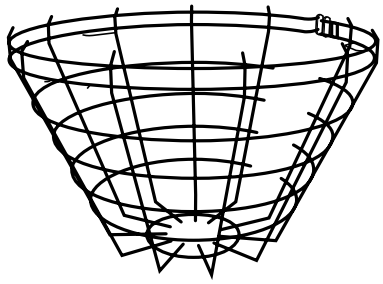


FIG. 16

SW-WG

SUPERWATT® FULL WIRE GUARD WITH SAFETY CHAIN

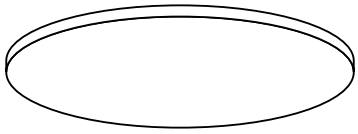


FIG. 17

BL-LR

TEMPERED GLASS LENS
SUPERBAY

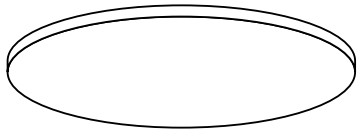


FIG. 18

-ENC

TEMPERED GLASS LENS
FLAT ACRYLIC BOTTOM ENCLOSURE
TRIBAY/SUPERBAY

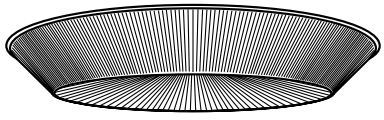


FIG. 19

DLR/DLR2

DROP LENS REFRACTOR
TRIBAY/SUPERBAY

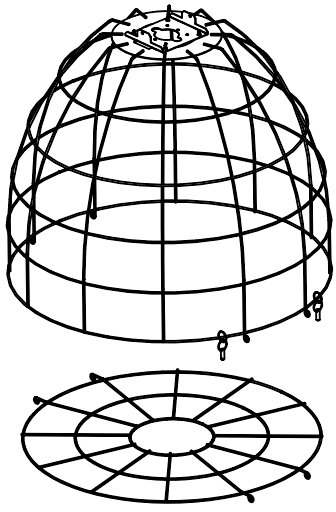


FIG. 20

FWG

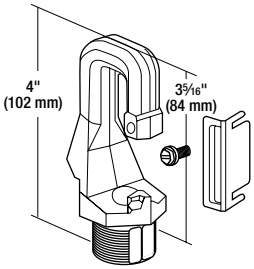
FULL WIRE GUARD FOR ACRYLIC REFLECTORS
TRIBAY/SUPERBAY

HG-FWG

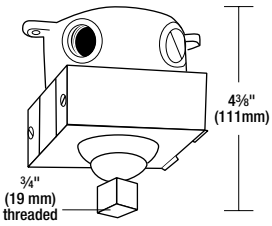
FULL WIRE GUARD FOR GLASS REFLECTORS
TRIBAY/SUPERBAY

OPTIONS & ACCESSORIES

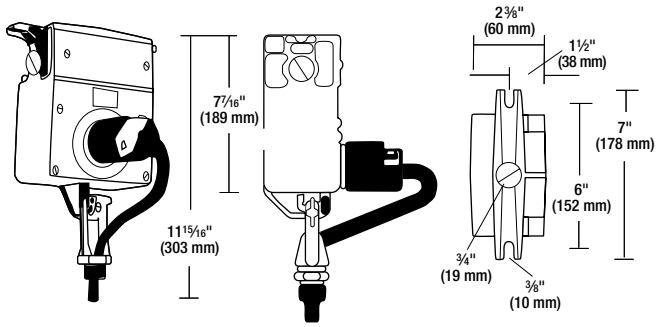
Mounting Accessories Details



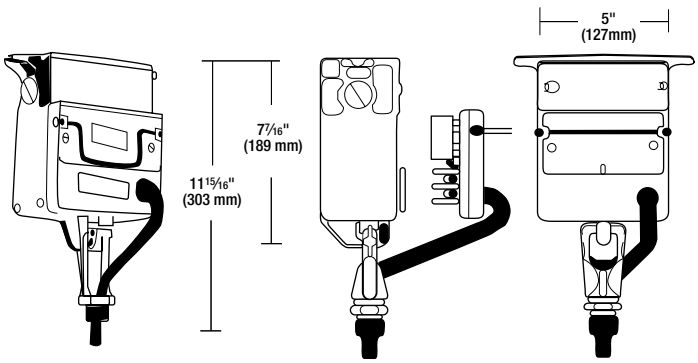
HOOK/LOOP



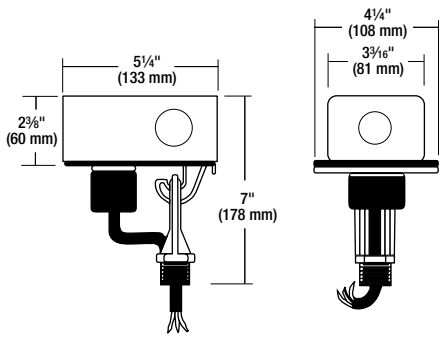
H3/4AL3/4
SWIVEL ALIGNER



PHE-XXX
TWIST-LOCK RECEPTACLE POWER HOOK



PHS-XXX
SPECIFICATION GRADE POWER HOOK



SY3-XXX-L
PORTA-HOOK

REMOTE

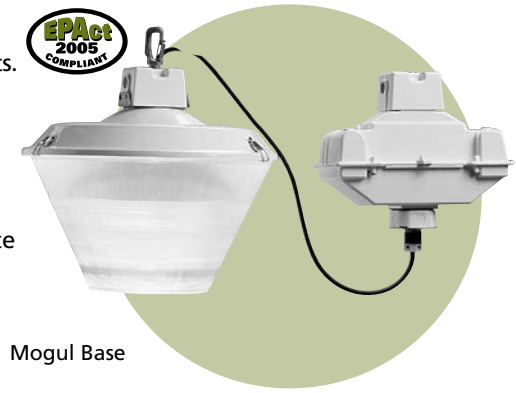
TRIBAY® REMOTE

Features

Tribay RO Series consists of a ballast module and a remote reflector/refractor mounting module. It accepts any of the Tribay optical systems. Ideal for applications requiring low profile luminaires or remote mounting of ballasts.

For highbays, lowbays, prismatic refractors, aisle lighters, and enclosed and gasketed fixtures. All of the electrical and mechanical features and benefits of Tribay luminaires are retained in the Tribay RO. Suitable for damp locations.

You must order three items. Ballast housing, optical assembly and remote optical mounting bracket, e.g., CH-OU, CH-25-H-8-M-RO, RO-25-H-OU



Mogul Base

CH - OU

Series Optical Assembly

CH - 25 - H - 8 - M - RO

Series Watts Ballast Volts Mounting Remote

Optical Assembly

Series
- **CH** Tribay Series

Optical Assembly
- **OU** 19″ Open highbay reflector
- **EU** 19″ Enclosed highbay reflector
- **OU60** 23″ Open highbay reflector
- **EU60** 23″ Enclosed highbay reflector
- **LM** 29″ Lowbay optics (750W max)
- **SW** Superwatt® optics (450W max)
- **WA22** 22″ Clear prismatic reflector (750W max)
- **WW22** 22″ Opaque prismatic acrylic reflector (750W max)
- **WD22** 22″ Diffuse prismatic reflector (750W max)
- **WA25** 25″ Clear prismatic acrylic reflector (1000W max)

Remote/Offset Optical Mounting Bracket

Catalog Number	Weight lbs. (kg)
RO-XX[1]-X[2]-XX[3]	5 (2.3)

1 Substitute fixture wattage from ballast assembly chart.
2 Substitute ballast/lamp letter designation from ballast assembly chart
3 Substitute optical order code from optical assembly chart

For a complete list of options and accessories see pages 60-70.

Ballast Assembly

Series
- **CH** Tribay Series

Wattage
- **25** 250W
- **32** 320W
- **35** 350W
- **40** 400W
- **45** 450W
- **60** 600W
- **75** 750W
- **10** 1000W

Ballast/Lamp System
- **W** Pulse Start CWA
- **E** Electro-Reg® (lamp included)
- **H** MH - Standard PLA
- **L** HPS, low loss Mag-Reg®
- **M** HPS, Mag-Reg HPS
- **S** Standard CWA, AL, HPS
- **F** HPS, CWI (Canada)
- **D** MH, CWI (Canada)

Voltage
- **1** 120V
- **2** 208V
- **3** 240V
- **4** 277V
- **5** 480V
- **6** Tri-Tap® 120/277/347V (not available on Electro-Reg)
- **7** 600V (Isolated secondary only)
- **8** Quad-Tap® 120/208/240/277V (not available on Electro-Reg)
- **O** Less ballast and cap (250 & 400W only)
- **E** 220/240V 50Hz (HPS and MH only)
- **F** 347V

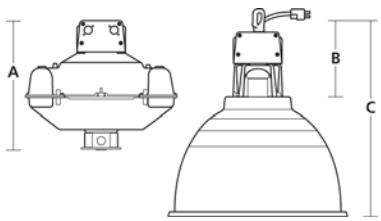
Mounting Method
- **D** Quick Zone™ Electrical disconnect - wiring box shipped with fixture
- **E** Quick Zone™ Electrical disconnect - wiring box not shipped with fixture (wiring box must be shipped as accessory - CH-Q)
- **L** Less wiring box (wiring box shipped as accessory - CH-B)
- **M** With wiring box (standard construction)

Remote Offset
- **RO** Remote Ballast Housing

Dimensions

	B	C
OU/EU	10 3/4″ 273 mm	23 5/8″ 600 mm
OU60/EU60	10 3/4″ 273 mm	26 3/8″ 670 mm
LM	10 3/4″ 273 mm	26 1/2″ 673 mm
SW	10 3/4″ 273 mm	22 3/4″ 578 mm
WA22, WD22, WW22	10 3/4″ 273 mm	24 3/4″ 629 mm
WA25	10 3/4″ 273 mm	25 1/4″ 641 mm

Ballast Assembly



	A
Ballast	13 1/2″ 343 mm

Optical Assembly

REMOTE

SUPERBAY REMOTE

Mogul Base

Features

Superbay RO Series consists of three parts detailed below. To make a complete unit, you must order an optical assembly, a ballast assembly and a remote/offset optical mounting bracket. It accepts any of the Superbay optical systems. Ideal for applications requiring low profile luminaires or remote mounting of ballasts. For highbays, lowbays, prismatic refractors, aisle lighters, and enclosed and gasketed fixtures. All of the electrical and mechanical features and benefits of Superbay luminaires are retained in the Superbay RO. Up to 55°C ambient. Suitable for damp location.

Ordering Information

BL	-	AL	BLA	-	250	-	H	-	8	-	WH	-	RO
Series		Optical Assembly	Series		Watts		Ballast		Volts		Color		Remote

Optical Assembly

Series
- **BL** Superbay Series

Optical Assembly
- **AL** Aisle Lighter
- **BI** 14" Spun Aluminum Reflector
- **EG** Enclosed and Gasketed
- **LB1** 23" Lowbay Optics
- **PA2** 16" Clear Acrylic Reflector
- **SD** 19" Reflector with downlight
- **SU** 19" Reflector with uplight
- **LM** 29" Lowbay
- **WA** 22" Acrylic Reflector
- **WW** 22" Opaque Acrylic Reflector

Remote/Offset Optical Mounting Bracket

Catalog Number	Application	Weight lbs. (kg)
RO-XX-X-BL	All HPS and 175W, 250W and 320W MH	5 (2.3)
RO-40-H-BL	350W, 400W, 450W and 750W MH only	5 (2.3)

Note Complete with hook/loop, 36" cord, and 15A Twist-Lock® plug.
Note Do not substitute for "Xs".

For a complete list of options and accessories see pages 60-70.

Ballast Assembly

Series
- **BLA** Superbay Series

Wattage
- **150** 150W Pulse Start MH or HPS
- **175** 175W MH or Pulse Start MH
- **200** 200W Pulse Start MH only
- **250** 250W MH, Pulse Start MH, or HPS
- **320** 320W Pulse Start MH only
- **350** 350W Pulse Start MH or Electro-Reg
- **400** 400W MH, Pulse Start MH, HPS, or Electro-Reg
- **450** 450W Pulse Start MH only

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **W** Pulse Start Metal Halide
- **E** Electro-Reg® (40°C)

Voltage
- **1** 120V Electro-Reg only
- **2** 208V Electro-Reg only
- **3** 240V Electro-Reg only
- **4** 277V Electro-Reg and Linear Reactor
- **5** 480V Electro-Reg and Linear Reactor
- **6** Tri-Tap® 120/277/347V (not available on Electro-Reg)
- **8** Quad-Tap® 120/208/240/277V (not available on Electro-Reg)
- **F** 347V

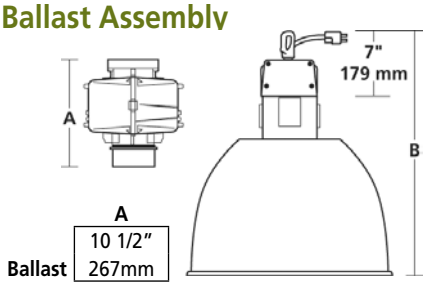
Color
- **WH** White (standard)
- **GR** Gray (optional)

Remote
- **RO** Remote Ballast Housing

Note MV lamp will operate on MH ballast.
Note Linear Reactor Pulse Start ballast available, 277V only - Consult factory.
Note Options must be added as suffix to catalog number. Accessories must be ordered separately.

Dimensions

Ballast Assembly



	A
Ballast	10 1/2" 267mm

Optical Assembly

	B
LM	26 1/2" 673 mm
PA2	20 1/4" - 22 1/2" 514 mm - 571 mm
WA22 WW22	23 1/4" - 25 1/2" 591 mm - 648 mm
WA25	23 3/4" - 26" 603 mm - 660 mm

	B
AL-SD-SU	21" - 23 1/4" 533 mm - 591 mm
BI	19 3/4" - 22" 502 mm - 559 mm
EG	20 1/4" 514 mm
LB1	24 1/2" 622 mm

DIMMING/WIRING SYSTEMS

LIGHTBAT G2

Features

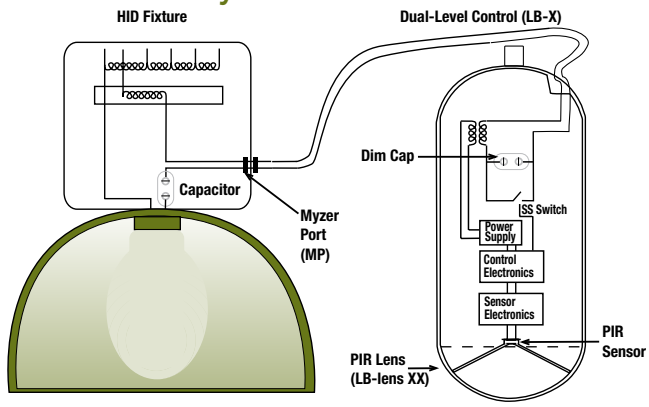
- Reduces energy consumption by 40 to 50%
- For use with CWA ballast only, reduces lamp power up to 50%
- Microprocessor controlled (exclusive to Hubbell): Sensor adjustments are fully automatic for the life of the product; use of solid state switching near zero crossing eliminates harmful high capacitor inrush currents; integrated self-diagnostics significantly reduces installation and test time
- Lamp current monitoring for guaranteed 15 minute lamp warm up after lamp has started
- Sensor lens is 2 to 3 times more powerful than any competitive product on the market
- Lights Bright Timer Settings: 1, 2, 4, 8, 32, 64 minute and 5 second test mode
- Laser tool significantly improves sensor alignment accuracy and speeds installation
- Uses Myzer Port connector system
- Minimum operating temperature -35°C
- Dimensions: 13 1/4" H x 5.5" W x 2.6" D
- UL and C-UL; warranty for 5 years
- Dim capacitor and PIR sensor lens required

Ordering Information

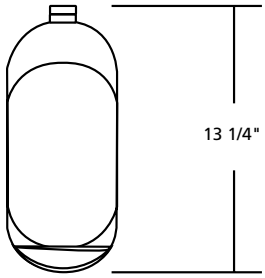
Catalog Number	Description
	Myzer Port
-MP	Myzer Port, Industrial Option
	Lightbat G2
LB-1	Controls the following lamp types and wattages at 65°C: 175W MH; 175W, 200W Pulse Start MH
LB-2	Controls the following lamp types and wattages: 250W, 320W, 350W, 400W MH at 65°C; 250W, 320W, 350W, 400W, 450W Pulse Start MH at 65°C; 250W HPS at 65°C; 400W HPS at 55°C
LB-3	Controls the following lamp types and wattages at 55°C, 30 minute lamp warm up cycle: 1000W, 1500W, 1650W MH; 750W, 100W Pulse Start MH; 600W, 1000W HPS

Lightbat G2

Myzer Port Dual Level HID Control System Installation



Dimensions



DIMMING/WIRING SYSTEMS

LIGHTBAT G2

THE LIGHTBAT DUAL-LEVEL CONTROL SYSTEM

The Lightbat Dual-Level Control System is an integrated digital HID dual-level switching controller and sensor. One sensor comes with every fixture and is plugged into a Myzer port connector. Complex wiring and setup is eliminated, and can thereby reduce the total installed cost (materials and labor) by over 50%.

Energy savings can be maximized with sensors at every fixture. Only Hubbell's new advanced dual-level switching system will reliably operate with short, one-minute timer settings. This is a key requirement to reduce energy by over 40%, even in the busiest of warehouses. The Dual-Level Control features the following:

- One sensor per fixture for maximum savings
- Best sensing performance
- Lowest installed cost for combination dual-level switching and motion sensing
- Options available for easy interface to photocell controls

MYZER PORT IS ORDERED AS AN INSTALLED OPTION (-MP)

Superbay

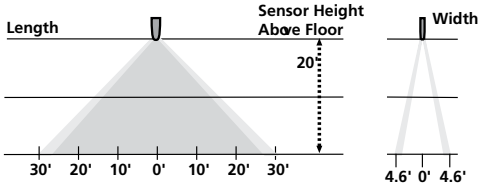
Tribay

Tribay Superwatt

Range Diagrams

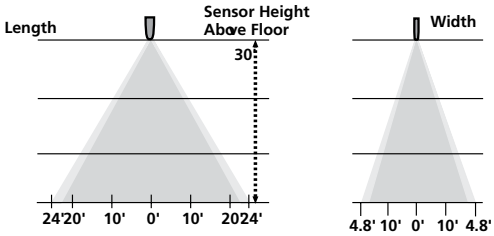
Lens 15

AISLE LENS, 12' TO 20' (MAX)
MOUNTING HEIGHT ABOVE FLOOR



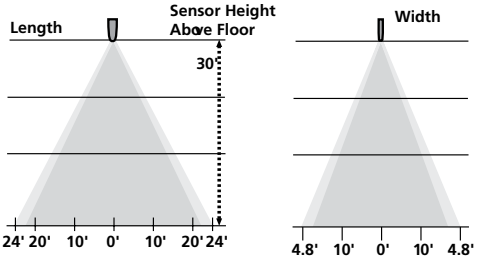
Lens 07

AISLE LENS, 25' TO 50' (MAX)
MOUNTING HEIGHT ABOVE FLOOR



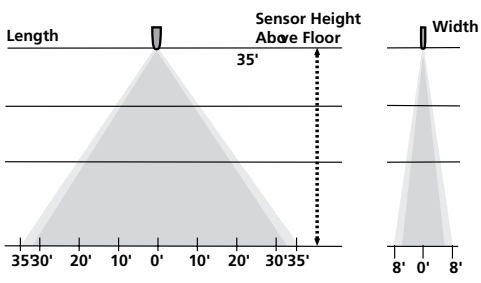
Lens 0806

AISLE LENS, 12' TO 30' (MAX)
MOUNTING HEIGHT ABOVE FLOOR



Lens 10

AISLE LENS, 16' TO 35' (MAX)
MOUNTING HEIGHT ABOVE FLOOR



Hubbell's Industrial products come in many shapes, sizes, wattages and levels of performance. Beyond the efficient delivery of light, we have a number of "value-added" technologies that work to make your system ***last longer***, be more ***energy efficient***, reduce maintenance and control your light usage more effectively.

3D LIGHTING

Electronic Electro-Reg®

PulseSmart™

V-SPEC

Electro-Reg®

EPAct 2005

EL Series

EPAct

2005

LARGE CHOICE OF BALLAST TYPES – VIRTUALLY ALL HUBBELL INDUSTRIAL FIXTURES ARE EPAct COMPLIANT. THIS INCLUDES THREE CLASS I, DIV. 2 FIXTURES. FOR MORE INFORMATION, VISIT www.hubbelllighting.com/epact/

The Energy Policy Act of 2005 establishes a long-range energy policy to combat the nation's growing energy crisis. Effective January 1, 2006, through December 31, 2007, the U.S. government is offering substantial, accelerated tax incentives as a reward for installing or retrofitting energy-efficient lighting, HVAC and/or building envelope technologies in qualifying applications.

Lighting, a critical component of energy use today, represents 40% of the average commercial building's electric bill. Energy-efficient upgrades reduce energy consumption and operating costs by 30 to 50% and often pay themselves back within months.

The true benefit of EPAct 2005 is that it allows a larger portion of the capital investment to be depreciated in the first year. Generally, lighting retrofit investments are amortized over the life of the system, but EPAct 2005 allows a larger portion to be deducted immediately.

EPACT 2005 QUALIFICATIONS

TO QUALIFY FOR THE EPACT 2005 TAX DEDUCTIONS, A COMMERCIAL BUILDING PROPERTY MUST:

- Be located in the U.S. and fall within the scope of ASHRAE/IES Standard 90.1-2001; and
- Receive an upgrade/installation of:
  (1) interior lighting system, or
  (2) heating/cooling/ventilation/hot water systems, or
  (3) building envelope that was put in service between Jan. 1, 2006 and Dec. 31, 2007
- Be certified as being an "energy-efficient property," defined as one that has 50% reduction in the total annual energy and power costs of a building satisfying ASHRAE/IES Standard 90.1-2001.

TO RECEIVE THE TAX DEDUCTION, THE DEDUCTION MUST:

- Not exceed the cost of the upgrade, including materials, labor and design; and
- Be taken in the taxable year the property or upgrade is placed in service (either 2006 or 2007); and
- Be calculated based on the square footage of the upgraded building.
  – Up to $1.80/sq.ft. for "energy-efficient property"
  – Up to $0.60/sq.ft. each for interior lighting, HVAC/hot water and building envelopes

TO CLAIM THE TAX DEDUCTION, YOU MUST BE:

- The owner or entity who paid to have the commercial building constructed or renovated
- The party primarily responsible for designing the publicly owned property

EPACT 2005 CLAIMS

BEFORE CLAIMING THE EPACT 2005 TAX DEDUCTION, YOU MUST:

- Have the plans and actual in-place construction reviewed by qualified, third-party inspectors; and
- Have energy savings determined by software certified by the Department of Energy as meeting criteria of consistency and accuracy; and
- Obtain a certification, as determined by the IRS, that the required energy savings will be achieved.

THE QUALIFIED, THIRD-PARTY INSPECTORS:

- Are not related (do not have an employer/employee relationship) to the taxpayer claiming the deduction; and
- Are engineers or contractors who are properly licensed as professional engineers or contractors in the jurisdiction in which the building is located; and
- Represent in writing to the taxpayer that they have the requisite qualifications to provide the certification required and/or to perform the inspection required.

THERE ARE TWO TYPES OF TAX DEDUCTIONS YOU CAN CLAIM:

- ***Whole Tax Deduction***
  – Interior lighting, HVAC/hot water and building envelope systems
  – One-time deduction up to $1.80/sq.ft. if ASHRAE/IES Standard 90.1-2001 is exceeded by 50%
- ***Partial Tax Deduction***
  – Not all systems achieve 50% improvement over ASHRAE/IES Standard 90.1-2001
  – It is possible to upgrade only portions of a building to higher efficiency lighting, with the deduction based on upgraded space square footage
  – One-time deduction of $0.30 to $0.60/sq.ft. for lighting with 25-40% improvement over ASHRAE/IES Standard 90.1-2001

SOLUTIONS

There are more advantages to a lighting upgrade than reducing energy costs and conserving energy – good lighting can actually increase your bottom line. A lighter office environment can improve employee morale and reduce absenteeism. Aesthetically pleasing lighting can highlight product features in retail environments, encouraging lingering, buyer confidence and impulse sales. Proper lighting in manufacturing buildings can boost quality control and speed productivity. Improved lighting in warehouses can reduce errors and improve safe

ELECTRONIC E-REG®

Electronic E-Reg® is a new kind of HID ballast – with microprocessor-based technology that delivers a genuine, quantum leap in metal halide performance. Performance measured by extraordinary, unprecedented lumen maintenance capabilities means huge opportunities for operating cost reductions, both through energy savings and lower maintenance requirements. In addition, Electronic E-Reg® also helps turn color shift, lamp blackening and lack of control into long-gone problems of the past.

In applications where fluorescent options such as T5/HO are beginning to provide an HID alternative, users looking for a positive cost/benefit equation now have more choices – and more ways to enjoy the rewards of better lighting.

REVOLUTIONARY TECHNOLOGY DELIVERS REVOLUTIONARY VALUE

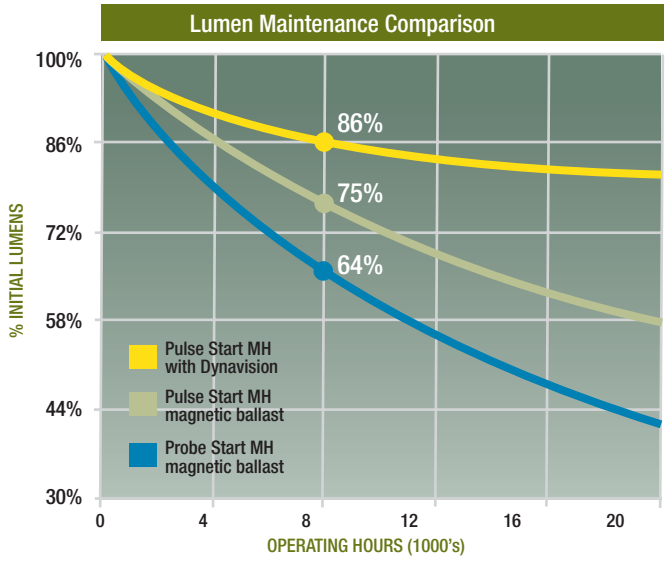
With the introduction of Electronic E-Reg® electronic ballasts for HID systems, Hubbell Industrial has established totally new benchmarks for performance and cost savings.

The key to understanding the true value of this innovation is something called "lumen maintenance," or the lamp/ballast system's ability to minimize light output depreciation over the life of the lamp. Conventional HID systems – magnetic ballasts driving probe start metal halide lamps – typically experience a 50-60% fall-off in light output over the published life of the lamp. This fall-off can lead to excessive maintenance costs due to the need for frequent re-lamping, and inefficient energy usage throughout the life of the system.

Electronic E-Reg® changes the rules by delivering a 30-50% improvement in lumen maintenance over these conventional systems. By maintaining higher light levels across the entire published life of the lamp, the system delivers significant value to the end user in three key ways:

- ***30-50% IMPROVED LUMEN MAINTENANCE LEADS UP TO 50% LESS LAMP REPLACEMENT COSTS***
- ***56% MORE LUMENS ENABLES THE USE OF UP TO 36% FEWER FIXTURES***
- ***36% FEWER FIXTURES LEADS TO 41% ENERGY SAVINGS – ANNUALLY!***

10-YEAR OVERALL COST OF OWNERSHIP REDUCED UP TO 36%



ELECTRONIC E-REG®

IMPROVED LUMEN MAINTENANCE = LESS LAMP MAINTENANCE

Most lighting systems are designed on the basis of mean or"average" light output of the lamp. For metal halide (MH) lamps, this mean light output, as measured in lumens, defined at 40% of the lamp's rated life. Since most medium wattage MH lamps are rated at 20,000 hours of lamp life, mean lumens are advertised at 8,000 hours of lamp life.

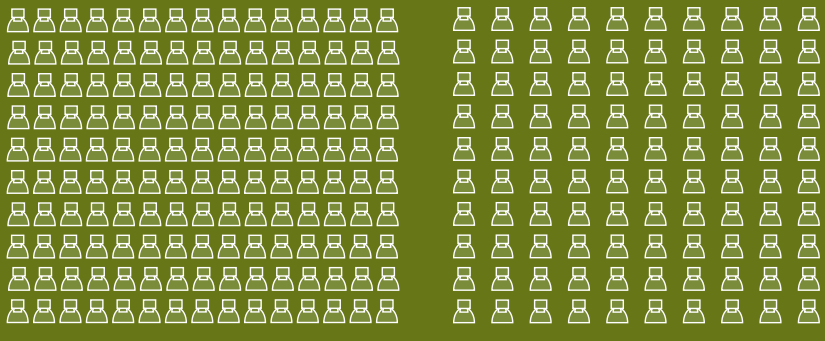
As lumens fall off after the 8,000 hr. design point, the lighting level for many applications may become unacceptable, resulting in the need for re-lamping significantly prior to reaching the 20,000 hr. rated life of the lamp.

Because of Electronic E-Reg®'s relatively flat lumen depreciation characteristic, (i.e., better lumen maintenance), early re-lamping is unnecessary, resulting in a more cost-effective lighting system. In the example below, consider identical installations with 400 fixtures: one with magnetic ballasts where lamps are replaced at 12,000 hours, and a second where lamp life is extended to 18,000 hours.

In this example, Electronic E-Reg® would save on average $10 per fixture, per year, just in reduced maintenance costs! The assumption was made that an equal number of fixtures were used. Next, consider the total consequences of producing more light, longer, with fewer fixtures… and discover its true advantage.

	Conventional Magnetic Pulse Start	Electronic E-Reg®
Number of Fixtures	400	400
Annual burn hours	5,000	5,000
Lamps replaced at (hrs.)	12,000	18,000
Lamp cost per each re-lamping	$10,000 (@ $25/lamp)	$10,000 (@ $25/lamp)
Fixture cleaning & lamp replacement labor	$10,000 (@ $25/fixture)	$10,000 (@ $25/fixture)
Number of replacements in 10 years	4	2
Total 10-year cost of lamp changes	$80,000	$ 40,000
10-YEAR LAMP MAINTENANCE SAVINGS = $40,000!		

MORE MAINTAINED LUMENS = FEWER FIXTURES



EQUIVALENT LIGHT LEVELS:

400W Probe Start – 150 Fixtures | **400W Electronic E-Reg®– 96-100 Fixtures**

Benefits of Fewer Fixtures

- *Faster Installation*
- *Lower Material Costs*
- *Lower Labor Costs*
- *Lower Maintenance Costs*
- *Lower Energy Costs*
- *Lower Total Cost of Ownership*

A 400W Electronic E-Reg® system produces up to 56% more mean lumens over conventional probe start systems using the same wattage lamps. Taking advantage of this performance benefit, the overall fixture count can be reduced by up to 36% without sacrificing light levels. Plus, fewer fixtures also have a dramatic impact on both energy and maintenance costs, leading to significantly lower overall operating costs.

Electronic E-Reg® Features	Benefits and Advantages
Microprocessor technology	Lower operating and maintenance costs
High frequency operation	Fewer fixtures
True constant wattage	Energy savings
320/350/400 Tri-Wattage	Fewer SKU's
	Less chance for error
IntelliVolt 200-277V 50/60 Hz	Ease of change over to different wattage lamps
Integral 120V quartz tap and relay, 250W	Standby-lighting ready
	No special orders
	No special relay or control required
0-10V dimming with automatic 15-minute warm up	Continuous dimming down to 50% lamp power
	Additional energy savings through daylight harvesting and occupancy sensing
55°C ambient rating	Greater reliability, flexibility and application opportunities
Lamp end-of-life protection	Safety

MORE ABOUT...STANDBY LIGHTING VERSATILITY

Electronic E-Reg®'s 120-volt output is designed to operate one quartz (incandescent) standby lamp up to 250W. The quartz lamp on or off modes are determined by the HID lamp's specific operating conditions. Once the HID lamp strikes, the quartz lamp automatically switches off when the HID lamp reaches 50% power.

CONTROLLABILITY

Electronic E-Reg® is dimmable – down to 50% of nominal lamp power, with no noticeable loss in color characteristics. With 0-10V dimming, and compatible with a host of products from most control manufacturers, Electronic E-Reg® brings new flexibility and energy-saving strategies, such as daylight harvesting and occupancy sensing, to applications in the industrial, educational, government, hospitality, commercial and retail sectors.

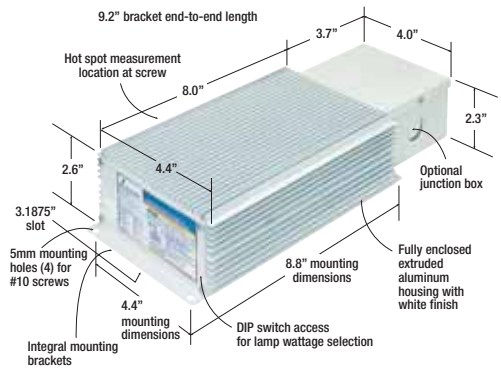
APPLICATION SPECIFICATIONS

Pulse Start Metal Halide

Lamp Data No.	Lamp Data Watts	Min Start Temp. (F/C)	Input Volts	Catalog Number	Listings	Line Cur. (A)	Input Power ANSI (W)	Ballast Factor	Max. THD %	Min. PF %	DIP Switch Settings
320-Watt Lamp, ANSI Code M132/M154											
1	320	-20/-30	200 to 277	IZTEMH4003PS	UL CSA	1.8 1.3	345 345	1.0	15	90	ON
350-Watt Lamp, ANSI Code M131											
1	350	-20/-30	200 to 277	IZTEMH4003PS	UL CSA	1.9 1.4	375 375	1.0	15	90	ON
400-Watt Lamp, ANSI Code M135/M155											
1	400	-20/-30	200 to 277	IZTEMH4003PS	UL CSA	2.2 1.6	430 430	1.0	15	90	Preset at Factory ON

NOTE: These specifications apply to operation of pulse start metal halide lamps with quartz one-tube construction only. For operating compatibility with ceramic one-tube lamps consult Hubbell Industrial.

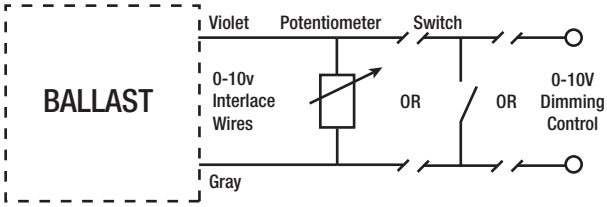
Dip switches are ion " in the down position



DIMMING FEATURE

With 0-10V interface, the Electronic E-Reg® electronic ballasts offer the capability to dim the lamp by lowering the wattage lamp, reducing energy consumption of the light fixture by up to 50%.This interface can be used with either a commercially available 0-10V dimming control, a 0-10V DC power supply, or with a switch. An open switch provides full lamp power and a closed switch, short-circuiting the 0-10V wires, yields 50% lamp power. Control devices such as relays and occupancy sensors may also be used.

A potentiometer may also be used. However, the value of the potentiometer is dependent on the number of ballasts connected. Consult Hubbell Industrial for guidance. In accordance with the requirements of the HID lamp manufacturers and NEMA, the dimming feature includes a time delay to allow the HID lamp to warm up for 15 minutes at full power before the lamps will be allowed to dim, regardless of the level of the 0-10V signal.



WIRE INFORMATION

Wire Color	Function
Black	Input Power
White	Input Power
Green	Ground
Red	Lamp Eyelet
Blue	Lamp Screwshell
Yellow (2)	120V Lamp Output
Violet	0-10V Dimming (+)
Grey	0-10V Dimming (-)

All lead lengths are 11.0" +/- 1.0" and are 0.5" pre-stripped.

EL SERIES

ELECTRONIC BALLASTS

EL SERIES COMBINES HIGH PERFORMANCE FIXTURE OPTICS AND ELECTRONIC BALLASTS

Combining decades of Hubbell Industrial optic design expertise, delivering more light to work areas with new electronic pulse start ballasts and safe, productive workplaces is now possible with the beneefits of more lumens per lamp at lower energy costs.

EL fixtures meet the needs of virtually any system – from highbays to lowbays, in acrylics and spun aluminum.

Highbays

Lowbays

Glass

Acrylic

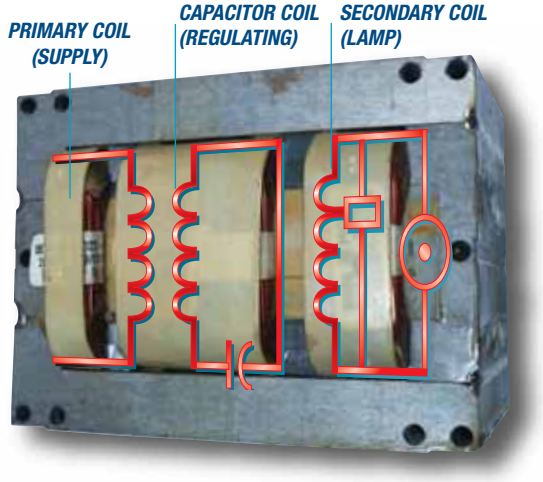
ELECTRO-REG®

BALLAST SYSTEM ADVANTAGE

DOUBLE THE LAMP LIFE.

HOW DOES THE ELECTRO-REG® SYSTEM DO IT?

In its simplest terms, the Electro-Reg® ballast system treats the lamp as it should be treated. First, we've designed the Electro-Reg® ballast system with an isolated, three-coil design. One coil handles the incoming supply voltage, one coil regulates the energy available to the lamp and the final coil is connected to the lamp. Three isolated coils do one thing very well. They isolate and shield the lamp from the distorted current characteristics resulting from normal capacitor charging and discharging. And help to shield the lamp from voltage fluctuations inherent in the power supply.



Second, we've coupled this with our unique ignitor which helps reduce damage to the electrode. The result – a documented longer life for standard lamps. In fact, we will double the published life of the standard lamp when used with the Electro-Reg® ballast system (when we provide the lamp with the fixture).

Lamp life

LAMP	PUBLISHED	ELECTRO-REG
175W PS	15,000	30,000
250W PS	15,000	30,000
350W PS	20,000	40,000
400W MH	20,000	40,000
400W PS	20,000	40,000

THE INDUSTRY DEFINITION OF LAMP LIFE IS THE NUMBER OF OPERATING HOURS WHEN HALF THE LAMP POPULATION IS EXPECTED TO HAVE FAILED.

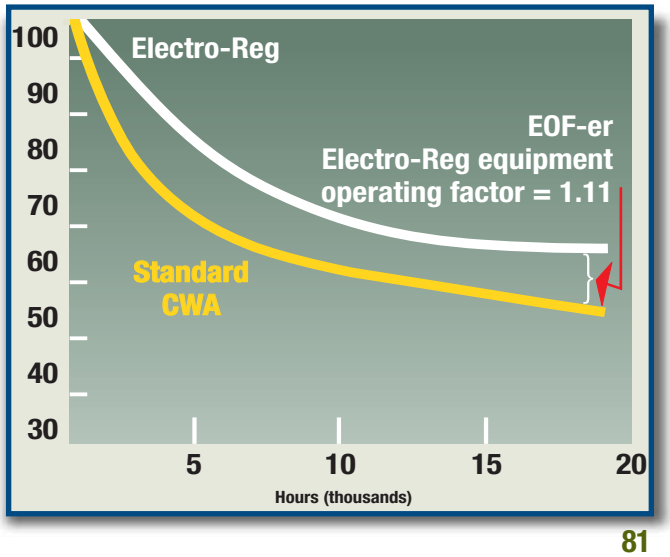
THE AVERAGE MAINTAINED LUMENS IS THE EXPECTED LEVEL AT 40% OF RATED LIFE.

HIGHER LUMEN MAINTENANCE

The lumens produced by metal halide lamps depreciate over time. Some of that depreciation is caused by how the ballast system controls the ignition and operating currents supplied to the lamp and the waveforms of these currents. Our Electro-Reg® ballast system has been developed to greatly enhance control of these currents. Over millions of operating hours the results of that control are outstanding. Shielding the lamp from the direct effects of the ballast capacitor charging and discharging is critical. If the lamp is in series with the capacitor, as with a CWA or Pulse Start CWA, the lamp is subjected to a surge of current when the capacitor discharges. The capacitor also draws current away from the lamp as it charges. This over-driving and under-driving of the lamp is one of the biggest causes of loss of light as the lamp ages.

The second benefit comes from our patented ignitor. Igniting a lamp using high voltage is just a more effective way to operate and results in smoother starting and warm-up. This means less electrode damage per start, the same electrode damage that darkens the arc tube walls and limits light output. To quantify this unique system benefit, Hubbell has developed an Electro-Reg® Equipment Operating Factor (EOF-er). This factor is used during lighting calculations to quantify how much better Electro-Reg® performs over the life of the lamp than any other system, including Pulse Start. The EOF-er is 1.11. To use this factor, simply apply it to the initial lumens, as you would ballast factor, luminaire dirt deprecation or any other factor.

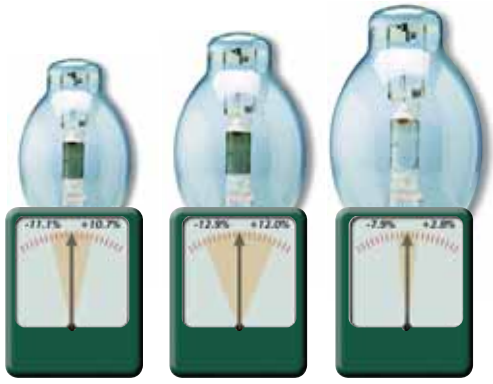
Electro-Reg's Lumen Maintenance



ELECTRO-REG®

BALLAST SYSTEM ADVANTAGE

Lamp Wattage Regulation



CWA WATTAGE RANGE WITH ± 10 LINE VOLTAGE VARIATION

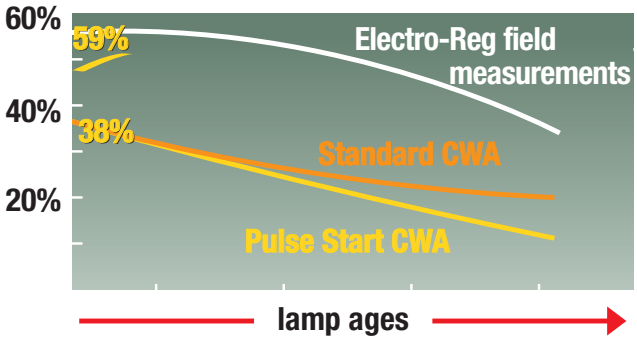
PULSE START CWA WATTAGE RANGE WITH ± 10 LINE VOLTAGE VARIATION

ELECTRO-REG WATTAGE RANGE WITH ± 10 LINE VOLTAGE VARIATION

WHY ELECTRO-REG® IS MORE EFFICIENT.

A standard lamp operated on the Electro-Reg® ballast system will produce more light for more hours on the job than any other system available. To translate this into energy savings, apply the EOF-er factor when doing lighting calculations. You will find that it takes fewer fixtures to achieve the target lighting level with the Electro-Reg® system than with competing alternatives. Since the ballast uses about the same total wattage as the comparable CWA or Pulse Start CWA, fewer fixtures result in less energy used for the job. The fixture comparison charts on the following page illustrate the effect this reduction in fixtures can have. At today's energy prices the result is significant. Who knows what energy prices will be tomorrow?

Electro-Reg's Line Dip Tolerance is 30% greater than CWA systems

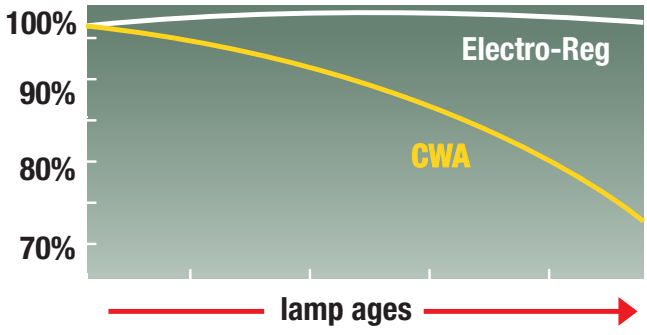


LINE DIP TOLERANCE

There's a sudden dip in line voltage and your machine shop instantly goes dark. Now what – wait 10 minutes for your HID lamps to restrike? Wouldn't it make more sense and be safer if your HID fixtures were resistant to lamp dropout to begin with? A sudden dip in line voltage may extinguish the lamp arc, requiring most HID fixtures to cool down (from 2 to 15 minutes), re-strike and then warm up. The Electro-Reg® ballast tolerates up to a 59% drop in line voltage without losing the arc. CWA and CWA Pulse Start both are about 38% of line voltage. This means that the chance of having HID lamp dropout is much less with an Electro-Reg® ballast system.

Any facility with unstable power or large electric motors has the potential to experience lamp dropout. Help prevent this potentially dangerous situation, with Hubbell's Electro-Reg® system.

Electro-Reg maintains 95%+ Line Power Factor over lamp life



ELECTRO-REG® AND POWER FACTOR

Electro-Reg® ballasts are high power factor ballasts. CWA and CWA Pulse Start ballasts are high power factor with a new lamp. As the lamp ages, their power factor goes down. The Electro-Reg® ballast, on the other hand, maintains its high power factor rating for the life of the lamp and for the life of the ballast. The benefit is continued good power factor for the facility and the avoidance of utility company demand charges.

ELECTRO-REG®

HOW IT SAVES YOU MONEY

Installation Cost Comparison

	400 Watt Standard Metal Halide M59 Lamp	400 Watt Pulse Start Metal Halide M135 Lamp	400 Watt Electro-Reg M135 Lamp
Fixture Quantity	100	86	73
Fixture Spacing (in feet)	17.0'	17.5'	19.0'
Fixture Cost (per fixture)	$148.00	$178.00	$242.00
Lamp Cost (per fixture)	$12.00	$18.00	$18.00
Conduit Cost (per fixture)	$170.00	$175.00	$190.00
Outlet Box Cost (per fixture)	$100.00	$100.00	$100.00
Labor Cost (per fixture)	$50.00	$50.00	$50.00
Total Installed Cost (per fixture)	$480.00	$521.00	$600.00
Total Installed Cost (system)	***$48,000.00***	***$44,657.14***	***$44,015.44***

Assumptions:
$10 per linear foot of conduit installed
$100 per outlet box installed
$50 labor per fixture installed
Fixture is 19" open highbay

Energy Cost Comparison

	400 Watt Standard Metal Halide M59 Lamp	400 Watt Pulse Start Metal Halide M135 Lamp	400 Watt Electro-Reg M135 Lamp
Initial Lumens	40,000	44,000	44,000
Lamp Lumen Depreciation	0.66	0.7	0.78
Ballast Factor	0.95	0.95	1.0
Maintained Lumens	25,080	29,260	34,188
Fixtures Required for Equal Lumens	1.0	0.86	0.73
System Watts per Fixture	458	452	450
Annual Power Costs	***$320.97***	***$271.51***	***$231.35***

Assumed ¢/kwh at 0.08
Assumed Hrs/Year at 8760

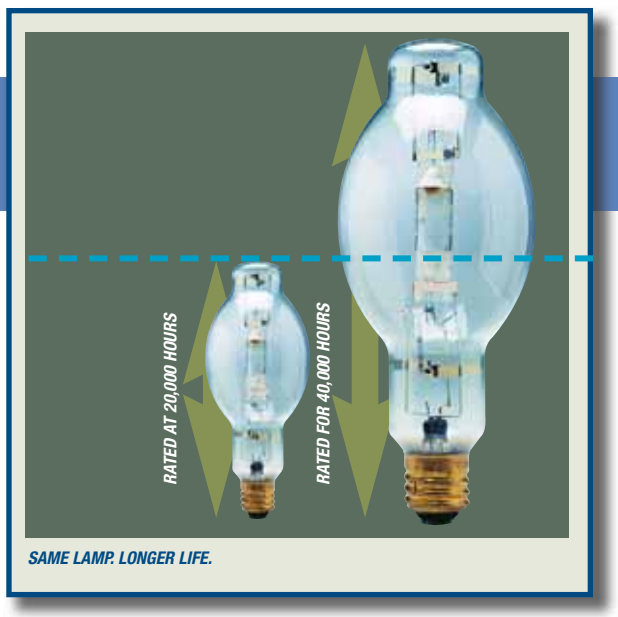
Operating Cost Comparison

	400 Watt Standard Metal Halide M59 Lamp	400 Watt Pulse Start Metal Halide M135 Lamp	400 Watt Electro-Reg M135 Lamp
Fixture Quantity	100	86	73
Rated Lamp Life	20,000	30,000	40,000
Lamp Replacements per year	21.9	12.5	8.0
Lamp Costs per year	$263	$225	$96
Labor Costs per year	$548	$313	$201
Energy Costs per year	$32,097	$27,241	$22,075
Operating Cost per year	***$32,907***	***$27,779***	***$22.372***

HUBBELL LAMP WARRANTY

Hubbell Lighting warrants the lamp when supplied with the Electro-Reg fixture by Hubbell, for two years from the date of purchase when operated on the Hubbell Electro-Reg ballast system. Lamps that fail during this period will be replaced free of charge by Hubbell Lighting. Replacement labor, equipment charges and all resulting liability issues are the responsibility of the owner.

This warranty is valid only if all lamp manufacturer's operating and installation instructions are followed and the specific Hubbell Lighting light fixture installation instructions and application recommendations are adhered to. Lamp failures due to physical damage, electrical surges, or other acts of nature are not covered by this warranty.



SAME LAMP. LONGER LIFE.

INTRODUCING V-SPEC®

TRUE 3D VERTICAL SURFACE LIGHTING

3D LIGHTING

with the efficiency of an electronic ballast and superior color rendering all from Hubbell Industrial Lighting

V-Spec® sets the standard in maximum vertical surface illumination and color rendering. All the qualities you need plus energy savings. Perfect for the retail environment.

LOWER OPERATING COSTS

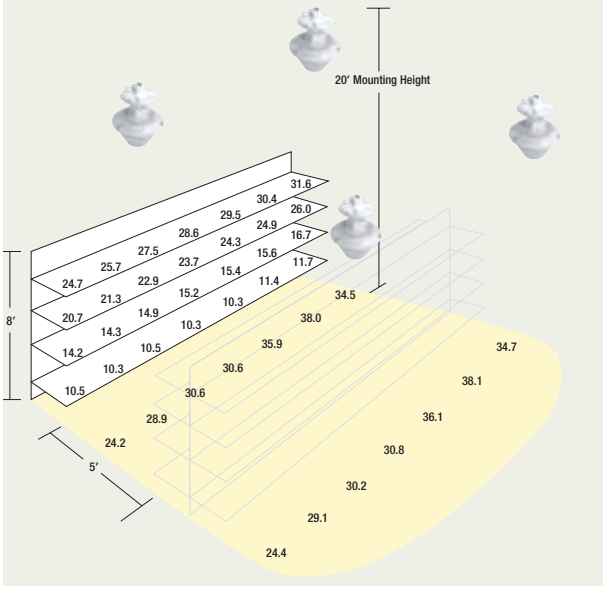
- 10-point improvement in Lamp Lumen Maintenance allows for lower wattage lamps in retrofits or less fixtures in new construction.
- A high-efficiency electronic ballast with a high-output PulseArc® lamp delivers 70% more mean lumens per watt than probe start metal halide lamps and 20% more mean lumens per watt than pulse start metal halide lamps.

APPLICATION VERSATILITY

- Ballast housing design solves thermal, EMI, UL and mounting concerns.
- Multi-wattage capability – one ballast runs 250, 300, 320, 350 or 400 watt quartz metal halide or ceramic metal halide lamps.
- Runs on 208-277 volts.
- Independent 250 watt auxiliary lighting circuit on every unit.

IMPROVING QUALITY OF LIGHT

- Significantly reduces lamp color shift typical with HID lamps.
- Virtually eliminates flickering.
- Total Performance System Warranty with GE's ConstantColor® CMH® lamps.

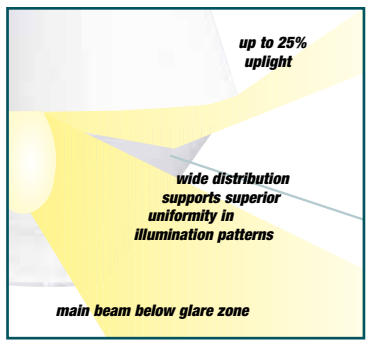


Part # UM25-40W-208-277

Part # UM25-40W-208-277-QS

Part # CH-SW

With industry-leading engineered optics, V-Spec® delivers not only floor (horizontal) footcandles but also critical shelf (vertical) footcandle illumination. More light on your products means improved customer satisfaction and sales.



200x200 space w/ 25' mounting height		FLUORESCENT HIGHBAY Fluorescent highbay w/ 6-lamp high-lumen T5 lamps IB 654 WD	HUBBELL V-SPEC 400W Electronic highbay w/ Superwatt optics UM2540W208277
LAYOUT	Fixture Mounting Height	25 Foot	25 Foot
LAMP & FIXTURE DATA	Initial Lamp Lumens	4400	40000
	Number of Lamps	6	1
	Initial Fixture Lumens (ballast corrected)	26400	40000
	Maintained Fixture Lumens	19737.9	20908.8
	Fixture Watts	368	430
	Fixture Lumens/Watt	53.64	48.63
FOOTCANDLES	CRI	82	92
	FC Average Maintained	72.6	69.2
OPERATING DATA	Number of Fixtures	169	144
	Cost/kWh	$0.10	$0.10
	Watts/sq foot	1.55	1.55
	Annual Operating Hours	6000	6000
SAVING ANALYSIS	Annual Energy Costs	$37,315.00	$37,152.00
	Total Fixture Cost	$19,435.00	$41,169.60
	Labor per Fixture ($100 per fixture)	$16,900.00	$14,400.00
	Installation Costs	$36,335.00	$55,569.60
RE-LAMPING COSTS	Lamp Costs	$6,084.00	$5,760.00
	Lamp Change Labor	$1,690.00	$1,152.00
	Scissor Lift	$1,500.00	$1,500.00
	Re-Lamping Costs	$9,274.00	$8,412.00

200x200 space w/ 25' mounting height		FLUORESCENT HIGHBAY Fluorescent highbay w/ 6-lamp high-lumen T8 lamps IB 632 WD	HUBBELL V-SPEC 400W Electronic highbay w/ Superwatt optics UM2540W208277
LAYOUT	Fixture Mounting Height	25 Foot	25 Foot
LAMP & FIXTURE DATA	Initial Lamp Lumens	2950	40000
	Number of Lamps	6	1
	Initial Fixture Lumens (ballast corrected)	20886	40000
	Maintained Fixture Lumens	14573.2	20908.8
	Fixture Watts	168	430
	Fixture Lumens/Watt	86.75	48.63
FOOTCANDLES	CRI	82	92
	FC Average Maintained	67.4	69
OPERATING DATA	Number of Fixtures	272	144
	Cost/kWh	$0.10	$0.10
	Watts/sq foot	1.14	1.55
	Annual Operating Hours	6000	6000
SAVING ANALYSIS	Annual Energy Costs	$27,418.00	$37,152.00
	Total Fixture Cost	$25,840.00	$41,169.60
	Labor per Fixture ($100 per fixture)	$27,200.00	$14,400.00
	Installation Costs	$53,040.00	$55,569.60
RE-LAMPING COSTS	Lamp Costs	$3,264.00	$5,760.00
	Lamp Change Labor	$2,720.00	$1,152.00
	Scissor Lift	$1,500.00	$1,500.00
	Re-Lamping Costs	$7,484.00	$8,412.00

200x200 space w/ 25' mounting height		STANDARD MH HIGHBAY 400W Superwatt w/ standard lamp SWD400H8APWH	HUBBELL V-SPEC 400W Electronic highbay w/ Superwatt optics UM2540W208277
LAYOUT	Fixture Mounting Height	25 Foot	25 Foot
LAMP & FIXTURE DATA	Initial Lamp Lumens	36000	40000
	Number of Lamps	1	1
	Initial Fixture Lumens (ballast corrected)	36000	40000
	Maintained Fixture Lumens	20164.3	20908.8
	Fixture Watts	460	430
	Fixture Lumens/Watt	43.84	48.63
FOOTCANDLES	CRI	62	92
	FC Average Maintained	72.1	69
OPERATING DATA	Number of Fixtures	169	144
	Cost/kWh	$0.10	$0.10
	Watts/sq foot	1.94	1.55
	Annual Operating Hours	6000	6000
SAVING ANALYSIS	Annual Energy Costs	$46,644.00	$37,152.00
	Total Fixture Cost	$44,987.80	$41,169.60
	Labor per Fixture ($100 per fixture)	$16,900.00	$14,400.00
	Installation Costs	$61,887.80	$55,569.60
RE-LAMPING COSTS	Lamp Costs	$2,535.00	$5,760.00
	Lamp Change Labor	$1,690.00	$1,152.00
	Scissor Lift	$1,500.00	$1,500.00
	Re-Lamping Costs	$5,725.00	$8,412.00

The comparisons to the left show the Hubbell V-Spec when compared to the popular linear fluorescent highbay fixtures.

Advantages to an HID system include:

- **EASE OF MAINTENANCE**
  Typical fluorescent systems will have twice the number of fixtures and 10 to 15 times more lamps, resulting in much higher on-going maintenance costs. Contrast a typical warehouse with 250 HID fixtures or 440 fluorescent highbays. Each fluorescent has six lamps while the HID only have one. That means 250 HID lamps to maintain vs. 2640!
- **WIDE TEMPERATURE RANGE**
  Metal halide lamps operate reliably in unconditioned spaces where temperatures can exceed 149°F or fall below -40°F. Light output from fluorescent lamps will drop off in extreme temperatures.
- **FREEZER APPLICATIONS**
  Metal halide lamp/ballast can be reliable used down to –40°C for Electro-Reg® and HPS and down to –20°C for standard metal halide.
- **AMBIENT TEMPERATURE SUITABILITY**
  HID fixtures are UL tested for ambient temperature ranges of as high as 65°C, while fluorescent highbay fixtures are normally tested for only 25°C ambient temperature.
- **LOWER INSTALLED COST**
  Metal halide highbay systems are almost always less expensive to install. A typical HID system will have half the number of fixtures as a equivalent fluorescent systems.
- **LARGER LUMEN PACKAGES** Mounting heights of more than 20 to 25 feet may lend themselves better to metal halide.
- **SEVERE ENVIRONMENTS**
  A variety of HID highbays are designed expressly for applications that are corrosive, dirty, are wet locations, are subject to vibration or violent impact, or required hazardous location ratings. Fluorescent highbay fixtures are normally rated for damp locations only.

JUST WHAT IS THE DIFFERENCE BETWEEN HID vs. FLUORESCENT LIGHTING?

There are certain advantages and disadvantages when you need to decide between HID or fluorescent lighting. The right choice has a lot to do with height from the work surface, desired light distribution, type of light, maintenance cost expectations, dirty/dusty ambient environments, and hot or cold ambient environments.

If your application is one that meets one or more of these performance criteria, then HID is the first option to explore.

HID LIGHTING ADVANTAGES

- ***WIDER TEMPERATURE OPERATING RANGES*** Metal halide lamps operate reliably in unconditioned spaces where temperatures can exceed 149°F or fall below -40°F. Light output from fluorescent lamps will drop off in extreme temperatures.

- ***FREEZER APPLICATIONS*** Metal halide lamp/ballast can be reliably used down to -40°C for Electro-Reg™ and HPS and down to -20°C for standard metal halide.

- ***BROAD AMBIENT TEMPERATURE SUITABILITY*** HID fixtures are UL tested for ambient temperatures as high as 65°C, while fluorescent highbay fixtures are normally tested for only 25°C ambient temperature.

- ***LOWER INSTALLED COST*** Metal halide highbay systems are typically less expensive to install. A typical HID system will have half the number of fixtures as an equivalent fluorescent systems.

- ***LOWER MAINTENANCE*** Typical fluorescent systems will have twice the number of fixtures and 10 to 15 times more lamps, resulting in much higher on-going maintenance costs. Contrast a typical warehouse with 250 HID fixtures or 440 fluorescent highbays. Each fluorescent has six lamps while the HID only has one. That means 250 HID lamps to maintain vs. 2640!

- ***LARGER LUMEN PACKAGES*** Mounting heights of more than 20 to 25 feet.

- ***SEVERE ENVIRONMENTS*** A variety of HID highbays are designed expressly for applications that are corrosive, dirty, wet locations, subject to vibration or violent impact, or require hazardous location ratings. Fluorescent highbay fixtures are normally rated for damp locations only.

FLUORESCENT LIGHTING WORKS WITHIN SOME LIMITED ENVIRONMENTS

- ***INSTANT RESTRIKE*** In the event of a power interruption, fluorescent lamps are back on instantly.
- ***CONTROL FRIENDLY*** The instant-on capability of fluorescent lamps makes them good for use with occupancy sensors and photocells.
- ***LUMEN MAINTENANCE*** T5 and T8 fluorescent lamps lose 5-6% of their lumen output between their rated initial and maintained lumens (maintained lumens are calculated at 40% of rated life).

Top fixture applications

dirty/tough environments: HID required




cold/hot ambient temperatures: HID required


wet/damp locations: HID required




high mounting heights: HID required



retail/consumer locations: HID or Fluorescent




PULSE*SMART*™

QUASI-RESONANT LIGHTING SYSTEM (277V ONLY)

THE EFFICIENT WAY TO SAVE IN ENERGY, INSTALLATION AND OPERATING COSTS.

Hubbell Lighting does it again. Although a standard ballast metal halide fixture is good and a pulse start system is more efficient, our new 750 watt PulseSMART™ Quasi-Resonant system uniquely combines the best lamp, ballast and fixture technology available.

WHAT DOES THIS ALL MEAN?

It means if you are about to specify a 400 watt or 1000 watt system, you need to look at what the PulseSMART™ Quasi-Resonant system delivers. Compared to a 400 watt or even a 750 watt pulse start metal halide ballast product, we win hands down. When you add total savings in energy, installation and operating costs, you can save as much as 50% over a standard CWA ballasted system (see opposite page for details).

Covered by patent #5,825,139.

22"
ACRYLIC
WA22

29"
LOWBAY
LM

25"
ACRYLIC
WA25

19"
ALUMINUM
W/ UPLIGHT
SU

19"
ALUMINUM
DOWN LIGHT
ONLY
SD

22"
ALUMINUM
OU-60
& FLUSH MOUNT

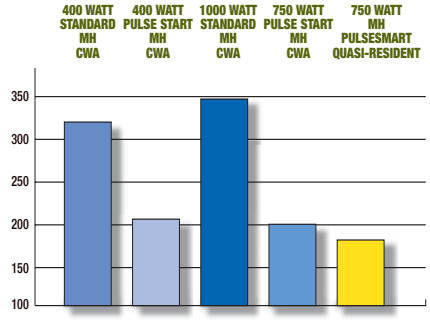
Take a look at how we do it.

You'll see that when you put it all together, we not only deliver better performance but will add more to your bottom line.

Energy Cost Comparison

	400 watt Standard MH CWA	400 watt Pulse Start MH CWA	1000 watt Standard MH CWA	750 watt Pulse Start MH CWA	750 WATT MH Pulse*SMART* QUASI-RESONANT
Initial lumens	36,000	44,000	110,000	80,000	80,000
Published lamp lumen depreciation	0.62	0.76	0.65	0.75	0.75
Ballast factor	0.95	0.95	0.95	0.95	1.00
Mean lumens	21,204	31,768	67,925	57,000	60,000
Fixtures required for equal # of lumens	1.00	0.65	0.46	0.35	0.33
Systems watts per fixture	458	452	1080	818	787
Mean lumens per system watt	46	70	63	70	76
Watts per square foot	0.67	0.43	0.48	0.42	0.38
Annual power costs	$320.97	$207.33	$346.90	$200.64	$180.50

Assumed ¢/kwh at $0.08 Assumed Hrs/Year at 8760

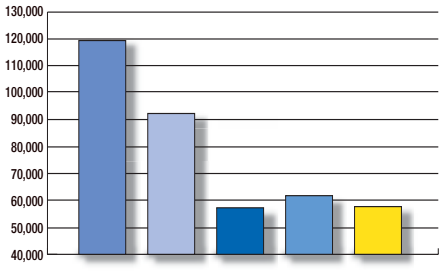


ANNUAL POWER COSTS

Installation Cost Comparison

	400 watt Standard MH CWA	400 watt Pulse Start MH CWA	1000 watt Standard MH CWA	750 watt Pulse Start MH CWA	750 WATT MH Pulse*SMART* QUASI-RESONANT
Fixture quantity	220	144	66	77	72
Fixture spacing (in feet)	25	32	46	43	43
Fixture cost (per fixture)	$130.00	$150.00	$225.00	$195.00	$185.00
Lamp cost (per fixture)	$15.00	$25.00	$30.00	$30.00	$30.00
Conduit cost (per fixture)	$250.00	$320.00	$460.00	$430.00	$430.00
Outlet box cost (per fixture)	$100.00	$100.00	$100.00	$100.00	$100.00
Labor cost (per fixture)	$50.00	$50.00	$50.00	$50.00	$50.00
Total installed cost (per fixture)	$545.00	$645.00	$865.00	$805.00	$795.00
Total installed costs (system)	$119,899.56	$92,879.71	$57,089.87	$61,984.85	$57,239.86

Assumptions: Baseline installation consists of one hundred 400 watt MH fixtures on 25' spacing
Cost/linear ft. of conduit installed - $10
Cost per outlet box installed - $100
Labor cost per fixture installed - $50
Fixture is 19" open highbay for 400 and 750 watt units; 1000 watt unit is 23" open highbay

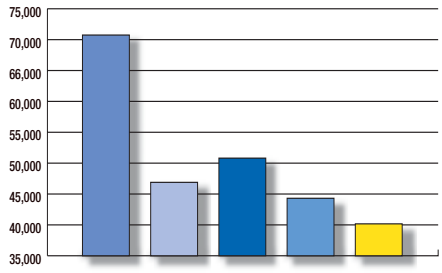


TOTAL INSTALLED COST (SYSTEM)

Operating Cost Comparison

	400 watt Standard MH CWA	400 watt Pulse Start MH CWA	1000 watt Standard MH CWA	750 watt Pulse Start MH CWA	750 WATT MH Pulse*SMART* QUASI-RESONANT
Fixture quantity	220	144	66	77	72
Rated lamp life	20,000	20,000	12,000	24,000	24,000
Lamp replacements per year	21.9	21.9	35.0	7.8	7.8
Lamp costs per year	$329.00	$876.00	$1,050.00	$234.00	$234.00
Labor costs per year	$548.00	$548.00	$875.00	$195.00	$195.00
Energy costs per year	$70,613.00	$45,614.00	$49,953.00	$44,141.00	$39,710.00
Operating costs per year	$71,489.00	$47,037.00	$51,878.00	$44,570.00	$40,139.00

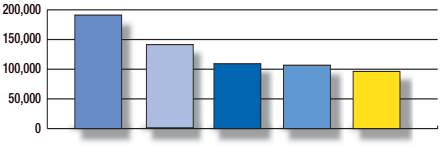
Assumptions:
Energy cost per kwh (¢) 0.08
Hours per year 8760
Labor cost/lamp replaced $25
Lamp cost $15 $40 $30 $30 $30



OPERATING COSTS PER YEAR

Total Cost Comparison

	400 watt Standard MH CWA	400 watt Pulse Start MH CWA	1000 watt Standard MH CWA	750 watt Pulse Start MH CWA	750 WATT MH Pulse*SMART* QUASI-RESONANT
Total costs	$191,388.56	$139,916.71	$108,967.87	$106,544.85	$97,378.86

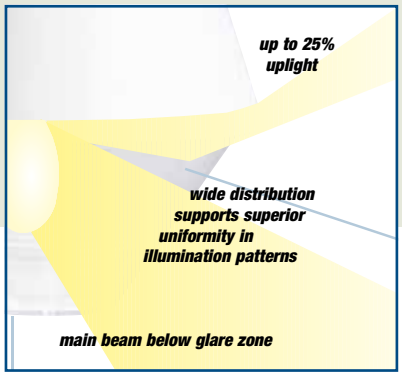


HORIZONTAL/VERTICAL/3D LIGHTING

SUPERWATT,® LIGHTWATT,® TRIBAY® SUPERWATT®

WHEN YOU NOT ONLY NEED TO LIGHT THE FLOOR BUT YOUR MACHINES AND WAREHOUSE SHELVES, VERTICAL LIGHTING IS THE ANSWER.

When measuring how much light your workplace needs, the industry standard only measures a horizontal plane – the amount of light delivered at 30" from the floor. That's fine if there are no obstructions and your employees are doing nothing more than moving materials around on that surface. Realistically, we know that people are required to fix machinery, change parts, check work, see inside warehouse racks, peer into shelves and work productively in all types of visually complex environments.



3D LIGHTING

Because of this real world need, we've engineered what we feel are the best solutions for effectively lighting the VERTICAL surfaces of a work area. Additionally, because of a unique optical design, we can deliver superior uniformity of light, knocking out dark areas on the work floor as well as creating an effective "overlapping" of fixtures. This crossing of light sources translates into "backup" lighting, so when a lamp does go out the overall darkening effect is lessened on that part of the work floor.

HOW HUBBELL'S 3D LIGHTING WORKS

The essence in effectively delivering this vertical light is the precise design of each optic. Over decades Hubbell has improved the ability of these tough acrylic lenses to precisely bend each ray and place it so that a specific amount of energy is sent to light the floor, the walls, inside machinery and as uplight to illuminate and reflect off ceilings. This all adds to the general illumination of an area and eliminates the cave effect common with inadequately designed lighting. It also helps reduce shadowing, typical of standard "horizontal plane only" lighting.

As the light leaves the precisely placed lamp, it strikes a prismed lens. The light then moves up (up to 25%) and down to light the vertical and horizontal surfaces. As important, Hubbell's 3D system minimizes the light at 60-65 degrees. This projects more light to critical vertical surfaces, yet blocks excessive light in the "glare" zone.

Add up all this optical engineering expertise and it simply makes it easier for employees to read controls and dials and see inside machinery, minimizing shadowing, making people safer, more productive – with less fatigue. And it helps reduce the need for supplemental lighting, reducing energy needs and additional maintenance and installation costs.

SUPERWATT®

LIGHTWATT®

TRIBAY® SUPERWATT®

DIMMING/WIRING SYSTEMS

SINGLE WIRE ZONE CONTROL

Features & Requirements

- Each Switch Level Dimming luminaire requires either a 4-wire plug and receptacle or a 4-wire splice connection.
- Each SLIP interface panel starts all luminaires at high light levels and prohibits luminaire dimming for a preset 15 minute period to allow complete warm-up according to all lamp manufacturer's requirements.
- One control wire is required for each control zone.
- The SLIP interface panel must be powered by 120V AC and be connected to the service common. An autotransformer can be used to supply the SLIP interface voltage if the system voltage is other than 120V AC, typically supplied by installing contractor.
- Each SLIP interface panel is supplied with manual override terminals, that when connected by a switch will force all luminaires (in all zones) to full output.
- Each SLOD occupancy detector is energized by an independent 120V AC source for maximum versatility.
- One or more SLOD occupancy detectors are required for each zone, if independent multiple zone control is desired.
- Zones may contain luminaires wired to multiple phases.
- Multiple SLOD occupancy detectors, wired in parallel, may be used to control one zone.
- Each SLOD occupancy detector must be wired to the SLIP interface panel.

SLIP 3

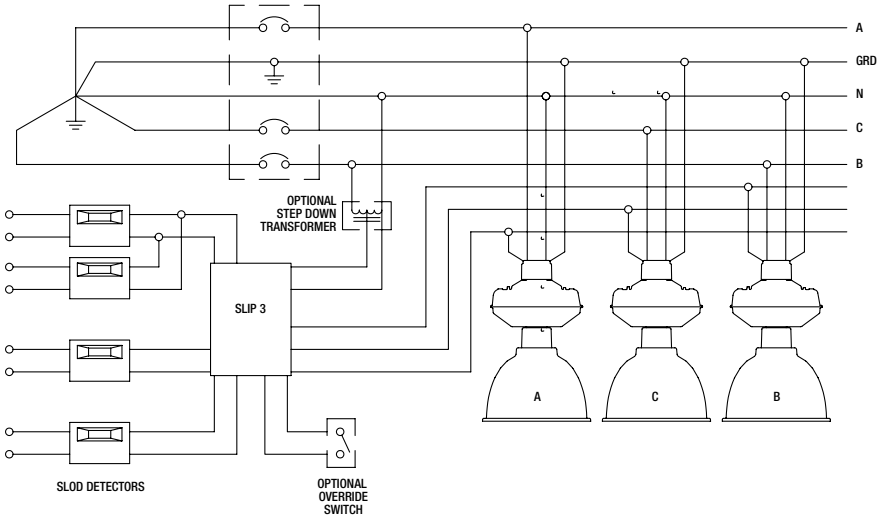
Ordering Information

Catalog Number	Description
SLOD1	PIR, 120V, High Mount, Aisle Detector
SLOD2	PIR, 120V, Open Area Detector
SLIP3	Interface Panel, single wire control (120V AC)

SLIP Specifications	
Supply Connection	SLIP-3
Supply Voltage (Volts AC)	120
Supply Current (Amps AC)	3.0 (max)
Maximum Current per Zone (Amps AC)	.32
Maximum Number of SLLs per Zone (150W-400W)	10
Maximum Number of SLLs per Zone (600W-1500W)	4
Maximum Number of SLLs per SLIP (150W-400W)	80
Maximum Number of SLLs per SLIP (600W-1500W)	32

SLOD2

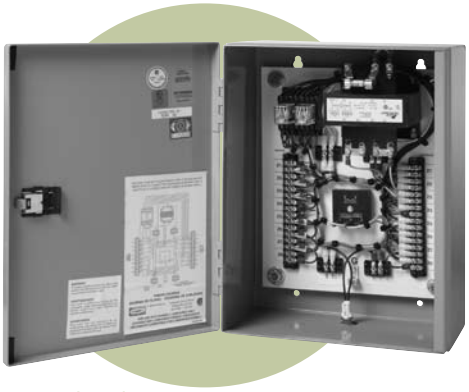
SLOD3



IMPORTANT:
All Hubbell Lighting, Inc. SLD Control Systems provide a 15 minute "START AT HIGH" circuit to bring the HID lamps up to full power prior to any dimmed operation. This is required for full lamp warranty and proper system operation. Operation without "START AT HIGH" will void the HLI SLD equipment warranty and lamp warranty.

DIMMING/WIRING SYSTEMS

TWO-WIRE ZONE CONTROL



SLIP 2

Features & Requirements

- Each Switch Level Dimming luminaire requires either a 5-wire plug and receptacle or a 5-wire splice connection.
- Each SLIP interface panel starts all luminaires at high light levels and prohibits luminaire dimming for a preset 15 minute period to allow complete warm-up according to all lamp manufacturer's requirements.
- Two control wires are required for each control zone.
- The SLIP interface panel must be powered by 120V AC and be connected to the service common. An autotransformer can be used to supply the SLIP interface voltage if the system voltage is other than 120V AC, typically supplied by installing contractor.
- Each SLIP interface panel is supplied with manual override terminals, that when connected by a switch will force all luminaires (in all zones) to full output.
- Each SLOD occupancy detector is energized by an independent 120V AC source for maximum versatility.
- One or more SLOD occupancy detectors are required for each zone, if independent multiple zone control is desired.
- Zones may contain luminaires wired to multiple phases.
- Multiple SLOD occupancy detectors, wired in parallel, may be used to control one zone.
- Each SLOD occupancy detector must be wired to the SLIP interface panel.

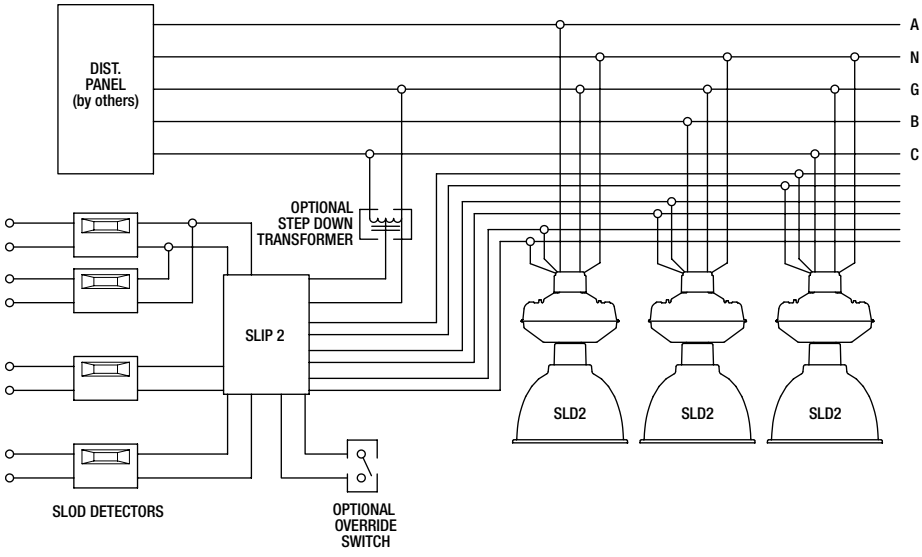
Ordering Information

Catalog Number	Description
SLOD1	PIR, 120V, High Mount, Aisle Detector
SLOD2	PIR, 120V, Open Area Detector
SLIP2	Interface Panel, double wire control (24V AC)

SLIP Specifications	
Supply Connection	SLIP-2
Supply Voltage (Volts AC)	120
Supply Current (Amps AC)	3.0 (max)
Maximum Current per Zone (Amps AC)	.32
Maximum Number of SLLs per Zone (150W-400W)	10
Maximum Number of SLLs per Zone (600W-1500W)	3
Maximum Number of SLLs per SLIP (150W-400W)	80
Maximum Number of SLLs per SLIP (600W-1500W)	24

SLOD 2

SLOD 3



IMPORTANT:
All Hubbell Lighting, Inc. SLD Control Systems provide a 15 minute "START AT HIGH" circuit to bring the HID lamps up to full power prior to any dimmed operation. This is required for full lamp warranty and proper system operation. Operation without "START AT HIGH" will void the HLI SLD equipment warranty and lamp warranty.

DIMMING/WIRING SYSTEMS

Features & Requirements

- Each Switch Level Dimming luminaire requires either a 4-wire plug and receptacle or a 4-wire splice connection
- Each SLOD3 occupancy detector is energized by an independent 120/277V AC source for maximum versatility.
- Great for warehouse aisles.
- Eliminates the need for a SLIP control panel.
- Simple, more efficient installation.

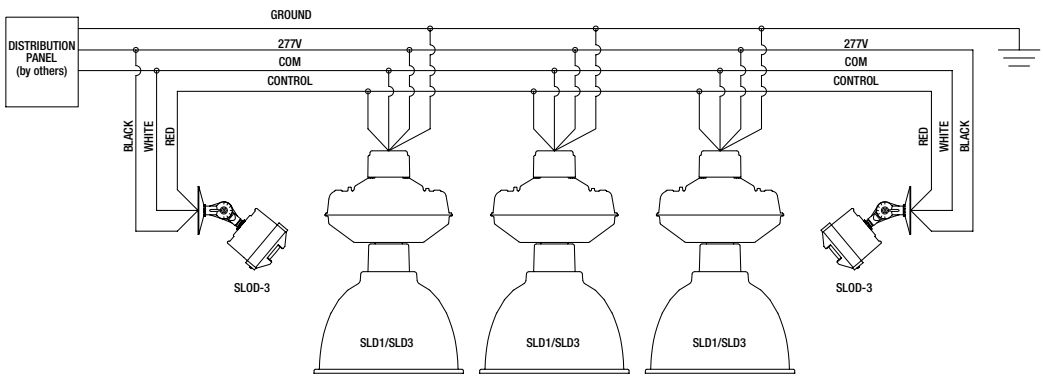
Ordering Information

Catalog Number	Description
SLOD3	For Direct Control (with SLD1 or SLD3)
-SLD1	Fixture Option 120V control
-SLD3	Fixture Option 277V control

SLOD 3

SUPERBAY
-SLD1/-SLD3

TRIBAY®
-SLD1/-SLD3



TYPICAL AISLE WIRING – DIRECT CONTROL

IMPORTANT:
All Hubbell Lighting, Inc. SLD Control Systems provide a 15 minute "START AT HIGH" circuit to bring the HID lamps up to full power prior to any dimmed operation. This is required for full lamp warranty and proper system operation. Operation without "START AT HIGH" will void the HLI SLD equipment warranty and lamp warranty.

DIMMING/WIRING SYSTEMS

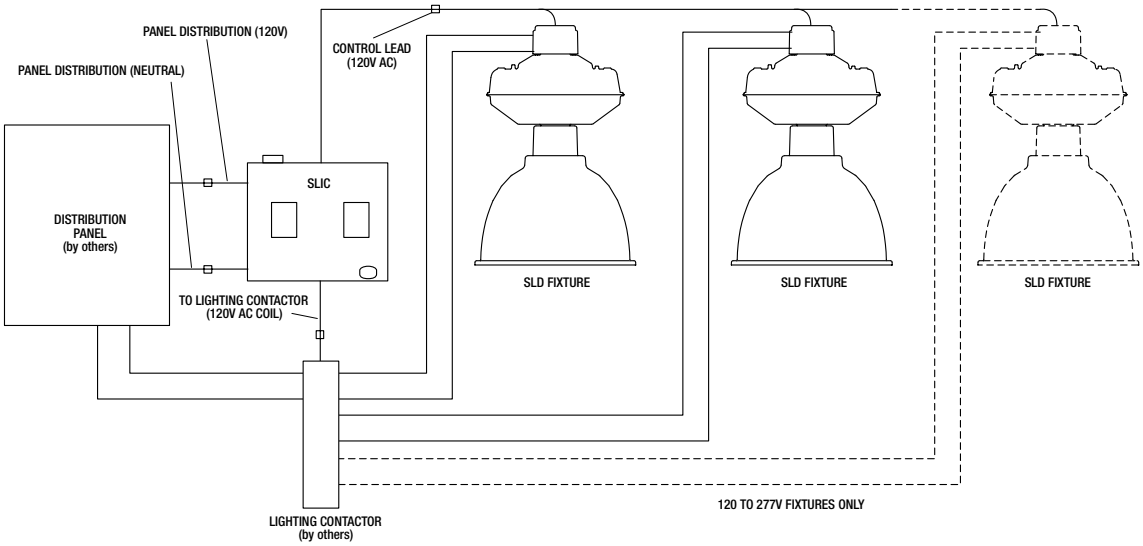
MANUAL ZONE CONTROL

Features & Requirements

- Single zone applications.
- 120V control (SLD1).
- Operates up to 40 fixtures 400 watts or less.
- Operates up to 10 fixtures over 400 watts.
- Includes electronic “start at high” module (required for lamp warranty).
- Ready to install including backbox electronics and decorative face plate with on/off and hi/low switches.
- Perfect for single zones requiring manual control only.
- Switches illuminate when in the “on” and “high” positions for easy identification and confirmation.
- Saves on equipment and installation costs when simplicity of control is desirable.
- For use with fixtures powered by 120 or 277V AC.

Ordering Information

Catalog Number	Description
SLIC	Manual Zone control
-SLD1	Fixture Option 120V control
-SLD3	Fixture Option 277V control



IMPORTANT:
All Hubbell Lighting, Inc. SLD Control Systems provide a 15 minute “START AT HIGH” circuit to bring the HID lamps up to full power prior to any dimmed operation. This is required for full lamp warranty and proper system operation. Operation without “START AT HIGH” will void the HLI SLD equipment warranty and lamp warranty.

DIMMING/WIRING SYSTEMS

SWITCH LEVEL DIMMING

CH-SLD TRIBAY WITH SWITCH LEVEL DIMMING ONLY 8 SELECTIONS MUST BE MADE TO SPECIFY A COMPLETE PRODUCT.

CH	-	40	-	H	-	4	-	M	-	CXP	-	WA22	-	SLD1	-	TLR
Selection		**#2**		**#3**		#4		**#5**		**#6**		**#7**		**#1**		**#8**

1 Control Voltage – select the control voltage from applicable systems on preceding pages.
2 Fixture Wattage – 250, 400, 600 or 1000 watt.
3 Lamp Type – Metal halide, high pressure sodium or Pulse Start.
4 Primary Voltage – A specific voltage must be selected. Quad-Taps® and Tri-taps are not an option. We may use Quad-Tap® and Tri-tap ballasts to service the orders but 6 and 8 can not be selected. Not all voltages will be available with each previously chosen Control Voltage selections.
5 Mounting Box Selection
6 Wiring Method – cord and plug or no cord.
7 Optical Selection
8 Option Selection – Anodized housing, EM, Fusing, QST, Remote, LRI, TRI

Ordering Information Example: CH - 40 - H - 4 - CXP - OU - SLD1 - EM

Series	Wattage	Ballast/ Lamp	Fixture Voltage	Wiring Method	Optics	Dimming Control	Options

Series
- **CH** Tribay

Wattage
- **25** 250 watt
- **40** 400 watt
- **60** 600 watt
- **10** 1000 watt

Ballast/Lamp
- **H** Metal Halide standard PLA
- **S** HPS standard CWA, AL
- **W** Pulse Start

Fixture Voltage

SLD1 VOLTAGE
- **1** 120 volt
- **4** 277 volt
- **F** 347 volt

SLD2 VOLTAGE
- **1** 120 volt
- **2** 208 volt
- **3** 240 volt
- **4** 277 volt
- **5** 480 volt
- **F** 347 volt

Fixture Voltage con't

SLD3 VOLTAGE
- **4** 277 volt

Wiring Method
- **CXP** 4 Conductor Cord & Plugs connected in side of Slick-On box, X = cord length, replace with 2, 4, 6, 10
- **DPT** 4 Conductors available for connection in Slick-On box

Optics
- **EU** Enclosed Highbay
- **OU** Open Highbay
- **LM** 29" Lowbay Reflector/Refractor
- **SW** Superwatt Plus
- **WA22** 22" Prismatic Acrylic
- **WD22** 22" Diffused Prismatic Acrylic
- **WA25** 25" Prismatic Acrylic
- **NA** No Optics, enclosed highbay
- **NB** No Optics, open highbay
- **NC** No Optics, SW
- **ND** No Optics, prismatics
- **NE** No Optics, LM

Dimming Control
- **SLD1** 120V control
- **SLD2** 24V control
- **SLD3** 277V control

Options
- **AN** Anodized Housing/Reflector
- **EM** Emergency Quartz Socket
- **FX** Fusing (X = line voltage)
- **QST** Quartz Standby w/ time delay
- **RO** Remote Ballast
- **LRI** Lower Retainer Installed
- **TRIX** Top Retainer Installed, X = length, replace with 6, 10, 12, or 16
- **CFB** Charcoal Filter Breather
- **PC** Polycarbonate Reflector (Controlux)

BL-SLD SUPERBAY WITH SWITCH LEVEL DIMMING ONLY 7 SELECTIONS MUST BE MADE TO SPECIFY A COMPLETE PRODUCT.

BL	-	40	-	H	-	4	-	CXP	-	SU	-	SLD1	-	TLR
Selection		**#2**		**#3**		#4		**#5**		**#6**		**#1**		**#7**

1 Control Voltage – select the control voltage from applicable systems on preceding pages.
2 Fixture Wattage – 150, 175, 250 or 400 watt.
3 Lamp Type – Metal halide, high pressure sodium or Pulse Start.
4 Primary Voltage – A specific voltage must be selected. *Quad-taps and Tri-taps are not an option.* We may use Quad-tap and Tri-tap ballasts to service the orders but 6 and 8 can not be selected. Not all voltages will be available with each previously chosen Control Voltage selections.
5 Wiring Method – cord and plug or no cord (DPT).
6 Optical Selection
7 Option Selection – Remote, Fuse, TLR, LLR, EM

Ordering Information Example: BL - 40 - H - 4 - CXP - SU - SLD1 - TLR

Series	Wattage	Ballast/ Lamp	Fixture Voltage	Wiring Method	Optics	Dimming Control	Options

Series
- **BL** Superbay

Wattage
- **15** 150 watt
- **17** 175 watt
- **25** 250 watt
- **40** 400 watt

Ballast/Lamp
- **H** Metal Halide
- **S** HPS
- **W** Pulse Start

Fixture Voltage

SLD1 VOLTAGE
- **1** 120 volt
- **4** 277 volt
- **F** 347 volt

SLD2 VOLTAGE
- **1** 120 volt
- **2** 208 volt
- **3** 240 volt
- **4** 277 volt
- **5** 480 volt
- **F** 347 volt

Fixture Voltage con't

SLD3 VOLTAGE
- **4** 277 volt

Wiring Method
- **CXP** 4 Conductor Cord & Plugs connected in side of Slick-On box, X = cord length, replace with 2, 4, 6, 10
- **DPT** 4 Conductors available for connection in Slick-On box

Optics
- **AL** 19" Aisle Lighter
- **BI** 14" Highbay Reflector
- **EG** 19" Enclosed & Gasketed
- **LB1** 23" Lowbay
- **LM** 29" Lowbay
- **PA** 16" Prismatic Acrylic
- **SD** 19" Highbay Downlight
- **SU** 19" Highbay Uplight
- **WA** 25" Prismatic Acrylic

Dimming Control
- **SLD1** 120V control
- **SLD2** 24V control
- **SLD3** 277V control

Options
- **CFB** Charcoal Filter Breather
- **EM** Emergency Quartz Socket
- **F** Fusing
- **P** High Strength Polycarbonate Reflector
- **RO** Remote Ballast
- **TLR** Top Luminaire Retainer
- **NMM** No Mounting Method

DIMMING/WIRING SYSTEMS

SWITCH LEVEL DIMMING

Applications/Energy Savings

	Control Voltage	Manufacturing Facilities	Distribution Centers	Warehouses	Transit Terminals	Loading Docks	Gyms	Churches	Lobbies	Shopping Malls	Retail Stores	Fixture Voltage	Fixture Option
Single Wire Control ***SLIP 3***	120v	G	G	G	G	G	P	F	G	G	G	120v	-SLD1
	120v	G	G	G	G	G	P	F	G	G	G	277v	-SLD3
	120v	G	G	G	G	G	P	F	G	G	G	347v	
Direct Wire	120v	F	G	G	G	G	P	F	G	G	G	120v	-SLD1
	277v	F	G	G	G	G	P	F	G	G	G	277v	-SLD3
Two Wire Control ***SLIP 2***	24v	G	G	G	G	G	P	F	G	G	G	120v	-SLD2
	24v	G	G	G	G	G	P	F	G	G	G	208v	-SLD2
	24v	G	G	G	G	G	P	F	G	G	G	240v	-SLD2
	24v	G	G	G	G	G	P	F	G	G	G	277v	-SLD2
	24v	G	G	G	G	G	P	F	G	G	G	347v	-SLD2
	24v	G	G	G	G	G	P	F	G	G	G	480v	-SLD2
Manual Control ***SLIC***	120v	F	P	P	F	F	G	G	F	F	F	120v	-SLD1
	120v	F	P	P	F	F	G	G	F	F	F	277v	-SLD1
	120v	F	P	P	F	F	G	G	F	F	F	347v	-SLD1

G = GOOD F = FAIR P = POOR

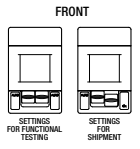
Energy Savings per Fixture per Year

Percent of Time Fixtures on Low

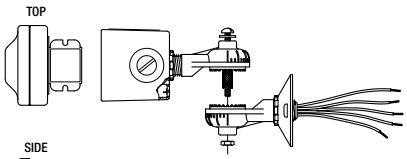
Rate	$0.05	$0.06	$0.07	$0.08	$0.09	**$0.10**	$0.11	$0.12
30.0%	$12.42	$14.90	$17.39	$19.87	$22.36	**$24.84**	$27.32	$29.81
35.0%	$14.49	$17.39	$20.29	$23.18	$26.08	**$28.98**	$31.88	$34.78
40.0%	$16.56	$19.87	$23.18	$26.50	$29.81	**$33.12**	$36.43	$39.74
45.0%	$18.63	$22.36	$26.08	$29.81	$33.53	**$37.26**	$40.99	$44.71
50.0%	$20.70	$24.84	$28.98	$33.12	$37.26	**$41.40**	$45.54	$49.68
55.0%	$22.77	$27.32	$31.88	$36.43	$40.99	**$45.54**	$50.09	$54.65
60.0%	**$24.84**	**$29.81**	**$34.78**	**$39.74**	**$44.71**	**$49.68**	**$54.65**	**$59.62**
65.0%	$26.91	$32.29	$37.67	$43.06	$48.44	**$53.82**	$59.20	$64.58
70.0%	$28.98	$34.78	$40.57	$46.37	$52.16	**$57.96**	$63.76	$69.55
75.0%	$31.05	$37.26	$43.47	$49.68	$55.89	**$62.10**	$68.31	$74.52
80.0%	$33.12	$39.74	$46.37	$52.99	$59.62	**$66.24**	$72.86	$79.49

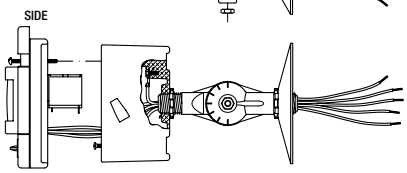
Assumptions:
12 hours per day
6 days per week
400 watt metal halide

SLOD1

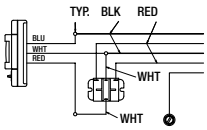


SWITCH LOCATIONS DETAIL

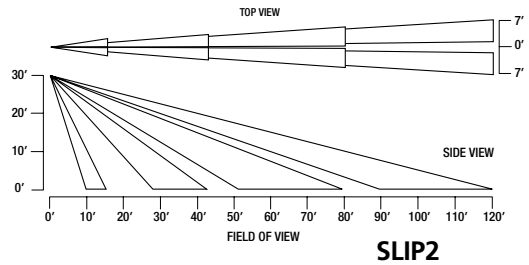




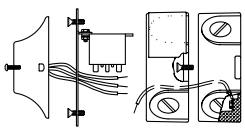
AISLE DETECTOR

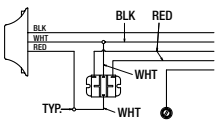


SLOD 1 WIRING DIAGRAM

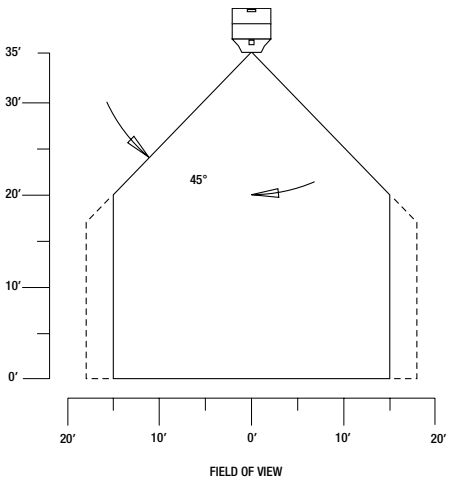


SLOD2

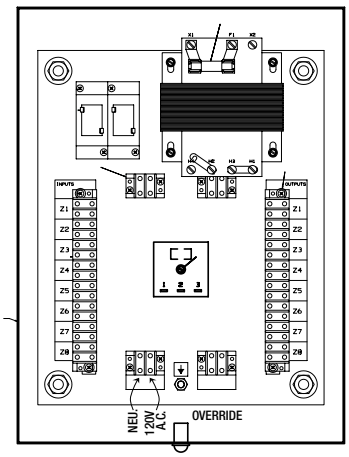

AREA DETECTOR



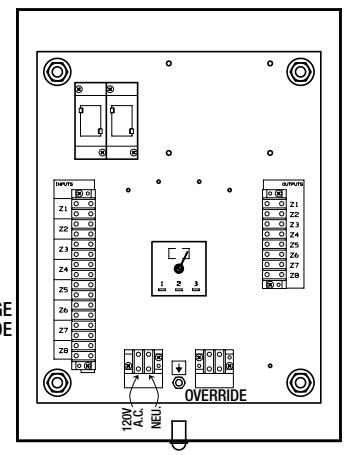
SLOD 2 WIRING DIAGRAM



SLIP2



SLIP3



Features

The Flex3+™ flexible wiring system from ACS speeds up the installation of high intensity discharge (HID) industrial lighting fixtures with light sources such as high pressure sodium, metal halide, pulse start metal halide, and Hubbell Lighting's exclusive Electro-Reg® 2.0 metal halide ballast system. The Flex3+™ modular wiring system requires only three basic components to supply power to lighting fixtures in both highbay and lowbay locations. These components can easily be installed or relocated by simply unplugging and reinstalling connections.

Hubbell provides its fixtures hardwired with the ACS Flex3+™ Fixture Cord Drop, ready to plug into the Flex3+™ Distribution Cables and Extender Cables (order directly from ACS).

Common Flex3+™ applications include highbay and lowbay lighting fixtures in industrial locations such as factories or warehouses and retail locations such as supermarkets and big box stores. All components in the Flex3+™ system are rated for use on 20 ampere branch circuits and are UL listed and labeled.

The ACS Flex3+™ wiring system is compatible with the following Hubbell Lighting industrial fixtures:

- Tribay™
- Superbay
- Superwatt®
- Lightwatt®
- Microlux®

TRIBAY™

SUPERBAY

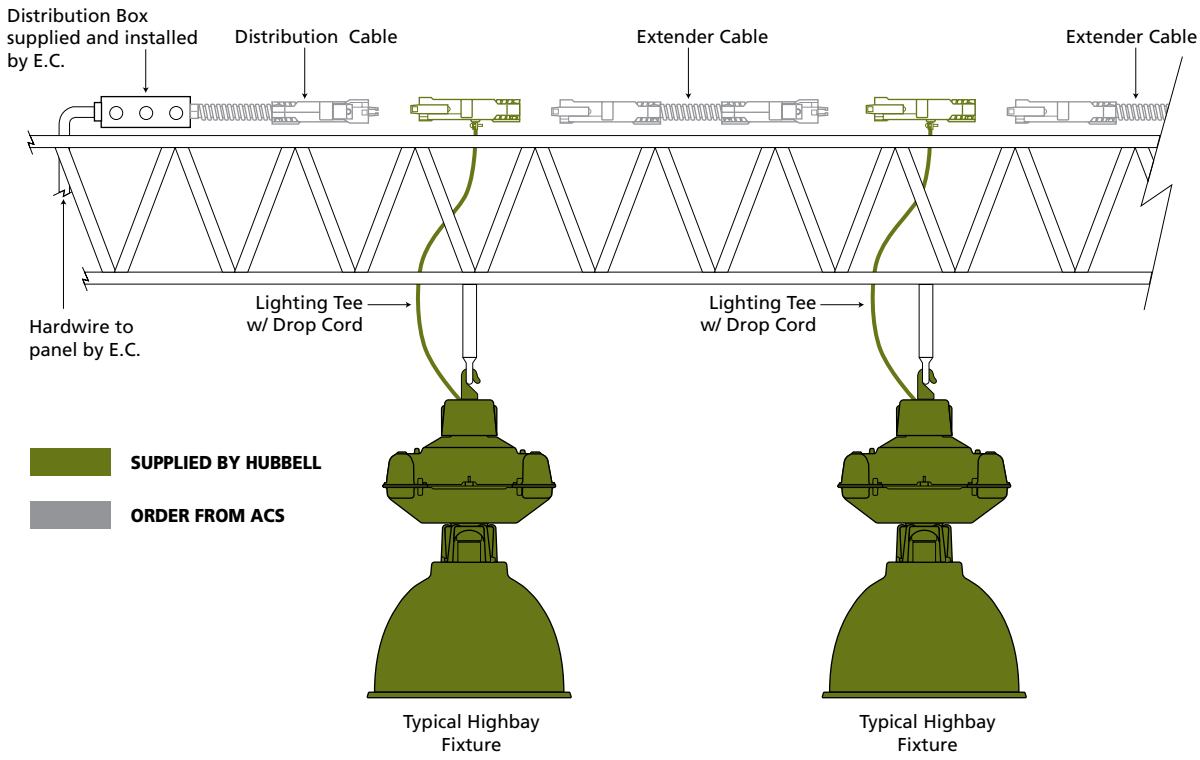
SUPERWATT®

LITEWATT®

MICROLUX

DIMMING/WIRING SYSTEMS

MODULAR WIRING



Installed Cost Comparison

Backup	Pipe & Wire			FLEX 3 BY ACS		
	Materials	Material Cost	Labor	Materials	Material Cost	Labor
Highbay fixture	25' conduit 3/4 EMT	8.95	1.00 hr.	1 - 2EB25	31.81	0.20 hr.
Industrial space,	+ 2 couplings			5 - Caddy supports	1.50	0.20 hr.
2 circuits,	100' THHN black stranded	8.45	0.40 hr.	1 - C2LA03	9.60	0.05 hr.
25' centers	2 - 3/4 steel connectors	0.66	0.10 hr.	1 - 2PHA	8.90	0.05 hr,
35' ceiling,	2 - caddy supports	1.92	0.15 hr.	1 - Pre-wire C2LA03	5.00	0.00 hr.
panel switching,	1 - Raco 4x2 1/8 box	1.79	0.70 hr.	by fixture manuf.		
8 fixtures per row	1 - 18/3 Hubbell	15.15	0.30 hr.	1 - Fixture hook	5.00	0.00 hr.
	1 - fixture hook	5.00	0.00 hr.	pre-wire		0.00 hr.
			2.65 hrs.			0.50 hrs.
		$41.92	**$159.00***		**$61.81**	**$30.00***
TOTAL COST		**$200.92**			**$91.81**	

***National $ average @$60.00/hr**

EXTREME LIGHTING

What is Extreme Lighting?

Hubbell's Extreme Lighting provides lighting solutions for demanding conditions. Markets falling in this category are Harsh, Hazardous, Marine, Cleanroom, and Specialty (e.g., warning or obstruction). There is overlap potential with all of these markets. For example, a Harsh Environment such as a sewage treatment plant may also be a Hazardous location. Cleanrooms can be Hazardous, and Marine are also Harsh.

Typical installations served by Extreme lighting are power plants, waste water, and sewage treatment plants, food processing, petrochemical and chemical plants, shipboard, grain processing, pharmaceuticals, semi-conductor facilities, offshore platforms, FPSOs, pulp & paper plants, and coastal areas, just to name a few.

When you think enclosed and gasketed luminaires, think Hubbell Lighting Extreme.

Hosedown Specifications

There are many claims in the lighting industry that luminaires can withstand 400, 600, or 1000 PSI. It is important to know parameters to which these tests were conducted, because nozzle size, flow rate/pressure, distance and time play a key part in results. For example, a 1/2" nozzle of 1,000 PSI at 6 inches could cut a solid brick, but the same pressure hose from a mist nozzle may not penetrate a sheet of paper from 6 feet.

Hubbell Lighting makes every effort to credibly test our luminaires by being listed with certified testing authorities such as CSA and UL. Typical washdown listings include UL 1598A Marine Outdoor, NEMA 4, Ingress Protection IPx6 and IPx5.

Test	Nozzle Dia.	Distance	Time	Flow Rate	Supplemental Test Criteria	Spec
Marine Outdoor[1]	1"	10'	5 min	15 psi (~115 gal/min or 435 liters/min)	200 hour salt fog	UL 1598 Marine Outdoor ASTM B117-1985 (Salt)
NEMA 4X[1]	1"	10'	5 min	65 gal/min (246 liters/min)	200 hour salt fog	UL50 ASTM B117-1985 (Salt)
NEMA 4[1]	1"	10'	5 min	65 gal/min (246 liters/min)	—	UL50
NEMA 3[1]	1"	10'	5 min	45 gal/min (~170 liters/min)	—	UL50
IPx6[2] (NEMA4 Equivalent)	12.5 mm (1/2")	10'	3 min	100 liters/min (26.4 gal/min)	Luminaire operated for 1 hour, then power terminated prior to test[2]	IEC529
IPx5[2] (Between NEMA 3-4 equivalent)	6.3 mm (1/4")	10'	3 min	12.5 liters/min (3.3 gal/min)	Luminaire operated for 1 hour, then power terminated prior to test[2]	IEC529

1 These tests are designed to be performed on an empty enclosure. Hose test is performed on a static enclosure without any pressure changes in the housing.

2 IP Tests are dynamic, and pressure changes take place during the test. When power is terminated, the luminaire housing creates a negative pressure (vacuum) which attempts to pull in any external water or dust surrounding the luminaire.

Temperature Codes (T-Codes)

The ignition temperature or auto-ignition temperature (AIT) is the minimum temperature required to initiate or cause self-sustained combustion in a substance without any apparent source of ignition. The lowest published ignition temperature should be the one used to determine the acceptability of equipment. This is of particular concern when selecting heat producing equipment such as lighting fixtures or motors which may generate sufficient heat to ignite the surrounding atmosphere.

Class I and Class II, areas use T-Codes or are subject to maximum temperature limitations as shown in the following chart. North America and the IEC are consistent in their temperature or T-Codes. However unlike the IEC, North America includes incremental values as shown below.

North American Temp. Codes US (NEC-500) & CSA	IEC/CENELEC/US (NEC 505) Temp. Codes	Maximum Temperature °C	°F
T1	T1	450	842
T2	T2	300	572
T2A	—	280	536
T2B	—	260	500
T2C	—	230	446
T2D	—	215	419
T3	T3	200	392
T3A	—	180	356
T3B	—	165	329
T3C	—	160	320
T4	T4	135	275
T4A	—	120	248
T5	T5	100	212
T6	T6	85	185

INGRESS PROTECTION

Protection Classes of Enclosures (Ingress Protection Code)

The IEC uses the term "IP" to identify the environmental protection of an enclosure. This is defined in IEC Standard 529 and is referenced by the CEC®. NEMA Enclosure Types may be converted to IP code designations.

The IP classification system designates, by means of a number, the degree of protection provided by an enclosure and the electrical equipment against physical contact, foreign bodies and water ingress.

The protection classes for electrical equipment in respect of:
1. Protection of persons against contact with live or moving parts. (Physical contact protection)
2. Protection against ingress of solid foreign bodies. (Foreign body protection)
3. Protection against ingress of water. (Water protection)

IF a code digit does not have to be given it should be replaced with the letter "X".

The key point to note with IP classification is that the tests are dynamic. Prior to testing, the luminiares are operated with the highest rated lamp combination for one hour. The luminaires are powered down just prior to testing and this creates a vacuum in the luminaire, or causes it to contract. Therefore, the luminaire is making every attempt to pull in whatever dust or water it is being subjected to during the test. These are very viable and realistic tests.

The IP code indicates the degree of protection provided by enclosures for electrical equipment.
The first numeral indicates protection of persons against access to dangerous parts and protection of internal equipment against the ingress of solid foreign objects.

IP	5	*

	Brief Description	Definition
x	Protection unspecified (untested)	—
0	Non-protected	—
1	Protected against solid foreign objects of 2" diameter and greater	The object probe, sphere 2" diameter shall not fully penetrate[1]
2	Protected against solid foreign objects of 1/2" diameter and greater	The object probe, sphere of 1/2" diameter shall not fully penetrate[1]
3	Protected against solid foreign objects of 0.10" diameter and greater	The object probe, sphere of 0.10" diameter shall not fully penetrate[1]
4	Protected against solid foreign objects of 0.04" diameter and greater	The object probe, sphere of 0.04" diameter shall not fully penetrate[1]
5	Dust protected	Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety
6	Dust-tight	No ingress of dust

1 The full diameter of the object probe shall not pass through an opening of the enclosure.

The second numeral indicates protection of internal equipment against harmful ingress of water.

IP	*	6

	Brief Description	Definition
X	Protection unspecified (untested)	—
0	Non-protected	—
1	Protected against vertically falling water drops	Vertically falling drops shall have no harmful effects
2	Protected against vertically falling water drops when enclosure tilted up to 15° on either side of the vertical	Vertically falling drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical
3	Protected against spraying water	Water sprayed at an angle up to 60° on either side of the vertical shall have no harmful effects
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effects
5	Protected against water jets	Water projected in jets against the enclosure from any direction shall have no harmful effects. 12.5 liters/min. for 3 minutes, 6.2 mm (1/4") nozzle diameter @ 10' distance
6	Protected against powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects. 100 liters/min. for 3 minutes, 12.5 mm (1/2") nozzle diameter @ 10' distance
7	Protected against the effects of temporary immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is immersed in water for 30 minutes. Water-level on enclosure: 6" above top and 39" above bottom

Hazardous locations are those locations where fire or explosion hazards may exist due to flammable gases or vapors, flammable liquids, combustible dust, or ignitable fibers or flyings. Although flammable gases and vapors, and combustible dusts exist almost everywhere, they are usually present only in minute quantities, much less than necessary for a fire or explosion hazard to exist. Thus, the presence of a flammable gas or vapor, or combustible dust, does not in itself define a hazardous location. These materials must be present in sufficient quantities (concentrations) to present a potential explosion hazard. Locations where there is an explosion hazard because of the presence of high explosives, such as blasting agents and munitions, are not classified as hazardous locations. There are standards covering the handling and use of such materials, and some of these require electrical equipment suitable for use in hazardous locations. This is because such equipment provides a greater degree of safety than ordinary location or general-purpose equipment, not because such equipment has been tested for use in the presence of high explosives. In a like manner, locations made hazardous because of the presence of pyrophoric materials, such as some phosphorous compounds and finely divided metal powders are not classified as hazardous locations. Pyrophoric is defined in the dictionary as "igniting spontaneously" or "emitting sparks when scratched or struck, especially with steel". Where pyrophoric material or high explosives are present, precautions beyond those in the electrical codes are necessary.

CLASS I LOCATIONS

Class I locations are those in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures. The term "gases or vapors" is used because of common usage in the English language. The term "gases" is commonly used to refer to materials that are in a gaseous state under normal atmospheric conditions, such as hydrogen and methane. The term "vapors" refers to the gases over a material that is a liquid under normal atmospheric conditions (such as gasoline) but which emits gases within the flammable range under these same atmospheric conditions.

CLASS I, DIVISIONS 1 AND 2 GROUPS A, B, C, AND D LOCATIONS

General

The subdivision of Class I into two divisions identifies the likelihood or risk that an ignitable concentration of gases or vapors will be in the location. Division 1 identifies locations where the risk is high or medium. Division 2 identifies locations where there is a small but still finite risk. If the risk is extremely low, the location is not considered a hazardous location. A single family home typifies such a location with natural gas or propane as the energy source for heating. The gas could, and on extremely rare occasions does leak into the home, and an explosion could occur. However the risk is so low (because of the safety systems built into the gas supply and heating equipment) that such locations are not classified as hazardous.

Division 1

Class I, Division 1 locations are those where the explosion hazard exists under normal operating conditions. The area may be hazardous all or most of the time, or it may only be hazardous some of the time. Division 1 also includes locations where breakdown or faulty operation of electrical equipment or processes might release ignitable concentrations of flammable gases or vapors, and might also cause simultaneous failure of electrical equipment in such a way as to directly cause the electrical equipment to become a source of ignition. An example of such a location might be an area where a flammable liquid is stored under cryogenic conditions, and a leak of the extremely low temperature liquid directly onto electrical equipment could cause failure of the electrical equipment at the same time the vapors of the evaporating liquid are within the flammable range.

Division 2

Class I, Division 2 locations are those where ignitable concentrations of flammable gases or vapors are not normally present, but could be present in the event of a fault, such as a leak at a valve in a pipeline carrying flammable liquids. Division 2 locations also often exist around Division 1 locations where there is no barrier or partition to separate the Division 1 space from a non-hazardous location, or where ventilation failure (an abnormal condition) might extend the area where flammables exist under normal conditions.

Electrical equipment approved for Class I, Division 1 locations is also suitable for use in Division 2 locations.

CLASS II LOCATIONS

Class II locations are those that are hazardous because of the presence of combustible dust. Note that the dust must be present in sufficient quantities for a fire or explosion hazard to exist. The fact that there is some combustible dust present does not mean a Class II hazardous location exists. To be considered a "dust" the combustible material must exist as a finely divided solid of 420 microns (0.420 mm) or less. Such a dust will pass through a No. 40 U.S. sieve.

CLASS II, DIVISIONS 1 AND 2 GROUPS E, F, AND G LOCATIONS

General

Just as in Class I, Divisions 1 and 2, the subdivision of Class II into Divisions 1 and 2 identifies the likelihood that there will be an explosion hazard.

Division 1

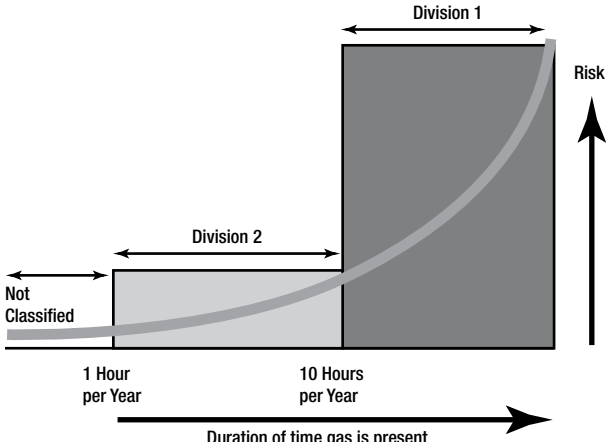
A Class II, Division 1 location is one where combustible dust is normally in suspension in the air in sufficient quantities to produce ignitable mixtures, or where mechanical failure or abnormal operation of equipment or machinery might cause an explosive or ignitable dust-air mixture to be produced, and might also provide a source of ignition through simultaneous failure of electrical equipment. A Class II, Division 1 location also exists where combustible dusts of an electrically conductive nature may be present in hazardous quantities (Group E locations). The term "hazardous quantity" is intended to mean those locations where the dust may not be in suspension in the air in sufficient quantity to cause an explosion, but might have settled on electrical equipment so that the electrically conductive particles can penetrate the openings in the electrical equipment enclosure and cause an electrical failure, or where the dust can get into motor bearings and cause excessive temperatures because of bearing failure.

Division 2
A Class II, Division 2 location is one where combustible dust is not normally in the air in quantities sufficient to produce explosive or ignitable mixtures, and dust accumulations are not normally sufficient to interfere with the normal operation of electrical equipment, such as clogging ventilating openings or causing bearing failure. It includes locations where combustible dust may be in suspension in the air only as a result of infrequent malfunctioning of handling or processing equipment, and those locations where dust accumulation may be on or in the vicinity of the electrical equipment and may be sufficient to interfere with the safe dissipation of heat from the equipment, or may be ignitable by abnormal operation or failure of the electrical equipment.

Class II, Groups E, F, and G
The division into three groups in Class II locations is for the same reasons Class I locations are divided into Groups A, B, C, and D: equipment design and area classification. However, the three Class II groups are based on different characteristics than the four Class I groups because the design of dust-ignition proof equipment for Class II locations is based on different principles than the design of explosion proof equipment for Class I locations. In Class II locations the ignition temperature of the dust, the electrical conductivity of the dust, and the thermal blanketing effect the dust can have on heat-producing equipment, such as lighting fixtures and motors are the deciding factors in determining the Class II group.

Group E
Group E dusts include the metal dusts, such as aluminum and magnesium. In addition to being highly abrasive, and thus likely to cause overheating of motor bearings if the dust gets into the bearing, Group E dusts are electrically conductive. If they are allowed to enter an enclosure, they can cause electrical failure of the equipment.

Group F
The Group F dusts are carbonaceous, the primary dust in this group being coal dust. These dusts have somewhat lower ignition temperatures than the Group E dusts and a layer of a Group F dust has a higher thermal insulating value than a layer of a Group E dust, thus requiring more careful control of the temperature on the surface of the equipment. Such dusts are semi-conductive but this is not usually a factor for equipment rated 600 volts and less.



Group G
The Group G dusts include plastic dusts, most chemical dusts, and food and grain dusts. They are not electrically conductive. These dusts, in general, have the highest thermal insulating characteristics and the lowest ignition temperatures. Thus, dust ignition proof equipment for use in Group G atmospheres must have the lowest surface temperatures to prevent ignition of a dust layer by the heat generated within the equipment. Because of the different design characteristics, equipment suitable for Class I locations is not necessarily suitable for Class II locations, and equipment suitable for Class II locations is not necessarily suitable for Class I locations. The equipment must be approved for each class and group of location involved. Much equipment suitable for Class I locations is also suitable for Class II locations, and is so marked, although when used in Class II locations there may be restrictions, such as lower maximum lamp wattage to maintain the lower surface temperature needed for equipment in dust atmospheres.

In Class II areas all products must operate at temperatures based on whether they are heat producing or subject to overloading or not, and based on the Group which they fall under. Class III products in all cases must operate below 165° C.

CLASS III LOCATIONS

Class III locations are those that are hazardous because of the presence of easily ignitable fibers or flyings, but in which the fibers or flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitable mixtures. Easily ignitable fibers and flyings present a fire but not an explosion hazard. A typical example of this type of material is the cotton lint that accumulates in the lint trap of clothes dryers. Listed clothes dryers are designed so that even if the lint ignites, the fire will be contained within the dryer enclosure.

CLASS III, DIVISIONS 1 AND 2

Division 1
This is a location where the equipment producing the ignitable fibers or flyings is located (near textile mill machinery, for example) or where the material is handled (for example, where the material is stuffed into bags).

Division 2
This is a location where the easily ignitable fibers are stored or handled, except in manufacturing processes (which is Division 1).

Class III Groups
There are no groups in Class III locations.

HLE SERIES

Features

- For use in classified areas such as paint manufacturing, munitions facilities, chemical and petrochemical, oil & gas production, and marine loading terminals.
- Compact size for medium base incandescent and HID lamps, plus twin FL (lamp provided).
- Mounting choices of pendant, ceiling, 25° stanchion or 90° wall mount with "wireless" design for quick installation.
- Factory sealed – no external seal required.
- Available with guard, standard dome or 25° reflector, or exit sign.
- Housing, Mounting Adaptor, Guard – Copper-free (<0.4%) aluminum with powder polyester finish, electrostatically applied.
- Hardware – 316 stainless steel.
- Reflectors – Fiberglass reinforced polyester.
- UL844 Standard: Class I, Div. 1, Groups C, D; Class II, Div. 1 & 2, Groups E, F, G; Class III, Div. 1 & 2.
- UL1598A Marine Outdoor.
- NEMA 3, 4, 4X, 7 (C, D), 9 (E, F, G).
- UL1598 Wet Location.

Ordering Information

Example: HLE - M - H - 07 - Q - A2 - G

Series	Lamp Base	Lamp Type	Watts	Volts	Mount	Guard

Series
- **HLE** HLE Series

Lamp Base
- **M** Medium Base
- **B** Bi-pin Base

Lamp Type
- **I** Incandescent
- **F** Fluorescent
- **S** HPS
- **H** MH
- **M** MV

Wattage
- **15** 150W, A-21, INC
- **20** 300W, PS-25, INC
- **30** 300W, PS-30, INC
- **13** (1) 13W, Bi-Pin FLUOR
- **26** (2) 13W Bi-Pin or (1) Quad-Pin 26W FLUOR
- **35** 35W, HPS
- **05** 50W, HPS, MH, MV
- **07** 70W, HPS, MH
- **75** 75W, MV
- **10** 100W, HPS, MH, MV
- **15** 150W, HPS

Voltage (@ 60 Hertz)
- **0** Quadri-Volt (120, 208, 240, 277V)
- **1** 120V
- **4** 277V
- **5** 480V
- **6** 347V Canada (70, 100 MH/HPS)

Mounting Type
- **A2** 3/4" Pendant
- **A3** 1" Pendant
- **X2** 3/4" Ceiling
- **X3** 1" Ceiling
- **B2** 3/4" Bracket
- **B3** 1" Bracket
- **D4** 1 1/4" - 1 1/2" Stanchion

Guard
- **G** With Guard (Omit G if guard is not required)

Options
- **ML** UL Marine listing for HLEMI. Standard on HLEMS, HLEMM, HLEMH. Not available on HLEBF, HLEQF
- **SU103** Assembled with lamp

Accessories - Order Separately

Catalog Number	Description
HLEMG1	Guard for incandescent and fluorescent
HLERSD15	Standard dome reflector for incandescent and fluorescent
HLERSD30	Dome reflector for HID lamp sources
HLERA15	Angle reflector for incandescent and fluorescent
HLERA30	Angle reflector for HID lamp sources
HLH-EX	Triangular exit sign. Fits HLEMI15, HLEMI20, HLEBF Series, without guard
HLH-G	Green inner globe kit fits HLEMI20 (fits over A-21, 150W lamp only)
HLH-R	Red inner globe kit fits HLEMI20 (fits over A-21, 150W lamp only)
HLEMG2	Guard for HID lamp sources

Components

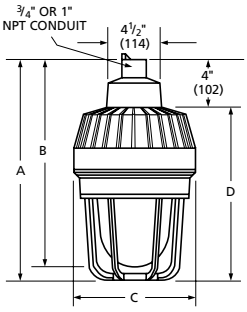
Catalog Number	Description
	Mounting Adapters
HLEZA2	3/4" Pendant
HLEZA3	1" Pendant
HLEZB2	3/4" Wall
HLEZB3	1" Wall
HLEZD4	1 1/4" Stanchion
HLEZD5	1 1/2" Stanchion
HLEZX2	3/4" Ceiling
HLEZX3	1" Ceiling
	Housing and Globe
HLEMI15	150W max. Incandescent
HLEMI20	300W max. Incandescent
HLEBF13X[1]	1 - 13W PL Fluorescent
HLEBF26X[1]	2 - 13W PL Fluorescent
HLEMS070	70W HPS Quad-Tap®
HLEMS100	100W HPS Quad-Tap®
HLEMS151	150W HPS 120V
HLEMH070	70W MH Quad-Tap®
HLEMH100	100W MH Quad-Tap®

1 Replace X with 1 = 120V, 4 = 277V.

HLE SERIES
INC/FL/HID EXPLOSION PROOF

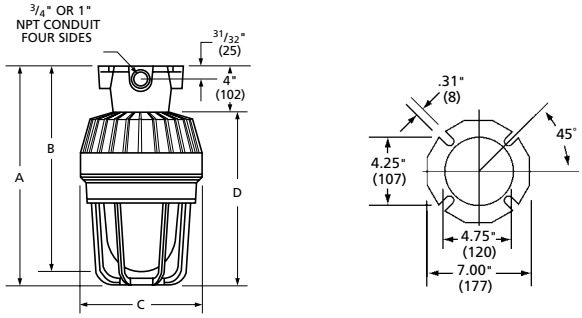
Dimensions

Pendant



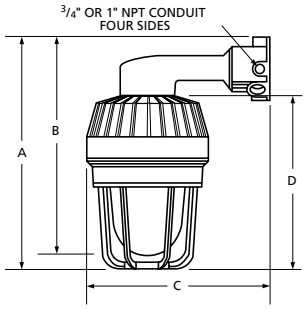
	A	B	C	D
	14 5/16"	13 11/16"	7 7/16"	10 5/16"
HLEMI/HLEBF	364 mm	348 mm	189 mm	262 mm
HLEMH/HLEMM/	15 15/16"	15 1/16"	8 13/16"	11 15/16"
HLEMS/HLESX	405 mm	383 mm	224 mm	303 mm

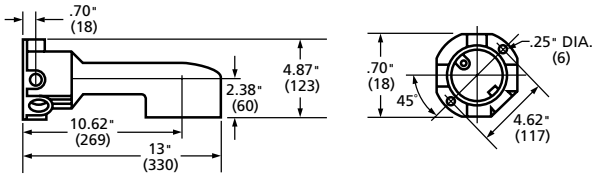
Ceiling



	A	B	C	D
	14 5/16"	13 11/16"	7 7/16"	10 5/16"
HLEMI/HLEBF	364 mm	348 mm	189 mm	262 mm
HLEMH/HLEMM/	14 5/16"	13 11/16"	7 7/16"	10 5/16"
HLEMS/HLESX	405 mm	383 mm	224 mm	303 mm

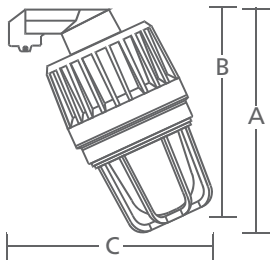
Wall





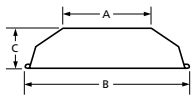
	A	B	C	D
	15 13/16"	14 7/16"	14 1/2"	10 5/16"
HLEMI/HLEBF	402 mm	367 mm	368 mm	262 mm
HLEMH/HLEMM/	16 13/16"	15 15/16"	15"	11 15/16"
HLEMS/HLESX	427 mm	405 mm	381 mm	303 mm

25° Stanchion



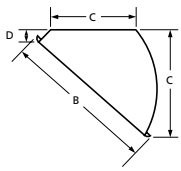
	A	B	C
	14"	13 1/4"	13"
HLEMI/HLEBF	356 mm	337 mm	330 mm
HLEMH/HLEMM/	15 1/8"	14"	13 1/2"
HLEMS/HLESX	384 mm	356 mm	343 mm

Standard Dome



	A	B	C
	7 3/8"	14"	3 3/4"
HLEMI/HLEBF	187 mm	356 mm	95 mm
	8 3/4"	16 1/8"	3 15/16"
HLEMS/HLEMH/HLEMM	222 mm	410 mm	100 mm

Angle Dome



	A	B	C	D
	7"	11 1/2"	7 3/4"	1"
HLEMI/HLEBF	178 mm	292 mm	197 mm	25 mm
	8 3/4"	14 3/16"	7 3/4"	1"
HLEMS/HLEMH/HLEMM	222 mm	360 mm	197 mm	25 mm

Temperature Codes

Class I, Division 1 & 2 HLEMI and HLEBF Series Hazardous Location Application Data

Fixture Series[1]	Lamp Type/ Size Max.	Lamp Watts	Rated Ambient °C	Supply Wire Suitable For °C Min.	Class I, Division 1 & 2 Maximum Surface Temp. w/o Reflector			UL 595 Listed[2]	Paint Spray Suitability UL	Type 4 (Hose-Down)[2]
					Temp. I.D.	Actual Temp.	UL/CSA Groups			
HLEMI15	INC. A-19	60	40	75	T6	79	C,D	Yes	No	Yes
HLEMI15	INC. A-19	75	40	75	T4A	103	C,D	Yes	No	Yes
HLEMI15	INC. A-19	100	40	75	T4A	103	C,D	Yes	No	Yes
HLEMI15	INC. A-21	100	40	75	T4A	101	C,D	Yes	No	Yes
HLEMI15	INC. A-21	150	40	75	T4	123	C,D	Yes	No	Yes
HLEMI20	INC. A-23	100	40	90	T4A	107	C,D	Yes	No	Yes
HLEMI20	INC. A-23	150	40	90	T4	132	C,D	Yes	No	Yes
HLEMI20	INC. PS-25	150	40	90	T4	126	C,D	Yes	No	Yes
HLEMI20	INC. A-23	200	40	90	T3C	146	C,D	Yes	No	Yes
HLEMI20	INC. PS-25	200	40	90	T3C	154	C,D	Yes	No	Yes
HLEMI20	INC. PS-25	300	40	90	T3	190	C,D	Yes	No	Yes
HLEBF13	FL (1) PL	13	40	75	T6	62	C,D	No	Yes	Yes
HLEBF26	FL (2) PL	26	40	75	T6	62	C,D	No	Yes	Yes
HLEMS070	HPS S-62	70	40	75	T6	83	C,D	Yes	Yes	Yes
HLEMS100	HPS S-54	100	40	75	T5	99	C,D	Yes	No	Yes
HLEMS150	HPS S-55	150	40	75	T4A	119	C,D	Yes	No	Yes
HLEMH070	MH M-98	70	40	75	T5	95	C,D	Yes	Yes	Yes
HLEMH100	MH M-90	100	40	75	T4A	101	C,D	Yes	No	Yes

Note Fixtures approved for mounting with lamp base up only.
1 Do not install where marked operating temperature exceeds ignition temperature of hazardous atmosphere.
2 For UL 1598A Marine Outdoor and UL/CSA Type 4 Fixture Label, add suffix ML to fixture catalog number.

Class II, Division 1 & 2 HLEMI and HLEBF Series Hazardous Location Application Data

Fixture Series[1]	Lamp Type/ Size Max.	Lamp Watts	Rated Ambient °C	Supply Wire Suitable For °C Min.	Class II, Division 1 & 2 Maximum Surface Temp.				UL/CSA Groups	Class III Div. 1 & 2 UL/CSA Suitability
					UL/CSA w/Reflector		UL/CSA w/o Reflector			
					Temp. I.D.	Actual Temp.	Temp. I.D.	Actual Temp.		
HLEMI15	INC. A-19	60	40	75	T3C	132	T3C	132	E,F,G	Yes
HLEMI15	INC. A-19	75	40	75	T3A	163	T3A	162	E,F	No
HLEMI15	INC. A-19	100	40	75	T3A	163	T3A	162	E,F	No
HLEMI15	INC. A-21	100	40	75	T3A	172	T3A	172	E,F	No
HLEMI15	INC. A-21	150	40	75	N/A	192	T3	192	E,F	No
HLEMI20	INC. A-23	100	40	90	T3A	166	T3A	166	E,F	No
HLEMI20	INC. A-23	150	40	90	T3	196	T3A	178	E,F	No
HLEMI20	INC. PS-25	150	40	90	N/A	N/A	N/A	N/A	No	No
HLEMI20	INC. A-23	200	40	90	N/A	N/A	N/A	N/A	No	No
HLEMI20	INC. PS-25	200	40	90	N/A	N/A	N/A	N/A	No	No
HLEMI20	INC. PS-25	300	40	90	N/A	N/A	N/A	N/A	No	No
HLEBF13	FL (1) PL	13	40	75	T6	69	T6	66	E,F,G	Yes
HLEBF26	FL (2) PL[2]	26	40	75	T6	69	T6	66	E,F,G	Yes
HLEMS070	HPS S-62	70	40	75	T4A	116	T4A	116	E,F,G	Yes
HLEMS100	HPS S-54	100	40	75	T3B	161	T3B	161	E,F,G	Yes
HLEMS150	HPS S-55	150	40	75	T3B	180	T3B	180	E,F	No
HLEMH070	MH M-98	70	40	75	T4	121	T4	121	E,F,G	Yes
HLEMH100	MH M-90	100	40	75	T3C	150	T3C	153	E,F,G	Yes

Note Fixtures approved for mounting with lamp base up only.
1 Do not install where marked operating temperature exceeds ignition temperature of hazardous atmosphere.
2 13 Watts per lamp.

HLEZ™ SERIES

MOGUL BASE EXPLOSION PROOF

Features

- For use in classified areas such as paint manufacturing, munitions facilities, chemical and petrochemical, oil and gas production, and marine loading terminals.
- Compact size for mogul base HID lamps.
- Mounting choices of pendant, ceiling, 25° stanchion or 90° wall mount with "wireless" design for quick installation.
- Factory sealed – no external seal required.
- Available with guard, standard dome or 25° reflector.
- Pulse Start lamps available (consult factory).
- Housing, Mounting Adaptor – Copper-free (<0.4%) die-cast aluminum with powder polyester finish, electrostatically applied.
- Guard – EZG1 = Copper-free die-cast aluminum; VMAG-40 = Plated Steel.
- Hardware – 316 stainless steel.
- Reflectors – Fiberglass reinforced polyester or spun aluminum (deep dome) with baked white enamel finish.
- UL844 Standard: Class I, Div. 1, Groups C,D; Class II, Div. 1/2, Groups E, F, G; Class III, Div. 1/2.
- UL1598A Marine Outdoor; NEMA 3, 4, 4X, 7 (C, D), 9 (E, F, G); UL1598 Wet Location.

Ordering Information

Example: HLEZ - H - 17 - Q - A2 - G - Q

Series	Lamp Type	Watts	Volts	Mount	Guard	Options

Series
- **HLEZ** HLEZ™ Series

Lamp Type
- **S** High Pressure Sodium
- **H** Metal Halide
- **M** Mercury Vapor
- **P** Pulst Start Metal Halide

Wattage
- **05** 50W HPS
- **07** 70W HPS/MH
- **10** 100W HPS/MH/MV
- **15** 150W HPS
- **17** 175W MH/MV/MHP
- **25** 250W HPS/MH/MV/MHP
- **32** 320W MHP
- **35** 350W MHP
- **40** 400W HPS/MH/MV/MHP

Voltage
- **O** Quadri-Volt, 60 Hz (120, 208, 240, 277V)
- **5** 480V, 60 Hz
- **6** Tri-Tap Canada (120, 277, 347V), 60 Hz
- **8** 220/240V, 50 Hz
- **9** Special (specify)

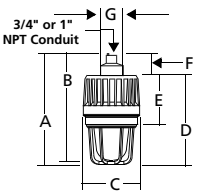
Mounting Type
- **A2** 3/4" Pendant
- **A3** 1" Pendant
- **X2** 3/4" Ceiling
- **X3** 1" Ceiling
- **B2** 3/4" Bracket
- **B3** 1" Bracket
- **D4** 1 1/4" - 1 1/2" Stanchion

Guard
- **G** With Guard (Omit G if guard is not required)

Options
- **Q** Auxiliary Quartz Standby
- **R** Instant Restrike (150W HPS Max.)
- **BP** Ballast protector
- **PS** Paint Spray (50, 70, 100W HPS, 100W MV, 70, 100W MH)
- **SU103** Assembled with lamp

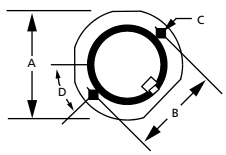
Dimensions

Pendant



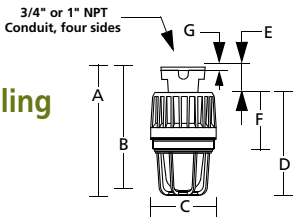
	A	B	C	D	E	F	G
70-250W[1]	22"	21 1/4"	11 1/4"	18"	10 1/2"	4"	4 1/2"
	558 mm	539 mm	285 mm	457 mm	267mm	102 mm	114 mm
250-400W[2]	26 1/4"	24 1/4"	11 1/4"	22 1/4"	10 1/2"	4"	4 1/2"
	666 mm	615 mm	285 mm	565 mm	267mm	102 mm	114 mm

Pendant Mounting Hub



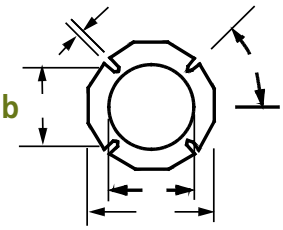
A	B	C	D
5 1/2"	4 5/8"	1/4" dia.	45°
133 mm	117 mm	6 mm	N/A

Ceiling



	A	B	C	D	E	F	G
70-250W[1]	22"	21 1/4"	11 1/4"	18"	4"	10 1/2"	15/16"
	558 mm	539 mm	285 mm	457 mm	102 mm	267 mm	25 mm
250-400W[2]	26 1/4"	24 1/4"	11 1/4"	22 1/4"	4"	10 1/2"	15/16"
	666 mm	615 mm	285 mm	565 mm	102 mm	267 mm	25 mm

Ceiling Mounting Hub



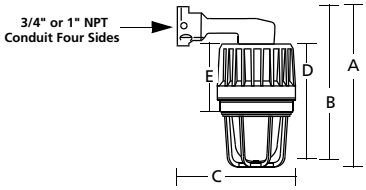
A	B	C	D	E
4 1/4"	4 3/4"	7"	5/16"	45°
107 mm	120 mm	177 mm	8 mm	N/A

1 70, 100, and 150 Watt HPS; 175 and 250 Watt MH; 100, 175, 250 Watt MV.
2 250 and 400 Watt HPS and 400 Watt MH and MV.

HLEZ™ SERIES
MOGUL BASE EXPLOSION PROOF

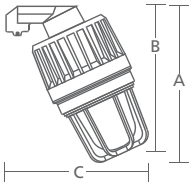
Dimensions

Bracket Arm



	A	B	C	D	E
70-250W[1]	22 7/8″	22 1/8″	16 3/4″	18″	10 1/2″
	580 mm	561 mm	425 mm	457 mm	267 mm
250-400W[2]	26 7/8″	24 7/8″	16 3/4″	22 1/4″	10 1/2″
	682 mm	631 mm	425 mm	565 mm	267 mm

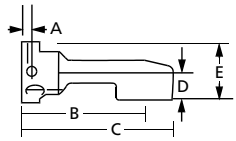
25° Stanchion



	A	B	C
70-250W[1]	24 7/8″	24″	19″
	631 mm	609 mm	503 mm
250-400W[2]	28 1/2″	26 11/16″	21 1/2″
	724 mm	678 mm	546 mm

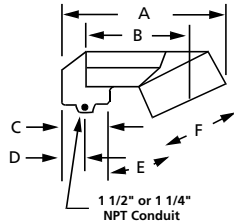
1 70, 100, and 150 Watt HPS; 175 and 250 Watt MH; 100, 175, 250 Watt MV.
2 250 and 400 Watt HPS and 400 Watt MH and MV.

Bracket Mounting Hub



A	B	C	D	E
11/16″	10 5/8″	13″	2 3/8″	4 7/8″
18 mm	269 mm	330 mm	60 mm	123 mm

Stanchion Mounting Hub



A	B	C	D	E	F
9 5/8″	6 1/4″	2 5/8″	1 5/16″	25°	4 3/4″
244 mm	158 mm	66 mm	33 mm	N/A	120 mm

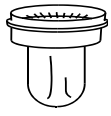
Accessories and Replacement Parts - Order Separately

Replacement Globe and Globe Support Assemblies

Catalog Number	Series	Lamp Type	Wattage
HLEZGS1	HLEZS	HPS	50, 70, 100, 150
	HLEZM	MV	100, 175, 250
	HLEZH	MH	70, 100, 175, 250
	HLEZH	MHP	175, 250, 320, 350, 400
HLEZGS2	HLEZS	HPS	250, 400
	HLEZM	MV	400
	HLEZH	MH	400
	HLEZH	MHP	320, 350, 400

HLEZGS1

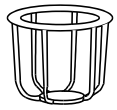
HLEZGS2



Guards

Catalog Number	Series	Lamp Type	Wattage
HLEZG1	HLEZS	HPS	50, 70, 100, 150
	HLEZM	MV	100, 175, 250
	HLEZH	MH	70, 100, 175, 250
	HLEZH	MHP	175, 250, 320, 350, 400
VMAG-40	HLEZS	HPS	250, 400
	HLEZM	MV	400
	HLEZH	MH	400
	HLEZH	MHP	320, 350, 400

HLEZG1



VMAG-40

1 HLEZG1 Guard is cast aluminum. VMAG-40 Guard is plated steel.

Replacement Connection Blocks

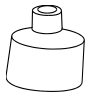
Catalog Number	Description
HLEZTB	Female

HLEZTB

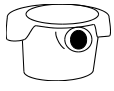
Mounting Boxes

Catalog Number	Mounting	Hub Size
HLEZA2	Pendant Mount	3/4″
HLEZA3	Pendant Mount	1″
HLEZX2	Ceiling Mount	3/4″
HLEZX3	Ceiling Mount	1″
HLEZB2	Bracket Mount	3/4″
HLEZB3	Bracket Mount	1″
HLEZD4	Stanchion Mount	1-1/4″
HLEZD5	Stanchion Mount	1-1/2″

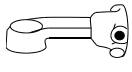
Pendant



Ceiling



Bracket



Stanchion

HLEZ™ SERIES

MOGUL BASE EXPLOSION PROOF

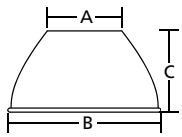
Ordering Information

Ballast, Globe and Glass Support Assemblies

Catalog Number	Watts
HLEZS07X	70
HLEZS10X	100
HLEZS15X	150
HLEZS25X	250
HLEZS40X	400
HLEZH17X	175
HLEZH25X	250
HLEZH40X	400
HLEZM10X	100
HLEZM17X	175
HLEZM25X	250
HLEZM40X	400
HLEZP17X	175
HLEZP25X	250
HLEZP32X	320
HLEZP35X	350
HLEZP40X	400

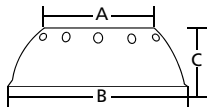
Note To specify voltage, replace X with 0 = Quad-Tap®, 5 = 480V, 6 = Tri-Tap® (120, 277, 347V), 8 = 220/240V 50Hz.

Deep Dome



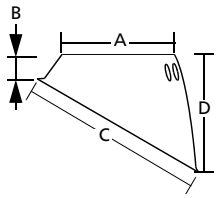
A	B	C
9 7/8"	20 5/8"	10 3/4"
250 mm	525 mm	273 mm

Standard Dome



A	B	C
10 1/4"	16 7/8"	5 1/2"
260 mm	428 mm	139 mm

Angle Dome



A	B	C	D
10 1/4"	2 1/2"	16 7/8"	10 5/8"
260 mm	63 mm	428 mm	270 mm

Reflectors

Catalog Number	Description
VMPSD40	Standard Dome, Polyester reinforced fiberglass
VMPA40	Angle Dome, Polyester reinforced fiberglass
HRD400	Deep Dome, Baked white enamel aluminum

Hazardous Location T-Ratings

Fixture Series: HLEZ - Metal Halide, Class I Division 1 & 2

Lamp Watts	Rated Ambient °C	Supply Wire Suitable For °C Min.	Class I, Division 1 & 2 Maximum Surface Temp. UL/CSA			UL 595 Marine	UL Paint Spray Suitability[4]
			Temp. ID w/o Qtz	Temp. ID w/Qtz[1]	UL/CSA Groups		
70	40	85	T4A	N/A	C,D	Yes	Yes
70	55	85	T4A	N/A	C,D	Yes	No
70	65	85	T4A	N/A	C,D	Yes	No
100	40	85	T4A	N/A	C,D	Yes	Yes
100	55	85	T4A	N/A	C,D	Yes	No
100	65	85	T4A	N/A	C,D	Yes	No
175	40	85	T4	T3C	C,D	Yes	No
175	55	85	T4	N/A	C,D	Yes	No
250	40	85	T3C	T3C	C,D	Yes	No
250	55	85	T3C	N/A	C,D	Yes	No
400	40	85	T3A	T3A	C,D	Yes	No

Fixture Series: HLEZ - Metal Halide, Class II Division 1 & 2, Class III Division 1 & 2

Lamp Watts	Rated Ambient °C	Supply Wire Suitable For °C Min.	Class II, Division 1 & 2 Maximum Surface Temp.				Class III Div. I & 2 UL/CSA Suitability	
			UL/CSA		UL/CSA Groups			
			Temp. ID w/o Qtz	Temp. ID w/Qtz[3]	w/o Qtz	w/Qtz[3]	w/o QTZ	w/QTZ[3]
70	40	85	T4A	N/A	E,F,G	Yes	Yes	No
70	55	85	T4A	N/A	E,F,G	Yes	Yes	No
70	65	85	T4A	N/A	E,F,G	Yes	Yes	No
100	40	85	T4A	N/A	E,F,G	Yes	Yes	No
100	55	85	T4A	N/A	E,F,G	Yes	Yes	No
100	65	85	T4A	N/A	E,F,G	Yes	Yes	No
175	40	85	T3C[2]	T3A[2]	E,F,G	E,F	Yes	Yes
175	55	85	T3C[2]	N/A	E,F,G	N/A	Yes	No
250	40	85	N/A	N/A	N/A	N/A	No	No
400	40	85	N/A	N/A	N/A	N/A	No	No

1 Instant restrike limited to 55° ambient maximum.
2 Temperature Code I.D. marked are listed for simultaneous use in Class I, Groups C,D and Class II, Groups E,F,G
3 Fixtures are not suitable for Class III, Division 1 and 2 when supplied with auxiliary quartz.
4 Suitable for locations having deposits of readily combustible paint residue.

Hazardous Location T-Ratings

Fixture Series: HLEZM - Mercury Vapor, Class I, Division 1 & 2

Lamp Watts	Rated Ambient °C	Supply Wire Suitable For °C Min.	Class I, Division 1 & 2 Maximum Surface Temp. NEC/CEC			UL 595 Marine	UL Paint Spray Suitability[4]
			Temp. ID w/o Qtz	Temp. ID w/Qtz[3]	UL/CSA Groups		
100	40	85	T4	T3C	C,D	Yes	Yes
100	55	85	T4	N/A	C,D	Yes	No
175	40	85	T4	T3C	C,D	Yes	No
175	55	85	T4	N/A	C,D	Yes	No
250	40	85	T3C	T3C	C,D	Yes	No
400	40	85	T3A	T3A	C,D	Yes	No

Fixture Series: HLEZM - Mercury Vapor, Class II Division 1 & 2, Class III Division 1 & 2

Lamp Watts	Rated Ambient °C	Supply Wire Suitable For °C Min.	Class II, Division 1 & 2 Maximum Surface Temp.				Class III, Division 1 & 2 UL/CSA Suitability	
			NEC/CEC		NEC/CEC Groups			
			Temp. ID w/o Qtz	Temp ID w/Qtz[3]	w/o Qtz	w/Qtz[3]	w/o Qtz	w/Qtz[3]
100	40	85	T3C[2]	T3A[2]	E,F,G	E,F	Yes	Yes
100	55	85	T3C[2]	N/A	E,F,G	N/A	Yes	No
175	40	85	T3C	T3A[2]	E,F,G	E,F	Yes	No
175	55	85	T3C	N/A	E,F,G	N/A	Yes	No
250	40	85	N/A	N/A	N/A	N/A	No	No
400	40	85	N/A	N/A	N/A	N/A	No	No

Fixture Series: HLEZ - High Pressure Sodium, Class I Division 1 & 2

Lamp Watts	Rated Ambient °C	Supply Wire Suitable For °C Min.	Class I, Division 1 & 2 Maximum Surface Temp. NEC/CEC			UL 1598A Marine	UL/CSA Type[3] (Raintight)	UL Paint Spray Suitability[4]
			Temp. ID w/o Qtz.	Temp. ID w/Qtz[3]	UL/CSA Groups			
70	40	85	T4A	T4	C,D	Yes	Yes	Yes
70	55	85	T4A	N/A	C,D	Yes	Yes	No
70	65	85	T4A	N/A	C,D	Yes	Yes	No
100	40	85	T4A	T4	C,D	Yes	Yes	Yes
100	55	85	T4A	N/A	C,D	Yes	Yes	No
100	65	85	T4A	N/A	C,D	Yes	Yes	No
150	40	85	T4A	T4	C,D	Yes	Yes	No
150	55	85	T4A	N/A	C,D	Yes	Yes	No
150	65	85	T4	N/A	C,D	Yes	Yes	No
250	40	85	T3C	T3C	C,D	Yes	Yes	No
250	55	85	T3C	N/A	C,D	Yes	Yes	No
400	40	85	T3C	T3C	C,D	Yes	Yes	No

Fixture Series: HLEZ - High Pressure Sodium, Class II Division 1 & 2, Class III Division 1 & 2

Lamp Watts	Rated Ambient °C	Supply Wire Suitable For °C Minimum	Class II, Division 1 & 2 Maximum Surface Temp.				Class III, Division 1 & 2 NEC/CEC Suitability	
			NEC/CEC		UL/CSA Groups		w/o Qtz.	w/Qtz.[1]
			Temp. ID w/o Qtz.	Temp. ID w/Qtz[3]	w/o Qtz.	w/Qtz[3]		
70	40	85	T3C[2]	T3B[2]	E,F,G	E,F,G	Yes	Yes
70	55	85	T3C[2]	N/A	E,F,G	N/A	Yes	No
70	65	85	T3B[2]	N/A	E,F,G	N/A	Yes	No
100	40	85	T3C[2]	T3B[2]	E,F,G	E,F,G	Yes	Yes
100	55	85	T3C[2]	N/A	E,F,G	N/A	Yes	No
100	65	85	T3B[2]	N/A	E,F,G	N/A	Yes	No
150	40	85	T3C[2]	T3B[2]	E,F,G	E,F,G	Yes	Yes
150	55	85	T3C[2]	N/A	E,F,G	N/A	Yes	Yes
150	65	85	T3B[2]	N/A	E,F,G	N/A	Yes	Yes
250	40	85	T3[2]	T3[2]	E,F	E,F	No	Yes
250	55	85	N/A	N/A	N/A	N/A	No	No
400	40	85	N/A	N/A	N/A	N/A	No	No

1 Instant restrike limited to 55° ambient maximum.
2 Temperature Code I.D. marked are listed for simultaneous use in Class I, Groups C, D and Class II, Groups E, F, G.
3 Fixtures are not suitable for Class III, Division 1 and 2 when supplied with auxiliary quartz.
4 Suitable for locations having deposits of readily combustible paint residue.

HL-HFX SERIES FLUORESCENT

EXPLOSION PROOF

Features

- For use in hazardous locations where flammable gases, vapors and combustible dusts are present. Applications include paint spray booths, oil and gas production, petrochemical and other hazardous, corrosive facilities.
- Relamping from either end permits easy access, speed and flexibility in relamping.
- Spring loaded sockets on both lamp ends provide positive electrical contact and improved vibration resistance.
- Threaded O-Ring gasketed covers provide easy access to lamp chambers, ballast and wiring compartment.
- UL Listed for use in paint spray booths.
- Ballast housing and end caps – copper-free (>0.4%) aluminum.
- External hardware – SS 316.
- Reflectors – Extruded aluminum with white baked enamel finish. Removable for cleaning.
- Wire Guard accessory - SS316.
- UL 844: Class I, Div. 1/2, Groups C,D; Class II, Div. 1/2, Groups E, F, G; Class III, Div. 1/2.
- UL 1598A Marine Outdoor; NEMA 3, 4X, 7 (C, D), 9 (E, F, G).

Ordering Information

Example: HLHFX - 2 - R - 1 - B

Series	Lamp Current	Volts	# of Lamps	Options

Series
HLHFX Hazardous Location Fluorescent

Lamp Current
265 265 MA, 32W T8[2] (0°F Starting, Electronic)
430 430 MA, 40W RS (50°F Starting, Electronic)[1]
800 800 MA, 60W RS HO (-20°F Starting)
1500 1500 MA, 110W RS VHO (-20°F Starting)

Voltage
1 120V (430MA-1500MA only)
4 277V (430MA-1500MA only)
7 220V 60Hz
8 220-277V 50/60Hz
30 120-277V 50/60Hz[2]

Number of Lamps
2 2 lamps
3 3 lamps
4 4 lamps

Options
FB Individually in-line fused ballast (not marine)
WL With lamps supplied

1 430 MA Ballasts 60°F start with 34W lamps.

2 265 MA Electronic Ballast standard as universal voltage.

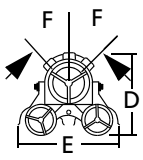
Accessories - Order Separately

Catalog Number	Description
HLF-WG2	2 & 4 lamp, stainless steel wire guard
HLF-WG3	3 lamp, stainless steel wire guard

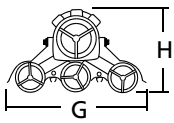
Weights

Fixture	lbs. (kg)
2 Lamp	47.7 (95.4)
3 Lamp	63 (126)
4 Lamp	99.9 (199.8)

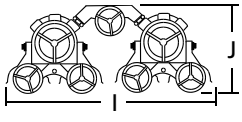
Two-lamp

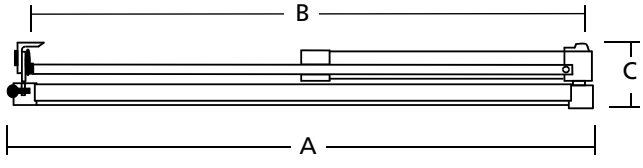


Three-lamp



Four-lamp





A	B	C	D	E	F	G	H	I	J
52 13/16″	48 3/8″	9 13/32″	9 13/32″	11″	45°	15 5/8″	9 13/32″	23″	10 1/8″
1341 mm	1229 mm	239 mm	239 mm	279 mm	-	397 mm	239 mm	584 mm	257 mm

MAGNULITER® MVH

ENCLOSED/GASKETED

Features

- For use in harsh, hazardous, marine, and corrosive environments such as petrochemical facilities, wastewater and sewage treatment plants, and salt water / corrosive enviroments.
- Available up to 1000W HPS or MH, 1000W units include lamp.
- Restricted Breathing AExnR / ExnR ("RB" option) enables lower T-Ratings at higher wattages. Refer to T-Rating table for availability.
- Elevated ambient "EA" option available for specific wattages.
- Removable Powr-Panl® ballast tray (up to 400W excluding "RB" option).
- Varying beam spreads utilizing vertical or horizontal lamp mounting.
- Housing, door frame – Copper-free (<0.4%) aluminum.
- Lens – thermal shock, impact resistant.
- Trunnion – Hot dipped galvanized steel.
- Hardware – HubbellGard® screws.
- UL 844 Standard: Class I, Div. 2 Groups A, B, C, D; Class I, Zone 2 Groups IIC,IIB, IIA; AExnR/ExnR Restricted Breathing.
- UL 1598 and UL 1598A Marine Outdoor; NEMA 3, 4X; IP66.

Catalog Number	Photometry NEMA/IES H° x V°	Lamp Type/Wattage	Weight lbs. (kg)	EPA ft² (m²)
		Vertical Lamp		
MVH-0150S-26X[1]	7(144°) x 6(113°)	150W HPS	28 (12.7)	2.3 (0.2)
MVH-0250S-26X[1]	7(144°) x 6(113°)	250W HPS	39 (17.7)	2.3 (0.2)
MVH-0400S-26X[1]	7(144°) x 6(117°)	400W HPS	40 (18.1)	2.3 (0.2)
MVH-1000S-26X[2]	6(130°) x 6(114°)	1000W HPS	55 (24.9)	2.3 (0.2)
MVH-0175H-26X[3]	7(145°) x 6(114°)	175W MH	28 (12.7)	2.3 (0.2)
MVH-0250H-26X[3]	7(145°) x 6(114°)	250W MH	30 (13.6)	2.3 (0.2)
MVH-0400H-26X[3]	7(146°) x 6(119°)	400W MH	32 (14.5)	2.3 (0.2)
MVH-1000H-26X[2]	6(118°) x 6(112°)	1000W MH	42 (19)	2.3 (0.2)
		Horizontal Lamp		
MVH-0250S-23X[1]	5(73°) x 3(32°)	250W HPS	39 (17.7)	2.3 (0.2)
MVH-0400S-23X[1]	5(73°) x 3(32°)	400W HPS	40 (18.1)	2.3 (0.2)
MVH-0250H-23X[3]	3(45°) x 3(31°)	250W MH	30 (13.6)	2.3 (0.2)
MVH-0400H-33X[3]	3(44°) x 3(37°)	400W MH	32 (14.5)	2.3 (0.2)

1 Replace "X" with voltage, 5-480V; 6-Tri-Tap®(120/277/347V); 8-Quad-Tap®(120/208/240/277V); E-220/240V 50Hz.
2 1000W units include lamp as standard. MH lamp is MH 1000/U/BT37. HPS lamp is Catalog 1000S52/ED37 from Phillips.
3 Mercury Vapor lamps may be used if desired.
Note Order mounting accessories separately. See pages 510-511.

Options - Order Separately

Part Number	Description
F(X)	Fusing - single 120/277/347V; Double 208/240/480V; fuse included (specify voltage)[1, 2, 3]
L	Lamp shipped separately[4]
RB	Restricted Breathing allowing for lower T-Ratings. Housing provided with test port entry. See T-Rating chart for availability.
EA	Elevated Ambient capability. Consult factory.

1 Replace "X" with voltage. 1-120V; 2-208V; 3-240V; 4-277V; 5-480V; 6-347V; E-220/240V 50Hz.
2 Fused units do not carry UL 1598A Marine Outdoor listing.
3 Not CSA certified with "F" option.
4 1000W units include lamp as standard. MH lamp is MH 1000/U/BT37. HPS lamp is Catalog 1000S52/ED37 from Phillips.

Hazardous Location Temperature Ratings

Wattage	Vertical Lamp				Horizontal Lamp				Restricted Breathing Option ExnR, AExnR[2] Temp. Code
	Class I, Division 2[1]		Class I, Zone 2[1]		Class I, Division 2[1]		Class I, Zone 2[1]		
	Max. Oper. Temp. Rating	Temp. Code	Max. Oper. Temp. Rating	Temp. Code	Max. Oper. Temp. Rating	Temp. Code	Max. Oper. Temp. Rating	Temp. Code	
				High Pressure Sodium					
150W	260	T2B	300	T2	450	T1	450	T1	T4
250W	325[3]	—	450	T1	450	T1	450	T1	T3
400W	350[3]	—	450	T1	450	T1	450	T1	T3
1000W[4]	450	T1	450	T1	—	—	—	—	T2
				Metal Halide					
250W	325[3]	—	450	T1	450	T1	450	T1	—
400W	325[3]	—	450	T1	450	T1	450	T1	—
1000W[4]	450	T1	450	T1	—	—	—	—	T2
				Mercury					
175W	350[3]	—	450	T1	—	—	—	—	T3
250W	350[3]	—	450	T1	—	—	—	—	T3
400W	350[3]	—	450	T1	—	—	—	—	T3

1 Lamp temperature data was obtained in 40°C ambient operating conditions.
2 Consult factory for elevated ambient capabilities.
3 Represents actual maximum lamp temperature rating.
4 To maintain T-Ratings, aiming angle is limited to 35° - 135° (no horizontal mounting).

PERIMALITER® PGM2

HAZARDOUS WALLPACK

Features

- Typical uses are walkway, catwalk, perimeter and security lighting.
- 5:1 spacing to mounting height ratio minimizes fixture requirements.
- Hinging front door provides full front access.
- -40°F starting for HPS; -20°F for MH.
- 40°C ambient.
- Housing – Copper-free (<0.4%) aluminum with bronze Lektrocote® finish.
- Lens – Thermal shock and impact resistant.
- Fasteners – HubbellGard® hex head.
- Two ½" NPT conduit entries on either side.
- UL844 Standard: Class I, Div. 2, Groups A, B, C, D; Zone 2, Groups IIC, IIB, IIA.
- NEMA 4X.
- UL1598 Wet Location.

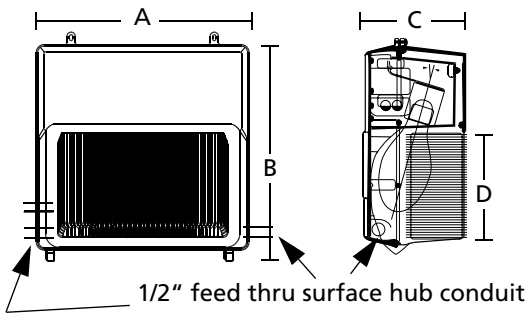
Catalog Number	Wattage & ANSI Code	Voltage/Ballast	Weight lbs. (kg)	T-Code @ 40°C
		Metal Halide		
PGM2-H078	70W (M-98)	Quad-Tap®	23 (10.4)	T2D - 215°C
PGM2-H108	100W (M-90)	Quad-Tap®	24 (10.9)	T2D - 215°C
PGM2-H178	175W (M-57)	Quad-Tap®	25 (11.3)	T2B - 260°C
		High Pressure Sodium		
PGM2-S078	70W (S-62)	Quad-Tap®	24 (10.9)	T3 - 200°C
PGM2-S108	100W (S-54)	Quad-Tap®	25 (11.3)	T3 - 200°C
PGM2-S158	150W (S-55)	Quad-Tap®	25 (11.3)	T2B - 260°C

Note For voltage, change last character in catalog number. Example: PGM2-H178 to PGM2-H175; 5 = 480V, 6 = Tri-Tap® 120/277/347V, E = 230V 50Hz.

Accessories - Order Separately

Catalog Number	Description
PGPS	Clear polycarbonate shield for lens protection
PGWG	Wire guard, cadmium plated steel
PVLV	Full cutoff visor. Formed bronze aluminum

Dimensions



A	B	C	D
14 1/2"	14"	7 1/8"	6"
368 mm	356 mm	181 mm	152 mm

KEMLUX® III KH SERIES

ENCLOSED/GASKETED

Features

- For use in corrosive, harsh, hazardous applications such as chemical, petrochem, marine, power generation, pharmaceutical, or food processing plants.
- Electro-Reg® ballast provides long life, high lumen maintenance metal halide light source for low operating and maintenance costs.
- Mogul base socket.
- Cover selection of rigid pendant, ceiling, wall, right angle stanchion, and 25° stanchion in varying threaded NPT entries.
- Minimum starting temp of -20°F for MV/MH and -40°F for HPS.
- Copper-free (<0.4%) aluminum housing, cover and guard with Lektrocote® powder polyester paint finish. Color is tan.
- Optic choices of impact resistant glass globe, sym./asym. glass refractors, dome/angle FRP reflector, 19" enclosed reflector, and polycarbonate enclosed low bay. Unit shown with optional globe guard.
- Modular design permits selection of cover, body, globe, guard and reflector.
- UL844 Standard: Class I, Div. 2, Groups A, B, C, D; Class II, Div. 1/2, Groups E, F, G; Class III, Div. 1/2.
- UL 1598A Marine Outdoor; NEMA 4X and IP66 with K-G globe; 40°C ambient listed; UL1598 Wet Location.

Ordering Information

KH - D - H - 40 - 0 - A - 2 - GL - G

Series | Tank | Lamp | Wattage | Voltage | Mount | Entry | Optic | Guard

Series
- **KH** Kemlux® III KH

Tank Type
- **C** Low Wattage Mogul Base 5"
- **D** Low Wattage Mogul Base 8"
- **E** High Wattage Mogul Base 8"

Lamp Type
- **S** High Pressure Sodium
- **H** Metal Halide
- **P** Pulse Start Metal Halide
- **M** Mercury Vapor

Wattage
- **05** 50 watt (HPS)
- **07** 70 watt (HPS, MH)
- **10** 100 watt (HPS, MH, MV)
- **12** 125 watt (Pulse Start MH)
- **15** 150 watt (HPS, Pulse Start MH)
- **17** 175 watt (MH, Pulse Start MH, MV)
- **20** 200 watt (HPS)
- **25** 250 watt (HPS, MH, Pulse Start MH)
- **32** 320 watt (Pulse Start MH)
- **35** 350 watt (Pulse Start MH)
- **40** 400 watt (HPS, MH, Pulse Start MH, MV)

Voltage (@ 60 HZ)
- **0** Quadri-Volt (120, 208, 240, 277V)
- **5** 480V
- **6** Tri-Tap Canada (120, 277, 347V)
- **7** 220V
- **8** 220/240V 50 Hz

Mounting Type
- **A** Pendant
- **X** Ceiling
- **B** Wall Bracket
- **C** Cone Top
- **D** Stanchion 25°
- **S** Stanchion Straight 90°
- **N** None (mount ordered separately)[1]

Entry (mounts available)
- **2** ¾" NPT (A, B, C, X)
- **3** 1" NPT (A, B, C, X)
- **4** 1¼" NPT (D, S)
- **5** 1½" NPT (D, S)
- **6** ¾" NPT 5-hub (X)
- **7** 1" NPT 5-hub (X)
- **N** None (mount ordered separately)[1]

Optics
- **GL** Globe
- **R1** Type I Glass Refractor
- **R3** Type III Glass Refractor (KHDonly)
- **R5** Type V Glass Refractor
- **ER** Enclosed Reflector (KHD & KHE only)
- **EP** Polycarbonate Shielded Enclosed Reflector (KHD & KHE only)[9]
- **S2** Type II 12" Spin-Top Refractor
- **S8** Type V 8" Spin-Top Refractor (KHC only)
- **S5** Type V 12" Spin-Top Refractor
- **P5** Type V Plastic Spin-Top Refractor (KHC only)
- **FG** Tuffskin® Coated Globe[2]
- **TG** Teflon® Coated Globe[3]
- **T1** Teflon® Coated Globe Type I Glass Refractor[3]
- **T3** Teflon® Coated Globe Type III Glass Refractor (KHD only)[3]
- **T5** Teflon® Coated Globe Type V Glass Refractor[3]
- **T2** Teflon® Coated Globe Type II 12" Spin-Top Refractor[3]
- **T8** Teflon® Coated Globe Type V 8" Spin-Top Refractor (KHC only)[3]
- **TV** Teflon® Coated Globe Type V 12" Spin-Top Refractor[3]

Guard
- **G** Globe Guard
- **N** No Guard[5]

Options
- **BP** Ballast Protector (250-400W HPS only)
- **F1** Fusing - single 120V 60Hz[6]
- **F2** Fusing - double 208V 60Hz[6]
- **F3** Fusing - double 240V 60Hz[6]
- **F4** Fusing - single 277V 60Hz[6]
- **F5** Fusing - double 480V 60Hz[6]
- **F6** Fusing - single 347V 60Hz[6]
- **F7** Fusing - double 220V 60Hz[6]
- **F8** Fusing - double 230V 50Hz[6]
- **P1** Photo Cell Factory 120V [7, 8]
- **P2** Photo Cell Factory 208-277V (must specify voltage on order)[7, 8]
- **P3** Photo Cell Factory 347V[7, 8]
- **Q1** Quick Disconnect wired at ballast to 120V[10]
- **Q2** Quick Disconnect wired at ballast to 208V[10]
- **Q3** Quick Disconnect wired at ballast to 240V[10]
- **Q4** Quick Disconnect wired at ballast to 277V[10]
- **Q5** Quick Disconnect wired at ballast to 480V[10]
- **Q6** Quick Disconnect wired at ballast to 347V[10]
- **Q7** Quick Disconnect wired at ballast to 220V[10]
- **Q8** Quick Disconnect wired at ballast to 230V[10]
- **TB** Terminal Blocks
- **AS** Assembled Fixture with standard lamp
- **AD** Assembled Fixture with DAT Dual-Arc-Tube lamp (250, 400W HPS only
- **CS** Component Pack with standard lamp
- **CP** Component Pack - no lamp
- **NR** Restricted Breathing[4]

1 NN mount ordered separately.
2 Tuffskin® is a registered trademark of Thomas Mfg. Corp.
3 Teflon® is a registered trademark of DuPont, Inc.
4 AEx nAR Restricted Breathing.
5 Order guards for Spin-Tops and KER40 separately.
6 Fusing not for Marine or Canadian installations.
7 Photocells for Class I, Div. 2 only.
8 Field connection to proper tap in case of Multitap ballasts.
9 Not for use with wall or straight (90°) stanchion.
10 QX = Quick Disconnect. Allows easy tank removal for maintenance. Electrician simply unplugs de-energized ballast from supply circuit.

KHA 5 1/2" Optic Compact Profile Medium Base

KHB 7 3/4" Optic Compact Profile Medium Base

KHC 5 1/2" Optic Low Wattage Mogul Base

KHD 7 3/4" Optic Low Wattage Mogul Base

KHE 7 3/4" Optic High Wattage Mogul Base

KEMLUX® III KH SERIES

ENCLOSED/GASKETED

Kemlux III Mounting Splice Boxes

Hub Size	Catalog Number							
	Pendant	Flexible Pendant	Ceiling 4-Hub	Ceiling 5-Hub	Wall	Cone Top	25° Stanchion	90° Stanchion
3/4"	KHA2B	KHF2B	KHX2B	KHX6B	KHB2B	KHC2B	—	—
1"	KHA3B	KHF3B	KHX3B	KHX7B	KHB3B	KHC3B	—	—
1-1/4"	—	—	—	—	—	—	KHD4B	KHS4B
1-1/2"	—	—	—	—	—	—	KHD5B	KHS5B
M-20	—	—	KHX8B	KHX9B	—	—	—	—

Kemlux III 50-600W Ballast Tank Assemblies

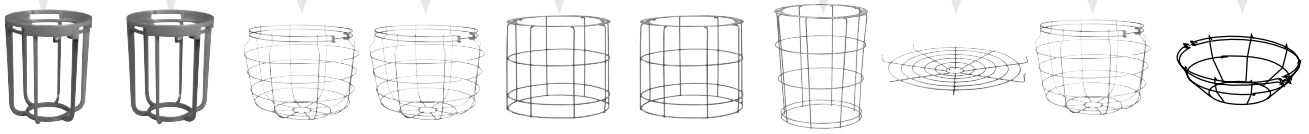
	Catalog Number											
	High Pressure Sodium			Metal Halide			Pulse Start Metal Halide			Mercury Vapor		
	Low Wattage		High Wattage	Low Wattage		High Wattage	Low Wattage		High Wattage	Low Wattage		High Wattage
Watts	5-1/2"	7-3/4"	7-3/4"	5-1/2"	7-3/4"	7-3/4"	5-1/2"	7-3/4"	7-3/4"	5-1/2"	7-3/4"	7-3/4"
50	KHCS05X	KHDS05X	—	—	—	—	—	—	—	—	—	—
70	KHCS07X	KHDS07X	—	KHCH07X	KHDH07X	—	—	—	—	—	—	—
100	KHCS10X	KHDS10X	—	KHCH10X	KHDH10X	—	—	—	—	KHCM10X	KHDM10X	—
150	KHCS15X	KHDS15X	—	KHCH15X	KHDH15X	—	KHCP15X	KHDP15X	—	—	—	—
175	—	—	—	KHCH17X	KHDH17X	—	KHCP17X	KHDP17X	—	KHCM17X	KHDM17X	—
200	—	—	KHES20X	—	—	—	KHCP20X	KHDP20X	—	—	—	—
250	—	—	KHES25X	KHCH25X	KHDH25X	—	—	—	KHEP25X	KHCM25X	KHDM25X	—
320	—	—	—	—	—	—	—	—	KHEP32X	—	—	—
350	—	—	—	—	—	—	—	—	KHEP35X	—	—	—
400	—	—	KHES40X	—	—	KHEH40X	—	—	KHEP40X	—	—	KHEM40X

Note Replace X with voltage: 0-Quad, 6-Tri, 5-480V.

Optics

KG17 | **KR175 KR171** | **KZRG1550** | **KZRG2550 KZRG2520** | **KG25** | **KHR255 KHR253 KHR251** | **KG40** | **KER40** | **KZRG4050 KZRG4020** | **KEP40**

Guards



KHAG17[2] | **KHAG17[2]** | **KRWG8[4]** | **KRWG[4]** | **KAG25S[3]** | **KAG25S[3]** | **KAG40S[3]** | **KERG[3]** | **KRWG[4]** | **WG-23**

Reflectors

KPSD40
Standard Dome
Fiberglass White
Reflector Dia: 16"

KPA40
Angle
Fiberglass White
Reflector Dia: 16"

HRD400
Deep Aluminum
White
Reflector Dia: 21"

HRD400ALZ
Deep Aluminum
Anodized Finish
Reflector Dia: 21"

KAGBC
Bottom Closure for
KAG25S/SAG40S

1 KHC 12" Spin Tops ship with a mogul-to-mogul extender for improved photometrics.
2 Standard material, copper-free aluminum painted.
3 Standard material, 316 stainless steel.
4 Standard material, plated steel.

KEMLUX® III KH SERIES

ENCLOSED/GASKETED

KHC/KHD Series Thermal Performace Data
Class I Division 2 Groups A, B, C, D / Zone 2 Groups IIC, IIB, IIA

Description			KHC Series[1]					KHD Series[1]					
Lamp		Ambient	Globe	Globe w/	KR	Refractors		Globe	Globe w/	Refractor	Enclosed Reflectors		Supply
Type	Watts	°C	Only	reflector		KZRG 8"	KZRG 12"	Only	reflector	KR	KER40	KEP40	Wire °C
HPS	50	40	T3	T3	T3	T3	T3A	T3C	T3C	T3C	T3C	T3C	60
HPS	70	40	T3	T3	T3	T3A	T3A	T3A	T3A	T3A	T3A	T3A	60
HPS	100	40	T2D	T2D	T2D	T3	T2D	T3	T3	T3	T3	T3	75
HPS	150	40	T2B	T2B	T2B	T2B	T2B	T2B	T2B	T2B	T2B	T2B	90
MH	70	40	T3B	T3A	T3B	T3C	T3B	T3C	T3C	T3C	T3C	T3C	75
MH	100	40	T3	T3	T3	T3A	T3C	T3A	T3A	T3A	T3A	T3A	75
MH	175	40	T2A	T2A	T2A	T2B	T2B	T2B	T2B	T2B	T2B	T2B	90
MH	250	40	325°C	325°C	325°C	T2	T2	T2	T2	T2	T2	T2	90
MHP	150/175	40	T2A	T2A	T2A	T2B	T2B	T2B	T2B	T2B	T2B	T2B	90
MHP	200	40	T2A	T2A	T2A	T2B	T2B	T2B	T2B	T2B	T2B	T2B	90
MV	100	40	T2B	T2B	T2B	T2B	T2B	T2B	T2B	T2B	T2B	T2B	75
MV	175	40	T2	T2	T2	T2A	T2A	T2A	T2A	T2A	T2A	T2A	90
MV	250	40	350°C	350°C	350°C	350°C	350°C	350°C	350°C	350°C	350°C	350°C	110

1 KHC Series accepts 5 1/2" threaded optics. KHD Series accepts 7 3/4" optics.

KHC/KHD Series Thermal Performance Data
Class II Divisions 1 & 2 Groups E, F, G & Class III[2]

Description			KHC Series[1]					KHD Series[1]					
Lamp		Ambient	Globe	Globe w/	KR	Refractors		Globe	Globe w/reflec-	Refractor	Enclosed Reflectors		Supply
Type	Watts	°C	Only	reflector		KZRG 8"	KZRG 12"	Only	tor	KR	KER40	KEP40	Wire °C
HPS	50	40	T3C	T3C	T3C	T3C	T3C	T3B	T3B	T3B	T3B	T3B	60
HPS	70	40	T4A	T4A	T4A	T4A	T4A	T3B	T3B	T3B	T3B	T3B	60
HPS	100	40	T3C	T3C	T3C	T3C	T3C	T3B	T3B	T3B	T3B	T3B	75
HPS	150	40	T3C	T3C	T3C	T3C	T3C	T3B	T3B	T3B	T3B	T3B	90
MH	70	40	T3C	T3C	T3C	T3C	T3C	T3B	T3B	T3B	T3B	T3B	75
MH	100	40	T3C	T3C	T3C	T3C	T3C	T3B	T3B	T3B	T3B	T3B	75
MH	175	40	—	—	—	+	+	T3B	T3B	T3B	T3B	T3B	90
MH	250	40	—	—	—	—	+	T3B	T3B	T3B	T3B	T3B	90
MHP	150/175	40	—	—	—	—	+	T3B	T3B	T3B	T3B	T3B	90
MHP	200	40	—	—	—	—	+	T3B	T3B	T3B	T3B	T3B	90
MV	100	40	T3C	T3C	T3C	T3C	T3C	T3B	T3B	T3B	T3B	T3B	75
MV	175	40	—	—	—	+	+	T3B	T3B	T3B	T3B	T3B	90
MV	250	40	—	—	—	+	+	T3A	—	T3A	T3A	T3A	110

1 KHC Series accepts 5 1/2" threaded optics. KHD Series accepts 7 3/4" optics.
2 Luminaires rated for Group G (<= 165°C), T3B are also suitable for Class III applications; Luminaires rated for E & F <= 200°C (T3).
+ Consult factory for elevated ambient information.

KHE Series Thermal Performance Data

Description			Class I Division 2 Groups A,B,C, D/Zone 2 Groups IIC,IIB,IIA					Class I Zone 2 AEx nAR,IIB,IIA "Restricted Breathing"				
Lamp		Ambient	Globe	Globe w/Re-	Refractor	Enclosed Reflectors		Globe	Globe w/	Enclosed Reflectors		Supply
Type	Watts	°C	Only	flector	KZRG 12"	KER40	KEP40	Only	Reflector	KER40	KEP40	Wire °C
HPS	200	40	T2	T2	T2	T2A	T2A	T4	T4	T4	T4	90
HPS	250	40	325°C	325°C	325°C	T2A	T2A	T4	T4	T4	T4	90
HPS	400	40	350°C	350°C	350°C	350°C	350°C	T3	T3	T3	T3	90
MH	250	40	300°C	300°C	300°C	300°C	300°C	T4	T4	T4	T4	90
MH	400	40	325°C	325°C	325°C	T2A	T2A	T3	T3	T3	T3	90
MHP	250	40	T2	T2	T2	T2	T2	T3	T3	T3	T3	90
MHP	320	40	T2A	T2A	T2A	T2A	T2A	T3	T3	T3	T3	90
MHP	350	40	T2A	T2A	T2A	T2A	T2A	T3	T3	T3	T3	90
MHP	400	40	T2A	T2A	T2A	T2A	T2A	T3	T3	T3	T3	90
MV	400	40	350°C	350°C	350°C	350°C	350°C	T3	T3	T3	T3	90

+ Consult factory for elevated ambient information.

KHE Series Thermal Performance Data[1]

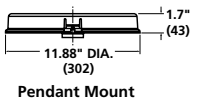
Description			Class II Division 1 & 2 Groups E,F,G & Class III					Simultaneous Presence					
Lamp		Ambient	Globe	Globe w/Reflec-	Refractor	Enlcosed Reflectors		Globe	Globe w/Re-	Refractor	Enclosed Reflectors		Supply
Type	Watts	°C	Only	tor	KZRG 12"	KER40	KEP40	Only	flector	KZRG 12"	KER40	KEP40	Wire °C
HPS	200	40	T3C	T3C	T3C	T3C	T3C	325°C	325°C	325°C	T2	T2	90
HPS	250	40	T3A	T3A	T3C	T3C	T3C	350°C	350°C	350°C	T2	T2	90
HPS	400	40	—	—	T3C	T3C	T3C	—	—	T1	T1	T1	90
MH	250	40	T3A	T3A	T3C	T3C	T3C	325°C	325°C	325°C	325°C	325°C	90
MH	400	40	—	—	T3C	T3C	T3C	—	—	T2	T2	T2	90
MHP	250	40	T3A	T3A	T3C	T3C	T3C	325°C	325°C	325°C	325°C	325°C	90
MHP	320	40	T3A	T3A	T3C	T3C	T3C	T2	T2	T2	T2	T2	90
MHP	350	40	T3A	T3A	T3C	T3C	T3C	T2	T2	T2	T2	T2	90
MHP	400	40	T3A	T3A	T3C	T3C	T3C	T2	T2	T2	T2	T2	90
MV	400	40	—	—	T3C	T3C	T3C	—	—	T1	T1	T1	90

1 Table shows lamp temperature inside dust covered optic - see Class II table for Groups E, F, G and Class III data.
+ Consult factory for elevated ambient information.

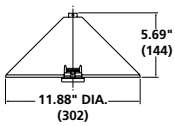
KEMLUX® III KH SERIES

ENCLOSED/GASKETED

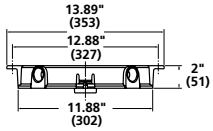
Dimensions



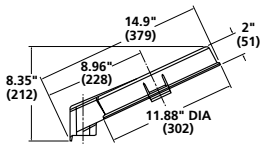
Pendant Mount



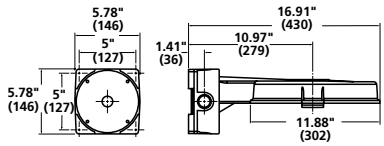
Cone Mount



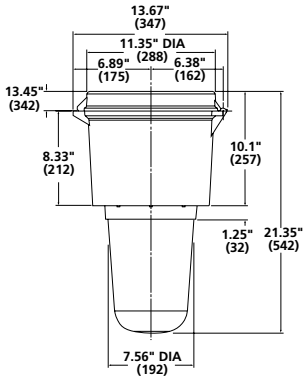
Ceiling Mount



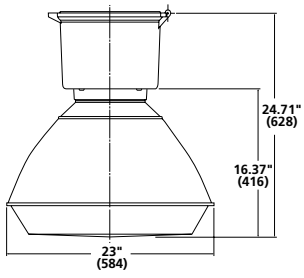
Stanchion (25˚) Mount



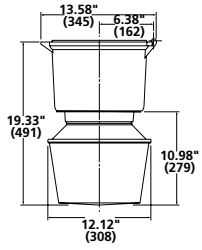
Wall Bracket Mount



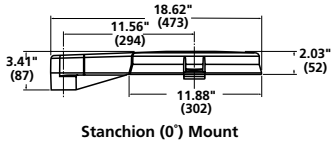
KHE Fixture



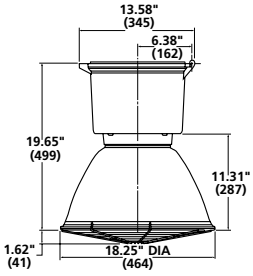
KHE with KEP40 Optic



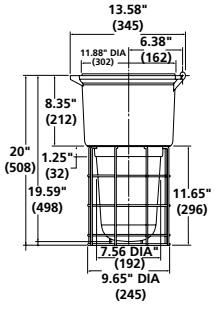
KHE Ballast Housing
12" Spun Top Refractor Optics



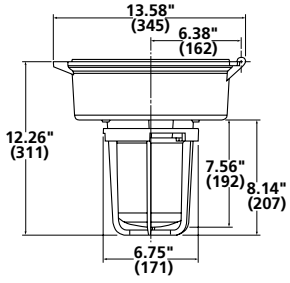
Stanchion (0˚) Mount



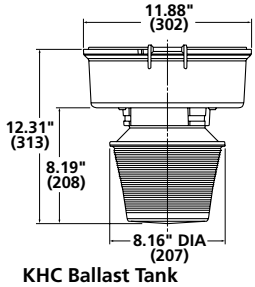
KHE Ballast Housing
KER40 Enclosed Reflector
KERG Wire Guard



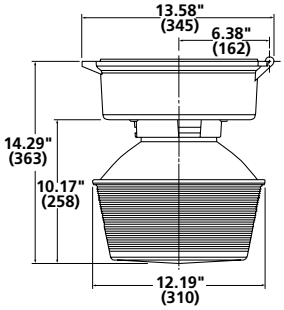
KHE Ballast Housing
KG40 Optics Globe
KAG40S Wire Guard



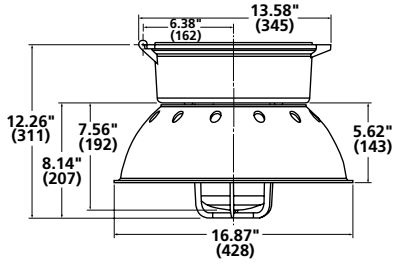
KHC Ballast Tank
5 1/2" Optics Globe or Refractor
KAG17 Globe Guard



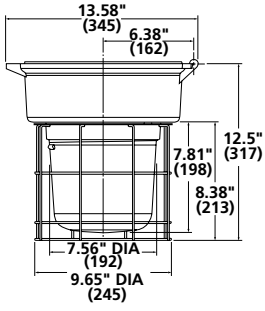
KHC Ballast Tank
KZRG1550 8" Spun Refractor



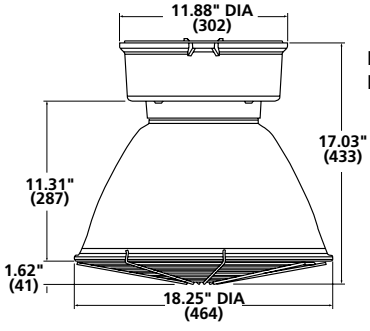
KHC Ballast Tank
KZRG 12" Spun Refractor



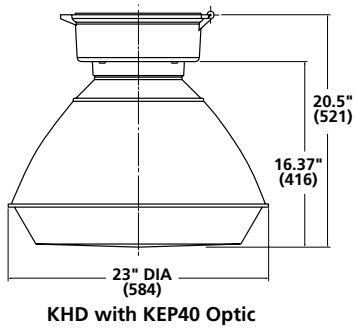
KHC Ballast Tank
KG17 5 1/2" Optics Globe
KPSD40 Dome Reflector



KHD Ballast Tank
KG25 7 3/4" Optics Globe
or KR25 Refractor
KAG255 Wire Guard



KHD Ballast Tank
KER40 Enclosed Reflector
KERG Guard



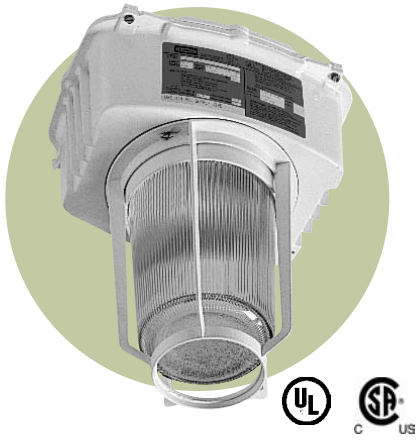
KHD with KEP40 Optic

KEMLUX® II KH SERIES

ENCLOSED/GASKETED

Features

- For use in corrosive, harsh, hazardous applications such as chemical, petrochemical, marine, power generation, pharmaceutical, or food processing plants.
- Electro-Reg® ballast provides long life, high lumen maintenance metal halide light source for low operating and maintenance costs.
- Mogul base socket. Cover selection of rigid and flexible pendant, ceiling, wall and 25° stanchion in varying threaded NPT entries.
- Minimum starting temperature of -20°F for MV/MH and -40°F for HPS and Electro-Reg.®
- Copper-free (<0.4%) aluminum housing, cover and guard with white Lektrocote® powder polyester paint finish.
- Optic choices of impact-resistant glass globe, symmetrical/asymmetrical glass refractors, dome/angle FRP reflector, 19" enclosed reflector, and polycarbonate enclosed low bay.
- Modular design permits selection of cover, body, globe, guard and reflector for custom applications.
- UL 844 Standard: Class I, Division 2, Groups A, B, C, D; Class II, Div. 1 & 2, Groups E, F, G; Class III, Div. 1 & 2.
- UL 1598A Marine Outdoor, NEMA 4X with K-G globe; 40°C ambient listed; UL 1598 Wet Location.



Ordering Information

Example: KH - 17 - H - 8 - G - P2 - UP

Series	Watts	Lamp	Volts	Optical Assembly	Mount	Options

Series
- **KH** Kemlux® KH Series

Wattage

Medium Housing
- **50** 50W HPS
- **70** 70W HPS, MH (Pulse Start) [1]
- **10** 100W MV, HPS, MH (Pulse Start)[1]
- **15** 150W HPS
- **17** 175W MV, MH, Electro-Reg® MH, Pulse Start
- **25** 250W MV, MH

Large Housing
- **25** 250W HPS, Electro-Reg® MH, PS[2]
- **40** 400W MV, MH, HPS, Electro-Reg® MH, Pulse Start

Lamp Type
- **C** Mercury Vapor (MV)
- **H** Metal Halide (MH)
- **S** High Pressure Sodium (HPS)
- **E** Electro-Reg® MH (lamp included)
- **W** Pulse Start (PS) (consult factory)[7]

Voltage
- **1** 120V (50W HPS and Electro-Reg® MH)
- **2** 208V (For 175/400W Electro-Reg® MH only)
- **3** 240V (Electro-Reg®)
- **4** 277V (50W HPS only)
- **5** 480V (not available for 50W HPS)
- **6** Tri-Tap® (120, 277, 347V)[2, 3] (not available Electro-Reg®)
- **8** Quad Tap® (120, 208, 240, 277V)[3]
- **E** 220/240V 50 Hz[3]
- **F** 347V

Optical Assembly

Medium Housing
- **G** Globe
- **X** Reflector/Polycarbonate Refractor (50-150W HPS)[4]

Medium or Large Housing
- **L** Symmetrical Glass Refractor

Large Housing
- **M** Asymmetrical Glass Refractor
- **E** Enclosed Reflector

Mounting
- **C2** 3/4" Ceiling
- **C3** 1" Ceiling
- **D4** 1 1/4" Stanchion
- **D5** 1 1/2" Stanchion
- **D8** 1 1/4" Stanchion for Electro-Reg®
- **D9** 1 1/2" Stanchion for Electro-Reg®
- **P2** 3/4" Pendant
- **P3** 1" Pendant
- **P6** 3/4" Pendant for Electro-Reg®
- **P7** 1" Pendant for Electro-Reg®
- **W2** 3/4" Wall
- **W3** 1" Wall
- **W6** 3/4" Wall for Electro-Reg®
- **W7** 1" Wall for Electro-Reg®

Options
- **F(X)** Fusing (X indicates voltage)[5, 6]
- **RS** Hot restrike (70-150W HPS only)
- **UP** Unit Pack - Mounting adapter, ballast housing; Globe and/or Guard in same carton (medium housing only); reflector shipped separately
- **FA** Factory assembled - Lamp and globe installed onto housing; includes mounting adapter and/or guard (medium housing only); Reflector shipped separately

1. 70W and 100W metal halide includes lamp.
2. 250W MH with Tri-Tap® ballast requires deeper Electro-Reg® mounting adapter.
3. Electro-Reg® is not available.
4. Consult factory for use with 150W MH U.V. Guard lamp.
5. To specify voltage, replace X with 1-120V, 2-208V, 3-240V, 4-277V, 5-480V, F-347V.
6. Not offered with CSA listing.
7. Pulse Start luminaires include lamp.

Accessories - Order Separately

Catalog Number	Description	Weight lbs. (kg)
K-10	Cast Guard for K-G globe	1 (0.5)
K-20	Steel wire guard for K-L and K-M glass refractors. (Zinc plated)	2 (0.9)
K-30	Steel wire guard for K-E enclosed reflector. (Painted)	1 (0.5)
K-06	Standard dome reflector for K-G globe. (FRP)	1 (0.5)
K-07	30° angle reflector for K-G globe. (FRP)	1 (0.5)
K-SC6	6' safety chain (large housing only - order separately).	—

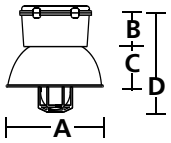
KEMLUX® II KH SERIES

ENCLOSED/GASKETED

Dimensions

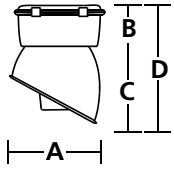
Medium Housing

Globe (K-G), Guard (K-10), Dome (K-06)



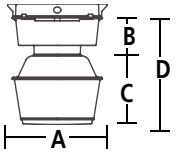
A	B	C	D
16 3/8"	4 3/4"	5 5/8"	14 1/2"
416 mm	121 mm	143 mm	368 mm

Globe (K-G), Angle Dome (K-07)



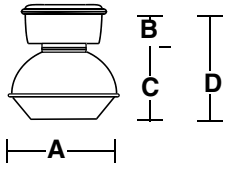
A	B	C	D
11 1/4"	4 3/4"	10 1/4"	15"
286 mm	121 mm	260 mm	381 mm

Glass Refractor (k-L)



A	B	C	D
12 1/4"	4 3/4"	13 5/16"	18 7/16"
311 mm	121 mm	338 mm	468 mm

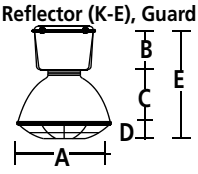
Reflector/Polycarbonate Refractor (K-X)



A	B	C	D
16"	4 3/4"	11 1/2"	16 1/4"
406 mm	121 mm	292 mm	413 mm

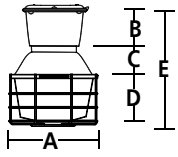
Large Housing

Enclosed Reflector (K-E), Guard (K-30)



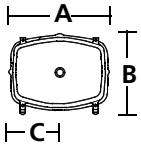
A	B	C	D	E
19"	6 1/16"	12 5/8"	3 1/2"	22 1/4"
483 mm	154 mm	321 mm	89 mm	565 mm

Refractor (K-L, K-M), Guard (K-20)

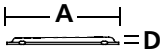


A	B	C	D	E
13 1/4"	6 1/16"	5 3/4"	7 9/16"	19 3/4"
337 mm	154 mm	146 mm	192 mm	502 mm

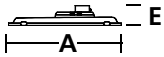
Mounting Adapters



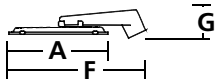
Top View



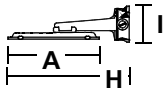
KS-P2, KS-P3



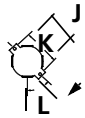
KS-B2



KS-D4, KS- D5

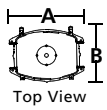


KS-W2

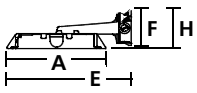


A	B	C	D	E	F	G	H	I	J	K	L
12 1/4"	10"	7 1/16"	7/8"	2 3/16"	17 1/8"	3 1/2"	16 1/2"	4 7/16"	5"	5 5/8"	45°
311 mm	254 mm	179 mm	22 mm	56 mm	435 mm	89 mm	419 mm	113 mm	127 mm	143 mm	-

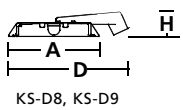
Electro-Reg®/Ceiling Mounting Adapters



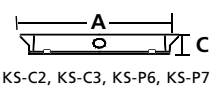
Top View



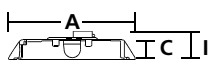
KS-W6, KS-W7



KS-D8, KS-D9



KS-C2, KS-C3, KS-P6, KS-P7



KS-B6

A	B	C	D	E	F	G	H	I
13 1/2"	10"	2 1/4"	18 1/4"	17 5/8"	4 7/8"	4 3/4"	5 15/16"	3 9/16"
343 mm	254 mm	57 mm	464 mm	448 mm	124 mm	121 mm	151 mm	90 mm

Components

Ordering Information: KH Mounting Adapters

The following mounting adapters are available for the KH Series. They can be ordered separately or refer to Catalog Logic for complete fixture.

Catalog Number	Description	Hubs		Plugs Qty.	Weight lbs. (kg)
		Size	Qty.		
KH-P2	Pendant	3/4"	1	—	1.5 (0.7)
KH-P3	Pendant	1"	1	—	1.5 (0.7)
KH-C2	Ceiling (Also for Electro-Reg®)	3/4"	4	3	2.0 (0.9)
KH-C3	Ceiling (Also for Electro-Reg®)	1"	4	3	2.0 (0.9)
KH-D4	25° Stanchion	1 1/4"	1	—	4.0 (1.8)
KH-D5	25° Stanchion	1 1/2"	1	—	4.0 (1.8)
KH-W2	Wall	3/4"	4	3	4.0 (1.8)
KH-W3	Wall	1"	4	3	4.0 (1.8)
KH-B2	Balancing Pendant	3/4"	1	—	2.0 (0.9)
KH-P6[1, 2]	Pendant/Electro-Reg®	3/4"	1	—	4.5 (2.0)
KH-P7[1, 2]	Pendant/Electro-Reg®	1"	1	—	4.5 (2.0)
KH-D8[2]	25° Stanchion/Electro-Reg®	1 1/4"	1	—	4.5 (2.0)
KH-D9[2]	25° Stanchion/Electro-Reg®	1 1/2"	1	—	4.5 (2.0)
KH-W6[2]	Wall/Electro-Reg®	3/4"	1	—	4.5 (2.0)
KH-W7[2]	Wall/Electro-Reg®	1"	4	3	4.5 (2.0)

Ordering Information: KS 50-400W Ballast Housing

Wattage	Voltage	Catalog Number		
		High Pressure Sodium	Mercury Vapor	Metal Halide
50W	120	**KH50S1**	—	—
	277	**KH50S4**	—	—
70W	120/208/240/277	**KH70S8**	—	**KH70H8**
	480	**KH70S5**	—	**KH70H5**
100W	120/208/240/277	**KH10S8**	**KH10C8**	**KH10H8**
	480	**KH10S5**	**KH10C5**	**KH10H5**
150W	120/208/240/277	**KH15S8**	—	—
	480	**KH15S5**	—	—
175W	120/208/240/277	—	**KH17C8**	**KH17H8** **KH17EX**[3]
	480	—	**KH17C5**	**KH17H5** **KH17E5**
250W	120/208/240/277	**KH25S8**	**KH25C8**	**KH25H8** **KH25EX**[3, 4]
	480	**KH25S5**	**KH25C5**	**KH25H5** **KH25E5**
400W	120/208/240/277	**KH40S8**	**KH40C8**	**KH40H8** **KH40EX**[4]
	480	**KH40S5**	**KH40C5**	**KH40H5** **KH40E5**

1 Same adapter as ceiling mount except one drilled and tapped entry on top and blank entries on sides.
2 250W MH with Tri-Tap® ballast requires the deeper Electro-Reg® mounting adapter.
3 For Electro-Reg®, replace X with 1 = 120V; 2 = 208V; 3 = 240V; 4 = 277V; 5 = 480V; F = 347V for line voltage. Example: KS17E1.
4 Not available in 208V.

Ordering Information: Optical Assemblies

Catalog Number	Description	Weight lbs. (kg)
K-G	Prismatic, heat resistant glass globe (medium housing only)	2 (0.9)
K-E	19" enclosed reflector	7 (3.2)
K-L	Symmetrical (Type V) glass refractor	13 (5.9)
K-M	Asymmetrical (Type II) glass refractor	13 (5.9)
K-X	Reflector/Polycarbonate Refractor (medium housing only)	-

KEMLUX® II KH SERIES

ENCLOSED/GASKETED

Temperature Ratings

Class I, Division 2, class II, Division 1 & 2, Class III, Division 1 & 2
K-E/K-30 Enclosed Reflector/Guard

	Class I, Division 2		Class II, Div. 1 & 2 - Class III, Div. 1 & 2			Maximum Ambient °C
Wattage	Temp Rating °C	T-Code	Groups	Temp Rating °C	T-Code	
250W HPS	280	T2A	E, F, G	160	T3C	40
400W HPS	350[1]	–[1]	E, F, G	160	T3C	40
400W MH (INCL. E-REG)	300	T2	E, F, G	160	T3C	40
400W MV	300	T2	E, F, G	160	T3C	40

1 No T-Rating Code exists for 325°C or 350°C T-Ratings.

Class II, Division 2, Group G
K-X Polycarbonate Optic

	Class II, Division 2 – Group G		Maximum Ambient °C
Wattage	Temp Rating °C	T-Code	
50W HPS	85	T6	40
70W HPS	85	T6	40
100W HPS	85	T6	40
150W HPS	85	T6	40
150W MH (UV guard lamp)	85	T6	40

Class I, Division 2, Class II, Division 1 & 2, Class III, Division 1 & 2
K-G/K-10/K-06/K-07 Glass Globe and Guard including Angle and Dome

	Class I, Division 2		Class II, Div. 1 & 2 - Class III, Div. 1 & 2			Maximum Ambient °C
Wattage	Temp Rating °C	T-Code	Groups	Temp Rating °C	T-Code	
			HIGH PRESSURE SODIUM			
50W	165	T3B	E, F, G	135	T4	40
70W	165	T3B	E, F, G	135	T4	40
100W	215	T2D	E, F, G	135	T4	40
150W	260	T2B	E, F, G	160	T3C	40
			METAL HALIDE			
70W	180	T3A	E, F, G	120	T4A	40
100W	200	T3	E, F, G	160	T3C	40
175W (incl. Electro-Reg®)	260	T2B	E, F (K-06) E, F, G (K-07)	200 160	T3 (K-06) T3C (K-07)	40
250W [1]	300	T2	–	–	–	40
250W [2]	400[3]	T1[3]	–	–	–	40
			MERCURY VAPOR			
100W	300	T2	E, F	180	T3A	40
175W	300	T2	E, F	180	T3A	40
250W	450	T1	–	–	–	40

1 Ceiling, pendant, wall bracket mounting.
2 Davit mount only.
3 Actual T-Rating range does not exceed 400°C.

Class I, Division 2, Class II, Division 1 & 2, Class III, Division 1 & 2
K-L/K-20 Glass Refractor and Guard, K-M/K-20 Glass Refractor and Guard

	Class I, Division 2		Class II, Div. 1 & 2 - Class III, Div. 1 & 2			Maximum Ambient °C
Wattage	Temp Rating °C	T-Code	Groups	Temp Rating °C	T-Code	
			HIGH PRESSURE SODIUM			
50W	180	T3A	E, F, G	160	T3C	40
70W	180	T3A	E, F, G	160	T3C	40
100W	200	T3	E, F, G	160	T3C	40
150W	230	T2C	E, F, G	160	T3C	40
250W	280	T2A	E, F, G	160	T3C	40
400W	350[1]	–[1]	E, F, G	160	T3C	40
			METAL HALIDE			
70W	165	T3B	E, F, G	120	T4A	40
100W	200	T3	E, F, G	160	T3C	40
175W	260	T2B	E, F, G	160	T3C	40
250W (incl. Electro-Reg®)	300	T2	E, F, G	160	T3C	40
400W (incl. Electro-Reg®)	300	T2	E, F, G	180	T3A	40
			MERCURY VAPOR			
100W	230	T2C	E, F, G	135	T4	40
175W	260	T2B	E, F, G	135	T4	40
250W	280	T2A	E, F, G	135	T4	40
400W	325[1]	–[1]	E, F	180	T3A	40

1No T-Rating Code exists for 325°C or 350°C T-Ratings.

HLMB MEDIUM BASE

ENCLOSED/GASKETED

Features

- Process lighting for use in manufacturing, corrosive, chemical, petrochemical, and marine facilities.
- Enclosed and gasketed housing and lamp.
- Compact design for low profile mounting.
- Houses medium base HID or twin tube fluorescent lamps
- Ballast housing, cover and globe guard – Copper-free (<0.4%) aluminum with tan baked powder polyester electrostatically applied finish.
- External hardware – Stainless steel.
- Refractor guard – Steel with corrosion resistant finish.
- Reflector – corrosion resistant polyester reinforced fiberglass.
- Fluorescent models furnished with lamps.
- UL844 Standard: Class I, Div. 2, Groups A, B, C, D; Class II, Div. 1/2, Groups E, F, G; Class III.
- UL1598A Marine Outdoor; NEMA 3, 4X.
- UL1598 Wet Location.

Ordering Information

Example: HLMB - L - 10 - 1 - G - A2

Series	Lamp Type	Watts	Volts	Optic	Mount

Series
- **HLMB** HLMB Medium Base

Lamp Type
- **F** Fluorescent
- **L** High Pressure Sodium
- **H** Metal Halide
- **K** MV Mercury Vapor

Wattage
- **13** (1) 13W PL Lamp
- **26** (2) 13W PL Lamp
- **39** (3) 13W PL Lamp
- **50** 50W HPS/MH/MV
- **70** 70W HPS/MH
- **75** 75W MV
- **10** 100W HPS/MH/MV
- **15** 150W HPS

Voltage
- **0** Quad Tap - 120, 208, 240, 277V 60 Hz (50, 70W HPS/MH)
- **1** 120V 60 Hz (HPS/MV/Fluorescent)
- **4** 277V 60 Hz (13, 26W Fluorescent/MV)
- **5** 480V (100W MV only)

Optic
- **G** Fluted Glass Globe
- **GG** Globe and Guard
- **R5** Glass Refractor Type V
- **R5G** Glass Refractor and Guard

Mounting
- **A2** 3/4" Pendant
- **A3** 1" Pendant
- **X2** 3/4" Ceiling
- **X3** 1" Ceiling
- **B2** 3/4" Bracket
- **B3** 1" Bracket
- **D4** 1 1/4" Stanchion
- **D5** 1 1/2" Stanchion

Options
- **SU103** Assembled with lamp

Accessories - Order Separately

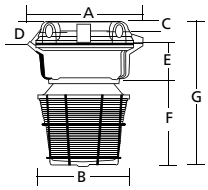
Catalog Number	Description
HLMBG	Fluted glass globe
HLMBAG	Cast aluminum guard for globe units
HLVMRWG8	Wire guard for glass refractor units
HLVZRG1550	Glass Refractor, Type V
HLVMPSD17	Standard dome reflector (polyester reinforced fiberglass)
HLVMPA17	30° Angle reflector (polyester reinforced fiberglass)

HLMB MEDIUM BASE

ENCLOSED/GASTKETED

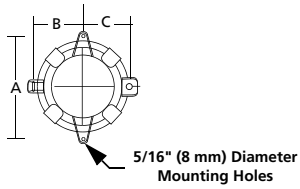
Dimensions

Ceiling Mount



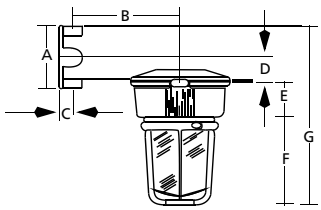
A	B	C	D	E	F	G
10″	8 5/32″	13/16″	1 11/16″	2 15/16″	8 9/16″	13 3/8″
254 mm	207 mm	21 mm	43 mm	75 mm	217 mm	340 mm

Ceiling Mount Hub



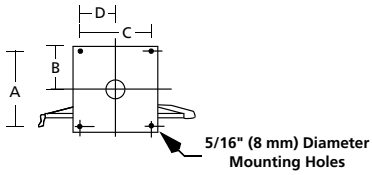
A	B	C
9 11/16″	4 5/8″	4 9/16″
246 mm	117 mm	116 mm

Wall Mount



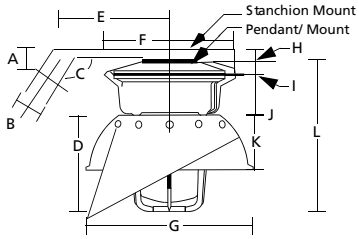
A	B	C	D	E	F	G
5 5/16″	9 15/16″	1 1/16″	1 15/16″	2 15/16″	7 3/8″	14 7/8″
135 mm	252 mm	27 mm	49 mm	75 mm	187 mm	378 mm

Wall Mount Hub



A	B	C	D
4 9/16″	2 9/32″	4 5/16″	2 5/32″
116 mm	58 mm	110 mm	55 mm

Pendant/Stanchion Mount



A	B	C	D	E	F	G	H	I	J	K	L
2 1/8″	2 1/4″	25″	7 3/8″	9 5/16″	10″	16 7/8″	1 9/16″	15/16″	2 15/16″	5 1/2″	11 1/4″
54 mm	57 mm	635 mm	187 mm	237 mm	254 mm	429 mm	40 mm	24 mm	75 mm	140 mm	286 mm

Component Parts

HLMB Ballast Tank

Catalog Number	Wattage	Voltage 60 Hz
	HPS	
HLMBL501	50	120
HLMBL701	70	120
HLMBL101	100	120
HLMBL151	150	120
	MH	
HLMBH500	50	Quad-Tap®
HLMBH700	70	Quad-Tap®
	MV	
HLMBK501	50	120
HLMBK751	75	120
HLMBK101	100	120
	FL	
HLMBF131	13	120
HLMBF261	26	120
HLMBF391	39	120

HLMB Mounting Adapters

Catalog Number				
Pendant	Ceiling	Wall	Stanchion	HUB Size
HLMBA-2	**HLMBX-2**	**HLMBB-2**	—	3/4″
HLMBA-3	**HLMBX-3**	**HLMBB-3**	—	1″
—	—	—	**HLMBD-4**	1 1/4″
—	—	—	**HLMDB-5**	1 1/2″

Note Catalog numbers shown are 120V (except Metal Halide) Consult Catalog Logic number and change sixth character to indicate other available types.

Temperature Codes

Twin Tube Fluorescent Hazardous Location Data

Lamp Quantity	Watts/Lamp	Voltage	Rated Ambient °C	Lamp Temperature With Globe, or Globe & Reflector or 8" Glass Refractor	
				UL/NEC Temp. I.D.	CSA/C.E.C. Temp. I.D.
Class I, Div. 2, Groups A, B, C, D					
1	13	120V	40	165°C(T3B)	180°C(T3A)
2	13	120V	40	165°C(T3B)	180°C(T3A)
3	13	120V	25	180°C(T3A)	200°C(T3)
1	13	277V	40	160°C(T3C)	160°C(T3C)
2	13	277V	40	160°C(T3C)	160°C(T3C)
Class II, Division 1 & 2 E, F, G					
1	13	120V	40	135°C(T4)	135°C(T4)
2	13	120V	40	135°C(T4)	135°C(T4)
3	13	120V	25	135°C(T4)	135°C(T4)
1	13	277V	40	135°C(T4)	135°C(T4)
2	13	277V	40	135°C(T4)	135°C(T4)
Class III, Division 1 & 2					
1	13	120V	40	Yes	Yes
2	13	120V	40	Yes	Yes
3	13	120V	25	Yes	Yes
1	13	277V	40	Yes	Yes
2	13	277V	40	Yes	Yes

Class I, Division 2, Groups A, B, C, D HLMB Hazardous Location Application Data

Lamp		Rated Ambient °C	Class I, Division 2, Groups A, B, C, D[1]			UL 1598A Listed	Supply Wire Suitable for °C
Wattage	Type		Without Reflector[2] °C	With Reflector °C	With Refractor °C		
50	HPS	40	T2D (215)	T2D (215)	T2D (215)	Yes	75
50	HPS	55	T2C (230)	T2C (230)	T2C (230)	Yes	90
50	HPS	65	T2C (230)	T2C (230)	T2C (230)	Yes	90
50	MH	40	T2B (260)	T2B (260)	T2B (260)	Yes	—
50	MV	40	T2B (260)	T2B (260)	T2B (260)	Yes	90
70	HPS	40	T2B (260)	T2B (260)	T2B (260)	Yes	75
70	MH	40	T1 (325)	T1 (325)	T1 (325)	Yes	—
75	MV	40	T1 (325)	T1 (325)	T1 (325)	Yes	90
100	HPS	40	T2A (280)	T2A (280)	T2A (280)	Yes	90
100	MV	40	T1 (450)	T1 (450)	T1 (450)	Yes	110
150	HPS	40	T1 (325)	T1 (325)	T1 (325)	Yes	110

Class II, Division 1 and 2, Groups E, F, G; Class III, Division 1 and 2 HLMB Hazardous Application Data

Lamp		Rated Ambient °C	Class II, Division 1 and 2, Groups E, F, G[4,5]			Class III, Division 1 and 2			Supply Wire Suitable for °C
Wattage	Type		Without Reflector °C	With Reflector °C	With Refractor °C	Without Reflector	With Reflector[3]	With Refractor	
50	HPS	40	T4A (120)	T4 (135)	T4A (120)	Yes	Yes	Yes	75
50	HPS	55	T4 (135)	T3C (160)	T4 (135)	Yes	Yes	Yes	90
50	HPS	65	T3C (160)	T3C (160)	T3C (160)	Yes	Yes	Yes	90
50	MH	40	—	—	—	Yes	Yes	Yes	—
50	MV	40	T3C (160)	T3C (160)	T3C (160)	Yes	Yes	Yes	90
70	HPS	40	T4A (120)	T4A (120)	T4A (120)	Yes	Yes	Yes	75
70	MH	40	—	—	—	Yes	Yes	Yes	—
75	MV	40	T3C (160)	T3C (160)	T3C (160)	Yes	Yes	Yes	90
100	HPS	40	T3C (160)	T3C (160)	T3C (160)	Yes	Yes	Yes	90
100	MV	40	T3C (160)	T3C (160)	T3C (160)	Yes	Yes	Yes	110
150	HPS	40	T3A (180)	T3 (200)	T3C (160)	No	No	Yes	110

1 The suitability of these fixtures for Class I, Div. 2 locations must be determined for each application based on NEC Article 501-9(b) 2.
2 Based on luminaire with globe and guard only.
3 Includes both standard dome and angle reflectors.
4 Guard required for Class II, Division 1 and Class III, Division 1 applications.
5 150 Watt HPS — Groups E, F only with or without reflector, and Groups E, F, G with refractor.

MARINER™ FLOODLIGHT

STAINLESS STEEL FLOOD

Features

- For use in corrosive, hosedown, marine, shipboard and hazardous environments.
- Integrally ballasted luminaire.
- SFMM series for marine applications. SFM2 for hazardous and marine applications.
- Restricted Breathing "RB" option for lower T-Ratings.
- Elevated ambient "EA" option capability up to 65°C.
- "Quick release" lens latches for ease of entry. No screws.
- Luminaire, lens frame, lens latches – 16 gauge 316SS.
- Mounting yoke, safety lens door chains, cord grip (SFMM), conduit hubs (SFM2) – SS316.
- Mounting accessories – Hot dipped galvanized steel.
- SFMM and SFM2 Listings.
- UL1598 and 1598A Marine Outdoor.
- NEMA 4X; IP66/67.
- Type Approval American Bureau of Shipping (ABS).
- SFM2 Listings.
- UL844 Standard: Class I, Div. 2 Groups A, B, C, D; Class I, Zone 2 Groups IIC, IIB, IIC.
- ExnR, AxnR Restricted Breathing.

Ordering Information

SFM2 - 40 - H - 8 - EA - RB

Series | Watts | Lamp | Volts | Options | Options

Series
- **SFMM** Stainless Flood Marine
- **SFM2** Stainless Flood - Class I, Division 2

Wattage
- **15** 150W HPS, PS
- **17** 175W MV, MH
- **25** 250W HPS, MH, MV, PS[5]
- **40** 400W HPS, MH, MV, PS

Lamp Type
- **H** Metal Halide
- **S** High Pressure Sodium
- **C** Mercury Vapor
- **W** Pulse Start (PS) Metal Halide (lamp included)

Voltage
- **5** 480V[5]
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **E** 220/240V 50 Hz
- **P** 220V 60Hz (250, 400W MH only)

Options
- **F(X)** Fusing (specify voltage)[1, 2, 3]
- **RS** Hot Re-Strike (150W HPS)
- **QS** Quartz Standby[4]
- **PCR(X)** Photocontrol[1, 2, 3, 4]
- **EA** Elevated Ambient (40°C, 55°C, 65°C) capabilities. See chart for applicable wattages
- **RB** Restricted Breathing Housing allowing lower T-Ratings for SFM2 and SFMH2 Series only. Fixture provided with test port entry on side

1 To denote voltage, replace X with 1 - 120V; 2 - 208V; 3 - 240V; 4 - 277V; 5 - 480V; 6 - 347V.
2 Not UL 1598A Marine Listed or CSA listed for hazardous locations.
3 CSA certification applilcable to Tri-Tap® ballast only.
4 Available in SFMM only. Not suitable for hazardous locations.
5 250W Pulse Start not available in 480V or Tri-Tap®.

Ordering Information

SFMH2 - C3 - UH Requires Remote Ballast Assembly on following page

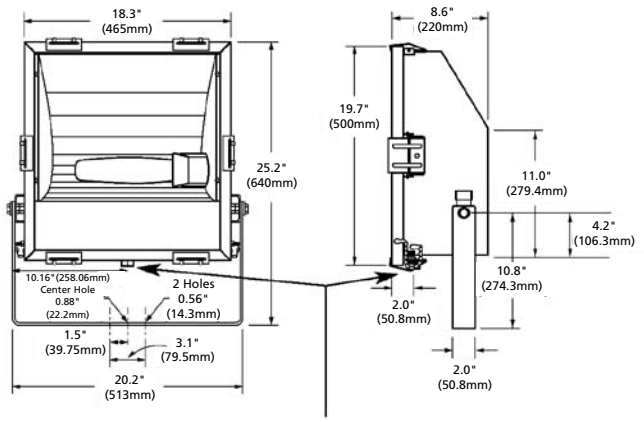
Series | Entries | Lamp

Series
- **SFMH2** Stainless Steel Remote Head, ClassI, Division 2 Marine

Entries
- **C1** 3/4" Conduit Hub
- **C2** 20mm Conduit Hub
- **C3** 3/4" Conduit Hub Restricted Breathing
- **C4** 20mm Conduit Hub Restricted Breathing

Lamp Type
- **UH** Universal Head, 350W Pulse Start, 400W HPS, MH, Electro-Reg®, Pulse Start, 1000W HPS[2]
- **HH** 1000W MH

Dimensions



ENTRY
SFMM: 1/2" CORD GRIP
SFM2: 3/4" CONDUIT HUB

MARINER™ FLOODLIGHT

REMOTE BALLASTED

Features

- For use in corrosive, hosedown, marine, shipboard and hazardous environments.
- SFMH2 luminaire available in two styles; UH for asymmetric and HH (1000W MH only) for symmetric distribution.
- Restricted Breathing option for lower T-Ratings.
- Elevated ambient capability up to 65°C.
- Luminaire and ballast housing, lens frame, quick release lens latches – 16 gauge 316SS.
- Mounting yoke, safety lens door chains, cord grip, conduit hubs – 316SS.
- Mounting accessories – Hot dipped galvanized steel
- SFMH2 and SSRB Listings.
- UL844, CSA 22.2 No. 137-M1981: Class I, Div. 2 Groups A, B, C, D; Class I, Zone 2 Groups IIC, IIB, IIC.
- ExnR, AxnR Restricted Breathing.
- UL1598A Marine Outdoor.
- UL 1598 Wet Location.
- Type Approval American Bureau of Shipping (ABS).
- NEMA 4X, IP66/67.

Ordering Information

SSRB - C1 - 1000 - H - 8

Series	Entries	Watts	Lamp	Volts

Series
SSRB Stainless Steel Remote Box, Class I, Division 2 Marine, Class I, Division 2/Zone 2 Marine

Entries
C1 3/4" Conduit Hub
C2 20mm Conduit Hub

Wattage
0350 350W Pulse Start only
0400 400W HPS, MH, PS, E-Reg®
1000 1000W HPS, MH

Lamp Type
E Electro-Reg® Metal Halide (400W only)
H Metal Halide
S High Pressure Sodium
W Pulse Start (PS) 350/400W

Voltage
1 120V Electro-Reg® only
2 208V Electro-Reg® only
3 240V Electro-Reg® only
4 277V Electro-Reg® only
5 480V
6 Tri-Tap® (120/277/347V) (not available in with 400W PS)
8 Quad Tap® (120, 208, 240, 277V)
E 220/240V 50 Hz
F 347V Electro-Reg® only
P 220V 60Hz (400/1000W MH only)

Options[1, 2]
F(X) Fusing (specify voltage)

1 Not CSA or NEMA certified with "F" option.
2 To denote voltage, replace X with 1 - 120V; 2 - 208V; 3 - 240V; 4 - 277V; 5 - 480V; 6 - 347V.

SFMM/SFM2 Integral Ballast Ambient Suitabilities & T-Ratings

Wattage and Lamp Type	T-Ratings & Ambient Temperatures					
	40°C		50°C		65°C	
	Class I Div. 2 / Zone 2	Class I Zone 2 ExnR AExnR	Class I Div. 2 / Zone 2	Class I Zone 2 ExnR AExnR	Class I Div. 2 / Zone 2	Class I Zone 2 ExnR AExnR
150W PS	T1	T4	T1	T3	T1	T3
175W MH	T1	T4	T1	T3	T1	T3
250W MH, PS	T1	T3	T1	T1	—	—
400W MH, PS	T1	T3	—	—	—	—
150W HPS	T2A/T2	T4	T2	T4	T2	T3
250W HPS	T1	T3	T1	T3	—	—
400W HPS	T1	T3	—	—	—	—
175W MV	T1	T4	T1	T4	T1	T3
250W MV	T1	T3	T1	T3	—	—
400W MV	T1	T3	—	—	—	—

Note For standard SFM2 (less suffix "EA"), apply T-Ratings from 40°C column above.

SFMM/SFM2 Integral Ballast Supply Wire Ratings (Suffix "EA")

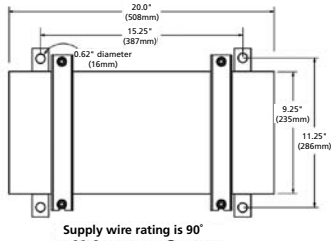
Wattage and Lamp Type	Ambient Temperature		
	40°C	55°C	65°C
175W MH	90°C	110°C	110°C
250W MH, PS	110°C	110°C	—
400W MH, PS	110°C	—	—
150W HPS	90°C	90°C	110°C
250W HPS	90°C	110°C	—
400W HPS	110°C	—	—
175W MV	90°C	110°C	110°C
250W MV	90°C	110°C	—
400W MV	110°C	—	—

Accessories - Order Separately

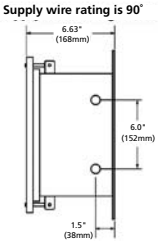
Catalog Number	Description
4024C-M38	Hot-Dipped Galvanized Steel Slipfitter for 2" pipe (2 3/8" OD tenon) - hardware included
4040-M38	Hot-Dipped Galvanized Steel Wall/Pole Bracket - hardware included
4090-M38	Hot-Dipped Galvanized Cross Arm Fitting for horizontal trunnion - hardware included
PTL1[1, 2]	Photocontrol - Twist-Lock® Cell 120V
PTL8[1, 2]	Photocontrol - Twist-Lock® Cell 120 - 277V
PTL5[1, 2]	Photocontrol - Twist-Lock® Cell 480V
PSC[1, 2]	Photocontrol Shorting Cap - Twist-Lock® Mount (completes circuit)
SFM-LR	1/8" diameter, 3' steel safety cable, Hot-Dipped Galvanized

1 Not UL 1598A Marine Outdoor listed.
2 Available in SFMM only. Not suitable for hazardous locations.

Dimensions



Supply wire rating is 90°



HAZARDOUS STROBES

ES AND GSH SERIES

Features

ES Series

- For use as a warning device in hazardous or harsh locations where hearing is impaired due to high ambient noise.
- Solid State circuitry for reliable operation provides 85 flashes per minute.
- Factory sealed with "quick-connect" contact block.
- Ambient Temperature range from -40°C to +55°C.
- Housing, guard – die cast copper-free (<0.4%) aluminum with electrostatically applied baked polyester finish.
- Globe – fluted, clear, heat and impact resistant outer glass with colored inner polycarbonate lens.
- UL 844 Standard: Class I, Div. 1/2, Groups C, D (T6); Class II, Div. 1/2, Groups E, F, G (T4); Class III, Div. 1/2.
- UL 1598A Marine Outdoor; NEMA 3, 4X, 7CD, 9EFG.
- UL 1638 visual signaling appliances.

ES Series - Class I, Division 1

Catalog Number				Hub Size	Voltage	Flash/Minute
Pendant Mount	Ceiling Mount	Bracket (Wall) Mount	Stanchion Mount			
ESXX-120A-A2	**ESXX-120A-X2**	**ESXX-120A-B2**	**ESXX-120A-D4**	3/4"	120V AC	90
ESXX-120A-A3	**ESXX-120A-X3**	**ESXX-120A-B3**	**ESXX-120A-D5**	1"	120V AC	90
ESXX-1274-A2	**ESXX-1274-X2**	**ESXX-1274-B2**	**ESXX-1274-D4**	3/4"	12-74V DC	90
ESXX-1274-A3	**ESXX-1274-X3**	**ESXX-1274-B3**	**ESXX-1274-D5**	1"	12-74V DC	90

Note All items are available with guard, add -G to the end of the catalog number.

Note Lens color must be specified. Substitute for second X in catalog number as follows: R - Red; B- Blue; A - Amber; C - Clear; G - Green. Example: ESXR-120A-A2. 240V AC units are available. To specify, substitute for 5th through 8th digits as follows: i.e.: ESXX-240A-A2.

Features

GSH Series

- For use as a warning light in hazardous and harsh locations where high ambient noise levels are prevalent.
- Reliable solid state circuitry providing 60 flashes per minute.
- Choice of four globe colors and two voltages.
- Globe may be mounted in up or down position.
- Compact aluminum housing with polycarbonate lens.
- UL844 Standard: Class I, Div. 2, Groups C, D (T4A).
- NEMA 3.

GSH Series - Class I, Division 2

Catalog Number	Mounting	Dimensions W x H	Voltage	Amps	Candela	Flash/Minute	Lamp Type	Ship Weight (lbs)
GSH-2-X-A1	1" pipe	4 1/2" x 8"	120V AC	.28	400	60	ST77C	4
GSH-2-X-D1	1" pipe	4 1/2" x 8"	12V DC	.7	400	60	ST77C	4
GSH-2-X-D2	1" pipe	4 1/2" x 8"	24V DC	.35	400	60	ST77C	4

Note Lens color must be specified. Substitute for X in catalog number as follow: R - Red; B - Blue; A - Amber; C - Clear.

LIGHTWATT® HAZARDOUS

ENCLOSED/GASKETED

Features

- For use as process lighting in harsh and hazardous environments where the presence of obstructions due to machinery, and process piping may cause shadows.
- Ideal for chemical, petrochemical, power plants and food processing.
- Excellent vertical and horizontal footcandle distribution with 25% uplight.
- Spacing to mounting height ration of up to 2.3 : 1.
- Luminaires shipped with lamps installed for ease of installation.
- Ceiling thru-wire/pendant, wall and stanchion mounting choices.
- Choice of mogul base HPS, MH, and E-Reg, as well as triple tube fluorescent.
- Housing – Copper-free (<0.4%) aluminum.
- Lens – high performance acrylic, or polycarbonate.
- External hardware – HubbellGard®
- UL844 Standard: Class I, Div. 2, Groups A, B, C, D; Zone 2, Groups IIC, IIB, IIA
- UL1598 Wet Location.
- IP65 listed (for outdoor use).
- Optional NSF listed for food processing (-FP).
- For dimensions see Industrial Lightwatt® on page 53.

Ordering Information

Example: LW2 - C - 84 - F - 4 - A - LTP

Series | Mount | Watts | Source | Volts | Refractor | Options

Series
- **LW2** Lightwatt Division 2

Mounting
- **C** Ceiling thru-wire / pendant
- **B** Pipe wall bracket
- **S** Stanchion / Davit

Wattage
- **42** 42W compact triple tube fluorescent
- **64** 2 x 32W compact triple tube fluorescent
- **70** 70W HPS, MH
- **84** 2 x 42W compact triple tube fluorescent
- **10** 100W HPS, MH
- **15** 150W HPS, MH (UV Protected)
- **17** 175W Electro-Reg® MH, MH (CWA)[1]

Source
- **H** Metal Halide
- **S** High Pressure Sodium
- **E** Electro-Reg®
- **F** Fluorescent

Voltage
- **1** 120V Electro-Reg® only
- **3** 240V Electro-Reg® only
- **4** 277V Electro-Reg® only
- **5** 480V Electro-Reg® only
- **6** Tri-Tap® (120, 277, 347V)
- **8** Quad Tap® (120, 208, 240, 277V)
- **E** 220/240V 50Hz (HPS and MH only)
- **F** 347V Electro-Reg® only
- **P** 220V 60Hz (available for limited light sources, consult factory.)

Refractor
- **A** Acrylic
- **P** Polycarbonate (HPS, Fluorescent) 55°C rating

Options
- **F(X)** Fusing (specify voltage)[2]
- **LTP** Tamper resistant screws
- **LL** Less lamp[3]
- **RS** Hot restrike (HPS only)
- **FP** National Sanitation Foundation Listed

1 Acrylic optics with 175W lamps may experience accelerated aging.

2 To specify correct voltage, replace "X" with 1-120V; 2-208V; 3-240V; 4-277V; 5-480V; F-347V.

3 Fixture shipped with lamps installed as standard.

Temperature Ratings (measured at ambient temperatures listed)

Wattage/Lamp Type	Class I, Division 2 Groups A, B, C, D		Class I, Zone 2 Groups IIC, IIB, IIA	
	40°C T Rating	55°C T Rating	40°C T Rating	55°C T Rating
70W HPS	T3A	T2D	T3	T2
100W HPS	T2C	T2B	T2	T2
150W HPS	T2B	T2A	T2	T2
70W MH	T3C	T3A	T3	T3
100W MH	T3B	T3A	T3	T3
150W MH	T2D	T2	T2	T2
175W E-reg	T2A	T2	T2	T2
42W Fluorescent	T3C	T3A	T3	T3
64W Fluorescent	T3C	T3A	T3	T3
84W Fluorescent	T3B	T3A	T3	T3

Note 90°C supply wire required.

Note Class I, Division 2 T-Ratings per National Electrical Code® Table 500-5(d).

Note Class I, Zone 2 T-Ratings per National Electrical Code® Table 505-10(b)(3).

Ambient Temparture Suitabilities (Acrylic Optic)[2]

Wattage	HPS	MH	Fluorescent
42W	---	---	50°C
64W	---	---	45°C
84W	---	---	40°C
70W	55°C	55°C	---
100W	50°C	50°C	---
150W	40°C	40°C[1]	---
175W	---	35°C	---

1 Fixture tested with U.V. Guard Lamp.

2 Polycarbonate optic results in 55°C for all HPS and Fluorescent wattages and lamp sources. When used with MH, recommended use of 150W U.V. Guard Lamp only, resulting also in 55°C.

Accessories - Order Separately

Catalog Number	Description
LW-G	Steel wire guard

VAPORTITE V-SERIES

ENCLOSED/GASKETED

Features

- For wet and dirty environments where enclosed/gasketed fixtures are needed.
- Cover selections include pendant, ceiling, bracket and stanchion mounting.
- Modular design permits selection of cover, body, globe, guard and reflector for custom applications.
- Threaded hubs for attachment to conduit and set screws provided in pendant covers.
- Two size housings for 150W and 300W max.
- Colored globes available.
- Body/Guard – Copper-free (<0.4%) cast aluminum.
- Globe – Standard and tempered glass. Clear polycarbonate for 75W max.
- Reflector – White Poly-Pro® plastic.
- UL1598 Damp Location.
- NEMA 3, 4 (when used with VXFC body and tempered globe).
- UL844: Class I, Division 2, Groups A, B, C, D (VXFC only).

Catalog Number	Maximum Lamp Size	Hub Size	Fixture Components		
			Body[2]	Cover	Globe
Pendant					
VP-151[1]	150/A-21	1/2″	VFB-15	VP-1	VG-15
VP-152A[1]	150/A-21	3/4″	VFB-15	VP-2	VG-15
VP-301[1]	300/PS-25	1/2″	VFB-30	VP-1	VG-30
VP-302[1]	300/PS-25	3/4″	VFB-30	VP-2	VG-30
Ceiling Outlet Box					
VX-151[1]	150/A-21	1/2″	VFB-15	VX-1/VAP	VG-15
VX-152[1]	150/A-21	3/4″	VFB-15	VX-2/VAP	VG-15
VX-301[1]	300/PS-25	1/2″	VFB-30	VX-1/VAP	VG-30
VX-302	300/PS-25	3/4″	VFB-30	VX-2/VAP	VG-30
Ceilng Plate					
VF-151[1]	150/A-21	—	VFB-15	VAP	VG-15
VF-301[1]	300/PS-25	—	VFB-30	VAP	VG-30
Wall Arm Outlet Box					
VWX-151[1]	150/A-21	1/2″	VFB-15	VW-1/VX-1	VG-15
VWX-152[1]	150/A-21	3/4″	VFB-15	VW-1/VX-2	VG-15
VWX-301[1]	300/PS-25	1/2″	VFB-30	VW-1/VX-1	VG-30
VWX-302[1]	300/PS-25	3/4″	VFB-30	VW-1/VX-2	VG-30
Wall Arm Mount					
VW-151[1]	150/A-21	—	VFB-15	VW-1	VG-15
VW-301[1]	300/PS-25	—	VFB-30	VW-1	VG-30
Stanchion Mount					
VS-150	150/A-21	1 1/4″	VFB-15	VD-4	VG-15
VS-300	300/PS-25	1 1/4″	VFB-30	VD-4	VG-30

1 CSA Certified.

2 For Class I, Division 2 and NEMA 3/4, replace: VFB-15 with VXFC-100-N34; and VFB-30 with VXFC-200-N34. Order body, cover and globe as components. See T-Rating chart.

Ordering Information: Globes - V/NV/NVQ

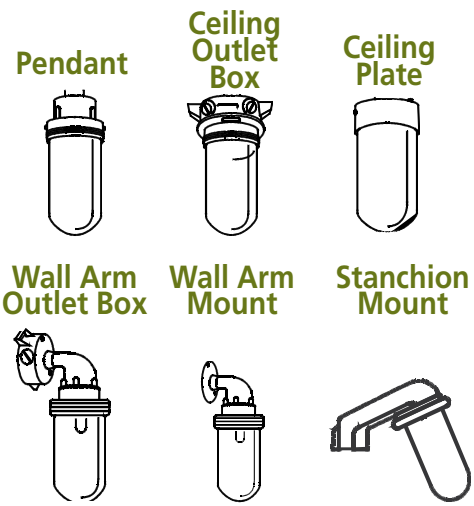
Catalog Number	Globes
150 Watts	
VG-15	Clear, Standard
VCGP-100	Clear, Tempered
VAMGP-100	Amber, Tempered
VGGP-100	Green
VRGP-100	Ruby
VBGP-100[1]	Blue
VGP-15[1]	Polycarbonate
300 Watts	
VG-30	Clear, Standard
VCGP-200	Clear, Tempered

1 75W maximum.

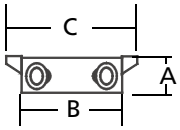
VFB-30
VXFC-200-N34

VFB-15
VXFC-100-N34

VAP
Ceiling Box Adapter

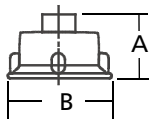


Dimensions



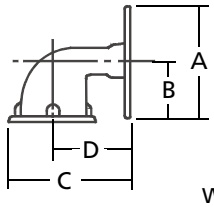
VX-1, 1/2" Box
VX-2, 3/4" Box

A	B	C
1 11/16"	4 3/16"	5 11/16"
43 mm	106 mm	144 mm



VP-1, 1/2" Pendant Cover
VP-2, 3/4" Pendant Cover

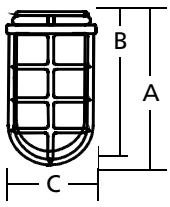
A	B
2 1/8"	3 1/2"
54 mm	89 mm



VW -1
Wall Arm

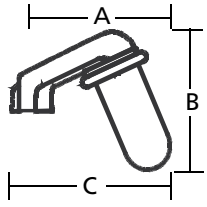
A	B	C	D
4 3/4"	2 1/2"	4 7/8"	3 1/8"
121 mm	64 mm	124 mm	79 mm

VCG-15, VCG-30 Guards



Watts	A	B	C
150	7 5/8"	6 7/8"	4 1/4"
	194 mm	175 mm	108 mm
300	10 5/8"	9 7/8"	5 1/2"
	270 mm	251 mm	140 mm

VD-4
1 1/4" Stanchion Mount



Watts	A	B	C
150	9 3/8"	8 5/8"	11"
	238 mm	219 mm	279 mm
300	10 3/4"	11 1/2"	12 1/4"
	273 mm	292 mm	311 mm

Accessories - Order Separately

Catalog Number	Maximum Lamp Size	Material
	Reflector[1]	
VRSD-15	150	White Poly-Pro
VRSD-30	300	White Poly-Pro
	Guards	
VCG-15	150	Cast Aluminum
VCG-30	300	Cast Aluminum

1 Not for use with VS stanchion.
Note Angle reflector not available.
Note Supply wire ratings - 150 series is 125°C; 300 series is 150°C

VXFC[1] T-Ratings

Fixture Type	Lamp Type	Temperature Code
150	A-19/60W	T2C
150	A-19/70W	T2D
150	A-19/100W	T2A
150	A-21/100W	T2B
150	A-21/150W	T2 colored globe
150	A-21/150W	T2 clear globe
300	A-23/200W	T2
300	PS-25/200W	T2A
300	PS-25/300W	350°C

Note Suitability based on "base up" installation.
1 For Class I, Division 2 and NEMA 3/4, replace: VFB-15 with VXFC-100-N34; and VFB-30 with VXFC-200-N34. Order body, cover and globe as components. See T-Rating chart.

KEMLUX® III KS SERIES

ENCLOSED/GASKETED

Features

- For use in corrosive, wet and dirty industrial applications such as power generation, waste water and sewage treatment, pulp/paper or steel mills.
- Electro-Reg® ballast provides long life, high lumen maintenance metal halide light source for low operating and maintenance costs.
- Cover selection of rigid and flexible pendant, ceiling, wall and 25° stanchion of varying threaded NPT entries.
- Minimum starting temp of –20°F for MV/MH and –40°F for HPS and Electro-Reg.®
- Copper-free (<0.4%) aluminum housing, cover and guard with Lektrocote® powder polyester paint finish provides excellent corrosion resistance from most chemicals. Color is gray.
- Optic choices of impact-resistant glass globe, symmetric/asymmetric glass refractors, dome/angle fiberglass reinforced polyester reflector, 19" enclosed reflector, and polycarbonate enclosed lowbay. Unit shown with optional globe guard.
- Modular design permits selection of cover, body, globe, guard and reflector for custom applications.
- UL1598 Wet Locations; NEMA 4X with KG17 globe, 55°C ambient listed.

Ordering Information:

KS - D - H - 40 - 0 - A - 2 - GL - G

Series | Tank | Lamp | Wattage | Voltage | Mount | Entry | Optic | Guard

Series
- **KS** Kemlux® III KS

Tank Type
- **C** Low Wattage Mogul Base 5"
- **D** Low Wattage Mogul Base 8"
- **E** High Wattage Mogul Base 8"

Lamp Type
- **S** High Pressure Sodium
- **H** Metal Halide
- **P** Pulse Start Metal Halide
- **M** Mercury Vapor

Wattage
- **05** 50 watt (HPS)
- **07** 70 watt (HPS, MH)
- **10** 100 watt (HPS, MH, MV)
- **12** 125 watt (Pulse Start MH)
- **15** 150 watt (HPS, Pulse Start MH)
- **17** 175 watt (MH, Pulse Start MH, MV)
- **20** 200 watt (HPS)
- **25** 250 watt (HPS, MH, Pulse Start MH)
- **32** 320 watt (Pulse Start MH)
- **35** 350 watt (Pulse Start MH)
- **40** 400 watt (HPS, MH, Pulse Start MH, MV)

Voltage (@ 60 HZ)
- **0** Quadri-Volt (120, 208, 240, 277V)
- **5** 480V
- **6** Tri-Tap Canada (120, 277, 347V)
- **7** 220V
- **8** 220/240V 50 Hz

Mounting Type
- **A** Pendant
- **X** Ceiling
- **B** Wall Bracket
- **C** Cone Top
- **D** Stanchion 25°
- **S** Stanchion Straight 90°
- **N** None (mount ordered separately)[1]

Entry (mounts available)
- **2** ¾" NPT (A, B, C, X)
- **3** 1" NPT (A, B, C, X)
- **4** 1¼" NPT (D, S)
- **5** 1½" NPT (D, S)
- **6** ¾" NPT 5-hub (X)
- **7** 1" NPT 5-hub (X)
- **N** None (mount ordered separately)[1]

Optics
- **GL** Globe
- **R1** Type I Glass Refractor
- **R3** Type III Glass Refractor (KSD only)
- **R5** Type V Glass Refractor
- **ER** Enclosed Reflector (KSD & KSE only)
- **EP** Polycarbonate Shielded Enclosed Reflector (KSD only)[7]
- **S2** Type II 12" Spin-Top Refractor
- **S8** Type V 8" Spin-Top Refractor (KSC & KSE only)
- **S5** Type V 12" Spin-Top Refractor
- **P5** Type V Plastic Spin-Top Refractor (KSC only)
- **FG** Tuffskin® Coated Globe[1]
- **TG** Teflon® Coated Globe[2]
- **T1** Teflon® Coated Globe Type I Glass Refractor[2]
- **T3** Teflon® Coated Globe Type III Glass Refractor (KSD only)[2]
- **T5** Teflon® Coated Globe Type V Glass Refractor[2]
- **T2** Teflon® Coated Globe Type II 12" Spin-Top Refractor[2]
- **T8** Teflon® Coated Globe Type V 8" Spin-Top Refractor (KSC only)[2]
- **TV** Teflon® Coated Globe Type V 12" Spin-Top Refractor[2]

Guard
- **G** Globe Guard
- **N** No Guard[4]

Options
- **QA** Quartz Auxiliary[6]
- **BP** Ballast Protector (250-400W HPS only)
- **F1** Fusing - single 120V 60Hz[5]
- **F2** Fusing - double 208V 60Hz[5]
- **F3** Fusing - double 240V 60Hz[5]
- **F4** Fusing - single 277V 60Hz[5]
- **F5** Fusing - double 480V 60Hz[5]
- **F6** Fusing - single 347V 60Hz[5]
- **F7** Fusing - double 220V 60Hz[5]
- **F8** Fusing - double 230V 50Hz[5]
- **P1** Photo Cell 120V [6]
- **P2** Photo Cell 208-277V (must specify voltage on order)[6]
- **P3** Photo Cell 347V[6]
- **Q1** Quick Disconnect wired at ballast to 120V[8]
- **Q2** Quick Disconnect wired at ballast to 208V[8]
- **Q3** Quick Disconnect wired at ballast to 240V[8]
- **Q4** Quick Disconnect wired at ballast to 277V[8]
- **Q5** Quick Disconnect wired at ballast to 480V[8]
- **Q6** Quick Disconnect wired at ballast to 347V[8]
- **Q7** Quick Disconnect wired at ballast to 220V[8]
- **Q8** Quick Disconnect wired at ballast to 230V[8]
- **TB** Terminal Blocks
- **AS** Assembled Fixture with standard lamp
- **AD** Assembled Fixture with DAT Dual-Arc-Tube lamp (250, 400W HPS only
- **CS** Component Pack with standard lamp
- **CP** Component Pack - no lamp

1 NN mount ordered separately.
2 Tuffskin® is a registered trademark of Thomas Mfg. Corp.
3 Teflon® is a registered trademark of DuPont, Inc.
4 Order guards for spin-tops & KER40 separately.
5 Fusing not for Marine or Canadian installations.
6 Field connection to proper tap in case of Multitap ballasts.
7 Not for use with wall or straight (90°) stanchion.
8 QX = Quick Disconnect. Allows easy tank removal for maintenance. Electrician simply unplugs de-energized ballast from supply circuit.

Accessories - Order Separately

Catalog Number	Description	Weight lbs. (kg)
K-SC6	6' Safety Chain (large housing only)	1 (0.5)

KEMLUX® III KS SERIES

Photocontrol for Standard & Hazardous Class I Division 2

ENCLOSED/GASKETED

Catalog Number	Volts	Frequency	Watts
HUB2PC120	120VAC	50/60 Hz	400
HUB2PC277[1]	277VAC	50/60 Hz	400
HUB2PC347	347VAC	50/60 Hz	400

1 Marked 220-277V, suitable for 208V.NOTE Patent Pending.

Kemlux III Mounting Splice Boxes

Hub Size	Catalog Number							
	Pendant	Flexible Pendant	Ceiling 4-Hub	Ceiling 5-Hub	Wall	Cone Top	25° Stanchion	90° Stanchion
3/4″	KSA2B	KSF2B	KSX2B	KSX6B	KSB2B	KSC2B	—	—
1″	KSA3B	KSF3B	KSX3B	KSX7B	KSB3B	KSC3B	—	—
1-1/4″	—	—	—	—	—	—	KSD4B	KSS4B
1-1/2″	—	—	—	—	—	—	KSD5B	KSS5B
M-20	—	—	KSX8B	KSX9B	—	—	—	—

Kemlux III 50-600W Ballast Tank Assemblies

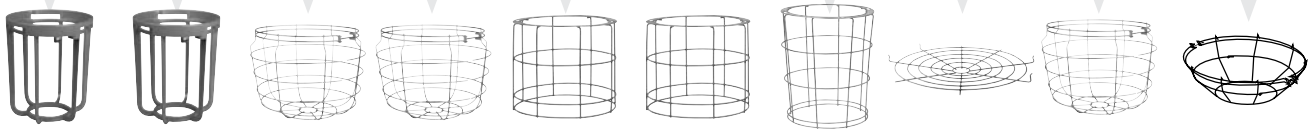
	Catalog Number											
	High Pressure Sodium			Metal Halide			Pulse Start Metal Halide			Mercury Vapor		
	Low Wattage		High Wattage	Low Wattage		High Wattage	Low Wattage		High Wattage	Low Wattage		High Wattage
Watts	5-1/2″	7-3/4″	7-3/4″	5-1/2″	7-3/4″	7-3/4″	5-1/2″	7-3/4″	7-3/4″	5-1/2″	7-3/4″	7-3/4″
50	KSCS05X	KSDS05X	—	—	—	—	—	—	—	—	—	—
70	KSCS07X	KSDS07X	—	KSCH07X	KSDH07X	—	—	—	—	—	—	—
100	KSCS10X	KSDS10X	—	KSCH10X	KSDH10X	—	—	—	—	KSCM10X	KSDM10X	—
150	KSCS15X	KSDS15X	—	KSCH15X	KSDH15X	—	KSCP15X	KSDP15X	—	—	—	—
175	—	—	—	KSCH17X	KSDH17X	—	KSCP17X	KSDP17X	—	KSCM17X	KSDM17X	—
200	—	—	KSES20X	—	—	—	KSCP20X	KSDP20X	—	—	—	—
250	—	—	KSES25X	KSCH25X	KSDH25X	—	—	—	KSEP25X	KSCM25X	KSDM25X	—
320	—	—	—	—	—	—	—	—	KSEP32X	—	—	—
350	—	—	—	—	—	—	—	—	KSEP35X	—	—	—
400	—	—	KSES40X	—	—	KSEH40X	—	—	KSEP40X	—	—	KSEM40X

Note Replace X with voltage: 0-Quad, 6-Tri, 5-480V.

Optics

KG17 | **KR175 KR171** | **KZRG1550** | **KZRG2550 KZRG2520** | **KG25** | **KR255 KR253 KR251** | **KG40** | **KER40** | **KZRG4050 KZRG4020** | **KEP40**

Guards



KSAG17[2] | **KSAG17**[2] | **KRWG8**[4] | **KRWG**[4] | **KAG25S**[3] | **KAG25S**[3] | **KAG40S**[3] | **KERG**[3] | **KRWG**[4] | **WG-23**

Reflectors

KPSD40
Standard Dome
Fiberglass White
Reflector Dia: 16″

KPA40
Angle
Fiberglass White
Reflector Dia: 16″

HRD400
Deep Aluminum
White
Reflector Dia: 21″

HRD400ALZ
Deep Aluminum
Anodized Finish
Reflector Dia: 21″

KAGBC
Bottom Closure for
KAG25S/SAG40S

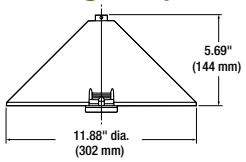
1 KSC 12″ Spin Tops ship with a mogul-to-mogul extender for improved photometrics.
2 Standard material: copper-free aluminum painted.
3 Standard material: 316 stainless steel.
4 Standard material: plated steel.

KEMLUX® III KS SERIES

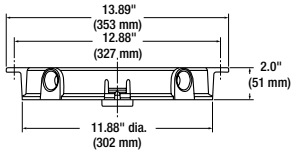
ENCLOSED/GASKETED

Dimensions

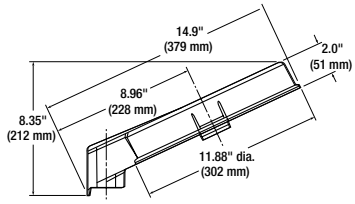
Mounting Adapters



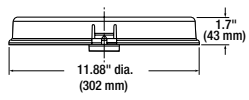
Cone Mount



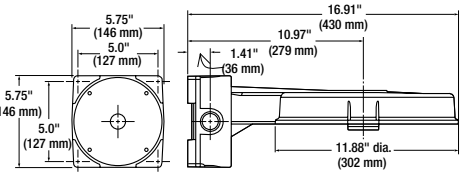
Ceiling Mount



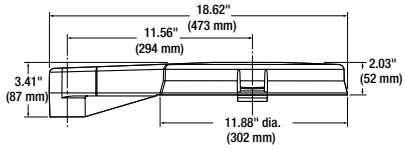
Stanchion (25°) Mount



Pendant Mount

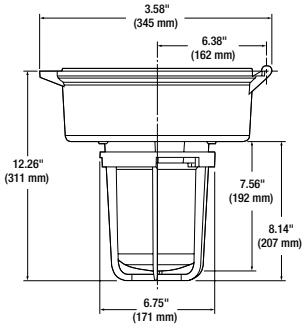


Wall Bracket Mount

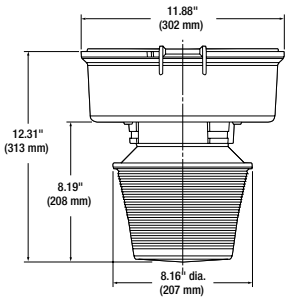


Stanchion (0°) Mount

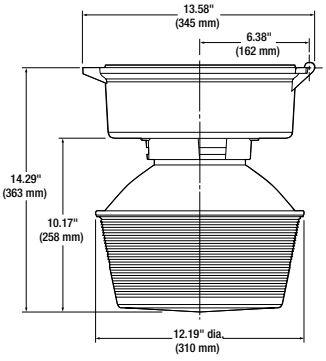
KXC Housing



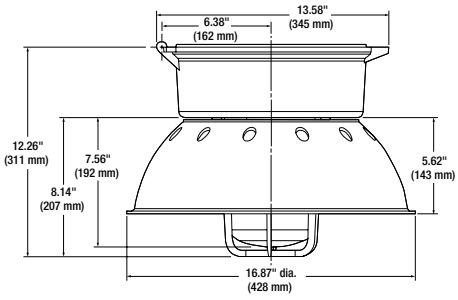
KSC Ballast Tank
5 1/2" Optics Globe or Refractor
KSAG17 Globe Guard



KSC Ballast Tank
KZRG1550 8" Spun Refractor

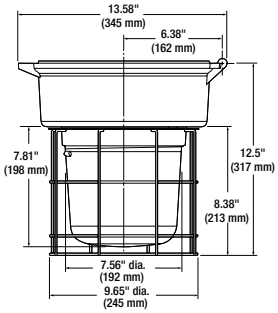


KSC Ballast Tank
KZRG 12" Spun Refractor

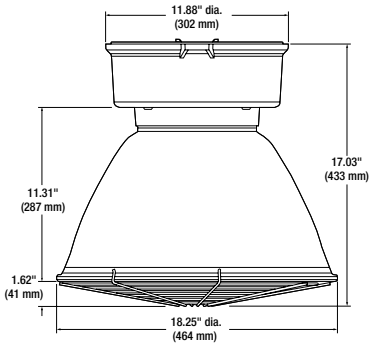


KSC Ballast Tank
KG17 5 1/2" Optics Globe
KPSD40 Dome Reflector

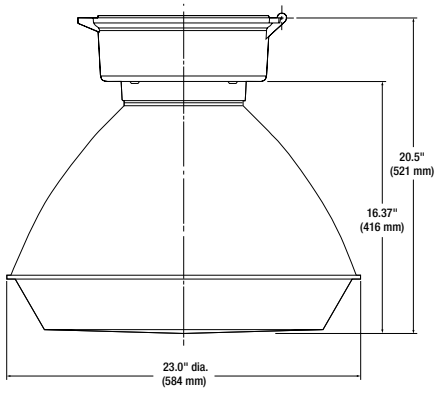
KXD Housing



KXD Ballast Tank
KG25 7 3/4" Optics Globe
or KR25 Refractor
KAG25S Wire Guard

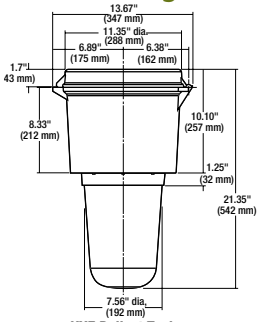


KXD Ballast Tank
KER40 Enclosed Reflector
KERG Guard

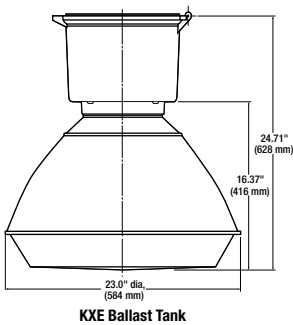


KXD Ballast Tank
KPE40 Optic

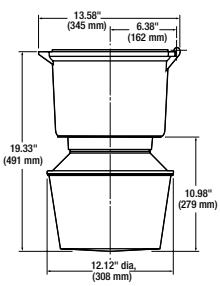
KXE Housing



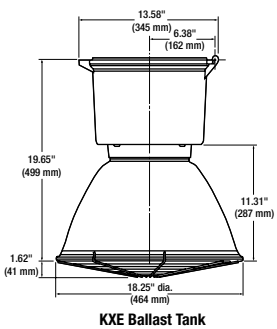
KXE Ballast Tank
KG40 Optics Globe



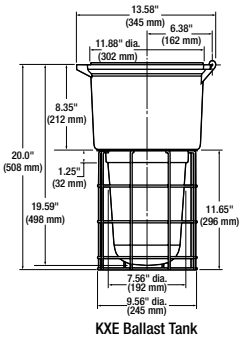
KXE Ballast Tank
KEP40 Optic



KXE Ballast Tank
12" Spun Top Refractor Optics



KXE Ballast Tank
KER40 Enclosed Reflector
KERG Wire Guard



KXE Ballast Tank
KG40 Optics Globe
KAG40S Wire Guard

KEMLUX® II KS SERIES

ENCLOSED/GASKETED

Features

- For use in corrosive, wet and dirty industrial applications such as power generation, waste water and sewage treatment, pulp/paper or steel mills.
- Electro-Reg® ballast provides long life, high lumen maintenance metal halide light source for low operating and maintenance costs.
- Cover selection of rigid and flexible pendant, ceiling, wall and 25° stanchion in varying threaded NPT entries.
- Minimum starting temperature of -20°F for MV/MH and -40°F for HPS and Electro-Reg.®
- Copper-free (<0.4%) aluminum housing, cover and guard with white Lektrocote® powder polyester paint finish provides excellent corrosion resistance from most chemicals.
- Optic choices of impact-resistant glass globe, symmetric/asymmetric glass refractors, dome/angle fiberglass reinforced polyester reflector, 19" enclosed reflector, and polycarbonate enclosed lowbay.
- Modular design permits selection of cover, body, globe, guard and reflector for custom applications.
- UL1598 Wet Locations; NEMA 4X with K-G globe, 55°C ambient listed.

Ordering Information

Example: KS - 17 - H - 8 - G - P2 - UP

Series	Watts	Lamp	Volts	Optical Assembly	Mount	Options

Series
- **KS** Kemlux® Harsh/Severe

Wattage

Medium Housing
- **50** 50W HPS
- **70** 70W HPS, MH (Pulse Start) [1]
- **10** 100W MV, HPS, MH (Pulse Start)[1]
- **15** 150W HPS
- **17** 175W MV, MH, Electro-Reg® MH, Pulse Start
- **25** 250W MV, MH

Large Housing
- **25** 250W HPS or Pulse Start
- **40** 400W MV, MH, HPS, Electro-Reg® MH, Pulse Start

Lamp Type
- **C** Mercury Vapor (MV)
- **H** Metal Halide (MH)
- **S** High Pressure Sodium (HPS)
- **E** Electro-Reg® MH (lamp included)
- **W** Pulse Start (PS)

Voltage
- **1** 120V (50W HPS and Electro-Reg® MH)
- **2** 208V (For 175/400W Electro-Reg® MH only)
- **3** 240V (Electro-Reg®)
- **4** 277V (50W HPS only)
- **5** 480V (not available for 50W HPS)
- **6** Tri-Tap® (120, 277, 347V)[2, 3] (not available Electro-Reg®)
- **8** Quad Tap® (120, 208, 240, 277V)[3] (not available Electro-Reg®)
- **E** 220/240V 50 Hz[3]
- **F** 347V

Optical Assembly

Medium Housing
- **G** Globe
- **X** Reflector/Polycarbonate Refractor (50-150W HPS)[4]

Medium or Large Housing
- **L** Symmetrical Glass Refractor

Large Housing
- **M** Asymmetrical Glass Refractor
- **E** Enclosed Reflector

Mounting
- **B2** 3/4" Balancing Pendant
- **B6** 3/4" Balancing Pendant for Electro-Reg®
- **C2** 3/4" Ceiling
- **C3** 1" Ceiling
- **D4** 1 1/4" Stanchion
- **D5** 1 1/2" Stanchion
- **D8** 1 1/4" Stanchion for Electro-Reg®
- **D9** 1 1/2" Stanchion for Electro-Reg®
- **P2** 3/4" Pendant
- **P3** 1" Pendant
- **P6** 3/4" Pendant for Electro-Reg®
- **P7** 1" Pendant for Electro-Reg®
- **W2** 3/4" Wall
- **W3** 1" Wall
- **W6** 3/4" Wall for Electro-Reg®
- **W7** 1" Wall for Electro-Reg®

Options
- **F(X)** Fusing (X indicates voltage)[5, 6]
- **QS** Quartz Standby (restart time MH = 5 min; HPS - 1 min)
- **QT** Time Delay Quartz Standby
- **RS** Hot restrike (70-150W HPS only)
- **PC** Photocontrol (not available for ceiling mount; Quad-Tap® only)
- **UP** Unit Pack - Mounting adapter, ballast housing; Globe and/or Guard in same carton (medium housing only); reflector shipped separately
- **FA** Factory assembled - Lamp and globe installed onto housing; includes mounting adapter and/or guard (medium housing only); Reflector shipped separately

1. 70W and 100W metal halide includes lamp.
2. 250W MH with Tri-Tap® ballast requires deeper Electro-Reg® mounting adapter.
3. Electro-Reg® is not available.
4. Consult factory for use with 150W MH U.V. Guard lamp.
5. To specify voltage, replace X with 1-120V, 2-208V, 3-240V, 4-277V, 5-480V, F-347V.
6. Not offered with CSA listing.

Accessories - Order Separately

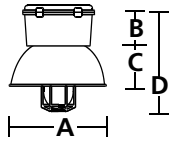
Catalog Number	Description	Weight lbs. (kg)
K-10	Cast Guard for K-G globe	1 (0.5)
K-20	Steel wire guard for K-L and K-M glass refractors. (Zinc plated)	2 (0.9)
K-30	Steel wire guard for K-E enclosed reflector. (Painted)	1 (0.5)
K-06	Standard dome reflector for K-G globe. (FRP)	1 (0.5)
K-07	30° angle reflector for K-G globe. (FRP)	1 (0.5)
K-SC6	6' safety chain (large housing only - order separately).	—

KEMLUX® II KS SERIES

Dimensions

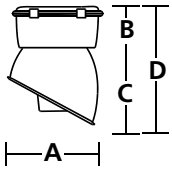
Medium Housing

Globe (K-G), Guard (K-10), Dome (K-06)



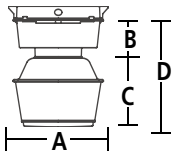
A	B	C	D
16 3/8″	4 3/4″	5 5/8″	14 1/2″
416 mm	121 mm	143 mm	368 mm

Globe (K-G), Angle Dome (K-07)



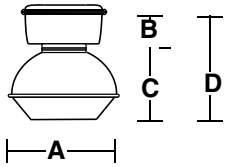
A	B	C	D
11 1/4″	4 3/4″	10 1/4″	15″
286 mm	121 mm	260 mm	381 mm

Glass Refractor (K-L)



A	B	C	D
12 1/4″	4 3/4″	13 5/16″	18 7/16″
311 mm	121 mm	338 mm	468 mm

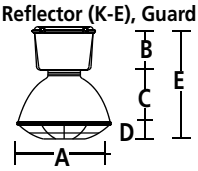
Reflector/Polycarbonate Refractor (K-X)



A	B	C	D
16″	4 3/4″	11 1/2″	16 1/4″
406 mm	121 mm	292 mm	413 mm

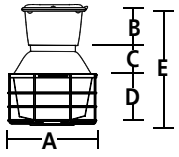
Large Housing

Enclosed Reflector (K-E), Guard (K-30)



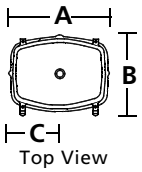
A	B	C	D	E
19″	6 1/16″	12 5/8″	3 1/2″	22 1/4″
483 mm	154 mm	321 mm	89 mm	565 mm

Refractor (K-L, K-M), Guard (K-20)

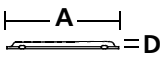


A	B	C	D	E
13 1/4″	6 1/16″	5 3/4″	7 9/16″	19 3/4″
337 mm	154 mm	146 mm	192 mm	502 mm

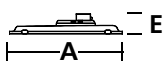
Mounting Adapters



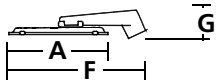
Top View



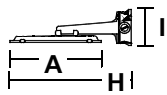
KS-P2, KS-P3



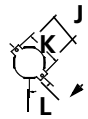
KS-B2



KS-D4, KS- D5

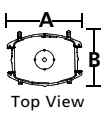


KS-W2

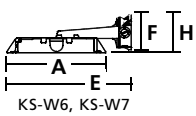


A	B	C	D	E	F	G	H	I	J	K	L
12 1/4″	10″	7 1/16″	7/8″	2 3/16″	17 1/8″	3 1/2″	16 1/2″	4 7/16″	5″	5 5/8″	45°
311 mm	254 mm	179 mm	22 mm	56 mm	435 mm	89 mm	419 mm	113 mm	127 mm	143 mm	-

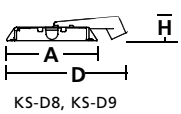
Electro-Reg®/Ceiling Mounting Adapters



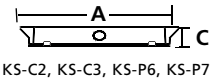
Top View



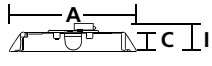
KS-W6, KS-W7



KS-D8, KS-D9



KS-C2, KS-C3, KS-P6, KS-P7



KS-B6

A	B	C	D	E	F	G	H	I
13 1/2″	10″	2 1/4″	18 1/4″	17 5/8″	4 7/8″	4 3/4″	5 15/16″	3 9/16″
343 mm	254 mm	57 mm	464 mm	448 mm	124 mm	121 mm	151 mm	90 mm

Components

Ordering Information: KS Mounting Adapters

The following mounting adapters are available for the KH Series. They can be ordered separately or refer to Catalog Logic for complete fixture.

Catalog Number	Description	Hubs		Plugs Qty.	Weight lbs. (kg)
		Size	Qty.		
KS-P2	Pendant	3/4"	1	—	1.5 (0.7)
KS-P3	Pendant	1"	1	—	1.5 (0.7)
KS-C2	Ceiling (Also for Electro-Reg®)	3/4"	4	3	2.0 (0.9)
KS-C3	Ceiling (Also for Electro-Reg®)	1"	4	3	2.0 (0.9)
KS-D4	25° Stanchion	1 1/4"	1	—	4.0 (1.8)
KS-D5	25° Stanchion	1 1/2"	1	—	4.0 (1.8)
KS-W2	Wall	3/4"	4	3	4.0 (1.8)
KS-W3	Wall	1"	4	3	4.0 (1.8)
KS-B2	Balancing Pendant	3/4"	1	—	2.0 (0.9)
KS-P6[1, 2]	Pendant/Electro-Reg®	3/4"	1	—	4.5 (2.0)
KS-P7[1, 2]	Pendant/Electro-Reg®	1"	1	—	4.5 (2.0)
KS-D8[2]	25° Stanchion/Electro-Reg®	1 1/4"	1	—	4.5 (2.0)
KS-D9[2]	25° Stanchion/Electro-Reg®	1 1/2"	1	—	4.5 (2.0)
KS-W6[2]	Wall/Electro-Reg®	3/4"	1	—	4.5 (2.0)
KS-W7[2]	Wall/Electro-Reg®	1"	4	3	4.5 (2.0)

Ordering Information: KS 50-400W Ballast Housing

Wattage	Voltage	Catalog Number		
		High Pressure Sodium	Mercury Vapor	Metal Halide
50W	120	**KS50S1**	—	—
	277	**KS50S4**	—	—
70W	120/208/240/277	**KS70S8**	—	**KS70H8**
	480	**KS70S5**	—	**KS70H5**
100W	120/208/240/277	**KS10S8**	**KS10C8**	**KS10H8**
	480	**KS10S5**	**KS10C5**	**KS10H5**
150W	120/208/240/277	**KS15S8**	—	—
	480	**KS15S5**	—	—
175W	120/208/240/277	—	**KS17C8**	**KS17H8** **KS17EX**[3]
	480	—	**KS17C5**	**KS17H5** **KS17E5**
250W	120/208/240/277	**KS25S8**	**KS25C8**	**KS25H8** **KS25EX**[3, 4]
	480	**KS25S5**	**KS25C5**	**KS25H5** **KS25E5**
400W	120/208/240/277	**KS40S8**	**KS40C8**	**KS40H8** **KS40EX**[4]
	480	**KS40S5**	**KS40C5**	**KS40H5** **KS40E5**

1 Same adapter as ceiling mount except one drilled and tapped entry on top and blank entries on sides.
2 250W MH with Tri-Tap® ballast requires the deeper Electro-Reg® mounting adapter
3 For Electro-Reg®, replace X with 1 = 120V; 2 = 208V; 3 = 240V; 4 = 277V; 5 = 480V; F = 347V for line voltage. Example: KS17E1
4 Not available in 208V.

Ordering Information: Optical Assemblies

Catalog Number	Description	Weight lbs. (kg)
K-G	Prismatic, heat resistant glass globe (medium housing only)	2 (0.9)
K-E	19" enclosed reflector	7 (3.2)
K-L	Symmetrical (Type V) glass refractor	13 (5.9)
K-M	Asymmetrical (Type II) glass refractor	13 (5.9)
K-X	Reflector/Polycarbonate Refractor (medium housing only)	-

VAPORTITE NV-SERIES

ENCLOSED/GASKETED

Features

- Typical applications include manufacturing plants, chemical and petrochemical processing facilities, sewage treatment plants, off-shore and dockside installations, agricultural, commercial, industrial, mining, and marine facilities.
- NV2 Series non-metallic light fixtures combine an outstanding balance of strength, stiffness, toughness and electrical properties.
- Energy and labor saving fluorescent or incandescent models.
- Accessories include polycarbonate dome reflectors and wall extension.
- Molded from 30% glass-filled thermoset polyester for high strength.
- Resists corrosive effects of most chemicals, hydrocarbons and solvents.
- Designed for indoor and outdoor applications.
- UL1598 Standard for luminaires.
- UL 1598 Marine type luminaires.
- UL 844 Standard for lighting fixtures for hazardous locations.
- CSA C22.2 no. 137-M1981 electric luminaires for use in hazardous locations.
- Enclosed and gasketed.
- NEMA 3, 4X IP66.

Class I, Div. 2, Groups A, B, C, D • Class I, Zone 2, Groups IIC, IIB, IIA
Class II, Div. 2, Groups F, G, C, D • Class III • NEMA 4X, IP66, Marine Rated

Ordering Information

Catalog Number		Type
Standard Globe	Tempered Globe	
Pendant 3/4" Fixture with Clear Globe & Guard		
NV2IG15ASG	**NV2IG15AHG**	150A Incandescent
NV2FG13ASG	**NV2FG13AHG**	13W Fluorescent
NV2FG18ASG	**NV2FG18AHG**	18W Fluorescent
NV2FG26ASG	**NV2FG26AHG**	26W Fluorescent
NV2FG32ASG	**NV2FG32AHG**	32W Fluorescent
NV2FG42ASG	**NV2FG42AHG**	42W Fluorescent
Ceiling 3/4" Fixture with Clear Globe & Guard		
NV2IG15XSG	**NV2IG15XHG**	150A Incandescent
NV2FG13XSG	**NV2FG13XHG**	13W Fluorescent
NV2FG18XSG	**NV2FG18XHG**	18W Fluorescent
NV2FG26XSG	**NV2FG26XHG**	26W Fluorescent
NV2FG32XSG	**NV2FG32XHG**	32W Fluorescent
NV2FG42XSG	**NV2FG42XHG**	42W Fluorescent
Wall 3/4" Fixture with Clear Globe & Guard		
NV2IG15BSG	**NV2IG15BHG**	150A Incandescent
NV2FG13BSG	**NV2FG13BHG**	13W Fluorescent
NV2FG18BSG	**NV2FG18BHG**	18W Fluorescent
NV2FG26BSG	**NV2FG26BHG**	26W Fluorescent
NV2FG32BSG	**NV2FG32BHG**	32W Fluorescent
NV2FG42BSG	**NV2FG42BHG**	42W Fluorescent

Notes
- Tempered Globes are required for Wet Location applications.
- All assemblies are unit packed with required components (not assembled).
- Fluorescent unit pack models (only) include the lamp.
- Reflector is sold separately. For wall mounting with reflector, the NVEXTG extension is required and sold separately.
- Fluorescent models use "world voltage" ballasts for 120VAC through 277VAC 50/60Hz applications.

Components[1]

Catalog Number	Description
NV2AG	3/4" Pendant Splice Box
NV2XG	3/4" Ceiling Splice Box (M20 entryNV2MG)
NV2BG	Elbow (used between NV2Xg & fixture body)
NV2GG	Guard
NV2IG15	Incandescent Body with socket
NV2FG13	13W Fluor. Body 120VAC - 277V 50/60Hz
NV2FG18	18W Fluor. Body 120VAC - 277V 50/60Hz
NV2FG26	26W Fluor. Body 120VAC - 277V 50/60Hz
NV2FG32	32W Fluor. Body 120VAC - 277V 50/60Hz
NV2FG42	42W Fluor. Body 120VAC - 277V 50/60Hz
NVPSD12	White Reflector (secured by guard)
NVEXTG	Extension (for wall mount with reflector)
NV2CG	Gray Blank Cover for NV2XG
NV2CC	Clear Cover for NV2Xg

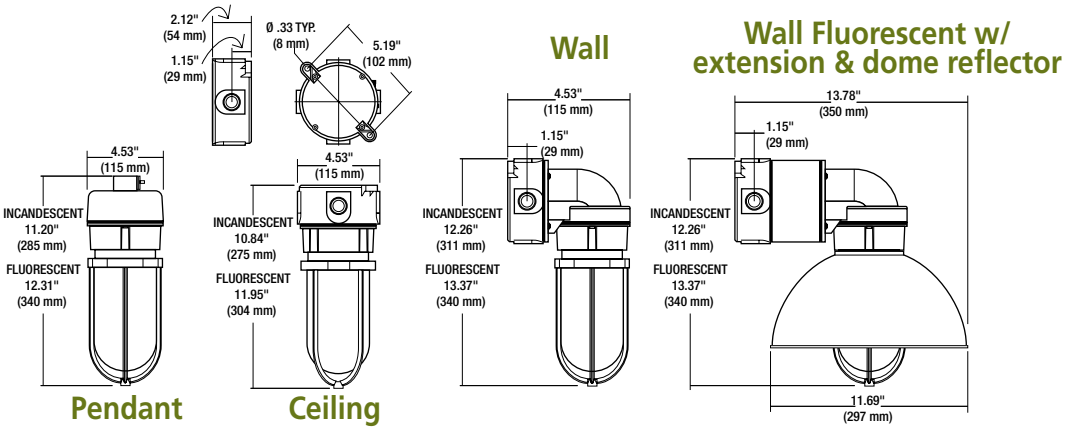
1 Fluorescent "bodies only" do not include lamps.

Colored Globe Options[2]

Suffix Standard Globe	Suffix Tempered Globe	Description
A	**A**	Amber
B	**B**	Blue
R	**R**	Ruby
G	**N/A**	Green
P	**N/A**	Purple
BG	**BG**	Blue-Green

2 Tempered Globes are required for Wet Location applications.

Dimensions



BYMB SERIES

OBSTRUCTION LIGHTS

Features

- For use as obstruction indication for buildings and towers.
- Availale in single or twin version wtih steady burning incandescent lamp.
- Lens mounted in cast aluminum ring and secured with SS thumb screw and safety chain.
- Twin unit can operate both lamps simultaneously.
- Relay accessory provides switching when lamp on first luminaire fails.
- Traffic signal lamp 116A-21/TS has rated life of 8,000 hours on 120 volt line, and 22,000 hours on 130 volt line (lamp not included).
- Mounting hub is 1" NPS.
- Housing – Heavy-duty cast aluminum.
- Glass – Fresnel lens in clear or selected colors.

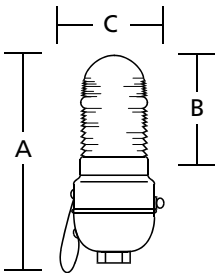
Ordering Information Example:

Catalog Number	Description	Dimensions	Amps
BYMB-3600-AHQ	Incandescent single units - less lens	5 1/8" x 14"	0.82
BYMB-36002-AHQ	Incandescent twin units - less lenses	14 3/4" x 14"	0.82 or 1.6
7AP53	Clear lens	—	—
7AP53B	Blue lens	—	—
7AP53G	Green lens	—	—
7AP53R[1]	Red lens	—	—
7AP53Y	Amber lens	—	—
7AP3A	Internal relay to change lamps on twin unit	—	—

1 ETL verified to FAA specification AC No. 150/5343-43E

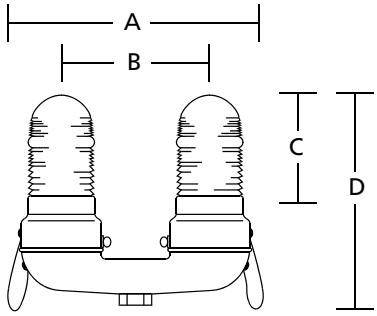
Dimensions

Single



	A	B	C	D
Twin	14 3/4"	9 5/8"	6 5/8"	14"
	375 mm	244 mm	168 mm	356 mm
Single	14"	6 5/8"	5 1/8"	-
	356 mm	168 mm	130 mm	-

Twin



PHOTOCELL

CLASS I DIVISION 2

Photocontrol for Standard & Hazardous Class I Division 2[1]

Ordering Information

Catalog Number	Volts	Frequency	Watts
HUB2PC120	120VAC	50/60 Hz	400
HUB2PC277[2]	277VAC	50/60 Hz	400
HUB2PC347	347VAC	50/60 Hz	400

1 Photocontrol cells for Class I Division 2 only.
2 Marked 220-277V, suitable for 208V.

NOTE Patent Pending.

Factory Installed Option (add as suffix)

Suffix	Voltage
-P1	120V
-P2	208-277V
-P3	347V

Field installed in Splice Cap

Factory installed in Ballast Tank

PENDANT HANGERS

ENCLOSED & GASKETED

HLV Series

- Provide flexible and rigid pendant mounting.
- Flexible mount permits angular displacement (5°) and cushioning for shock absorption. Internal strap ensure continuity.
- Available in four ¾" hub configurations.

HLFKA Series

- Hanger uses ¾" male threads for attachement to conduit system and ¾" female threads for fixture stem.
- Ball joint permits fixture to hang plumb and swing 20° from vertical.
- Set screw locks fixture stem in place.

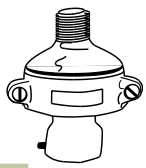
HLFH Series

- ¾" thru-feed hub configuration.
- Ball joint permits fixture to hang plumb and swing 20° from vertical.
- Set screw locks fixture stem in place.
- HLV, HLFKA, HLFH – Copper-free (<0.4%) aluminum alloy.
- All series suitable for fixture weighing up to 125 lbs.

Ordering Information

HLFKA Series

Catalog Number	Fixture Stem Size	Male Thread
HLFKA22	3/4"	3/4"



HLFKA

HLV Series - Covers

Catalog Number	Description	Fixture Stem Size
HLVG2	Rigid Hub Hanger	3/4"
HLVPFH2	Flexible, Swivel	3/4"

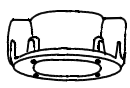
HLVG2 Rigid Hanger Cover

HLVPFH2 Flexible Hanger Cover 5˚ Swing

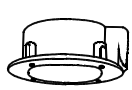
HLV Series - Hangers

Catalog Number	Splice Box Size	Hub Quantity
	Pendant	
HLVGA2	3/4"	1
	Ceiling	
HLVGC2	3/4"	2
HLVGH2	3/4"	1
HLVGX2	3/4"	4

HLVGA2



HLVGC2



HLVGH2

HLVGX2

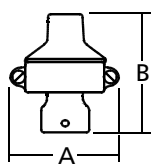
HLFH Series

Catalog Number	Conduit Size	Fixture Stem Size
	Two Hubs Thru	
HLFHC22	3/4"	3/4"
	Three Hubs Thru	
HLFHT22	3/4"	3/4"

HLFH

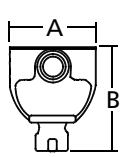
Dimensions

HLFKA22



A	B
3 1/8"	3 1/2"
79 mm	89 mm

HLFH



A	B
3 1/2"	4 1/8"
89 mm	105 mm

PENDANT HANGERS

EXPLOSION PROOF

Features

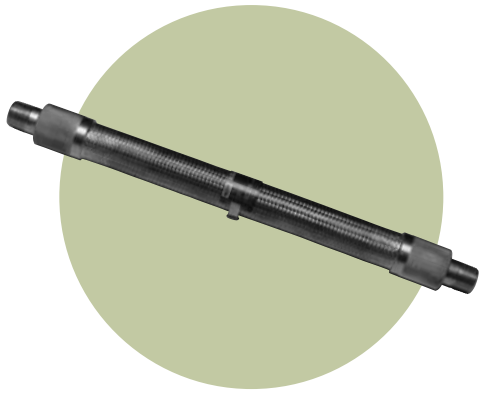
HLEKJ Series
- Flexible pendant hanger in lengths from 4" to 24" with ¾" male hubs.
- Constructed of seamless bronze hose with brass out braid.
- UL 844: Class I, Div. 1/2 Groups A, B, C, D; Class II Div. 1/2 Groups E, F, G; Class III, Div. 1/2.

HLXFH Series
- Rigid, thru-feed hanger with ¾" conduit hubs and ½"-¾" fixture stems.
- Mounting lugs on conduit hubs.

HLJL/HLJAL Series
- Conduit openings in two configurations, flange type cover.
- Integral lugs for mounting box to ceiling.

HLHXB Series
- Flange mounting ring cast integral to box.

HLFXH, HLJL, HLJAL, HLHXB Series
- Support up to 125 lbs.
- Copper-free (<0.4%) aluminum construction.
- UL 844: Class I, Div. 1/2 Groups C, D; Class II, Div. 1/2 Groups E, F, G; Class III, Div. 1/2.



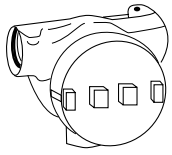
Ordering Information

HLEKJ Series

Catalog Number	Conduit Size	Flexible Length
HLEKJ24	3/4"	4"
HLEKJ26	3/4"	6"
HLEKJ28	3/4"	8"
HLEKJ210	3/4"	10"
HLEKJ212	3/4"	12"
HLEKJ215	3/4"	15"
HLEKJ218	3/4"	18"
HLEKJ224	3/4"	24"

HLXFH Series

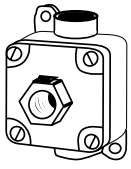
Catalog Number	Conduit Hub Size	Fixture Stem Size
HLXFH21	3/4"	1/2"
HLXFH22	3/4"	3/4"



HLJL/HLJAL Series

Catalog Number	Conduit Size		Type
	Box	Cover	
HLJLC22	3/4" (19 mm)	3/4" (19 mm)	C Straight Thru
HLJALX22	3/4" (19 mm)	3/4" (19 mm)	"X" Four Hubs
HLJALX32	1" (25 mm)	3/4" (19mm)	"X" Four Hubs

Note HLJALX supplied with three close-up plugs.

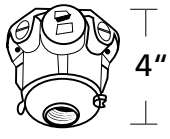


HLJL

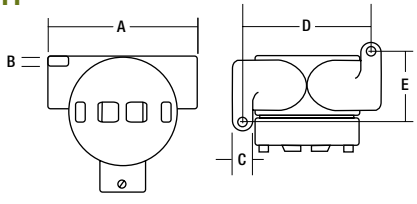
HLJAL

HLHXB Series

Catalog Number	Conduit Hub Size	Fixture Stem Size
HLHXB22	3/4"	3/4"
HLHXB11	1/2"	1/2"
HLHXB12	1/2"	3/4"
HLHXB21	3/4"	1/2"
HLHXBC	Blank Cover	-

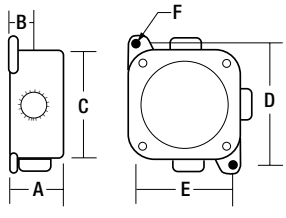


HLXFH



A	B	C	D	E
1/4"	5 1/8"	5/8"	4 1/2"	2 3/8"
6 mm	130 mm	16 mm	114 mm	60 mm

HLJL/HLJAL



	A	B	C	D	E	F
HLJL	1 15/16"	11/16"	3 1/4"	4 7/32"	2 3/8"	5/16"
	49 mm	17 mm	83 mm	107 mm	60 mm	8 mm
HLJAL	2 3/8"	1 5/32"	4 5/8"	5 1/4"	4 1/8"	5/16"
	60 mm	29 mm	117 mm	133 mm	105 mm	8 mm

QUICK ESTIMATORS

CH-OU, CH-EU, CH-SW

To determine the number of luminaires required for a given illuminance level:

Step 1: Determine room size per column three below as 5 or more (Large Room), 2 (Medium Room) or 1 (Small Room.

Step 2: For desired footcandle level, per room size, divide floor area of space by "Approximate Area per Luminaire" from chart.

Step 3: If required, adjust result of Step 2 to "whole number." Result is quantity of luminaires required to provide approximate, average maintained illuminance selected.

CH-OU

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MS250/BU/PS (ENC)	2.0/1.7	5 or more	1075 / 0.27	538 / 0.54	215 / 1.36	143 / 2.04	n.r. / n.r.
1 @ 23800	0.57	2	830 / 0.35	415 / 0.70	166 / 1.76	111 / 2.64	n.r. / n.r.
292	HP-06476	1	613 / 0.48	306 / 0.95	123 / 2.38	82 / 3.58	n.r. / n.r.
MS400/BU/PS	1.7/1.6	5 or more	2265 / 0.20	1132 / 0.40	453 / 1.00	302 / 1.50	226 / 2.00
1 @ 44000	0.60	2	1764 / 0.26	882 / 0.51	353 / 1.28	235 / 1.92	176 / 2.56
452	HP-06163	1	1317 / 0.34	658 / 0.69	263 / 1.72	176 / 2.57	132 / 3.43
MH400/U	1.7/1.6	5 or more	1774 / 0.26	887 / 0.52	355 / 1.29	236 / 1.94	177 / 2.58
1 @ 36000	0.57	2	1382 / 0.33	691 / 0.66	276 / 1.66	184 / 2.49	138 / 3.31
458	HP-06163	1	1031 / 0.44	516 / 0.89	206 / 2.22	137 / 3.33	103 / 4.44

CH-EU

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MS250/BU/PS	1.9/1.6	5 or more	1128 / 0.26	564 / 0.52	226 / 1.29	150 / 1.94	n.r. / n.r.
1 @ 23800	0.59	2	877 / 0.33	439 / 0.67	175/ 1.66	117 / 2.50	n.r. / n.r.
292	HP-06467	1	655 / 0.45	327 / 0.89	131 / 2.23	87 / 3.35	n.r. / n.r.
MS400/BU/PS	1.5/1.5	5 or more	2086 / 0.22	1043 / 0.43	417 / 1.08	278 / 1.63	209 / 2.17
1 @ 44000	0.59	2	1648 / 0.27	824 / 0.55	330 / 1.37	220 / 2.06	165 / 2.74
452	HP-06188	1	1236 / 0.37	618 / 0.73	247 / 1.83	165 / 2.74	124 / 3.66
MH400/U	1.5/1.5	5 or more	1633 / 0.28	817 / 0.56	327 / 1.40	218 / 2.10	163 / 2.80
1 @ 36000	0.56	2	1291 / 0.35	645 / 0.71	258 / 1.77	172 / 2.66	129 / 3.55
458	HP-06188	1	968 / 0.47	484 / 0.95	194 / 2.37	129 / 3.55	97 / 4.73

CH-SW

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MS250/BU/PS	2.3/2.1	5 or more	1059 / 0.28	529 / 0.55	212 / 1.38	141 / 2.07	n.r. / n.r.
1 @ 23800	0.57	2	682 / 0.43	341 / 0.86	136 / 2.14	91 / 3.21	n.r. / n.r.
292	HP-06356	1	460 / 0.64	230 / 1.27	92 / 3.18	61 / 4.76	n.r. / n.r.
MS400/BU/PS	2.3/2.1	5 or more	1957 / 0.23	978 / 0.46	391 / 1.15	261 / 1.73	196 / 2.31
1 @ 44000	0.60	2	1287 / 0.35	644 / 0.70	257 / 1.76	172 / 2.63	129 / 3.51
452	HP-06354	1	875 / 0.52	438 / 1.03	175 / 2.58	117 / 3.87	88 / 5.16
MH400/U	2.3/2.1	5 or more	1532 / 0.30	766 / 0.60	306 / 1.49	204 / 2.24	153 / 2.99
1 @ 36000	0.57	2	1008 / 0.45	504 / 0.91	202 / 2.27	134 / 3.41	101 / 4.54
458	HP-06354	1	686 / 0.67	343 / 1.34	137 / 3.34	91 / 5.01	69 / 6.68

QUICK ESTIMATORS

CH-OU60, CH-EU60, CH-LM

To determine the number of luminaires required for a given illuminance level:

Step 1: Determine room size per column three below as 5 or more (Large Room), 2 (Medium Room) or 1 (Small Room.

Step 2: For desired footcandle level, per room size, divide floor area of space by "Approximate Area per Luminaire" from chart.

Step 3: If required, adjust result of Step 2 to "whole number." Result is quantity of luminaires required to provide approximate, average maintained illuminance selected.

CH-OU60

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Bist. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MH1000/U	1.6/1.4	5 or more	5196 / 0.21	2598 / 0.42	1039 / 1.04	693 / 4.56	520 / 2.08
1 @ 110000	0.56	2	4157 / 0.26	2079 / 0.52	831 / 1.30	554 / 1.95	416 / 2.60
1080	HP-06171A	1	3301 / 0.33	1651 / 0.65	660 / 1.64	440 / 2.45	330 / 3.27

CH-EU60

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Bist. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MH1000/U	1.5/1.3	5 or more	4662 / 0.23	2331 / 0.46	932 / 1.16	622 / 1.74	466 / 2.32
1 @ 110000	0.54	2	3766 / 0.29	1883 / 0.57	753 / 1.43	502 / 2.15	377 / 2.87
1080	HP-06186A	1	2989 / 0.36	1494 / 0.72	598 / 1.81	398 / 2.71	299 / 3.61

CH-LM

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Bist. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MS250/BU/PS	1.7/2.1	5 or more	1072 / 0.27	536 / 0.54	214 / 1.36	143 / 2.04	n.r. / n.r.
1 @ 23800	0.59	2	710 / 0.41	355 / 0.82	142 / 2.06	95 / 3.08	n.r. / n.r.
292	HP-06290	1	487 / 0.60	244 / 1.20	97 / 3.00	65 / 4.49	n.r. / n.r.
MS400/BU/PS	1.7/2.0	5 or more	n.r. / n.r.	1030 / 0.44	412 / 1.10	275 / 1.65	206 / 2.19
1 @ 44000	0.59	2	n.r. / n.r.	682 / 0.66	273 / 1.66	182 / 2.48	136 / 3.31
452	HP-06283	1	n.r. / n.r.	476 / 0.95	191 / 2.37	127 / 3.56	95 / 4.74
MH400/U	1.7/2.0	5 or more	1613 / 0.28	807 / 0.57	323 / 1.42	215 / 2.13	161 / 2.84
1 @ 36000	0.56	2	1069 / 0.43	534 / 0.86	214 / 2.14	142 / 3.21	107 / 4.29
458	HP-06283	1	746 / 0.61	373 / 1.23	149 / 3.07	99 / 4.60	75 / 6.14
MVR750/VBU/PA	1.7/2.0	5 or more	n.r. / n.r.	1852 / 0.43	741 / 1.06	494 / 1.59	370 / 2.13
1 @ 82000	0.61	2	n.r. / n.r.	1251 / 0.63	500 / 1.57	334 / 2.36	250 / 3.15
787 @ Q	HP-08949	1	n.r. / n.r.	851 / 0.93	340 / 2.31	227 / 3.47	170 / 4.63

QUICK ESTIMATORS

BL-WA22, BL-PA2, BL-LB1

To determine the number of luminaires required for a given illuminance level:

Step 1: Determine room size per column three below as 5 or more (Large Room), 2 (Medium Room) or 1 (Small Room.

Step 2: For desired footcandle level, per room size, divide floor area of space by "Approximate Area per Luminaire" from chart.

Step 3: If required, adjust result of Step 2 to "whole number." Result is quantity of luminaires required to provide approximate, average maintained illuminance selected.

BL-WA22

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MVR250/C/VBU/PA (ENC)	1.5/1.3	5 or more	1062 / 0.27	531 / 0.55	212 / 1.37	142 / 2.06	n.r. / n.r.
1 @ 21500	0.59	2	835 / 0.35	417 / 0.70	167 / 1.75	111 / 2.62	n.r. / n.r.
292	HP-08211	1	658 / 0.44	329 / 0.89	132 / 2.22	88 / 3.33	n.r. / n.r.
MS400/BU/PS	1.5/1.3	5 or more	2286 / 0.20	1143 / 0.40	457 / 0.99	305 / 1.48	229 / 1.98
1 @ 44000	0.62	2	1742 / 0.26	871 / 0.52	348 / 1.30	232 / 1.95	174 / 2.60
452	HP-08144	1	1361 / 0.33	680 / 0.66	272 / 1.66	181 / 2.49	136 / 3.32
MH400/U	1.5/1.3	5 or more	1790 / 0.26	895 / 0.51	358 / 1.28	239 / 1.92	179 / 2.56
1 @ 36000	0.59	2	1364 / 0.34	682 / 0.67	273 / 1.68	182 / 2.52	136 / 3.36
458	HP-08144	1	1066 / 0.43	533 / 0.86	213 / 2.15	142 / 3.22	107 / 4.30

BL-PA2

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MVR250/C/VBU/PA	1.8/1.5	5 or more	986 / 0.30	493 / 0.59	197 / 1.36	132 / 2.22	n.r. / n.r.
1 @ 21500	0.59	2	734 / 0.40	367 / 0.80	147 / 1.76	98 / 2.99	n.r. / n.r.
292	LTL-01783	1	544 / 0.54	272 / 1.07	109 / 2.38	73 / 4.03	n.r. / n.r.
MS400/BU/PS	1.8/1.6	5 or more	2231 / 0.20	1116 / 0.41	446 / 1.00	298 / 1.52	223 / 2.03
1 @ 44000	0.62	2	1633 / 0.28	816 / 0.55	327 / 1.28	218 / 2.08	163 / 2.77
452	HP-07676	1	1197 / 0.38	599 / 0.76	239 / 1.72	160 / 2.83	120 / 3.78
MH400/U	1.8/1.6	5 or more	1747 / 0.26	874 / 0.52	349 / 1.29	233 / 1.97	175 / 2.62
1 @ 36000	0.59	2	1279 / 0.36	639 / 0.72	256 / 1.66	170 / 2.69	128 / 3.58
458	HP-07676	1	938 / 0.49	469 / 0.98	188 / 2.22	125 / 3.66	94 / 4.88

BL-LB1

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MS250/BU/PS	1.6/1.5	5 or more	1017 / 0.29	508 / 0.57	203 / 1.44	136 / 2.15	n.r. / n.r.
1 @ 23800	0.59	2	724 / 0.40	362 / 0.81	145 / 2.02	97 / 3.02	n.r. / n.r.
292	HP-05619	1	529 / 0.55	265 / 1.10	103 / 2.76	71 / 4.14	n.r. / n.r.
MS400/BU/PS	1.5/1.5	5 or more	1983 / 0.23	991 / 0.46	397 / 1.14	264 / 1.71	198 / 2.28
1 @ 44000	0.59	2	1390 / 0.33	695 / 0.65	278 / 1.63	185 / 2.44	139 / 3.25
452	HP-05685	1	1030 / 0.44	515 / 0.88	206 / 2.19	137 / 3.29	103 / 4.39
MH400/U	1.5/1.5	5 or more	1553 / 0.29	776 / 0.59	311 / 1.47	207 / 2.21	155 / 2.95
1 @ 36000	0.56	2	1089 / 0.42	544 / 0.84	218 / 2.10	145 / 3.15	109 / 4.21
458	HP-05685	1	807 / 0.57	403 / 1.14	161 / 2.84	108 / 4.26	81 / 5.68

QUICK ESTIMATORS

BL-HG16, BL-HG22, BL-EG

To determine the number of luminaires required for a given illuminance level:

Step 1: Determine room size per column three below as 5 or more (Large Room), 2 (Medium Room) or 1 (Small Room.

Step 2: For desired footcandle level, per room size, divide floor area of space by "Approximate Area per Luminaire" from chart.

Step 3: If required, adjust result of Step 2 to "whole number." Result is quantity of luminaires required to provide approximate, average maintained illuminance selected.

BL-HGX16

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MS320/BU/PS (ENC)	1.8/1.6	5 or more	1172 / 0.31	586 / 0.63	234 / 1.57	156 / 2.35	n.r. / n.r.
1 @ 31700	0.60	2	813 / 0.45	406 / 0.91	163 / 2.26	108 / 3.39	n.r. / n.r.
368	HP-08290	1	605 / 0.61	302 / 1.22	121 / 3.04	81 / 4.56	n.r. / n.r.
MS400/BU/PS	2.3/1.9	5 or more	1878 / 0.24	939 / 0.48	376 / 1.20	250 / 1.81	188 / 2.41
1 @ 44000	0.62	2	1306 / 0.35	653 / 0.69	261 / 1.73	174 / 2.60	131 / 3.46
452	HP-08337	1	925 / 0.49	463 / 0.98	185 / 2.44	123 / 3.66	93 / 4.89
MH400/U	2.3/1.9	5 or more	1470 / 0.31	735 / 0.62	294 / 1.56	196 / 2.34	147 / 3.11
1 @ 36000	0.59	2	1023 / 0.45	511 / 0.90	205 / 2.24	136 / 3.36	102 / 4.48
458	HP-08337	1	725 / 0.63	362 / 1.26	145 / 3.16	97 / 4.74	72 / 6.32

BL-HGX22

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MS320/BU/PS (ENC)	1.5/1.3	5 or more	1323 / 0.28	662 / 0.56	265 / 1.39	176 / 2.09	n.r. / n.r.
1 @ 31700	0.59	2	983 / 0.37	492 / 0.75	197 / 1.87	131 / 2.81	n.r. / n.r.
368	HP-04812	1	737 / 0.50	369 / 1.00	147 / 2.50	98 / 3.74	n.r. / n.r.
MS400/BU/PS	1.3/1.2	5 or more	2123 / 0.21	1061 / 0.43	425 / 1.06	283 / 1.60	212 / 2.13
1 @ 44000	0.59	2	1605 / 0.28	803 / 0.56	321 / 1.41	214 / 2.11	161 / 2.82
452	HP-04809	1	1252 / 0.36	626 / 0.72	250 / 1.81	167 / 2.71	125 / 3.61
MH400/U	1.3/1.2	5 or more	1662 / 0.28	831 / 0.55	332 / 1.38	222 / 2.07	166 / 2.76
1 @ 36000	0.56	2	1257 / 0.36	629 / 0.73	251 / 1.82	168 / 2.73	126 / 3.64
458	HP-04809	1	980 / 0.47	490 / 0.93	196 / 2.34	131 / 3.50	98 / 4.67

BL-EG

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MS250/BU/PS	1.5/1.6	5 or more	947 / 0.31	474 / 0.62	189 / 1.54	126 / 2.31	n.r. / n.r.
1 @ 23800	0.59	2	682 / 0.43	341 / 0.86	136 / 2.14	91 / 3.21	n.r. / n.r.
292	HP-04812	1	487 / 0.60	244 / 1.20	97 / 3.00	65 / 4.49	n.r. / n.r.
MS400/BU/PS	1.6/1.7	5 or more	1828 / 0.25	914 / 0.49	366 / 1.24	244 / 1.85	183 / 2.47
1 @ 44000	0.59	2	1313 / 0.34	657 / 0.69	263 / 1.72	175 / 2.58	131 / 3.44
452	HP-04809	1	927 / 0.49	463 / 0.98	185 / 2.44	124 / 3.66	93 / 4.88
MH400/U	1.6/1.7	5 or more	1432 / 0.32	716 / 0.64	286 / 1.60	191 / 2.4	143 / 3.20
1 @ 36000	0.56	2	1028 / 0.45	514 / 0.89	206 / 2.23	137 / 3.34	103 / 4.45
458	HP-04809	1	726 / 0.63	363 / 1.26	145 / 3.15	97 / 4.73	73 / 6.31

QUICK ESTIMATORS

NAH, BL-BI, BL-SU

To determine the number of luminaires required for a given illuminance level:

Step 1: Determine room size per column three below as 5 or more (Large Room), 2 (Medium Room) or 1 (Small Room.

Step 2: For desired footcandle level, per room size, divide floor area of space by "Approximate Area per Luminaire" from chart.

Step 3: If required, adjust result of Step 2 to "whole number." Result is quantity of luminaires required to provide approximate, average maintained illuminance selected.

BL-OU60

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses)				
		(above floor)	10 fc	20 fc	50 fc	75 fc	100 fc
MH1000/U	1.6/1.4	5 or more	5196 / 0.21	2598 / 0.42	1039 / 1.04	693 / 4.56	520 / 2.08
1 @ 110000	0.56	2	4157 / 0.26	2079 / 0.52	831 / 1.30	554 / 1.95	416 / 2.60
1080	HP-06171A	1	3301 / 0.33	1651 / 0.65	660 / 1.64	440 / 2.45	330 / 3.27

BL-BI

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses)				
		(above floor)	10 fc	20 fc	50 fc	75 fc	100 fc
MH250/U (ENC)	1.5/1.5	5 or more	884 / 0.33	442 / 0.66	177 / 1.64	118 / 2.46	n.r. / n.r.
1 @ 20500	0.54	2	663 / 0.44	332 / 0.87	133 / 2.19	88 / 3.28	n.r. / n.r.
290	HP-03848A	1	497 / 0.58	249 / 1.17	99 / 2.91	66 / 4.37	n.r. / n.r.
MS400/BU/PS	1.3/1.4	5 or more	2238 / 0.20	1119 / 0.40	448 / 1.01	298 / 1.51	224 / 2.02
1 @ 44000	0.60	2	1659 / 0.27	830 / 0.54	332 / 1.36	221 / 2.04	166 / 2.72
452	HP-03802	1	1238 / 0.37	619 / 0.73	248 / 1.83	165 / 2.74	124 / 3.65
MH400/U	1.3/1.4	5 or more	1753 / 0.26	876 / 0.52	351 / 1.31	234 / 1.96	175 / 2.61
1 @ 36000	0.57	2	1299 / 0.35	650 / 0.71	260 / 1.76	173 / 2.64	130 / 3.53
458	HP-03802	1	969 / 0.47	485 / 0.95	194 / 2.36	129 / 3.54	97 / 4.73

BL-SU

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses)				
		(above floor)	10 fc	20 fc	50 fc	75 fc	100 fc
MS250/BU/PS (ENC)	1.6/1.5	5 or more	1143 / 0.26	572 / 0.51	229 / 1.28	152 / 1.92	n.r. / n.r.
1 @ 23800	0.57	2	885 / 0.33	442 / 0.66	177 / 1.65	118 / 2.48	n.r. / n.r.
292	HP-04228	1	667 / 0.44	333 / 0.88	133 / 2.19	89 / 3.28	n.r. / n.r.
MS400/BU/PS	1.5/1.5	5 or more	2291 / 0.20	1146 / 0.39	458 / 0.99	305 / 1.48	229 / 1.97
1 @ 44000	0.60	2	1764 / 0.26	882 / 0.51	353 / 1.28	235 / 1.92	176 / 2.56
452	HP-04205	1	1317 / 0.34	658 / 0.69	263 / 1.72	176 / 2.57	132 / 3.43
MH400/U	1.5/1.5	5 or more	1794 / 0.26	897 / 0.51	359 / 1.28	239 / 1.91	179 / 2.55
1 @ 36000	0.57	2	1382 / 0.33	691 / 0.66	276 / 1.66	184 / 2.49	138 / 3.31
458	HP-04205	1	1031 / 0.44	516 / 0.89	206 / 2.22	137 / 3.33	103 / 4.44

QUICK ESTIMATORS

SWX, LWX, MLX

To determine the number of luminaires required for a given illuminance level:

Step 1: Determine room size per column three below as 5 or more (Large Room), 2 (Medium Room) or 1 (Small Room.

Step 2: For desired footcandle level, per room size, divide floor area of space by "Approximate Area per Luminaire" from chart.

Step 3: If required, adjust result of Step 2 to "whole number." Result is quantity of luminaires required to provide approximate, average maintained illuminance selected.

SWX

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MS250/BU/PS	2.4/2.2	5 or more	1086 / 0.27	543 / 0.54	217 / 1.34	145 / 2.02	n.r. / n.r.
1 @ 23800	0.59	2	696 / 0.42	348 / 0.84	139 / 2.10	93 / 3.14	n.r. / n.r.
292	HP-08710	1	474 / 0.62	237 / 1.23	95 / 3.08	63 / 4.62	n.r. / n.r.
MS400/BU/PS	2.3/2.2	5 or more	n.r. / n.r.	966 / 0.47	386 / 1.17	257 / 1.76	193 / 2.34
1 @ 44000	0.59	2	n.r. / n.r.	631 / 0.72	252 / 1.79	168 / 2.69	126 / 3.58
452	HP-08709	1	n.r. / n.r.	425 / 1.06	170 / 2.66	113 / 3.99	85 / 5.32
MH400/U	2.4/2.2	5 or more	1532 / 0.30	766 / 0.60	306 / 1.49	204 / 2.24	153 / 2.99
1 @ 36000	0.56	2	988 / 0.46	494 / 0.93	198 / 2.32	132 / 3.48	99 / 4.64
458	HP-06357	1	665 / 0.69	333 / 1.38	133 / 3.44	89 / 5.16	67 / 6.88
PLT42WW/4P	1.6/1.8	5 or more	1077 / 0.28	539 / 0.56	215 / 1.40	144 / 2.10	n.r. / n.r.
8 @ 3200	0.73	2	687 / 0.44	344 / 0.88	137 / 2.20	92 / 3.30	n.r. / n.r.
302	HP-08949	1	464 / 0.65	232 / 1.30	93 / 3.25	62 / 4.88	n.r. / n.r.

LWX

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 5 fc	10 fc	20 fc	50 fc	75 fc
PLT42W/4P	1.3/1.5	5 or more	597 / 0.14	299 / 0.27	149 / 0.55	75 / 1.10	n.r. / n.r.
1 @ 3200	0.78	2	378 / 0.22	189 / 0.43	95 / 0.87	50 / 1.65	n.r. / n.r.
82	HP-08286	1	259 / 0.32	129 / 0.63	65 / 1.27	35 / 2.35	n.r. / n.r.
MXR150/U/MED	2.0/1.9	5 or more	1082 / 0.17	541 / 0.34	270 / 0.68	108 / 1.71	72 / 2.57
1 @ 12500	0.58	2	721 / 0.26	361 / 0.51	180 / 1.03	72 / 2.57	48 / 3.85
185	HP-08740	1	505 / 0.37	252 / 0.73	126 / 1.47	50 / 3.67	34 / 5.50
MH175/U/M	2.1/2.0	5 or more	1134 / 0.19	567 / 0.37	284 / 0.74	113 / 1.85	76 / 2.78
1 @ 13500	0.56	2	756 / 0.28	378 / 0.56	189 / 1.11	76 / 2.78	50 / 4.17
210	HP-08738	1	529 / 0.40	265 / 0.79	132 / 1.59	53 / 3.97	35 / 5.95

MLX

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses) 10 fc	20 fc	50 fc	75 fc	100 fc
MVR175/VBU/PA	1.6/2.3	5 or more	834 / 0.25	417 / 0.50	167 / 1.25	111 / 1.87	n.r. / n.r.
1 @ 17500	0.62	2	563 / 0.37	281 / 0.74	113 / 1.85	75 / 2.77	n.r. / n.r.
208	HP-05817	1	390 / 0.53	195 / 1.07	78 / 2.67	52 / 4.00	n.r. / n.r.
MS250/BU/PS	1.6/2.3	5 or more	1072 / 0.27	536 / 0.54	214 / 1.36	143 / 2.04	107 / 2.72
1 @ 23800	0.59	2	724 / 0.40	362 / 0.81	145 / 2.02	97 / 3.022	72 / 4.03
292	HP-05814	1	501 / 0.58	251 / 1.16	100 / 2.91	67 / 4.37	50 / 5.82
MH250/U	1.6/2.3	5 or more	871 / 0.34	435 / 0.68	174 / 1.69	116 / 2.54	87 / 3.39
1 @ 20500	0.55	2	588 / 0.50	294 / 1.00	118 / 2.51	78 / 3.76	59 / 5.02
295	HP-05814	1	407 / 0.72	204 / 1.45	81 / 3.62	54 / 5.43	41 / 7.24

HID BALLAST ELECTRICAL DATA

METAL HALIDE

LINE VOLTS	CIRCUIT	TYPE	START CURRENT AMP	OPERATING AMP	OCC AMP	PF	WATT REG	VOLT REG	FUSE RATE AMP	START TEMP	OCV VOLT	FREQ
100 WATT					**M90/M140 LAMP**							
120	HX-HPF	Quad	1.2	1.1	2.3	0.90	12%	5%	6	-20°F / -30°C	265	60
208	HX-HPF	Quad	0.8	0.7	1.4	0.90	12%	5%	4	-20°F / -30°C	265	60
240	HX-HPF	Quad	0.6	0.6	1.1	0.90	12%	5%	4	-20°F / -30°C	265	60
277	HX-HPF	Quad	0.6	0.5	1.0	0.90	12%	5%	3	-20°F / -30°C	265	60
150 WATT					**M102/M142 LAMP**							
120	HX-HPF	Dual	0.9	1.6	3.7	0.90	12%	5%	10	-20°F / -30°C	265	60
277	HX-HPF	Dual	0.4	0.7	1.6	0.90	12%	5%	4	-20°F / -30°C	265	60
175 WATT					**M137/M152 (PS) LAMP**							
120	SUPER-CWA	Quad	0.7	1.8	1.9	0.90	10%	10%	5	-20°F / -30°C	275	60
208	SUPER-CWA	Quad	0.8	1.0	1.0	0.90	10%	10%	3	-20°F / -30°C	275	60
240	SUPER-CWA	Quad	0.6	0.9	0.9	0.90	10%	10%	3	-20°F / -30°C	275	60
277	SUPER-CWA	Quad	0.6	0.8	0.8	0.90	10%	10%	3	-20°F / -30°C	275	60
480	SUPER-CWA	Single	0.2	0.4	0.5	0.90	10%	10%	2	-20°F / -30°C	275	60
200 WATT					**M136 (PS) LAMP**							
120	SUPER-CWA	Quad	0.8	2.1	1.3	0.90	10%	10%	6	-20°F / -30°C	252	60
208	SUPER-CWA	Quad	0.4	1.2	0.8	0.90	10%	10%	4	-20°F / -30°C	252	60
240	SUPER-CWA	Quad	0.4	1.0	0.6	0.90	10%	10%	3	-20°F / -30°C	252	60
277	SUPER-CWA	Quad	0.3	0.9	0.6	0.90	10%	10%	3	-20°F / -30°C	252	60
480	SUPER-CWA	Single	0.2	0.5	0.5	0.90	10%	10%	2	-20°F / -30°C	240	60
250 WATT					**M58 LAMP**							
120	CWA	5-Tap	2.4	2.6	2.0	0.90	10%	10%	8	-20°F / -30°C	315	60
208	CWA	5-Tap	1.4	1.5	1.2	0.90	10%	10%	5	-20°F / -30°C	315	60
208	CWA	5-Tap	1.2	1.4	1.0	0.90	10%	10%	5	-20°F / -30°C	315	60
277	CWA	5-Tap	1.0	1.1	0.9	0.90	10%	10%	3	-20°F / -30°C	315	60
480	CWA	5-Tap	0.6	0.6	0.5	0.90	10%	10%	2	-20°F / -30°C	315	60
250 WATT					**M138/153 (PS) LAMP**							
120	SUPER-CWA	Quad	1.9	2.5	1.4	0.90	10%	10%	8	-30°F / -35°C	275	60
208	SUPER-CWA	Quad	1.1	1.5	0.8	0.90	10%	10%	5	-30°F / -35°C	275	60
240	SUPER-CWA	Quad	1.0	1.3	0.7	0.90	10%	10%	5	-30°F / -35°C	275	60
277	SUPER-CWA	Quad	0.9	1.1	0.6	0.90	10%	10%	3	-30°F / -35°C	275	60
320 WATT					**M132/154 (PS) LAMP**							
120	SUPER-CWA	Quad	1.8	3.3	2.3	0.90	10%	10%	8	-20°F / -30°C	270	60
208	SUPER-CWA	Quad	1.0	1.9	1.4	0.90	10%	10%	6	-20°F / -30°C	270	60
240	SUPER-CWA	Quad	0.9	1.6	1.1	0.90	10%	10%	5	-20°F / -30°C	270	60
277	SUPER-CWA	Quad	0.8	1.4	1.0	0.90	10%	10%	3	-20°F / -30°C	270	60
480	SUPER-CWA	Single	0.4	0.8	0.6	0.90	10%	10%	3	-20°F / -30°C	270	60
350 WATT					**M131 (PS) LAMP**							
120	SUPER-CWA	Quad	2.2	3.4	2.2	0.90	10%	10%	10	-20°F / -30°C	270	60
208	SUPER-CWA	Quad	1.3	2.0	1.3	0.90	10%	10%	7	-20°F / -30°C	270	60
240	SUPER-CWA	Quad	1.1	1.7	1.1	0.90	10%	10%	5	-20°F / -30°C	270	60
277	SUPER-CWA	Quad	1.0	1.5	1.0	0.90	10%	10%	5	-20°F / -30°C	270	60
480	SUPER-CWA	Single	0.6	0.9	0.6	0.90	10%	10%	3	-20°F / -30°C	275	60
400 WATT					**M59 LAMP**							
120	CWA	5-Tap	2.7	4.1	3.7	0.90	10%	10%	10	-20°F / -30°C	300	60
208	CWA	5-Tap	1.6	2.3	1.8	0.90	10%	10%	7	-20°F / -30°C	300	60
240	CWA	5-Tap	1.4	2.0	1.6	0.90	10%	10%	5	-20°F / -30°C	300	60
277	CWA	5-Tap	1.2	1.7	1.3	0.90	10%	10%	5	-20°F / -30°C	300	60
480	CWA	5-Tap	0.7	1.0	0.8	0.90	10%	10%	3	-20°F / -30°C	300	60
277	R-HPF	Single	2.1	1.7	2.1	0.90	9%	5%	5	-5°F / -20°C	277	60
400 WATT					**M135/M155 (PS) LAMP**							
120	SUPER-CWA	Quad	2.8	3.8	2.2	0.90	10%	10%	10	-20°F / -30°C	265	60
208	SUPER-CWA	Quad	1.6	2.2	1.5	0.90	10%	10%	7	-20°F / -30°C	265	60
240	SUPER-CWA	Quad	1.5	1.9	1.1	0.90	10%	10%	5	-20°F / -30°C	265	60
277	SUPER-CWA	Quad	1.3	1.6	0.9	0.90	10%	10%	5	-20°F / -30°C	265	60
480	SUPER-CWA	Single	0.8	1.0	0.6	0.90	10%	10%	3	-20°F / -30°C	270	60

LINE VOLTS	CIRCUIT	TYPE	START CURRENT AMP	OPERATING AMP	OCC AMP	PF	WATT REG	VOLT REG	FUSE RATE AMP	START TEMP	OCV VOLT	FREQ
	450 WATT					**M144 (PS) LAMP**						
120	SUPER-CWA	Quad	3.2	4.3	2.2	0.90	10%	10%	10	-20°F / -30°C	257	60
208	SUPER-CWA	Quad	1.8	2.5	1.3	0.90	10%	10%	8	-20°F / -30°C	257	60
240	SUPER-CWA	Quad	1.6	2.2	1.1	0.90	10%	10%	5	-20°F / -30°C	257	60
277	SUPER-CWA	Quad	1.4	1.9	1.0	0.90	10%	10%	5	-20°F / -30°C	257	60
480	SUPER-CWA	Single	0.6	1.1	0.7	0.90	10%	10%	3	-20°F / -30°C	267	60
	750 WATT					**M149 LAMP**						
120	SUPER-CWA	Quad	5.2	7.0	3.8	0.90	10%	10%	20	-20°F / -30°C	340	60
208	SUPER-CWA	Quad	3.1	4.0	1.9	0.90	10%	10%	10	-20°F / -30°C	340	60
240	SUPER-CWA	Quad	2.4	3.5	1.9	0.90	10%	10%	10	-20°F / -30°C	340	60
277	SUPER-CWA	Quad	2.3	3.0	1.7	0.90	10%	10%	10	-20°F / -30°C	340	60
	1000 WATT					**M47 LAMP**						
120	CWA	5-Tap	6.0	9.1	5.2	0.96	10%	10%	22	-30°F / -35°C	426	60
208	CWA	5-Tap	2.8	5.6	4.3	0.96	10%	10%	15	-30°F / -35°C	426	60
240	CWA	5-Tap	3.0	4.7	3.1	0.96	10%	10%	12	-30°F / -35°C	426	60
277	CWA	5-Tap	2.3	4.1	2.6	0.96	10%	10%	10	-30°F / -35°C	426	60
480	CWA	5-Tap	1.5	2.4	1.6	0.96	10%	10%	6	-30°F / -35°C	426	60
	1000 WATT					**M141 (PS) LAMP**						
120	SUPER-CWA	Quad	7.8	9.0	4.5	0.90	12%	10%	20	-20°F / -30°C	430	60
208	SUPER-CWA	Quad	4.0	5.2	2.7	0.90	12%	10%	15	-20°F / -30°C	430	60
240	SUPER-CWA	Quad	3.7	4.5	2.3	0.90	12%	10%	10	-20°F / -30°C	430	60
277	SUPER-CWA	Quad	3.2	3.9	2.2	0.90	12%	10%	10	-20°F / -30°C	430	60
	175/150 WATT					**M57/M107 LAMP**						
120	CWA	Quad	1.3	1.8	1.8	0.90	10%	10%	5	-20°F / -30°C	305	60
208	CWA	Quad	0.8	1.0	1.0	0.90	10%	10%	3	-20°F / -30°C	305	60
240	CWA	Quad	0.6	0.9	0.9	0.90	10%	10%	3	-20°F / -30°C	305	60
277	CWA	Quad	0.6	0.8	0.8	0.90	10%	10%	2	-20°F / -30°C	305	60

HID BALLAST ELECTRICAL DATA

HIGH PRESSURE SODIUM

LINE VOLTS	CIRCUIT	TYPE	START CURRENT AMP	OPERATING AMPS	OCC AMP	PF	WATT REG	VOLT REG	FUSE RATE AMP	START TEMP	OCV VOLT	FREQ
	35 WATT					**S76 LAMP**						
120	R-HPF	Single	0.8	0.4	0.6	0.90	Within Trapezoid	5%	2	-40°F / -40°C	120	60
	50 WATT					**S68 LAMP**						
120	HX-HPF	Dual	0.6	0.6	0.6	0.90	Within Trapezoid	5%	3	-20°F / -30°C	125	60
277	HX-HPF	Dual	0.3	0.3	0.4	0.90	Within Trapezoid	5%	1	-20°F / -30°C	125	60
120	R-HPF	Single	0.9	0.6	0.9	0.90	Within Trapezoid	5%	3	-40°F / -40°C	120	60
	70 WATT					**S62 LAMP**						
120	CWA	Dual	0.9	0.9	0.2	0.90	Within Trapezoid	10%	3	-40°F / -40°C	105	60
277	CWA	Dual	0.4	0.4	0.1	0.90	Within Trapezoid	10%	1	-40°F / -40°C	105	60
120	HX-HPF	Quad	0.8	0.8	1.5	0.90	Within Trapezoid	5%	5	-40°F / -40°C	120	60
208	HX-HPF	Quad	0.4	0.5	0.9	0.90	Within Trapezoid	5%	3	-40°F / -40°C	120	60
240	HX-HPF	Quad	0.4	0.4	0.8	0.90	Within Trapezoid	5%	2	-40°F / -40°C	120	60
277	HX-HPF	Quad	0.3	0.3	0.6	0.90	Within Trapezoid	5%	2	-40°F / -40°C	120	60
120	R-HPF	Single	0.9	0.8	1.3	0.90	Within Trapezoid	5%	3	-40°F / -40°C	120	60
	100 WATT					**S54 LAMP**						
120	CWA	Single	0.8	1.1	0.6	0.90	Within Trapezoid	10%	3	-40°F / -40°C	115	60
277	CWA	Single	0.3	0.5	0.3	0.90	Within Trapezoid	10%	2	-40°F / -40°C	115	60
120	HX-HPF	Quad	1.3	1.1	2.2	0.90	Within Trapezoid	5%	7	-40°F / -40°C	120	60
208	HX-HPF	Quad	0.8	0.7	1.3	0.90	Within Trapezoid	5%	5	-40°F / -40°C	120	60
240	HX-HPF	Quad	0.6	0.6	1.1	0.90	Within Trapezoid	5%	3	-40°F / -40°C	120	60
277	HX-HPF	Quad	0.6	0.5	0.9	0.90	Within Trapezoid	5%	3	-40°F / -40°C	120	60
480	HX-HPF	Single	0.3	0.3	0.6	0.90	Within Trapezoid	5%	3	-40°F / -40°C	120	60
240	REGULATED LAG	Dual	0.3	0.6	0.5	0.90	6%	10%	1.5	-40°F / -40°C	115	60
480	REGULATED LAG	Dual	0.1	0.3	0.3	0.90	6%	10%	1	-40°F / -40°C	115	60
120	R-HPF	Single	1.5	1.0	1.8	0.90	Within Trapezoid	5%	5	-40°F / -40°C	120	60
	150 WATT					**S55 LAMP**						
120	HX-HPF	Quad	2.0	1.6	2.8	0.90	Within Trapezoid	5%	10	-40°F / -40°C	120	60
208	HX-HPF	Quad	1.1	0.9	1.6	0.90	Within Trapezoid	5%	5	-40°F / -40°C	120	60
240	HX-HPF	Quad	1.0	0.8	1.4	0.90	Within Trapezoid	5%	5	-40°F / -40°C	120	60
277	HX-HPF	Quad	0.9	0.7	1.3	0.90	Within Trapezoid	5%	4	-40°F / -40°C	120	60
480	HX-HPF	Single	0.5	0.4	0.7	0.90	Within Trapezoid	5%	2	-40°F / -40°C	120	60
120	R-HPF	Single	2.3	1.5	2.3	0.90	Within Trapezoid	5%	8	-40°F / -40°C	120	60
	200 WATT					**S66 LAMP**						
120	REGULATED LAG	Dual	0.8	2.2	1.5	0.90	Within Trapezoid	10%	6	-40°F / -40°C	225	60
240	REGULATED LAG	Dual	0.4	1.1	0.8	0.90	Within Trapezoid	10%	3	-40°F / -40°C	225	60
480	REGULATED LAG	Dual	0.2	0.6	0.4	0.90	Within Trapezoid	10%	2	-40°F / -40°C	225	60
	250 WATT					**S50 LAMP**						
120	CWA	5-Tap	1.4	2.7	1.8	0.93	10%	10%	10	-40°F / -40°C	185	60
208	CWA	5-Tap	0.7	1.5	1.0	0.93	10%	10%	4	-40°F / -40°C	185	60
240	CWA	5-Tap	0.7	1.3	0.9	0.93	10%	10%	4	-40°F / -40°C	185	60
277	CWA	5-Tap	0.6	1.2	0.9	0.93	10%	10%	3	-40°F / -40°C	185	60
480	CWA	5-Tap	0.4	0.7	0.4	0.93	10%	10%	2	-40°F / -40°C	185	60
240	REGULATED LAG	Dual	0.4	1.4	0.7	0.90	4%	10%	5	-40°F / -40°C	220	60
480	REGULATED LAG	Dual	0.2	0.7	0.3	0.90	4%	10%	3	-40°F / -40°C	220	60
	400 WATT					**S51 LAMP**						
120	CWA	5-Tap	3.5	3.9	1.8	0.98	10%	10%	10	-40°F / -40°C	195	60
208	CWA	5-Tap	2.0	2.2	1.0	0.98	10%	10%	6	-40°F / -40°C	195	60
240	CWA	5-Tap	1.7	1.9	0.9	0.98	10%	10%	5	-40°F / -40°C	195	60
277	CWA	5-Tap	1.5	1.7	0.8	0.98	10%	10%	5	-40°F / -40°C	195	60
480	CWA	5-Tap	0.9	1.0	0.4	0.98	10%	10%	3	-40°F / -40°C	195	60
480	REGULATED LAG	Single	0.5	1.0	0.6	0.90	Within Trapezoid	10%	5	-40°F / -40°C	215	60
	1000 WATT					**S52 LAMP**						
120	CWA	5-Tap	7.8	9.3	3.9	0.98	Within Trapezoid	10%	25	-40°F / -40°C	437	60
208	CWA	5-Tap	4.4	5.3	2.2	0.98	Within Trapezoid	10%	15	-40°F / -40°C	437	60
240	CWA	5-Tap	3.8	4.7	2.0	0.98	Within Trapezoid	10%	12	-40°F / -40°C	437	60
277	CWA	5-Tap	3.3	4.0	1.7	0.98	Within Trapezoid	10%	10	-40°F / -40°C	437	60
480	CWA	5-Tap	1.9	2.3	1.0	0.98	Within Trapezoid	10%	6	-40°F / -40°C	437	60

HID BALLAST ELECTRICAL DATA

MERCURY VAPOR

LINE VOLTS	CIRCUIT	TYPE	START CURRENT AMP	OPERATING AMP	OCC AMP	PF	WATT REG	VOLT REG	FUSE RATE AMP	START TEMP	OCV VOLT	FREQ
	100 WATT				**H38 LAMP**							
120	CWA	Quad	1.0	1.0	0.5	0.90	5%	10%	3	-20°F / -30°C	250	60
208	CWA	Quad	0.6	0.6	0.3	0.90	5%	10%	2	-20°F / -30°C	250	60
277	CWA	Quad	0.4	0.4	0.2	0.90	5%	10%	2	-20°F / -30°C	250	60
480	CWA	Single	0.3	0.3	0.2	0.90	5%	10%	1	-20°F / -30°C	250	60
	175 WATT				**H39 LAMP**							
120	CWA	Quad	1.6	1.9	1.0	0.90	10%	10%	5	-20°F / -30°C	215	60
208	CWA	Quad	0.9	1.1	0.6	0.90	10%	10%	3	-20°F / -30°C	215	60
240	CWA	Quad	0.8	1.0	0.5	0.90	10%	10%	3	-20°F / -30°C	215	60
277	CWA	Quad	0.7	0.8	0.4	0.90	10%	10%	2	-20°F / -30°C	215	60
480	CWA	Single	0.4	0.4	0.3	0.90	5%	10%	2	-20°F / -30°C	240	60
	250 WATT				**H37 LAMP**							
120	CWA	Quad	2.5	2.5	0.7	0.90	5%	10%	8	-20°F / -30°C	250	60
208	CWA	Quad	1.5	1.5	0.4	0.90	5%	10%	5	-20°F / -30°C	250	60
240	CWA	Quad	1.3	1.3	0.3	0.90	5%	10%	5	-20°F / -30°C	250	60
277	CWA	Quad	1.1	1.1	0.3	0.90	5%	10%	3	-20°F / -30°C	250	60
480	CWA	Single	0.6	0.6	0.3	0.90	5%	10%	2	-20°F / -30°C	250	60
	400 WATT				**H33 LAMP**							
120	CWA	Quad	3.2	3.9	0.8	0.90	5%	10%	10	-20°F / -30°C	245	60
208	CWA	Quad	2.0	2.2	0.6	0.90	5%	10%	8	-20°F / -30°C	245	60
240	CWA	Quad	1.7	2.0	0.5	0.90	5%	10%	5	-20°F / -30°C	245	60
277	CWA	Quad	1.5	1.7	0.4	0.90	5%	10%	5	-20°F / -30°C	245	60
480	CWA	Single	0.9	1.0	0.3	0.90	5%	10%	5	-20°F / -30°C	245	60
	1000 WATT				**H36 LAMP**							
120	CWA	Quad	8.0	9.8	1.8	0.90	10%	10%	20	-20°F / -30°C	425	60
208	CWA	Quad	4.6	5.6	1.1	0.90	10%	10%	15	-20°F / -30°C	425	60
240	CWA	Quad	4.0	4.9	0.9	0.90	10%	10%	10	-20°F / -30°C	425	60
277	CWA	Quad	3.5	4.3	0.8	0.90	10%	10%	10	-20°F / -30°C	425	60
480	CWA	Single				0.90	10%	10%		-20°F / -30°C	425	60

TROUBLESHOOTING GUIDE

HID

The guide is prepared to assist electricians with normal routine maintenance and to help them understand the operation of different lamp sources and electrical systems.

Caution: High voltages, currents, and temperatures are requires to operate gas discharge lamps. Shock and burn hazards exist, and testing or evaluating fixtures or components should be done by qualified individuals only.

LIGHT SOURCES:

Fluorescent Mercury Vapor (MV) Metal Halide (MH)
High Pressure Sodium (HPS)

LAMPS

Fluorescent lamps come in many sizes, shapes and colors. This lamp source can provide numerous advantages, depending on the needs and requirements of end users. These lamps are generally used when low mounting heights and quiet operations are required. Note that many new, more efficient lamps and electronic ballasts offer the customer many energy saving opportunities.

Mercury Vapor lamps were the first to be developed in the family of high intensity discharge (HID) lamps. Their advantage is that they offer long life. Their disadvantages are poor color rendition, poor lumen maintenance and low efficiency.

MH lamps are similar to MV lamps in design and operation. Their lumen output is double that of MV lamps of the same wattage. MH lamps are used in installations that require high efficiency and white light. Lamp life historically has been less than MV and HPS, however, new MH systems are now changing this by providing excellent life, lumen maintenance and color control.

HPS lamps offer long life and more lumens per watt than MV and MH sources. HPS lamps emit a pale amber color compared to other whiter light sources. Energy savings is the main HPS advantage. New high-xenon HPS lamps offer even higher LPW, longer life and improved lumen maintenance.

BALLASTS

All HID light sources require some form of ballast because:

Most require a starting voltage that is higher than the line voltage.

They all have a characteristic known as negative resistance. This means that once the arc is initiated, the lamp's resistance continually decreases as current increases. For all practical purposes, the lamp becomes a short circuit. The ballast limits and controls the current wave form through the lamp.

They provide voltage transformation to allow the use of many line voltages.

There are many different types of ballasts used with different lamps. Within a lamp type, ballasts vary in lamp operating wattage and regulation caused by changes in line voltage and lamp voltage. Better regulation and control normally result in higher initial cost, but may greatly improve operating characteristics and overall performance.

CAPACITORS

Capacitors are used for power factor correction or as current regulation devices, which provide the control necessary to ensure proper lamp and ballast operation. Different wattages, voltages, and ballast types require a variety of different capacitors. The ballast ID label specifies the microfarad and voltage rating required for proper operation. If the capacitor is incorrectly wired, improper operation of the fixture as well as other component failures could result.

IGNITORS/STARTER

These devices are utilized to provide the proper voltage and energy to start the lamp. They are predominantly used with HPS lamps as well as some Metal Halide and Fluorescent systems.

ELECTRICAL TESTING PROCEDURES

Caution: High voltages, currents, and temperature are required to operate lamps. Therefore, shock and burn hazards exist, and testing or evaluating fixtures or components should be done only by qualified individuals.

A. TESTING LAMPS

The easiest method of troubleshooting a fixture is to try a ***known*** good lamp in the inoperative fixture. If the lamp being replaced exhibits any of the following conditions, replace with a new lamp.

1. **SODIUM LEAKER LAMP** - will be a brown/golden coating on the inside of the lamp envelope other than at the base of the lamp.
2. **AMALGAM LEAKER LAMP** - the lamp envelope will have a smoke bronze appearance on the inside of the envelope.
3. **FAULTY BASE TO LAMP ENVELOPE SEAL** - a white powdery substance will appear at the base of the lamp where oxygen has leaked inside the lamp.
4. **END OF LAMP LIFE** - the arc tube will be black on both ends or the entire length of the arc tube will be black.
5. **BROKEN WELDS OR ARC TUBE SUPPORT BRACKETS** - mechanical breaks occasionally occur due to rough handling or internal thermal stresses. Broken welds in evacuated (HPS) lamps can also create a problem known as vacuum switching. Extremely high voltage surges occur in the lamp circuit if the weld opens while the lamp is operation. Secondary coil burnout, ignitor arcing and socket arcing can occur. Rewelding may occur and the lamp may ***appear*** to be satisfactory; however, if left in operation, failure of the ballast and/or ignitors is likely.

B. IGNITORS/STARTERS

The starter provides the necessary voltage and energy required to initiate the arc in the lamp. The easiest way to check the ignitor on 35W to 150W HPS units is to install a 120V incandescent lamp in the fixture. If the incandescent lamp operates but a known good HPS lamp will not ignite, replace starter. In 200W to 1000W HPS fixtures, install a mercury lamp of similar wattage. If the mercury lamp lights and the HPS lamp will not, replace the starter.

Do not operate incandescent or mercury lamps used to check the started for extended periods of time (more than 1/2 hour).

C. CAPACITORS

Testing Capacitors may be accomplished by:

1. **VISUAL INSPECTION FOR SWOLLEN CAPACITORS**. If the capacitor is swollen or bulged on the sides or top where the terminals are located, remove and replace with a new one.
2. **VERIFY THE CORRECT MICROFARAD RATING** as specified on the ballast I.D. label.
3. **USING AN OHMMETER TO CHECK CAPACITORS:** discharge capacitor by shorting between the terminals
   – disconnect capacitor from circuit
   – remove bleed resistor
4. **SET OHMMETER TO HIGHEST RESISTANCE SCALE** and connect leads to capacitor terminals.
   – If resistance starts low and gradually increases, the capacitor is good.
   – If resistance starts low and doesn't increase, the capacitor is shorted and should be replaced.
   – If resistance is high and remains relatively the same, the capacitor is open and should be replaced.

D. BALLAST

SAFETY Safety measures should always be taken when troubleshooting HID systems. Most procedures will require that power be applied when electrical measurements are made. Wearing gloves and eye protection is a good practice when doing electrical measurements on HID systems.

INSTRUMENTS AND TEST EQUIPMENT FOR TROUBLESHOOTING Only the input to HID lighting systems is a sine wave. Once the voltage and current is processed through the ballast and lamp, it is changed and is no longer a perfect sine wave. As a result of this transformation, **only TRUE RMS volt and amp meters will give proper readings**. TRUE RMS volt clamp-on current meters are also available and are most convenient when reading lamp current.

There are many brands of test meters available. Some indicate RMS and some indicate TRUE RMS on the meter. They are not the same. Only those that have TRUE RMS will read non-sinusoidal waveforms accurately. The RMS meters will give readings 10 to 20% low depending on the shape of the voltage or current waveform.

TROUBLESHOOTING GUIDE *con't*

Some of these instruments will also read capacitance directly when connected to a disconnected, discharged capacitor.

There is no field-usable meter to test ignitors.

TROUBLESHOOTING PROCEDURES At times when an HID lighting system becomes inoperative, a complex and thorough troubleshooting procedure may prove overly time consuming. A simple series of checks can decrease this time considerably; a simple check of circuit breakers and power switches when a bank of fixtures becomes inoperative or a visual check or replacement of a lamp when an individual fixture becomes inoperative. At other times, isolated inoperative fixtures may require systematic procedures to determine the cause of failure.

NORMAL END OF LAMP LIFE Most fixtures fail to light properly due to lamps that have reached end-of-life. Normal end of light indications are low light output, failure to start or lamps cycling off and on. These problems can be eliminated by replacing the lamp. **Since many HID fixtures are not easily serviced due to their mounting height, the technicians should take a replacement lamp when going up a ladder or on a lift.**

Mercury and metal halide lamps at end-of-life are characterized by low light output and/or intermittent starting. It is possible for metal halide pulse start lamps to cycle off and on like high pressure sodium lamps at end-of-life. Visual indications include blackening at the ends of the arc tube and electrode deterioration, but these are not conclusive. **The sure test is to replace the lamp.**

High pressure sodium lamps will tend to cycle at the end-of-life. After start-up, they will cycle off and on as the aged lamp requires more voltage to stabilize and operate the arc than the ballast is designed to provide.

Visual indications include general blackening at the ends of the arc tube. The lamp may also exhibit a brownish color (sodium deposit) on the outer glass envelope. **The sure test is to replace the lamp.**

Low pressure sodium lamps retain their light output but starting becomes intermittent and then impossible. Visual signs include some blackening of the ends of the arc tube. **The sure test is to replace the lamp.**

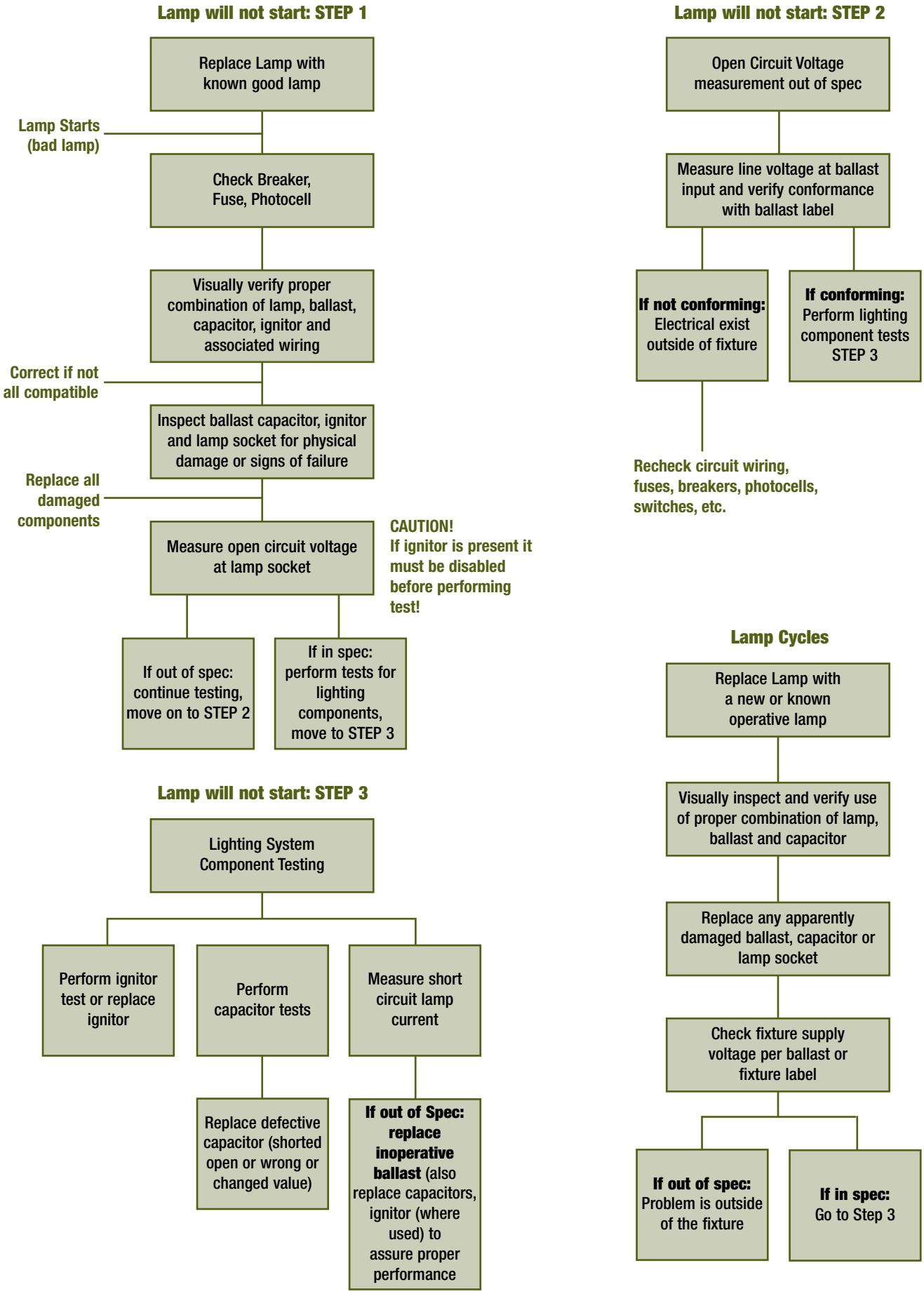
ELECTRONIC BALLASTS **Lamps operated by electronic ballasts will not exhibit the above metal halide symptoms at end-of-life.** Because electronic ballasts have sensing circuits to detect lamp end-of-life, a ballast connected to an inoperative lamp will likely be in a shut down mode or will not start. **When servicing the fixture, always disconnect or shut off power to that fixture for safety.** When the power is cycled off and then on, the lamp may restart and later go off and stay off. Visual indications of the lamp may be the same. **However, the true and sure test is to replace the lamp. After the lamp is replaced, the POWER TO THE BALLAST MUST BE CYCLED OFF AND BACK ON FOR THE BALLAST TO RESTART THE LAMP.**

NOTE: When the power is cycled off and back on via a circuit breaker switch, other fixtures on the same circuit will extinguish and not come back on until the lamps cool. The e nergized ballast will continue to produce high voltage starting pulses for a specified period, usually between 10 and 30 minutes, depending on the ballast module, allowing enough time for the hot lamp to cool.

It is assumed at this point in the troubleshooting procedure that the lamp has been replaced with a known good lamp. If there is any doubt about a replacement lamp, it should be tested in an operational, good fixture.

Because troubleshooting can be time consuming, power to the fixture should be verified at the fixture. Photo cells, circuit breakers, and switched should all be checked. The following flow charts are designed to minimize troubleshoot time and, if possible, eliminate taking the ballast housing apart.

Troubleshooting HID Fixtures



TROUBLESHOOTING GUIDE *con't*

MEASURING LINE VOLTAGE Measure the line voltage at input to the fixture to determine if the power supply conforms to the requirements of the lighting system. For constant wattage ballasts (CWA, CWI), the measured line voltage should be within ± 10% of the nameplate rating. For reactor (R) or high reactance (HX) ballasts, the line voltage should be within ±5% of the nameplate rating.

If the measured line voltage does not conform to the requirements of the lighting system, as specified on the ballast or fixture nameplate, the electrical problem exists outside of the fixture which can result in non-starting or improper lamp operation.

Check breakers, fixture fuses, photocells, and switches when no voltage reading can be measures. High, low, or variable voltage readings may be due to load fluctuations. **The supply voltage should be measured with the defective fixture connected to the line and power applied to help determine possible voltage supply problems.**

If the proper input voltage is measured, most HID fixture problems can be determined by measuring open circuit voltage and short circuit current.

MEASURING OPEN CIRCUIT VOLTAGE To determine if the ballast is supplying proper starting voltage to the lamp, an open circuit voltage test is required. The proper test procedure is:

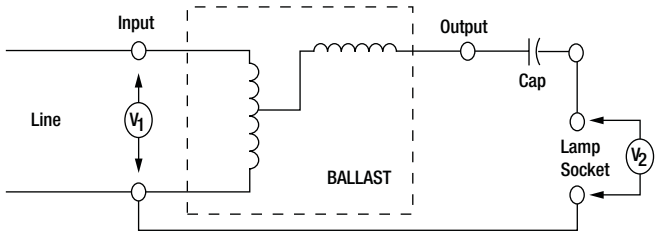
1 Measure input voltage (V1) to verify rated input voltage is being applied to the ballast.

2 If the ballast has an ignitor (HPS, low wattage MH - 35W to 150W - or pulse start MH), the ignitor must be disconnected or disabled with a capacitor (1000 pF or larger) across the voltmeter input to protect the meter from the hight voltage ignitor pulse. **Some ballasts have an integral or built-in ignitor. If you are not sure if an ignitor is used, put a capacitor across the meter for all open circuit voltage measurements.**

3 With the lamp out of the socket and the voltage applied to the ballast or the proper tap of the ballast with multiple voltage inputs, read the voltage (V2) between the lamp socket center pin and shell. Some lamp socket shells are split. Make sure connection is being made to the active part. The reading must be within test limits shown in the table below. Open circuit voltage must be measured with a TRUE RMS voltmeter to provide an accurate reading.

4 Constant wattage (CWA, CWI) ballasts have a capacitor in series with the lamp. If the capacitor is open there will be no open circuit voltage. Measure the voltage on both sides of the capacitor. If the voltage exists on the ballast side but not on the lamp side, **change the capacitor and re-measure the open circuit voltage at the lamp socket. If there is still no voltage disconnect the lamp socket from the ballast and measure open circuit voltage again. Once a voltage is measured test the lamp socket for shorts with an ohm-meter or replace the lamp socket. An ohm-meter test is not conclusive as the test is at low voltage and the failure may be due to the open-circuit voltage.**

Open Circuit Voltage Test



Open Circuit Voltage Test Limits

	Lamp		RMS
	Wattage	ANSI Number	Voltage*
mercury ballasts	50	H46	215-270
	75	H43	220-275
	100	H38	225-285
	125	H42	230-290
	175	H39	200-290
	250	H37	210-295
	400	H33	210-285
	2-400 (Series)	2-H33	445-545
	1000	H36	385-465
metal halide ballasts	35/39	M130	205-290
	50	M110 or M148	235-300
	70	M85	200-270
	70	M98 or M143	205-290
	70	M139	220-280
	100	M90 or M140	210-315
	150	M81	215-265
	150	M102 or M142	180-300
	175	M57 or M107	275-355
	175 PS	M136	250-340
	200 PS	M136	215-330
	250	M58	270-345
	250	M80	215-265
	250 PS	M138 or M153	245-330
	320 PS	M132 or M154	240-310
	350 PS	M131	240-315
	400	M59	250-360
	400 PS	M135 or M155	235-340
	400 PS	M128	285-345
	2-400 (ILO)	2-M59	300-360
	450 PS	M144	235-340
	750 PS	M149	305-390
	875 PS	M166	375-455
	1000	M47	385-485
	1000 PS	M141	370-475
	1500	M48	405-530
	1650	M112	420-510
	2000	M134	405-495

Open Circuit Voltage Test Limits

	Lamp Wattage	Lamp ANSI Number	RMS Voltage*
high pressure sodium ballasts*	35	S76	114-126
	50	S68	114-140
	70	S62	100-135
	100	S54	95-135
	150	S55	100-135
	150	S56	165-250
	200	S66	205-260
	250	S50	170-255
	310	S67	155-255
	400	S54	170-255
	430	SonAgro S145	180-220
	600	S106	200-265
	750	S111	200-245
	1000	S52	395-485
low pressure sodium ballasts	18	L69	280-330
	35	L70	430-530
	55	L71	430-550
	90	L72	430-575
	180	L74	610-760

* Always disconnect the ignitor where equipped (typically used with metal halide <150W, pulse start metal halide, and high pressure sodium) before measuring the output voltage of ballasts. High voltage starting pulses can damage commonly used multi-meters.

As an alternative, this test may be performed by screwing an adapter into the lamp socket for easy access. Some lamp sockets have a split shell and an adapter assures good electrical connection.

SHORT CIRCUIT LAMP CURRENT TEST **Do not be concerned about momentarily shorting a magnetic HID ballast output. They will not instantly burn up. An HID ballast is designed to limit current at the specified value range.**

To assure that the ballast is delivering the proper current under lamp starting conditions, a measurement may be taken by connecting an ammeter between the lamp socket center pin and the socket shell with rated voltage applied to the ballast. If available, a lamp socket adapter may be used as described in the open circuit voltage test.

1 Energize ballast with proper rated input voltage.

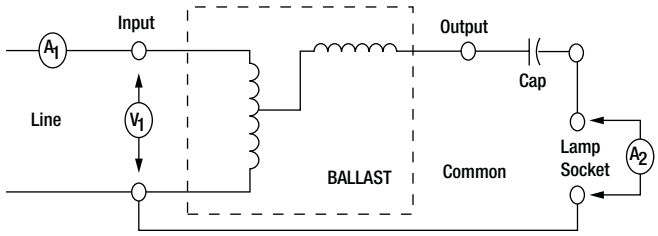
2 Measure current with ammeter at A1 and A2 as shown in the diagram right.

3 Readings must be withing test limits shown right.

A clamp-on TRUE RMS ammeter may also be used to perform this test by placing an 18 gauge wire between the lamp and common leads of the ballast. When using a clamp-on ammeter for this measurement, be certain the meter is not near the ballast magnetic field or any steel object that may affect the reading.

The short circuit current test will also determine a defective capacitor in constant wattage circuits. A shorted capacitor will result in high short circuit current, while an open capacitor or low value capacitor will result in no or low short circuit current.

Short Circuit Current Test



Short Circuit Lamp Current Test Limits

	Lamp Wattage	Lamp ANSI Number	Secondary Short Circuit Current
mercury ballasts	50	H46	0.75-1.60
	75	H43	0.85-1.50
	100	H38	1.15-2.00
	125	H42	1.60-2.60
	175	H39	1.90-3.30
	250	H37	2.60-5.00
	400	H33	4.55-7.10
	2-400 (Series)	2-H33	4.40-5.40
	1000	H36	5.50-6.70
metal halide ballasts	25/39	M130	0.40-0.80
	50	M110 or M148	0.65-0.95
	70	M85	1.10-1.40
	70	M98 or M143	0.70-1.25
	70	M139	1.05-1.40
	100	M90 or M140	1.00-1.65
	150	M81	2.10-3.00
	150	M102 or M142	1.60-2.90
	175	M57 or M107	1.50-2.00
	175 PS	M136	1.60-1.96
	200 PS	M136	1.80-2.70
	250	M58	2.00-3.00
	250	M80	3.20-4.00
	250 PS	M138 or M153	2.35-3.05
	320 PS	M132 or M154	2.90-3.70
	350 PS	M131	3.25-4.40
	400	M59	3.25-4.60
	400 PS	M135 or M155	3.25-4.60
	400 PS	M128	3.30-4.05
	2-400 (ILO)	2-M59	3.90-4.80
	450 PS	M144	3.85-5.10
	750 PS	M149	4.90-6.00
	875 PS	M166	4.45-5.40
	1000	M47	4.70-6.40
	1000 PS	M141	4.60-6.90
	1500	M48	7.00-10.50
	1650	M112	7.80-9.60
	2000	M134	9.80-12.00
high pressure sodium ballasts	35	S76	0.90-1.40
	50	S68	1.30-2.20
	70	S62	1.70-2.90
	100	S54	2.40-3.60
	150	S55	3.50-5.50
	150	S56	2.20-3.80
	200	S66	2.50-3.85
	250	S50	3.15-5.30
	310	S67	4.10-6.30
	400	S54	4.90-7.50
	430	SonAgro S145	6.00-7.40
	600	S106	6.85-10.50
	750	S111	9.20-11.70
	1000	S52	6.40-7.80
low pressure sodium ballasts	18	L69	0.30-0.40
	35	L70	0.50-0.70
	55	L71	0.50-0.70
	90	L72	0.90-1.12
	180	L74	0.90-1.20

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CAPACITOR TESTING AND BALLAT PERFORMANCE

1 Disconnect the capacitor from the circuit and discharge it by shorting the terminals or wires together.

2 Check the capacitor with an ohmeter set to the highest resistance scale:

- If the meter indicates a very low resistance then gradually increases, the capacitor does not require replacement;
- If the meter indicates a very high initial resistance that does not change, it is open and should be replaced;
- If the meter indicates a very low resistance that does not increase, the capacitor is **shorted** and should be replaced.

The ohmeter method of testing capacitors will only determine open or shorted capacitors. The capacitance value can be tested by many available portable TRUE RMS meters having that capability, though a test using a dedicated capacitance meter is more conclusive.

The capacitance value will affect lamp performance of Constant Wattage ballasts in ways that cannot be determined by the ohmeter method. **A capacitor may look good visually, but should be tested for capacitance value or replaced.**

The capacitor in a reactor or high reactance ballast circuits will only affect the ballast power factor and not ballast operation. Capacitor failure in these circuits will cause lline supply current changes possibly causing circuit breakers to activate or fixture fuse failures.

BALLAST CONTINUITY CHECKS

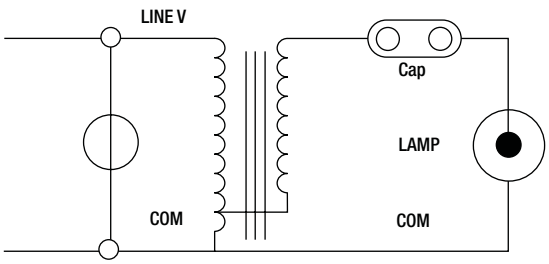
CONTINUITY OF PRIMARY COIL

1 Disconnect the ballast from power source and discharge the capacitor by shorting its terminals or wires together.

2 Check for continuity of ballast primary coil between the voltage input leads as shown below.

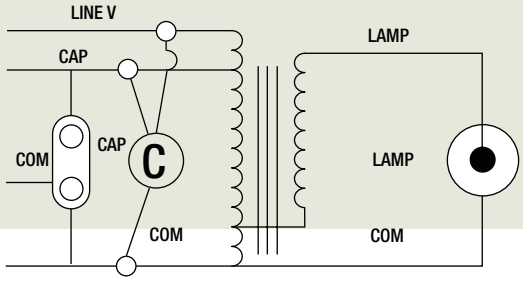
Constant Wattage (CWA, CWI) Type Ballast

between Common & Line leads (CWA shown)



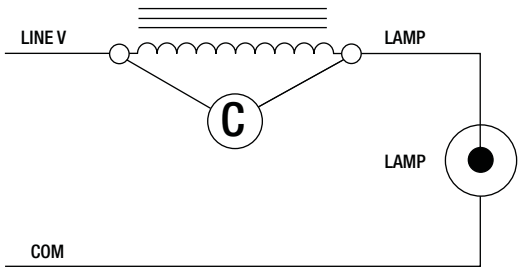
High Reactance (HX) Type Ballast

between Common & Capacitor leads



Reactor Ballast

between Line & Lamp leads



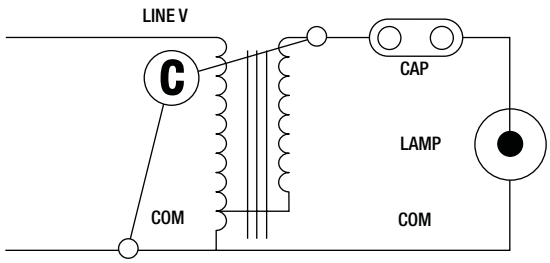
CONTINUITY OF SECONDARY COIL

1 Disconnect the ballast from power source and discharge the capacitor by shorting its terminals or wires together.

2 Check for continuity of ballast secondary coil between lamp and common leads as shown below.

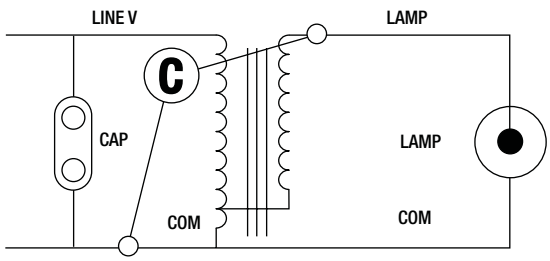
Constant Wattage (CWA, CWI) Type Ballast no ignitor

between Common & Capacitor Leads (CWA shown)



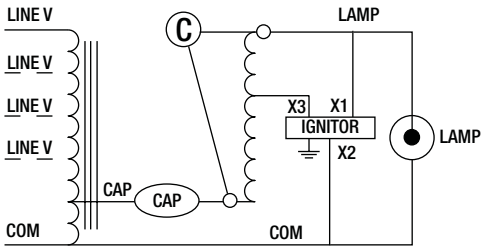
High Reactance (HX) Type Ballast

between Common & Lamp leads



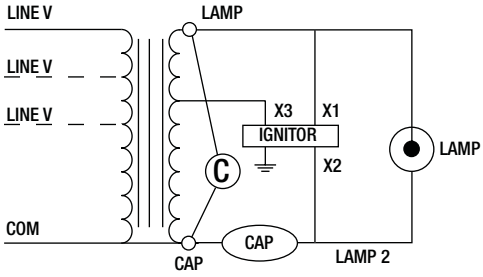
Constant Wattage CWA Type Ballasts

where ingitors are used



Constant Wattage CWI Type Ballast

where ignitors are used



IGNITOR TESTING Ignitors are used as a lamp starting aid with all high pressure sodium, low wattage metal halide, and pulse start lamps.

Measurement of the starting pulse characteristics of an ignitor is beyond the capability of instruments available in the field. In laboratory tests, an oscilloscope equipped with a high voltage probe is used to measure pulse height and width. In the field, some simple tests may be performed to determine if the ignitor is operable. **It is first assumed that the lamp has already been replaced with a known operable lamp.**

1 Replace the ignitor with a known operable ignitor. If the lamp starts, the previous ignitor was either mis-wired or inoperative.
2 If the lamp does not light, check the open circuit voltage and short circuit secondary current or refer to Flow Chart Step 3 on page 197.

FURTHER MAGNETIC BALLAST CHECKS

PROBABLE CAUSES OF INOPERABLE BALLASTS

1 Normal ballast end-of-life failure.
2 Operating incorrect lamps. Use of higher or lower wattage lamps than rated for the ballast my cause premature ballast end-of-life.
3 Overheating due to heat from the fixture or high ambient temperatures causing the ballast temperature to exceed the specified temperature.
4 Voltage surge from lightening or power source malfunction.
5 Mis-wired, pinched, or shorted wires.
6 Shorted or open capacitor.
7 Incorrect capacitor for the ballast.
8 Capacitor not connected to the ballast correctly.

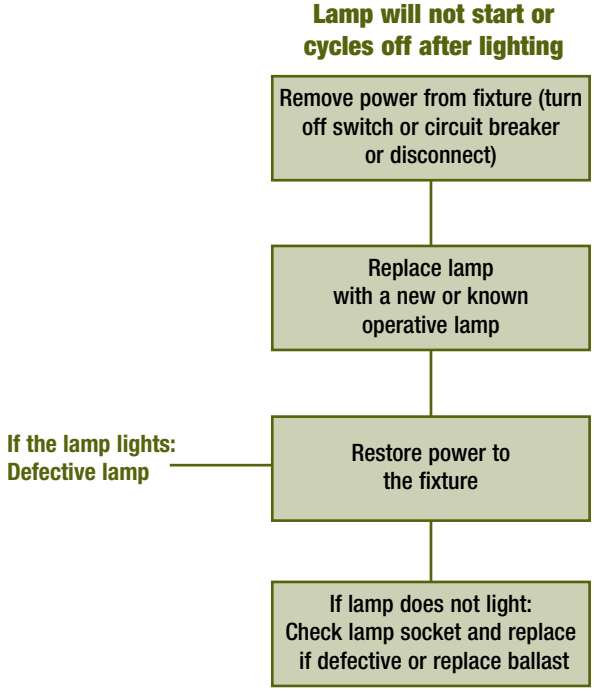
PROBABLE CAUSES OF SHORTED OR OPEN CAPACITORS

1 Normal ballast end-of-life failure.
2 Overheated due to heat in the fixture or ambient temperature.
3 Capacitor mounted too close to ballast.
4 Incorrect voltage or capacitor value for ballast.
5 Mechanical damage such as over-tightened capacitor clamp.

ELECTRONIC HID BALLASTS Electronic HID ballasts present special troubleshooting challenges. The previously discussed procedures cannot be used to test electronic HID circuits. Electronic integrated circuit control limits reliable testing that can be performed in the field.

An energized electronic HID ballast will attempt lamp ignition by producing high voltage pulses for a specified time period, usually between 10 and 30 minutes. Consult the ballast label for specific times. **Unlike magnetic HID ballasts, momentary shorting either output lead of an electronic HID ballast to groud or each other will render the ballast permanently inoperable.**

Verify that there is a voltage at the input of the fixture and the ballast before proceeding with the procedures of the following flow chart.



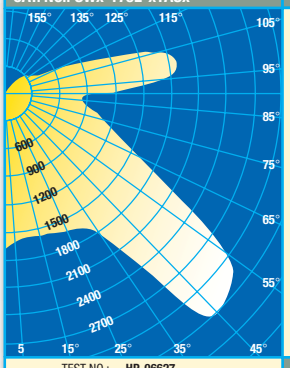
* NOTE: After lamp extinguishes or is replaced, fixture power must be removed and restored to reset the electronics. Electronic ballasts are designed to shut down (remove power to the lamp) when irregularity occurs in applied power or a lamp fails to operate within specificaitons..

PHOTOMETRICS

3 DIMENSIONAL LIGHTING

Superwatt® For complete spacing-to-mounting height ratios, visit our web site at www.hubbell-ltg.com

PHOTOMETRIC REPORT
CAT. NO.: SWx-175E-x1ASx



TEST NO.: HP-06627
LUMINAIRE: SUPERWATT
Reflective Material: STEEL
Finish: WHITE PAINT
Closure: PRISM. UVA825 HID

LAMP(S): ONE MXR175/BU/E
EACH RATED: 17100 LUMENS
LINE POWER: 210 WATTS

TOTAL LUMINAIRE EFFICIENCY: 94.1%
TOTAL REFLECTANCE OF PAINT: 91.7%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	1670
5	1595
15	1577
25	1621
35	1851
45	3324
55	2961
65	1585
75	1118
85	825
90	1053
95	1704
105	1722
115	620
125	331
135	253
145	101
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	1352	7.9	8.4
0-40	2572	15.0	16.0
0-60	7657	44.8	47.6
0-90	11386	66.6	70.8
90-120	4151	24.3	25.8
90-180	4706	27.5	29.2
0-180	16092	94.1	100.0

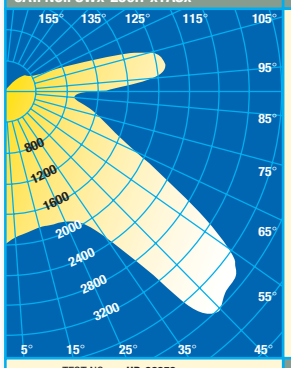
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.4	2.4	2.2

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10		0
0	106	106	106	106	101	101	101	101	90	90	90		80	80	80		71	71	71		67
1	95	89	85	80	89	84	80	76	75	72	69		67	64	62		59	57	55		51
2	85	77	70	64	80	73	66	61	65	60	55		57	53	50		51	47	45		41
3	77	67	59	52	72	63	56	50	56	50	45		50	45	41		44	40	37		34
4	70	58	49	42	65	55	47	41	49	42	37		43	38	33		38	34	30		27
5	63	50	42	35	59	48	40	33	42	36	30		38	32	28		33	28	25		22
6	58	44	35	29	54	42	34	28	37	30	25		33	27	23		29	24	21		18
7	52	39	30	24	49	37	29	23	33	26	21		29	23	19		25	20	17		14
8	48	34	26	20	45	32	25	19	29	22	17		25	20	15		22	17	14		11
9	44	31	22	17	41	29	21	16	26	19	15		23	17	13		20	15	11		9
10	40	27	19	14	37	25	18	13	22	16	12		20	14	10		17	12	9		7

PHOTOMETRIC REPORT
CAT. NO.: SWx-250H-x1ASx



TEST NO.: HP-06359
LUMINAIRE: SUPERWATT
Reflective Material: STEEL
Finish: WHITE PAINT
Closure: PRISM. UVA-825 HID

LAMP(S): ONE MVR-250/U
EACH RATED: 20500 LUMENS
LINE POWER: 285 WATTS

TOTAL LUMINAIRE EFFICIENCY: 91.6%
TOTAL REFLECTANCE OF PAINT: 91.7%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	2011
5	1901
15	1834
25	1870
35	2348
45	4005
55	3559
65	1917
75	1288
85	897
90	1179
95	1896
105	1934
115	662
125	360
135	266
145	92
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	1571	7.7	8.4
0-40	3102	15.1	16.5
0-60	9255	45.1	49.3
0-90	13593	66.3	72.4
90-120	4602	22.4	24.5
90-180	5190	25.3	27.6
0-180	18783	91.6	100.0

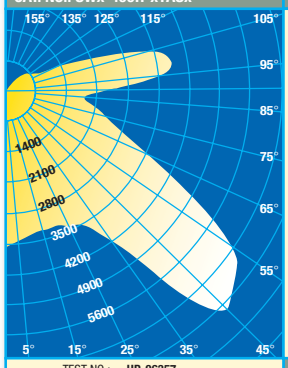
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.4	2.4	2.2

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10		0
0	104	104	104	104	98	98	98	98	88	88	88		79	79	79		70	70	70		66
1	93	87	83	79	87	83	79	75	74	71	68		66	63	61		59	57	55		51
2	83	75	68	63	79	71	65	60	64	59	55		57	53	49		50	47	45		41
3	76	65	57	51	71	62	55	49	55	50	45		49	45	41		44	40	37		34
4	68	57	48	41	64	54	46	40	48	41	36		43	37	33		38	34	30		27
5	62	49	41	34	58	47	39	33	42	35	30		37	32	27		33	28	25		22
6	56	43	35	28	53	41	33	27	37	30	25		33	27	23		29	24	20		18
7	51	38	29	23	48	36	28	22	32	25	20		28	23	18		25	20	17		14
8	46	33	25	19	43	31	24	18	28	22	17		25	19	15		22	17	14		11
9	43	30	22	16	40	28	21	16	25	19	14		22	17	13		19	15	11		9
10	39	26	18	13	36	25	17	12	22	16	11		19	14	10		17	12	9		7

PHOTOMETRIC REPORT
CAT. NO.: SWx-400H-x1ASx



TEST NO.: HP-06357
LUMINAIRE: SUPERWATT
Reflective Material: STEEL
Finish: WHITE PAINT
Closure: PRISM. UVA-825 HID

LAMP(S): ONE MVR-400/U
EACH RATED: 36000 LUMENS
LINE POWER: 460 WATTS

TOTAL LUMINAIRE EFFICIENCY: 95.1%
TOTAL REFLECTANCE OF PAINT: 91.7%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	3622
5	3471
15	3340
25	3417
35	4283
45	7161
55	6318
65	3582
75	2386
85	1793
90	2385
95	3475
105	3387
115	1215
125	662
135	478
145	167
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	2867	8.0	8.4
0-40	5665	15.7	16.5
0-60	16538	45.9	48.3
0-90	24797	68.9	72.4
90-120	8380	23.3	24.5
90-180	9446	26.2	27.6
0-180	34243	95.1	100.0

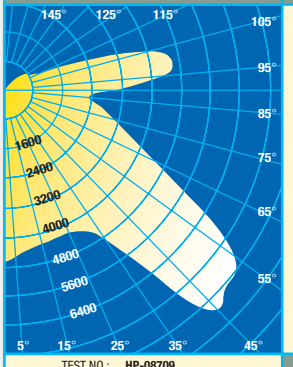
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.4	2.4	2.2

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10		0
0	108	108	108	108	102	102	102	102	91	91	91		82	82	82		73	73	73		69
1	96	90	86	81	90	86	81	77	76	73	70		68	66	63		61	9	57		53
2	86	78	71	65	81	74	67	62	66	61	56		59	55	51		52	49	46		42
3	78	67	59	52	73	64	56	50	57	51	46		51	46	42		45	41	38		35
4	70	58	49	43	66	55	47	41	49	43	37		44	39	34		39	35	31		28
5	64	51	42	35	60	48	40	34	43	36	31		38	33	28		34	29	25		23
6	58	45	36	29	54	42	34	28	38	31	26		34	28	23		30	25	21		18
7	53	39	30	24	49	37	29	23	33	26	21		29	23	19		26	21	17		15
8	48	34	26	20	45	33	25	19	29	22	17		26	20	16		23	18	14		12
9	44	31	22	17	41	29	21	16	26	19	15		23	17	13		20	15	12		10
10	40	27	19	14	38	25	18	13	23	16	12		20	14	10		17	13	9		7

PHOTOMETRIC REPORT
CAT. NO.: SWx-400W-x1ASx



TEST NO.: HP-08709
LUMINAIRE: SUPERWATT
Reflective Material: STEEL (post painted)
Finish: WHITE PAINT
Closure: PRISMATIC ACRYLIC UVA-825 HID

LAMP(S): ONE MVR400/VBU/PA
EACH RATED: 44000 LUMENS
LINE POWER: 453 WATTS

TOTAL LUMINAIRE EFFICIENCY: 94.0%
TOTAL REFLECTANCE OF PAINT: 93.1%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	4623
5	4423
15	4242
25	4207
35	4987
45	8287
55	7509
65	4374
75	3092
85	2277
90	2845
95	4229
105	4104
115	1436
125	792
135	587
145	204
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	3571	8.1	8.6
0-40	6825	15.5	16.5
0-60	19615	44.6	47.4
0-90	29977	68.1	72.4
90-120	10112	23.0	24.4
90-180	11402	25.9	27.6
0-180	41379	94.0	100.0

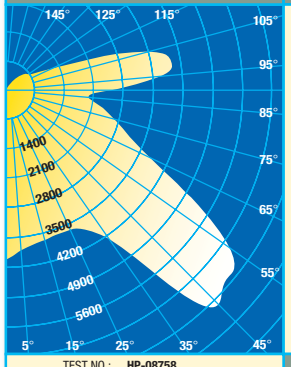
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.3	2.3	2.2

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10		0
0	106	106	106	106	101	101	101	101	90	90	90		81	81	81		72	72	72		68
1	94	89	84	80	89	84	80	76	75	72	69		67	64	62		60	58	56		52
2	85	76	69	63	80	72	66	61	65	60	55		58	54	50		51	48	45		41
3	77	66	58	51	72	63	55	49	56	50	45		50	45	41		44	40	37		34
4	69	57	49	42	65	54	46	40	49	42	37		43	38	33		38	34	30		27
5	63	50	41	34	59	47	39	33	42	36	30		38	32	28		33	29	25		22
6	57	44	35	29	54	42	34	28	37	30	25		33	27	23		29	24	21		18
7	52	39	30	24	49	37	29	23	33	26	21		29	23	19		26	21	17		15
8	48	34	26	20	45	32	24	19	29	22	17		26	20	16		23	18	14		12
9	44	30	22	17	41	29	21	16	26	19	15		23	17	13		20	15	12		10
10	40	27	19	14	37	25	18	13	22	16	12		20	14	10		17	13	9		7

PHOTOMETRIC REPORT
CAT. NO.: SWx-350W-x1ASx



TEST NO.: HP-08758
LUMINAIRE: SUPERWATT
Reflective Material: STEEL (post painted)
Finish: WHITE PAINT
Closure: PRISMATIC ACRYLIC UVA-825-HID

LAMP(S): ONE MH350W/U/PS
EACH RATED: 38000 LUMENS
LINE POWER: 395 WATTS

TOTAL LUMINAIRE EFFICIENCY: 94.0%
TOTAL REFLECTANCE OF PAINT: 93.1%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	3993
5	3820
15	3664
25	3634
35	4307
45	7157
55	6485
65	3777
75	2670
85	1967
90	2457
95	3652
105	3544
115	1240
125	684
135	507
145	176
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	3085	8.1	8.6
0-40	5894	15.5	16.5
0-60	16940	44.6	47.4
0-90	25888	68.1	72.4
90-120	8732	23.0	24.4
90-180	9845	25.9	27.6
0-180	35733	94.0	100.0

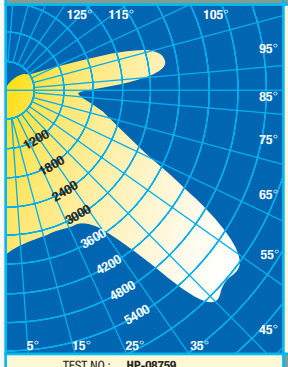
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.3	2.3	2.2

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10		0
0	106	106	106	106	101	01	101	101	90	90	90		81	81	81		72	72	72		68
1	94	89	84	80	89	84	80	76	75	72	69		67	64	62		60	58	56		52
2	85	76	69	63	80	72	66	61	65	60	55		58	54	50		51	48	45		41
3	77	66	58	51	72	63	55	49	56	50	45		50	45	41		44	40	37		34
4	69	57	49	42	65	54	46	40	49	42	37		43	38	33		38	34	30		27
5	63	50	41	34	59	47	39	33	42	36	30		38	32	28		33	29	25		22
6	57	44	35	29	54	42	34	28	39	30	25		33	27	23		29	24	21		18
7	52	39	30	24	49	37	29	23	33	26	21		29	23	19		26	21	17		15
8	48	34	26	20	45	32	24	19	29	22	17		26	20	16		23	18	14		12
9	44	30	22	17	41	29	21	16	26	19	15		23	17	13		20	15	12		10
10	40	27	19	14	37	25	18	13	23	16	12		20	14	10		17	13	9		7

PHOTOMETRIC REPORT
CAT. NO.: SWx-320W-x1ASx



TEST NO.: HP-08759
LUMINAIRE: SUPERWATT
Reflective Material: STEEL (post painted)
Finish: WHITE PAINT
Closure: CLEAR PRISMATIC ACRYLIC UVA-825-HID

LAMP(S): ONE MS320/BU/PS
EACH RATED: 31400 LUMENS
LINE POWER: 365 WATTS

TOTAL LUMINAIRE EFFICIENCY: 96.8%
TOTAL REFLECTANCE OF PAINT: 93.1%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	3399
5	3231
15	3113
25	3091
35	3485
45	6143
55	5894
65	3355
75	2254
85	1558
90	1777
95	2889
105	3130
115	1103
125	576
135	417
145	142
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	2625	8.4	8.6
0-40	4896	15.6	16.1
0-60	14563	46.4	47.9
0-90	22132	70.5	72.8
90-120	7343	23.4	24.1
90-180	8275	26.4	27.2
0-180	30407	96.8	100.0

SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.4	2.4	2.2

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

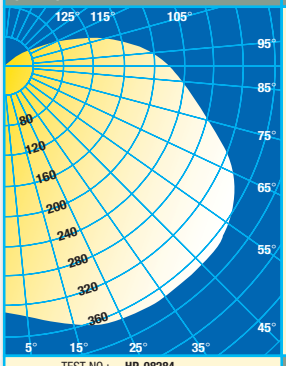
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10		0
0	110	110	110	110	104	104	104	104	94	94	94		84	84	84		75	75	75		71
1	98	93	88	83	93	88	83	79	78	75	72		70	67	65		62	60	58		54
2	88	79	72	66	83	75	69	63	67	62	57		60	56	52		53	50	47		43
3	80	69	60	53	75	65	57	51	58	52	47		52	47	43		46	42	39		35
4	72	59	53	43	67	56	48	42	50	44	38		45	39	35		40	35	31		28
5	65	52	42	36	61	49	41	34	44	37	31		39	33	28		35	30	26		23
6	59	45	36	30	56	43	35	28	39	31	26		34	28	24		30	25	21		19
7	54	40	31	24	50	38	29	23	34	27	21		30	24	19		26	21	17		15
8	49	35	26	20	46	33	25	19	30	23	18		26	20	16		23	18	14		12
9	45	31	23	17	42	30	22	16	27	20	15		24	18	13		21	16	12		10
10	41	28	19	14	39	26	18	13	23	17	12		21	15	11		18	13	9		7

PHOTOMETRICS

3 DIMENSIONAL LIGHTING

Lightwatt® For complete spacing-to-mounting height ratios, visit our web site at www.hubbell-ltg.com

PHOTOMETRIC REPORT
CAT. NO.: LWx-42Fx-A



TEST NO.: HP-08284
LUMINAIRE: LIGHTWATT
Reflective Material: STEEL
Finish: WHITE PAINT
Closure: PRISMATIC ACRYLIC
UVA-825
LAMP(S): ONE PLT42W-35-4P
EACH RATED: 3200 LUMENS
LINE POWER: 43 WATTS

TOTAL LUMINAIRE EFFICIENCY: 79.3%
TOTAL REFLECTANCE OF PAINT: 89.6%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	
0	329
5	337
15	359
25	374
35	377
45	377
55	368
65	340
75	285
85	241
90	222
95	200
105	140
115	75
125	29
135	4
145	0
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	307	9.6	12.1
0-40	544	17.0	21.4
0-60	1165	36.4	45.9
0-90	2066	64.6	81.4
90-120	442	13.8	17.4
90-180	472	14.8	18.6
0-180	2538	79.3	100.0

SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.7	1.7	1.9

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	90	90	90	90	86	86	86	86	79	79	79	72	72	72	66	66	66	63
1	79	74	69	65	75	70	66	62	64	60	57	58	55	53	52	50	48	45
2	70	62	55	49	66	59	53	47	53	48	44	48	44	40	43	40	37	34
3	63	53	46	39	59	51	44	38	46	40	35	41	37	33	37	33	30	27
4	57	46	38	32	54	44	37	31	40	34	29	36	31	27	32	28	25	22
5	51	40	32	26	48	38	31	25	34	28	23	31	26	22	28	23	20	18
6	47	35	27	22	44	34	26	21	30	24	19	27	22	18	25	20	17	14
7	43	31	24	18	41	30	23	18	27	21	16	24	19	15	22	17	14	12
8	39	28	21	15	37	27	20	15	24	18	14	22	17	13	20	15	12	10
9	36	25	18	13	34	24	17	13	22	16	12	20	14	11	18	13	10	8
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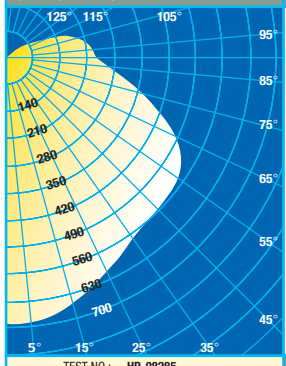
PHOTOMETRIC REPORT
CAT. NO.: LWx-64Fx-A



TEST NO.: HP-08285
LUMINAIRE: LIGHTWATT
Reflective Material: STEEL
Finish: WHITE PAINT
Closure: PRISMATIC ACRYLIC
UVA-825
LAMP(S): TWO PLT32W-30-4P
EACH RATED: 2400 LUMENS
LINE POWER: 73 WATTS

TOTAL LUMINAIRE EFFICIENCY: 76.1%
TOTAL REFLECTANCE OF PAINT: 88.8%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	
0	704
5	702
15	672
25	625
35	583
45	565
55	552
65	495
75	375
85	268
90	240
95	231
105	198
115	119
125	46
135	6
145	0
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	546	11.4	14.9
0-40	913	19.0	25.0
0-60	1846	38.5	50.5
0-90	3026	63.0	82.8
90-120	579	12.1	15.8
90-180	627	13.1	17.2
0-180	3653	76.1	100.0

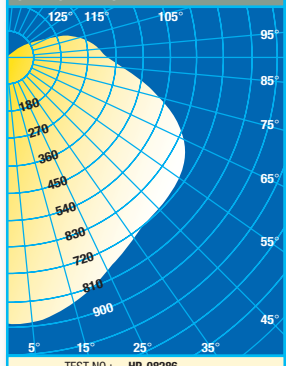
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.3	1.3	1.5

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	87	87	87	87	83	83	83	83	76	76	76	70	70	70	64	64	64	62
1	77	72	68	64	73	69	65	62	63	60	57	58	55	53	53	51	49	46
2	68	61	55	50	65	58	53	48	53	49	45	48	45	41	44	41	38	36
3	62	53	46	40	59	50	44	39	46	41	36	42	37	34	38	34	31	29
4	56	46	38	33	53	44	37	32	40	34	30	37	32	28	33	29	26	24
5	51	40	32	27	48	38	31	26	35	29	24	32	27	23	29	25	21	19
6	46	35	28	22	44	34	27	22	31	25	20	28	23	19	26	21	18	16
7	42	31	24	19	40	30	23	19	27	22	17	25	20	16	23	19	15	13
8	39	28	21	16	37	27	20	16	25	19	15	22	17	14	21	16	13	11
9	36	25	18	14	34	24	18	13	22	16	13	20	15	12	18	14	11	9
10	33	23	16	12	32	22	16	12	20	15	11	18	14	10	17	13	10	8

PHOTOMETRIC REPORT
CAT. NO.: LWx-84Fx-A



TEST NO.: HP-08286
LUMINAIRE: LIGHTWATT
Reflective Material: STEEL
Finish: WHITE PAINT
Closure: PRISMATIC ACRYLIC
UVA-825
LAMP(S): TWO PLT42W-35-4P
EACH RATED: 3200 LUMENS
LINE POWER: 82 WATTS

TOTAL LUMINAIRE EFFICIENCY: 73.6%
TOTAL REFLECTANCE OF PAINT: 87.8%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	
0	882
5	880
15	841
25	778
35	725
45	703
55	692
65	639
75	521
85	381
90	328
95	304
105	246
115	151
125	63
135	8
145	0
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	681	10.6	14.5
0-40	1137	17.8	24.1
0-60	2301	36.0	48.9
0-90	3901	61.0	82.8
90-120	743	11.6	15.8
90-180	808	12.6	17.2
0-180	4709	73.6	100.0

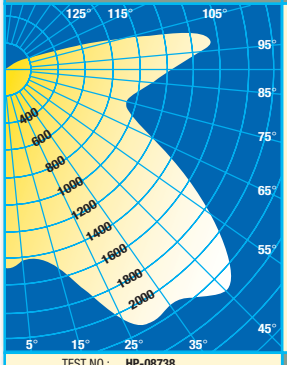
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.3	1.3	1.5

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	84	84	84	84	80	80	80	80	74	74	74	68	68	68	62	62	62	59
1	74	69	65	61	70	66	62	59	60	57	55	55	53	50	50	48	47	44
2	66	58	52	47	62	56	50	45	51	46	42	46	42	39	42	39	36	34
3	59	50	43	38	56	48	42	37	44	39	34	40	35	32	36	33	30	27
4	54	44	37	31	51	42	35	30	38	33	28	35	30	26	32	28	24	22
5	49	38	31	25	46	36	30	25	33	37	23	30	25	21	27	23	20	18
6	44	34	26	21	42	32	25	21	29	24	19	27	22	18	24	20	17	15
7	41	30	23	18	39	29	22	18	26	21	16	24	19	15	22	18	14	13
8	37	27	20	15	35	26	19	15	23	18	14	21	17	13	20	15	12	10
9	34	24	17	13	33	23	17	13	21	16	12	19	14	11	18	13	10	9
10	32	22	16	11	30	21	15	11	19	14	10	18	13	10	16	12	9	7

PHOTOMETRIC REPORT
CAT. NO.: LWx-175Hx-A



TEST NO.: HP-08738
LUMINAIRE: LIGHTWATT
Reflective Material: STEEL
Finish: WHITE PAINT
Closure: PRISMATIC ACRYLIC
UVA-825-HID
LAMP(S): ONE MH175/U/MED
EACH RATED: 13500 LUMENS
LINE POWER: 210 WATTS

TOTAL LUMINAIRE EFFICIENCY: 93.3%
TOTAL REFLECTANCE OF PAINT: 91.9%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	
0	1464
5	1413
15	1502
25	2011
35	2124
45	2316
55	1860
65	1225
75	927
85	1088
90	1217
95	1418
105	940
115	255
125	105
135	13
145	0
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	1505	11.1	11.9
0-40	2855	21.1	22.7
0-60	6263	46.4	49.7
0-90	9648	71.5	76.6
90-120	2843	21.1	22.6
90-180	2950	21.9	23.4
0-180	12598	93.3	100.0

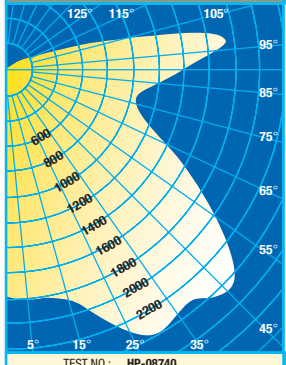
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.1	2.1	2.0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	106	106	106	106	101	101	101	101	92	92	92	83	83	83	75	75	75	72
1	93	87	82	78	88	83	79	74	75	72	68	68	65	62	61	59	57	53
2	84	75	68	62	80	72	65	60	65	60	55	59	54	51	53	49	46	43
3	77	66	58	51	72	63	55	49	57	51	46	52	47	42	46	42	39	36
4	70	58	49	42	66	55	47	41	50	43	38	45	40	35	41	36	33	30
5	63	51	42	36	60	48	40	34	44	37	32	43	34	30	36	31	27	25
6	58	45	36	30	55	43	35	29	39	32	27	36	30	25	32	27	24	21
7	53	40	32	26	50	38	30	25	35	28	23	32	26	21	29	24	20	18
8	49	36	28	22	46	34	26	21	31	24	20	28	22	18	26	21	17	15
9	45	32	24	19	42	31	23	18	28	21	17	25	20	16	23	18	14	12
10	41	28	20	15	39	27	19	15	24	18	13	22	16	12	20	15	11	10

PHOTOMETRIC REPORT
CAT. NO.: LWx-150Hx-A



TEST NO.: HP-08740
LUMINAIRE: LIGHTWATT
Reflective Material: STEEL
Finish: WHITE PAINT
Closure: PRISMATIC ACRYLIC
UVA-825-HID
LAMP(S): ONE MH150/U/PS
EACH RATED: 15000 LUMENS
LINE POWER: 185 WATTS

TOTAL LUMINAIRE EFFICIENCY: 93.1%
TOTAL REFLECTANCE OF PAINT: 91.9%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	
0	1790
5	1826
15	1884
25	2274
35	2354
45	2475
55	2024
65	1376
75	1060
85	1216
90	1390
95	1648
105	940
115	259
125	111
135	14
145	0
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	1770	11.8	12.7
0-40	3253	21.7	23.3
0-60	6944	46.3	49.7
0-90	10764	71.8	77.1
90-120	3088	20.6	22.1
90-180	3201	21.3	22.9
0-180	13965	93.1	100.0

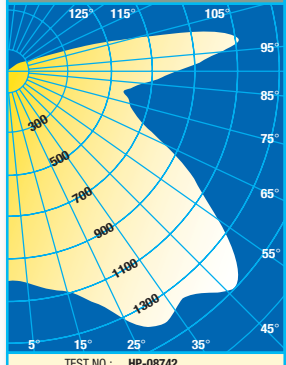
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.0	2.0	1.9

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	106	106	106	106	101	101	101	101	92	92	92	83	83	83	76	76	76	72
1	93	87	82	78	88	83	79	74	75	72	68	68	65	62	61	59	57	53
2	84	75	68	62	80	72	65	60	65	60	55	59	55	51	53	50	47	43
3	77	66	58	51	72	63	55	49	57	51	46	52	47	43	47	43	39	36
4	70	58	49	43	66	55	47	41	50	43	38	45	40	35	41	37	33	30
5	64	51	42	36	60	49	41	35	44	38	32	40	35	30	36	32	28	25
6	58	45	37	31	55	43	35	30	40	33	28	36	30	26	33	28	24	22
7	53	40	32	26	50	39	31	25	35	28	24	32	26	22	29	24	20	18
8	49	36	28	22	46	34	27	21	31	25	20	29	23	19	26	21	17	15
9	45	32	25	19	43	31	24	19	28	22	17	26	20	16	24	19	15	13
10	41	28	21	16	39	27	20	15	25	18	14	23	17	13	20	16	12	10

PHOTOMETRIC REPORT
CAT. NO.: LWx-100Hx-A



TEST NO.: HP-08742
LUMINAIRE: LIGHTWATT
Reflective Material: STEEL
Finish: WHITE PAINT
Closure: PRISMATIC ACRYLIC
UVA-825-HID
LAMP(S): ONE MHC100/U/M4K
EACH RATED: 9000 LUMENS
LINE POWER: 129 WATTS

TOTAL LUMINAIRE EFFICIENCY: 92.2%
TOTAL REFLECTANCE OF PAINT: 91.9%
SHIELDING ANGLE IN DEGREES: PARALLEL 0 NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	
0	994
5	1010
15	1084
25	1299
35	1387
45	1479
55	1214
65	820
75	601
85	643
90	796
95	1002
105	595
115	157
125	71
135	9
145	0
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	1011	11.2	12.2
0-40	1882	20.9	22.7
0-60	4105	45.6	49.5
0-90	6291	69.9	75.8
90-120	1935	21.5	23.3
90-180	2007	22.3	24.2
0-180	8298	92.2	100.0

SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.1	2.1	2.0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

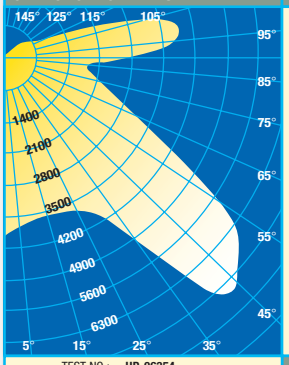
RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	103	103	103	103	99	99	99	99	89	89	89	81	81	81	73	73	73	70
1	91	86	81	77	87	82	77	73	74	70	67	67	64	61	60	58	56	52
2	83	74	67	61	78	71	64	59	64	59	54	58	54	50	52	49	46	42
3	75	65	57	51	71	62	55	49	56	50	45	51	46	42	46	42	38	35
4	68	57	48	42	64	54	46	40	49	43	38	44	39	35	40	36	32	29
5	62	50	42	35	59	48	40	34	43	37	32	39	34	29	35	31	27	25
6	57	45	36	30	54	42	35	29	39	32	27	35	29	25	32	27	23	21
7	52	40	31	25	49	38	30	25	34	28	23	31	26	21	28	23	20	18
8	48	35	27	22	45	34	26	21	31	24	20	28	22	18	25	20	17	15
9	44	32	24	19	42	30	23	18	28	21	17	25	20	16	23	18	14	13
10	40	28	20	15	38	26	19	15	24	18	14	22	16	13	20	15	12	10

PHOTOMETRICS

3 DIMENSIONAL LIGHTING

Tribay® Superwatt® For complete spacing-to-mounting height ratios, visit our web site at www.hubbell-ltg.com

PHOTOMETRIC REPORT
CAT. NO.: CH-40-H-x-x-SW



CANDELA DISTRIBUTION

VERTICALLY		
	0	3925
	5	3747
	15	3632
	25	3703
	35	4713
	45	7170
	55	5965
	65	3323
	75	2264
	85	1836
	90	2559
	95	3632
	105	3279
	115	1200
	125	635
	135	457
	145	164
	155	0
	165	0
	175	0
	180	0

TEST NO.: HP-06354
LUMINAIRE: Tribay 2.0 Superwatt
Finish: WHITE PAINT
Optics:
ALUMINUM
LAMP(S): ONE MVR-400/U
EACH RATED: 36,000 LUMENS
LINE POWER: 460 WATTS

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	3117	8.7	9.1
0-40	6170	17.1	18.0
0-60	16867	46.9	49.2
0-90	24816	68.9	72.5
90-120	8405	23.3	24.5
90-180	9435	26.2	27.5
0-180	34251	95.1	100.0

TOTAL LUMINAIRE EFFICIENCY: 95.1%
TOTAL REFLECTANCE OF PAINT: 91.9%
SHIELDING ANGLE IN DEGREES: PARALLEL 0
NORMAL 0

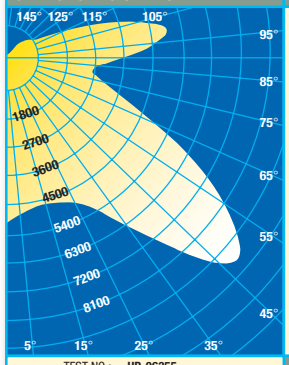
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.3	2.3	2.1

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30		10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	107	107	107	107	101	101	101	101	91	91	91	81	81	81	73	73	73	69
1	95	90	85	81	90	85	81	77	76	73	70	68	65	63	60	58	57	53
2	86	78	71	65	81	74	67	62	66	61	56	59	55	51	52	49	46	43
3	78	68	59	53	73	64	57	51	57	51	46	51	46	42	45	42	38	35
4	71	59	50	43	66	56	48	42	50	43	38	44	39	35	39	35	32	29
5	64	51	42	36	60	49	40	34	44	37	32	39	33	29	34	30	26	23
6	58	45	36	30	55	43	35	29	38	32	26	34	29	24	30	26	22	19
7	53	40	31	25	50	38	30	24	34	27	22	30	24	20	27	22	18	16
8	48	35	27	21	45	33	25	20	30	23	18	26	21	16	23	18	15	13
9	45	31	23	18	42	30	22	17	26	20	15	24	18	14	21	16	12	10
10	41	27	19	14	38	26	18	13	23	17	12	20	15	11	18	13	10	8

PHOTOMETRIC REPORT
CAT. NO.: CH-40-S-x-x-SW



CANDELA DISTRIBUTION

VERTICALLY		
	0	5143
	5	4866
	15	4689
	25	4978
	35	6255
	45	9007
	55	8254
	65	5188
	75	3036
	85	2955
	90	3676
	95	4522
	105	4088
	115	1713
	125	886
	135	606
	145	227
	155	0
	165	0
	175	0
	180	0

TEST NO.: HP-06355
LUMINAIRE: Tribay 2.0 Superwatt
Finish: WHITE PAINT
Optics:
ALUMINUM
LAMP(S): ONE C400S51
EACH RATED: 50,000 LUMENS
LINE POWER: 465 WATTS

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	4120	8.2	8.9
0-40	8146	16.3	17.5
0-60	22391	44.8	48.2
0-90	34047	68.1	73.3
90-120	10997	22.0	23.7
90-180	12414	24.8	26.7
0-180	46461	92.9	100.0

TOTAL LUMINAIRE EFFICIENCY: 92.9%
TOTAL REFLECTANCE OF PAINT: 91.9%
SHIELDING ANGLE IN DEGREES: PARALLEL 0
NORMAL 0

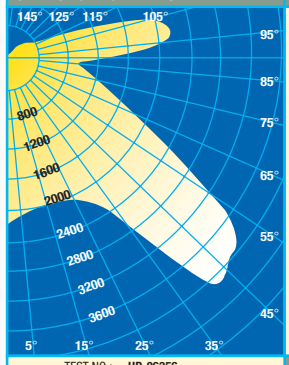
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.3	2.3	2.1

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30		10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	104	104	104	104	99	99	99	99	89	89	89	80	80	80	72	72	72	68
1	93	87	82	78	87	83	78	74	74	71	68	66	64	61	59	57	55	51
2	84	75	68	62	79	71	65	59	64	59	54	57	53	49	51	48	45	41
3	76	65	57	51	71	62	54	49	55	49	45	50	45	41	44	40	37	34
4	68	56	48	41	64	53	46	39	48	41	36	43	38	33	38	34	30	27
5	62	49	40	34	58	47	39	33	42	35	30	37	32	27	33	29	25	22
6	56	43	35	28	53	41	33	27	37	30	25	33	27	23	29	24	21	18
7	51	38	29	23	48	36	28	22	32	26	21	29	23	19	26	21	17	15
8	47	34	25	19	44	32	24	19	29	22	17	25	20	16	23	18	14	12
9	43	30	22	17	40	28	21	16	26	19	14	23	17	13	20	15	12	10
10	39	26	19	13	37	25	18	13	22	16	12	20	14	10	17	13	9	7

PHOTOMETRIC REPORT
CAT. NO.: CH-25-H-x-x-SW



CANDELA DISTRIBUTION

VERTICALLY		
	0	2203
	5	2101
	15	2035
	25	2074
	35	2647
	45	4070
	55	3477
	65	1839
	75	1264
	85	932
	90	1307
	95	2003
	105	1912
	115	681
	125	353
	135	257
	145	92
	155	0
	165	0
	175	0
	180	0

TEST NO.: HP-06356
LUMINAIRE: Tribay 2.0 Superwatt
Finish: WHITE PAINT
Optics:
ALUMINUM
LAMP(S): ONE MVR-250/U
EACH RATED: 20,500 LUMENS
LINE POWER: 285 WATTS

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	1743	8.5	9.1
0-40	3450	16.8	18.0
0-60	9612	46.9	50.1
0-90	13902	67.8	72.4
90-120	4722	23.0	24.6
90-180	5298	25.8	27.6
0-180	19200	93.7	100.0

TOTAL LUMINAIRE EFFICIENCY: 93.7%
TOTAL REFLECTANCE OF PAINT: 91.9%
SHIELDING ANGLE IN DEGREES: PARALLEL 0
NORMAL 0

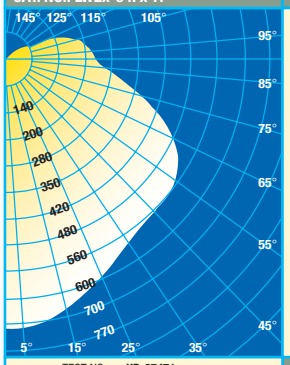
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.3	2.3	2.1

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30		10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	106	106	106	106	100	100	100	100	90	90	90	80	80	80	72	72	72	68
1	94	89	85	80	89	85	80	77	76	72	69	67	65	63	60	58	56	52
2	85	77	70	64	80	73	67	62	65	60	56	58	54	51	52	49	46	42
3	77	67	59	53	73	64	56	51	57	51	46	51	46	42	45	41	38	35
4	70	58	50	43	66	55	47	41	49	43	38	44	39	35	39	35	31	28
5	63	51	42	36	60	48	40	34	43	37	31	39	33	29	34	30	26	23
6	58	45	36	30	54	42	34	29	38	31	26	34	28	24	30	25	22	19
7	53	39	31	25	49	37	29	24	33	27	22	30	24	20	26	21	18	15
8	48	35	26	20	45	33	25	20	29	23	18	26	20	16	23	18	15	12
9	44	31	23	17	41	29	22	17	26	20	15	23	18	14	21	16	12	10
10	40	27	19	14	38	26	18	13	23	16	12	20	15	11	18	13	9	8

PHOTOMETRIC REPORT
CAT. NO.: LW2x-64Fx-A



CANDELA DISTRIBUTION

VERTICALLY		
	0	703
	5	701
	15	671
	25	624
	35	582
	45	564
	55	551
	65	494
	75	375
	85	268
	90	239
	95	230
	105	198
	115	119
	125	46
	135	6
	145	0
	155	0
	165	0
	175	0
	180	0

TEST NO.: HP-07471
LUMINAIRE: LIGHTWATT haz location
Reflective Material:
STEEL
Finish: WHITE PAINT
Closure:
UVA-825 PRISMATIC
ACRYLIC REFRACTOR
LAMP(S): TWO PLT32W-30-4P
EACH RATED: 2400 LUMENS
LINE POWER: 73 WATTS

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	545	11.4	15.0
0-40	911	19.0	25.0
0-60	1841	38.4	50.5
0-90	3020	62.9	82.9
90-120	577	12.0	15.8
90-180	625	13.0	17.1
0-180	3645	75.9	100.0

TOTAL LUMINAIRE EFFICIENCY: 75.9%
TOTAL REFLECTANCE OF PAINT: 88.8%
SHIELDING ANGLE IN DEGREES: PARALLEL 0
NORMAL 0

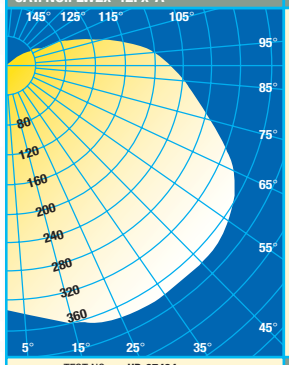
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.3	1.3	1.5

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30		10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	87	87	87	87	84	84	84	84	77	77	77	71	71	71	66	66	66	63
1	77	73	69	65	74	70	66	63	64	61	59	59	57	54	54	52	51	48
2	69	62	56	51	66	59	54	49	55	50	46	50	46	43	46	43	40	38
3	63	54	47	41	60	52	45	40	47	42	38	44	39	36	40	36	33	31
4	57	47	40	34	54	45	38	33	42	36	31	38	33	30	35	31	28	26
5	52	41	34	28	49	39	33	27	36	30	26	33	28	24	31	26	23	21
6	47	36	29	24	45	35	28	23	32	26	22	30	25	21	27	23	20	18
7	43	32	25	20	41	31	25	20	29	23	19	27	22	18	24	20	17	15
8	40	29	22	17	38	28	22	17	26	20	16	24	19	15	22	18	14	13
9	37	26	19	15	35	25	19	15	23	18	14	21	17	13	20	15	12	11
10	34	24	17	13	33	23	17	13	21	16	12	20	15	11	18	14	11	9

PHOTOMETRIC REPORT
CAT. NO.: LW2x-42Fx-A



CANDELA DISTRIBUTION

VERTICALLY		
	0	329
	5	337
	15	359
	25	374
	35	377
	45	377
	55	368
	65	340
	75	285
	85	241
	90	222
	95	200
	105	140
	115	75
	125	29
	135	4
	145	0
	155	0
	165	0
	175	0
	180	0

TEST NO.: HP-07464
LUMINAIRE: LIGHTWATT haz location
Reflective Material:
STEEL
Finish: WHITE PAINT
Closure:
UVA-825 PRISMATIC
ACRYLIC REFRACTOR
LAMP(S): ONE PLT42W-35-4P
EACH RATED: 3200 LUMENS
LINE POWER: 43 WATTS

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	307	9.6	12.1
0-40	544	17.0	21.4
0-60	1165	36.4	45.9
0-90	2066	64.6	81.4
90-120	442	13.8	17.4
90-180	472	14.8	18.6
0-180	2538	79.3	100.0

TOTAL LUMINAIRE EFFICIENCY: 79.3%
TOTAL REFLECTANCE OF PAINT: 89.6%
SHIELDING ANGLE IN DEGREES: PARALLEL 0
NORMAL 0

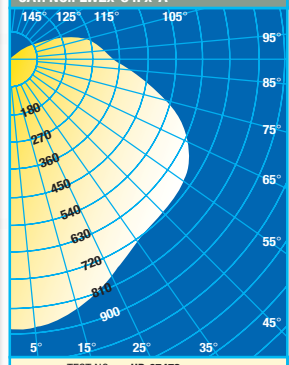
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.7	1.7	1.95

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30		10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	90	90	90	90	86	86	86	86	79	79	79	72	72	72	66	66	66	63
1	79	74	69	65	75	70	66	62	64	60	57	58	55	53	52	50	48	45
2	70	62	55	49	66	59	53	47	53	48	44	48	44	40	43	40	37	34
3	63	53	46	39	59	51	44	38	46	40	35	41	37	33	37	33	30	27
4	57	46	38	32	54	44	37	31	40	34	29	36	31	27	32	28	25	22
5	51	40	32	26	48	38	31	25	34	28	23	31	26	22	28	23	20	18
6	47	35	27	22	44	34	26	21	30	24	19	27	22	18	25	20	17	14
7	43	31	24	18	41	30	23	18	27	21	16	24	19	15	22	17	14	12
8	39	28	21	15	37	27	20	15	24	18	14	22	17	13	20	15	12	10
9	36	25	18	13	34	24	17	13	22	16	12	20	14	11	18	13	10	8
10	34	22	16	11	32	21	15	11	20	14	10	18	13	9	16	12	8	7

PHOTOMETRIC REPORT
CAT. NO.: LW2x-84Fx-A



CANDELA DISTRIBUTION

VERTICALLY		
	0	882
	5	880
	15	841
	25	778
	35	725
	45	703
	55	692
	65	639
	75	521
	85	381
	90	328
	95	304
	105	246
	115	151
	125	63
	135	8
	145	0
	155	0
	165	0
	175	0
	180	0

TEST NO.: HP-07472
LUMINAIRE: LIGHTWATT haz location
Reflective Material:
STEEL
Finish: WHITE PAINT
Closure:
UVA-825 PRISMATIC
ACRYLIC REFRACTOR
LAMP(S): TWO PLT42W-35-4P
EACH RATED: 3200 LUMENS
LINE POWER: 82 WATTS

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	681	10.6	14.5
0-40	1137	17.8	24.1
0-60	2301	36.0	48.9
0-90	3901	61.0	82.8
90-120	743	11.6	15.8
90-180	808	12.6	17.2
0-180	4709	73.6	100.0

TOTAL LUMINAIRE EFFICIENCY: 73.6%
TOTAL REFLECTANCE OF PAINT: 87.8%
SHIELDING ANGLE IN DEGREES: PARALLEL 0
NORMAL 0

SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.3	1.3	1.5

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

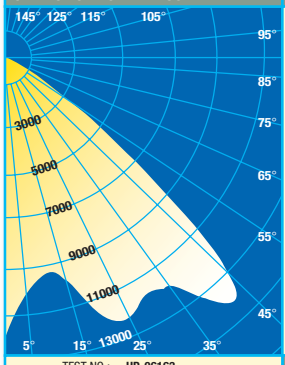
RC	80			70			50			30		10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0	0
0	84	84	84	84	80	80	80	80	74	74	74	68	68	68	62	62	62	59
1	74	69	65	61	70	66	62	59	60	57	55	55	53	50	50	48	47	44
2	66	58	52	47	62	56	50	45	51	46	42	46	42	39	42	39	36	34
3	59	50	43	38	56	48	42	37	44	39	34	40	35	32	36	33	30	27
4	54	44	37	31	51	42	35	30	38	33	28	35	30	26	32	28	24	22
5	49	38	31	25	46	36	30	25	33	27	23	30	25	21	27	23	20	18
6	44	34	26	21	42	32	25	21	29	24	19	27	22	18	24	20	17	15
7	41	30	23	18	39	29	22	18	26	21	16	24	19	15	22	18	14	13
8	37	27	20	15	35	26	19	15	23	18	14	21	17	13	20	15	12	10
9	34	24	17	13	33	23	17	13	21	16	12	19	14	11	18	13	10	9
10	32	22	16	11	30	21	15	11	19	14	10	18	13	10	16	12	9	7

PHOTOMETRICS

TRIBAY® SERIES

For complete spacing-to-mounting height ratios, visit our web site at www.hubbell-ltg.com

PHOTOMETRIC REPORT
CAT. NO.: CH-40-H-x-x-0U



TEST NO.: HP-06163
LUMINAIRE: Tribay 2.0 Superbay
Finish: WHITE PAINT
Optics:
19" SEMI-SPECULAR ALUMINUM
LAMP(S): ONE MVR-400/U
EACH RATED: 36,000 LUMENS
LINE POWER: 400 WATTS

TOTAL LUMINAIRE EFFICIENCY: 84.7%
TOTAL REFLECTANCE OF PAINT: XX%
SHIELDING ANGLE IN DEGREES: PARALLEL X NORMAL X

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	11998
5	10176
15	9907
25	12286
35	12036
45	13210
55	2530
65	610
75	103
85	29
90	25
95	25
105	39
115	33
125	27
135	22
145	19
155	35
165	104
175	13
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	9466	26.3	31.1
0-40	17027	47.3	55.9
0-60	29527	82.0	96.9
0-90	30273	84.1	99.3
90-120	103	0.3	0.3
90-180	202	0.6	0.7
0-180	30475	84.7	100.0

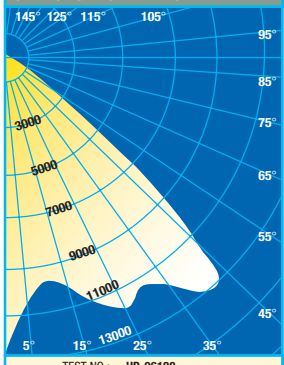
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.7	1.7	1.6

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	101	101	101	101	98	98	98	98	94	94	94	90	90	90	86	86	86	84
1	95	92	89	87	93	90	88	86	86	85	83	83	82	80	80	79	78	76
2	89	84	80	77	87	83	79	76	80	77	74	77	75	72	75	73	71	69
3	84	77	72	68	82	76	71	68	74	70	67	71	68	65	69	67	64	63
4	78	70	64	60	76	69	64	60	67	63	59	65	61	58	63	60	57	56
5	72	64	58	53	71	63	57	53	61	56	52	60	55	52	58	54	51	50
6	67	58	52	47	66	57	51	47	56	51	47	54	50	46	53	49	46	44
7	62	52	46	41	61	52	46	41	50	45	41	49	44	41	48	44	40	39
8	57	47	41	36	56	46	40	36	45	40	36	44	39	36	43	39	35	34
9	52	42	35	31	51	41	35	31	40	35	31	39	34	31	39	34	31	29
10	46	35	29	25	45	35	29	25	34	28	24	33	28	24	33	28	24	23

PHOTOMETRIC REPORT
CAT. NO.: CH-40-H-x-x-EU



TEST NO.: HP-06188
LUMINAIRE: Tribay 2.0 Superbay
Finish: WHITE PAINT
Optics:
19" SEMI-SPECULAR ALUMINUM W/ CLEAR FLAT GLASS CLOSURE
LAMP(S): ONE MVR-400/U
EACH RATED: 36,000 LUMENS
LINE POWER: 400 WATTS

TOTAL LUMINAIRE EFFICIENCY: 79.6%
TOTAL REFLECTANCE OF PAINT: XX%
SHIELDING ANGLE IN DEGREES: PARALLEL X NORMAL X

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	12571
5	10427
15	10065
25	11798
35	11790
45	11744
55	2197
65	541
75	109
85	32
90	20
95	21
105	25
115	31
125	30
135	22
145	18
155	30
165	120
175	10
180	11

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	9309	25.9	32.5
0-40	16715	46.4	58.3
0-60	27781	77.2	97.0
0-90	28468	79.1	99.4
90-120	80	0.2	0.3
90-180	184	0.5	0.6
0-180	28652	79.6	100.0

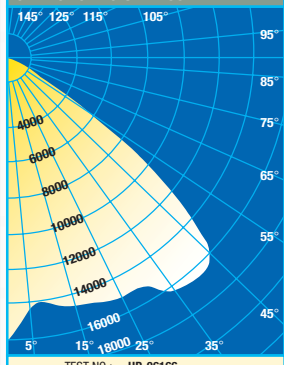
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.5	1.5	1.5

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	95	95	95	95	92	92	92	92	88	88	88	84	84	84	81	81	81	79
1	89	87	84	82	87	85	83	81	81	80	78	78	77	76	75	74	73	72
2	84	79	76	73	82	78	75	72	75	72	70	73	70	68	71	69	67	65
3	79	73	68	65	77	72	68	64	70	66	63	68	65	62	66	63	61	60
4	74	66	61	57	72	65	61	57	64	59	56	62	58	55	60	57	55	53
5	69	61	55	51	67	60	55	51	58	54	50	57	53	50	55	52	49	48
6	64	55	49	45	62	54	49	45	53	48	45	52	48	44	51	47	44	43
7	59	50	44	40	58	49	44	40	48	43	40	47	43	39	46	42	39	38
8	54	45	39	35	53	44	39	35	43	38	35	43	38	35	42	37	34	33
9	50	40	34	30	49	40	34	30	39	34	30	38	33	30	37	33	30	28
10	44	34	28	24	43	34	28	24	33	28	24	32	27	24	32	27	24	22

PHOTOMETRIC REPORT
CAT. NO.: CH-40-S-x-x-0U



TEST NO.: HP-06166
LUMINAIRE: Tribay 2.0 Superbay
Finish: WHITE PAINT
Optics:
19" SEMI-SPECULAR ALUMINUM
LAMP(S): ONE C400S51
EACH RATED: 50,000 LUMENS
LINE POWER: 400 WATTS

TOTAL LUMINAIRE EFFICIENCY: 84.9%
TOTAL REFLECTANCE OF PAINT: XX%
SHIELDING ANGLE IN DEGREES: PARALLEL X NORMAL X

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	16142
5	14426
15	14602
25	15066
35	16259
45	16039
55	6572
65	933
75	141
85	39
90	34
95	40
105	47
115	54
125	50
135	40
145	29
155	84
165	63
175	18
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	12489	25.0	29.4
0-40	22703	45.4	53.5
0-60	41020	82.0	96.7
0-90	42137	84.3	99.3
90-120	147	0.3	0.3
90-180	300	0.6	0.7
0-180	42437	84.9	100.0

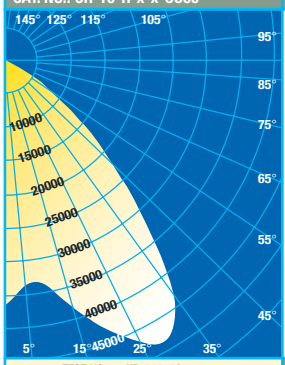
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.6	1.6	1.6

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	101	101	101	101	98	98	98	98	94	94	94	90	90	90	86	86	86	84
1	95	92	89	87	93	90	88	85	86	84	83	83	82	80	80	79	78	76
2	89	84	80	76	87	82	79	75	79	76	74	77	74	72	74	72	70	69
3	83	77	71	67	81	75	71	67	73	69	66	71	67	64	69	66	63	62
4	77	69	63	59	75	68	63	58	66	61	58	64	60	57	62	59	56	55
5	72	63	56	52	70	62	56	52	60	55	51	58	54	50	57	53	50	48
6	66	57	50	46	65	56	50	45	54	49	45	53	48	45	52	47	44	43
7	61	51	44	40	60	50	44	39	49	43	39	48	43	39	47	42	39	37
8	56	46	39	34	55	45	39	34	44	38	34	43	38	34	42	37	34	32
9	51	41	34	30	50	40	34	30	39	34	30	38	33	29	37	33	29	28
10	46	35	28	24	45	34	28	24	34	28	24	33	27	24	32	27	23	22

PHOTOMETRIC REPORT
CAT. NO.: CH-10-H-x-x-0U60



TEST NO.: HP-06171A
LUMINAIRE: Tribay-0U
Optics: PILLAR 2
Reflective material: ALUMINUM
Finish: BRIGHT, DIFFUSE
LAMP(S): Closure: OPEN
EACH RATED: ONE MVR-1000/U
LINE POWER: 110,000 LUMENS
1080 WATTS

TOTAL LUMINAIRE EFFICIENCY: 82.8%
TOTAL REFLECTANCE OF PAINT: 78.8%
SHIELDING ANGLE IN DEGREES: PARALLEL 35 NORMAL 35

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	36908
5	34172
15	38695
25	47223
35	43825
45	22707
55	8358
65	1068
75	252
85	129
90	143
95	213
105	120
115	342
125	242
135	136
145	123
155	128
165	158
175	145
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	36112	32.8	39.6
0-40	63076	57.3	69.2
0-60	88374	80.3	97.0
0-90	89917	81.7	98.7
90-120	606	0.6	0.7
90-180	1191	1.1	1.3
0-180	91108	82.8	100.0

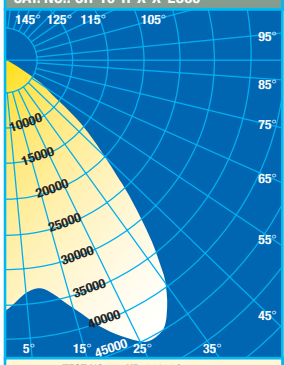
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.6	1.6	1.4

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	99	99	99	99	96	96	96	96	92	92	92	88	88	88	84	84	84	82
1	93	91	88	86	91	89	87	85	85	84	82	82	81	79	79	78	77	75
2	88	84	80	77	86	82	79	76	80	77	75	77	75	73	74	73	71	70
3	84	78	73	70	82	77	73	69	74	71	68	72	69	67	70	68	66	64
4	78	71	66	63	77	70	66	62	68	64	61	67	63	60	65	62	60	58
5	74	66	60	56	72	65	60	56	63	59	56	62	58	55	60	57	54	53
6	69	61	55	51	68	60	55	51	58	54	50	57	53	50	56	52	49	48
7	64	55	50	46	63	55	49	46	54	49	45	52	48	45	51	48	45	43
8	60	51	45	41	59	50	45	41	49	44	41	48	44	40	47	43	40	39
9	56	46	40	39	54	46	40	36	45	40	36	44	39	36	43	39	36	35
10	50	40	34	30	49	39	34	30	39	33	30	38	33	30	37	33	30	28

PHOTOMETRIC REPORT
CAT. NO.: CH-10-H-X-X-EU60



TEST NO.: HP-06186A
LUMINAIRE: Tribay-EU
Reflective Material: ALUMINIM
Finish: BRIGHT, DIFFUSE
Closure: OPEN
LAMP(S): ONE MVR-1000/U
EACH RATED: 110,000 LUMENS
LINE POWER: 1080 WATTS

TOTAL LUMINAIRE EFFICIENCY: 75.8%
TOTAL REFLECTANCE OF PAINT: 78.8%
SHIELDING ANGLE IN DEGREES: PARALLEL 37 NORMAL 37

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	36162
5	33911
15	37509
25	45229
35	39819
45	20124
55	6303
65	1005
75	267
85	220
90	147
95	149
105	157
115	221
125	255
135	158
145	135
155	146
165	142
175	147
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	34743	31.6	41.6
0-40	59188	53.8	70.9
0-60	80773	73.4	96.8
0-90	82255	74.8	98.6
90-120	597	0.5	0.7
90-180	1179	1.1	1.4
0-180	83434	75.8	100.0

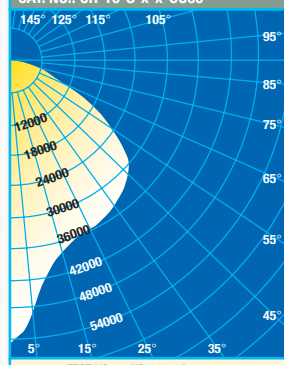
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.5	1.5	1.3

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	90	90	90	90	88	88	88	88	84	84	84	80	80	80	77	77	77	75
1	86	83	81	79	84	81	80	78	78	77	75	75	74	73	72	71	71	69
2	81	77	74	71	79	76	73	70	73	71	69	71	69	67	68	67	65	64
3	77	72	68	65	75	71	67	64	68	65	63	66	64	62	65	62	61	59
4	72	66	61	58	71	65	61	58	63	60	57	62	59	56	60	57	55	54
5	68	61	56	53	67	60	56	52	59	55	52	57	54	51	56	53	51	49
6	64	56	51	48	63	56	51	48	54	50	47	53	50	47	52	49	46	45
7	60	52	47	43	59	51	46	43	50	46	43	49	45	42	48	45	42	41
8	56	48	42	39	55	47	42	39	46	42	38	45	41	38	44	41	38	37
9	52	43	38	35	51	43	38	35	42	38	35	41	37	34	41	37	34	33
10	47	38	32	29	46	37	32	29	37	32	29	36	32	28	35	31	28	27

PHOTOMETRIC REPORT
CAT. NO.: CH-10-S-x-x-0U60



TEST NO.: HP-06178A
LUMINAIRE: Tribay-0U
Optics: PILLAR 5
Reflective Material: ALUMINUM
Finish: BRIGHT, DIFFUSE
Closure: OPEN
LAMP(S): ONE C1000S52
EACH RATED: 140,000 LUMENS
LINE POWER: 1100 WATTS

TOTAL LUMINAIRE EFFICIENCY: 81.9%
TOTAL REFLECTANCE OF PAINT: 78.8%
SHIELDING ANGLE IN DEGREES: PARALLEL 31 NORMAL 31

CANDELA DISTRIBUTION

VERTICALLY	CANDELA
0	55154
5	48458
15	38626
25	36387
35	34588
45	31555
55	23297
65	11519
75	2473
85	320
90	145
95	121
105	159
115	168
125	160
135	169
145	116
155	123
165	129
175	120
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	32249	23.0	28.1
0-40	53949	38.5	47.1
0-60	99088	70.8	86.5
0-90	113725	81.2	99.2
90-120	429	0.3	0.4
90-180	879	0.6	0.8
0-180	114604	81.9	100.0

SPACING CRITERION

0-DEG	90-DEG	BTWN 4
0.9	0.9	1.3

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

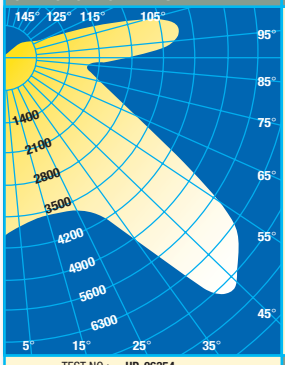
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	97	97	97	97	95	95	95	95	91	91	91	87	87	87	83	83	83	81
1	91	87	85	82	88	86	83	81	82	80	78	79	77	76	76	74	73	72
2	84	79	74	70	82	77	73	69	74	71	68	72	69	66	69	67	65	63
3	78	71	65	61	76	70	64	60	67	63	59	65	61	58	63	60	57	55
4	72	63	57	52	70	62	56	52	60	55	51	58	54	50	56	53	50	48
5	66	57	50	45	65	56	50	45	54	49	45	53	48	44	51	47	44	42
6	61	51	45	40	60	50	44	40	49	43	39	48	43	39	46	42	38	37
7	56	46	39	35	55	45	39	35	44	38	34	43	38	34	42	37	33	32
8	52	42	35	30	51	41	35	30	40	34	30	39	34	30	38	33	30	28
9	48	38	31	27	47	37	31	27	36	31	27	35	30	26	35	30	26	25
10	44	33	27	22	43	33	26	22	32	26	22	31	26	22	30	25	22	20

PHOTOMETRICS

TRIBAY® SERIES

For complete spacing-to-mounting height ratios, visit our web site at www.hubbell-ltg.com

PHOTOMETRIC REPORT
CAT. NO.: CH-40-H-x-x-SW



TEST NO.: HP-06354
LUMINAIRE: Tribay 2.0 Superwatt
Finish: WHITE PAINT
Optics: ALUMINUM
LAMP(S): ONE MVR-400/U
EACH RATED: 36,000 LUMENS
LINE POWER: 460 WATTS

TOTAL LUMINAIRE EFFICIENCY: 95.1%
TOTAL REFLECTANCE OF PAINT: 91.9%
SHIELDING ANGLE IN DEGREES: PARALLEL 0, NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	
0	3925
5	3747
15	3632
25	3703
35	4713
45	7170
55	5965
65	3323
75	2264
85	1836
90	2559
95	3632
105	3279
115	1200
125	635
135	457
145	164
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	3117	8.7	9.1
0-40	6170	17.1	18.0
0-60	16867	46.9	49.2
0-90	24816	68.9	72.5
90-120	8405	23.3	24.5
90-180	9435	26.2	27.5
0-180	34251	95.1	100.0

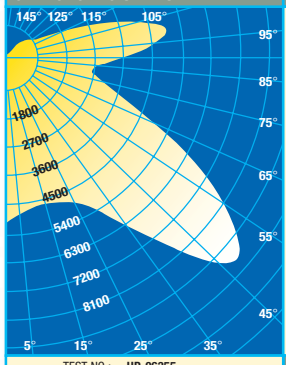
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.3	2.3	2.1

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	107	107	107	107	101	101	101	101	91	91	91	81	81	81	73	73	73	69
1	95	90	85	81	90	85	81	77	76	73	70	68	65	63	60	58	57	53
2	86	78	71	65	81	74	67	62	66	61	56	59	55	51	52	49	46	43
3	78	68	59	53	73	64	57	51	57	51	46	51	46	42	45	42	38	35
4	71	59	50	43	66	56	48	42	50	43	38	44	39	35	39	35	32	29
5	64	51	42	36	60	49	40	34	44	37	32	39	33	29	34	30	26	23
6	58	45	36	30	55	43	35	29	38	32	26	34	29	24	30	26	22	19
7	53	40	31	25	50	38	30	24	34	27	22	30	24	20	27	22	18	16
8	48	35	27	21	45	33	25	20	30	23	18	26	21	16	23	18	15	13
9	45	31	23	18	42	30	22	17	26	20	15	24	18	14	21	16	12	10
10	41	27	19	14	38	26	18	13	23	17	12	20	15	11	18	13	10	8

PHOTOMETRIC REPORT
CAT. NO.: CH-40-S-x-x-SW



TEST NO.: HP-06355
LUMINAIRE: Tribay 2.0 Superwatt
Finish: WHITE PAINT
Optics: ALUMINUM
LAMP(S): ONE C400S51
EACH RATED: 50,000 LUMENS
LINE POWER: 465 WATTS

TOTAL LUMINAIRE EFFICIENCY: 92.9%
TOTAL REFLECTANCE OF PAINT: 91.9%
SHIELDING ANGLE IN DEGREES: PARALLEL 0, NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	
0	5143
5	4866
15	4689
25	4978
35	6255
45	9007
55	8254
65	5188
75	3036
85	2955
90	3676
95	4522
105	4088
115	1713
125	886
135	606
145	227
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	4120	8.2	8.9
0-40	8146	16.3	17.5
0-60	22391	44.8	48.2
0-90	34047	68.1	73.3
90-120	10997	22.0	23.7
90-180	12414	24.8	26.7
0-180	46461	92.9	100.0

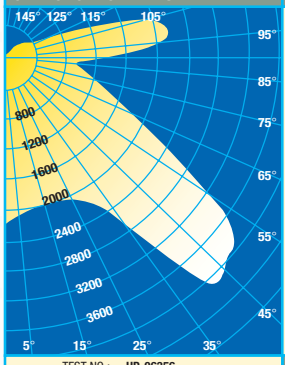
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.3	2.3	2.1

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	104	104	104	104	99	99	99	99	89	89	89	80	80	80	72	72	72	68
1	93	87	82	78	87	83	78	74	74	71	68	66	64	61	59	57	55	51
2	84	75	68	62	79	71	65	59	64	59	54	57	53	49	51	48	45	41
3	76	65	57	51	71	62	54	49	55	49	45	50	45	41	44	40	37	34
4	68	56	48	41	64	53	46	39	48	41	36	43	38	33	38	34	30	27
5	62	49	40	34	58	47	39	33	42	35	30	37	32	27	33	29	25	22
6	56	43	35	28	53	41	33	27	37	30	25	33	27	23	29	24	21	18
7	51	38	29	23	48	36	28	22	32	26	21	29	23	19	26	21	17	15
8	47	34	25	19	44	32	24	19	29	22	17	25	20	16	23	18	14	12
9	43	30	22	17	40	28	21	16	26	19	14	23	17	13	20	15	12	10
10	39	26	19	13	37	25	18	13	22	16	12	20	14	10	17	13	9	7

PHOTOMETRIC REPORT
CAT. NO.: CH-25-H-x-x-SW



TEST NO.: HP-06356
LUMINAIRE: Tribay 2.0 Superwatt
Finish: WHITE PAINT
Optics: ALUMINUM
LAMP(S): ONE MVR-250/U
EACH RATED: 20,500 LUMENS
LINE POWER: 285 WATTS

TOTAL LUMINAIRE EFFICIENCY: 93.7%
TOTAL REFLECTANCE OF PAINT: 91.9%
SHIELDING ANGLE IN DEGREES: PARALLEL 0, NORMAL 0

CANDELA DISTRIBUTION

VERTICALLY	
0	2203
5	2101
15	2035
25	2074
35	2647
45	4070
55	3477
65	1839
75	1264
85	932
90	1307
95	2003
105	1912
115	681
125	353
135	257
145	92
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	1743	8.5	9.1
0-40	3450	16.8	18.0
0-60	9612	46.9	50.1
0-90	13902	67.8	72.4
90-120	4722	23.0	24.6
90-180	5298	25.8	27.6
0-180	19200	93.7	100.0

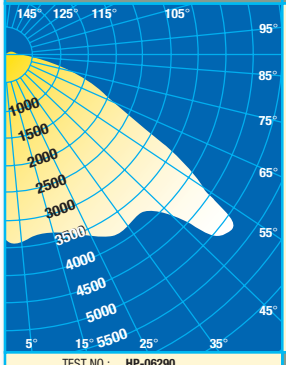
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
2.3	2.3	2.1

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	106	106	106	106	100	100	100	100	90	90	90	80	80	80	72	72	72	68
1	94	89	85	80	89	85	80	77	76	72	69	67	65	63	60	58	56	52
2	85	77	70	64	80	73	67	62	65	60	56	58	54	51	52	49	46	42
3	77	67	59	53	73	64	56	51	57	51	46	51	46	42	45	41	38	35
4	70	58	50	43	66	55	47	41	49	43	38	44	39	35	39	35	31	28
5	63	51	42	36	60	48	40	34	43	37	31	39	33	29	34	30	26	23
6	58	45	36	30	54	42	34	29	38	31	26	34	28	24	30	25	22	19
7	53	39	31	25	49	37	29	24	33	27	22	30	24	20	26	21	18	15
8	48	35	26	20	45	33	25	20	29	23	18	26	20	16	23	18	15	12
9	44	31	23	17	41	29	22	17	26	20	15	23	18	14	21	16	12	10
10	40	27	19	14	38	26	18	13	23	16	12	20	15	11	18	13	9	8

PHOTOMETRIC REPORT
CAT. NO.: CH-25-H-x-x-LM



TEST NO.: HP-06290
LUMINAIRE: Tribay 2.0 Controlux
Finish: WHITE PAINT
Optics: PRISMATIC ACRYLIC REFLECTOR
LAMP(S): ONE MVR-250/U
EACH RATED: 20,500 LUMENS
LINE POWER: 285 WATTS

TOTAL LUMINAIRE EFFICIENCY: 81.6%
TOTAL REFLECTANCE OF PAINT: XX%
SHIELDING ANGLE IN DEGREES: PARALLEL X, NORMAL X

CANDELA DISTRIBUTION

VERTICALLY	
0	3327
5	3353
15	3293
25	3520
35	3716
45	3805
55	4234
65	2426
75	1229
85	422
90	237
95	191
105	153
115	102
125	49
135	9
145	0
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	2890	14.1	17.3
0-40	5216	25.4	31.2
0-60	11969	58.4	71.6
0-90	16189	79.0	96.8
90-120	477	2.3	2.9
90-180	532	2.6	3.2
0-180	16721	81.6	100.0

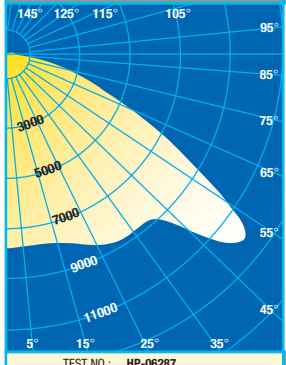
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.7	1.7	2.1

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	96	96	96	96	94	94	94	94	89	89	89	85	85	85	81	81	81	79
1	87	83	79	76	85	81	78	75	77	74	72	73	71	69	70	68	67	65
2	79	72	67	62	77	71	65	61	67	63	59	64	60	57	61	58	56	54
3	72	63	59	51	70	62	55	50	59	54	49	56	52	48	54	50	47	45
4	65	55	48	42	63	54	47	41	51	45	41	49	44	40	47	43	39	37
5	59	48	41	35	57	47	40	35	45	39	34	43	38	33	41	37	33	31
6	54	43	35	30	52	42	35	29	40	34	29	38	33	28	37	32	28	26
7	49	38	30	25	48	37	30	25	35	29	24	34	28	24	33	27	23	22
8	45	33	26	21	44	33	26	21	31	25	20	30	24	20	29	24	20	18
9	42	30	23	18	40	29	23	18	28	22	18	27	22	17	26	21	17	16
10	38	26	19	15	37	26	19	14	25	19	14	24	18	14	23	18	14	12

PHOTOMETRIC REPORT
CAT. NO.: CH-40-S-x-x-LM



TEST NO.: HP-06287
LUMINAIRE: Tribay 2.0 Controlux
Finish: WHITE PAINT
Optics: PRISMATIC ACRYLIC REFLECTOR
LAMP(S): ONE C400S51
EACH RATED: 50,000 LUMENS
LINE POWER: 465 WATTS

TOTAL LUMINAIRE EFFICIENCY: 81.1%
TOTAL REFLECTANCE OF PAINT: XX%
SHIELDING ANGLE IN DEGREES: PARALLEL X, NORMAL X

CANDELA DISTRIBUTION

VERTICALLY	
0	7841
5	7770
15	7891
25	8406
35	8830
45	9181
55	10320
65	6058
75	3040
85	1040
90	584
95	466
105	373
115	252
125	125
135	27
145	0
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	6877	13.8	17.0
0-40	12409	24.8	30.6
0-60	28742	57.5	70.9
0-90	39227	78.5	96.8
90-120	1166	2..3	2.9
90-180	1303	2.6	3.2
0-180	40530	81.1	100.0

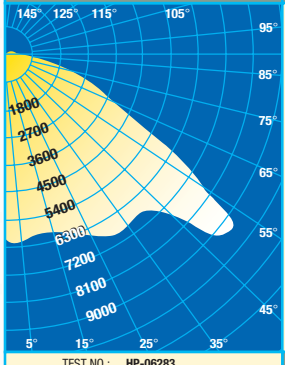
SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.7	1.7	2.1

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	96	96	96	96	93	93	93	93	89	89	89	84	84	84	80	80	80	79
1	87	83	79	76	84	81	77	74	77	74	71	73	71	69	70	68	66	64
2	79	72	66	61	76	70	65	60	67	62	58	64	60	57	61	58	55	53
3	72	63	56	50	69	61	55	50	58	53	49	56	51	47	53	50	46	44
4	65	55	47	41	63	53	46	41	51	45	40	49	43	39	47	42	38	36
5	59	48	40	34	57	47	39	34	45	38	33	43	37	33	41	36	32	30
6	54	42	35	29	52	41	34	29	40	33	28	38	32	28	36	31	27	26
7	49	37	30	24	47	36	29	24	35	28	24	33	28	23	32	27	23	21
8	45	33	26	20	43	32	25	20	31	25	20	30	24	20	29	23	19	18
9	41	30	23	18	40	29	22	18	28	22	17	27	21	17	26	21	17	15
10	38	26	19	14	36	25	19	14	24	18	14	23	18	14	22	17	14	12

PHOTOMETRIC REPORT
CAT. NO.: CH-40-H-x-x-LM



TEST NO.: HP-06283
LUMINAIRE: Tribay 2.0 Controlux
Finish: WHITE PAINT
Optics: PRISMATIC ACRYLIC REFLECTOR
LAMP(S): ONE MVR-400/U
EACH RATED: 36,000 LUMENS
LINE POWER: 460 WATTS

TOTAL LUMINAIRE EFFICIENCY: 84.5%
TOTAL REFLECTANCE OF PAINT: XX%
SHIELDING ANGLE IN DEGREES: PARALLEL X, NORMAL X

CANDELA DISTRIBUTION

VERTICALLY	
0	6010
5	6091
15	6013
25	6433
35	6824
45	6984
55	7655
65	4451
75	2242
85	768
90	432
95	345
105	277
115	185
125	93
135	21
145	0
155	0
165	0
175	0
180	0

ZONAL LUMEN SUMMARY

DEG ZONE	LUMENS	% LAMP	% FIXT
0-30	5268	14.6	17.3
0-40	9535	26.5	31.3
0-60	21789	60.5	71.6
0-90	29468	81.9	96.8
90-120	864	2.4	2.8
90-180	969	2.7	3.2
0-180	30437	84.5	100.0

SPACING CRITERION

0-DEG	90-DEG	BTWN 4
1.7	1.7	2.0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10		0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	100	100	100	100	98	98	98	98	93	93	93	88	88	88	84	84	84	82
1	91	86	83	79	88	84	81	77	80	77	75	76	74	72	73	71	69	67
2	82	75	69	64	80	73	68	63	70	65	61	67	63	60	64	61	58	56
3	75	66	59	53	73	64	58	52	61	56	51	59	54	50	56	52	49	47
4	68	57	49	44	66	56	49	43	53	47	42	51	46	41	49	44	40	38
5	62	50	42	36	60	49	42	36	47	40	35	45	39	35	43	38	34	32
6	56	44	36	31	54	43	36	30	42	35	30	40	34	29	38	33	29	27
7	51	39	31	26	50	38	31	26	37	30	25	35	29	25	34	28	24	23
8	47	35	27	22	45	34	27	22	33	26	21	31	25	21	30	25	21	19
9	43	31	24	19	42	31	24	19	29	23	18	28	22	18	27	22	18	16
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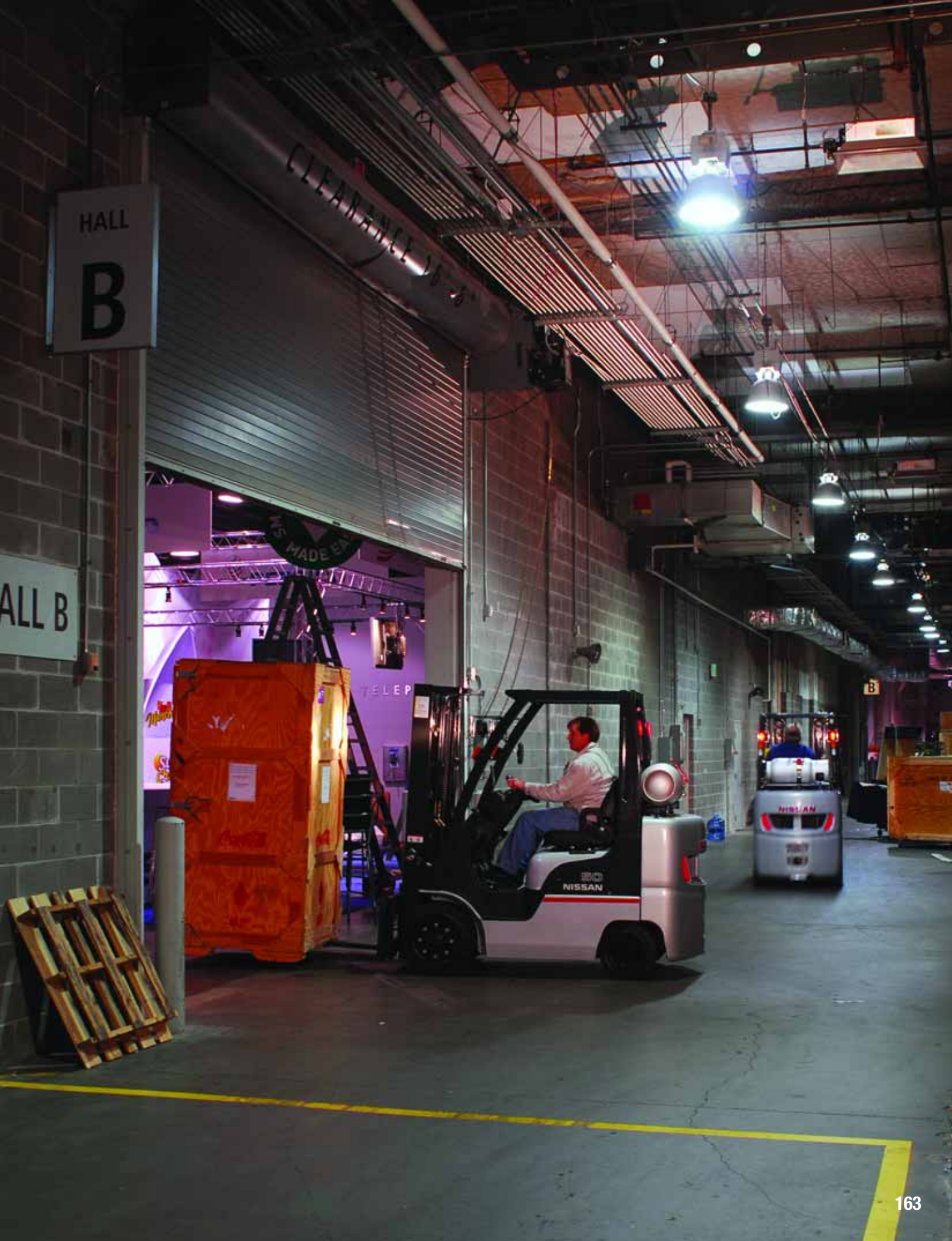
HALL
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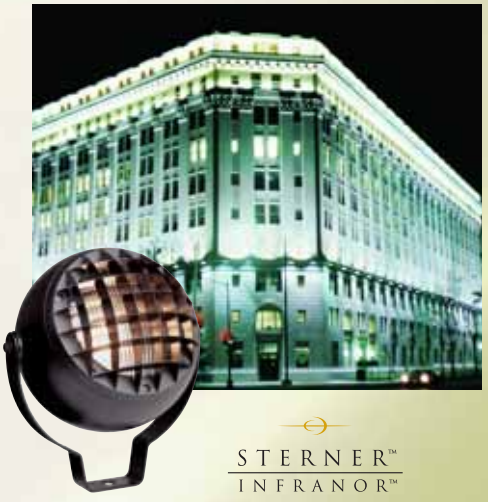
NISSAN

ADDITIONAL HUBBELL LIGHTING PRODUCTS

Precision Floodlighting

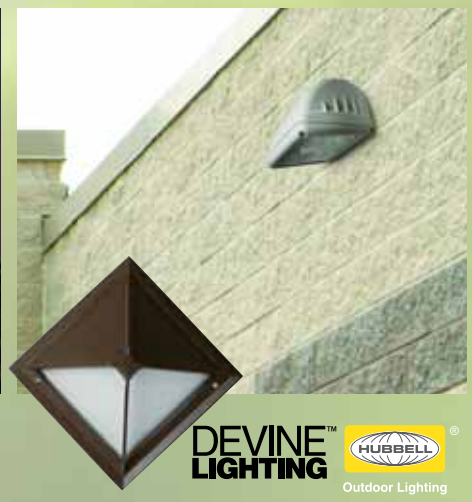


STERNER™ INFRANOR™

Floodlighting

HUBBELL® Outdoor Lighting

Wall/Surface Lighting



DEVINE™ LIGHTING HUBBELL® Outdoor Lighting

Sports Lighting

SLS SHORTSTUFF SOLUTIONS

Low Level Pedestrian

DEVINE™ LIGHTING SPAULDING LIGHTING

Area Lighting

STERNER™ INFRANOR™ SPAULDING LIGHTING

Due to our continued efforts to improve our products, product specifications are subject to change without notice.

HUBBELL®

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