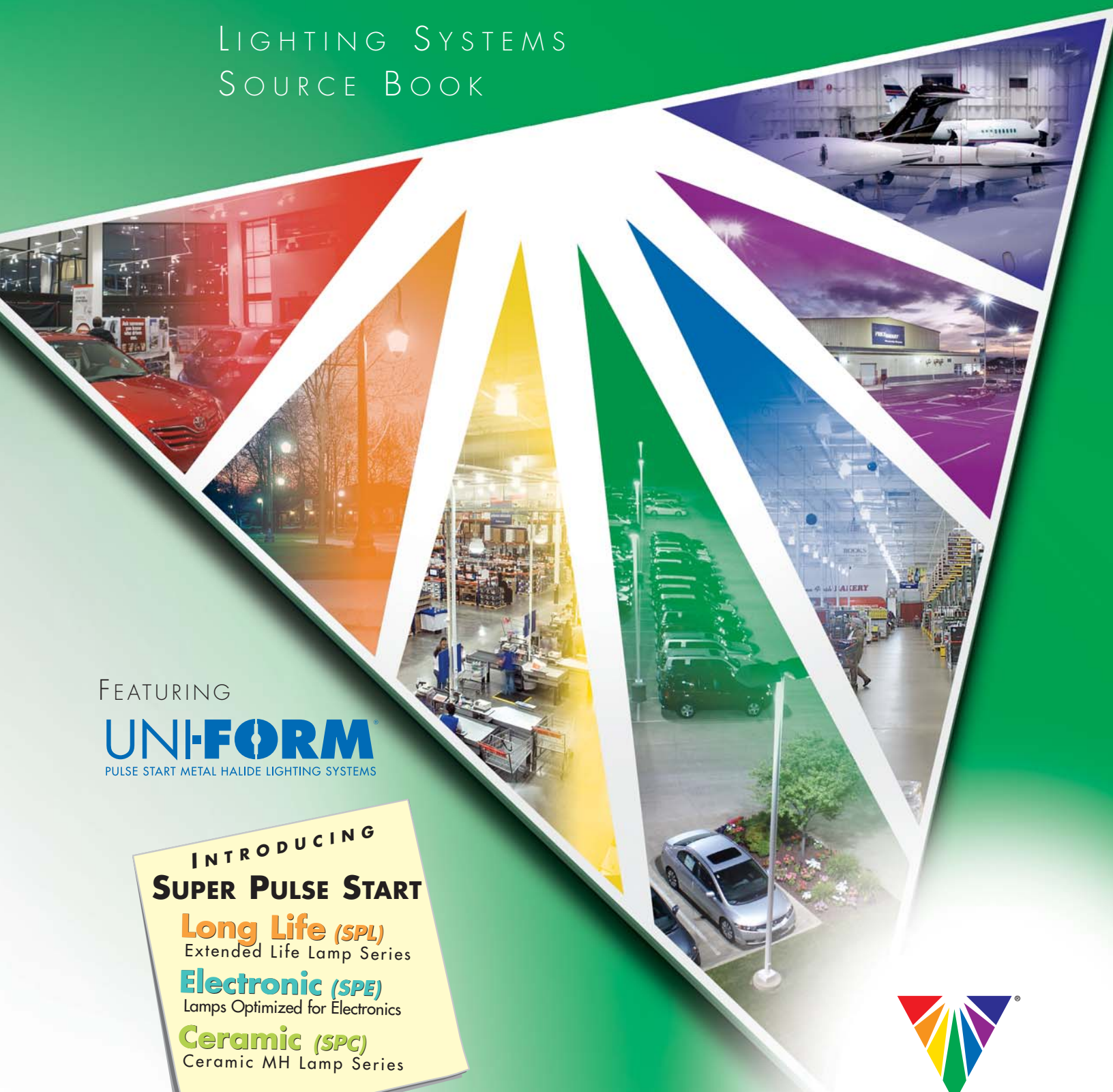
VENTURE LIGHTING®

LIGHTING SYSTEMS SOURCE BOOK



FEATURING

UNI-FORM®

PULSE START METAL HALIDE LIGHTING SYSTEMS

INTRODUCING

SUPER PULSE START

Long Life *(SPL)*
Extended Life Lamp Series

Electronic *(SPE)*
Lamps Optimized for Electronics

Ceramic *(SPC)*
Ceramic MH Lamp Series

VENTURE® LIGHTING

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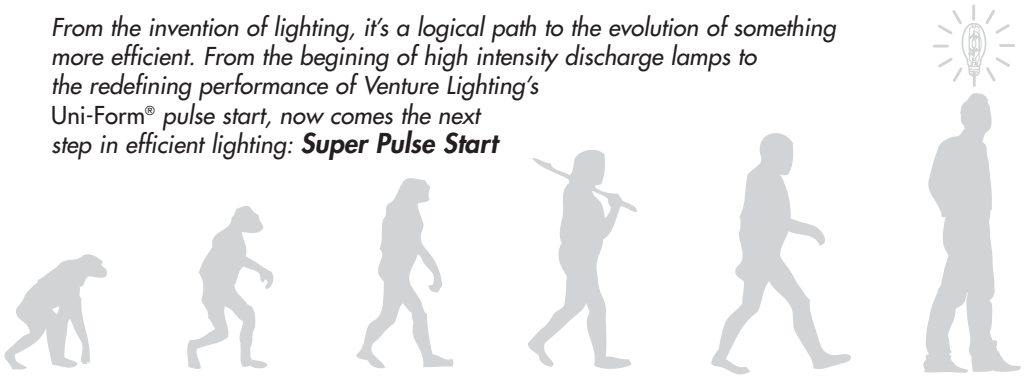
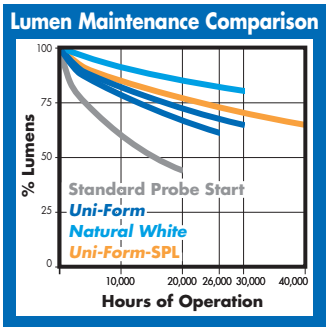
INTRODUCTION INFORMATION

Evolution of Innovative Lighting

Introduction Information

From the invention of lighting, it's a logical path to the evolution of something more efficient. From the begining of high intensity discharge lamps to the redefining performance of Venture Lighting's Uni-Form® *pulse start, now comes the next step in efficient lighting:* ***Super Pulse Start***





Super Pulse Start

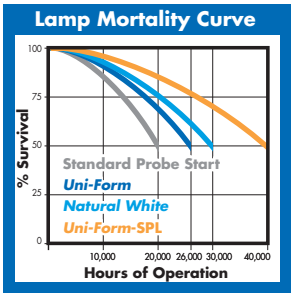
Probe start, pinched cylindrical metal halide

Incandescent

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

The Lamp that changed an industry

- The Original
- Prefix: MP & MH & MS
- Quartz metal halide
- 50W to 1000W
- Open and Enclosed Rated
- Typical CRI 68
- Typical Color Temp 3700K - 4000K
- Natural White®: **90+ CRI, 5000K**
- Up to 30000 hours Life
- Horizontal ±75° (H75) versions



Long Life *(SPL)*

- Patent pending design for long life
- Prefix: MPL & MHL
- Quartz metal halide
- 60W to 575W
- Typical CRI 68
- Vertical & H75
- 40,000 hours rated Life
- 80% Lumen Maintenance (0.80 LLD)
- Up to 90 lumens per watt

Electronic *(SPE)*

- Prefix: MPE & MHE
- Quartz metal halide
- 60W to 150W
- Dimmable to 50%
- Up to 90 LPW
- CRI up to 70
- Universal operating position
- Color temperature: 4000K
- ED28, ED17, T15
- Open and Enclosed rated version
- 20,000 hrs rated life
- 80% Lumen Maintenance (0.80 LLD)

Ceramic *(SPC)*

- Prefix: MPC & MHC
- Ceramic metal halide
- 20W to 315W
- MR16, T4, T6, PAR30, PAR38, T6C, and T12 lamp shapes
- Up to 90 CRI, typical 3000K CCT
- Up to 30,000 hours rated life
- Electronic Ballasts only
- Vibrant color rendition

PRODUCT DESCRIPTION CODES

INTRODUCTION INFORMATION

Lamp Description Codes

The product description code gives you complete information about the lamp.

☐ ☐ / ☐ / ☐ / ☐ / ☐ / ☐ / ☐

Lamp Type
- **MH** -Enclosed rated Metal halide
- **MS** -Enclosed rated, high output MH lamps for dedicated operating positions
- **MP** -Open Rated, shrouded arc tube *Uni-Form* pulse start lamp
- **MHC** -Ceramic metal halide
- **MPC** -Open rated Ceramic MH
- **HIT** -MH tubular G12 enclosed rated
- **MH-DE** -Metal halide, double ended
- **MBIL** -High wattage, double ended
- **MPE** -Open rated, pulse start designed for electronic ballasts
- **MPI** -Open rated, probe start lamp (shrouded arc tube) designed for electronic ballasts
- **MHL** -Enclosed rated, long life (40,000 hrs.) lamp
- **MPL** -Open rated, long life (40,000 hrs.) lamp

Wattage
20 Watts- 2000 Watts

Finish
Nothing = Clear
C- Coated

Operating Position
- **U** - Universal
- **BU** - Base Up (±15°)
- **V** - Vertical (±15°)
- **H75** - Horizontal (±75°)
- **HBD** - Hor. to Base Down (±90°)
- **HBU** - Hor. to Base Up (±90°)
- **HOR** - Horizontal (±45°, or ±15°) with POM base

Bulb Type
Shape and diameter in 1/8 inches
- **ED##** - Elliptical Dimple
- **BT##** - Blown Tubular
- **T##** - Tubular
- **MED** - Medium base

Start Type
- **PS** - Pulse start
- **UVS** - UV Shield®
- **LU** - HPS retrofit lamp
- **EM** - Energy Saving

Color Code
(CCT) in degrees Kelvin
- **27K** - 2700K
- **3K** - 3000K to 3200K
- **4K** - 3700K to 4000K
- **5K** - 5000K
- **6K** - 6500K
- **10K** - 10,000K
- **732** - 3200K, 70 CRI
- **734** - 3400K, 68 CRI
- **737** - 3700K, 70 CRI
- **740** - 4000K, 68 CRI
- **850** - 5000K, 80 CRI
- **950** - 5000K, 90+ CRI

Beam Angle

Venture Lamp Description Example:
MP 350W/C/V/ED28/UVS/PS/737

MP = Metal halide, protected, shrouded arc tube for open rated fixture **350W** = 350 Watts; **C** = The finish is coated; **V** = Vertical operating position (±15°); **ED28** = Bulb shape is elliptical dimple, 28 eighth's of inches (3.5"); **UVS** = UV Shield®; **PS** = Pulse Start; **737** = Color temperature is 3700K with 70 CRI

Ballast Description Codes

Venture's ballast product description gives you complete information about the ballast.

☐ ☐ ☐ ☐ ☐ ☐ ☐

Manufacturer Code
V -Venture

Type
90 - Core and Coil

Ballast Voltage
- **B** - 120
- **C** - 120/208/240
- **D** - 120/208/240/277
- **E** - 120/240
- **H** - 120/277
- **J** - 120/277/347
- **P** - 208
- **U** - 277
- **V** - 347
- **Y** - 480
- **Z** - 600
- **AA** - 277/347/480
- **AS** - 347/600

ANSI Code
- **10** - 35W HPS; ANSI S76
- **11** - 50W HPS; ANSI S68
- **12** - 70W HPS; ANSI S62
- **13** - 100W HPS - S54
- **14** - 150W HPS (55V); ANSI S55
- **16** - 200W HPS; ANSI S66
- **17** - 250W HPS; ANSI S50
- **19** - 400W HPS; ANSI S51
- **23** - 1000W HPS; ANSI S52
- **55** - 575W PS MH ; ANSI M178
- **57** - 50W PS MH; ANSI M110
- **58** - 70W PS MH; ANSI M98
- **59** - 100W PS MH; ANSI M90
- **60** - 150W PS MH (DE); ANSI M81
- **61** - 175W MH/150W MH; ANSI M57/M107
- **62** - 250W MH; ANSI M58
- **63** - 2X400W MH; ANSI M59
- **64** - 400W MH/360W MH; ANSI M59/M165
- **65** - 1000W MH; ANSI M47
- **66** - 1500W MH; ANSI M48
- **67** - 2000W PS MH (DE) ; ANSI M134
- **69** - 1650W MH; ANSI M112
- **71** - 150W PS MH; ANSI M102
- **72** - 175W PS MH; ANSI M152
- **73** - 200W PS MH; ANSI M136
- **74** - 320W PS MH; ANSI M154
- **75** - 350W PS MH; ANSI M131
- **76** - 400W PS MH; ANSI M155
- **78** - ANSI 1000W PS MH; ANSI M141
- **79** - 750W PS M ; ANSI M149
- **81** - 70W PS MH (DE); ANSI M85
- **82** - 100W PS MH (DE); ANSI M91
- **83** - 250W PS MH (DE); ANSI M80
- **84** - 250W PS MH; ANSI M153
- **85** - 450W PS MH; ANSI M144
- **86** - 875W PS MH; ANSI M166
- **87** - 300W PS MH; ANSI M151
- **88** - 125W PS MH; ANSI M150
- **91** - 2X1000W MH; ANSI M47
- **96** - 775W PS MH; ANSI M181

Circuit Type
- **1** - CWA
- **2** - Reactor
- **3** - HX (Lag HPF)
- **4** - HX (Lag NPF)
- **5** - CWI

Version
Manufacturer's tracking version

Design Suffix
- **B** - with welded bracket
- **C** - with capacitor
- **K** - pre-wired with capacitor, ignitor if required, & adapter mounting kit
- **T** - with 120V tap

Venture Ballast Part Number Example: **V90D1435K**

V = Venture Lighting® ballast; **90** = Core and coil; **D** = Quad-tap with the voltages of 120/208/240/277; **14** = 150W HPS (55V) with ANSI S55; **3** = HX (Lag HPF) circuit type; **5** = Fifth version of this ballast; **K** = Pre-wired kit with capacitor, ignitor if required, & adapter mounting bracket

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

Saving The Environment

Saving the Environment

Venture Lighting is committed to reducing energy dependence and pollution. Our energy-efficient systems conserve scarce, non-renewable fossil fuels by lowering electrical demand, which also decreases air pollution emitted by utilities. Our exclusive arc tube technology is also safer for the environment, using 25% less mercury than standard probe start metal halide.

Recycling as Easy as...

Venture offers Smartpac® recycling service so you can help save the environment. Venture makes it easy to do your part:

1. Buy *lamps from Venture Lighting.*
The lamp that gives you clean white light now comes with recycling as an added feature. Just put the used lamps in the Venture Lighting® packaging and shipping carton and then seal it.

2. Contact *a Venture customer representative.*
You'll need to be issued a Smartpac Return Authorization Number. For details, call 888-223-6359 or fax us at 1-800-200-9718 or e-mail us at smartpac@adlt.com.

3. Ship *the lamps back to Venture.*
Only lamps shipped in Venture packaging will be accepted. If you are in a state or province that promotes recycling, you can use a bill of lading.

Mercury (Hg) Recycling

Venture's innovative Smartpac service solves your solid waste problem with simple no-fee HID lamp recycling for the United States and Canada:

- Simple - Just send used HID lamps back to Venture, safely in Venture packaging and shipping cartons
- No cost to you for the service; simply pay shipping
- 100% of the mercury is reclaimed so that none enters the environment
- Solid materials are reprocessed for use as raw materials or safe disposal
- Meets all North American regulatory guidelines

To learn more about recycling rules in your state or province, refer to the website www.lamprecycle.org, or contact your state for guidance.

Just one customer of Venture, a national big box retailer, has recycled over 37,000 lamps and has helped save the world from 1.5 Kilograms of mercury being released into the environment. Many more have used the service. Smartpac *is just another way of how Venture Lighting makes a difference in the world.*

Smartpac® Recycling

- ***FREE*** *- pay only for shipping*
- ***100% of the mercury*** *is reclaimed*
- *Meets all North American regulatory guidelines*

Venture Lighting - About Us

Introduction Information

Solon, Ohio, U.S.A.

Streetsboro, Ohio, U.S.A.

Chennai, India

Venture Lighting designs and manufactures lighting systems that are energy efficient, require less energy, uses less chemicals, and have extended life. Venture is constantly enhancing existing product offerings, and developing new lighting solutions. Venture Lighting® products are designed to have the highest quality of light, creating a safe and productive environment for those who use them.

At Venture, sustainability is a top priority and business philosophy, balancing economic, environmental and social attributes by developing product families that provide energy-saving lighting solutions today, without environmentally impacting the communities of the future. Value is placed on every decision from materials to people that can improve the company's business, products and team while creating a positive impact for customers. In Venture's facilities, energy usage is minimized through controls and employee procedures. Employees are encouraged to recycle and support community involvement

Venture Lighting offers products and services across the spectrum of lighting applications focusing on energy management, sustainability, lighting design and controls. Since starting in 1983, we:

- Have received over (25) patents related to metal halide technology
- Introduced Uni-Form® pulse start with its exclusive formed body arc tube, offering superior performance and energy efficiency
- Developed Natural White® lamps, providing daylight color, 90+ CRI and 90% lumen maintenance
- Offer lamp wattages ranging from 20-watt to 2000-watt
- Offer a full line of magnetic and Ventronic™ high frequency electronic ballasts, specifically designed to optimize lamp performance
- Introduced Super Pulse Start families of lamps for extended Long Life, optimized for Electronics and enhanced Color rendition

With the latest energy standards and incentives in mind, Venture partners with industry-leading lighting and controls manufacturers to provide the highest level of quality and service. Other products and services include:

- New advanced lighting systems offering more light and energy savings
- Free lamp recycling, with Venture's Smartpac® program
- "One Call" extended system warranty
- Technical and field support

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An Education on Brighter Ideas

Our strategy is to offer education on lighting solutions, not just metal halide lamp and ballast systems. Beginning with our certified training staff, the VLI will offer several key lighting design courses throughout the year to reveal better lighting design by implementing the newest technology available while maintaining a focus on legislative and industry standards supporting the sustainable movement.

The VLI provides qualified, informative programs that are a foundation of knowledge to assist in your professional lighting endeavors. The VLI curriculum meets the qualification standards for professional development hours and learning units. The Venture Institute classes are recognized by professional organizations such as IESNA, AIA and NCQLP.

Classes

The Venture Lighting Institute launches an intensive educational series on industry trends and lighting challenges every year. We teach our classes using leading industry professionals. The VLI features hands-on activities to assist with applying lighting concepts to real lighting applications, including tours. View this year's classes online at **TheVLI.com**.

Some classes include:

- The Fundamentals of Metal Halide Technology
- The Great Debate: Fluorescent vs. Pulse Start Metal Halide
- Parking Garage Design
- Pulse Start Metal Halide Dimming & Controls
- Lighting in LEED 3.0
- Understanding Rebates for Metal Halide
- Legislative & Environmental Updates

Registration

The VLI courses are listed online with full details about each class. All registrations are completed online through our registration system. If you have a question or difficulty registering, please contact us 800.451.2605.

THEVLI.COM

VENTURE LIGHTING INSTITUTE MISSION

The Venture Lighting Institute is committed to being the premier education provider for all metal halide lighting solutions.

We leverage our expert engineers, physicists and designers to yield a lighting curriculum unparalleled for metal halide training. We offer clarity, perception and knowledge of a proven technology in transforming the lighting market.

ENERGY SAVING LIGHTING

INTRODUCTION INFORMATION

UNI-FORM®

PULSE START METAL HALIDE LIGHTING SYSTEMS

The Lamp that Changed an Industry

Venture's pulse start system technology, actualized in Uni-Form® pulse start lamps with Ventronic™ HF electronic ballasts or Venture's energy efficient magnetic ballasts, represents advancement as important as the invention of the metal halide lamp. Every change in arc tube design, lamp construction and ballast design enhances overall system performance. This metal halide focus allows us to offer a vast array of integrated packages, providing optimum lighting efficacy and quality for virtually any application.

The Formed Body Difference

Unique formed body arc tube - shaped to follow the curve of the arc stream, improves the thermal profile of the arc tube to deliver superior lamp efficacy and uniform light output.

Superior Lumen Maintenance

With superior lumen maintenance, Venture has developed systems that have lamp lumen depreciation factors of 0.90 (90% lumen maintenance). And with color uniformity, Venture minimizes variation through consistent thermal characteristics in every arc tube and better power control from Venture's ballasts. Venture's *Uni-Form* pulse start lamp technology offers more reliable starting at extreme temperatures, down to -40°C (-40°F). *Uni-Form* pulse start systems have fast warm up and restrike time: 4-5 times faster than ceramic metal halide, which gives you less time in the dark.

With Safety in Mind

Venture's MP products contain protective quartz shrouds, which help contain hot particles within the lamp in the event of an arc tube rupture. All of the products meet the requirements of the National Electric Code® and ANSI Type-O and are for use in open or enclosed luminaires. Most of all, using UV Shield® technology, they not only provide more light without the need of a luminaire lens, can be operated continuously with no shut-off and will block nearly all UV which will protect merchandise and signage from damaging UV more than any other metal halide lamp.

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UNI-FORM® PULSE START

INTRODUCTION INFORMATION

Electronics

Save even more with Venture's electronics ballast, Ventronic™ HF electronic ballasts.

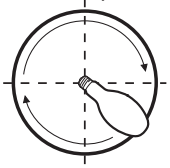
- Get 10% more mean lumen output compared to magnetic systems
- Less system watts! Save up to 30 system watts in the same wattage by switching from magnetic to electronics
- Even Longer lamp life: 26,000 and 30,000 rated life hours.
- High frequency (120 kHz) ballast: lightweight and quiet ("A" sound rating)

Horizontal Pulse Start

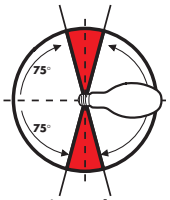
Venture has developed Horizontal pulse start lamps for better performance in the horizontal operating position ± 75°. By keeping the electrodes at the center of the arc tube at all times, Venture has made the install positioning irrelevant, removing the need for the POM base associated with horizontal operating lamps. With Venture's Horizontal pulse start lamps, the walls of the arc tube have been substantially thickened with quartz material, which results in more uniform heating of the upper side of the arc tube, in turn results in longer overall lamp life. In addition, Venture have changed the chemistry of the H75 lamp's arc tube to produce the lumens that meet the standard V or BU versions of the lamp, thus resulting in greater mean lumens.

- **Longer life and higher lumen output** compared to both HOR and universal lamps in horizontal operation
- Greater optical control and luminaire design flexibility
- For full cut-off luminaires, providing better light control and less light pollution
- No position oriented socket needed

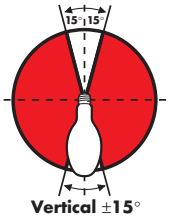
Position of Operation



Universal
Any Position



Horizontal ±75°
H75



Vertical ±15°

Double Your Warranty

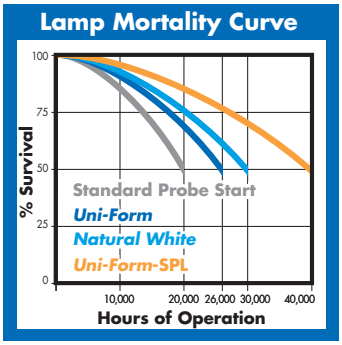
Venture's "One Call" limited warranty program doubles the warranty period on lamps and ballasts purchased and installed as part of the *Uni-Form* system. Customers who purchase a complete system need to make only "one call" to receive full service on any component from Venture's team of technical experts. This means no finger pointing; one source, one call to 1-800-451-2606 for service. Technical assistants will answer all your questions.

SUPER PULSE START LONG LIFE

INTRODUCTION INFORMATION

SPL Extended Life Lamp Series

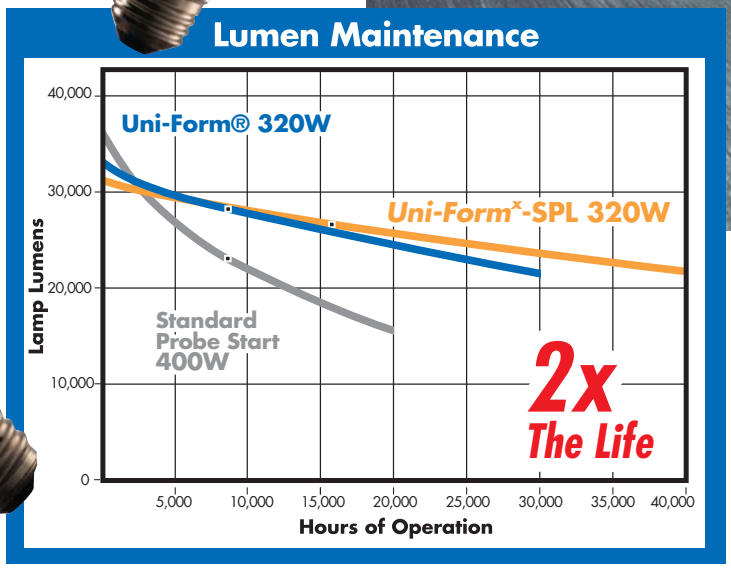
Venture's *Uni-Form* enhanced, super pulse start, long life lamp series delivers up to twice the rated life of most of our regular pulse start products



- Patent pending design for long life
- Prefix: MPL & MHL
- Quartz metal halide
- 60W to 575W
- Typical CRI 68
- Vertical & H75
- 40,000 hours rated Life
- 80% Lumen Maintenance (0.80 LLD)
- Up to 90 lumens per watt

Applications

- Parking Garage
- Roadway
- Utility/Municipal lighting
- Site Lighting



UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

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SUPER PULSE START ELECTRONIC

INTRODUCTION INFORMATION

SPE Optimized for Electronic Ballasts

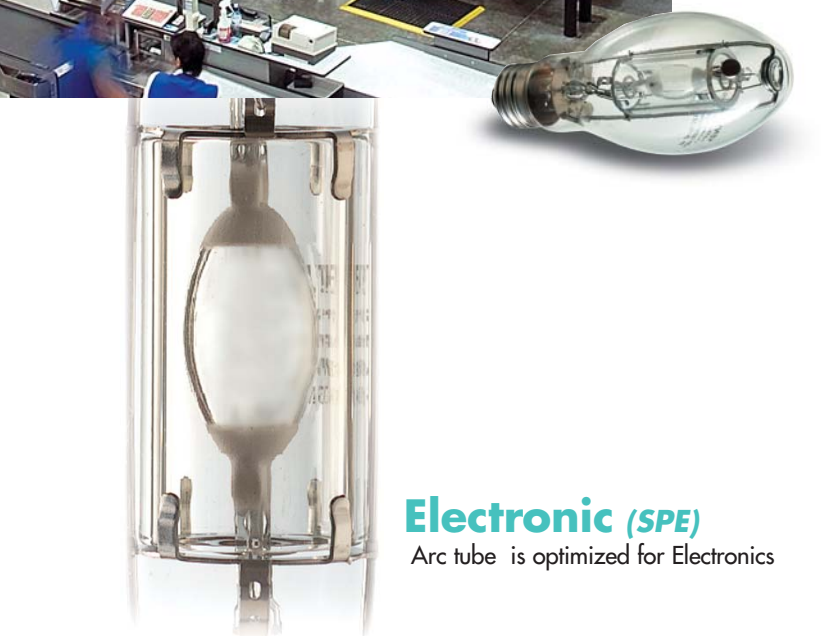
Performance Redefined - Enhanced for Electronics

Venture's *Uni-Form* enhanced, super pulse start, electronic lamp series achieves greater performance, because of the optimization for use on electronic ballasts

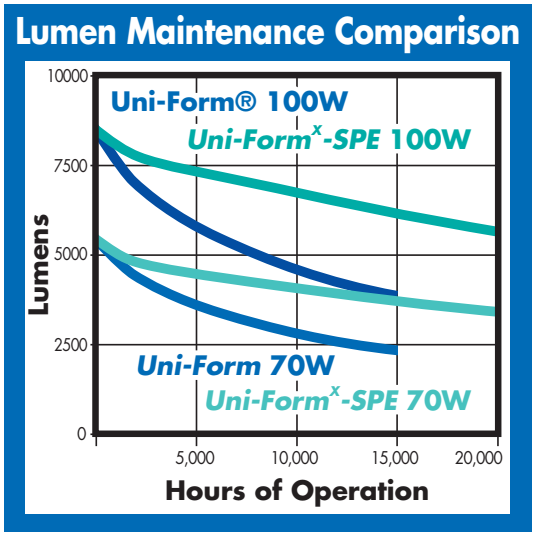
- Prefix: MPE & MHE
- Quartz metal halide
- 60W to 150W
- Dimmable to 50%
- Up to 90 LPW
- CRI up to 70
- Universal operating position
- Color temperature: 4000K
- ED28, ED17, T15
- Open and Enclosed rated version
- 20,000 hrs rated life
- 80% Lumen Maintenance (0.80 LLD)

Applications

- Churches
- Retail lighting
- Atrium lighting
- Downlights



Electronic *(SPE)*
Arc tube is optimized for Electronics



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Super Pulse Start Ceramic

Introduction Information

SPC Ceramic Metal Halide for Superior Color Performance

Venture's *Uni-Form* Super Pulse Start Ceramic achieves crisp white light, high CRI and reveals vibrant colors.

- Prefix: MPC & MHC
- Ceramic metal halide
- 20W to 315W
- MR16, T4, T6, PAR30, PAR38, T6C, and T12 lamp shapes
- Up to 90 CRI, typical 3000K CCT
- Up to 30,000 hours rated life
- Electronic Ballasts only
- Vibrant color rendition

Applications

- Retail
- Hospitality
- Casino or Gaming Complex

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

Ceramic ***(SPC)***
Ceramic arc tube from a SPC lamp

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Uni-Form® Natural White®

Introduction Information

True Colors

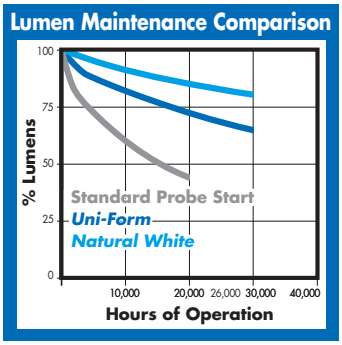
What could be more natural than sunlight? With *Natural White*, blues are true blue, reds are more vibrant, whites are whiter, and skin tones are as natural looking as under the sun.

- Excellent color uniformity

Benefits

Venture's *Natural White* systems are HD Lighting™, enabling to see **Clearer**, Objects look **Sharper**, Colors are **Crisper**

- High CRI lighting, **90+**
- **90%** Lumen Maintenance (0.90 LLD)
- Daylight color: **5000K** CCT which is perfect for daylight harvesting
- With electronic system, 2 year 100% lamp warranty
- Energy Savings on Pulse Start Ballasts - Just Change the Lamp!
- **Long life:** Up to 30,000 hours rated life
- Superior color rendering; objects appear as they would outdoors
- Work spaces look brighter; tasks, such as reading, become easier to perform
- Excellent color uniformity and stability over life of lamp due to formed body arc tube
- Merchandise and signage are protected from fading with UV Shield® technology - blocks nearly all UV output
- Designed for open or enclosed luminaires



Applications

- Energy Saving Retrofits
- Parking Garage
- Roadway
- Site Lighting

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

LeafNut™ Wireless Controls

Introduction Information

Dimming Solutions - Wirelessly

Venture's LeafNut™ system is a complete turnkey solution that puts control and dimming of metal halide systems at the fingertips of the end-user with any web access device. From socket to user interface, to server hosting and monitoring, we provide a complete wireless dimming system that dramatically increases energy savings.

Reducing Energy Consumption

Not only does the *LeafNut* system reduce energy usage, but it can supply factual energy consumption data with intuitive reporting and email notification to accurately analyze ROI.

- Wireless controls for dimming of pulse start metal halide
- Easy to install - Made simple for contractors
- Reduces energy consumption and Carbon emissions
- Monitoring and Control
- Built-in Mapping Software

A Turnkey Solution

Venture's LeafNut™ system is a revolutionary means to control HID lighting systems without disruptive installation techniques. It delivers savings and value to customers worldwide.

LeafNut

Wireless Controls for Outdoor Street and Area Lighting

How it Works

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Applications & Case Studies

Creating the Right System For Any Application

To show the many uses and advantages of Venture's efficient lighting products, such as Uni-Form® pulse start systems, or specialty lighting products, case studies are provided within this section. The wide variety of applications and possibilities, in combination with benefits such as energy savings and better quality light, Venture Lighting is your clear choice for metal halide products.

Looking For an Application?

Retail Super Pulse Start Ceramic

Applications and Case Studies

Case Study

Project:
Major grocery store chain, Produce, Bakery, Floral and Cheese/Deli areas

Location:
Northeastern U.S.

Lighting Solution:
Venture's Uni-Form® Super Pulse Start Ceramic metal halide track lighting systems

Benefits

- Brilliant color rendering
- Longer life
- More light
- Energy savings

Retail Food & Floral Lighting Solution

A major grocery chain with 70 locations in Northeastern U.S. was looking for a better way to light its produce, bakery, floral and cheese/deli areas in one of their newly built stores in New York state. The goal was to provide even better light to highlight its products, and hopefully save on costs associated with this project.

Objective

- Reduced operating and maintenance expenses
- Brighter lighting solution compared to alternatives
- For Produce, Bakery, Floral and Cheese/Deli Areas

The recommended solution was Venture's 39-watt MR16 Super Pulse Start Ceramic track lighting system. The SPC systems provide a high color rendering index (CRI) of 90 and a color temperature of 3000K. Items under this light are brighter and colors are truer.

The Solution

A total of (90) fixtures, a combination of single and dual lamp versions, suspended in the various targeted areas of the store on a total of six hundred feet of track were used.

Achieving a look of freshness as well as truer color rendering were major goals in this part of the store as well. The variety of colors in this area of the store were particularly emphasized through this lighting technology.

Comparisons

Existing System Halogen 100W PAR38	vs	Venture's 39 Watt MR16 Ceramic
90	Watts	39
2900K	Color Temperature	3000K
1310	Initial Lumens	2100
2500	Rated Life Hours	12000

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Display - Super Pulse Start Ceramic

Applications and Case Studies

Brighter with Less Energy

Venture Lighting's Super Pulse Start Ceramic track lighting system is ideal for displaying retail products. Venture's 39 watt MR16 track lighting solution requires less energy, has a longer life and better quality light than competitive offerings. In a typical retail track lighting application, quartz halogen lamps shine a "yellowish" 2700K- 2800K. As a result, products are not displayed with the best possible color rendering, and lighting fixtures are not typically energy efficient. SPC MR16 lamps, on the other hand, have a high color rendering of 90 CRI and 3000K color temperature. Colors are truer under this light and products "sparkle" more, quickly grabbing the attention of customers.

Venture's track lighting systems are also more energy efficient than most other retail track lighting technologies. For example, just (1) Venture 39W MR16 lamp can provide the same amount of light as (3) 50W MR halogen lamps, (1.5) 100W PAR 38 halogen lamp or (25) 3W LED MR16's, and at the same time Venture provides you with energy savings from 74% to 400%! Further benefits include tight beam angle control, small size and maximum light "punch", ideal for retail applications.

Venture Lighting's MR16 track lighting system is the perfect choice for displaying retail products in a better light. The retail shopping experience is enhanced, and customers will be more impressed in a shorter amount of time with your product offerings.

Comparisons

Existing System 65 Watt BR Incandescent	vs	Venture's MR16 SPC 39 Watt
725	Lumens	2100
65	System Watts	39
100	CRI	90
2000	Rated Life Hours	12000
11	Efficacy (Lumens per Watt)	54

Case Study

Project:
Barrington Pro-Golf Shop

Location:
Aurora, OH

Lighting Solution:
Venture's MR16 Super Pulse Start Ceramic

Benefits

- Energy Savings
- **4X** the lamp life: Venture's MR16: 12,000 hours vs. incandescent 1000 to 3000 hours
- **3X** the light levels

Auto Dealership - Natural White®

Applications and Case Studies

Case Study

Project:
Don Joseph Toyota

Location:
Kent, OH

Lighting Solution:
Venture's Natural White®

- highbay fixtures with Jewel™ glass reflector with dimming
- *Natural White* track lighting systems in showroom
- *775W Natural White* lighting systems in the exterior sales lot

Going Green by Upgrading the Lighting

With the grand re-opening of Don Joseph Toyota/Scion of Kent, Ohio in October 2009, another dealership established a new image, meeting corporate standards and energy legislation while reducing energy costs and improving light levels throughout the facility. With the help of Venture Lighting located in Streetsboro, Ohio, Don Joseph incorporated all-new indoor and outdoor lighting systems to help reduce unnecessary energy consumption while brightening their dealership. The new systems reduce energy consumption by 40,000 watts per year, which equals 292,705 pounds of carbon dioxide emissions, and an annual savings of $16,095.

Venture Lighting, an AIADA Affinity Partner, is a manufacturer of energy-saving lighting systems with lighting and electrical design services, and project management capabilities to assist automotive dealers, designers, and contractors with identifying the best lighting solution. With a dedicated project manager, Venture Lighting supported the contractors and provided the lighting products for Don Joseph Toyota/Scion. Venture also helped save the environment through its free SmartPac® recycling program.

"At Venture Lighting we enjoy being a good corporate citizen by helping businesses reduce their carbon footprints while also helping them control the cost of energy," said Ken Hawley, Vice President of Sales and Marketing for Venture Lighting, North America.

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Sparkle - Indoor/Outdoor

Applications and Case Studies

The Solution

A featured product used throughout the re-imaging project was Venture's Natural White® pulse start metal halide systems, which enable customers to see clearer, objects to look sharper, and colors to be crisper. Not only will customers see the true colors of the automobiles in the showroom but also on the lot at nighttime. This same lighting is used in the service bays and write-up areas to increase productivity with an improved working atmosphere. Natural White lighting systems also increase the sustainability of Don Joseph with each lamp earning 2 LEED Points (MR Credit 4.1), and providing higher maintained light levels and longer lamp life.

The Advantage

The lighting systems used at Don Joseph provided energy savings because of its improved efficacy over the existing systems used. The daylight harvesting control systems provided another level of energy savings utilizing the sunlight through area windows and skylights in the service bays and service write-up. Venture Lighting also incorporated a night light circuit for the exterior lighting system turning 75% of the fixtures off after store hours resulting in a 50% reduction in energy use.

Don Joseph followed Venture's guidance in choosing the right lighting system to improve light quality and save energy. The best lighting design is not solely about the aesthetics of the lighting fixture, but also the proper lamp and ballast selection, resulting in the most efficient system. Don Joseph was able to achieve a new image while meeting the latest energy codes and regulations by using Venture's energy-efficient systems and designs to deliver better quality light and use less energy, thus reducing its carbon footprint and increasing sustainability.

Benefits

- Annual Energy Savings of $16,095
- Reduction in energy use
- Daylight harvesting systems reduced 50% energy consumption
- Low voltage control system for interior lighting

Sustainability

- All areas met ASHRAE 90.1, 2009 for example, the Service department: 1.05 Watts per sq. ft.
- Reduction of Carbon: 292,705 pounds

"Venture Lighting was a huge help in the building and lighting of the dealership, helping us get the best lighting technology. They've been so good to deal with, and I think we've been good for them. We're lighting the place up like a Christmas tree with a lot less energy than we used to use."

- Jeff Joseph

Auto Auction Lot - Controls

Applications and Case Studies

Case Study

Project:
Large, national auto auction company's lot

Location:
Pensacola, FL

Lighting Solution:
Venture's 875W pulse start metal halide systems with LeafNut™ Wireless dimming controls

Benefits

- 10 year energy savings of $113,949
- Wireless dimming capabilities, reducing energy costs

A large leading automotive services company's auto auction division looked to reduce energy and reduce their carbon foot print at their Pensacola, Florida location. This facility is used for vehicle auctions, repair and certification services, seeing almost millions of vehicles every year. Their CEO installed a green initiative for the conservation of energy and resources.

Their facility manager turned to Venture Lighting for a lighting solution for their expansive lot. The recommended option chosen was the Uni-Form® pulse start 875-watt with LeafNut™ wireless dimming control system. Programming the *LeafNut* system to operate at 100% power from dusk to 10 PM, 50% power from 10 PM to midnight, and one security light per pole operating at 100% power from midnight to dawn brought an energy savings of over $8,000 annually. The options would pay for the investment in less than two years.

The Choices

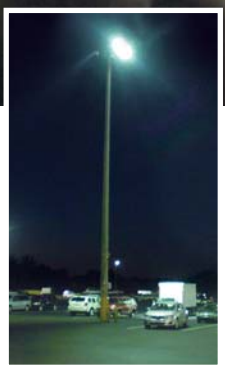
Maximum Energy Savings and Control with More Light: (42) 875-watt pulse start systems and *LeafNut* dimming systems. This option provided a less than two year payback.

Comparisons

Existing System 1000 Watt Probe Start MH	vs	Venture's 875 Watt with LeafNut
12,000	Rated Life Hours	26,000
0.60	LLD	0.80
1080	System Watts	950
0	Annual Energy Cost Savings	$9,940
0	Annual Maintenance Savings	$794
0	10 Year Energy Savings	$113,949

Based on 42 fixtures, $0.10/kWh, 3% increase over 10 years

LeafNut
Wireless Controls for Outdoor Street and Area Lighting



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General Retail - Natural White®

Applications and Case Studies

PriceSmart, head-quartered in San Diego, California, is a membership warehouse club operator with 28 locations in 11 countries and 1 U.S. Territory throughout Central America and the Caribbean. With 5 locations in Costa Rica, Price Smart chose to update the lighting at their Alajuela facility.

They chose Venture's Ventronic™ ballast housing with Natural White® lamp and the Jewel™ glass reflector lighting systems for the interior and 775W *Natural White* pulse start metal halide systems in the exterior:

- 90% lumen maintenance (0.90 lamp lumen depreciation)
- High CRI lighting (Color Rendering Index) 90+
- The color of natural sunlight: 5000K

Comparisons

Existing System Standard Probe Start MH	vs	Venture's Natural White® Pulse Start MH
12,000-20,000	Rated Life Hours	20,000-26,000
68	CRI	90+
4000K	Color Temperature	5000K
0.60	LLD	0.90

Case Study

Project:
Price Smart

Location:
Alajuela, Costa Rica

Lighting Solution:
Venture's *Natural White* pulse start metal halide systems

Benefits

- Reduction in energy usage
- Brighter, whiter lighting
- Interior and exterior lighting updated

Gas Station Canopy Natural White®

Applications and Case Studies

Case Study

Project:
National Fuel Provider

Location:
National Chain

Lighting Solution:
Venture's 320W, 250W, and 175W Natural White® pulse start metal halide lamps

Murphy Oil Gas Station Canopy Lighting Options

Murphy USA is a high volume and low cost gasoline provider committed to quality fuels, convenient locations, discount gas, and superior service for their customers. Since opening in 1997, Murphy USA has opened 1,110 stores across 23 states in the U.S., with an aggressive growth strategy to open 2,000 additional stores by 2020.

Clif Coker, National Maintenance Manager for Murphy USA, wanted to implement a national group relamping program to improve the quality of light and appearance of the stores. Clif was concerned with the light level depreciation and inconsistent colors from lamp to lamp with their current supplier. He contacted Venture Lighting's Major Accounts Team to assist in providing the best lighting solution.

The Solution

Venture Lighting's 320W, 250W, and 175W Natural White® products were selected for the group relamp project. The *Natural White* product family is Venture's premium pulse start metal halide lamp line, offering an unparallel 90% lumen maintenance, 90+ CRI , 5000K color, and long life. Another favorable attribute of the product line is its reduced mercury content. The reduction in mercury directly impacts the environment and sustainable purchasing practices for Murphy Oil.

Comparisons

Existing System 4000K CCT Pulse Start MH	vs	Venture's Natural White® Pulse Start MH
12,000-20,000	Rated Life Hours	20,000-26,000
68	CRI	90+
4000K	Color Temperature	5000K
0	Watts Saved Per Fixture	10-25
0.70-0.75	LLD	0.90

"The Natural White product line meets our goals and expectations. The new lighting at our stores is perceivably brighter and very clean, which creates a safe, secure, and inviting environment for customers."

- Clif Coker, National Maintenance Manager for Murphy Oil

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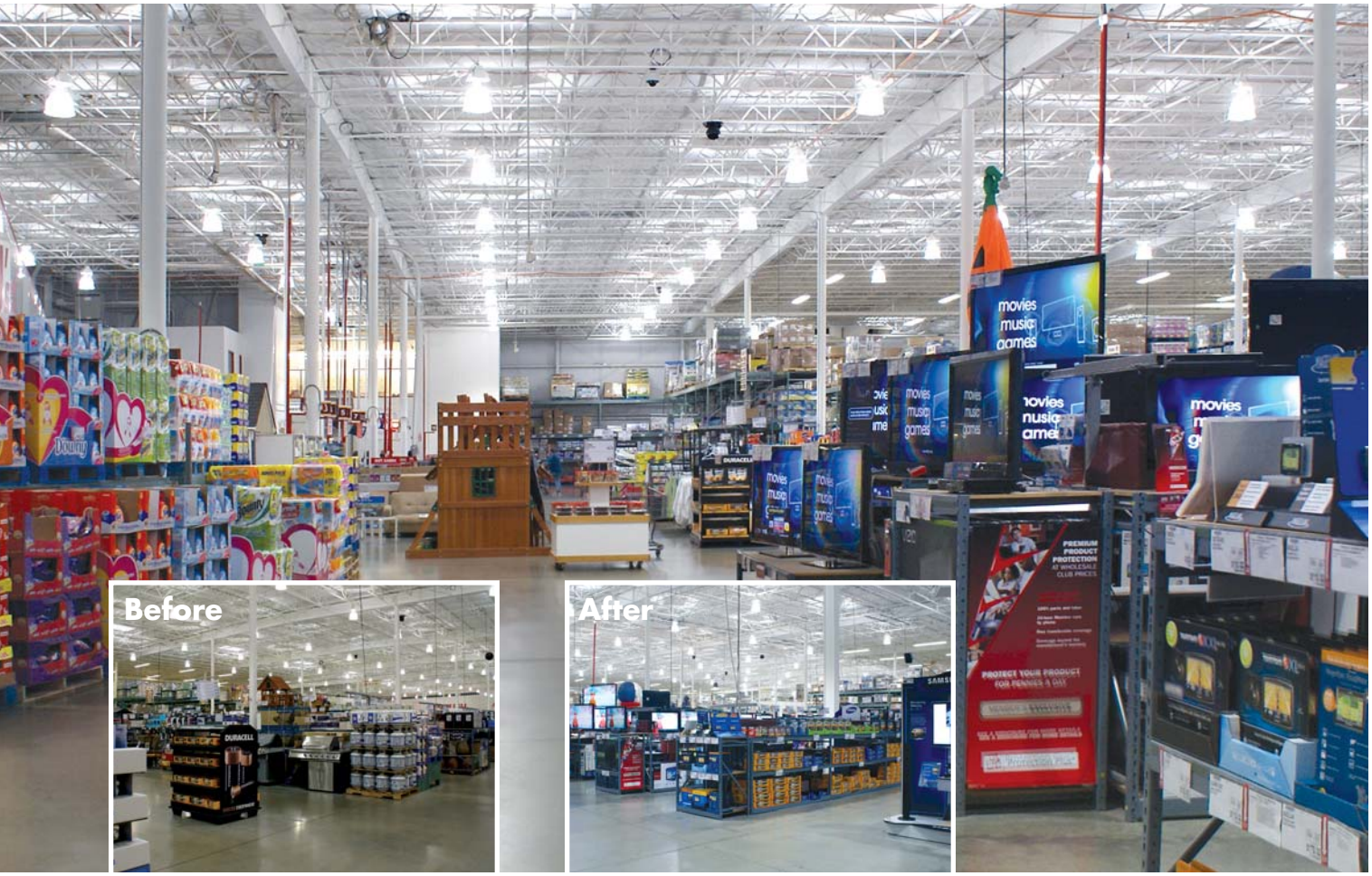
Retail Lighting - Natural White®

Applications and Case Studies



Brightening While Saving Energy

A leading operator of membership warehouse clubs in the Eastern United States, which currently operates in 15 states from Maine to Florida, wanted to reduce their costs. When their energy management team looked into ways to be more conserving, they turned to Venture for the options of how to make the lighting more efficient.

They chose to switch their existing 350-watt pulse start metal halide to Venture's energy saving 350-watt Natural White® lamps. In a two-phase process, (70) stores totaling (12,150) 350-watt *Natural White* lamps have been group re-lamped from March 2010 through February 2011. The previous lamps (Venture's 350W/740) were 4000K color.

In the second phase of their energy conserving process, (65) stores will be re-lamped with the Natural White product, totalling (11,310) lamps. This phase started in February, 2011 and will be completed by October, 2011.

Comparisons

Existing System 350 Watt Pulse Start MH	vs	Venture's 350 Watt Natural White®
20,000	Rated Life Hours	30,000
400	System Watts	375
0.80	LLD	0.90
68	CRI	90+
$72,833	Annual Cost of Operation @ $0.13/kWh	$68,281
0	**Total Annual Savings**	$4,552

based on 120 fixtures, operating 24/7, for 8760 Annual hrs and 80 fixtures, operating 12/7, for 4368 Annual hours

Case Study

Project:
National Membership Wholesale Clubs

Location:
National

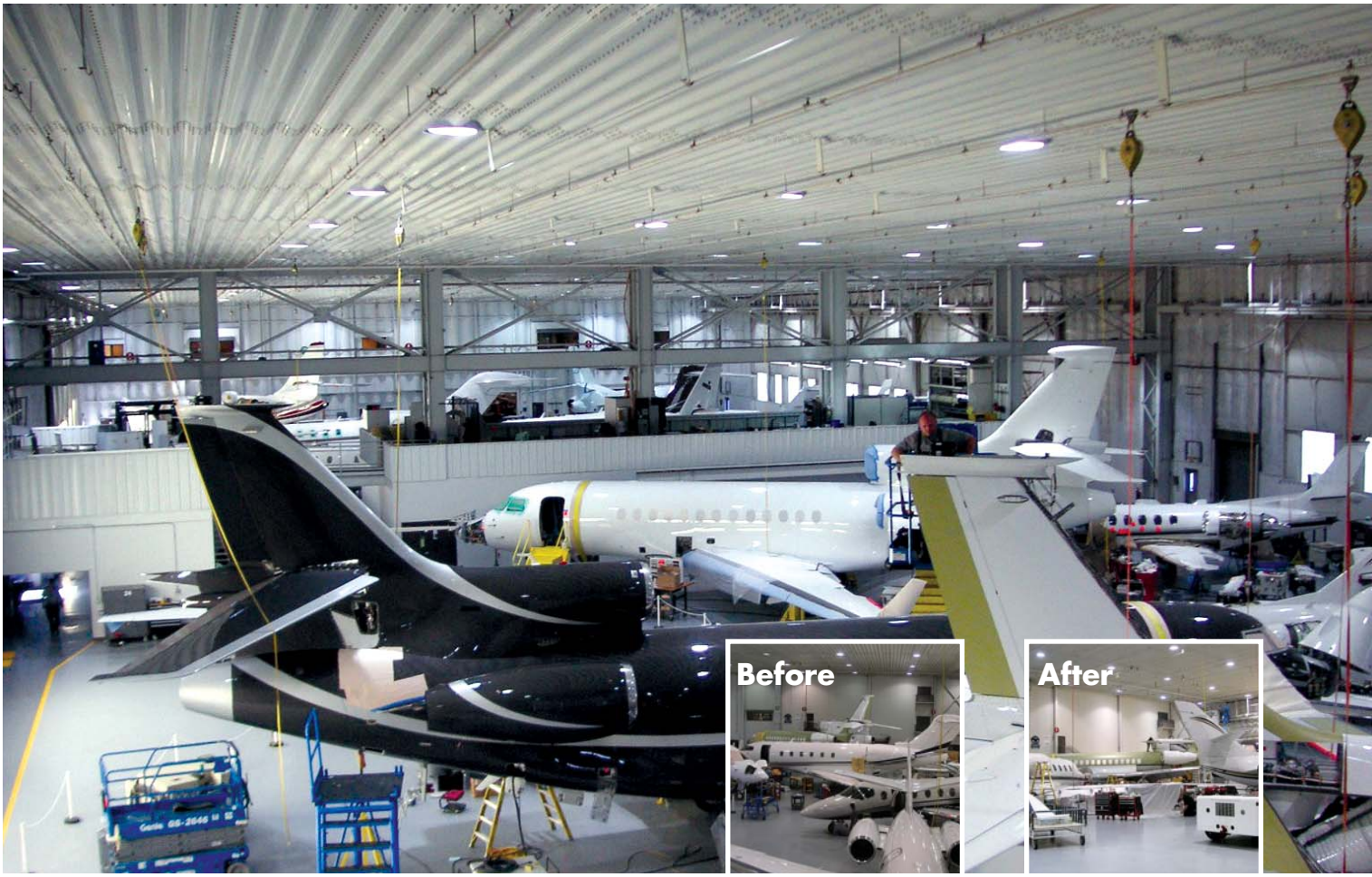
Lighting Solution:
Venture's 350W *Natural White* lamps

Benefits

- Energy savings: $22.76 per fixture
- 90% lumen maintenance (0.90 LLD)
- High CRI lighting 90+
- The color of natural sunlight: 5000K

Aircraft Maintenance - Natural White®

Applications and Case Studies



Case Study

Project:
Duncan Aviation

Location:
Battle Creek, MI

Lighting Solution:
Venture's 775W Natural White® pulse start metal halide systems

Benefits

- Annual Energy Savings of $16,095
- Rebate Funds 50% of Project
- Maintenance Costs Cut in Half
- Simple 1 for 1 Solution

Lighting Solution Takes Flight

Duncan Aviation is the largest family-owned maintenance, repair and overhaul (MRO) facility in the world providing complete acquisition sales and support services for business aircraft. They provide premier aircraft services–delivered on time–for a wide variety of business aircraft at their facilities across the United States.

Duncan Aviation has an active "Green Team" in place and has been working for several years to lower its impact on the environment through responsible chemical usage, decreased waste and energy consumption, reuse and recycling. The Green Team pursues progressive and measurable environmental policies that make Duncan Aviation more socially responsible through the purchase of more environmentally responsible products and solutions. Duncan identified their airplane hangars as an energy savings retrofit opportunity. Working in conjunction with Venture's rep agency Team Diversified and WESCO they found the best solution was to replace their outdated 1000W probe start lamps with Venture Lighting's 775W Natural White® system.

The Choices:

Initially Duncan Aviation considered a 54W, 14 lamp, 3 ballasted T5HO fluorescent system. This 14 lamp fixture configuration was needed in order to achieve the same light levels as their current lighting system. Quickly they ruled out converting to fluorescent because of the significant increase in system watts and maintenance concerns.

"The proposed T5HO system would have interfered with our "fall restraint" system which is a series of cables & reels suspended, just below the ceiling that our technicians attach to when working, above a certain height. Plus, in order to maintain the fixture we would have to move planes out of the hangar to change a burned out lamp," Mack Jones, facilities manager.

Due to the fact their fixtures are built into the ceiling, Duncan needed a simple 1 for 1 lamp and ballast upgrade. They considered two options, a 750W system and Venture's 775W Natural White system. After comparing both products in their hangars, they selected Venture Lighting. Longer lamp life of the 775W system and the superior 90+ CRI were key deciding factors as to why they opted to go with Venture. The 775W lamp provides additional lamp life of 14,000 hours over the 750W lamp.

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Indoor - Airplane Hangar

Applications and Case Studies

The Solution:

The 775W high bay solution achieved higher light output, longer life, superior CRI and an effective way to maintain their existing lighting system without changing the look and integrity of the ceiling. This system will reduce maintenance costs as Duncan now receives 2.16 times the lamp life versus the previous 1000W probe start system.

"Color rendering is very important. Our design team members used to have to go outside to get the true color of the fabric for the interior of the planes prior to the installation of the Venture Natural White system," Rob High, the facilities' electrician.

Rebate Information:

As a bonus, Duncan received a rebate from Consumer's Energy which helped fund half of the total project costs. A couple key factors were considered in order to receive the rebate money. First, they saved 23,030 system watts per year using Venture's 775W Natural White system. Secondly, the 14,000 hours of additional lamp life, allowed more than double the life of each lamp in their current system, reducing maintenance costs.

Comparisons

Existing System 1000 Watt Probe Start MH	vs	Venture's 775 Watt Natural White®
12,000	Rated Life Hours	26,000
1080	System Watts	845
105840	Total System Watts	82810
0	Watts Saved	23030
0.60	LLD	0.90
$73,969	Annual Cost of Operation @ $0.08/kWh	$57,874
0	**Total Annual Savings**	$16,095
70	CRI	90+

based on 98 fixtures, 24 hours per day, 8736 Annual hrs

"Color rendering is very important. Our design team members used to have to go outside to get the true color of the fabric for the interior of the planes prior to the installation of the Venture Natural White *system."*

- Rob High

the facilities' electrician

Indoor - Warehouse Lighting

Applications and Case Studies

Case Study

Project:
Commercial Roofing Materials Supplier's Warehouse

Location:
Bristol, CT

Lighting Solution:
Venture's Uni-Form® pulse start 320W lamp with Ventronic™ HF electronic ballast and dimming controls system

Benefits

- Increased light levels and better quality of lighting compared to existing HPS lighting
- Energy savings of 65% at full brightness - even greater energy savings are expected through dimming with motion sensors
- Chosen over linear fluorescent option
- Utility rebates

Controlling Sustainability

A leading manufacturer of superior commercial roofing solutions was looking to improve the lighting in its 150,000 sq. ft. Bristol, CT warehouse. Specifically, it was looking to achieve significant energy savings, provide brighter and "whiter" light throughout the facility, and have the capability of dimming lights in areas of the warehouse that were often unoccupied for significant amounts of time.

The lighting system this manufacturer was looking to replace in the warehouse consisted of (420) fixtures of 400 watt high pressure sodium lamps, which typically cast a "yellowish" and unattractive light, and which make rendering colors extremely difficult. Another problem with the existing system was the enormous energy usage it consumed, over 1,000,000 kWh of energy annually.

The manufacturer turned to Venture Lighting to improve its lighting in the Bristol warehouse. They previously looked at the possibility of utilizing linear fluorescent lamps but decided to utilize Venture metal halide technology for several reasons. Linear fluorescent technology is adversely affected by temperature changes, a particular concern in an unconditioned space such as the Bristol warehouse, whereas metal halide technology is unaffected by temperature changes. The linear fluorescent fixtures would require more maintenance due to a greater number of fixtures and lamps per fixture.

Comparisons

Existing System 400 Watt HPS	vs	Venture's 320 Watt Uni-Form-SPE
420	Number of Fixtures	200
22	CRI	70
470	System Watts	342
197,400	Total System Watts	68,400
0	Watts Saved	129,000
1.32	Watts per sq. ft.	0.47
$78,960	Annual Cost of Operation	$27,360
0	**Total Annual Savings**	$51,600
0	Reduction of CO_2 Emissions (in Millions of lbs.)	1.33

based on 5000 Annual hrs, at $0.089/kWh, 2.06 lbs of CO_2 emissions/kWh saved

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Ventronic™ with Controls

Applications and Case Studies

The Solution

The solution specified was (200) fixtures of Venture's 320 watt Uni-Form® pulse start lamps on Ventronic™ HF electronic ballasts. Venture's -SPE lamps (4000K) are specifically designed for optimized performance on electronic ballasts. Controls and sensors were used to achieve greater savings, such as with dimming the lamp to 50% power.

The light produced was a "white" light rather than the yellowish light from the previous HPS lamps. Because of the *Ventronic* ballast, and motion sensors on each fixture, the lamps were able to dim, thus energy savings realized through the combination of dimming, reduction in wattage (from 400W to 320W) as well as the huge reduction in fixtures (from 420 to 200) resulted in an annual savings of 650,000 kWh of energy at full brightness. Through dimming, an estimated additional 260,000 kWh would be saved annually.

Reduced maintenance costs was another benefit, as fewer lamp replacements were required due to the superior technology of pulse start. Even more beneficial was the securing of a Connecticut Light & Power utility rebate which paid for a full 50% of the material and install cost of the retrofit. The warehouse was able to achieve all lighting goals as well as reduce maintenance costs and benefit from a huge utility rebate. The success of this project has turned into a national specification of Venture's dimmable 320W and *Ventronic* system.

"I was amazed on how the Venture solution exceeded our expectations and proved to be the more logical choice over the linear fluorescent option. Pulse start metal halide was better suited for this application compared to fluorescent."

-Project Engineer

Transit/Parking Super Pulse Start Long Life

Applications and Case Studies

Case Study

Project:
Kent Central Gateway

Location:
Kent, OH

Lighting Solution:
Venture's 90W
Uni-Form^{x}-SPL system

Benefits

Compared to LED system:

- Lower first cost
- 1/4 the replacement lamp cost
- Lower total 15 year energy cost for the same amount of light
- Lower 15 year life cycle cost

Transforming A Downtown

The Kent Central Gateway (KCG) is a multimodal facility, located in downtown Kent, Ohio within one-quarter mile of Kent State University and the Cuyahoga Riverfront. The project includes the construction of a new bus transfer facility with parking spaces to support planned development. The facility will include commercial space and bicycle storage to improve transit accessibility in Kent and linkages to Cleveland and Akron. The Kent Central Gateway improves connections between city neighborhoods, Kent State University and downtown Kent. The project also expands travel options and connects multiple modes of transportation.

With a solar roof and geothermal heating, it will have the latest green technology built into it. EPIC Design Group, the electrical engineering firm awarded the project, looked for a sustainable lighting system. Venture's *Uni-Form*-SPL 90-watt, long life system was chosen over an LED lighting system option.

The project will stimulate $60-million worth of new investment into Kent, both public and private. The Project Budget is $26 million ($21.6 million Maximum Federal Share). The Project and adjacent development will altogether create 266 construction jobs, 703 new long-term jobs and $5.8 million in tax revenue annually. The projected finish of the facility is fall 2012.

Comparisons

Proposed 103W LED System	vs	Venture's 90W Uni-Form^{x}-SPL
22,248	Total System Watts	22,032
0.192	Watts Per Sq. Ft.	0.190
50,000	Lamp Life in hours	40,000
$183,600	Initial Material Cost	$39,960
$292,339	Total 15 Year Energy Cost	$289,500
$230	Current Replacement Lamp Cost (+Labor)	$60
$213,408	Total 15 Year Maintenance Cost	$127,008
$689,347	Total 15 Year Life Cycle Cost	$456,468

based on 116,904 sq/ft floor area; 216 fixtures; at $0.10/kWh; 8760 Annual hrs

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Indoor - Gymnasium Lighting

Applications and Case Studies

A Winning Lighting Solution

The North Central College Cardinals are often in the spotlight. So much so that when the Cardinals built The Al Carius Track; a 100,000 sq foot track and recreation facility, they needed a lot of light! In fact, they needed a lighting solution that would deliver 100 footcandles to the track so the Cardinals could televise their Division III NCAA meets in High Definition.

The Choices

Two lighting technologies were considered, Fluorescent and Metal Halide. Often, a 54W 6 lamp T5HO highbay is thought to be the most energy efficient highbay on the market today. Certainly when comparing the system watts of the T5HO, at 338W per fixture to that of a Metal Halide system like the 350W at 395W per fixture, the fluorescent system consumes fewer watts.

Instead of looking at this as a simple "one to one" comparison, Rick Magsamen, of the sales team at KSA Lighting, decided to step back and take another look. Lighting layouts of the T5HO and Venture's 875W Pulse Start Metal Halide systems provided the clear answer.

The Solution

The 875W highbay solution achieves more light output with 75% fewer fixtures! The layout results in maintained footcandles of 83 with a 1.5:1 avg/min light level uniformity. The 875W highbay solution also saves 313 megawatts per year, resulting in an annual savings in operating costs of over $25K.

The Advantage

In applications in which the mounting height of the fixture is above 30 feet, Metal Halide technology outperforms linear fluorescent technology in getting light to the desired task area with fewer fixtures and less energy consumption.

Comparisons

Proposed System 54W T5HO Fluorescent	vs	Venture's 875 Watt MH PS
369	Number of Fixtures	81
2214	Number of Lamps	81
25000 *(3hr)*	Hours at 50% Survival	26000
338	Watts per Fixture	950
0.90	Light Loss Factor	0.80
$65,554	Annual Cost of Oper. @ $0.08/kWh	$40,445[1]
0	Annual Oper. Saving	$25,109
$225	Fixture Cost	$200
$101,475	Installed Cost	$20,250[2]
0	**Installation Saving**	$81,225
	Maintenance Costs	
$5	Cost of Each Lamp	$60
$18,450	Cost to Change All Lamps	$6,480
0	**Maintenance Saving**	$11,970
	Recycling Costs	
$0.50 + Shipping	Cost of Recycling Each Lamp	0[3] + Shipping
$1107 + Shipping	**Total Cost** of Lamp Recycling	0 + Shipping

Notes: **1** 18 daily hrs. of operation for a total of 6,570 annual hrs.
2 Labor cost per fixture would be $50
3 Through Venture's Smartpac® FREE lamp recycling program

Case Study

Project:
North Central College's Al Carius Track

Location:
Naperville, IL

Lighting Solution:
Venture's 875W pulse start metal halide systems

Benefits

Compared to Proposed T5HO, Venture's 875W Solution is:

- **38% Less** Energy
- **80% Lower** Initial Cost
- **35% Less Cost** to Fully Re-lamp

"After comparing layouts the College Administration, Maintenance Personnel and Architects made the easy choice. Not only did the Metal Halide system save energy, it had a lower installed cost and less maintained cost for lamps when replacement is required."

- Rick Magsamen of KSA Lighting

Correctional Facility

Applications and Case Studies

Photo Copyright of Brooks Borg Skiles Architecture Engineering

Case Study

Project:
Iowa Correctional Facility

Location:
Oakdale, IA

Lighting Solution:
Venture's 875W pulse start metal halide systems

Benefits

- Security level lighting
- Long life: 26,000 rated life hours

Security Level Lighting

When it was time to add a new building to the Iowa Medical and Classification Center (IMCC) in Oakdale, a new outdoor area and perimeter lighting system was needed that would provide a maximum level of security integral to the effective operations of a prison facility.

Brooks Borg Skiles Architecture Engineering specified the Venture 875W pulse start system because it delivers the most light to the target area for optimal visibility of the perimeter fence line. At 91 design lumens per watt (measured at 8,000 hours), the 875W pulse start system delivers 35% more light than a 1000W probe start lamp.

The 875W pulse start lamp is rated at 26,000 hours, outlasting the 1000W probe start lamp by 14,000 hours.

The IMCC now operates with confidence. A total of 98 new fixtures with the Venture 875W pulse start system together form a security light chain around all their buildings, purposely providing a visible light barrier.

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PULSE START METAL HALIDE SYSTEMS

UNI-FORM® PULSE START METAL HALIDE LIGHTING SYSTEMS

UNI-FORM®

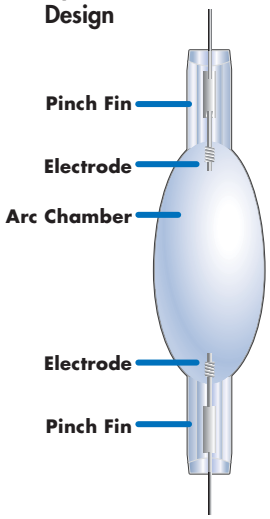
The *Uni-Form* Advantage

Compared to other lighting technologies, such as probe start metal halide or competitors' pulse start systems, Venture's *Uni-Form* systems provides:

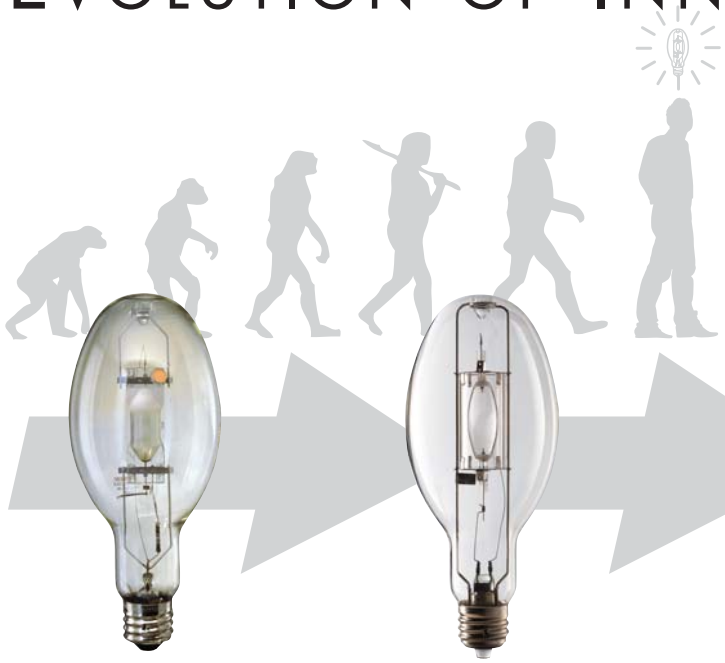
- **Energy savings** - more system lumens per watt means *more light* for *less energy*
- **Improved color uniformity** - for minimal color variation from lamp to lamp
- **Faster** warm-up and restrike - one third the time
- Longer rated life, up to 40,000 hours
- Fewer lamp failures and less breakage in shipping because of patented stronger weldless mount
- **Open-rated lamps** (ANSI Type-O)
  - No luminaire lens required, delivers more light
  - Operational 24/7 - no shut-off required
  - Blocks nearly all damaging ultraviolet light with UV Shield® technology
  - Meets UL and National Electric Code® criteria for open fixtures
- Pleasant environment and better system performance thanks to quiet, cool-running **magnetic** ballasts or Ventronic™ **electronic** ballasts

Formed Body Arc Tube

Patented Uni-Form® Pulse Start Quartz, Tipless, Arc Tube Design



EVOLUTION OF INNOVATIVE LIGHTING



SUPER PULSE START

Long Life
(SPL)
See page i8

Electronic
(SPE)
See page i9

Ceramic
(SPC)
See page i10

From the invention of metal halide to the redefining performance of Uni-Form *pulse start, now comes the next step in efficient lighting: Super Pulse Start*

20 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Vibrant Color Rendering
- Long Life

Open Rated LAMPS ANSI Type-O ANSI C156/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MPC 20W/U/MR16/PS/930/FL25	38801	1050	0.84	53	15000	3000K	85	Clear	U	S	12	4500 MBCP; 25° Angle
MPC 20W/U/MR16/PS/930/WF40	38802	1050	0.84	53	15000	3000K	85	Clear	U	S	12	2100 MBCP; 40° Angle

Enclosed Rated LAMPS ANSI Type-E ANSI C156/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MHC 20W/U/T4/UVS/PS/930	38806	1800	0.86	90	15000	3000K	85	Clear	U	V	12	
MHC 20W/U/T6/UVS/PS/930	38809	1800	0.86	90	15000	3000K	85	Clear	U	T	12	

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

Electronic ballasts for *Uni-Form*^{x}-SPC lamps are available when sold as a system. Electronic ballasts for *Uni-Form*^{x}-SPC lamps are not sold separately.

Key

- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp

S MR16

Dia. = 2.0″ (50mm)
MOL = 2.6″ (65mm)
Base = GX10

T T6

Dia. = 0.8″ (20mm)
MOL = 3.9″ (99mm)
LCL = 2.2″ (56mm)
Base = G12

V T4

Dia. = 0.6″ (15mm)
MOL = 3.3″ (85mm)
LCL = 2.0″ (51mm)
Base = G8.5

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39 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Open Rated LAMPS ANSI Type-O ANSI C130/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPC 39W/U/MR16/PS/930/FL25	38804	2100	0.84	60	12000	3000K	90	Clear	U	S	12	8000 MBCP; 25° Angle
MPC 39W/U/MR16/PS/930/WF40	38805	2100	0.84	60	12000	3000K	90	Clear	U	S	12	3900 MBCP; 40° Angle
MPC 39W/U/PAR30L/UVS/PS/830/SP10	38825	2200	0.73	63	9000	3000K	81	Clear	U	W	6	*
MPC 39W/U/PAR30L/UVS/PS/830/FL30	38826	2200	0.80	63	9000	3000K	81	Clear	U	W	6	*

Enclosed Rated LAMPS ANSI Type-E ANSI C130/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHC 39W/U/T4/UVS/PS/930	38807	4000	0.87	114	15000	3000K	90	Clear	U	V	12	
MHC 39W/U/T6/UVS/PS/930	38810	4000	0.87	114	15000	3000K	90	Clear	U	T	12	

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

Electronic ballasts for *Uni-Form*®-SPC lamps are available when sold as a system. Electronic ballasts for *Uni-Form*®-SPC lamps are not sold separately.

Applications

- Track Lighting
- Retail Display

S MR16

Dia. = 2.0″ (50mm)
MOL = 2.6″ (65mm)
Base = GX10

T T6

Dia. = 0.8″ (20mm)
MOL = 3.9″ (99mm)
LCL = 2.2″ (56mm)
Base = G12

V T4

Dia. = 0.6″ (15mm)
MOL = 3.3″ (85mm)
LCL = 2.0″ (51mm)
Base = G8.5

W PAR30

Dia. = 3.8″ (95mm)
MOL = 4.5″ (114mm)
Base = Medium (E26)

50 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Compact lamps
- Shrouded, open rated versions available
- UV Shield® lamps available

Open Rated LAMPS ANSI Type-O M110/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MP 50W/U/UVS/PS	32100	3200	0.65	64	10000	4000K	65	Clear	U	B	12	
MP 50W/C/U/UVS/PS	30041	3000	0.65	60	10000	3700K	70	Coated	U	B	12	
MP 50W/U/UVS/PS/3K	10226	3200	0.65	64	10000	3200K	65	Clear	U	B	12	
MP 50W/C/U/UVS/PS/3K	10381	3000	0.65	60	10000	3200K	70	Coated	U	B	12	

Enclosed Rated LAMPS ANSI Type-E M110/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MH 50W/U/PS	52312	3400	0.65	68	10000	4000K	65	Clear	U	A	12	
MH 50W/C/U/PS	13093	3200	0.65	64	10000	3700K	70	Coated	U	A	12	

MAGNETIC BALLASTS 60Hz ANSI M110

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
120/208/240/277	V90D5731	HX-HPF	68	1.20/.065/0.60/0.50	A/A/A/A	Y	4	1.05	2.45	3.5	6/280	A5	Dry	D	2
120/277/347	V90J5731	HX-HPF	72	1.20/0.50/0.40	A/A/A	A1	4	1.05	2.45	3.3	6/280	A5	Dry	D	2
120/277	V90H5731	HX-HPF	68	1.20/0.50	A/A	Q1	4	1.05	2.10	3.5	6/280	A5	Dry	D	2

Key

- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp

A ED17

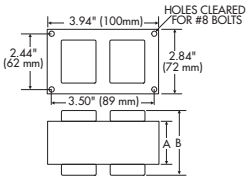
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B EDX17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

4 3x4 Core

HX



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60 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Open Rated LAMPS ANSI Type-O M___/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MP 60W/U/ED17/UVS/PS/950	95060	4100	0.90	68	20000	5000K	90+	Clear	U	B	12	
MP 60W/C/U/ED17/UVS/PS/950	95061	3900	0.90	65	20000	5000K	90+	Coated	U	B	12	
MPE 60W/U/ED17/UVS/PS/740	50049	4500	0.80	75	20000	4000K	68	Clear	U	B	12	
MPE 60W/U/ED28/UVS/PS/740	77678	4500	0.80	75	20000	4000K	68	Clear	U	D	12	

Enclosed Rated LAMPS ANSI Type-E M___/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHL 60W/U/ED17/PS/740	55554	4800	0.80	80	40000	4000K	68	Clear	U	A	12	*
MHL 60W/C/U/ED17/PS/737	32984	4600	0.80	77	40000	3700K	70	Coated	U	A	12	*
MHL 60W/U/ED28/PS/740	62892	4800	0.80	80	40000	4000K	68	Clear	U	C	12	*
MHL 60W/C/U/ED28/PS/737	12657	4600	0.80	77	40000	3700K	70	Coated	U	C	12	*

Enclosed Rated LAMPS ANSI Type-E C187/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHC 60W/U/T6C/UVS/PS/728	38822	6900	0.90	115	30000	2800K	70	Clear	U	U	12	

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

Electronic ballasts for *Uni-Form*®-SPC lamps are available when sold as a system. Electronic ballasts for *Uni-Form*®-SPC lamps are not sold separately.

Applications

- Downlighting - Low Ceiling
- Floodlighting
- Landscape
- Soffit
- Sconce
- Signage
- Residential Security

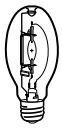
A ED17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B EDX17

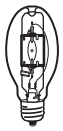
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



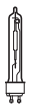
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

U T6C



Dia. = 0.8″ (20mm)
MOL = 5.2″ (132mm)
LCL = 2.3″ (59mm)
Base = PGZ12

Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

70 Watt Lamps

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Compact ED17, T6 and cool-operating ED28 bulbs
- High lumen per watt package
- Superior cold weather starting
- Color temperature and CRI choices
- 50% longer life than CFL's
- UV Shield® lamps available for plastic lens and product protection

Open Rated LAMPS ANSI Type-O ANSI M98/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MP 70W/U/ED17/UVS/PS/950	95071	4800	0.90	69	20000	5000K	90+	Clear	U	B	12	
MP 70W/C/U/ED17/UVS/PS/950	95072	4500	0.90	64	20000	5000K	90+	Coated	U	B	12	
MPE 70W/U/ED17/UVS/PS/740	49542	5300	0.80	76	20000	4000K	68	Clear	U	B	12	
MPE 70W/U/ED28/UVS/PS/740	33291	5300	0.80	76	20000	4000K	68	Clear	U	D	12	
MP 70W/U/UVS/PS	40389	5300	0.65	76	15000	4000K	65	Clear	U	B	12	
MP 70W/C/U/UVS/PS	67115	5000	0.65	71	15000	3700K	70	Coated	U	B	12	
MP 70W/U/UVS/PS/3K	45424	5300	0.65	76	15000	3200K	65	Clear	U	B	12	
MP 70W/C/U/UVS/PS/3K	14611	5000	0.65	71	15000	3200K	70	Coated	U	B	12	
MP 70W/C/U/ED28/UVS/PS/3K	22466	5000	0.65	71	15000	3200K	70	Coated	U	D	12	

Open Rated LAMPS ANSI Type-O ANSI C139/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPC 70W/U/PAR30L/UVS/PS/830/SP10	38827	5000	0.61	71	11000	3000K	82	Clear	U	W	6	* CBCP=70000, SP10
MPC 70W/U/PAR30L/UVS/PS/830/FL30	38828	5000	0.61	71	11000	3000K	82	Clear	U	W	6	* CBCP=15000, FL30
MPC 70W/U/PAR38/UVS/PS/830/SP10	38829	4100	TBD	59	12500	3000K	83	Clear	U	X	12	*
MPC 70W/U/PAR38/UVS/PS/830/FL30	38830	4100	TBD	59	12500	3000K	83	Clear	U	X	12	*

Enclosed Rated LAMPS ANSI Type-E ANSI M98/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHL 70W/U/ED17/PS/740	15632	5600	0.80	80	40000	4000K	68	Clear	U	A	12	
MHL 70W/C/U/ED17/PS/737	32618	5300	0.80	76	40000	3700K	70	Coated	U	A	12	
MHL 70W/U/ED28/PS/740	86501	5600	0.80	80	40000	4000K	68	Clear	U	C	12	
MHL 70W/C/U/ED28/PS/737	36519	5300	0.80	76	40000	3700K	70	Coated	U	C	12	
MH 70W/U/PS	78138	5600	0.65	80	15000	4000K	65	Clear	U	A	12	
MH 70W/C/U/PS	12180	5300	0.65	76	15000	3700K	70	Coated	U	A	12	
MH 70W/U/ED28/PS	16017	5600	0.65	80	15000	4000K	65	Clear	U	C	12	

Enclosed Rated LAMPS ANSI Type-E ANSI C139/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHC 70W/U/T4/UVS/PS/930	38808	7800	0.86	111	15000	3000K	91	Clear	U	V	12	
MHC 70W/U/T6/UVS/PS/930	38811	7800	0.86	111	15000	3000K	90	Clear	U	T	12	

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

Electronic ballasts for *Uni-Form*ˣ-SPC lamps are available when sold as a system. Electronic ballasts for *Uni-Form*ˣ-SPC lamps are not sold separately.

Lamp diagrams are located on page u7, and on t22-23

Key

- Natural White® Lamp
- *Uni-Form*ˣ-SPC Lamp
- *Uni-Form*ˣ-SPL Lamp
- *Uni-Form*ˣ-SPE Lamp

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70 Watt Ballasts

UNI-FORM® Pulse Start Metal Halide Lighting Systems

MAGNETIC BALLASTS 60Hz ANSI M98

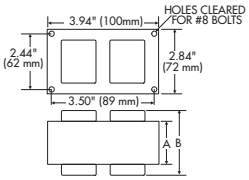
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
120/208/240/277	V90D5833	HX-HPF	92	1.65/0.95/0.80/0.70	A/A/A/A	Y	4	1.45	2.85	4.6	8/280	A5	Dry	D	2
120/277/347	V90J5832	HX-HPF	90	1.70/0.70/0.60	A/A/A	A1	4	1.45	2.85	4.9	8/280	A5	Dry	D	2
120/277	V90H5833	HX-HPF	92	1.65/0.70	A/A	Q1	4	1.45	2.85	4.6	8/280	A5	Dry	D	2

Applications

- Downlighting
- Floodlighting
- Landscape
- Merchandising
- Signage
- Security

4 3x4 Core

HX



Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

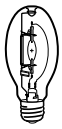
A ED17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B EDX17

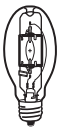
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

T T6

Dia. = 0.8″ (20mm)
MOL = 3.9″ (99mm)
LCL = 2.2″ (56mm)
Base = G12

V T4

Dia. = 0.6″ (15mm)
MOL = 3.3″ (85mm)
LCL = 2.0″ (51mm)
Base = G8.5

W PAR30

Dia. = 3.8″ (95mm)
MOL = 4.5″ (114mm)
Base = Medium (E26)

X PAR38

Dia. = 4.8″ (121mm)
MOL = 5.4″ (138mm)
Base = Medium (E26)

90 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Color temperature and CRI choices: Natural White® versions available
- Long life SPL versions available
- High lumen per watt package

Open Rated LAMPS ANSI Type-O ANSI M___/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MP 90W/U/ED17/UVS/PS/950	95090	6500	0.90	72	20000	5000K	90+	Clear	U	B	12	
MP 90W/C/U/ED17/UVS/PS/950	95091	6200	0.90	69	20000	5000K	90+	Coated	U	B	12	
MPE 90W/U/ED17/UVS/PS/740	14155	7700	0.80	86	20000	4000K	68	Clear	U	B	12	
MPE 90W/U/ED28/UVS/PS/740	29588	7700	0.80	86	20000	4000K	68	Clear	U	D	12	

Enclosed Rated LAMPS ANSI Type-E ANSI M___/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHL 90W/U/ED17/PS/740	78352	8100	0.80	90	40000	4000K	68	Clear	U	A	12	*
MHL 90W/C/U/ED17/PS/737	35798	7700	0.80	86	40000	3700K	70	Coated	U	A	12	*
MHL 90W/U/ED28/PS/740	89865	8100	0.80	90	40000	4000K	68	Clear	U	C	12	*
MHL 90W/C/U/ED28/PS/737	33548	7700	0.80	86	40000	3700K	70	Coated	U	C	12	*

Enclosed Rated LAMPS ANSI Type-E ANSI C188/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHC 90W/U/T6C/UVS/PS/728	38823	10500	0.84	117	30000	2800K	70	Clear	U	U	12	

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

Electronic ballasts for *Uni-Form*ˣ-SPC lamps are available when sold as a system. Electronic ballasts for *Uni-Form*ˣ-SPC lamps are not sold separately.

Key

- Natural White® Lamp
- *Uni-Form*ˣ-SPC Lamp
- *Uni-Form*ˣ-SPL Lamp
- *Uni-Form*ˣ-SPE Lamp

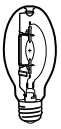
A ED17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B EDX17

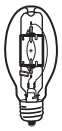
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

T T6

Dia. = 0.8″ (20mm)
MOL = 3.9″ (99mm)
LCL = 2.2″ (56mm)
Base = G12

U T6C

Dia. = 0.8″ (20mm)
MOL = 5.2″ (132mm)
LCL = 2.3″ (59mm)
Base = PGZ12

X PAR38

Dia. = 4.8″ (121mm)
MOL = 5.4″ (138mm)
Base = Medium (E26)

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

100 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Open Rated LAMPS ANSI Type-O ANSI M90/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MP 100W/U/ED17/UVS/PS/950	95100	7000	0.90	70	20000	5000K	90+	Clear	U	B	12	
MP 100W/C/U/ED17/UVS/PS/950	92534	6700	0.90	67	20000	5000K	90+	Coated	U	B	12	
MPE 100W/U/ED17/UVS/PS/740	62456	8500	0.80	85	20000	4000K	68	Clear	U	B	12	
MPE 100W/U/ED28/UVS/PS/740	85799	8500	0.80	85	20000	4000K	68	Clear	U	D	12	
MP 100W/U/UVS/PS	96267	8500	0.65	85	15000	4000K	65	Clear	U	B	12	
MP 100W/C/U/UVS/PS	11278	8100	0.65	81	15000	3700K	70	Coated	U	B	12	
MP 100W/U/UVS/PS/3K	96770	8500	0.65	85	15000	3200K	65	Clear	U	B	12	
MP 100W/C/U/UVS/PS/3K	11245	8100	0.65	81	15000	3200K	70	Coated	U	B	12	
MP 100W/C/U/ED28/UVS/PS/3K	22145	8100	0.65	81	15000	3200K	70	Clear	U	D	12	

Open Rated LAMPS ANSI Type-O ANSI C191/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPC 100W/U/PAR38/UVS/PS/830/SP10	38831	6200	TBD	62	12500	3000K	82	Clear	U	X	12	*
MPC 100W/U/PAR38/UVS/PS/830/FL30	38832	6200	TBD	62	12500	3000K	82	Clear	U	X	12	*

Enclosed Rated LAMPS ANSI Type-E ANSI M90/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHL 100W/U/ED17/PS/740	21982	9000	0.80	90	40000	4000K	68	Clear	U	A	12	
MHL 100W/C/U/ED17/PS/737	54231	8600	0.80	86	40000	3700K	70	Coated	U	A	12	
MHL 100W/U/ED28/PS/740	22498	9000	0.80	90	40000	4000K	68	Clear	U	C	12	
MHL 100W/C/U/ED28/PS/737	54286	8600	0.80	86	40000	3700K	70	Coated	U	C	12	
MH 100W/U/PS	27266	9000	0.65	90	15000	4000K	65	Clear	U	A	12	
MH 100W/C/U/PS	15823	8500	0.65	85	15000	3700K	70	Coated	U	A	12	
MH 100W/U/ED28/PS	67868	9000	0.65	90	15000	4000K	65	Clear	U	C	12	
MH 100W/C/U/ED28/PS	79986	8500	0.65	85	15000	3700K	70	Coated	U	C	12	

Enclosed Rated LAMPS ANSI Type-E ANSI C191/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHC 100W/U/T6/UVS/PS/930	38812	11000	0.88	110	15000	3000K	90	Clear	U	T	12	

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

Electronic ballasts for *Uni-Form*®-SPC lamps are available when sold as a system. Electronic ballasts for *Uni-Form*®-SPC lamps are not sold separately.

Lamp diagrams are on page u8 and pages t22-23

MAGNETIC BALLASTS 60Hz ANSI M90

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U5920	Reactor	118	1.05	A	B1	2	1.65	2.90	2.8	10/280	A6	Dry	D	2
120/208/240/277	V90D5932	HX-HPF	125	2.60/1.50/1.30/1.15	A/A/A/A	Y	4	1.70	3.10	5.2	12/280	A6	Dry	D	2
120/277/347	V90J5932	HX-HPF	126	2.60/1.15/0.90	A/A/A	A1	4	1.70	3.10	5.2	12/280	A6	Dry	D	2
120/277	V90H5932	HX-HPF	125	2.60/1.15	A/A	Q1	4	1.70	3.10	5.2	12/280	A6	Dry	D	2

Applications

- Downlighting
- Bollards
- Signage
- Retail and track lighting
- Floodlighting
- Hazardous Location Lighting
- Parking Garage
- Security Lighting

Ballast Options

Add Suffix for Options:

C - With Capacitor (Standard)

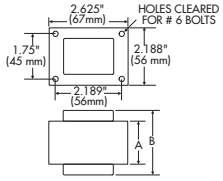
K - With Capacitor and Bracket Kit

B - With Welded Bracket, No Cap

Brackets and Kit Fig.: pg. t26
Cap. and Ignitor Fig.: pg. t21
Wiring Diagrams: pg. t24

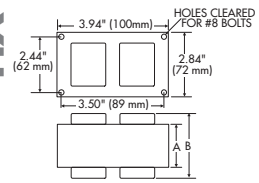
2 7/8 in Core

REACTOR



4 3x4 Core

HX



125 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Compact lamps and cool-operating ED28 bulbs
- Long life: SPL version available
- Shrouded, open rated versions available
- Color temperature and CRI choices
- Superior cold weather starting

Open Rated LAMPS ANSI Type-O ANSI M150/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MPE 125W/U/ED17/UVS/PS/740	19572	11400	0.80	91	20000	4000K	68	Clear	U	B	12	
MPE 125W/U/ED28/UVS/PS/740	24455	11400	0.80	91	20000	4000K	68	Clear	U	D	12	
MP 125W/BU/UVS/PS	13341	11400	0.70	91	15000	4000K	65	Clear	BU±15°	B	12	
MP 125W/C/BU/UVS/PS	43319	10800	0.70	86	15000	3700K	70	Coated	BU±15°	B	12	
MP 125W/V/ED28/UVS/PS	25813	11400	0.70	91	15000	4000K	65	Clear	V±15°	D	12	

Enclosed Rated LAMPS ANSI Type-E ANSI M150/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MHL 125W/U/ED17/PS/740	41256	12000	0.80	96	40000	4000K	68	Clear	U	A	12	*
MHL 125W/C/U/ED17/PS/737	38509	11400	0.80	91	40000	3700K	70	Coated	U	A	12	*
MHL 125W/U/ED28/PS/740	93256	12000	0.80	96	40000	4000K	68	Clear	U	C	12	*
MHL 125W/C/U/ED28/PS/737	43928	11400	0.80	91	40000	3700K	70	Coated	U	C	12	*
MH 125W/HBU/PS	76602	12000	0.70	96	15000	4000K	65	Clear	BU±90°	A	12	
MH 125W/C/HBU/PS	35638	11400	0.70	91	15000	3700K	70	Coated	BU±90°	A	12	
MH 125W/HBU/ED28/PS	61914	12000	0.70	96	15000	4000K	65	Clear	BU±90°	C	12	

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

MAGNETIC BALLASTS 60Hz ANSI M150

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U8820	Reactor	140	0.80	A	B1	2	1.50	2.65	2.5	7.5/280	A5	Dry	D	2
120/208/240/277	V90D8812	CWA	155	1.40/0.80/0.70/0.60	B /A/A/A	E	4	2.20	3.60	6.0	12/280	A6	Dry	D	2
120/277/347	V90J8811	CWA	150	1.25/0.55/0.45	A/A/A	K	4	1.70	3.15	5.4	12/280	A6	Dry	D	2
480/120T	V90Y8811T	CWA	150	0.35	A	S1	4	1.70	3.15	5.4	12/280	A6	Dry	D	2

Key

- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp

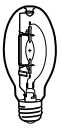
A ED17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B EDX17

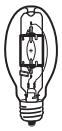
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

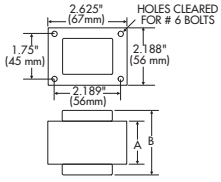
D ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

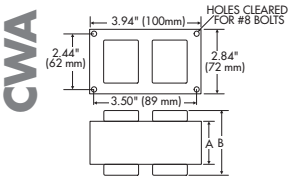
2 7/8 in Core

REACTOR



4 3x4 Core

CWA



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140 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Open Rated LAMPS ANSI Type-O ANSI M___/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MP 140W/U/ED17/UVS/PS/950	95140	10200	0.90	73	20000	5000K	90+	Clear	U	B	12	
MP 140W/C/U/ED17/UVS/PS/950	95141	9700	0.90	69	20000	5000K	90+	Coated	U	B	12	
MPE 140W/U/ED28/UVS/PS/950	95142	10200	0.90	73	20000	5000K	90+	Clear	U	D	12	Optimized for Electronics
MPE 140W/C/U/ED28/UVS/PS/950	95143	9700	0.90	69	20000	5000K	90+	Coated	U	D	12	Optimized for Electronics
MPE 140W/U/ED17/UVS/PS/740	37811	12400	0.80	89	20000	4000K	68	Clear	U	B	12	
MPE 140W/U/ED28/UVS/PS/740	48421	12400	0.80	89	20000	4000K	68	Clear	U	D	12	

Enclosed Rated LAMPS ANSI Type-E ANSI M___/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHL 140W/U/ED17/PS/740	76548	13000	0.80	93	40000	4000K	68	Clear	U	A	12	*
MHL 140W/C/U/ED17/PS/737	45465	12400	0.80	89	40000	3700K	70	Coated	U	A	12	*
MHL 140W/U/ED28/PS/740	23542	13000	0.80	93	40000	4000K	68	Clear	U	C	12	*
MHL 140W/C/U/ED28/PS/737	56421	12400	0.80	89	40000	3700K	70	Coated	U	C	12	*

Enclosed Rated LAMPS ANSI Type-E ANSI C189/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHC 140W/U/T6C/UVS/PS/728	38824	16500	0.85	118	30000	2800K	70	Clear	U	U	12	

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

Electronic ballasts for *Uni-Form*®-SPC lamps are available when sold as a system. Electronic ballasts for *Uni-Form*®-SPC lamps are not sold separately.

Applications

- Parking Garage
- Downlighting
- Bollards
- Signage
- Security
- Floodlighting
- Hazardous Location Lighting

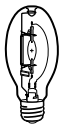
A ED17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B EDX17

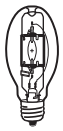
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

U T6C

Dia. = 0.8″ (20mm)
MOL = 5.2″ (132mm)
LCL = 2.3″ (59mm)
Base = PGZ12

Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

150 Watt Lamps

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Longer life - 50% to 400% more than standard probe start 175 watt MH
- Saves 25 watts with more light than standard probe start 175 watt MH

Open Rated LAMPS ANSI Type-O ANSI M102/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MP 150W/U/ED17/UVS/PS/950	95150	11100	0.90	74	20000	5000K	90+	Clear	U	B	12	
MP 150W/C/U/ED17/UVS/PS/950	22961	10500	0.90	70	20000	5000K	90+	Coated	U	B	12	
MP 150W/U/ED28/UVS/PS/950	95152	11100	0.90	74	20000	5000K	90+	Clear	U	D	12	
MP 150W/C/U/ED28/UVS/PS/950	95153	10500	0.90	70	20000	5000K	90+	Coated	U	D	12	
MPE 150W/U/ED17/UVS/PS/740	70435	13300	0.80	89	20000	4000K	68	Clear	U	B	12	
MPE 150W/U/ED28/UVS/PS/740	57492	13300	0.80	89	20000	4000K	68	Clear	U	D	12	
MP 150W/U/UVS/PS/740	22455	13300	0.75	89	15000	4000K	68	Clear	U	B	12	
MP 150W/C/U/UVS/PS/737	22888	12600	0.75	84	15000	3700K	70	Coated	U	B	12	
MP 150W/U/UVS/PS/732	22522	13300	0.75	89	15000	3200K	68	Clear	U	B	12	
MP 150W/C/U/UVS/PS/732	80039	12600	0.75	84	15000	3200K	70	Coated	U	B	12	
MP 150W/U/ED28/UVS/PS/740	58963	13300	0.75	89	15000	4000K	68	Clear	U	D	12	
MP 150W/C/U/ED28/UVS/PS/737	32147	12600	0.75	84	15000	3700K	70	Coated	U	D	12	

Enclosed Rated LAMPS ANSI Type-E ANSI M102/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHL 150W/U/ED17/PS/740	35985	14000	0.80	93	40000	4000K	68	Clear	U	A	12	
MHL 150W/C/U/ED17/PS/737	68542	13300	0.80	89	40000	3700K	70	Coated	U	A	12	
MHL 150W/U/ED28/PS/740	46105	14000	0.80	93	40000	4000K	68	Clear	U	C	12	
MHL 150W/C/U/ED28/PS/737	93218	13300	0.80	89	40000	3700K	70	Coated	U	C	12	
MH 150W/U/PS/740	99584	14000	0.75	93	15000	4000K	68	Clear	U	A	12	
MH 150W/C/U/PS/737	94986	13300	0.75	89	15000	3700K	70	Coated	U	A	12	
MH 150W/U/ED28/PS/740	13556	14000	0.75	93	15000	4000K	68	Clear	U	C	12	
MH 150W/C/U/ED28/PS/737	21344	13300	0.75	89	15000	3700K	70	Coated	U	C	12	

Key

- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

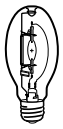
A ED17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B EDX17

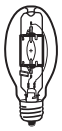
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

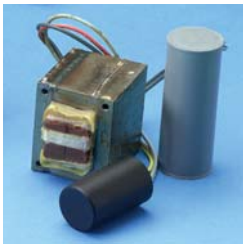
800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

150 Watt Ballasts

UNI-FORM® Pulse Start Metal Halide Lighting Systems

MAGNETIC BALLASTS 60Hz ANSI M102

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U7121	Reactor	170	1.50	B	B1	2	2.50	3.90	4.0	14/280	A1	Dry	D	2
120/208/240/277	V90D7130	HX-HPF	185	3.50/2.15/1.75/1.55	B/D/C/C	Y	4	2.25	3.90	7.1	16/280	A7	Dry	D	5
120/277/347	V90J7130	HX-HPF	185	3.65/1.55/1.25	C/D/D	A1	4	2.25	3.90	7.1	16/280	A7	Dry	D	5
120/277	V90H7130	HX-HPF	185	3.50/1.55	B/C	Q1	4	2.25	3.90	7.1	16/280	A7	Dry	D	5
120/208/240/277	V90D7110	CWA	188	1.70/1.00/0.85/0.75	C/C/C/D	E	4	2.50	3.90	8.2	16/330	A7	Dry	D	2
120/277/347	V90J7110	CWA	192	1.65/0.70/0.55	D/C/C	K	4	2.75	4.10	8.6	16/330	A7	Dry	D	2
480/120T	V90Y7110T	CWA	188	0.40	C	S1	4	2.75	4.10	8.6	16/330	A7	Dry	D	2

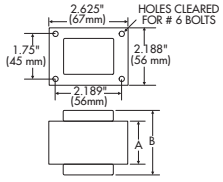


Applications

- Parking Garage
- Downlighting
- Security
- Floodlighting
- Retail
- Airport
- Residential Roadway
- Energy Retrofits

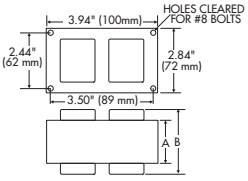
REACTOR

2 7/8 in Core



HX/CWA

4 3x4 Core



Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

175 Watt Lamps

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- 50% longer life (15,000 hrs.) than standard probe start 175 watt metal halide
- 25% more initial lumens than standard probe start 175 watt metal halide

Open Rated LAMPS ANSI Type-O ANSI M152/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MP 175W/BU/UVS/PS/EM/950	95175	12800	0.90	73	20000	5000K	90+	Clear	BU±15°	D	12	
MP 175W/BU/MED/UVS/PS/EM/950	95176	12800	0.90	73	20000	5000K	90+	Clear	BU±15°	B	12	
MP 175W/BU/UVS/PS/740	69854	16000	0.86	91	15000	4000K	68	Clear	BU±15°	D	12	
MP 175W/C/BU/UVS/PS/737	42346	15200	0.86	87	15000	3700K	70	Coated	BU±15°	D	12	

Enclosed Rated LAMPS ANSI Type-E ANSI M152/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MS 175W/BU/PS/740	68475	17500	0.86	100	15000	4000K	68	Clear	BU±15°	C	12	
MS 175W/C/BU/PS/737	68246	16600	0.86	95	15000	3700K	70	Coated	BU±15°	C	12	
MS 175W/BU/MED/PS/740	16497	17500	0.86	100	15000	4000K	68	Clear	BU±15°	A	12	
MS 175W/C/BU/MED/PS/737	34691	16600	0.86	95	15000	3700K	70	Coated	BU±15°	A	12	
MS 175W/H75/PS/740	99585	13000	0.80	74	15000	4000K	68	Clear	HOR±75°	C	12	Horizontal Operation
MS 175W/H75/T15/PS/740	99586	13000	0.80	74	15000	4000K	68	Clear	HOR±75°	G	12	Horizontal Operation

Key

- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

A ED17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B EDX17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28

Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28

Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

G T15

Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

175 Watt Ballasts

UNI-FORM® Pulse Start Metal Halide Lighting Systems

MAGNETIC BALLASTS 60Hz ANSI M137/M152

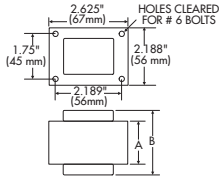
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U7221	Reactor	195	1.05	A	B1	2	0.85	2.90	4.0	10/280	A6	Dry	D	2
120/208/240/277	V90D7211	CWA	199	1.75/1.00/0.85/0.75	A/A/A/A	E	4	3.00	4.40	9.0	12.5/330	A1	Dry	D	2
120/277/347	V90J7210	CWA	208	1.90/0.80/0.65	B/B/B	K	4	2.63	4.00	8.0	12.5/330	A1	Dry	D	2
480/120T	V90Y7211T	CWA	199	0.45	A	S1	4	3.10	4.50	9.5	12.5/330	A1	Dry	D	2

Applications

- Parking Garage
- Canopy Lighting
- Lowbay Industrial
- Security

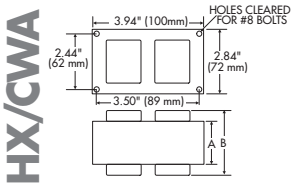
2 7/8 in Core

REACTOR



4 3x4 Core

HX/CWA



Ballast Options

Add Suffix for Options:

C - With Capacitor (Standard)

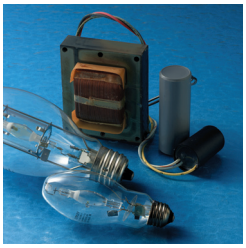
K - With Capacitor and Bracket Kit

B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

200 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems



Benefits

- Highest wattage available in an ED17 jacket
- Compared to standard probe start 250W MH: More light with less energy and longer life
- Excellent lumen maintenance and high color rendering

Open Rated LAMPS ANSI Type-O ANSI M136/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MP 200W/BU/UVS/PS/EM/950	95200	14500	0.90	73	20000	5000K	90+	Clear	BU±15°	D	12	
MPL 200W/C/V/ED28/PS/737	33587	17100	0.86	86	40000	3700K	70	Coated	V±15°	D	12	*
MP 200W/V/UVS/PS/740	22147	20000	0.86	100	20000	4000K	68	Clear	V±15°	D	12	
MP 200W/C/V/UVS/PS/737	59174	19000	0.86	95	20000	3700K	70	Coated	V±15°	D	12	

Enclosed Rated LAMPS ANSI Type-E ANSI M136/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MHL 200W/V/ED28/PS/740	98434	20000	0.86	100	40000	4000K	68	Clear	V±15°	C	12	*
MHL 200W/C/V/ED28/PS/737	14357	19000	0.86	95	40000	3700K	70	Coated	V±15°	C	12	*
MHL 200W/H75/ED28/PS/740	60375	19000	0.86	95	40000	4000K	68	Clear	Hor±75°	C	12	* Horizontal Operation
MHL 200W/C/H75/ED28/PS/737	10237	18100	0.86	91	40000	3700K	70	Coated	Hor±75°	C	12	* Horizontal Operation
MS 200W/V/PS/740	57739	21000	0.86	105	20000	4000K	68	Clear	V±15°	C	12	
MS 200W/C/V/PS/737	70345	20000	0.86	100	20000	3700K	70	Coated	V±15°	C	12	
MS 200W/BU/MED/PS/740	60811	21000	0.86	105	12000	4000K	68	Clear	BU±15°	A	12	
MS 200W/C/BU/MED/PS/737	60812	20000	0.86	100	12000	3700K	70	Coated	BU±15°	A	12	
MS 200W/H75/T15/PS/740	70764	19000	0.80	95	15000	4000K	68	Clear	HOR±75°	G	12	Horizontal Operation

MAGNETIC BALLASTS 60Hz ANSI M136

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U7321	Reactor	219	1.25	A	B1	3	1.00	2.90	4.5	12/280	A6	Dry	D	5
120/208/240/277	V90D7330	HX-HPF	235	3.30/2.05/1.65/1.45	A/A/A/A	Y	4	2.25	3.90	7.0	16/290	A7	Dry	D	2
120/277/347	V90J7330	HX-HPF	235	3.45/1.45/1.15	D/C/C	A1	4	2.45	3.90	7.5	16/290	A7	Dry	D	2
480/120T	V90Y7330T	HX-HPF	237	0.80	D	W1	4	2.45	3.90	8.0	16/280		Dry	D	2
120/208/240/277	V90D7311	CWA	226	1.95/1.10/1.00/0.85	A/A/A/A	E	5	2.00	4.15	11.0	15/300		Dry	D	2
120/208/240/277	V90D7312	CWA	277	1.90/1.10/0.95/0.85	A/A/A/A	E	4	2.50	3.90	8.0	15/330		Dry	D	2
120/277/347	V90J7310	CWA	235	2.00/0.85/0.70	A/A/A	K	4	2.50	3.90	8.0	16/300	A7	Dry	D	2
480/120T	V90Y7311T	CWA	228	0.50	A	S1	5	2.00	4.10	11.5	15/330		Dry	D	2
480/120T	V90Y7312T	CWA	228	0.50	A	S1	4	3.10	4.50	9.5	15/330		Dry	D	10

Notes: * Call for availability

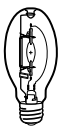
Key

- Natural White® Lamp
- *Uni-Form*ˣ-SPC Lamp
- *Uni-Form*ˣ-SPL Lamp
- *Uni-Form*ˣ-SPE Lamp
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

A ED17

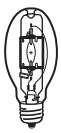
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

C ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



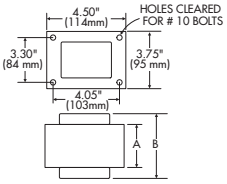
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

G T15

Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

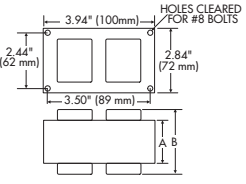
3 $3^3/_4$ x $4^1/_2$ Core

REACTOR



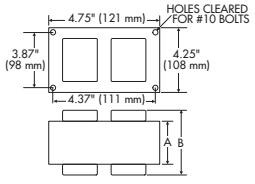
4 3x4 Core

HX/CWA



5 4x4 Core

CWA



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210 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Open Rated LAMPS ANSI Type-O ANSI C183/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPC 210W/U/T12/UVS/PS/930	38818	23100	0.90	110	20000	3000K	90	Clear	U	Y	12	
MPC 210W/U/T12/UVS/PS/942	38820	22100	0.90	105	20000	4200K	90	Clear	U	Y	12	

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

Electronic ballasts for *Uni-Form*®-SPC lamps are available when sold as a system. Electronic ballasts for *Uni-Form*®-SPC lamps are not sold separately.

Applications

- Street Lighting
- Architectural Lighting
- Energy Retrofits
- Lowbay Industrial
- Petrochemical
- Canopy
- Parking Garage
- Site Lighting

Dia. = 1.5″ (38mm)
MOL = 7.6″ (193mm)
LCL = 3.5″ (89mm)
Base = PGZX18

Ballast Options

Add Suffix for Options:

C - With Capacitor (Standard)

K - With Capacitor and Bracket Kit

B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

250 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Excellent lumen maintenance
- Long Life

Open Rated LAMPS ANSI Type-O M153/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MP 250W/BU/UVS/PS/EM/950	19523	17500	0.90	70	20000	5000K	90+	Clear	BU±15°	D	12	
MP 250W/C/BU/UVS/PS/EM/950	19525	16500	0.90	66	20000	5000K	90+	Clear	BU±15°	D	12	
MP 250W/H75/T15/UVS/PS/EM/950	59324	17000	0.90	74	15000	5000K	90+	Clear	HOR±75°	D	12	Horizontal Operation
MP 250W/BU/UVS/PS/740	64658	23800	0.86	95	20000	4000K	68	Clear	BU±15°	D	12	
MP 250W/C/BU/UVS/PS/737	32658	22600	0.86	90	20000	3700K	70	Coated	BU±15°	D	12	
MP 250W/H75/UVS/PS/740	49822	21300	0.80	85	20000	4000K	68	Clear	HOR±75°	D	12	Horizontal Operation
MP 250W/H75/T15/UVS/PS/740	19252	21300	0.80	85	20000	4000K	68	Clear	HOR±75°	P	12	Horizontal Operation

Enclosed Rated LAMPS ANSI Type-E ANSI M153/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MHL 250W/V/ED28/PS/740	46895	23800	0.86	95	40000	4000K	68	Clear	V±15°	C	12	*
MHL 250W/C/V/ED28/PS/737	71638	22600	0.86	90	40000	3700K	70	Coated	V±15°	C	12	*
MHL 250W/H75/ED28/PS/740	65413	22000	0.86	88	40000	4000K	68	Clear	HOR±75°	C	12	* Horizontal Operation
MHL 250W/C/H75/ED28/PS/737	32393	20900	0.86	84	40000	3700K	70	Coated	HOR±75°	C	12	* Horizontal Operation
MS 250W/V/PS/740	49621	25000	0.86	100	20000	4000K	68	Clear	V±15°	C	12	
MS 250W/C/V/PS/737	81365	23800	0.86	95	20000	3700K	70	Coated	V±15°	C	12	
MS 250W/H75/PS/740	81054	22000	0.80	88	20000	4000K	68	Clear	HOR±75°	C	12	Horizontal Operation
MS 250W/H75/T15/PS/740	57625	22000	0.80	88	20000	4000K	68	Clear	HOR±75°	G	12	Horizontal Operation

MAGNETIC BALLASTS 60Hz ANSI M138/M153

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U8421	Reactor	275	1.35	A	B1	3	1.25	3.40	6.0	13/280	A1	Dry	D	5
120/208/240/277	V90D8412	CWA	278	2.40/1.40/1.20/1.05	A/A/A/A	E	5	2.00	4.05	12.5	16/370		Dry/Oil	D	2
120/208/240/277	V90D8411	CWA	284	2.45/1.45/1.25/1.05	A/A/A/A	E	5	2.00	4.10	11.0	16/370		Dry/Oil	D	2
120/277/347	V90J8410	CWA	288	2.50/1.10/0.90	B/A/B	K	5	1.55	3.50	10.0	15/400	A13	Dry	D	2
480/120T	V90Y8412T	CWA	278	0.60	A	S1	5	2.00	4.05	12.5	16/370		Dry/Oil	D	2
480/120T	V90Y8411T	CWA	284	0.60	A	S1	5	2.00	4.05	11.5	16/370		Dry/Oil	D	2

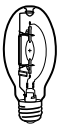
Notes: * Call for availability

For electronic ballast options, see Retrofit Systems page r12

Key

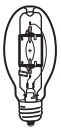
- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

C ED28



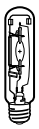
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

G T15



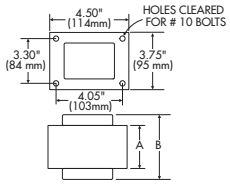
Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

P T15

Dia. = 2.0″ (52mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

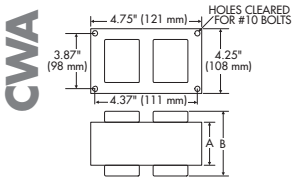
3 3 3/4 x 4 1/2 Core

REACTOR



5 4x4 Core

CWA



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315 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Open Rated LAMPS ANSI Type-O ANSI C182/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPC 315W/U/T12/UVS/PS/930	38819	36000	0.90	114	20000	3000K	90	Clear	U	Y	12	*
MPC 315W/U/T12/UVS/PS/942	38821	35000	0.90	111	20000	4200K	90	Clear	U	Y	12	*

Notes: * Call for availability

For electronic ballast options, see Retrofit Systems pages r4-8

Electronic ballasts for *Uni-Form*®-SPC lamps are available when sold as a system. Electronic ballasts for *Uni-Form*®-SPC lamps are not sold separately.

Applications

- Street Lighting
- Architectural Lighting

Y

T12

Dia. = 1.5″ (38mm)
MOL = 7.6″ (193mm)
LCL = 3.5″ (89mm)
Base = PGZX18

Ballast Options

Add Suffix for Options:

C - With Capacitor (Standard)

K - With Capacitor and Bracket Kit

B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

320 Watt Lamps

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

Compared to 400W standard probe start metal halide system:

- Save up to 106 system watts per luminaire
- Achieve 13% more lumen output at 8,000 hours and almost 30% more lumen output at 20,000 hours

Open Rated LAMPS ANSI Type-O ANSI M154/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MP 320W/BU/ED37/UVS/PS/EM/950	98520	24500	0.90	77	30000	5000K	90+	Clear	BU±15°	F	6	
MP 320W/C/BU/ED37/UVS/PS/EM/950	95123	23500	0.90	73	30000	5000K	90+	Coated	BU±15°	F	6	
MP 320W/BU/ED28/UVS/PS/EM//950	98530	24500	0.90	77	30000	5000K	90+	Clear	BU±15°	D	12	
MP 320W/H75/T15/S/UVS/PS/EM/950	95320	22500	0.90	76	26000	5000K	90+	Clear	HOR±75°	P	12	Horizontal Operation
MP 320W/H75/T15/L/UVS/PS/EM/950	95321	22500	0.90	76	26000	5000K	90+	Clear	HOR±75°	Q	12	Horizontal Operation
MP 320W/BU/ED37/UVS/PS/740	21714	31000	0.86	97	30000	4000K	68	Clear	BU±15°	F	6	
MP 320W/C/BU/ED37/UVS/PS/737	32795	29000	0.86	91	30000	3700K	70	Coated	BU±15°	F	6	
MP 320W/BU/ED28/UVS/PS/740	10103	31000	0.86	97	30000	4000K	68	Clear	BU±15°	D	12	
MP 320W/C/BU/ED28/UVS/PS/737	10104	29000	0.86	91	30000	3700K	70	Coated	BU±15°	D	12	
MP 320W/C/BU/ED37/UVS/PS/732	66506	29000	0.86	91	30000	3200K	70	Coated	BU±15°	F	6	

Enclosed Rated LAMPS ANSI Type-E ANSI M154/E

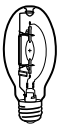
Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MHL 320W/V/ED28/PS/740	18635	31000	0.86	97	40000	4000K	68	Clear	V±15°	C	12	*
MHL 320W/C/V/ED28/PS/737	25796	29000	0.86	91	40000	3700K	70	Coated	V±15°	C	12	*
MHL 320W/V/ED37/PS/740	38765	31000	0.86	97	40000	4000K	68	Clear	V±15°	E	6	*
MHL 320W/C/V/ED37/PS/737	72378	29000	0.86	91	40000	3700K	70	Coated	V±15°	E	6	*
MHL 320W/H75/ED28/PS/740	20116	30000	0.86	94	40000	4000K	68	Clear	HOR±75°	C	12	* Horizontal Operation
MHL 320W/C/H75/ED28/PS/737	11086	29000	0.86	91	40000	3700K	70	Coated	HOR±75°	C	12	* Horizontal Operation
MHL 320W/H75/ED37/PS/740	28699	30000	0.86	94	40000	4000K	68	Clear	HOR±75°	E	6	* Horizontal Operation
MHL 320W/C/H75/ED37/PS/737	34778	29000	0.86	91	40000	3700K	70	Coated	HOR±75°	E	6	* Horizontal Operation
MS 320W/V/ED37/PS/740	52236	33000	0.86	103	30000	4000K	68	Clear	V±15°	E	6	
MS 320W/C/V/ED37/PS/737	67712	31000	0.86	97	30000	3700K	70	Coated	V±15°	E	6	
MS 320W/V/ED28/PS/740	59194	33000	0.86	103	30000	4000K	68	Clear	V±15°	C	12	
MS 320W/C/V/ED28/PS/737	77594	31000	0.86	97	30000	3700K	70	Coated	V±15°	C	12	
MS 320W/H75/ED28/PS/740	47549	30000	0.80	94	26000	4000K	68	Clear	HOR±75°	C	12	Horizontal Operation
MS 320W/H75/T15/S/PS/740	57626	30000	0.80	94	26000	4000K	68	Clear	HOR±75°	G	12	Horizontal Operation
MS 320W/H75/T15/L/PS/740	79710	30000	0.80	94	26000	4000K	68	Clear	HOR±75°	I	12	Horizontal Operation

Notes: * Call for availability

Key

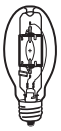
- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

C ED28



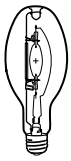
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



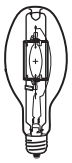
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

E ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

F ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

G T15

Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

I T15

Dia. = 1.9″ (46mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

P T15

Dia. = 2.0″ (52mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

Q T15

Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

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320 Watt Ballasts

UNI-FORM® Pulse Start Metal Halide Lighting Systems

MAGNETIC BALLASTS 60Hz ANSI M132/M154

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U7421	Reactor	349	1.70	A	B1	3	1.50	3.60	7.0	16/280	A7	Dry	D	2
120/208/240/277	V90D7430	HX-HPF	364	4.80/2.85/2.45/2.10	B/C/C/C	Y	5	1.80	3.70	11.0	20/280	A7	Dry	D	2
120/277/347	V90J7430	HX-HPF	364	5.25/2.25/1.70	D/D/D	A1	5	1.80	3.90	10.5	20/280	A7	Dry	D	2
480/120T	V90Y7430T	HX-HPF	364	1.20	D	W1	5	1.80	3.90	10.5	20/290	A7	Dry	D	2
120/208/240/277	V90D7413	CWA	364	3.10/1.80/1.55/1.35	B/B/B/C	E	5	2.00	4.15	10.0	22/330	A2	Dry	D	2
120/277/347	V90J7413	CWA	365	3.05/1.40/1.10	B/C/C	K	5	1.92	3.80	10.5	23/330	A2	Dry	D	2
120/277/347	V90J7411	CWA	368	3.20/1.40/1.15	B/C/C	K	5	1.90	3.75	10.5	22/330	A2	Dry	D	2
480/120T	V90Y7412T	CWA	365	0.80	A	S1	5	2.00	4.10	10.5	22/330	A2	Dry	D	2

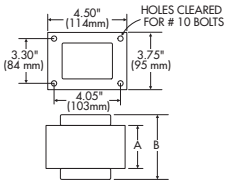
Notes: For electronic ballast options, see Retrofit Systems page r12

Applications

- Big Box Retail
- Warehouse Lighting
- Residential Roadways
- Site Lighting
- Industrial
- Hazardous

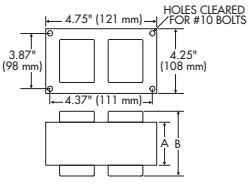
3 3¾ x 4½ Core

REACTOR



5 4x4 Core

HX/CWA



Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

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350 Watt Lamps

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Higher maintained lumens than standard probe start 400/U, 400/BU
- Saves up to 75 watts with energy saving reactor ballasts
- UV Shield® lamps available for plastic lens and product protection

Open Rated LAMPS ANSI Type-O ANSI M131/O *featuring* UV Shield®

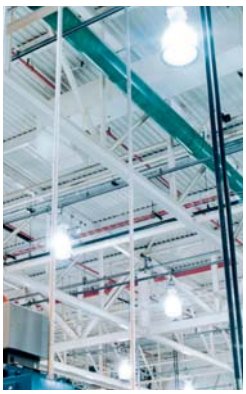
Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MP 350W/BU/UVS/PS/EM/950	51628	26000	0.90	74	30000	5000K	90+	Clear	BU±15°	F	6	
MP 350W/V/UVS/PS/740	22149	35000	0.86	100	30000	4000K	68	Clear	V±15°	F	6	
MP 350W/C/V/UVS/PS/732	27845	33000	0.86	94	30000	3200K	70	Coated	V±15°	F	6	
MP 350W/C/V/UVS/PS/737	44097	33000	0.86	94	30000	3700K	70	Coated	V±15°	F	6	
MP 350W/V/ED28/UVS/PS/740	47887	35000	0.86	100	30000	4000K	68	Clear	V±15°	D	12	
MP 350W/C/V/ED28/UVS/PS/737	55401	33000	0.86	94	30000	3700K	70	Coated	V±15°	D	12	
MP 350W/H75/UVS/PS/740	65218	32000	0.80	91	26000	4000K	68	Clear	HOR±75°	F	6	Horizontal Operation
MP 350W/H75/T15/L/UVS/PS/740	51208	32000	0.80	91	26000	4000K	68	Clear	HOR±75°	Q	12	Horizontal Operation

Enclosed Rated LAMPS ANSI Type-E ANSI M131/E

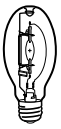
Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MS 350W/V/PS/740	98389	37000	0.86	106	30000	4000K	68	Clear	V±15°	E	6	
MS 350W/C/V/PS/737	71329	35000	0.86	100	30000	3700K	70	Coated	V±15°	E	6	
MS 350W/C/H75/PS/737	64866	31000	0.80	89	26000	3700K	70	Coated	HOR±75°	E	6	Horizontal Operation
MS 350W/V/ED28/PS/740	52980	37000	0.86	106	30000	4000K	68	Clear	V±15°	C	12	
MS 350W/H75/ED28/PS/740	46959	33000	0.80	94	26000	4000K	68	Clear	HOR±75°	C	12	Horizontal Operation
MS 350W/H75/T15/S/PS/740	60258	33000	0.80	94	26000	4000K	68	Clear	HOR±75°	G	12	Horizontal Operation
MS 350W/H75/T15/L/PS/740	93749	33000	0.80	94	26000	4000K	68	Clear	HOR±75°	F1	12	Horizontal Operation

Key

- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

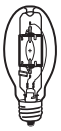


C ED28



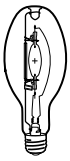
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



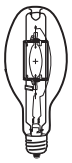
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

E ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

F ED37

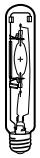


Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

G T15

Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

F1 T15



Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

Q T15

Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

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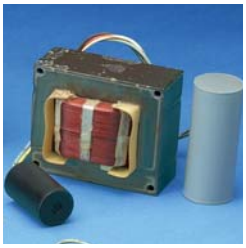
350 Watt Ballasts

UNI-FORM® Pulse Start Metal Halide Lighting Systems

MAGNETIC BALLASTS 60Hz ANSI M131

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U7521	Reactor	380	1.90	B	B1	3	1.80	3.60	7.4	18/280	A7	Dry	D	2
120/208/240/277	V90D7530	HX-HPF	395	5.00/2.55/2.50/2.15	B/A/C/C	Y	5	1.80	3.70	11.0	21.5/280	A7	Dry	D	2
120/277/347	V90J7530	HX-HPF	395	5.10/2.15/1.75	C/C/C	A1	5	1.80	3.90	10.5	21.5/290	A7	Dry	D	2
480/120T	V90Y7530T	HX-HPF	400	1.35	D	W1	5	1.80	3.90	10.5	21.5/290	A7	Dry	D	2
120/208/240/277	V90D7512	CWA	398	3.60/2.10/1.80/1.55	B/C/C/C	E	5	1.92	3.80	10.5	24/330	A2	Dry	D	2
120/208/240/277	V90D7513	CWA	398	3.45/1.95/1.75/1.50	A/C/D/D	E	5	1.92	4.00	9.5	24/330	A2	Dry	D	2
120/277/347	V90J7512	CWA	395	3.60/1.55/1.20	B/C/C	K	5	1.92	3.80	10.5	24/330	A2	Dry	D	2
480/120T	V90Y7513T	CWA	398	0.85	C	S1	5	2.00	4.10	10.0	24/330	A7	Dry	D	2

Notes: For electronic ballast options, see Retrofit Systems page r12

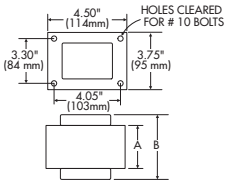


Applications

- Big Box Retail
- Warehouse
- Architectural/Site Lighting
- Printing/Graphics
- Floodlighting
- Hazardous Sites
- Energy Retrofits

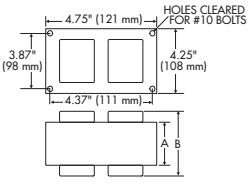
3 3¾ x 4½ Core

REACTOR



5 4x4 Core

HX/CWA



Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

400 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Highest 400 watt lumen package available - 44,000 lumens
- Long life: SPL version available
- Shrouded, open-rated version available
- UV Shield® lamps available for plastic lens and product protection

Open Rated LAMPS ANSI Type-O ANSI M155/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MP 400W/BU/UVS/PS/EM/950	57129	30500	0.90	76	30000	5000K	90+	Clear	BU±15°	F	6	
MP 400W/BU/ED28/UVS/PS/EM/950	72315	30500	0.90	76	30000	5000K	90+	Clear	BU±15°	D	12	
MP 400W/V/UVS/PS/740	71642	41000	0.86	103	30000	4000K	68	Clear	V±15°	F	6	
MP 400W/C/V/UVS/PS/737	45541	39000	0.86	98	30000	3700K	70	Coated	V±15°	F	6	
MP 400W/V/ED28/UVS/PS/740	12445	41000	0.86	103	30000	4000K	68	Clear	V±15°	D	12	
MP 400W/C/V/ED28/UVS/PS/737	88648	39000	0.86	98	30000	3700K	70	Coated	V±15°	D	12	
MP 400W/H75/UVS/PS/740	17611	38000	0.80	95	26000	4000K	68	Clear	HOR±75°	F	6	Horizontal Operation
MP 400W/H75/T15/L/UVS/PS/740	73189	38000	0.80	95	26000	4000K	68	Clear	HOR±75°	Q	12	Horizontal Operation

Enclosed Rated LAMPS ANSI Type-E ANSI M155/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MHL 400W/V/ED37/PS/740	15678	TBD	TBD	TBD	40000	4000K	68	Clear	V±15°	E	6	*
MS 400W/C/V/PS/737	42401	42000	0.86	105	30000	3700K	70	Coated	V±15°	E	6	
MS 400W/V/PS/740	73531	44000	0.86	110	30000	4000K	68	Clear	V±15°	E	6	
MS 400W/V/ED28/PS/740	85260	44000	0.86	110	30000	4000K	68	Clear	V±15°	C	12	
MS 400W/H75/ED28/PS/740	40124	40000	0.80	100	26000	4000K	68	Clear	Hor±75°	C	12	Horizontal Operation
MS 400W/C/H75/ED28/PS/737	55459	38000	0.80	95	26000	3700K	70	Coated	HOR±75°	C	12	Horizontal Operation
MS 400W/H75/PS/740	58788	40000	0.80	100	26000	4000K	68	Clear	HOR±75°	E	6	Horizontal Operation
MS 400W/H75/T15/S/PS/740	60260	40000	0.80	100	26000	4000K	68	Clear	HOR±75°	G	12	Horizontal Operation
MS 400W/H75/T15/L/PS/740	74151	40000	0.80	100	26000	4000K	68	Clear	HOR±75°	F1	12	Horizontal Operation

MAGNETIC BALLASTS 60Hz ANSI M135/M155

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U7621	Reactor	432	2.10	C	B1	3	1.65	3.70	7.0	20/280	A7	Dry	D	2
120/208/240/277	V90D7613	CWA	450	4.00/2.25/2.00/1.70	C/C/D/D	E	5	1.92	4.10	10.0	26/345	A3	Dry	D	2
120/277/347	V90J7612	CWA	453	4.00/1.75/1.40	D/D/D	K	5	2.15	4.00	11.3	26/330	A3	Dry	D	2
480/120T	V90Y7613T	CWA	453	1.00	D	S1	5	2.00	4.10	11.0	26/345	A3	Dry	D	2

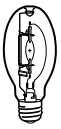
Notes: * Call for availability

For electronic ballast options, see Retrofit Systems page r12

Key

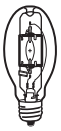
- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

C ED28



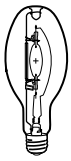
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



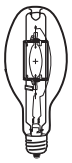
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

E ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

F ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

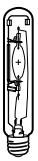
G T15

Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

Q T15

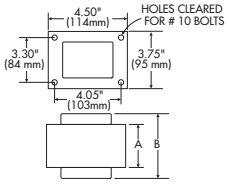
Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

F1 T15

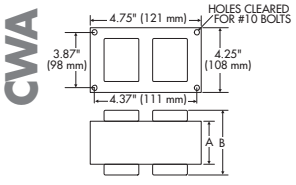


Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

3 $3^{3}/_{4}$ x $4^{1}/_{2}$ Core — REACTOR



5 4x4 Core — CWA



800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

450 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Open Rated LAMPS ANSI Type-O ANSI M144/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MP 450W/BU/UVS/PS/740	65072	47000	0.86	104	30000	4000K	68	Clear	BU±15°	F	6	

Enclosed Rated LAMPS ANSI Type-E ANSI M144/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MS 450W/V/PS/740	10079	50000	0.86	111	30000	4000K	68	Clear	V±15°	E	6	
MS 450W/C/V/PS/737	10138	47000	0.86	104	30000	3700K	70	Coated	V±15°	E	6	

MAGNETIC BALLASTS 60Hz ANSI M144

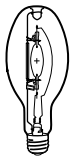
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (pfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U8521	Reactor	485	2.30	C	B1	3	1.80	3.75	8.1	22/280	A2	Dry	D	2
120/208/240/277	V90D8530	HX-HPF	507	7.00/3.60/3.50/3.00	B/A/D/D	Y	5	2.40	4.50	14.0	30/280	A7	Dry	D	2
120/277/347	V90J8530	HX-HPF	507	6.25/2.55/2.20	D/B/D	A1	5	2.60	4.50	14.5	30/280	A7	Dry	D	2
480/120T	V90Y8530T	HX-HPF	507	1.75	D	W1	5	2.60	4.50	14.0	30/280	A7	Dry	D	2
120/208/240/277	V90D8512	CWA	507	4.40/2.50/2.20/1.90	C/D/D/D	E	5	2.30	4.20	12.4	32/300	A10	Dry	D	2
120/277/347	V90J8511	CWA	507	4.40/1.90/1.50	D/D/D	K	5	2.30	4.20	12.3	32/300	A10	Dry	D	2
480/120T	V90Y8512T	CWA	509	1.10	C	S1	5	2.30	4.40	14.5	32/300	A10	Dry	D	2

Notes: For electronic ballast options, see Retrofit Systems page r12

Applications

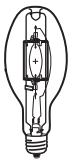
- Highbay Industrial
- Manufacturing Lighting
- Site Lighting
- Indoor Sports/Recreation
- Aircraft Hangers
- Railyards
- Big Box Retail
- Warehouse

E ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

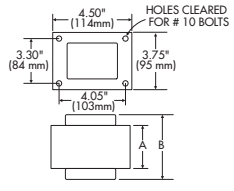
F ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

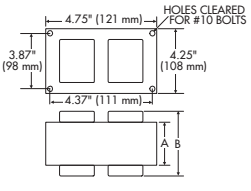
3 3¾ x 4½ Core

REACTOR



5 4x4 Core

HX/CWA



Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

575 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- 5000K color enables seeing clearer, objects look sharper and crisper
- The ultimate replacement for a standard 1000W probe start MH system
- Long life: Up to 40,000 hours

Open Rated LAMPS ANSI Type-O ANSI M178/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MP 575W/BU/BT37/PS/EM/950	95575	45000	0.90	82	26000	5000K	90+	Clear	BU±15°	K	6	
MP 575W/BU/BT37/PS/740	60023	60000	0.80	104	26000	4000K	68	Clear	BU±15°	K	6	

Enclosed Rated LAMPS ANSI Type-E ANSI M178/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MS 575W/H75/BT37/PS/EM/950	95577	45000	0.90	82	20000	5000K	90+	Clear	HOR±75°	H2	6	Horizontal Operation
MHL 575W/BU/BT37/PS/740	68735	60000	0.80	104	40000	4000K	68	Clear	BU±15°	K	6	*

MAGNETIC BALLASTS 60Hz ANSI M178

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U5521	Reactor	620	3.30	D	B1	3	2.05	3.85	8.0	30/280	A2	Dry	D	2
120/208/240/277	V90D5530	HX-HPF	635	8.75/4.70/4.45/3.80	B/A/C/C	Y	5	3.25	5.05	18.0	38/330	A14	Dry	D	2
120/277/347	V90J5530	HX-HPF	635	9.75/3.70/3.20	D/C/D	A1	5	3.25	5.05	18.0	38/330	A14	Dry	D	2
480/120T	V90Y5530T	HX-HPF	645	2.30	D	W1	5	3.25	5.05	18.5	38/330	A14	Dry	D	2
120/208/240/277	V90D5510	CWA	640	5.90/3.25/3.00/2.50	D/C/C/C	E	5	2.90	4.95	15.5	38/330	A14	Dry	D	2
120/277/347	V90J5510	CWA	640	5.85/2.45/2.00	D/A/B	K	5	2.90	4.95	15.5	38/330	A14	Dry	D	2
480/120T	V90Y5510T	CWA	640	1.40	D	S1	5	2.90	4.95	15.5	38/330	A14	Dry	D	2

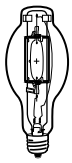
Notes: * Call for availability

Key

- Natural White® Lamp
- *Uni-Form*ˣ-SPC Lamp
- *Uni-Form*ˣ-SPL Lamp
- *Uni-Form*ˣ-SPE Lamp

K

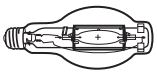
BT37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

H2

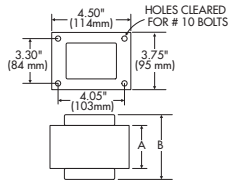
BT37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

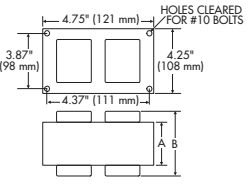
3 $3^{3}/_{4}$ x $4^{1}/_{2}$ Core

REACTOR



5 4x4 Core

HX/CWA



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775 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Open Rated LAMP ANSI Type-O ANSI M181/0

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MP 775W/BU/BT37/PS/950	24983	66000	0.90	85	26000	5000K	90+	Clear	BU±15°	K	6	
MP 775W/BD/BT37/PS/950	24988	66000	0.90	85	26000	5000K	90+	Clear	BD±15°	K	6	

Enclosed Rated LAMP ANSI Type-E ANSI M181/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MS 775W/H75/BT37/PS/950	24999	60000	0.90	77	15000	5000K	90+	Clear	HOR±75°	H2	6	Horizontal Operation

MAGNETIC BALLASTS 60Hz ANSI M181

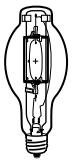
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (pfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
120/208/240/277	V90D9610	CWA	845	7.45/4.50/3.75/3.25	B/D/B/C	E	6	2.80	4.95	18.5	22/500		Oil		10
120/277/347	V90J9610	CWA	840	7.30/3.20/2.55	A/B/B	K	6	2.80	4.95	18.5	22/500		Oil		10
480/120T	V90Y9610T	CWA	855	1.85	D	S1	6	2.80	4.95	21.0	22/490		Oil		10

Applications

- Retail Auto Lots
- Highbay Industrial Lighting
- Parking Lots
- Site Lighting

K

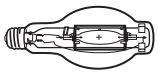
BT37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

H2

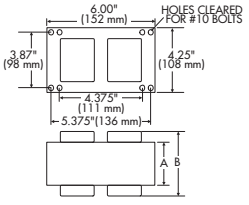
BT37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

6 4x6 Core

CWA



Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

875 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

- Great replacement for a standard probe start 1000 watt metal halide system!
- Save up to 155 watts per luminaire
- High lumen output - 115 lamp lumens per watt
- Long life: 26,000 rated life hours

Open Rated LAMPS ANSI Type-O ANSI M166/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MP 875W/BU/BT37/PS/740	58953	95000	0.80	109	26000	4000K	68	Clear	BU±15°	K	6	

Enclosed Rated LAMPS ANSI Type-E ANSI M166/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Case Qty	Additional Notes
MS 875W/BU/BT37/PS/740	22619	100000	0.80	114	26000	4000K	68	Clear	BU±15°	M	6	
MS 875W/BD/BT37/PS/740	35426	100000	0.80	114	26000	4000K	68	Clear	BD±15°	M	6	
MS 875W/H75/BT37/PS/740	74892	90000	0.80	103	15000	4000K	68	Clear	HOR±75°	H2	6	* Horizontal Operation

Notes: * Call for availability

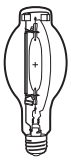
MAGNETIC BALLASTS 60Hz ANSI M166

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (pfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
480	V90Y8620	Reactor	927	2.75	C	B1	3	3.30	5.20	13.5	15/480	B9	Oil	F	5
120/208/240/277	V90D8612	CWA	950	7.85/4.85/4.05/3.45	B/C/B/B	E	6	2.80	4.95	18.5	22/470	B12	Oil	F	10
120/277/347	V90J8612	CWA	938	7.75/3.40/2.70	A/A/A	K	6	2.80	4.95	18.5	22/460	B12	Oil	F	10
480/120T	V90Y8612T	CWA	950	2.00	C	S1	6	2.80	4.90	18.5	22/470	B12	Oil	F	10

Key

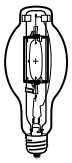
- Natural White® Lamp
- *Uni-Form*^{x}-SPC Lamp
- *Uni-Form*^{x}-SPL Lamp
- *Uni-Form*^{x}-SPE Lamp

M BT37



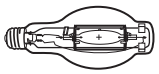
Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (E39)

K BT37



Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (EX39)

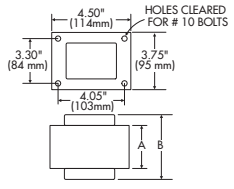
H2 BT37



Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (E39)

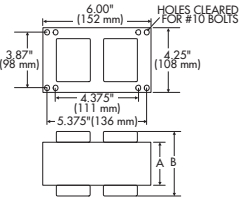
3 $3^{3}/_{4}$ x $4^{1}/_{2}$ Core

REACTOR



6 4x6 Core

CWA



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1000 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Enclosed Rated LAMPS ANSI Type-E ANSI M141/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MS 1000W/BU/BT37/PS/740	71722	115000	0.75	115	12000	4000K	68	Clear	BU±15°	J	6	
MS 1000W/HOR/T25/PS/734	49111	110000	0.70	110	5000	3400K	68	Clear	HOR±45°	N	6	

Notes: * Permitted rotation about horizontal lamp axis ±15°

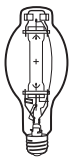
MAGNETIC BALLASTS 60Hz ANSI M141

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
120/208/240/277	V90D7811	CWA	1080	8.95/5.55/4.55/3.95	D/D/C/D	E	6	2.80	4.95	18.5	24/480	B12	Oil	F	10
120/277/347	V90J7811	CWA	1075	8.90/3.90/3.15	C/D/C	K	6	2.80	4.95	18.5	24/480	B12	Oil	F	10
480/120T	V90Y7811T	CWA	1080	2.30	D	S1	6	2.80	4.90	18.5	24/480	B12	Oil	F	10

Applications

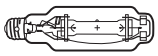
- Industrial
- Area Lighting
- Warehouse
- Aircraft Hangers
- Site Lighting

J BT37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

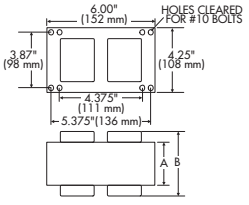
N T25



Dia. = 3.1″ (79mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul POMB (EP39)

6 4x6 Core

CWA



Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

Wiring Diagrams

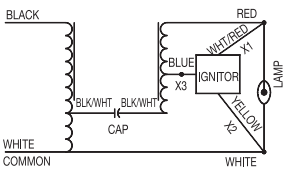
UNI-FORM® Pulse Start Metal Halide Lighting Systems

Uni-Form® Pulse Start Systems

Wiring diagrams for all Venture® *Uni-Form* pulse start ballast products are provided on this page. The ballast data tables indicate the reference letter corresponding to the correct diagram for each ballast product. Refer to the table for the required ballast before referencing any diagram.

The wiring diagram is the blueprint for the ballast circuitry, including the input supply voltage and grounding methods. A ground connection must be made to all ballasts to avoid shock hazard, personal injury or damage to the luminaire or installation. Ballast installations and groundings should be made in accordance with all applicable government codes and regulations where required.

A



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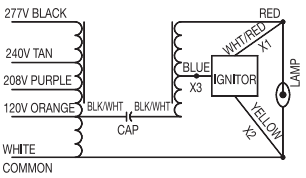

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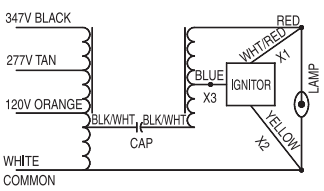

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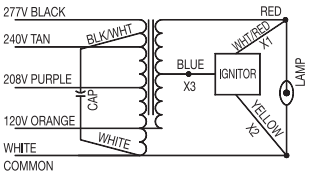

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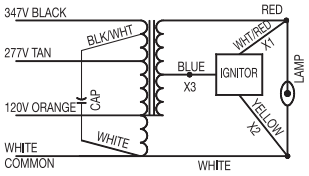

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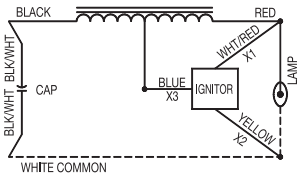

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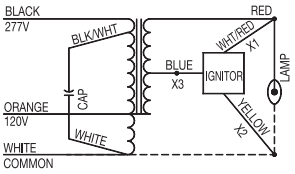

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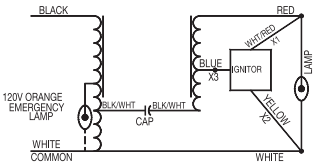

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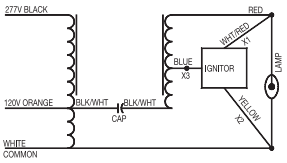

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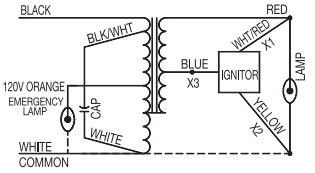

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RETROFIT SYSTEMS

UNI-FORM® PULSE START METAL HALIDE LIGHTING SYSTEMS

COMPARE AND SEE THE SAVINGS!

Probe Start Fixture	Venture's Uni-Form® Pulse Start System	System Watts Saved[1]	Total Annual Savings Per Fixture[2]	Light Levels[3]	Extended Lamp Life Hours	Maintained Lumens Per Watt[6]
1000W REPLACE WITH	875W	155	$68	V: +35% H: +30%	+14000 +3000	91 87
	775W ND	235	$103	V: SAME[4] H: SAME	+14000 +6000	77 70
	575W	460	$201	V: -20%[5]	+14000	83
400W REPLACE WITH	350W	75	$33	V: +35% H: +48%	+10000 +11000	91 81
	320W	106	$46	V: +20% H: +35%	+10000 +11000	89 81
	200W (SPL)	232	$102	V: SAME H: ?	+20000 +21000	90 81
250W REPLACE WITH	200W	70	$31	V: +55% H: +75%	+5000 +7500	90 82
	175W	91	$40	V: +35%	+5000	86
	150W (SPL)	102	$45	V: -8%	+30000	75
	125W (SPL)	135	$60	V: +20%	+30000	77
175W REPLACE WITH	150W (SPL)	27	$12	V: +38%	+30000	75
	125W (SPL)	70	$26	V: +26%	+30000	77
	100W (SPL)	90	$39	V: -11%	+30000	72

Notes:
1 Calculated based on use of CWA ballast
2 Based upon 12 hours operation per day, $0.10 per kWh
3 Lumen depreciation compared at mean lumen point (40% of rated life) for pulse start lamp
4 Natural White 775W Scotopic light output appears 25% brighter
5 Fits in a 1000W fixture and provides twice the mean lumens of a 400W probe start lamp. Intended for overlit applications, the 575W is 20% less light output than the probe start 1000W
6 Maintained Lumens Per Watt of probe start 1000W = 59, 400W = 59, 250W = 54, 175W = 52
V = Vertical, **H** = Horizontal lamp burn operation
■ = *Uni-Form* Pulse Start; ND = Natural White; HPS = Horizontal Pulse Start

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

IT'S AS SIMPLE AS 1,2,3 SAVE!

The Steps to Finding the Right Retrofit Kit

Step 1 ***Assess the Fixture***
Are the fixture and reflector in good condition? If "Yes", next determine the right lamp and ballast

Step 2 ***Choose a Lamp***
See the Lamp Product Description codes on Page i2

Step 3 ***Choose a Ballast***
See the Ballast Product Description codes on Page i2

Retrofit System Solutions

UNI-FORM® Pulse Start Metal Halide Lighting Systems

REPLACE Probe Start 1000 Watt

With Venture's 575W Super Pulse Long Life

Comparisons

Existing System 1000 Watt Probe Start MH	vs	Venture's 575 Watt Uni-Form-SPL
12,000	Rated Life Hours	40,000
0.65	LLD	0.80
1080	System Watts	640
0	Annual Energy Savings per Fixture	$192

** Based on 1 fixture, $0.10/kWh, 12 hours/day annually*

- Long Life: 9+ years*
- Eliminates 3 group re-lamping over life

Maximum Energy Savings!

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

REPLACE Probe Start 400 Watt

With Venture's 200W Super Pulse Long Life Lamp with Retrofit Ballast Housing and Jewel™ Glass Reflector

Comparisons

Existing System 400 Watt Probe Start MH	vs	Venture's 200 Watt Uni-Form-SPL
20,000	Rated Life Hours	40,000
0.65	LLD	0.80
470	System Watts	226
0	Annual Energy Savings per Fixture	$107

** Based on 1 fixture, $0.10/kWh, 12 hours/day annually*

- Long Life: 9+ years*
- Eliminates 1 group re-lamping over life

** Lumens corrected for reflector efficiency and dirt factor over life*

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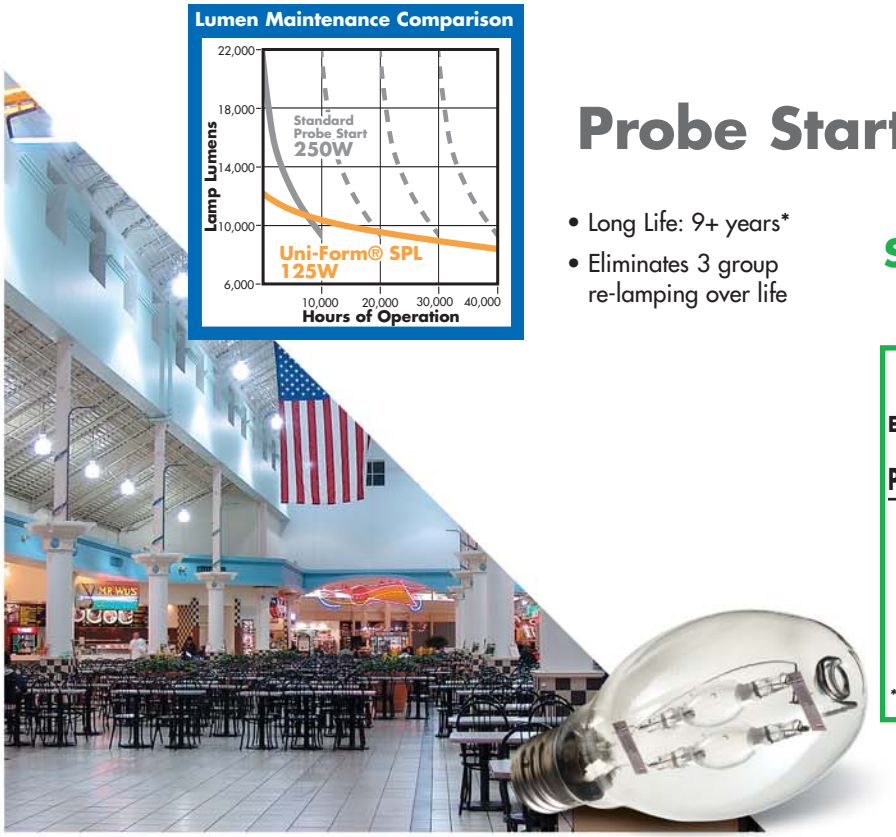
Retrofit System Kits

UNI-FORM® Pulse Start Metal Halide Lighting Systems



Replace Probe Start 250 Watt

With Venture's 125W Super Pulse Start Long Life

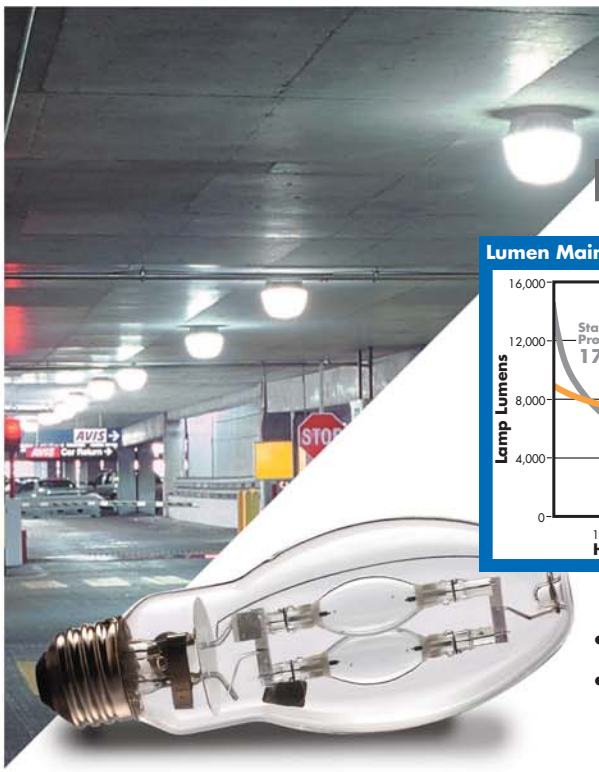
- Long Life: 9+ years*
- Eliminates 3 group re-lamping over life

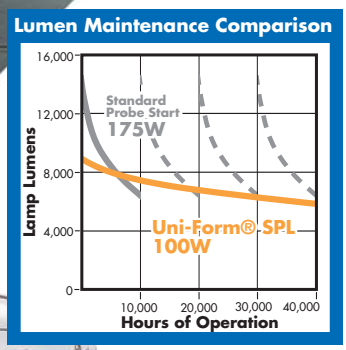
Comparisons

Existing System 250 Watt Probe Start MH	vs	Venture's 125 Watt Uni-Form-SPL
10,000	Rated Life Hours	40,000
0.65	LLD	0.80
290	System Watts	155
0	Annual Energy Savings per Fixture	$60

** Based on 1 fixture, $0.10/kWh, 12 hours/day annually*

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS





Replace Probe Start 175 Watt

With Venture's 100W Super Pulse Start Long Life

- Long Life: 9+ years*
- Eliminates 3 group re-lamping over life

Comparisons

Existing System 175 Watt Probe Start MH	vs	Venture's 100 Watt Uni-Form-SPL
10,000	Rated Life Hours	40,000
0.65	LLD	0.80
215	System Watts	125
0	Annual Energy Savings per Fixture	$39

** Based on 1 fixture, $0.10/kWh, 12 hours/day annually*

Retrofit Systems

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Prewired Kits Include:

- Lamp
- Ballast
- Capacitor
- Ignitor
- Brackets
- Socket

Pulse start lamps above 150 watts are engineered for Vertical (V) or Horizontal (H) operating position only. Universal (U) lamps are available 150 watts and below.

New sockets are required. 4KV pulse rated sockets are required for pulse start metal halide systems. These sockets are available with your energy saving lamp/ballast kit.

Order Number	Lamp Description
875 WATT Quad CWA System Kit	
58953/V90D8612K	MP 875W/BU/BT37/PS/740
22619/V90D8612K	MS 875W/BU/BT37/PS/740
35426/V90D8612K	MS 875W/BD/BT37/PS/740
33759/V90D8612K	MS 875W/HOR/BT37/PS/740
875 WATT 480V&120V Tap CWA System Kit	
58953/V90Y8612TK	MP 875W/BU/BT37/PS/740
22619/V90Y8612TK	MS 875W/BU/BT37/PS/740
35426/V90Y8612TK	MS 875W/BD/BT37/PS/740
33759/V90Y8612TK	MS 875W/HOR/BT37/PS/740
775 WATT Quad CWA System Kit	
24983/V90D9610K	MP 775W/BU/BT37/PS/950
24999/V90D9610TK	MS 775W/H75/BT37/PS/950
775 WATT 480V&120V Tap CWA System Kit	
24983/V90Y9610TK	MP 775W/BU/BT37/PS/950
24999/V90Y9610TK	MS 775W/H75/BT37/PS/950
575 WATT 277V Reactor System Kit	
60023/V90U5521K	MP 575W/BU/BT37/PS/740
95575/V90U5521K	MP 575W/BU/BT37/PS/EM/950
95577/V90U5521K	MP 575W/H75/BT37/PS/EM/950
68735/V90U5521K	MHL 575W/BU/BT37/PS/740
575 WATT Quad HX System Kit	
60023/V90D5530K	MP 575W/BU/BT37/PS/740
95575/V90D5530K	MP 575W/BU/BT37/PS/EM/950
95577/V90D5530K	MP 575W/H75/BT37/PS/EM/950
68735/V90D5530K	MHL 575W/BU/BT37/PS/740
575 WATT 480V&120V Tap HX System Kit	
60023/V90Y5530TK	MP 575W/BU/BT37/PS/740
95575/V90Y5530TK	MP 575W/BU/BT37/PS/EM/950
95577/V90Y5530TK	MP 575W/H75/BT37/PS/EM/950
68735/V90Y5530TK	MHL 575W/BU/BT37/PS/740

Order Number	Lamp Description
450 WATT Quad HX System Kit	
10079/V90D8530K	MS 450W/V/PS/740
65072/V90D8530K	MP 450W/BU/UVS/PS/740
450 WATT 480V&120V Tap HX System Kit	
10079/V90Y8530TK	MS 450W/V/PS/740
65072/V90Y8530TK	MP 450W/BU/UVS/PS/740
450 WATT 277V Reactor System Kit	
10079/V90U8521K	MS 450W/V/PS/740
65072/V90U8521K	MP 450W/BU/UVS/PS/740
450 WATT Quad CWA System Kit	
10079/V90D8512K	MS 450W/V/PS/740
65072/V90D8512K	MP 450W/BU/UVS/PS/740
450 WATT 480V&120V Tap CWA System Kit	
10079/V90Y8512TK	MS 450W/V/PS/740
65072/V90Y8512TK	MP 450W/BU/UVS/PS/740
400 WATT Quad CWA System Kit	
57129/V90D7613K	MP 400W/BU/UVS/PS/EM/950
72315/V90D7613K	MP 400W/BU/ED28/UVS/PS/EM/950
15678/V90D7613K	MHL 400W/V/ED37/PS/740
85260/V90D7613K	MS 400W/V/ED28/PS/740
73531/V90D7613K	MS 400W/V/PS/740
40124/V90D7613K	MS 400W/H75/ED28/PS/740
58788/V90D7613K	MS 400W/H75/PS/740
17611/V90D7613K	MP 400W/H75/UVS/PS/740
71642/V90D7613K	MP 400W/V/UVS/PS/740
12445/V90D7613K	MP 400W/V/ED28/UVS/PS/740
74151/V90D7613K	MS 400W/H75/T15/L/PS/740
400 WATT 480V&120V Tap CWA System Kit	
57129/V90Y7613TK	MP 400W/BU/UVS/PS/EM/950
72315/V90Y7613TK	MP 400W/BU/ED28/UVS/PS/EM/950
15678/V90Y7613TK	MHL 400W/V/ED37/PS/740
85260/V90Y7613TK	MS 400W/V/ED28/PS/740
73531/V90Y7613TK	MS 400W/V/PS/740
40124/V90Y7613TK	MS 400W/H75/ED28/PS/740
58788/V90Y7613TK	MS 400W/H75/PS/740
17611/V90Y7613TK	MP 400W/H75/UVS/PS/740
71642/V90Y7613TK	MP 400W/V/UVS/PS/740
12445/V90Y7613TK	MP 400W/V/ED28/UVS/PS/740
74151/V90Y7613TK	MS 400W/H75/T15/L/PS/740
400 WATT 277V Reactor System Kit	
57129/V90U7621K	MP 400W/BU/UVS/PS/EM/950
72315/V90U7621K	MP 400W/BU/ED28/UVS/PS/EM/950
15678/V90U7621K	MHL 400W/V/ED37/PS/740
85260/V90U7621K	MS 400W/V/ED28/PS/740
73531/V90U7621K	MS 400W/V/PS/740
40124/V90U7621K	MS 400W/H75/ED28/PS/740
58788/V90U7621K	MS 400W/H75/PS/740
17611/V90U7621K	MP 400W/H75/UVS/PS/740
71642/V90U7621K	MP 400W/V/UVS/PS/740
12445/V90U7621K	MP 400W/V/ED28/UVS/PS/740
74151/V90U7621K	MS 400W/H75/T15/L/PS/740

Dimmable System Options

Wireless Dimming with LeafNut

- Add "/LEAFNUT" suffix to part number; Example: 875W system: "58953/V90D8612K/LEAFNUT"

Dimming Hi/Low Pulse Start Systems Option Without LeafNut™ Wireless

- Add "/DIM" suffix to part number
  Example: 875W system: "58953/V90D8612K/DIM"
- Note: Dimming limit for lamp types 740, 737, 732 is 50%
  Dimming limit for 950 lamp types is 70% rated power
- Note: Dimming option only available on CWA ballast

= Natural White®

= Horizontal Pulse Start

= Uni-Form®-SPL

= Uni-Form®-SPC, Contact for availability

UNI-FORM
PULSE START METAL HALIDE LIGHTING SYSTEMS

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Lamp-Ballast System Kits

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Order Number	Lamp Description
350 WATT Quad CWA System Kit	
51628/V90D7513K	MP 350W/BU/UVS/PS/EM/950
22149/V90D7513K	MP 350W/V/UVS/PS/740
47887/V90D7513K	MP 350W/V/ED28/UVS/PS/740
51208/V90D7513K	MP 350W/H75/T15/L/UVS/PS/740
65218/V90D7513K	MP 350W/H75/UVS/PS/740
46959/V90D7513K	MS 350W/H75/ED28/PS/740
93749/V90D7513K	MS 350W/H75/T15/L/PS/740
98389/V90D7513K	MS 350W/V/PS/740
52980/V90D7513K	MS 350W/V/ED28/PS/740
350 WATT Quad HX System Kit	
51628/V90D7530K	MP 350W/BU/UVS/PS/EM/950
22149/V90D7530K	MP 350W/V/UVS/PS/740
47887/V90D7530K	MP 350W/V/ED28/UVS/PS/740
51208/V90D7530K	MP 350W/H75/T15/L/UVS/PS/740
65218/V90D7530K	MP 350W/H75/UVS/PS/740
46959/V90D7530K	MS 350W/H75/ED28/PS/740
93749/V90D7530K	MS 350W/H75/T15/L/PS/740
98389/V90D7530K	MS 350W/V/PS/740
52980/V90D7530K	MS 350W/V/ED28/PS/740
350 WATT 480V&120V Tap CWA System Kit	
51628/V90Y7513TK	MP 350W/BU/UVS/PS/EM/950
22149/V90Y7513TK	MP 350W/V/UVS/PS/740
47887/V90Y7513TK	MP 350W/V/ED28/UVS/PS/740
46959/V90Y7513TK	MS 350W/H75/ED28/PS/740
93749/V90Y7513TK	MS 350W/H75/T15/L/PS/740
98389/V90Y7513TK	MS 350W/V/PS/740
52980/V90Y7513TK	MS 350W/V/ED28/PS/740
350 WATT 480V&120V Tap HX System Kit	
51628/V90Y7530TK	MP 350W/BU/UVS/PS/EM/950
22149/V90Y7530TK	MP 350W/V/UVS/PS/740
47887/V90Y7530TK	MP 350W/V/ED28/UVS/PS/740
51208/V90Y7530TK	MP 350W/H75/T15/L/UVS/PS/740
65218/V90Y7530TK	MP 350W/H75/UVS/PS/740
46959/V90Y7530TK	MS 350W/H75/ED28/PS/740
93749/V90Y7530TK	MS 350W/H75/T15/L/PS/740
98389/V90Y7530TK	MS 350W/V/PS/740
52980/V90Y7530TK	MS 350W/V/ED28/PS/740
350 WATT 277V Reactor System Kit	
51628/V90U7521K	MP 350W/BU/UVS/PS/EM/950
22149/V90U7521K	MP 350W/V/UVS/PS/740
47887/V90U7521K	MP 350W/V/ED28/UVS/PS/740
51208/V90U7521K	MP 350W/H75/T15/L/UVS/PS/740
65218/V90U7521K	MP 350W/H75/UVS/PS/740
46959/V90U7521K	MS 350W/H75/ED28/PS/740
93749/V90U7521K	MS 350W/H75/T15/L/PS/740
98389/V90U7521K	MS 350W/V/PS/740
52980/V90U7521K	MS 350W/V/ED28/PS/740

Order Number	Lamp Description
320 WATT Quad CWA System Kit	
98530/V90D7413K	MP 320W/BU/ED28/UVS/PS/EM/950
98520/V90D7413K	MP 320W/BU/ED37/UVS/PS/EM/950
95320/V90D7413K	MP 320W/H75/T15/S/UVS/PS/EM/950
95321/V90D7413K	MP 320W/H75/T15/L/UVS/PS/EM/950
21714/V90D7413K	MP 320W/BU/ED37/UVS/PS/740
10103/V90D7413K	MP 320W/BU/ED28/UVS/PS/740
18635/V90D7413K	MHL 320W/V/ED28/PS/740
25796/V90D7413K	MHL 320W/C/V/ED28/PS/737
38765/V90D7413K	MHL 320W/V/ED37/PS/740
72378/V90D7413K	MHL 320W/C/V/ED37/PS/737
20116/V90D7413K	MHL 320WED28/PS/740
11086/V90D7413K	MHL 320W/CED28/PS/737
28699/V90D7413K	MHL 320WED37/PS/740
34778/V90D7413K	MHL 320W/CED37/PS/737
47549/V90D7413K	MS 320W/H75/ED28/PS/740
57626/V90D7413K	MS 320W/H75/T15/S/PS/740
79710/V90D7413K	MS 320W/H75/T15/L/PS/740
52236/V90D7413K	MS 320W/V/ED37/PS/740
59194/V90D7413K	MS 320W/V/ED28/PS/740
320 WATT Quad HX System Kit	
98530/V90D7430K	MP 320W/BU/ED28/UVS/PS/EM/950
98520/V90D7430K	MP 320W/BU/ED37/UVS/PS/EM/950
95320/V90D7430K	MP 320W/H75/T15/S/UVS/PS/EM/950
95321/V90D7430K	MP 320W/H75/T15/L/UVS/PS/EM/950
21714/V90D7430K	MP 320W/BU/ED37/UVS/PS/740
10103/V90D7430K	MP 320W/BU/ED28/UVS/PS/740
18635/V90D7430K	MHL 320W/V/ED28/PS/740
25796/V90D7430K	MHL 320W/C/V/ED28/PS/737
38765/V90D7430K	MHL 320W/V/ED37/PS/740
72378/V90D7430K	MHL 320W/C/V/ED37/PS/737
20116/V90D7430K	MHL 320WED28/PS/740
11086/V90D7430K	MHL 320W/CED28/PS/737
28699/V90D7430K	MHL 320WED37/PS/740
34778/V90D7430K	MHL 320W/CED37/PS/737
47549/V90D7430K	MS 320W/H75/ED28/PS/740
57626/V90D7430K	MS 320W/H75/T15/S/PS/740
79710/V90D7430K	MS 320W/H75/T15/L/PS/740
52236/V90D7430K	MS 320W/V/ED37/PS/740
59194/V90D7430K	MS 320W/V/ED28/PS/740
320 WATT 480V&120V Tap CWA System Kit	
98530/V90Y7412TK	MP 320W/BU/ED28/UVS/PS/EM/950
98520/V90Y7412TK	MP 320W/BU/ED37/UVS/PS/EM/950
95320/V90Y7412TK	MP 320W/H75/T15/S/UVS/PS/EM/950
95321/V90Y7412TK	MP 320W/H75/T15/L/UVS/PS/EM/950
21714/V90Y7412TK	MP 320W/BU/ED37/UVS/PS/740
10103/V90Y7412TK	MP 320W/BU/ED28/UVS/PS/740
18635/V90Y7412TK	MHL 320W/V/ED28/PS/740
25796/V90Y7412TK	MHL 320W/C/V/ED28/PS/737
38765/V90Y7412TK	MHL 320W/V/ED37/PS/740
72378/V90Y7412TK	MHL 320W/C/V/ED37/PS/737
20116/V90Y7412TK	MHL 320WED28/PS/740
11086/V90Y7412TK	MHL 320W/CED28/PS/737
28699/V90Y7412TK	MHL 320WED37/PS/740
34778/V90Y7412TK	MHL 320W/CED37/PS/737
47549/V90Y7412TK	MS 320W/H75/ED28/PS/740
57626/V90Y7412TK	MS 320W/H75/T15/S/PS/740
79710/V90Y7412TK	MS 320W/H75/T15/L/PS/740
52236/V90Y7412TK	MS 320W/V/ED37/PS/740
59194/V90Y7412TK	MS 320W/V/ED28/PS/740

Step 1
Assess the Fixture

Step 2
Choose a Lamp
See the Lamp Product Description codes on Page 1

Step 3
Choose a Ballast
See the Ballast Product Description codes on Page 1

Start Saving!

One Call LIMITED System Warranty

Our warranty program leads the industry in comprehensive system coverage, doubling the warranty period on lamps and ballasts purchased and installed as part of the *Uni-Form* pulse start system. See the last page of the catalog for details.

= Natural White®

= Horizontal Pulse Start

= Uni-Form^{x}-SPL

= Uni-Form^{x}-SPC, Contact for availability

UNI-FORM® PULSE START METAL HALIDE LIGHTING SYSTEMS

Retrofit Systems

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Prewired Kits Include:

Lamp

Ballast

Capacitor

Ignitor

Socket

Brackets

Order Number	Lamp Description
320 WATT 480V & 120V Tap HX System Kit	
98530/V90Y7430TK	MP 320W/BU/ED28/UVS/PS/EM/950
98520/V90Y7430TK	MP 320W/BU/ED37/UVS/PS/EM/950
95320/V90Y7430TK	MP 320W/H75/T15/S/UVS/PS/EM/950
95321/V90Y7430TK	MP 320W/H75/T15/L/UVS/PS/EM/950
21714/V90Y7430TK	MP 320W/BU/ED37/UVS/PS/740
10103/V90Y7430TK	MP 320W/BU/ED28/UVS/PS/740
18635/V90Y7430TK	MHL 320W/V/ED28/PS/740
25796/V90Y7430TK	MHL 320W/C/V/ED28/PS/737
38765/V90Y7430TK	MHL 320W/V/ED37/PS/740
72378/V90Y7430TK	MHL 320W/C/V/ED37/PS/737
20116/V90Y7430TK	MHL 320WED28/PS/740
11086/V90Y7430TK	MHL 320W/CED28/PS/737
28699/V90Y7430TK	MHL 320WED37/PS/740
34778/V90Y7430TK	MHL 320W/CED37/PS/737
47549/V90Y7430TK	MS 320W/H75/ED28/PS/740
57626/V90Y7430TK	MS 320W/H75/T15/S/PS/740
79710/V90Y7430TK	MS 320W/H75/T15/L/PS/740
52236/V90Y7430TK	MS 320W/V/ED37/PS/740
59194/V90Y7430TK	MS 320W/V/ED28/PS/740
320 WATT 277V Reactor System Kit	
98530/V90U7421K	MP 320W/BU/ED28/UVS/PS/EM/950
98520/V90U7421K	MP 320W/BU/ED37/UVS/PS/EM/950
95320/V90U7421K	MP 320W/H75/T15/S/UVS/PS/EM/950
95321/V90U7421K	MP 320W/H75/T15/L/UVS/PS/EM/950
21714/V90U7421K	MP 320W/BU/ED37/UVS/PS/740
10103/V90U7421K	MP 320W/BU/ED28/UVS/PS/740
18635/V90U7421K	MHL 320W/V/ED28/PS/740
25796/V90U7421K	MHL 320W/C/V/ED28/PS/737
38765/V90U7421K	MHL 320W/V/ED37/PS/740
72378/V90U7421K	MHL 320W/C/V/ED37/PS/737
20116/V90U7421K	MHL 320WED28/PS/740
11086/V90U7421K	MHL 320W/CED28/PS/737
28699/V90U7421K	MHL 320WED37/PS/740
34778/V90U7421K	MHL 320W/CED37/PS/737
47549/V90U7421K	MS 320W/H75/ED28/PS/740
57626/V90U7421K	MS 320W/H75/T15/S/PS/740
79710/V90U7421K	MS 320W/H75/T15/L/PS/740
52236/V90U7421K	MS 320W/V/ED37/PS/740
59194/V90U7421K	MS 320W/V/ED28/PS/740
315 WATT Ventronic™ System Kit	
38819/VEN6-315D-	MPC 315W/U/T12/UVS/PS/930
38821/VEN6-315D-	MPC 315W/U/T12/UVS/PS/942
250 WATT Quad CWA System Kit	
19523/V90D8412K	MP 250W/BU/UVS/PS/EM/950
59324/V90D8412K	MP 250W/H75/T15/UVS/PS/EM/950
19252/V90D8412K	MP 250W/H75/T15/UVS/PS/740
49822/V90D8412K	MP 250W/H75/UVS/PS/740
64658/V90D8412K	MP 250W/BU/UVS/PS/740
46895/V90D8412K	MHL 250W/V/ED28/PS/740
71638/V90D8412K	MHL 250W/C/V/ED28/PS/737
65413/V90D8412K	MHL 250WED28/PS/740
32393/V90D8412K	MHL 250W/CED28/PS/737
49621/V90D8412K	MS 250W/V/PS/740
57625/V90D8412K	MS 250W/H75/T15/PS/740
81054/V90D8412K	MS 250W/H75/PS/740

Order Number	Lamp Description
250 WATT Quad CWA System Kit	
19523/V90D8411K	MP 250W/BU/UVS/PS/EM/950
59324/V90D8411K	MP 250W/H75/T15/UVS/PS/EM/950
19252/V90D8411K	MP 250W/H75/T15/UVS/PS/740
49822/V90D8411K	MP 250W/H75/UVS/PS/740
64658/V90D8411K	MP 250W/BU/UVS/PS/740
46895/V90D8411K	MHL 250W/V/ED28/PS/740
71638/V90D8411K	MHL 250W/C/V/ED28/PS/737
65413/V90D8411K	MHL 250WED28/PS/740
32393/V90D8411K	MHL 250W/CED28/PS/737
49621/V90D8411K	MS 250W/V/PS/740
57625/V90D8411K	MS 250W/H75/T15/PS/740
81054/V90D8411K	MS 250W/H75/PS/740
250 WATT 480V & 120V Tap CWA System Kit	
19523/V90Y8411TK	MP 250W/BU/UVS/PS/EM/950
59324/V90Y8411TK	MP 250W/H75/T15/UVS/PS/EM/950
19252/V90Y8411TK	MP 250W/H75/T15/UVS/PS/740
49822/V90Y8411TK	MP 250W/H75/UVS/PS/740
64658/V90Y8411TK	MP 250W/BU/UVS/PS/740
46895/V90Y8411TK	MHL 250W/V/ED28/PS/740
71638/V90Y8411TK	MHL 250W/C/V/ED28/PS/737
65413/V90Y8411TK	MHL 250WED28/PS/740
32393/V90Y8411TK	MHL 250W/CED28/PS/737
49621/V90Y8411TK	MS 250W/V/PS/740
57625/V90Y8411TK	MS 250W/H75/T15/PS/740
81054/V90Y8411TK	MS 250W/H75/PS/740
250 WATT 277V Reactor System Kit	
19523/V90U8421K	MP 250W/BU/UVS/PS/EM/950
59324/V90U8421K	MP 250W/H75/T15/UVS/PS/EM/950
19252/V90U8421K	MP 250W/H75/T15/UVS/PS/740
49822/V90U8421K	MP 250W/H75/UVS/PS/740
64658/V90U8421K	MP 250W/BU/UVS/PS/740
46895/V90U8421K	MHL 250W/V/ED28/PS/740
71638/V90U8421K	MHL 250W/C/V/ED28/PS/737
65413/V90U8421K	MHL 250WED28/PS/740
32393/V90U8421K	MHL 250W/CED28/PS/737
49621/V90U8421K	MS 250W/V/PS/740
57625/V90U8421K	MS 250W/H75/T15/PS/740
81054/V90U8421K	MS 250W/H75/PS/740
210 WATT *Ventronic* System Kit	
38818/VEN6-210D-	MPC 210W/U/T12/UVS/PS/930
38820/VEN6-210D-	MPC 210W/U/T12/UVS/PS/942

= Natural White®

= Horizontal Pulse Start

= Uni-Form®-SPL

= Uni-Form®-SPC, Contact for availability

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

Lamp-Ballast System Kits

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Order Number	Lamp Description
200 WATT Quad CWA System Kit	
95200/V90D7312K	MP 200W/BU/UVS/PS/EM/950
33587/V90D7312K	MPL 200W/C/V/ED28/UVS/PS/737
98434/V90D7312K	MHL 200W/V/ED28/PS/740
14357/V90D7312K	MHL 200W/C/V/ED28/PS/737
60375/V90D7312K	MHL 200W/H75/ED28/PS/740
10237/V90D7312K	MHL 200W/C/H75/ED28/PS/737
22147/V90D7312K	MP 200W/V/UVS/PS/740
70764/V90D7312K	MS 200W/H75/T15/PS/740
57739/V90D7312K	MS 200W/V/PS/740
60811/V90D7312K	MS 200W/BU/MED/PS/740
200 WATT 480V&120V Tap CWA System Kit	
95200/V90Y7312TK	MP 200W/BU/UVS/PS/EM/950
33587/V90Y7312TK	MPL 200W/C/V/ED28/UVS/PS/737
98434/V90Y7312TK	MHL 200W/V/ED28/PS/740
14357/V90Y7312TK	MHL 200W/C/V/ED28/PS/737
60375/V90Y7312TK	MHL 200W/H75/ED28/PS/740
10237/V90Y7312TK	MHL 200W/C/H75/ED28/PS/737
22147/V90Y7312TK	MP 200W/V/UVS/PS/740
70764/V90Y7312TK	MS 200W/H75/T15/PS/740
57739/V90Y7312TK	MS 200W/V/PS/740
60811/V90Y7312TK	MS 200W/BU/MED/PS/740
200 WATT 277V Reactor System Kit	
95200/V90U7321K	MP 200W/BU/UVS/PS/EM/950
33587/V90U7321K	MPL 200W/C/V/ED28/UVS/PS/737
98434/V90U7321K	MHL 200W/V/ED28/PS/740
14357/V90U7321K	MHL 200W/C/V/ED28/PS/737
60375/V90U7321K	MHL 200W/H75/ED28/PS/740
10237/V90U7321K	MHL 200W/C/H75/ED28/PS/737
22147/V90U7321K	MP 200W/V/UVS/PS/740
70764/V90U7321K	MS 200W/H75/T15/PS/740
57739/V90U7321K	MS 200W/V/PS/740
60811/V90U7321K	MS 200W/BU/MED/PS/740
200 WATT Quad HX System Kit	
95200/V90D7330K	MP 200W/BU/UVS/PS/EM/950
33587/V90D7330K	MPL 200W/C/V/ED28/UVS/PS/737
98434/V90D7330K	MHL 200W/V/ED28/PS/740
14357/V90D7330K	MHL 200W/C/V/ED28/PS/737
60375/V90D7330K	MHL 200W/H75/ED28/PS/740
10237/V90D7330K	MHL 200W/C/H75/ED28/PS/737
22147/V90D7330K	MP 200W/V/UVS/PS/740
70764/V90D7330K	MS 200W/H75/T15/PS/740
57739/V90D7330K	MS 200W/V/PS/740
60811/V90D7330K	MS 200W/BU/MED/PS/740
175 WATT Quad CWA System Kit	
95175/V90D7211K	MP 175W/BU/UVS/PS/EM/950
95176/V90D7211K	MP 175W/BU/MED/UVS/PS/EM/950
16497/V90D7211K	MS 175W/BU/MED/PS/740
68475/V90D7211K	MS 175W/BU/PS/740
99585/V90D7211K	MS 175W/H75/PS/740
69854/V90D7211K	MP 175W/BU/UVS/PS/740
175 WATT 480V&120V Tap CWA System Kit	
95175/V90Y7210TK	MP 175W/BU/UVS/PS/EM/950
95176/V90Y7210TK	MP 175W/BU/MED/UVS/PS/EM/950
16497/V90Y7210TK	MS 175W/BU/MED/PS/740
68475/V90Y7210TK	MS 175W/BU/PS/740
99585/V90Y7210TK	MS 175W/H75/PS/740
69854/V90Y7210TK	MP 175W/BU/UVS/PS/740

Order Number	Lamp Description
175 WATT 277V Reactor System Kit	
95175/V90U7221K	MP 175W/BU/UVS/PS/EM/950
95176/V90U7221K	MP 175W/BU/MED/UVS/PS/EM/950
16497/V90U7221K	MS 175W/BU/MED/PS/740
68475/V90U7221K	MS 175W/BU/PS/740
99585/V90U7221K	MS 175W/H75/PS/740
69854/V90U7221K	MP 175W/BU/UVS/PS/740
150 WATT Quad CWA System Kit	
95152/V90D7110K	MP 150W/U/ED28/UVS/PS/EM/950
95150/V90D7110K	MP 150W/U/UVS/PS/EM/950
22522/V90D7110K	MP 150W/U/UVS/PS/732
22455/V90D7110K	MP 150W/U/UVS/PS/740
58963/V90D7110K	MP 150W/U/ED28/UVS/PS/740
35985/V90D7110K	MHL 150W/U/ED17/PS/740
68542/V90D7110K	MHL 150W/C/U/ED17/PS/737
46105/V90D7110K	MHL 150W/U/ED28/PS/740
93218/V90D7110K	MHL 150W/C/U/ED28/PS/737
99584/V90D7110K	MH 150W/U/PS/740
13556/V90D7110K	MH 150W/U/ED28/PS/740
150 WATT Quad HX System Kit	
95152/V90D7130K	MP 150W/U/ED28/UVS/PS/EM/950
95150/V90D7130K	MP 150W/U/UVS/PS/EM/950
22522/V90D7130K	MP 150W/U/UVS/PS/732
22455/V90D7130K	MP 150W/U/UVS/PS/740
58963/V90D7130K	MP 150W/U/ED28/UVS/PS/740
35985/V90D7130K	MHL 150W/U/ED17/PS/740
68542/V90D7130K	MHL 150W/C/U/ED17/PS/737
46105/V90D7130K	MHL 150W/U/ED28/PS/740
93218/V90D7130K	MHL 150W/C/U/ED28/PS/737
99584/V90D7130K	MH 150W/U/PS/740
13556/V90D7130K	MH 150W/U/ED28/PS/740
150 WATT 480V&120V Tap CWA System Kit	
95152/V90Y7110TK	MP 150W/U/ED28/UVS/PS/EM/950
95150/V90Y7110TK	MP 150W/U/UVS/PS/EM/950
22522/V90Y7110TK	MP 150W/U/UVS/PS/732
22455/V90Y7110TK	MP 150W/U/UVS/PS/740
58963/V90Y7110TK	MP 150W/U/ED28/UVS/PS/740
35985/V90Y7110TK	MHL 150W/U/ED17/PS/740
68542/V90Y7110TK	MHL 150W/C/U/ED17/PS/737
46105/V90Y7110TK	MHL 150W/U/ED28/PS/740
93218/V90Y7110TK	MHL 150W/C/U/ED28/PS/737
99584/V90Y7110TK	MH 150W/U/PS/740
13556/V90Y7110TK	MH 150W/U/ED28/PS/740
150 WATT 277V Reactor System Kit	
95152/V90U7121K	MP 150W/U/ED28/UVS/PS/EM/950
95150/V90U7121K	MP 150W/U/UVS/PS/EM/950
22522/V90U7121K	MP 150W/U/UVS/PS/732
22455/V90U7121K	MP 150W/U/UVS/PS/740
58963/V90U7121K	MP 150W/U/ED28/UVS/PS/740
35985/V90U7121K	MHL 150W/U/ED17/PS/740
68542/V90U7121K	MHL 150W/C/U/ED17/PS/737
46105/V90U7121K	MHL 150W/U/ED28/PS/740
93218/V90U7121K	MHL 150W/C/U/ED28/PS/737
99584/V90U7121K	MH 150W/U/PS/740
13556/V90U7121K	MH 150W/U/ED28/PS/740

Step 1
Assess the Fixture

Step 2
Choose a Lamp
See the Lamp Product Description codes on Page 1

Step 3
Choose a Ballast
See the Ballast Product Description codes on Page 1

Start Saving!

= Natural White®

= Horizontal Pulse Start

= Uni-Form^{x}-SPL

= Uni-Form^{x}-SPC, Contact for availability

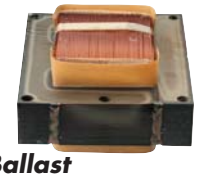
UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

Retrofit Systems

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Prewired Kits Include:

Lamp

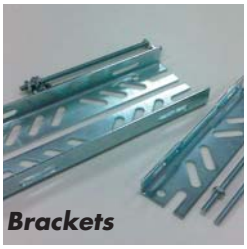


Ballast

Capacitor

Ignitor

Socket



Brackets

Order Number	Lamp Description
140 WATT *Ventronic* System Kit	
38824/VEN6-140D-	MHC 140W/U/T6C/UVS/PS/728
125 WATT Quad CWA System Kit	
13341/V90D8812K	MP 125W/BU/UVS/PS
25813/V90D8812K	MP 125W/V/ED28/UVS/PS
41256/V90D8812K	MHL 125W/U/ED17/PS/740
38509/V90D8812K	MHL 125W/C/U/ED17/PS/737
93256/V90D8812K	MHL 125W/U/ED28/PS/740
43928/V90D8812K	MHL 125W/C/U/ED28/PS/737
76602/V90D8812K	MH 125W/HBU/PS
61914/V90D8812K	MH 125W/HBU/ED28/PS
125 WATT 480V&120V Tap CWA System Kit	
13341/V90Y8811TK	MP 125W/BU/UVS/PS
25813/V90Y8811TK	MP 125W/V/ED28/UVS/PS
41256/V90Y8811TK	MHL 125W/U/ED17/PS/740
38509/V90Y8811TK	MHL 125W/C/U/ED17/PS/737
93256/V90Y8811TK	MHL 125W/U/ED28/PS/740
43928/V90Y8811TK	MHL 125W/C/U/ED28/PS/737
76602/V90Y8811TK	MH 125W/HBU/PS
61914/V90Y8811TK	MH 125W/HBU/ED28/PS
125 WATT 277V Reactor System Kit	
13341/V90U8820K	MP 125W/BU/UVS/PS
25813/V90U8820K	MP 125W/V/ED28/UVS/PS
41256/V90U8820K	MHL 125W/U/ED17/PS/740
38509/V90U8820K	MHL 125W/C/U/ED17/PS/737
93256/V90U8820K	MHL 125W/U/ED28/PS/740
43928/V90U8820K	MHL 125W/C/U/ED28/PS/737
76602/V90U8820K	MH 125W/HBU/PS
61914/V90U8820K	MH 125W/HBU/ED28/PS
100 WATT *Ventronic* System Kit	
38812/VEN6-100D-	MHC 100W/U/T6/UVS/PS/930
38832/VEN6-100D-	MPC 100W/U/PAR38/UVS/PS/830/FL30
100 WATT Quad HX System Kit	
95100/V90D5932K	MP 100W/U/UVS/PS/EM/950
96267/V90D5932K	MP 100W/U/UVS/PS
96770/V90D5932K	MP 100W/U/UVS/PS/3K
21982/V90D5932K	MHL 100W/U/ED17/PS/740
54231/V90D5932K	MHL 100W/C/U/ED17/PS/737
22498/V90D5932K	MHL 100W/U/ED28/PS/740
54286/V90D5932K	MHL 100W/C/U/ED28/PS/737
27266/V90D5932K	MH 100W/U/PS
67868/V90D5932K	MH 100W/U/ED28/PS
100 WATT 277V Reactor System Kit	
95100/V90U5920K	MP 100W/U/UVS/PS/EM/950
96267/V90U5920K	MP 100W/U/UVS/PS
96770/V90U5920K	MP 100W/U/UVS/PS/3K
21982/V90U5920K	MHL 100W/U/ED17/PS/740
54231/V90U5920K	MHL 100W/C/U/ED17/PS/737
22498/V90U5920K	MHL 100W/U/ED28/PS/740
54286/V90U5920K	MHL 100W/C/U/ED28/PS/737
27266/V90U5920K	MH 100W/U/PS
67868/V90U5920K	MH 100W/U/ED28/PS
90 WATT *Ventronic* System Kit	
38823/VEN6-90D-	MHC 90W/U/T6C/UVS/PS/728

Order Number	Lamp Description
70 WATT *Ventronic* System Kit	
38808/VEN6-70D-	MHC 70W/U/T4/UVS/PS/930
38811/VEN6-70D-	MHC 70W/U/T6/UVS/PS/930
38828/VEN6-70D-	MPC 70W/U/PAR30L/UVS/PS/830/FL30
38830/VEN6-70D-	MPC 70W/U/PAR38/UVS/PS/830/FL30
70 WATT Quad HX System Kit	
95071/V90D5833K	MP 70W/U/UVS/PS/EM/950
40389/V90D5833K	MP 70W/U/UVS/PS
45424/V90D5833K	MP 70W/U/UVS/PS/3K
15632/V90D5833K	MHL 70W/U/ED17/PS/740
32618/V90D5833K	MHL 70W/C/U/ED17/PS/737
86501/V90D5833K	MHL 70W/U/ED28/PS/740
36519/V90D5833K	MHL 70W/C/U/ED28/PS/737
78138/V90D5833K	MH 70W/U/PS
16017/V90D5833K	MH 70W/U/ED28/PS
70 WATT Dual HX System Kit	
95071/V90H5832K	MP 70W/U/UVS/PS/EM/950
40389/V90H5832K	MP 70W/U/UVS/PS
45424/V90H5832K	MP 70W/U/UVS/PS/3K
15632/V90H5832K	MHL 70W/U/ED17/PS/740
32618/V90H5832K	MHL 70W/C/U/ED17/PS/737
86501/V90H5832K	MHL 70W/U/ED28/PS/740
36519/V90H5832K	MHL 70W/C/U/ED28/PS/737
78138/V90H5832K	MH 70W/U/PS
16017/V90H5832K	MH 70W/U/ED28/PS
70 WATT Dual HX System Kit	
95071/V90H5833K	MP 70W/U/UVS/PS/EM/950
40389/V90H5833K	MP 70W/U/UVS/PS
45424/V90H5833K	MP 70W/U/UVS/PS/3K
15632/V90H5833K	MHL 70W/U/ED17/PS/740
32618/V90H5833K	MHL 70W/C/U/ED17/PS/737
86501/V90H5833K	MHL 70W/U/ED28/PS/740
36519/V90H5833K	MHL 70W/C/U/ED28/PS/737
78138/V90H5833K	MH 70W/U/PS
16017/V90H5833K	MH 70W/U/ED28/PS
60 WATT *Ventronic* System Kit	
38822/VEN6-60D-	MHC 60W/U/T6C/UVS/PS/728
50 WATT Quad HX System Kit	
52312/V90D5731K	MH 50W/U/PS
32100/V90D5731K	MP 50W/U/UVS/PS
10226/V90D5731K	MP 50W/U/UVS/PS/3K
50 WATT Dual HX System Kit	
52312/V90H5731K	MH 50W/U/PS
32100/V90H5731K	MP 50W/U/UVS/PS
10226/V90H5731K	MP 50W/U/UVS/PS/3K
39 WATT *Ventronic* System Kit	
38804/VEN6-35D-	MPC 39W/U/MR16/PS/930/FL25
38807/VEN6-35D-	MHC 39W/U/T4/UVS/PS/930
38810/VEN6-35D-	MHC 39W/U/T6/UVS/PS/930
38826/VEN6-35D-	MPC 39W/U/PAR30L/UVS/PS/830/FL30
20 WATT *Ventronic* System Kit	
38801/VEN6-20D-	MPC 20W/U/MR16/PS/930/FL25
38806/VEN6-20D-	MHC 20W/U/T4/UVS/PS/930
38809/VEN6-20D-	MHC 20W/U/T6/UVS/PS/930

= Natural White®

= Horizontal Pulse Start

= Uni-Form®-SPL

= Uni-Form®-SPC, Contact for availability

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

LeafNut™ Controls Wireless Controls

Dimming Solutions - Wirelessly

Venture's LeafNut™ system is a complete turnkey solution for street lighting and outdoor area lighting. From socket to user interface, to server hosting and monitoring, we provide a complete wireless dimming system that dramatically increases energy savings.

Reducing Energy Consumption

Not only does the *LeafNut* system reduce energy usage, but it can supply factual energy consumption data with intuitive reporting and email notification to accurately analyze ROI.

LeafNut™

Wireless Controls for Outdoor Street and Area Lighting

- Wireless controls for dimming of vertical or horizontal pulse start metal halide
- Easy to install - Made simple for contractors
- Reduces Energy Consumption and Carbon Emissions
- Internet Based Monitoring and Control
- Mapping Software Option
- Any Uni-Form® pulse start system (lamp and ballast), can be controlled via *LeafNut*

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

LeafNut™ Controls

UNI-FORM® Pulse Start Metal Halide Lighting Systems

LeafNut
Wireless Controls for Outdoor Street and Area Lighting

A Turnkey Solution

Venture's LeafNut™ system is a complete turnkey solution for street lighting and outdoor area lighting. From socket to user interface, to server hosting and monitoring, we provide a complete wireless dimming system that dramatically increases energy savings while increasing overall light quality.

Contractor Installation Made Simple

The *LeafNut* system is easy to install. Once all nodes are created in the database, and one or more time profiles established, *LeafNut* virtually commissions itself.

Monitoring and Control

LeafNut cleverly allows lighting engineers to securely monitor and control area lighting stock from anywhere in the world by using the World Wide Web. Management information is exchanged between the *LeafNut* enabled ballast and the central server, which means that users can identify: lamp problems in advance, on/off and end of life issues, predict lamp failure and create maintenance routines.

Lifetime Support Policy

Simple and practical, *LeafNut* comes with a lifetime support policy which provides our customers with complete peace of mind. The policy gives customers access to technical support from our team of experts.

Robust

The system has been developed by working closely with Local Authorities understanding their specific requirements and has been rigorously tested in field trials ensuring it is robust and is now widely deployed across many jobs and applications.

Proprietary Protocol

LeafNut operates by using a proprietary protocol.

Energy Consumption

Not only does the *LeafNut* system reduce energy usage, but it can supply factual energy consumption data with intuitive reporting and email notifications to accurately analyze ROI.

Managed Web Servers

The *LeafNut* servers are managed and monitored 24/7 365 days of the year. They are housed in a secure environment, are all dual hosted and come with a full disaster recovery plan for safe measure.

Scalability

LeafNut has been deployed across many applications including: small parking lots, major highways, rural mountains and densely populated cities.

Retrofit

LeafNut is easy to install as a retrofit to an existing fixture to provide a switching and monitoring solution. As a completely wireless solution there is no need to rip up concrete/asphalt, or run new wires to existing fixtures.

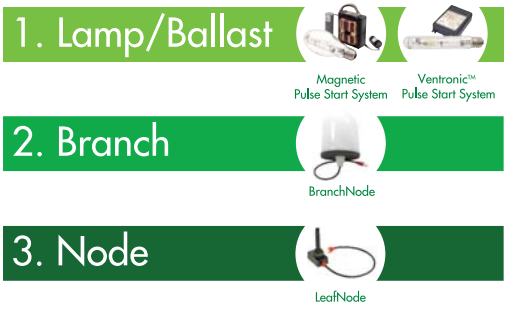
Built-in Mapping Software

Shows the location of all Branch nodes, and seamlessly integrates with google earth to view installation site. Optional upgrades to display coverage patterns assist in layout and planning.

Installation

LeafNut operates by using a proprietary protocol. Optional Node Sniffer can aide in diagnosing system issues by displaying node serial numbers and RF signal strength.

Installation... Easy as 1-2-3



Existing *LeafNut* Installations

LeafNut is already deployed worldwide. In the UK: Bingley , Hertfordshire, Blackpool, Luton, Suffolk, Westminster, Durham, Sheffield, Monmouthshire, North Somerset, Hartlepool, Plymouth, Warrington, Medway, Nottingham, Surrey, Neath Port Talbot, Blaneau Gwent, Merthyr Tydfil, Kirklees.

Other worldwide locations include: Heerlen (Netherlands), Lech (Austria), Madrid (Spain), Budapest (Hungary), Poitiers (France), Cork (Ireland), Hobart (Tasmania), Canberra (Australia)

Retrofit older probe start systems or HPS to Venture's Uni-Form® pulse start metal halide systems and include *LeafNut* dimming for a complete, easy-to-install energy saving solution.

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

Magnetic Ballast Housings

UNIFORM® Pulse Start Metal Halide Lighting Systems

MAGNETIC BALLAST Retrofit Housings 60Hz

Watts	Input Voltage Options Available	Product Number	ANSI Code	Circuit Type Options Available	Fig.	Total Weight (lbs)
200	120/208/240/277/480	OPM(x)-200(options)	M136	Reactor/CWA	2	11.5 - 15.0
250	120/208/240/277/480	OPM(x)-250(options)	M153	Reactor/CWA	2	13.0 - 17.0
320	120/208/240/277/480	OPM(x)-320(options)	M132/M154	Reactor/HX-HPF/CWA	2	14.0 - 18.5
350	120/208/240/277/480	OPM(x)-350(options)	M131	Reactor/HX-HPF/CWA	2	14.4 - 21.5
400	120/208/240/277/480	OPHM(x)-400(options)	M155	Reactor/CWA	3	18.5 - 21.5
450	120/208/240/277/480	OPHM(x)-450(options)	M144	Reactor/HX-HPF/CWA	3	17.6 - 23.5
575*	120/208/240/277/480	OPHM(x)-575(options)	M178	Reactor/HX-HPF	3	17.5 - 28.0
775*	120/208/240/277/480	OPHM(x)-775(options)	M181	CWA	3	30.5
875*	120/208/240/277/480	OPHM(x)-875(options)	M166	CWA	3	30.5

= Ⓔ Energy-efficient (≥88%) ballast: compliant with California Title 20 and federal Energy Independence & Security Act of 2007. * = Systems above 500 watts are exempt from energy legislation requirements.

Notes: Sold with open rated socket and lamp. Shipped with 6 foot length white cord. All magnetic ballast housings are shipped pre-wired to a specific voltage for the existing plug. If you are using a different voltage, the ballast will need to be re-wired. For direct wire/slice-box installations, remove cord and wire through wiring box. A safety cable is included with the housings. Please follow the instruction guide to attach the cable securely to the housing.

Warranty and Standards: Magnetic Ballast 5 years, Electronic Ballast 3 years, Lamp 2 years. No warranty for quartz restrike lamp.

UL Listed: Approved for damp location; Indoor open high bay applications only.

Operating Temperature: -30° to 55°C; Ambient per UL1598; 775W and 875W systems rated to 40°C for use with acrylic or polycarbonate reflectors

Magnetic Ballast Retrofit Housing ORDERING Information 60Hz

The product description code gives you complete information about the fixture. An explanation appears below. Example: **OPHM1-400B-Q**

OPHM — Housing Type
- **OPM** - Small Magnetic Ballast Housing
- **OPHM** - Large Magnetic Ballast Housing

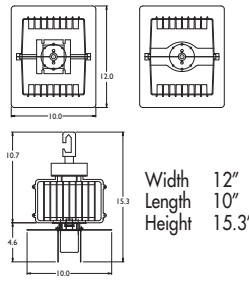
1 — Circuit Type
- **1** - CWA
- **2** - Hybrid
- **3** - HX-HPF

400 — Lamp Wattage
- **200W**
- **250W**
- **320W**
- **350W**
- **400W**
- **450W**
- **575W**
- **775W**
- **875W**

B — Voltage Code
- **B** - 120 Volt
- **P** - 208 Volt
- **S** - 240 Volt
- **U** - 277 Volt
- **Y** - 480 Volt

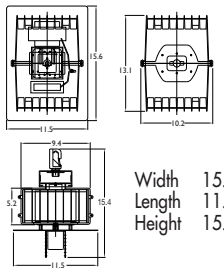
Q — Suffix Code
- **Q** - Quartz Restrike *(Additional Options)*
- **D** - Bi-level Dimming

2 OPM



Width 12″
Length 10″
Height 15.3″

3 OPM



Width 15.6″
Length 11.5″
Height 15.4″

Benefits

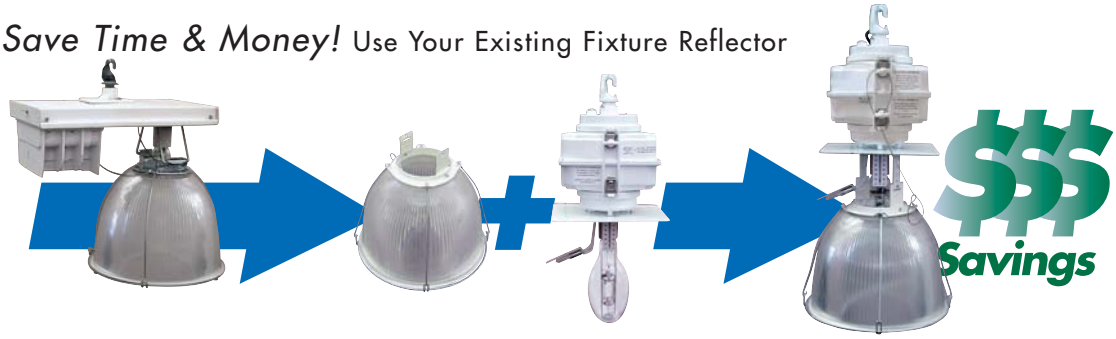
- Saves labor costs - Avoids unnecessary warranty issues
- Cost is less than a new fixture
- Less overall expense than retrofitting just lamp and ballast
- Replacement standard probe start metal halide systems for energy saving pulse start systems!
- Save up to 155 watts per luminaire
- Achieve up to 115 lamp lumens per watt
- Long life: 40,000 rated life hours with Super Pulse Start Long Life

Applications

- Big Box Retail
- Highbay Industrial Lighting
- Aircraft Hangers
- Indoor Sports/Recreation
- Suitable for Damp Locations

RETROFIT BALLAST HOUSINGS

Save Time & Money! Use Your Existing Fixture Reflector



Retrofit Ventronic™ Systems

UNI-FORM® Pulse Start Metal Halide Lighting Systems

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

Benefits

- Components are pre-installed at the factory
  - Saves labor costs
  - Avoids unnecessary warranty issues
- Cost is less than a new fixture
- Less overall expense than retrofitting just lamp and ballast
- Higher lumen package than standard probe start metal halide
- *Brackets included to fit most reflectors*
  - Most aluminum reflectors over 15″
  - Most glass reflectors over 14.25″
  - Most acrylic or polycarbonate refractors/reflectors over 16″

Save Time & Money! Use Your Existing Fixture Reflector And You Get All The Benefits of Energy-Saving Uni-Form® Pulse Start

ELECTRONIC BALLAST Retrofit Housings 60Hz Ventronic™

Product Number	Voltage	Input Voltage	Input Watts	Maximum Line Current	ANSI Code	Fig.	Tot. Wt. (lbs)	EMI
OPE2-250(options)	208-277	188-305	271	271/(.92*Vline)	M153	1	15	FCC Part 18
OPE1-320(options)	208-277	188-305	342	342/(.92*Vline)	M154	1	15	FCC Part 18
OPE1-350(options)	208-277	188-305	375	375/(.92*Vline)	M131	1	15	FCC Part 18
OPE1-400(options)	208-277	188-305	430	430/(.92*Vline)	M155	1	15	FCC Part 18
OPE1-450(options)	277	249-305	465	465/(.92*Vline)	M144	1	15	FCC Part 18

Notes: Sold with open rated socket and lamp. Shipped with 6 foot length white cord. All magnetic ballast housings are shipped pre-wired to a specific voltage for the existing plug. If you are using a different voltage, the ballast will need to be re-wired. For direct wire/slice-box installations, remove cord and wire through wiring box. A safety cable is included with the housings. Please follow the instruction guide to attach the cable securely to the housing.

Warranty and Standards: Magnetic Ballast 5 years, Electronic Ballast 3 years, Lamp 2 years. No warranty for quartz restrike lamp.

UL Listed: Approved for damp location; Indoor open high bay applications only.

Operating Temperature: -30° to 55°C; Ambient per UL1598; 775W and 875W systems rated to 40°C for use with acrylic or polycarbonate reflectors

Electronic Ballast Retrofit Housing ORDERING Information 60Hz Ventronic™

The product description code gives you complete information about the fixture. An explanation appears below.Example: **OPE1-320L-D5**

OPE
Housing Type
OPE - Electronic Ballast Housing

1
Ballast Code
Manufacturer's Code

320
Lamp Wattage
250W
320W
350W
400W
450W

L
Voltage Code
L - 208 to 277 Volt
U - 277 Volt

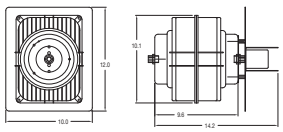
D5
Suffix Code
Q - Quartz Restrike
(Additional Options)
D5 - 50% Lamp Dimming
CL - Cold Rated (-30)

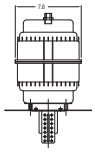
ELECTRONIC CONTROLS

Product Description	Input Voltage	Input Current	Output Voltage	Output Current	Required Input for each Ballast	Fig.
VDM-1	20-28 VDC	250mA (max.)*	10VDC	250mA (max.)	5mA***	A
VIM-1	24 VDC**	250mA (max.)*	10VDC	250mA (max.)	5mA****	B
VPM-1	20-28 VDC	250mA (max.)	10VDC	250mA (max.)	5mA***	C

Note: * to control 50 Venture HF electronic ballasts
** Output: 24VDC / .025A (up to 5 Venture HF Electronic Ballast's can be controlled)
*** "n" Venture HF ballasts can be controlled by n x 5mA input current
**** "n" HF ballasts can be controlled by n x 5mA input current; 5mA output required to control each ballast

1 OPE

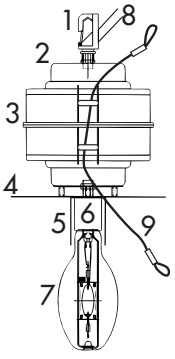




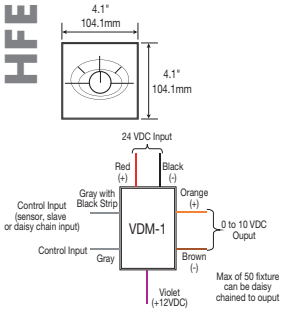
Weight 15 lbs.
Width 12″
Length 10.1″
Height 14.2″

Components of the Ballast Housing:

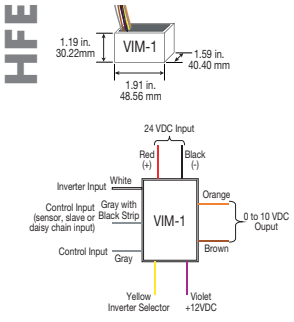
1. Hook
2. Wiring box
3. Ballast housing
4. Heat shield
5. Mounting bracket
6. Open-rated (pink) socket
7. Open-rated lamp
8. White cord
9. Safety cable



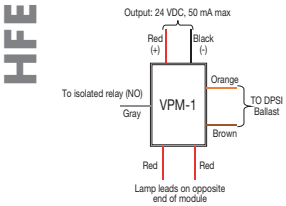
A Electronic Control



B Electronic Control



C Electronic Control



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Jewel™ Glass Reflector

UNI-FORM® Pulse Start Metal Halide Lighting Systems

The Jewel™ optics, a precision molded borosilicate glass reflector, uses total internal reflection technology to maximize energy efficiency, deliver a high percentage of light to the task, and provide an attractive 'glass sparkle'. The *Jewel* reflector is over 90% efficient with over 80% of its output directed downward to task areas or merchandise. Increase existing light levels while reducing energy consumption by completing the package with Venture's Uni-Form® pulse-start lamp and ballast systems.

Benefits

- Prismatic glass reflector
- Increase existing light levels while reducing energy consumption when using Venture's *Uni-Form* pulse-start lamp and ballast systems

Applications

- High-bay fixtures for Big Box Retail lighting
- High-bay Industrial Lighting
- Aircraft Hangers
- Indoor Sports/Recreation

Photometrics

Open prismatic Jewel™ glass narrow symmetric reflector: 14.6" (370mm) x 8.54" (217mm)

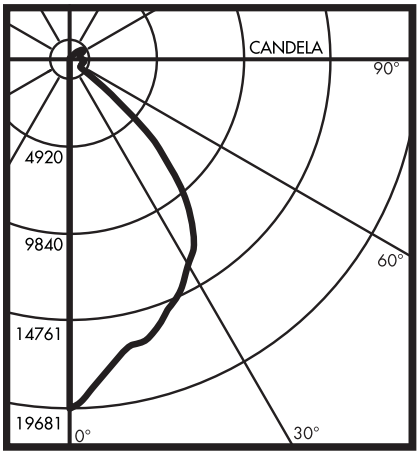
CHARACTERISTICS

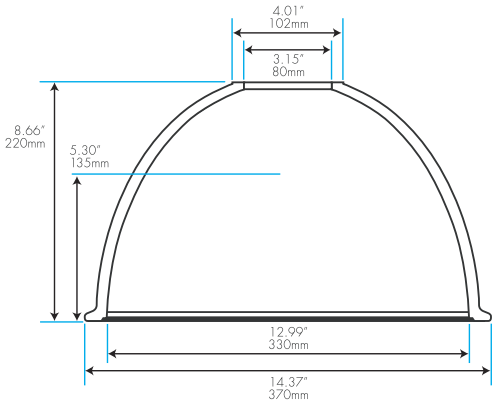
Report Number: IR2010-046E-135mm
Total Luminaire Efficiency: 94.3%
CIE Type: Semi-Direct
Spacing Criterion: 1.04
Prismatic Glass High-Bay Reflector
MP 350W/V/ED28/UVS/PS/740
350W Clear ED28 Open-Rated MH Lamp
Color Temperature: 4,000 K CRI: 68
Initial Lamp Lumens: 35,000
Lamp Lumen Depreciation factor: .86
Lamp Position: Lamp LCL at 135mm above bottom of reflector.

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	12975	37.1%	39.3%
0-40	20527	58.6%	62.2%
0-60	27180	77.7%	82.4%
0-90	29564	84.5%	89.6%
90-120	2097	6.0%	6.4%
90-130	2854	8.2%	8.6%
90-150	3412	9.7%	10.3%
90-180	3439	9.8%	10.4%
0-180	33003	94.3%	100.0%

Total Luminaire Efficiency = 94.3%





Track Lighting Systems

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Benefits

Compared to quartz halogen, Venture's track lighting system:

- Saves up to 64% energy without sacrificing light levels
- Up to 31/2 x the Light Levels
- 4x the life
- High CRI lighting, 90+
- Daylight color: 5000K CCT, colors of products are truer

Applications

- Retail Lighting
- Showcase Lighting
- Auto Dealership Showrooms

Key

Natural White® Lamp

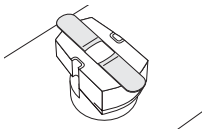
Energy-efficient (≥88%) ballast compliant with EISA 2007

35 Watt Electronic Track Lighting Systems

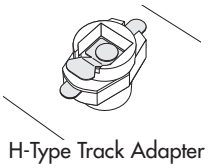
# of Lamps	Lamp Type	Product Description	Part Number	Base	System Watts	Input Voltage	Figure	Track Type	Fixture Color
Single	MR16	VETF-J35W1-GX10-WH	60622SYS	GX10	43	120	1	J	White
Twin	MR16	VETF-J35W2-GX10-WH	60633SYS	GX10	87	120	2	J	White
Single	MR16	VETF-H35W1-GX10-WH	60644SYS	GX10	43	120	1	H	White
Twin	MR16	VETF-H35W2-GX10-WH	60655SYS	GX10	87	120	2	H	White
Single	MR16	VETF-J35W1-GX10-BK	60623SYS	GX10	43	120	1	J	Black
Twin	MR16	VETF-J35W2-GX10-BK	60624SYS	GX10	87	120	2	J	Black
Single	MR16	VETF-H35W1-GX10-BK	60645SYS	GX10	43	120	1	H	Black
Twin	MR16	VETF-H35W2-GX10-BK	60646SYS	GX10	87	120	2	H	Black

Venture Lighting® MR16 LAMPS

Lamp Type	Lamp Description	Product Number	Center Beam Candle Power	Beam Angle°	Beam Type	Rated Life Hours	CCT	CRI	Figure	Lamp Color
MR16	MPSE 35W/GX10/MR16/950/SP/WH	60621	19000cd	10	Spot	12000	5000K	90+	3	White
MR16	MPSE 35W/GX10/MR16/950/NFL/WH	60631	11200cd	18	Narrow Flood	12000	5000K	90+	3	White
MR16	MPSE 35W/GX10/MR16/950/FL/WH	60632	5100cd	30	Flood	12000	5000K	90+	3	White
MR16	MPSE 35W/GX10/MR16/950/SP/BK	60620	19000cd	10	Spot	12000	5000K	90+	3	Black
MR16	MPSE 35W/GX10/MR16/950/NFL/BK	60641	11200cd	18	Narrow Flood	12000	5000K	90+	3	Black
MR16	MPSE 35W/GX10/MR16/950/FL/BK	60642	5100cd	30	Flood	12000	5000K	90+	3	Black

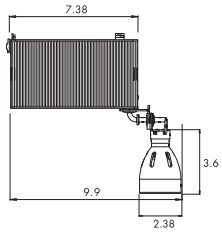


J-Type Track Adapter



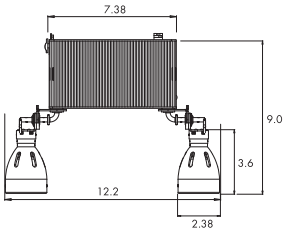
H-Type Track Adapter

1 FIXTURE



Width = 9.9" (251mm)
Height = 7.38" (187mm)
Depth = 2.38" (60mm)

2 FIXTURE



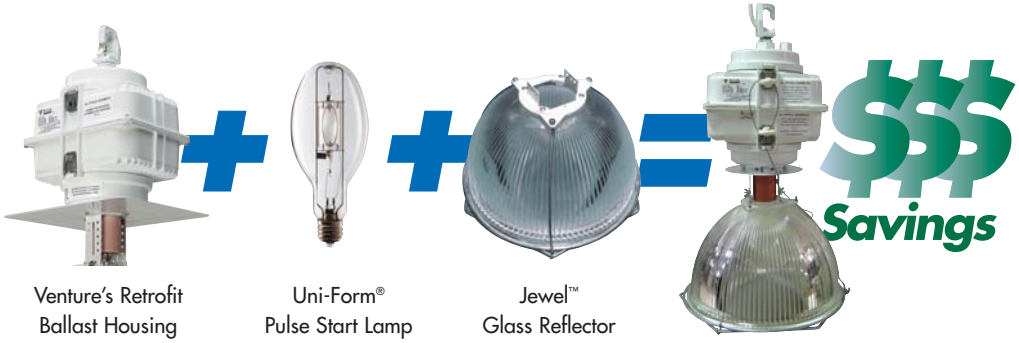
Width = 12.2" (310mm)
Height = 7.38" (187mm)
Depth = 2.38" (60mm)

3 LAMP

MR16
Dia. = 2.375" (60mm)
MOL = 3.6" (92mm)
Base = GX10

UNI-FORM
PULSE START METAL HALIDE LIGHTING SYSTEMS

Venture's Retrofit Systems



Venture's Retrofit Ballast Housing

Uni-Form® Pulse Start Lamp

Jewel™ Glass Reflector

Complete Energy Saving, More Efficient Lighting System

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

SPECIALTY METAL HALIDE LAMPS

The Right Lamp For That Special Application

Venture's Energy Master® Retrofit Lamps:

Relamp your standard probe start metal halide installation with these 150 watt or 360 watt energy-saving retrofit products; lamps are specifically designed to operate with all standard probe start metal halide fixtures and ballasts.

White-Lux® Lamps:

250 - 750 watts - Cost effectively switch from yellow HPS light to white metal halide light without modifications to your HPS ballasts and fixtures.

High Wattage/Sports Lamps:

1000 - 1650 watts - These lamps are the leading choice for arenas and stadiums worldwide.

BiPin (G12) Lamps:

70 - 150 watts

Double Ended Lamps:

70 - 250 watts - Compact configuration provides excellent optical control in smaller fixture designs.

High Wattage Double Ended Lamps:

1000 - 2000 Watts - These European style lamps are used for large area floodlighting and sports lighting applications.

Venture's White-Lux *retrofit lamps can operate on HPS ballasts, so you can change just the lamp and switch from "yellow" light to "white".*

Energy Master® Lamps

SPECIALTY METAL HALIDE LAMPS

360W Open Rated *Probe Start Lamps* ANSI Type-O *featuring* UV Shield®

Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Replaces	Watts Saved	Additional Notes
MPI 360W/BU/EM	38029	M59/165/0	36000	0.65	100	20000	4000K	65	Clear	BU±15°	H1	6	400/U; 400/BU	40	
MPI 360W/C/BU/EM	67293	M59/165/0	34000	0.65	94	20000	3700K	70	Coated	BU±15°	H1	6	400/C/U; 400/C/BU	40	

150W Enclosed Rated *Probe Start Lamps* ANSI Type-E

Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Replaces	Watts Saved	Additional Notes
MH 150W/U/EM	44810	M57/107/E	13500	0.65	90	10000	4000K	65	Clear	U	A1	12	175/U/MED	25	
MH 150W/U/ED28/EM	69559	M57/107/E	13500	0.65	90	10000	4000K	65	Clear	U	C1	12	175/U; 175/BU	25	

Benefits

- Just change the lamp not the ballast
- Save energy
- Open rated lamps available in 360 watt standard probe start lamps

Applications

- Energy Saving Applications Indoors or Outdoors
- Industrial Highbay
- Building and Security Floodlighting
- Warehouse Downlighting
- Parking Lot Lighting

Save Watt, with Same Light Output!

A Simple Energy Saving Lamp Designed to Operate on Existing 175 and 400 Watt Ballasts

Existing Wattages	Initial Lumens	Energy Master® Replacement	Annual Energy Savings
400W	36,000	**360W**	$14.10
175W	13,500	**150W**	$9.10

Based on 10 hrs/day, 0.10 kWh

A Simple Lamp Change Does It!

Save Up to 40 watts per Fixture! Venture Lighting's *Energy Master* line of retrofit products saves energy by operating at lower wattages.

See an immediate reduction in energy costs of up to 40 watts per fixture or a full 10% with virtually the same light output.

Change Just the Lamp!

Considering an update of your lighting system? Explore the advantages of the *Energy Master* line - just replace your lamp. That's it! The high cost of a whole new lighting system or the labor cost of re-wiring or installing new wiring is not needed with *Energy Master* energy saving retrofit lamps. Use existing luminaires and ballasts.

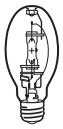
Retrofit for Safety

For applications where safety is an issue, Venture Lighting offers open-rated *Energy Master* 360W MPI (probe start) lamps, which meet NEC® (National Electric Code) requirements. The arc tube is enclosed within a quartz shroud to prevent the outer glass jacket from breaking in the event of an arc tube rupture, passing ANSI containment tests. Lamp types are intended primarily for open-rated fixtures and provide an added measure of safety in enclosed fixtures.

A1 ED17

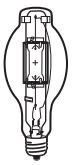
Dia. = 2.1" (54mm)
MOL = 5.4" (138mm)
LCL = 3.4" (86mm)
Base = Medium (E26)

C1 ED28



Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (E39)

H1 BT37



Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (EX39)

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

White-Lux® Lamps

SPECIALTY METAL HALIDE LAMPS

Open Rated *Probe Start Lamps* ANSI Type-O *featuring* UV Shield®

Watts	Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Replaces	Additional Notes
250	MPI 250W/C/BU/LU	10206	S50/O[1]	18000	0.65	67	10000	3700K	70	Coated	BU±15°	D1	12	LU 250	
250	MPI 250W/BU/LU	24785	S50/O[1]	19000	0.65	70	10000	4000K	65	Clear	BU±15°	D1	12	LU 250/C	
400	MPI 400W/BU/LU	10044	S51/O[2]	39000	0.65	91	20000	4000K	65	Clear	BU±15°	N1	6	LU 400	

Enclosed Rated *Probe Start Lamps* ANSI Type-E

Watts	Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Replaces	Additional Notes
250	MH 250W/U/LU	91051	S50/E[1]	20000	0.65	74	10000	4000K	65	Clear	U	C1	12	LU 250	
400	MH 400W/U/LU/ED28	59441	S51/E[2]	41000	0.65	95	20000	4000K	65	Clear	U	C1	12	LU 400	
400	MH 400W/U/LU	52134	S51/E[2]	41000	0.65	95	20000	4000K	65	Clear	U	O1	6	LU 400	
750	MH 750W/U/LU/BT37	33940	S111/E[3]	72000	0.65	96	12000	4000K	65	Clear	U	G1	6	LU 750	

Notes: **1** Lamp operates on 250W(S50) high pressure sodium ballast.
2 Lamp operates on 400W(S51) high pressure sodium ballast.
3 Lamp operates on 750W(S111) high pressure sodium ballast.
4 Lamp operates on 1000W(S52) high pressure sodium ballast.

Benefits

- Complete electrical compatibility with HPS systems
- Designed for photometric compatibility with HPS systems
- Clear and coated outer jacket options
- Shrouded open-rated lamps comply with 2005 National Electric Code available in 250 and 400 watts
- Excellent color rendering (65-70 CRI vs. 22 CRI for HPS)

A Simple Lamp Change Does It

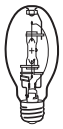
It's easier than ever to switch from the harsh yellow light of high pressure sodium to the clear, white light of metal halide. Make the change just by replacing the lamp! Venture's unique *White-Lux* lamps are completely compatible with all HPS lighting systems and fit directly into your existing 250, 400, 750 or 1000 watt HPS fixture. No need to change ballasts, ignitors, or even reposition the socket.

The crisp, 4K color of *White-Lux* replacement lamps reduces glare in your warehouse or building and creates a better, brighter work environment. Reduce errors and improve your business efficiency with this simple change to whiter light. *White-Lux* high output metal halide lamps are the easy, cost-effective solution to your retrofit needs. Save on costs, increase productivity, raise sales. You're sure to see the bright results with the *White-Lux* advantage!

Switch To Bright, White Light From Existing HPS Fixtures

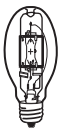
As Simple as a Change of a Lamp

C1 ED28



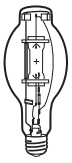
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D1 ED28



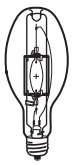
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

G1 BT37



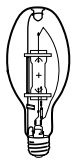
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

N1 ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 5.9″ (149mm)
Base = Mogul (EX39)

O1 ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 5.9″ (150mm)
Base = Mogul (E39)

Applications

- Industrial Highbay
- Parking Lot Lighting
- Building and Security Floodlighting
- Warehouse Downlighting

High Wattage/Sports

Specialty Metal Halide Lamps

Benefits

- Brighter - High lumen output
- "Extra Life" lamp available - Venture's MH 1500W/U/XL lamp has a 6000 hour rated life
- Venture's Sports 60 lamps are designed for sports lighting aiming angles
- Compact BT37 for excellent optical control (MS 1000/HOR/BT37)
- High lumen output lamps for efficient layout designs
- Good color rendition (65-70 CRI)

Enclosed Rated PROBE START LAMPS ANSI Type-E Mogul Base

Watts	Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
1000	MS 1000W/HOR/SPORT 60	47503	M47/E	115000	0.75	12000	3400K	70	Clear	HOR±60°	P1	6	
1000	MS 1000W/HOR/BT37/3K	53702	M47/E	115000	0.75	12000	3400K	70	Clear	HOR±45°	Q1	6	
1500	MH 1500W/HBU	18360	M48/E	161000	0.85	3000	3400K	65	Clear	BU±105°	I1	6	
1500	MH 1500W/U/XL	12342	M48/E	170000	0.80	6000	4000K	65	Clear	U	I1	6	
1500	MS 1500W/HOR/XP/SPORT 60	82070	M48/E	162000	0.85	3000	3400K	70	Clear	HOR±60°	P1	6	
1650	MS 1650W/HOR/XP/SPORT 60	16419	M112/E	177000	0.82	3000	3200K	70	Clear	HOR±60°	P1	6	

Venture Sports Lighting Product

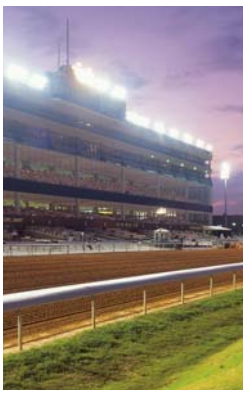
Venture Lighting International offers a wide range of Sports Lighting options, including the compact 1000W/HOR/BT37 designed for indoor arenas and the 1500 and 1650 watt Sport 60 lamps for applications in both recreational and professional athletic sites.

Structurally Stronger:
- Weldless frame connections minimize shipping damage and claims

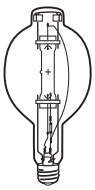
Electrical Connections:
- Weldless key electrical connections maintain lamp circuit integrity, even when subjected to pole-top noise, vibration and harshness (NVH)

Electrically Neutral Frame:
- Improves performance
- Less color shift
- Increases voltage stability

Spec the System: Matching lamp and ballast specs available

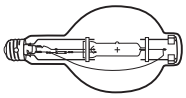


I1 BT56



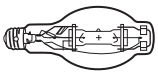
Dia. = 7.0" (180mm)
MOL = 15.3" (391mm)
LCL = 9.5" (241mm)
Base = Mogul (E39)

P1 BT56



Dia. = 7.0" (180mm)
MOL = 15.3" (391mm)
LCL = 9.5" (241mm)
Base = Mogul POMB (EP39)

Q1 BT37



Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul POMB (EP39)

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Double Ended & G12

SPECIALTY METAL HALIDE LAMPS

Enclosed Rated *Pulse Start** Single Ended (G12) LAMPS ANSI Type-E

Watts	Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
70	HIT 70W/G12/UVS/3K	12108	M85/M98/E	5600	0.65	75	10000	3000K	70	Clear	U	Z	25	
70	HIT 70W/G12/UVS/4K	52983	M85/M98/E	5600	0.65	75	10000	4200K	70	Clear	U	Z	25	
70	HIT 70W/G12/UVS/FS/6K	39682	M85/M98/E	4800	0.85	64	5000	6500K	90	Clear	U	Z	25	
100	HIT 100W/G12/UVS/4K	89887	M90/E	9000	0.65	90	10000	4200K	70	Clear	U	Z	25	
150	HIT 150W/G12/UVS/3K	12106	M81/M102/E	14000	0.75	93	10000	3000K	70	Clear	U	Z	25	
150	HIT 150W/G12/UVS/4K	25779	M81/M102/E	14000	0.75	93	10000	4200K	70	Clear	U	Z	25	
150	HIT 150W/G12/UVS/FS/6K	78564	M81/M102/E	11250	0.85	75	5000	6500K	90	Clear	U	Z	25	

Enclosed Rated *Pulse Start** DOUBLE ENDED LAMPS *RSC (R7s)* ANSI Type-E

Watts	Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
70	MH-DE 70W/UVS/3K	16786	M85/M98/E	5200	0.65	69	10000	3000K	70	Clear	HOR±45°	R1	25	
70	MH-DE 70W/UVS/4K	60248	M85/M98/E	5500	0.65	73	10000	4200K	70	Clear	HOR±45°	R1	25	
70	MH-DE 70W/UVS/FS/6K	79470	M85/M98/E	4800	0.85	64	10000	6500K	90	Clear	HOR±45°	R1	25	
150	MH-DE 150W/UVS/3K	11295	M81/M102/E	11250	0.75	75	10000	3000K	70	Clear	HOR±45°	S1	25	
150	MH-DE 150W/UVS/4K	74756	M81/M102/E	11250	0.75	75	10000	4200K	70	Clear	HOR±45°	S1	25	
150	MH-DE 150W/UVS/FS/6K	29963	M81/M102/E	11250	0.85	75	10000	6500K	90	Clear	HOR±45°	S1	25	
150	MH-DE 150W/UVS/10K PLUS	80244	M81/M102/E	--	--	N/A	5000	10000K	65	Clear	HOR±45°	S1	25	

Enclosed Rated *Pulse Start* DOUBLE ENDED LAMPS *RSC (RX7s), Fc2* ANSI Type-E

Watts	Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
250	MH-DE 250W/UVS/3K/Fc2	84727	M80/E	20000	0.65	80	10000	3000K	70	Clear	HOR±45°	U1	25	
250	MH-DE 250W/UVS/4K/Fc2	72748	M80/E	20000	0.65	80	10000	4200K	70	Clear	HOR±45°	V1	25	
250	MH-DE 250W/UVS/4K/RSC	22468	M80/E	20000	0.65	80	10000	4200K	70	Clear	HOR±45°	T1	25	

Notes: * UNI-**FORM**® TECHNOLOGY

Benefits

- Compact Configuration
- Excellent optical control
- Ignitor starting for faster hot re-start

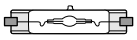
Applications

- Retail store downlights
- Flood-lighting

Z G12

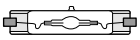
Dia. = 0.9" (23mm)
MOL = 4.3" (110mm)
LCL = 2.2" (56mm)
Base = G12

R1 MH-DE



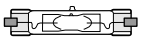
T6
Dia. = 20mm
Insertion Length = 117.6mm
Contact to Contact = 114.2mm
Base = RSC (R7s)

S1 MH-DE



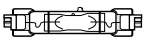
T7
Dia. = 23mm
Insertion Length = 135.4mm
Contact to Contact = 132.0mm
Base = RSC (R7s)

T1 MH-DE



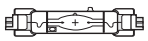
T8
Dia. = 25mm
Insertion Length = 161.3mm
Contact to Contact = 157.9mm
Base = RSC (RX7s)

U1 MH-DE



T8
Dia. = 25mm
Distance between cap reference planes = 139mm +0, -1
Base = Fc2

V1 MH-DE



T8
Dia. = 25mm
Distance between cap reference planes = 139mm +0, -1
Base = Fc2

High Watt Double Ended

SPECIALTY METAL HALIDE LAMPS

Enclosed Rated PULSE START LAMPS *MBIL S* ANSI Type-F M___/F

Watts	Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
1000	MBIL S 1000W	22417	M__/F	80000	0.80	80	6000	5200K	65	Frosted	HOR±15°	W1	6	Use M141 ballasts
1500	MBIL S 1500W	22151	M__/F	130000	0.80	87	6000	5200K	65	Frosted	HOR±15°	X1	6	Use M133 or M48 ballasts
2000	MBIL S 2000W	22132	M__/F	215000	0.80	100	6000	5200K	65	Frosted	HOR±15°	Y1	2	Use M134 ballasts

Notes: **/F** - ANSI code for lamps which must be used in enclosed luminaires with UV attenuating lenses.
WARNING: Do not operate this lamp if the lens is broken or missing since the unattenuated UV from this lamp can cause serious skin burn and eye inflammation.
MBIL 2000 watt lamps are measured at 2105 watts.

MAGNETIC BALLASTS 60Hz

Watts	Input Voltage	Product No.	ANSI Code	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (pfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
1000	120/208/240/277	V90D7811	M141	CWA	1080	8.95/5.55/4.55/3.95	D/D/C/D	E	6	2.80	4.95	18.5	24/480	B12	Oil	F	10
1000	120/277/347	V90J7811	M141	CWA	1080	8.90/3.90/3.15	C/D/C	E	6	2.80	4.95	18.5	24/480	B12	Oil	F	10
1000	480/120T	V90Y7811T	M141	CWA	1080	2.30	D	S1	6	2.80	4.90	18.5	24/480	B12	Oil	F	10
2000	480	V90Y6810	M134	CWA	2105	4.65	G	A	6	6.00	8.20	42.0	44/525	B10	Oil	G	2
2000	347	V90V6810	M134	CWA	2105	6.45	E	A	6	6.00	8.20	42.0	44/525	B10	Oil	G	2

Benefits

- Compact, linear for excellent optical control
- Base designed for cool operation for improved performance
- Good color rendition (65 CRI)

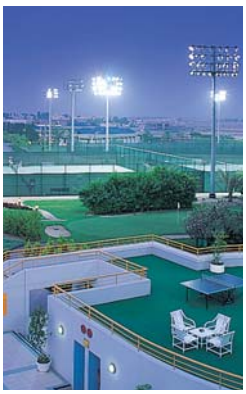
Applications

- Arenas
- Sports lighting
- Stadiums
- Large Area Flood-lighting

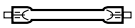
Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

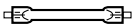


W1 MBIL S



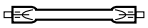
MOL = 256mm
Effective arc length = 183mm
Base = RSC (RX7s)

X1 MBIL S



MOL = 256mm
Effective arc length = 168mm
Base = RSC (RX7s)

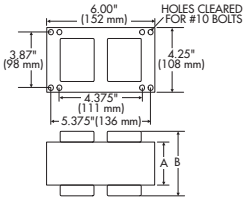
Y1 MBIL S



MOL = 311mm
Effective arc length = 191mm
Base = *Special,
Contact Manufacturer

6 4x6 Core

CWA



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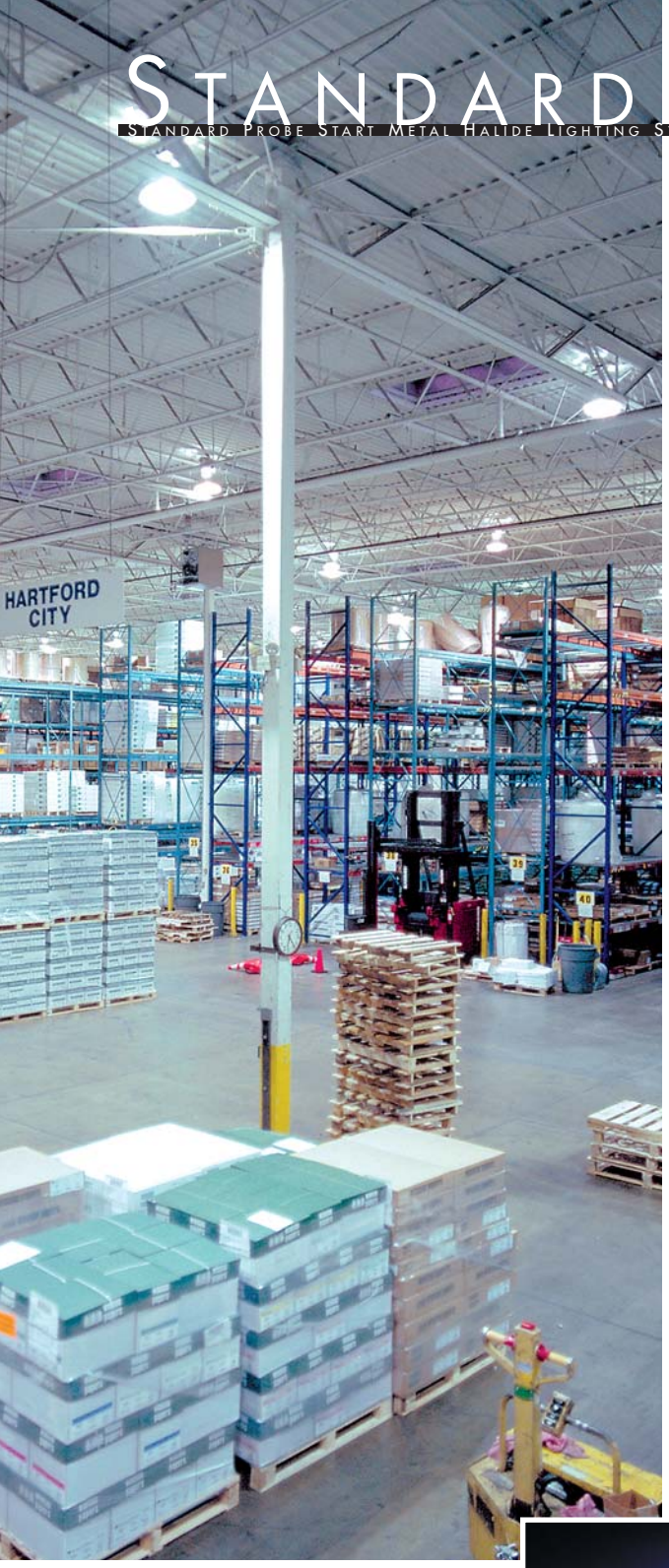
Standard Probe Start MH

Standard Probe Start Metal Halide Lighting Systems



The Best Lamps

Venture offers the widest range of standard probe start metal halide products, including North American and European style lamps. With over twenty years of experience, Venture's high quality lamps are used worldwide.

This section provides complete data for North American medium and mogul base 175W, 250W, 400W, 1000W 1500W and 1650W standard probe start metal halide lamps.

The Right Ballasts

Venture Lighting has manufacturing facilities around the globe. Venture designs and manufactures a wide selection of CWA and CWI ballasts. Products available in single, dual, tri and quad tap ballasts to cover the lighting voltages of 120V, 208V, 240V, 277V, 347V and 480V.

All ballast specifications are in compliance with North American and international safety, performance and design standards, including U.L., CSA and ANSI. In Europe, all products carry the CE mark, and many of our products carry approval marks, including ENEC, Kitemark and VDE.

Features

- Vacuum impregnation for cooler operation of optimized insulation system
- UL Temp Codes equal to or better than the competition
- User-friendly installation - Color coded wires as well as printed labels on the wires make for easy installing - just follow the diagram on each ballast
- The core size to meet your application - same sizes as competitors in the same ballast type
- Dry capacitors rated up to 100° C
- Flexibility: Order kits, prewired ballasts, brackets - all in the configuration that you need
- Thermally protected ballasts available for most pulse start metal halide ballasts

Standard Probe Start Metal Halide

STANDARD PROBE START METAL HALIDE LIGHTING SYSTEMS

Features

- Full range of wattages
- Clear and coated versions
- Reduced jacket options

175 WATT Open Rated LAMPS ANSI Type-O ANSI M57/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPI 175W/BU	32519	14000	0.65	80	10000	4000K	65	Clear	BU±15°	D1	12	
MPI 175W/C/BU	32520	13300	0.65	76	10000	3700K	70	Coated	BU±15°	D1	12	

175 WATT Enclosed Rated LAMPS ANSI Type-E ANSI M57/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MH 175W/U/MED	15556	14000	0.65	80	10000	4000K	65	Clear	U	A1	12	
MH 175W/C/U/MED	63187	13300	0.65	76	10000	3700K	70	Coated	U	A1	12	
MS 175W/C/BU/MED/3K	52522	13600	0.65	78	10000	3200K	70	Coated	BU±15°	A1	12	
MH 175W/U	88791	14000	0.65	80	10000	4000K	65	Clear	U	C1	12	
MH 175W/C/U	96627	13300	0.65	76	10000	3700K	70	Coated	U	C1	12	
MS 175W/HOR	57330	15000	0.65	86	10000	4000K	65	Clear	HOR±45°	Z1	12	
MH 175W/U/T15/10K	70136	-	0.65	-	8000	10000K	65	Clear	U	B2	12	

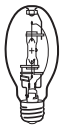
175 WATT MAGNETIC BALLASTS 60Hz ANSI M57

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Total Wt. (lbs)	Capacitor (µfd/Vmin)	Cap. Fig.	Cap. Type
120	V90B6112	CWA	206	1.80	C	B	4	2.40	3.80	6.6	10/400	A11	Dry/Oil
480	V90Y6111T	CWA	211	0.45	B	V1	4	2.22	3.60	6.8	10/400	A11	Dry/Oil
600	V90Z6150	CWI	226	0.40	D	O	4	2.65	4.13	9.0	9/520	B5	Oil
120/208/240/277	V90D6112	CWA	215	1.85/1.10/0.90/0.80	B/C/C/B	H	4	2.40	3.80	7.0	10/400	A11	Dry/Oil
120/240	V90E6150	CWI	225	1.90/0.95	B/B	W	4	2.65	4.13	9.0	9/520	B5	Oil
120/277/347	V90J6112	CWA	215	1.85/0.80/0.65	C/D/D	M	4	2.40	3.80	7.0	10/400	A11	Dry/Oil
208/120T	V90P6150T	CWI	226	1.10	C	P	4	2.65	4.13	9.0	9/520	B5	Oil

A1 ED17

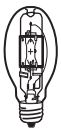
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

C1 ED28



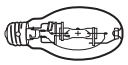
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D1 ED28



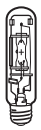
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

Z1 ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul POMB (EP39)

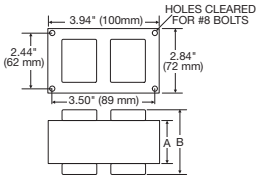
B2 T15



Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

4 3x4 Core

CWA/CWI



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Standard Probe Start Metal Halide

STANDARD PROBE START METAL HALIDE LIGHTING SYSTEMS

250 WATT Open Rated LAMPS ANSI Type-O ANSI M58/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPI 250W/BU	60722	21800	0.65	87	10000	4000K	65	Clear	BU±15°	D1	12	
MPI 250W/C/BU	60723	20700	0.65	83	10000	3700K	70	Coated	BU±15°	D1	12	

250 WATT Enclosed Rated LAMPS ANSI Type-E M58/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MH 250W/U	63052	21000	0.65	84	10000	4000K	65	Clear	U	C1	12	
MH 250W/C/U	61290	20000	0.65	80	10000	3700K	70	Coated	U	C1	12	
MS 250W/BU	36297	23000	0.65	92	10000	4000K	65	Clear	BU±15°	C1	12	
MS 250W/C/BU/3K	18477	20000	0.65	80	10000	3200K	70	Coated	BU±15°	C1	12	
MS 250W/HOR	94883	23000	0.65	92	10000	4000K	65	Clear	HOR±45°	Z1	12	
MS 250W/HOR/T15/3K	54843	21000	0.65	84	10000	3200K	65	Clear	HOR±45°	D2	12	
MH 250W/U/T15	33479	21000	0.65	84	10000	4000K	65	Clear	U	B2	12	
MS 250W/HOR/T15	88353	23000	0.65	92	10000	4000K	65	Clear	HOR±45°	D2	12	
MH 250W/U/T15/10K	63897	-	0.65	-	8000	10000K	65	Clear	U	B2	12	

250 WATT MAGNETIC BALLASTS 60Hz ANSI M58

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Total Wt. (lbs)	Capacitor (µfd/Vmin)	Cap. Fig.	Cap. Type
600	V90Z6250	CWI	303	0.50	D	O	5	2.16	3.75	14.0	12/480	B12	Oil
120/208/240/277	V90D6211	CWA	291	2.60/1.45/1.30/1.10	B/A/C/B	H	4	0.80	4.20	8.5	15/360	A13	Dry/Oil
120/208/240/277	V90D6215	CWA	290	2.60/1.50/1.30/1.15	A/A/A/A	H	5	1.46	3.30	8.3	15/400	A13	Dry/Oil
120/240	V90E6250	CWI	303	260/1.30	A/A	W	5	2.16	3.75	14.0	12/480	B12	Oil
120/277/347	V90J6211	CWA	293	2.50/1.10/0.90	A/D/C	M	4	2.80	4.20	8.5	15/360	A13	Dry/Oil
120/277/347	V90J6215	CWA	290	2.55/1.10/0.90	A/A/A	M	5	1.55	3.30	8.6	15/400		Dry/Oil
208/120T	V90P6250T	CWI	303	1.50	A	P	5	2.16	3.75	14.0	12/480	B12	Oil
480/120T	V90Y6212T	CWA	295	0.63	B	B	5	1.55	3.35	8.8	15/400		Dry/Oil
480	V90Y6211	CWA	288	0.60	D	B	4	3.00	4.40	9.1	15/360	A13	Dry/Oil

Applications

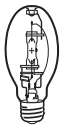
- Floodlighting
- Warehouse
- Parking Garage
- Architectural Downlighting
- Site Lighting

Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

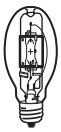
Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

C1 ED28



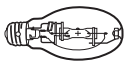
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D1 ED28



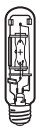
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

Z1 ED28



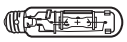
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul POMB (EP39)

B2 T15



Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

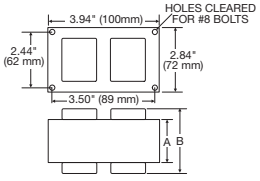
D2 T15



Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul POMB (EP39)

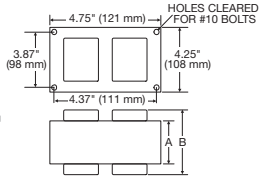
4 3x4 Core

CWA/CWI



5 4x4 Core

CWA/CWI



Standard Probe Start Metal Halide

STANDARD PROBE START METAL HALIDE LIGHTING SYSTEMS

Applications

- Signage
- Canopies
- Industrial
- Site Lighting
- Security

400 WATT Open Rated LAMPS ANSI Type-O ANSI M59/O *featuring* UV Shield®

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPI 400W/BU	95527	40000	0.65	100	20000	4000K	65	Clear	BU±15°	F	6	
MPI 400W/C/BU	26091	38000	0.65	95	20000	3700K	70	Coated	BU±15°	F	6	

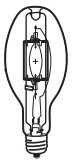
400 WATT Enclosed Rated LAMPS ANSI Type-E ANSI M59/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MH 400W/U/ED28	57540	36000	0.65	90	20000	4000K	65	Clear	U	C1	12	
MH 400W/C/U/ED28	20753	34000	0.65	85	20000	3700K	70	Coated	U	C1	12	
MH 400W/U/ED28/10K	27540	-	0.65	-	8000	10000K	65	Clear	U	C1	12	
MS 400W/HOR/ED28	21929	40000	0.65	100	20000	4000K	65	Clear	HOR±45°	Z1	12	
MH 400W/U	18520	36000	0.65	90	20000	4000K	65	Clear	U	E1	6	
MH 400W/C/U	83545	34000	0.65	85	20000	3700K	70	Coated	U	E1	6	
MH 400W/U/5K	36813	32000	0.65	80	15000	5000K	75	Clear	U	E1	6	
MS 400W/HOR	40509	40000	0.65	100	20000	4000K	65	Clear	HOR±45°	A2	6	
MS 400W/HOR/T15	55100	40000	0.65	100	15000	4000K	65	Clear	HOR±45°	E2	12	
MH 400W/U/T15	55422	36000	0.65	90	15000	4000K	65	Clear	U	C2	12	
MS 400W/HOR/T15/3K	32225	38000	0.65	95	15000	3200K	65	Clear	HOR±45°	E2	12	

400 WATT MAGNETIC BALLASTS 60Hz ANSI M59

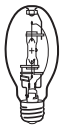
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Total Wt. (lbs)	Capacitor (µfd/Vmin)	Cap. Fig.	Cap. Type
600	V90Z6450T	CWI	475	0.70	C	P	5	3.50	5.50	21.0	19.5/520	B12	Oil
120/208/240/277	V90D6414	CWA	458	3.95/2.30/2.00/1.75	D/E/E/E	H	4	2.00	4.10	10.0	24/360	A13	Dry/Oil
120/240	V90E6450	CWI	475	4.05/2.05	B/B	W	5	3.50	5.50	21.0	19.5/520	B12	Oil
120/277/347	V90J6414	CWA	454	4.00/1.75/1.40	C/D/D	M	5	2.15	4.20	10.5	24/360		Dry/Oil
208/120T	V90P6450T	CWI	475	2.35	C	P	5	3.50	5.50	21.0	19.5/520	B12	Oil
480/120T	V90Y6413T	CWA	457	1.00	E	V1	5	2.15	4.10	11.5	24/360	A13	Dry/Oil

F ED37



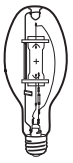
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

C1 ED28



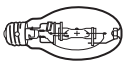
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

E1 ED37



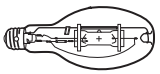
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

Z1 ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul POMB (EP39)

A2 ED37

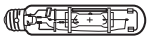


Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul POMB (EP39)

C2 T15

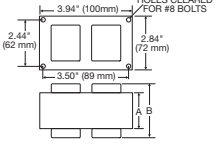
Dia. = 2.0″ (52mm)
MOL = 9.8″ (248mm)
LCL = 5.8″ (146mm)
Base = Mogul (E39)

E2 T15

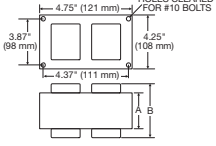


Dia. = 2.0″ (52mm)
MOL = 9.8″ (248mm)
LCL = 5.8″ (146mm)
Base = Mogul POMB (EP39)

4 3x4 Core CWA/CWI



5 4x4 Core CWA/CWI



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Standard Probe Start Metal Halide

STANDARD PROBE START METAL HALIDE LIGHTING SYSTEMS

1000 WATT Open Rated LAMPS ANSI Type-O ANSI M47/O

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPI 1000W/BU	62948	107000	0.65	107	12000	3500K	65	Clear	BU±15°	M1	6	

High Watt Enclosed Rated LAMPS ANSI Type-E

Watts	Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
1000	MH 1000W/U	72051	M47/E	110000	0.65	110	12000	4000K	65	Clear	U	I1	6	
1000	MH 1000W/C/U	88460	M47/E	105000	0.65	105	12000	3700K	70	Coated	U	I1	6	
1000	MH 1000W/U/BT37	15332	M47/E	110000	0.65	110	12000	4000K	65	Clear	U	G1	6	
1000	MS 1000W/BU	89113	M47/E	115000	0.65	115	12000	4000K	65	Clear	BU±15°	I1	6	
1000	MS 1000W/BU/BT37	13090	M47/E	115000	0.65	115	12000	4000K	65	Clear	BU±15°	G1	6	
1000	MS 1000W/HOR/BT37/3K	53702	M47/E	115000	0.75	115	12000	3400K	70	Clear	HOR±45°	Q1	6	
1000	MS 1000W/HOR/BT37/4K	80091	M47/E	110000	0.65	110	12000	4000K	70	Clear	HOR±45°	Q1	6	
1000	MS 1000W/HOR/SPORT 60	47503	M47/E	115000	0.75	115	12000	3400K	70	Clear	HOR±60°	J1	6	
1000	MS 1000W/BU/T25	78952	M47/E	110000	0.60	110	5000	4000K	65	Clear	BU±15°	K1	6	
1500	MH 1500W/HBU	18360	M48/E	161000	0.85	107	3000	3400K	65	Clear	BU±105°	I1	6	
1500	MH 1500W/U/XL	12342	M48/E	170000	0.80	113	6000	4000K	65	Clear	U	I1	6	
1500	MS 1500W/HOR/XP/SPORT 60	82070	M48/E	162000	0.85	108	3000	3400K	70	Clear	HOR±60°	J1	6	
1650	MS 1650W/HOR/XP/SPORT 60	16419	M112/E	177000	0.82	107	3000	3200K	70	Clear	HOR±60°	J1	6	

MAGNETIC BALLASTS 60Hz

Watts	Input Voltage	Product No.	ANSI Code	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Capacitor (µfd/Vmin)	Cap. Fig.	Cap. Type
1000	208	V90P6550T	M47	CWI	1100	5.70	C	P	6	4.50	6.00	31.0	24/480	B12	Oil
1000	600	V90Z6550	M47	CWI	1100	2.00	B	O	6	4.50	6.00	31.0	24/480	B12	Oil
1000	120/208/240/277	V90D6516	M47	CWA	1085	8.80/5.00/4.60/3.90	D/A/B/C	H	5	3.25	5.45	18.5	24/450	B12	Oil
1000	120/208/240/277	V90D6517	M47	CWA	1085	9.00/5.55/4.60/4.00	D/D/C/C	H	6	2.80	4.95	18.5	24/480	B12	Oil
1000	120/277/347	V90J6517	M47	CWA	1075	8.90/3.90/3.15	D/C/D	M	6	2.80	4.90	18.5	24/480		Oil
1000	120/240	V90E6550	M47	CWI	1100	10.00/5.00	F/F	W	6	4.50	6.00	31.0	24/480	B12	Oil
1000	220/240	V905R6510	M47	CWA	1068	4.85/4.60	A/A		6	3.20	5.90	23.0	28/480		Oil
1000	480/120T	V90Y6517T	M47	CWA	1085	2.30	D	V1	6	2.80	4.90	18.5	24/480	B12	Oil
1500	480	V90Y6612T	M48	CWA	1625	3.40	E	V1	6	4.20	6.20	31.0	32/525	B14	Oil
1500	120/208/240/277	V90D6612	M48	CWA	1605	13.40/7.75/6.70/5.80	G/E/E/E	H	6	4.10	6.10	31.0	32/525	B14	Oil
1650	120/208/240	V90C6910	M112	CWA	1760	16.00/9.25/8.00	F/D/C	D	6	4.50	6.55	32.1	32/570	B9	Oil
1650	277/347/480	V90AA6910	M112	CWA	1760	7.00/5.60/4.00	E/F/H	J	6	4.50	6.60	32.1	32/570	B9	Oil

Features

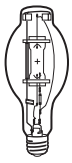
- Reduced jacket options
- Burn positions include universal, horizontal and vertical

Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap

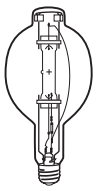
Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25

G1 BT37



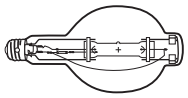
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

I1 BT56



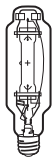
Dia. = 7.0″ (180mm)
MOL = 15.3″ (391mm)
LCL = 9.5″ (241mm)
Base = Mogul (E39)

J1 BT56



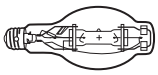
Dia. = 7.0″ (180mm)
MOL = 15.3″ (391mm)
LCL = 9.5″ (241mm)
Base = Mogul POMB (EP39)

K1 T25



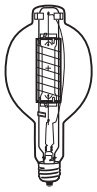
Dia. = 3.1″ (79mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

Q1 BT37



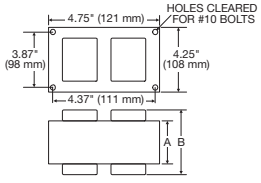
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul POMB (EP39)

M1 BT56

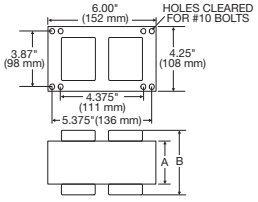


Dia. = 7.0″ (180mm)
MOL = 15.4″ (391mm)
LCL = 9.5″ (241mm)
Base = Mogul (EX39)

5 4x4 Core CWA/CWI



6 4x6 Core CWA/CWI



Probe Start Metal Halide

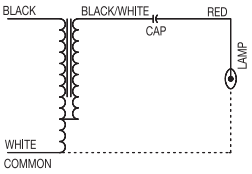
STANDARD PROBE START METAL HALIDE LIGHTING SYSTEMS

Wiring Diagrams

Wiring diagrams for all of Venture's standard probe start metal halide ballast products are provided on this page. The ballast data tables indicate the reference letter corresponding to the correct diagram for each ballast product. Refer to the table for the required ballast before referencing any diagram.

The wiring diagram is the blueprint for the ballast circuitry, including the input supply voltage and grounding methods. A ground connection must be made to all ballasts to avoid shock hazard, personal injury or damage to the luminaire or installation. Ballast installations and groundings should be made in accordance with all applicable government codes and regulations where required.

B



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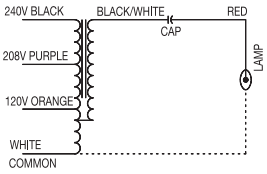

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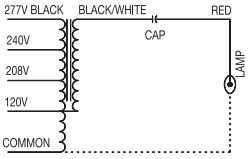
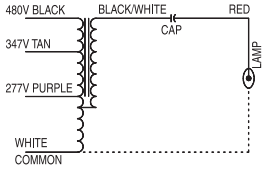


J



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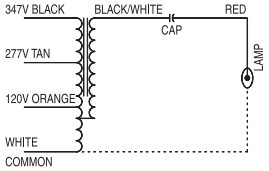

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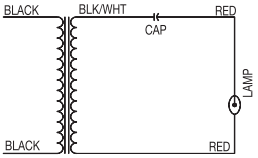

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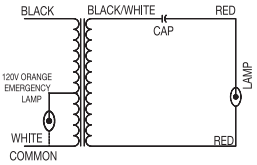

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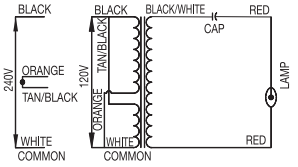
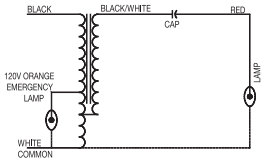


V1



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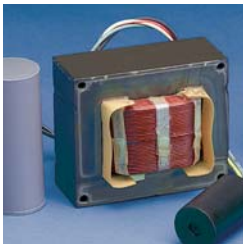
High Pressure Sodium Ballasts

Venture's ballast products represent many years of experience in ballast design and manufacturing. Venture offers ballasts for all HID lighting sources including standard probe start and pulse start metal halide lamps and high pressure sodium (HPS) lamps.

For the most complete product listings and current up-to-date information, visit us on-line at VentureLighting.com

35W - 200W HPS Ballasts

High Pressure Sodium Systems



Benefits

- Wide range of wattages
- Compliance with North American standards

35 WATT High Pressure Sodium BALLASTS 60Hz ANSI S76

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120	V90B1020	R-NPF	45	0.85	A	U1	1	0.90	2.15	2.0	-	-	N/A	D	12
120	V90B1020C	R-HPF	45	0.65	A	U1	1	0.90	2.15	2.0	16/120	A7	Dry	D	12
347	V90V1030	HX-HPF	54	0.30	A	X	4	0.70	2.00	4.0	4.5/300	B1	Oil	D	3
120/240	V90E1030	HX-HPF	54	0.80/0.40	D/C	Z	4	0.67	2.00	4.0	4.5/660	B1	Oil	D	3

50 WATT High Pressure Sodium BALLASTS 60Hz ANSI S68

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120	V90B1120	R-NPF	65	1.20	A	U1	1	1.15	2.35	2.0	-	-	N/A	D	12
120	V90B1120C	R-HPF	65	0.85	A	U1	1	1.15	2.35	2.0	22.5/120	A2	Dry	D	12
347	V90V1131	HX	75	0.45	D	X	4	0.80	2.05	4.0	6/330	A5	Dry	D	12
120/240	V90E1131	HX-HPF	76	1.20/0.60	F/F	Z	4	0.80	2.00	4.0	6/330	A5	Dry	D	12
120/240	V90E1151	CWI	73	0.65/0.35	A/A	V	4	1.00	2.40	5.0	17/340	B4	Oil	E	12
120/277	V90H1132	HX-HPF	66	1.00/0.45	A/A	Q1	4	1.00	2.40	3.6	5/280	A1	Dry	D	5

70 WATT High Pressure Sodium BALLASTS 60Hz ANSI S62

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120	V90B1222	R-NPF	85	1.70	B	U1	2	1.29	2.55	3.0	-	-	N/A	D	12
120	V90B1222C	R-HPF	85	1.30	B	U1	2	1.29	2.30	3.0	28/120	A3	Dry	D	12
600	V90Z1252	CWI	96	0.15	A	N	4	1.65	3.25	6.0	24/330	A2	Dry	E	12
208	V90P1252	CWI	96	0.50	A	N	4	1.65	3.25	6.0	24/330	A2	Dry	E	2
120/208/240/277	V90D1233	HX-HPF	90	1.50/0.85/0.75/0.65	A/A/A/A	Y	4	1.50	2.95	4.6	7/280	A5	Dry	D	5
120/240	V90E1250	CWI	83	0.75/0.40	A/A	V	4	2.15	3.15	8.0	26/280	A2	Dry	E	12
120/240	V90E1252	CWI	96	0.88/0.44	A/A	U	4	1.65	3.25	6.0	24/330	A2	Dry	E	12
120/277/347	V90J1232	HX-HPF	91	1.50/0.65/0.55	D/D/D	A1	4	1.10	2.50	4.0	7/280	A5	Dry	D	12

100 WATT High Pressure Sodium BALLASTS 60Hz ANSI S54

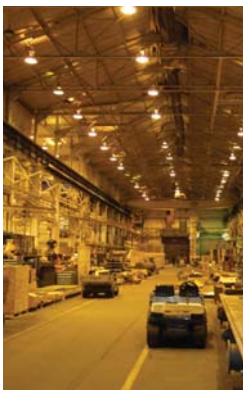
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120	V90B1322	R-NPF	118	2.15	E	U1	2	1.48	2.75	3.0	-	-	N/A	D	12
120	V90B1322C	R-HPF	118	1.75	E	U1	2	1.50	2.45	3.0	40/120	A3	Dry	D	12
600	V90Z1352	CWI	132	0.25	D	N	4	2.15	3.15	8.0	35/280	A2	Dry	E	12
120/208/240	V90C1353	CWI	130	1.20/0.70/0.60	B/A/A	T	4	2.15	3.50	6.7	35/180	A2	Dry	E	5
120/208/240/277	V90D1333	HX-HPF	126	2.10/1.20/1.05/0.90	A/A/A/A	Y	4	2.00	3.45	5.9	10/280	A6	Dry	D	5
120/240	V90E1350	CWI	121	1.05/0.50	A/A	V	4	2.50	3.50	9.0	42/280	A3	Dry	E	12
120/277/347	V90J1332	HX-HPF	127	1.85/0.85/0.65	C/C/C	A1	4	2.32	3.70	8.0	9/290	A5	Dry	D	12

150 WATT High Pressure Sodium BALLASTS 60Hz ANSI S55

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120	V90B1422	R-NPF	166	3.20	E	U1	2	2.00	3.30	4.0	-	-	N/A	D	12
120	V90B1422C	R-HPF	166	2.45	E	U1	2	2.00	3.05	4.0	52/120	A4	Dry	D	12
480	V90Y1454	CWI	186	0.40	D	N	4	3.15	4.55	11.0	51/180	A4	Dry	E	3
120/208/240	V90C1454	CWI	190	1.70/1.00/0.85	B/A/A	T	4	3.15	4.60	9.5	51/180	A4	Dry	E	5
120/208/240/277	V90D1435	HX-HPF	188	2.80/1.60/1.40/1.25	D/B/C/C	Y	4	2.50	3.80	7.4	14/280	A1	Dry	D	10
120/277/347	V90J1434	HX-HPF	185	3.15/1.30/1.10	D/B/C	A1	4	2.50	3.95	8.0	13.5/290	A1	Dry	D	12
347/120T	V90V1454T	CWI	186	0.6	B	A2	4	3.15	4.55	11.0	51/280	A4	Dry	E	12
600/120T	V90Z1454T	CWI	186	0.35	C	A2	4	3.15	4.55	11.0	51/280	A4	Dry	E	12

200 WATT High Pressure Sodium BALLASTS 60Hz ANSI S66

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
347	V90V1650	CWI	241	0.75	F	N	5	1.33	3.00	10.0	22.5/330	A2	Dry	E	12
120/240	V90E1650	CWI	241	2.05/1.05	D/D	V	5	1.33	3.00	10.0	22.5/330	A2	Dry	E	12



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250W - 1000W HPS Ballasts

High Pressure Sodium Systems

250 WATT High Pressure Sodium BALLASTS 60Hz ANSI S50

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120/208/240/277	V90D1711	CWA	295	2.50/1.45/1.25/1.10	B/B/B/B	E	5	1.80	3.60	11.0	35/240	A2	Dry	D	2
120/240	V90E1750	CWI	300	2.55/1.28	F/F	V	5	1.65	3.75	12.0	28/330	A3	Dry	E	12
120/277/347	V90J1711	CWA	295	2.70/1.15/0.95	B/A/B	K	5	1.80	3.60	11.0	35/240	A2	Dry	D	2
480/120T	V90Y1711T	CWA	305	0.65	B	S1	5	1.80	3.60	11.0	35/240	A2	Dry	D	2
600/347	V90AS1750	CWI	300	0.50/0.90	C/E	Z1	5	1.65	3.75	12.0	28/330	A3	Dry	E	2

400 WATT High Pressure Sodium BALLASTS 60Hz ANSI S51

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120/208/240/277	V90D1912	CWA	460	3.80/2.20/1.90/1.70	C/C/D/C	E	5	2.30	4.20	14.0	55/240	A4	Dry	D	2
120/240	V90E1950	CWI	470	4.05/2.03	F/F	V	5	2.45	4.30	14.6	45/330	A4	Dry	E	2
120/277/347	V90J1911	CWA	460	3.80/1.70/1.30	C/C/D	K	5	2.30	4.20	14.0	55/240	A4	Dry	D	2
208/120T	V90P1950T	CWI	470	2.35	D	A2	5	2.45	4.30	14.6	45/330	A4	Dry	E	2
600/347	V90AS1950	CWI	450	0.80/1.40	D/H	Z1	5	2.45	4.30	14.6	45/270	A4	Dry	E	2
480/120T	V90Y1912T	CWA	464	1.00	C	S1	5	2.60	4.45	15.0	55/240	A4	Dry	D	15

430 WATT High Pressure Sodium BALLASTS 60Hz ANSI S145

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120/208/240	V90C2050	CWI	492	4.55/2.65/2.25	B/B/A	T	5	2.60	4.50	15.7	45/260	A4	Dry	E	2

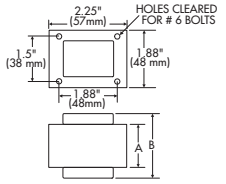
600 WATT High Pressure Sodium BALLASTS 60Hz ANSI S106

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120/208/240/277	V90D2111	CWA	695	5.85/3.25/2.95/2.55	A/A/A/A	Y1	6	3.40	5.40	24.5	59/300	A14	Dry		15

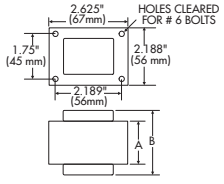
1000 WATT High Pressure Sodium BALLASTS 60Hz ANSI S52

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
600	V90Z2353	CWI	1095	1.90	A	N	6	5.50	7.25	40.0	22/660	B15	Oil	F	12
120/208/240/277	V90D2311	CWA	1100	9.50/5.50/4.75/4.20	C/B/C/C	E	6	3.75	5.90	27.0	26/525	B12	Oil	F	5
120/208/240/277	V90D2315	CWA	1065	9.25/5.10/4.70/4.05	C/C/C/C	E	6	3.80	5.90	25.5	26/480	B12	Oil	F	5
120/240	V90E2353	CWI	1095	9.50/4.75	A/C	V	6	5.50	7.25	40.0	22/660	B15	Oil	F	12
120/277/347	V90J2310	CWA	1065	8.95/3.90/3.15	E/E/E	K	6	3.80	6.00	28.0	26/480	B12	Oil	F	5
480/120T	V90Y2311T	CWA	1100	2.30	C	S1	6	3.90	5.90	28.8	26/525	B12	Oil	F	2

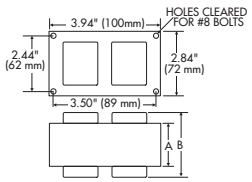
1 3/4 in Core — REACTOR



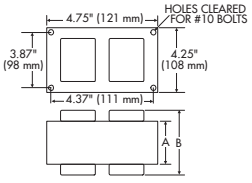
2 7/8 in Core — REACTOR



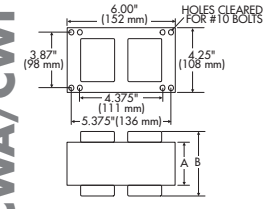
4 3x4 Core — HX/CWA/CWI



5 4x4 Core — CWA/CWI



6 4x6 Core — CWA/CWI



Applications

- Street Lighting
- Architectural Lighting
- Warehouses

Ballast Options

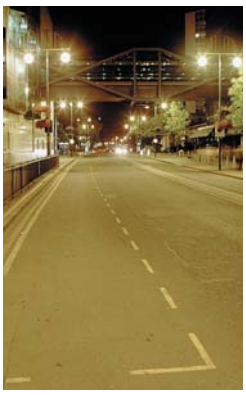
Add Suffix for Options:

C - With Capacitor (Standard)

K - With Capacitor and Bracket Kit

B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. t21
Brackets and Kit Fig.: pg. t26
Wiring Dia.: pg. t24-25



HPS Ballasts

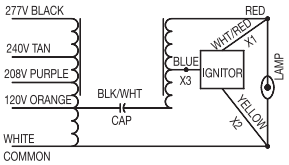
High Pressure Sodium Systems

Wiring Diagrams

Wiring diagrams for all Venture's high pressure sodium ballast products are provided on this page. The ballast data tables indicate the reference letter corresponding to the correct diagram for each ballast product. Refer to the table for the required ballast before referencing any diagram.

The wiring diagram is the blueprint for the ballast circuitry, including the input supply voltage and grounding methods. A ground connection must be made to all ballasts to avoid shock hazard, personal injury or damage to the luminaire or installation. Ballast installations and groundings should be made in accordance with all applicable government codes and regulations where required.

E



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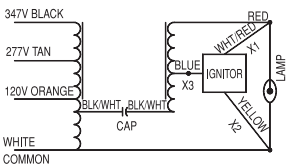

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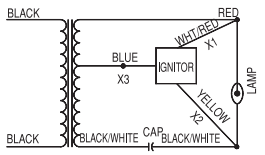

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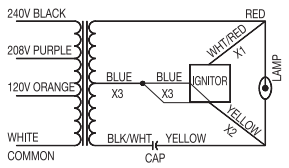

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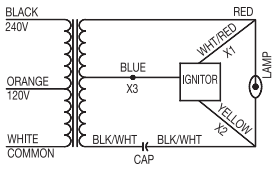

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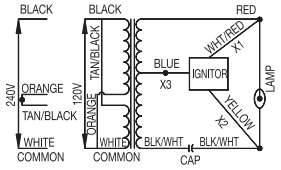

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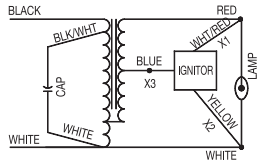

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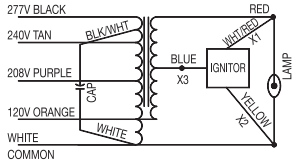

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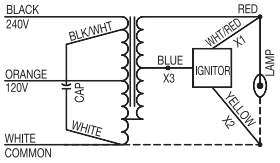

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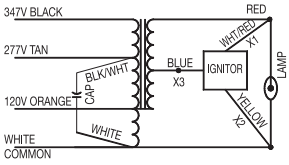

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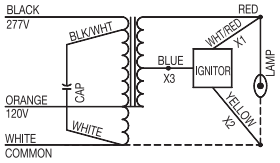

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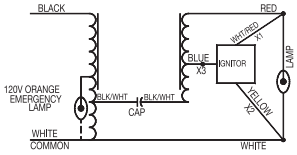

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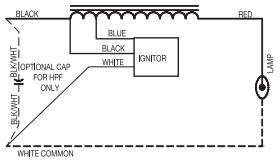

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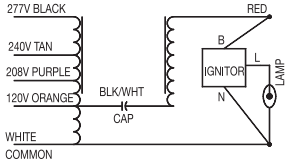

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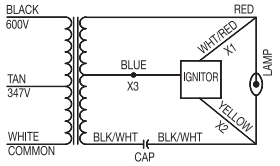

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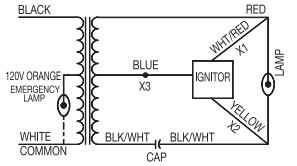

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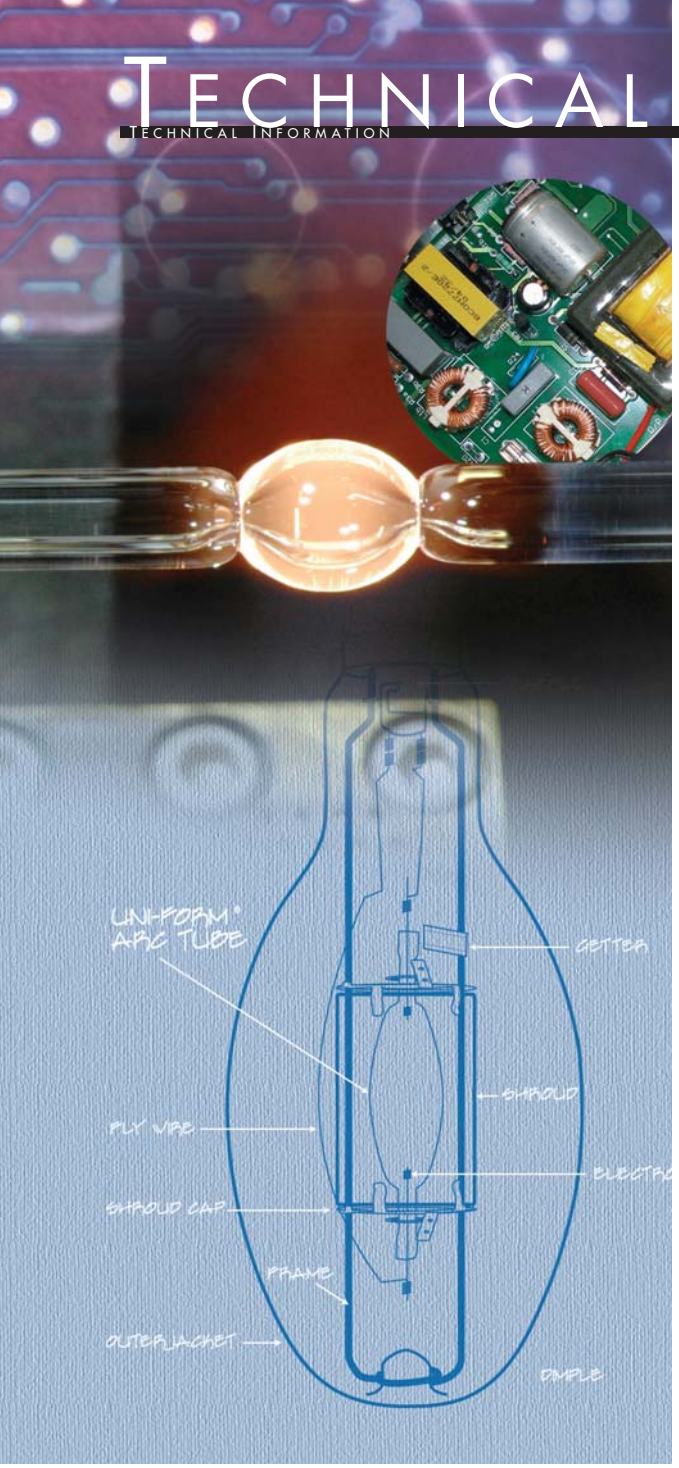


Introduction

Venture Lighting manufactures both lamps and ballasts to industry standards. Moreover, Venture optimizes its lamps and ballasts for peak system performance that goes beyond the standards. This is reflected in Venture's warranty policy when Venture lamps and ballasts are used together. Consensus standards among lamp and ballast manufacturers assure compatibility of various lighting components. In North America, ANSI standards are used, while internationally, IEC standards are used. These standards assure that lamps and components from different manufacturers work together. They describe lamp dimensional factors as well as thermal and electrical requirements

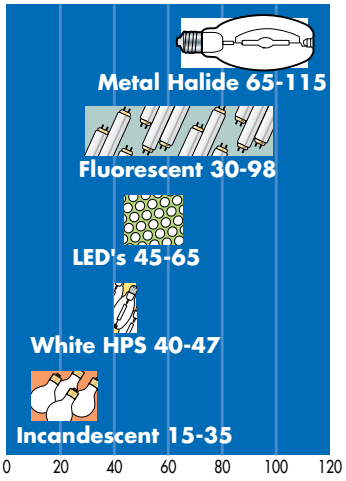
About Venture's Energy Saving Lighting Systems

Characteristics

The unique characteristics of Uni-Form® pulse start metal halide lighting provide high performance features such as:

- **Long Life:** Venture metal halide lamps have an average life rating of 20,000 - 40,000 hours, comparable to fluorescent and LED lighting systems. Venture's *Uni-Form*-SPL lamps have 40,000 hours life ratings.
- **Better Light Quality:** The output of metal halide lamps is closer to natural sunlight than most other light sources. People prefer white light because of better visual acuity, even at lower light levels.
- **Excellent Color Rendering:** Metal halide lamps offer excellent color rendering, with a 68-90+ CRI (color rendering index).
- **Compact Size:** Metal halide lamps generate high light levels from a compact light source. This allows for smaller, more controllable luminaires.
- **Versatility:** Metal halide lamps are unaffected by ambient temperature and are equally suited for indoor or outdoor use. Extensive style and wattage options allow for many applications.
- **High Efficiency:** Metal halide lamps generate up to 115 lumens per watt, more than fluorescent or LED lamps.
- **Positive Environmental Impact:** Since metal halide lighting systems deliver light more efficiently than other systems, widespread acceptance of the technology has a positive effect on air quality and the environmental waste stream. Lower electrical power generating requirements means less air pollution and efficient long-life systems mean less landfill waste.

Lumens Per Watt
White Light Sources



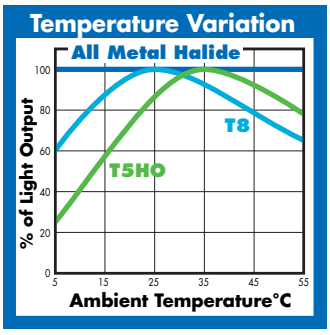
Comparison of Light Technology

TECHNICAL INFORMATION

Technology Goes Head-to-Head

MH vs. HPS

While HPS lamps feature good performance, they do not deliver the same light quality as metal halide lamps. Because of their sodium content, HPS lamps yield strong yellow light (2200K) and have a very poor CRI of 20-25. The full spectrum light of metal halide lamps has a much higher CRI.



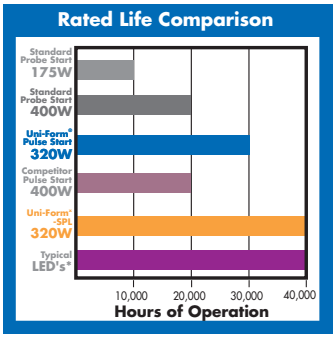
Less Temperature Variation

Metal halide technology is not affected by temperature, compared to fluorescent lighting that has an optimal temperature point.

MH vs. Fluorescent

Fluorescent lamps are difficult to direct because of their larger size. One 100watt pulse start metal halide lamp produces the same light as three 48" high output T8 fluorescent lamps. Metal halide lamps also tolerate a wider operating temperature range. Fluorescent lamps are often limited to temperature-controlled indoor applications: T8 fluorescent lamps perform optimally at approximately 77°F (25°C), degrading measurably as temperature varies. T5 lamps perform similarly, but peak at 95°F (35°C).

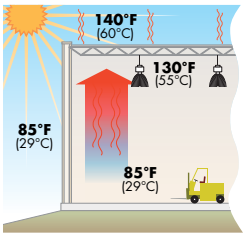
MH vs. LED



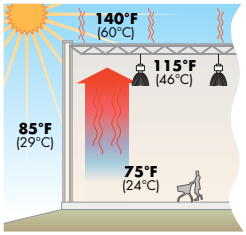
** Typical data is rated above 40,000 hours but there is inconclusive proof of validity of manufacturer's claims*

Venture's *Uni-Form*-SPL (Super Pulse Start Long Life) product provides the same light performance of a typical pulse start metal halide product within its class, yet it will have twice the life. Up to 40,000 hours can be achieved which is comparable to current LED claims. That's over 10 years of life at 10 hours of operation per day.

Warehouse



Big Box Retail



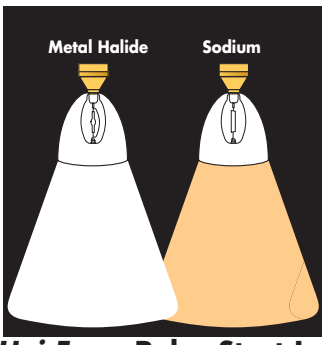
Wider Range of Applications

Specifiers can now select from a broad variety of lamp types and wattages to suit almost any application. Metal halide lighting is used today indoors and out, for industrial, commercial, retail and municipal spaces. Popular for sports facilities and site lighting, it is increasingly found in supermarkets, big box retail, and building lobbies.

The Most Advanced Technology

A major advancement in metal halide lighting was the introduction of Venture's revolutionary Uni-Form® pulse start system. This second generation technology holds the future for metal halide.

Uni-Form systems offer up to 50% more lumens per system watt than do standard probe start metal halide lamps and ballasts. Its capabilities continue to improve. Venture offers *Uni-Form* lamps optimized for both vertical and horizontal operation.



Metal halide generates light that is closer to sunlight than any other HID light source.

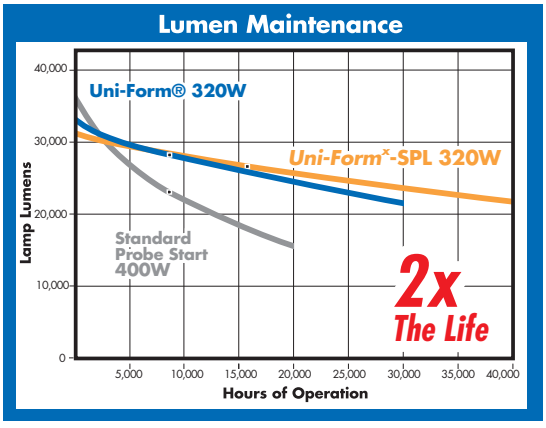
Uni-Form Pulse Start Lamp Technology

Uni-Form lamps provide superior performance compared to standard probe start metal halide lamps. The specific benefits are higher efficacy, better color uniformity, faster warm-up, improved lumen maintenance and longer life. It all begins with Venture's revolutionary formed-body arc tube.

One key to superior lamp performance is heat management. In standard probe start, pinched cylindrical arc tubes, uneven heating prevents optimum arc enhancement of the metal halide salts. Venture created an exclusive formed-body arc tube, sculpted to follow the actual curve of the arc stream. The shape creates a more uniform temperature profile. Higher temperatures draw more halides into the stream, resulting in more light output. Venture's unique sculpting process molds each arc tube for improved color uniformity.

System Solutions

Venture's pulse start system technology, actualized in *Uni-Form* lamps and efficient ballasts, represents advancement nearly as important as the invention of the metal halide lamp itself. These changes in arc tube design, lamp construction and the ballast enhance overall system performance. This metal halide focus allows Venture to offer a vast array of integrated packages, providing optimum lighting efficacy and quality for virtually any application.



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Pulse Start Technology

TECHNICAL INFORMATION

High Performance Design

Formed-Body Arc Tube

The profile of Venture's formed-body quartz arc tube follows the actual shape of the arc stream, preventing uneven temperatures in the arc tube surface. This significantly improves lamp performance by boosting more halides into the arc, thus emitting more light.

High Voltage Pulse Ignition

High voltage pulse starting eliminates the starter electrode, bi-metal switch and resistor of standard probe start lamps. It also provides quicker breakdown of gases, so starting (cold and hot) is faster.

Higher Fill Pressure

Venture's formed-body design and pulse ignition support a higher arc tube fill gas pressure that helps to reduce wall blackening caused by tungsten sputtering from the electrodes during starting.

Weldless Arc Tube Mount

Venture's nearly unbreakable, patented weldless construction is stronger than conventional welded mounts.

Low Crest Factor

The lower current crest factor in the electrical output of Venture's single voltage hybrid reactor ballasts improves lamp lumen maintenance. Ballast energy losses are reduced by as much as 50% compared to standard CWA ballasts, and ballast noise levels are significantly reduced.

High Performance Results

Superior Lumen Maintenance

Uni-Form® lamp lumen output does not decay as rapidly over life as standard probe start metal halide. Mean lumens improve dramatically, up to 50% higher, with lamps operating on Venture's reactor and electronic low current crest factor ballasts.

Longer Life

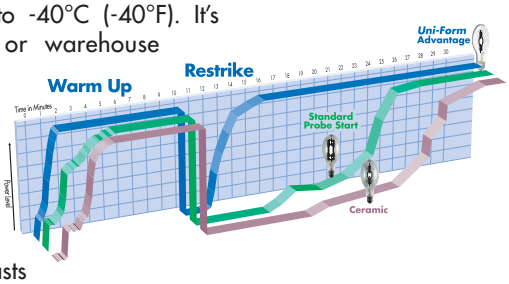
Uni-Form systems offer up to 100% [*Uni-Form*-SPL] longer lamp life along with improved lumen maintenance. This directly benefits end-users by reducing lifetime operating costs.

Color Uniformity

Lamp-to-lamp color variations occur due to arc tube temperature differences and poor power regulation. Venture minimizes variation through consistent thermal characteristics in every arc tube and better power control from Venture ballasts.

Better Cold Starting

Uni-Form technology offers more reliable starting at extreme temperatures, down to -40°C (-40°F). It's perfect for winter weather or warehouse freezer conditions.

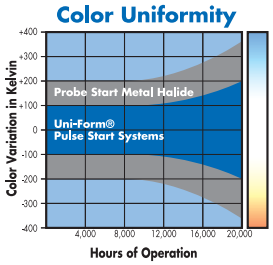


Faster Warm-Up/Restrike

Combining Venture's exclusive formed-body arc tube and ignitor starting with Venture's low current crest factor ballasts provides up to 60% faster initial warm-up and hot restrike.

Improved Lamp Power Control

The well-regulated output power of Venture's ballasts improves color uniformity and lumen maintenance.



Quieter Operation

Venture's single voltage hybrid reactor ballasts run at least 25% quieter than comparable CWA ballasts due to non-saturation of the core.

Ventronic™ Ballast For Improved Performance

Venture's *Ventronic* line of electronic ballasts set the Gold Standard in ballast performance with an optimized current wave form. To maximize your pulse start metal halide system, specify *Ventronic* ballasts.

Bottom Line: More Light for Less Energy

Uni-Form pulse start technology exceeds expectations.

More light for less energy makes *Uni-Form* pulse start lamps the most logical lighting choice for designers and corporate energy managers seeking to drastically cut power bills. Compared to other lighting technologies, Venture's *Uni-Form* pulse start systems offer improvement in system mean lumens per watt. In practical applications, the higher efficiency can translate into a savings of more than 100 watts per luminaire! And that savings is achieved while still producing the same, or more, high quality light.

Lamp Technology

TECHNICAL INFORMATION

Light Output

The light output of a lamp is measured in lumens. Lamp lumens are measured by operating the lamp on a reference ballast in the designed operating position at the rated lamp wattage. Though initial lumen ratings at 100 hours are frequently the basis for comparing light sources mean lumens, determined at 8000 hours in most cases but up to 40% of rated lamp life in others, are the most important. Mean lumen ratings are based upon lamp operation at 10 or more hours per start (except where noted).

Lumen maintenance curves represent the lamp manufacturer's estimate of the best lamp lumen output plotted over time. Typically, each group of lamps tested will display a range or scatter of lumen maintenance values at each interval measured. Therefore, individual lamps may vary from published mean lumen ratings.

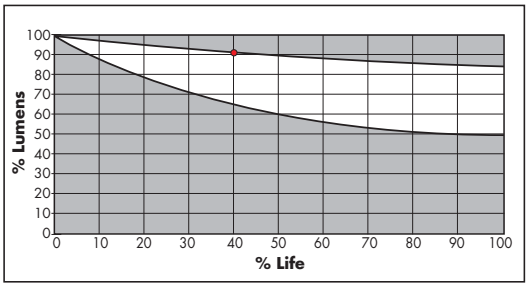
System Performance Factors in Lighting Design

Optimized Conditions	*Light-Reducing Conditions*
Pulse start lamps	Standard probe start lamps
Vertical operating position	Horizontal or off-vertical operating positions
Operating cycles > 10 hours	Short operating cycles <10 hours
Low current crest factor (CCF) ballasts	High CCF ballasts
Clear lamps	Coated lamps
UV-blocking lamps	Non-UV-blocking lamps
Open luminaires	Enclosed luminaires

Many factors affect the performance of metal halide lamps over time. Most of these factors are controllable in the design of the lighting system. Incorporating as many of the optimized conditions as possible will deliver the best performance from any given metal halide lighting system. More light-reducing conditions present in the design of the lighting system create a gap between published "optimized" ratings and actual lighting system performance - the greater the light reducing conditions, the greater the gap.

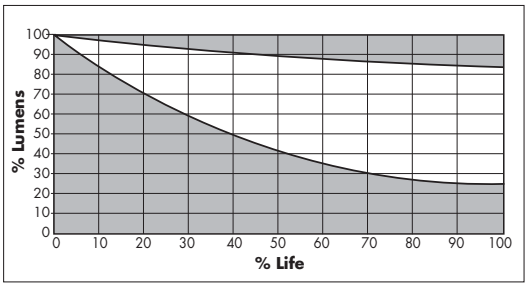
For example, Venture's *Uni-Form* lamps, operated on a low current crest factor single voltage hybrid reactor ballast with other optimized conditions, can be expected to deliver mean lumens approaching 80%. In contrast, a standard probe start metal halide system operating under light-reducing conditions may deliver only 50% lumen maintenance.

Uni-Form® Pulse Start Lumen Maintenance



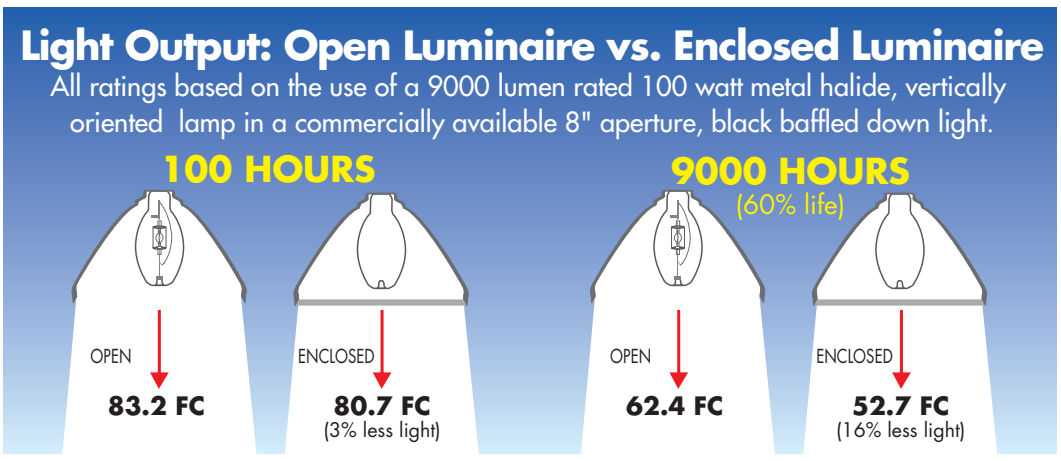
Even within the *Uni-Form* system, you can expect a range of lumen maintenance from 70% to 80%. Performance will vary depending on the number of light-reducing conditions present. By selecting a *Uni-Form* lamp, a low current crest factor single voltage hybrid reactor ballast, and optimizing the system conditions, significant improvements in lighting system performance can be achieved.

Range of Metal Halide Lumen Maintenance



Light Output: Open Luminaire vs. Enclosed Luminaire

All ratings based on the use of a 9000 lumen rated 100 watt metal halide, vertically oriented lamp in a commercially available 8" aperture, black baffled down light.



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Lamp Technical Information

Color

The "color" of light sources is comprised of a complicated relationship derived from a number of different measurements including correlated color temperature (CCT), color rendering index (CRI), and spectral distribution. In general, color is usually described by both CCT and CRI.

Correlated Color Temperature (CCT)

One of the first factors in choosing a lamp color is the correlated color temperature. For example, if a retailer wants lighting to blend in with warm halogen accent lamps, they may choose a Venture Lighting® MP 100W/C/U/3K lamp which has a correlated color temperature of 3200K. CCT is defined as the absolute temperature (expressed in kelvins) of a theoretical black body whose chromaticity most nearly resembles that of the light source. The CCT rating is an indication of how "warm" or "cool" the light source appears. For higher numbers, the lamp color appears cooler. For lower numbers, the lamp color appears warmer.

Spectral Energy Distribution

When we look at a light source, the eye "perceives" a single color. In reality, we are seeing literally thousands of colors and hues made up of a combination of different wavelengths of light. These different combinations, and the relative intensity of various wavelengths of light, are used to determine the CCT and CRI of a light source.

Different Colors

Venture Lighting offers lamps in many colors to suit virtually any lighting application. Outlined below are the various color temperatures (CCT) currently available:

3K **3000K-3200K** - Used as a general warm white light source. It is available in clear or coated finish for retail or interior applications; blends with halogen lamps

4K **3700K-4000K** - Used as a neutral white light source. It is available in clear or coated finish for general lighting, factories, parking lots and warehouses

5K **5000K** - A moderately high CCT daylight source used in general and retail lighting applications

6K **6500K** - A high CCT daylight source used to simulate average outdoor light conditions

10K **10,000K** - A very high CCT, daylight light source, used in horticulture and aquarium applications

Color Rendering Index (CRI or Ra)

In general, CRI is a numeric indication of a lamp's ability to render individual colors accurately relative to a standard. Comparing the colors of 8 different color objects as they appear using a test light source and a reference light source derives the CRI value.

High CRI vs. High CCT

High CRI does not necessarily equate to good color. For example, when comparing a light source with low CRI at a high illuminance level with another light source that has high CRI but at a low illuminance level, the respective value of CRI means very little in terms of accurately identifying colors. In many instances, the personal preference of the consumer is even more important than the specific CRI level.

By definition, a standard 2700K incandescent bulb has a CRI of 100 even though its light output is yellow. This is because the incandescent lamp is utilized as the reference standard for determining the CRI of most light sources. However, for lamps with color temperatures of at least 5000K, the reference standard is daylight. For example Venture's Natural White® pulse start metal halide lamps are 5000K and have CRI of greater than 90 even though it looks much whiter than the incandescent lamp.

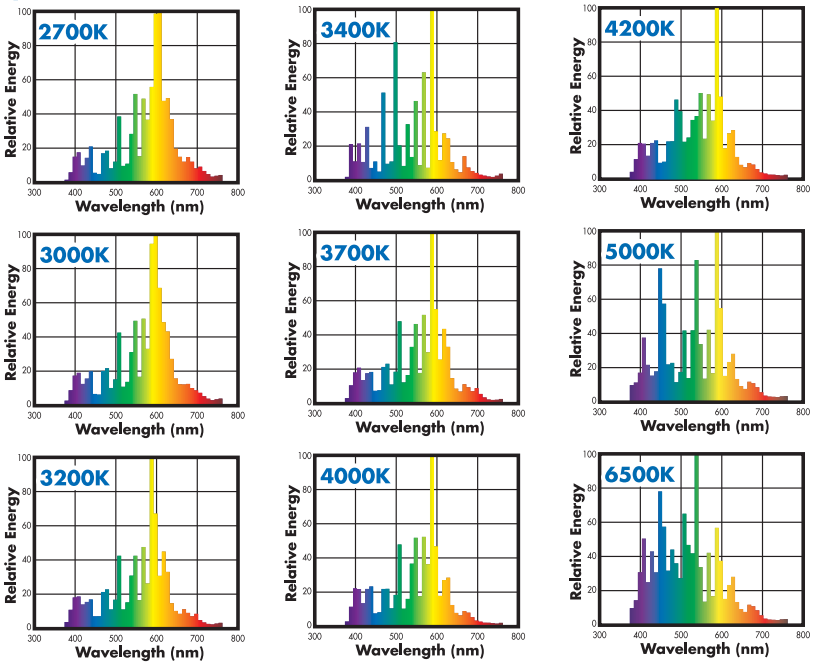
Color Shift and Variation

Different colors are produced in metal halide lamps by using various arc tube shapes and metal halide salts. In new lamps, these halides need to "burn-in" for approximately 100 hours before they reach their optimum color. This is why new lamps can sometimes be unstable or vary in color. As metal halide lamps age, chemical changes occur causing shifts in color.

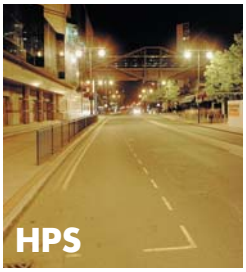
Why Color Uniformity?

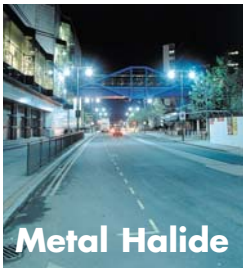
- It creates a better atmosphere for customers and employees! - Whiter, brighter light makes people feel safer, more relaxed and more productive
- We see colors better!
- Lights of the same color appear to be better maintained

Spectral Distribution



Lamp Technical Information





Lighting Design for Low Light Levels

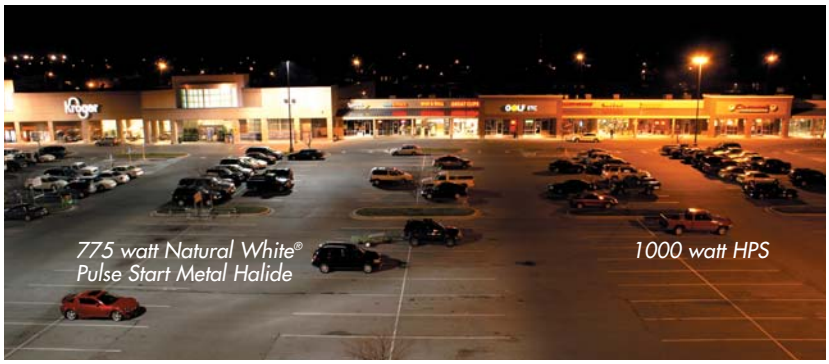
Studies on nighttime visibility demonstrate experimentally that the sensitivity of the human eye to different colors of light at various light levels determines the true, or effective, lumen output of a lamp. Recent research shows that the color output of the light source has a significant effect on nighttime visibility, which is important because road accidents occur mostly at night. Also, it is well known that the eye's response to color depends upon the amount of light available.

Photopic, Scotopic and Mesopic Conditions

Lumens are the standard measure of light output, but light is actually defined as radiant energy evaluated by the eye. Standard lumen measurements define the light output response of a person only during high light levels (called photopic light) typical of daylight and interior lighting. The light meter measures photopic light as seen by the central region of the eye.

When light levels are very low, like starlight, the viewing conditions are referred to as "scotopic." Under these conditions, the eye's visual response changes dramatically. Sensitivity to yellow and red light is greatly reduced, while response to blue light is vastly increased. If lamp lumens under scotopic viewing conditions have been determined using photopic measuring devices, the lumen value does not accurately measure the true amount of light production as perceived by the human eye.

The eye response does not shift suddenly from high light levels to low light levels. A gradual change occurs as light levels are reduced in twilight and typical street lighting conditions. This is the "mesopic" condition in which the eye's response lies somewhere between photopic and scotopic.



Rods And Cones

The change in the eye's spectral response is due to the presence of two types of light receivers in the retina, called rods and cones. Rods are responsible for human vision at low light levels and are located in the peripheral field of view. Conversely, objects viewed at high light levels directly by the eye are seen by the cones. Rods are sensitive to scotopic light (nighttime); cones react to photopic light (daylight). Therefore, as the light level is reduced, cones become less active and rods become more active.

Rods:

- Responsible for human vision at low light levels
- Located in the peripheral field of view
- Sensitive to scotopic (nighttime) light
- Become more active as light levels are reduced

Cones:

- Responsible for human vision at high light levels
- Located in the direct field of view
- React to photopic (daytime) light
- Become less active as light levels are reduced

What Are Scotopic Lumens?

Nighttime Observations

Published lumen ratings are based on the "photopic" lumen ("P"), or light measurement based on daytime observations. Lumen measurements, corrected for nighttime vision, are known as "scotopic" lumens ("S"). The ratio of light measured by the 2 methods is called the "S/P ratio". The S/P ratio for white-blue (5000K daylight) light sources is 2.1. At 4000K the ratio is 1.7, and for HPS lamps the ratio is 0.64. As a result, 4000K light sources are at least twice as effective for viewing at night compared to HPS sources at the same photopic luminance. 5000K light sources are at least three times as effective.

Daytime Observations

Lamps with high scotopic content and high S/P ratios, such as Venture's Natural White® lamps, also improve the ability to see indoors. Human studies have shown that the S/P values, though previously applicable to only nighttime conditions, can be used to describe the "effective lumens" of indoor lighting as well. For example, if two identical objects in 2 different rooms are lighted separately with 4000K and 5000K lamps to equal photopic luminance, the 5000K room will appear 21% brighter (2.1/1.65)0.78.

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Lamp Technical Information

Eye Color Sensitivity And Lumens

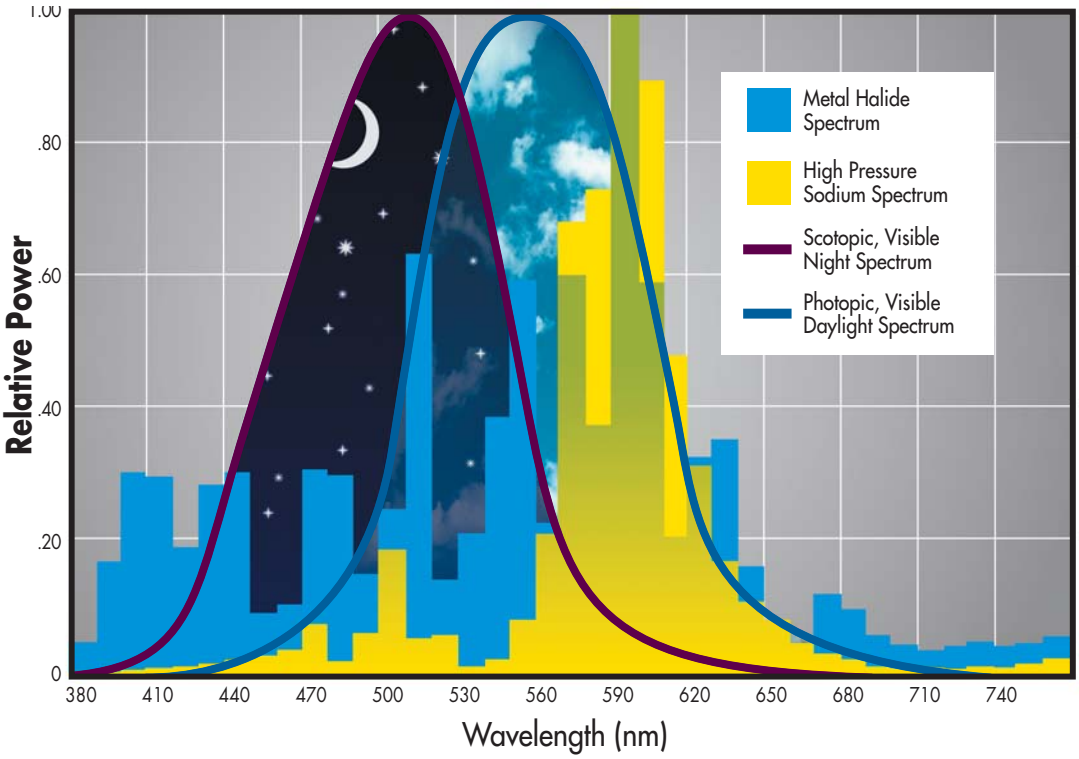
The value of a lamp's lumen output is different when considering the shifting color sensitivity of the eye at low light levels. The effective lumens will be different from the measured photopic lumens. As light diminishes from photopic to scotopic conditions, the effective lumens of yellow HPS light sources are reduced and the effective lumens of white light with blue/green content increase.

This effect is dramatic for low pressure sodium (LPS) lamps. Almost all energy output from this lighting system is yellow, resulting in high photopic lumen output. At low light levels, the effectiveness of LPS lamps is drastically reduced.

Metal Halide Lamps For Low Light Levels

A typical metal halide lamp has strong light output in the blue, green and yellow areas, resulting in high lumen output at all light levels. The blue light output of metal halide is in the high sensitivity region of the eye for low light levels. This means that the effective lumens actually increase for a metal halide lamp as the light level reduces and the eye shifts to a blue/green peak sensitivity.

The ability to detect objects is also significantly better under metal halide sources than sodium. In street lighting, driver reaction time under LPS and HPS lighting is roughly 50% longer than for metal halide. Therefore, the color output of a light source has an important influence on safety. Studies have shown that metal halide lighting, in some circumstances, can be up to six times as effective as HPS. This can make a difference in peripheral viewing and in dark areas where hidden hazards may be present.



Eye Sensitivity

- HPS lamps have high lumen ratings at daytime vision light levels, but significantly less light at night vision levels
- Metal halide produces high scotopic lumen output at all light levels - The right light at any time!

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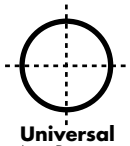
Lamp Technical Information

Positions of Operation

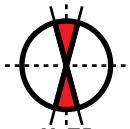


Universal
Any Position

Vertical ±15°

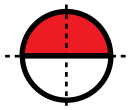
HOR ±15°
Horizontal

HOR ±45°
Horizontal



H±75°
Horizontal

BU ±15°
Base Up



BU ±90°
Base Up

BU ±105°
Base Up

Proper Use of Metal Halide Lamps

Correct Operation and Warnings For High Intensity Discharge Lamps:

High intensity discharge (HID) lamps require auxiliary equipment (ballasts, capacitors, ignitors, power supplies) to provide the correct electrical values for starting and operating. This auxiliary equipment must meet all electrical specifications outlined by the American National Standards Institute (ANSI). Venture Lighting International will not be responsible for poor performance, personal injury, property damage, burns or fire from lamps operating on unapproved auxiliary equipment or from lamps being operated in a manner inconsistent with their design.

Power should always be turned off and preferably locked out in accordance with OSHA guidelines whenever installation, removal or maintenance is performed on lighting systems. Safety glasses and gloves should be used when installing or removing HID lamps. Lamps should be installed firmly into appropriate lamp sockets, without over tightening, to avoid loosening from vibration.

HID lamps and arc tubes operate at extremely high temperatures and may shatter as a result of misapplication, system failure or other factors. Scratches on the outer bulb, direct contact with water, or excessive installation pressure can also cause the lamps to break. Breakage may release extremely hot glass and lamp parts into the surrounding environment and raise the risk of fire, personal injury or property damage. Injury may also be caused by ultraviolet energy from an unjacketed HID lamp. If the outer jacket should break, immediately turn the power off. Do not remove a lamp until it has completely cooled; then replace it with a new Venture Lighting® lamp. In areas susceptible to contamination by flying glass, where flammable materials are present, or where there is a possibility of personal injury, users should seek additional protective measures by using open fixture (Type-O) lamps and enclosed luminaires.

Luminaire Requirements and Operating Positions

It is imperative that users adhere to specified luminaire and lamp operating positions and requirements. The operation of lamps in positions other than those specified can result in severe reductions in lamp performance, including lamp life, light output and color. Incorrect operating positions can also create the possibility of an early failure.

Refer to each lamp's technical data specification sheet to determine correct operating position and luminaire requirements. Also, refer to the diagrams on this page to determine allowable operating positions.

Federal Compliance - Metal Halide

Venture Lighting® lamps comply with USA Federal Standard 21 CFR 1040.30 and Canada Standard SOR/80-381. The FDA requires the following safety warning statement for all metal halide lamps:

"WARNING: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured and the arc tube continues to operate. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available."

Careful adherence to the previous mentioned precautions may not eliminate all possible risks associated with the use of metal halide lamps, but it will reduce the likelihood of personal injury or property damage.

Warning Notices:

WARNING: THESE INSTRUCTIONS MUST BE FOLLOWED TO AVOID POSSIBLE EARLY FAILURE OF THE LAMP. Venture Lighting will not be responsible for poor lamp performance, personal injury, property damage, burns or fire resulting from failure to follow these instructions.

- Operate lamp in the specified burning position with compatible electrical equipment. The ANSI code on the Venture lamp must match the code on the ballast or luminaire. If in doubt, consult with Venture Lighting or the luminaire manufacturer.
- A specially designed socket which is electrically rated to withstand a 4000 volt pulse is required for all High Pressure Sodium lamps except for 600, 750 and 1000 watt lamps which require a socket rated to withstand a 5000 volt pulse.
- Electrically insulate any metal bulb supports in the luminaire to avoid decomposition of glass.
- Protect lamp from direct contact with rain, sleet or snow to avoid breakage from thermal shock.
- This is a vacuum jacketed lamp and may implode if broken, avoid skin contact with broken lamp pieces. As a precaution, wear safety glasses and gloves when installing or removing lamp.
- Install lamp firmly but not forcibly into the socket to minimize loosening due to vibration.
- Do not use excessive force as the glass bulb may break.
- During lamp replacement, turn power off and let lamp cool before removal to avoid potential electrical shock and burns.
- Replace bulb if scratched, cracked or damaged.
- If the outer envelope breaks or is punctured and lamp continues to operate, immediately turn power off and remove lamp after it has cooled.

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Lamp Technical Information

End-of-Life and Reduction of Risk

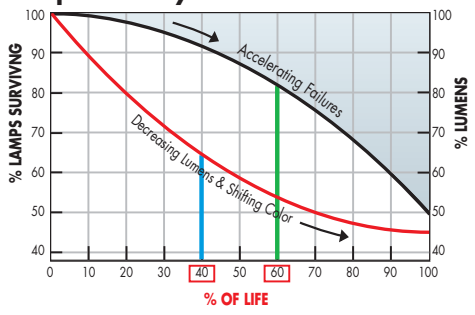
At end-of-life, the vast majority of metal halide lamps will simply fail by not reigniting. On rare occasions, metal halide lamps may fail in a violent manner. The possibility of this failure is significantly reduced by group relamping at or before the rated end of life, (see Group Relamping). In any application where enclosed rated (Type-E) lamps are operated continuously (24 hrs/day, seven days/week), the lamps should always be turned off for a period of at least 15 minutes once a week, a precaution that can reduce the possibility of violent failures. This procedure is not required when Venture's open rated (ANSI Type-O) shrouded lamps are used. These lamps are easily identified by the prefix "MP", "MPI", "MPL", "MPE" or "MPC" in the lamp description code.

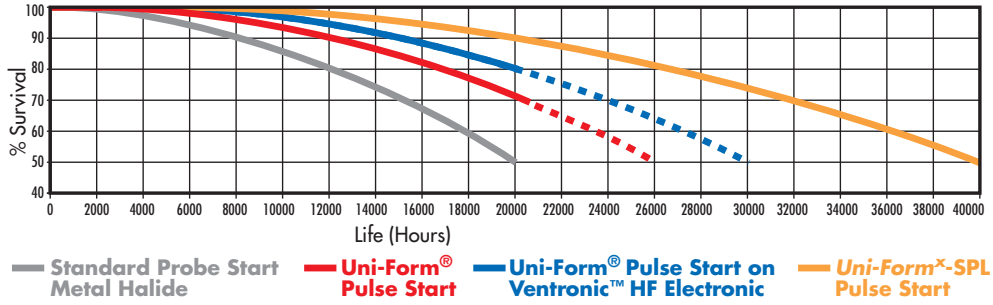
Starting and Restarting Characteristics

Venture's *Uni-Form* pulse start metal halide lamps will start at an ambient temperature of -40°C (-40°F) or higher. Full light output does not occur immediately when power is applied to any metal halide lamp; there is a time delay of at least three to six minutes after starting before lamps reach full light output.

After lamps have started, a power interruption of 1/4 cycle (1/240th of a second) or more may cause the lamps to extinguish. Several minutes are required before an arc can be re-established by the ballast and full light output achieved. The exact time is dependent on a number of factors including lamp wattage, ballast and ignitor characteristics, ambient temperature, fixture dimensions and supply voltage. The time needed to establish full light output could be as short as 3 minutes and as long as 15 to 20 minutes. Venture's exclusive *Uni-Form* formed body arc tube provides warm-up and hot re-strike in up to 60% less time than conventional metal halide lamps.

Lamp Mortality & Maintenance Curves





Lamp Life

Lamp life is an important consideration when purchasing a new, retrofit or replacement lamp. Two very different and distinct terms describe life: "rated life" and "economic life."

Rated Life

Rated life for metal halide lamps is a value of lamp life expectancy based on laboratory and field tests of representative lamps, operating on approved ballasts, with a burn cycle of at least 10 hours per start. The lamp life is determined when: 50% of metal halide lamps initially installed are still operating

Mortality Curves

Various operating conditions affect lamp life. One key factor is operating position. Position-oriented lamps (designed to operate in one specific position) are tested and rated based on that designated position; operating these lamps in any other position can dramatically shorten life, reduce lumen output and cause color shift. Lamps designated universal can be operated in any position, however, life expectancy and lumen output are sacrificed in certain positions; published "rated life" for universal lamps is based on operation in the vertical position, "rated life" for universal lamps operated horizontally is 75% of the published rating.

Economic Life

Economic life refers to the hours of operation during which a lamp is designed to provide optimum light output and color quality as well as lowest replacement cost. Economic life describes actual lamp life better than rated life because rated life does not account for the lumen depreciation and color shift that occur as lamps age. The economic life of lamps is generally 60% to 75% of the lamp rated life. Though economic life is important when considering a lighting system, lamp data tables show rated life because they provide a comparison with other lamp manufacturers' ratings.

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Lamp Technical Information

Group Relamping

Effective Lighting Management

Group relamping offers significant savings in time and labor costs over spot replacing of failed lamps. Regularly scheduled maintenance based on economic lamp life keeps a lighting system functioning at its maximum.

This provides:

1) Optimum Light Output:

Light levels are at their peak when a lighting installation is new. Most standard probe start metal halide lamps decrease to as low as 40% of initial light output by the end of rated life. A number of factors may accelerate this reduction in efficacy (lumens per watt). Group relamping at economic life keeps the light levels from dropping significantly; it also provides an opportunity to remove dirt accumulation in the luminaire. Cleaning during group relamping saves time and helps maintain optimum light levels. A cleaner, well-lit environment increases safety and security, can contribute to higher worker productivity and creates a better impression for visitors.

2) Aesthetic Quality:

The quality of light changes over economic life, shifting 200K to 350K in color temperature. Most of this shift occurs in the last 25% of rated life. This causes old lamps to appear blue or pink, especially when compared to new lamps. All the lamps in an area will generally change color together; however, lamps that are spot-replaced will look noticeably different than those around them.

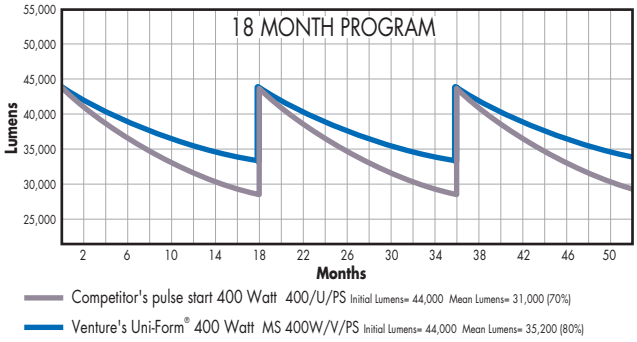
3) Optimum Energy Efficiency:

While the light output of metal halide lamps decreases over life, they will still consume the same (or sometimes more) electricity. Since energy is the largest cost of lighting, group relamping prevents almost half of the energy from being wasted by under-performing lamps. For example, a 400 watt may consume $800 of electricity over its rated life. After 60% of rated life, about $320 is wasted on lamps providing less than mean lumens. Spot relamping wastes energy dollars; the cost of a new lamp and the labor to install it as part of group relamping is generally less than 5% of the total energy cost.

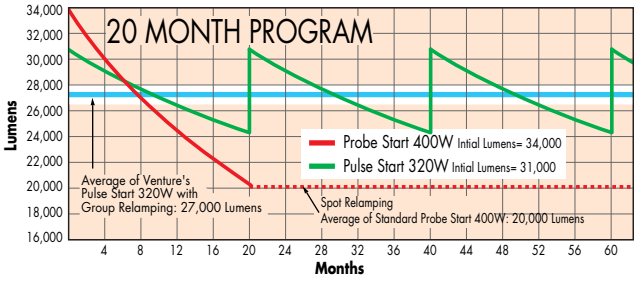
4) Cost Effective Replacement:

Group relamping, as a planned maintenance program, reduces downtime and labor costs. Spot relamping often takes an employee away from regular duties just to replace a burned out lamp. This inconvenience grows as lamp failures increase towards the end of rated life. Group relamping eliminates workday disruptions, allowing scheduling during normal shutdown periods. Group relamping at economic life is a practical way to sustain workers' visual acuity with a bright workplace environment. It also offers the opportunity to replace older lighting with energy saving, more efficient lighting such as Venture's *Uni-Form* pulse start systems.

MAINTENANCE PROGRAM
TYPICAL LAMP LUMEN PERFORMANCE



MAINTENANCE PROGRAM
TYPICAL LAMP LUMEN PERFORMANCE



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Technical Information

Open Rated Lamps

Open luminaires offer significant advantages over enclosed luminaires . They do not require cover lenses which reduce light output and accumulate dirt. In addition enclosed luminaires make lamp replacements more difficult. For safety, open luminaires need open rated (ANSI Type-O) metal halide lamps.

To reduce the risk of liability, lighting specifiers need to be aware of the criteria for a true open rating and what the Type-S or Type-O designations indicate about lamp construction.

ANSI Lamp Designations

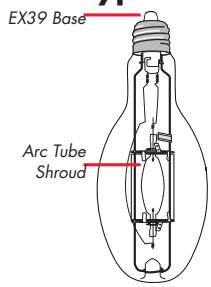
The American National Standards Institute (ANSI) currently classifies metal halide lamps with three possible ratings: Type-O, Type-S, and Type-E.

Type-O open fixture rated lamps characteristics:

1. Shroud around the arc tube, which helps prevent damage to the outer bulb in the event of an arc tube rupture

2. Open fixture rated base, such as an EX39 mogul base, or narrow neck bulb with a medium base both of which require special exclusionary sockets.

Type-O



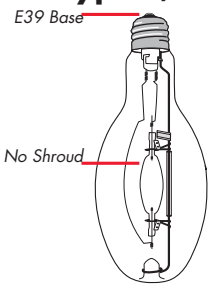
3. They pass the ANSI C78.389 lamp containment test, where arc tubes are forcibly ruptured and must be contained within the outer jacket.

All "MP", "MPI", "MPL", "MPE" and "MPC" lamps produced by Venture Lighting meet the requirements to be rated Type-O, and can be used with confidence.

Type-S lamps do not include internal protection against failure. These lamps are not permitted in open luminaires according to UL1598 and the 2005 NEC

Type-E lamps are rated only for use in enclosed luminaires .

Type-E, S



In September 2010 UL1598 became effective with requirements for open metal halide luminaires and Type-O lamps. These requirements are the same as those in the 2005 National Electrical Code (NEC) published by the National Fire Protection Agency (NFPA).

NEC section 410.73(F)(5) states that "Luminaires (fixtures) that use a metal halide lamp other than a thick-glass parabolic reflector lamp (PAR) shall be provided with a containment barrier that encloses the lamp, or shall be provided with a physical means that only allows the use of a lamp that is Type-O."

Open luminaires require sockets that only accept Type-O lamps (pink EX39 mogul sockets or E26 narrow neck medium sockets) in order to prevent accidental use of Type-S or Type-E lamps.

We Build Lighting Systems With Safety in Mind!

For 20 years, Venture has been leading the way by producing metal halide lamps that contain protective shrouds. Venture Lighting provides the industry's widest selection of lamps that meet ANSI C78.389-2004 testing requirements for a rating of Type-O. Venture is building lighting systems with safety in mind, your customers' safety and yours.

Venture's Open Rated Lamp Benefits

Venture's MP, MPI, MPL, MPE and MPC lamps:

- Meet requirements of the UL1598 and the National Electric Code
- Meet ANSI criteria for use in open luminaires
- No luminaire lens required, delivering more light - Lumen loss with a lens is up to 16%
- Can be operated continuously; no shut-off required
- Contain shrouds which feature Venture's UV Shield® technology
- Operate in open or enclosed luminaires
- More cost effective than installing a lens

Ruptured arc tube contained within the intact outer jacket of a Venture MP lamp

Shrouded Arc Tube, ANSI Type-O lamp

Footnotes:

1. NEMA white paper: LSD 25-2004
2. FMGlobal Property Loss Prevention Data Sheets, 5–21, Rev. May 2001.

Ballast Technical Information

Ballast Introduction

Venture Lighting focuses not only on metal halide lamps, but also on metal halide ballasts. We apply the same level of passion for quality and performance to Venture ballasts as we do to Venture lamps. To assure compatibility, refer to our specification sheets to determine which ballast works with each lamp type.

The information below introduces ballast function, terminology and proper usage.

Why are ballasts needed?

Electrical distribution systems deliver fixed AC voltage (50 or 60 Hz). Users expect connected electrical loads to limit the current drawn from the source. Low pressure and high pressure arc discharge lamps exhibit "negative impedance." Without a ballast, the arc will extinguish or draw increasing current until some circuit element burns up. Ballasts provide system stability by limiting the current that can be drawn. Magnetic ballasts use inductive and capacitive components because they impede alternating current with little power consumption. Resistive components generate high losses and are usually avoided. This is true of conventional electromagnetic ballasts as well as electronic ballasts.

HID ballasts perform the following functions:

- Provide voltage to break down the gas between the electrodes of arc lamps and initiate starting
- Provide voltage and current to heat the electrodes to allow a low voltage/high current arc mode to develop (referred to as glow-to-arc transition, GAT)
- Provide enough current to heat and evaporate the light emitting components after an arc has been established
- Provide enough sustaining voltage (see Vss) to maintain the arc during warm-up and operation
- Control lamp current and wattage once all the evaporable materials have reached thermal equilibrium

Breakdown vs. Glow-to-Arc Transition (GAT)

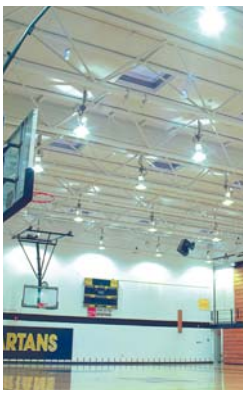
Standard probe start metal halide lamps utilize an auxiliary electrode in the arc tube to facilitate starting. The arc tubes are filled with a relatively low pressure of argon gas. Breakdown occurs when several hundred volts are applied. The lower the fill pressure, the lower the breakdown voltage, and as a result, less electrode heating occurs in the subsequent glow mode. Without enough electrode heat, the arc mode will not develop. There is a trade-off of breakdown voltage and GAT with fill pressure for these lamps. For most metal halide lamps, highly peaked (distorted) output voltages around 300 Vrms suffice. Failing to attain a GAT will destroy lamp electrodes in less than 100 hours.

Uni-Form® pulse start metal halide and high pressure sodium (HPS) lamps dispense with the auxiliary electrode, but have breakdown voltage requirements in the range of several thousand volts. An "ignitor" is added, which provides a narrow (μsec wide) pulse near the peak of the output voltage waveform The minimum output voltage requirement (min. OCV) assures that a GAT will occur. Pulse start metal halide and HPS ignitors are sufficient to start lamps down to -40°C (-40°F).

Warm-up

Unlike low pressure lamps, HID lamps have a low initial arc voltage following GAT, and warm up over several minutes to final operating voltage. In high pressure Mercury vapor lamps, this involves the evaporation of a fixed amount of mercury. In standard probe start metal halide and *Uni-Form* pulse start lamps, a fixed amount of mercury and some of the metal halide salts evaporate.

All metal halide lamps have sustaining voltage requirements after GAT to assure the lamp will continue to operate. All Venture ballasts meet ANSI requirements for sustaining voltage.



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Technical Information

Operation

The ballast determines the lamp current in normal operation by providing electrical impedance. The combination of lamp current and voltage determines the power consumed by the lamp. The lamp power, in turn, determines light output and color. For example, if a 320 watt lamp is accidentally operated on a 350 watt ballast, the lamp will run over-wattage at 350 watts because the nominal lamp voltage is the same for both lamps and the ballast delivers the higher 350 watt current. Color will be warmer, light output will be higher and lamp life will be shorter.

In stable operation, lamp power on magnetic ballasts varies with supply voltage and lamp voltage. Electronic ballasts can be designed to minimize both sources of power variation. On reactor and HX ballasts, lamp power varies about 2% for each 1% of line voltage variation. On CWA and CWI ballasts, lamp power varies about 1% for each 1% of line voltage variation. These CW-type ballasts amplify lamp voltage variations into power variations while reactor and HX ballasts minimize the same.

Ballast Types

Venture makes a full line of high performance ballasts for metal halide and high-pressure sodium lamps. Venture's hybrid reactor and high reactance family of ballasts are designed especially for *Uni-Form* pulse start metal halide lamps.

Venture Lighting Ballasts

Venture's pulse start family of ballasts includes hybrid single voltage reactor and multi-tap HX circuit designs and incorporates ignitors. They are carefully matched to *Uni-Form* pulse start lamps to provide peak lamp performance. Single voltage hybrid reactor designs offer the most overall value to the end user. Multi-tap designs offer flexibility and lower inventories for distributors, OEMs, and contractors. Venture offers a full line of multi-tap CWA ballasts for *Uni-Form* pulse start lamps where CWA ballasts have been specified.

Ventronic™ Ballasts

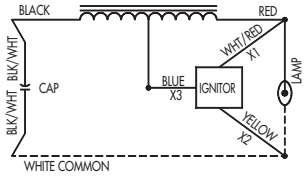
Venture has the Ventronic line of low frequency square wave ballasts for low wattage lamps and HF ballasts for mid-wattage lamps. Venture continues to investigate a number of exciting performance phenomena. Lamps operating on electronic ballasts provide higher maintained lumens over life. This is a rapidly evolving topic. Look to Venture's website for new developments.

CHOOSING THE RIGHT BALLAST

Characteristic	Ventronic™ Electronic	277V Reactor	Multi-tap HX	CWA	Isolated CWI
Ballast Efficiency	Excellent	Excellent	Good	Good	Fair
Lamp Wattage Regulation (over lamp voltage range)	Excellent	Excellent	Excellent	Good	Good
Lamp Wattage Regulation (over line voltage range)	Excellent	Good	Good	Excellent	Excellent
Circuit Loading	Excellent	Good	Good	Excellent	Excellent
Current Crest Factor	Excellent 1.0	Excellent 1.5	Excellent 1.5	Good 1.6 – 1.8	Good 1.6 – 1.8
Input Voltage Dip Tolerance	Excellent	Good	Good	Excellent	Excellent
Isolation	No	No	Yes or No	No	Yes

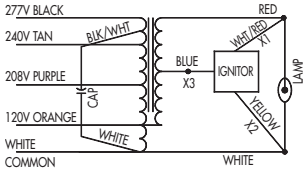
Hybrid Single Voltage Reactor

These are optimized lag/hybrid reactor ballasts. The flux density, losses and power factor capacitors are chosen for good circuit loading and modest lamp power variation with respect to lamp voltage variation. These ballasts provide more consistent color from lamp-to-lamp than constant current designs. The circuit loading (250W – 875W) is similar to that of CWA ballasts, providing better value and performance without the need for higher capacity circuits.

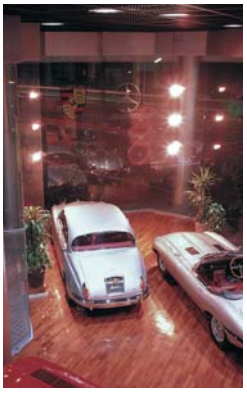


High Reactance Autotransformer (HX-HPF) Ballasts

These are two coil ballasts, consisting of a primary winding that provides the voltage transformation for OCV requirements, coupled with a secondary coil for limiting current. The ballast uses more material and has higher losses than its lag/hybrid reactor counterpart. In return, it offers multi-tap capability to serve a wide variety of applications. A capacitor is typically connected to the highest voltage tap to increase input power factor Venture's high reactance multi-tap ballasts are HX circuits that have the same lamp power regulation characteristic as Venture's single voltage hybrid reactor ballasts.

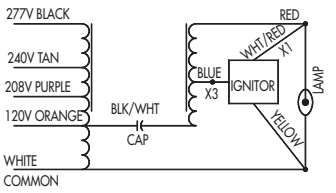


HX-HPF ballasts yield modest lamp power variations with respect to lamp voltage variations. As a result, they provide more consistent lamp-to-lamp color than CWA ballasts and can be used in a wider range of applications than 277V reactor ballasts, while providing the same performance benefits. Circuit loading is similar to comparable CWA ballasts.



Constant Wattage Autotransformer (CWA)

Present day CWA ballasts for metal halide lamps have changed very little from early designs dating back to the 1960's. Versions with ignitors to operate pulse start lamps are available, along with a wide range of wattages. CWA ballasts have a large installed base in the US, but low wattage metal halide lamp performance with CWA ballasts has proven to be poor. Most ballasts sold for lamps of 150 watts or lower are HX or electronic types.



CWA ballasts have two coils. One acts as an autotransformer with multiple input taps, and a second provides inductance that in series with a capacitor controls lamp current. In pulse start designs, the capacitor usually connects between the primary and secondary coils. A tap near the lamp output on the secondary coil is connected to the ignitor circuit.

"Constant Wattage" is actually a misnomer. The circuit provides constant current to the lamp. This is undesirable for lamp loads that do not provide constant voltage. This is also an issue for metal halide lamps that rise in voltage with aging. The result is lamp-to-lamp power variation that shows up as lamp-to-lamp color variation. As long as demand for CWA ballasts continues, Venture will provide them with the best technology available.

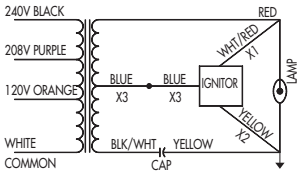
Constant Wattage Isolated Transformer (CWI)

CWI ballasts share the same features as the CWA versions, but have electrically isolated secondary coils to meet the Canadian Electrical Code.

Electronic Ballasts

Fluorescent lighting uses electronic ballasts for all new lighting in the US, largely because of energy legislation. Fluorescent lamps generate more lumens per watt when operated at high frequency and have no compatibility issues. HID lamps on electronic ballasts have had issues of acoustic resonances that disturb lamp operation. These issues have been resolved. Electronic HID ballasts operate lamps either above acoustic resonance (HF sine wave ballasts used mostly for mid-wattage HID), or below acoustic resonance (low frequency square wave ballasts used for low wattage HID lamps). The adoption of electronic HID ballasts has been slow, yet is growing.

The most mature, electronic ballasts for metal halide lamps operate 150 and lower wattage lamps. Designers have opted for low frequency circuits that drive these low wattage lamps with square wave current. The small size and light weight of low watt electronic ballasts fit retail track lighting applications very well. High wattage lamps have lower resonant frequencies, so ballast designs that operate lamps in the 100 KHz range and above work quite well. These ballasts have low losses, control/program lamp power, and are light in weight. Dimming, in conjunction with the use of natural daylight, is a workable strategy with a reasonable payback period.



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Technical Information

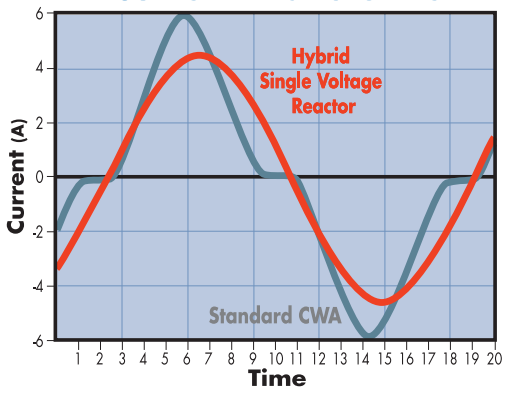
Ballast Performance

The following performance factors affect ballast specifications:

Current Crest Factor (CCF)

The current crest factor is the ratio of the peak lamp current to the root-mean-square (RMS) value of the current. High current crest factors are associated with poor lumen depreciation of HID lamps. A typical range of current crest factors for reactor, HX and regulated lag ballasts is 1.4-1.5. For CWA ballasts CCF ranges from 1.6 to 1.8. Electronic ballasts can be as low as 1.0.

Current Waveforms



Open Circuit Voltage (OCV)

The voltage across the output terminals of a ballast with no load connected is the OCV. Sustaining Voltage (Vss)

Vss is the instantaneous voltage across an operating lamp when lamp current crosses zero. If the voltage is not sufficient, the lamp will not reignite on the next half cycle of current and drop out. Adequate Vss is needed from every ballast type, but is particularly important for CWA ballasts. However, Vss is difficult to measure without sophisticated lab equipment. ANSI standard values are determined for the condition. ANSI does not specify Vss for lag circuits.

AC Line Regulation

Line regulation is the percentage change in lamp wattage per percentage change of supply voltage.

In the US, Canada and most of Europe, supply voltage is reliable with only occasional brownouts or blackouts. Where supply voltages are steady, reactor or HX ballasts provide the best performance at a cost comparable to, or lower than, CWA ballasts. When there is a serious line voltage regulation issue such as industrial applications with large electrical load switching, CWA ballasts are preferred. Lag (reactor) ballasts dominate HID lighting in Europe, where supply voltage is regulated to ±5%. In North America, lighting circuits wired according to the National Electric Code typically stay within the ±5%.

Lamp Regulation

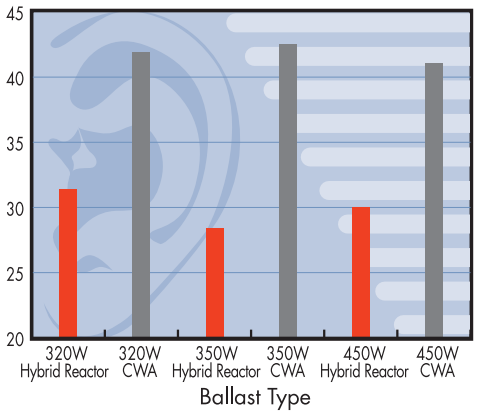
By definition, lamp voltage regulation is the change in lamp wattage divided by the corresponding change in lamp voltage initially and during life.

The operating characteristics of any ballast can be mapped in a graph of lamp wattage vs. lamp voltage. This is called a ballast characteristic curve. For reactor and HX ballasts, the curve is a parabola where the peak wattage typically occurs when the lamp voltage is about 60% of the OCV. The curve stops when the lamp voltage reaches about 80% of the OCV. At this point, the lamp stops operating. The graph for most CWA or constant current ballasts is a relatively straight line.

Ballast Noise

Magnetic ballasts generate audible noise as a result of magnetically induced mechanical stresses. This may be amplified or attenuated depending on fixture design, mounting methods and room acoustics. There are presently no noise standards for HID ballasts. Venture's single voltage hybrid reactor and HX ballasts are noticeably quieter (by greater than 10 dB) than CWA or CWI ballasts.

Ballast Noise Levels



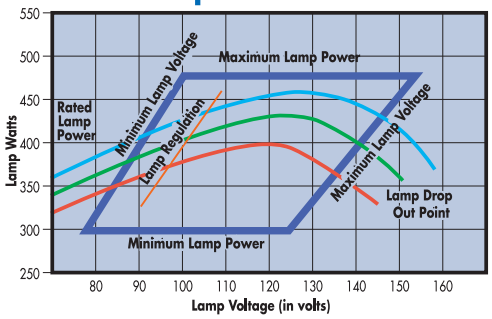
Lamp Starting

Pulse start metal halide ballasts provide the proper combination of open circuit voltage and high voltage pulses to start the lamp. The pulse is provided by a specially designed ignitor, or starter, that is used in conjunction with the ballast. As soon as the ignitor senses that the lamp has started, it discontinues the pulsing operation. A positive feature of this system is that the lamp will hot restart in 3-4 minutes following a power interruption. Standard probe start metal halide ballasts can take as long as 10-15 minutes to restart the lamp.

The ballast open circuit voltage alone starts standard probe start metal halide lamps. An auxiliary electrode, or probe, aids these lamps in starting. The probe electrode is disconnected after the lamp has warmed up. Most of these lamps operate on CWA ballasts that offer a more "peaked" open circuit voltage, to assist lamp starting.

High Pressure Sodium lamps start in a manner similar to pulse start metal halide lamps. The main difference is a slightly less demanding ignitor pulse requirement for HPS lamps.

Trapezoid Curve



Capacitors

With reactor and HX ballasts, capacitors are needed to improve (input) power factor. As a result, the number of lamps that can be operated on a circuit nearly doubles. In large installations, power factor correction is also required to avoid power quality problems and utility penalties. Capacitors are integral components of CWA ballasts; they will not operate without them. Both oil-filled (wet) and dry-film (dry) capacitor technologies are commonly used with ballasts. A means to discharge capacitors after power is turned off is a safety requirement.

Oil-filled capacitors

Oil-filled capacitors come in metal cases and are filled with a dielectric fluid. They are rated up to 100°C, although 90°C is the most common rating. They usually have two 1/4" spade terminal lugs located on the top for connection with the ballast. Most ballasts come with the mating terminals already attached to the appropriate leads. Oil-filled capacitors are very reliable and available in ratings up to 525V. For some higher wattage HID ballasts, they are the only choice.

Oil-filled capacitor

Dry-film capacitors

Dry-film capacitors do not use a dielectric fluid. Originally, these capacitors were limited to applications where voltages did not exceed 330V, though recent advances have pushed this to 400V. They are available in temperature ratings of 100°C and have become an attractive alternative to oil-filled capacitors. They are packaged in plastic housings which do not need to be grounded and do not need any special clearances above the terminals.

Dry-film capacitor

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Ignitors

HID lamp ignitors provide a brief, high voltage pulse or pulse train to break down the gas between the electrodes of an arc tube. Pulses can range from several hundred volts to 5KV or higher. Typical durations are in the µsec range. They are usually timed to coincide with the peak of OCV. If they are timed too early or too late, lamps may not start reliably.

There are three basic ignitor circuits in wide use. The simplest is a capacitor in series with a voltage sensitive switch that connects across the output of a reactor ballast and is known as the "Parallel" ignitor. It is used internationally to start standard probe start metal halide lamps on 220-230V 50 Hz mercury vapor ballasts. It generates 750V pulses and has the virtue of simplicity and low cost.

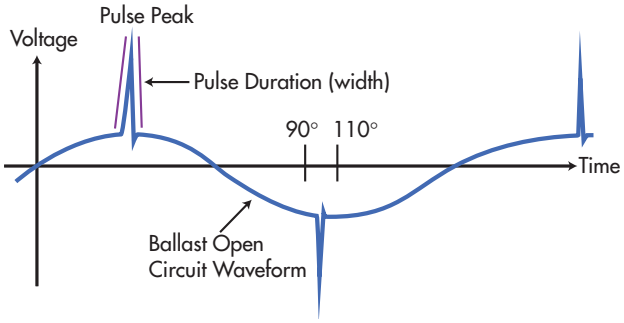
The second ignitor circuit consists of a capacitor charging circuit and a voltage sensitive switch. It connects to a tap on the output inductive element of the ballast and uses it as a high frequency pulse transformer. This circuit works with both lag and CWA ballasts. It is the most common type of ignitor used in North America and is growing in popularity internationally. It has the virtue of simplicity and low cost. It requires the ballast insulation system to withstand the pulse voltage; because it is tied to the ballast, the distance the lamp can be mounted from the ballast depends on pulse attenuation. Circuits that generate wide pulses permit greater distance. These circuits are generically referred to as "Impulsers."

The third ignitor circuit is similar to the first except that it contains a pulse transformer. The virtues are that the ballast insulation is not exposed to pulse voltage. The ignitor can be mounted near the lamp, while the ballast can be remote; it can be used with any ballast type. This is the most commonly used circuit internationally and is the most costly, but it allows the use of a less expensive ballast core. The ignitors are referred to as "Superimposed" ignitors (SIP) because the pulse is superimposed on top of the ballast OCV.

Venture Lighting® ignitors and ballasts are capable of continuous pulsing at the maximum rated case temperature.

Prolonged continuous operation (weeks to months) degrades ballast insulation and reduces ballast life. The best practice to prolong ballast life is timely replacement of failed lamps. Ignitor case temperature limits must be observed; there is little safety margin, so expect short ignitor life if the limits are exceeded.

Most Venture pulse start ballasts have distance limitations of 2 to 15 feet with standard ignitors. Longer ballast-to-lamp (BTL) distances can be attained with higher energy or SIP ignitors. These should not be used for short range as they may damage ballast insulation and shorten ballast life. Contact Venture for availability and technical support.



Agency Certifications:

This is one of the most common Underwriters Laboratories marks. If a product carries this mark, it means UL found that samples of this product met its safety requirements. These requirements are primarily based on UL's own published Standards for Safety.

Consumers rarely see this mark, because it is for components that are part of a larger product or system. These components may have restrictions on their performance or may be incomplete in construction. The Component Recognition marking is found on a wide range of products, including some switches, power supplies, printed wiring boards, some types of industrial control equipment and thousands of other products.

The UL Recognized Component Mark, for components certified by UL which meet both Canadian and U.S. requirements, became effective in 1998. Although UL had not originally planned to introduce a combined Recognized Component Mark, the popularity of the Canada/U.S. Listing and Classification Marks among clients with UL certifications for both countries has led to the new mark.

This is one of the most common Canadian Standards Association (CSA) marks. If a product carries this mark, it means CSA found that samples of this product met its safety requirements. These requirements are primarily based on CSA's own published Standards for Safety.

Grounding and Wiring

Caution: Installation and maintenance should only be performed with the circuit turned off. Ballasts must be connected to electrical ground to avoid electrical shock or damage to the equipment and facility. The installation and wiring must comply with applicable federal, state or provincial codes and regulations.

Core and coil ballasts are insulated with a varnish-like material. This material must be penetrated at the point where the ground connection is made to ensure a good connection. This connection can be made when mounting the ballast to the luminaire by using a star washer in combination with one of the mounting bolts.

Grounding of the Lamp Socket Shells

The Canadian Electrical Code [Part 1 (1994) Rule 30-314] requires grounding of lamp socket shells and the use of ballasts with isolated secondary windings, e.g. CWI ballasts.

In circuits with two lamps in series, the socket shell is non-hazardous, provided that the removal of the lamp electrically isolates the shell.

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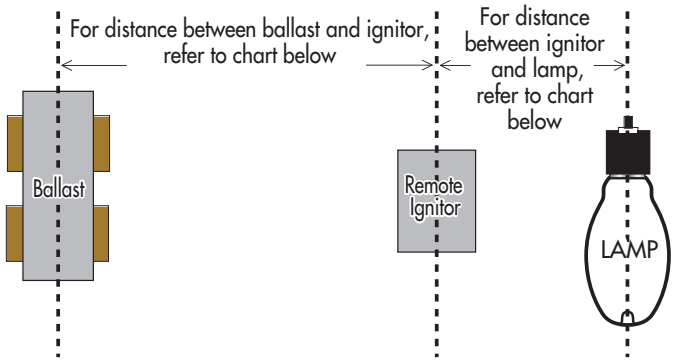
Remote Mounting

The ballast-to-lamp (BTL) distance that metal halide lamps and ballasts lamps can be separated. With pulse start metal halide and high pressure sodium ballasts, remote mounting capability is limited by the wire voltage drop and the use of standard ignitors as the ignitor pulse attenuates as the wire length increases. Remote mounting is possible by replacing the standard ignitor with the remote superimposed ignitor per the table below.

Remote Ignitor Mounting Basics



Maximum Ballast to Lamp Distance *(in feet, listed by wire gauge)*

Standard Probe Start Metal Halide Lamps

Lamp Wattage	ANSI Code	AWG 10	AWG 12	AWG 14	AWG 16	AWG 18
175W	M57	478	300	189	116	73
250W	M58	344	216	136	84	52
400W	M59	225	142	89	55	34
1000W	M47	348	219	138	85	53
1500W	M48	235	148	93	57	N/A

Pulse Start Metal Halide Lamps

Lamp Wattage	ANSI Code	AWG 10	AWG 12	AWG 14	AWG 16	AWG 18	Remote Ignitor for Pulse Start MH
50W PSMH	M110	675	425	270	165	105	BVS003
70W PSMH	M98	510	320	205	125	80	BVS003
100W PSMH	M90	495	310	195	120	75	BVS003
125W PSMH	M150	590	370	235	145	90	BVS003
150W PSMH	M102	285	180	115	70	45	BVS003
175W PSMH	M152	480	300	190	115	75	BVS003
200W PSMH	M136	435	275	170	105	65	BVS003
250W PSMH	M153	345	215	135	85	50	BVS003
320W PSMH	M154	280	175	110	70	45	BVS003
350W PSMH	M131	260	165	105	65	40	BVS003
400W PSMH	M155	225	140	90	55	35	BVS003
450W PSMH	M144	200	130	80	50	30	BVS003
575W PSMH	M178	155	100	60	40	25	BVS003

NOTE 1: A minimum 4KV pulse rated lamp socket must be used.
2: Mount ignitor within 5 feet of lamp.

Lamp Wattage	ANSI Code	AWG 10	AWG 12	AWG 14	AWG 16	AWG 18	Remote Ignitor for Pulse Start MH
750W PSMH	M149	265	165	105	65	40	BVS002
775W PSMH	M181	290	185	115	70	45	BVS002
875W PSMH	M166	365	230	145	90	55	BVS002
1000W PSMH	M141	350	220	140	85	55	BVS002

NOTE 1: A minimum 4KV pulse rated lamp socket must be used.
2: Mount ignitor within 15 feet of lamp.

Lamp Wattage	ANSI Code	AWG 10	AWG 12	AWG 14	AWG 16	AWG 18	Remote Ignitor for Pulse Start MH
1000W PSMH	MBIL	310	195	120	75	45	BVS043
1500W PSMH	MBIL	200	125	80	50	N/A	BVS043
2000W PSMH	MBIL/M134	120	75	50	N/A	N/A	BVS043

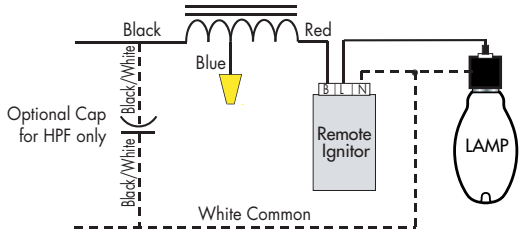
NOTE 1: A minimum 5KV pulse rated lamp socket must be used.
2: Mount ignitor within 10 feet of lamp.

High Pressure Sodium Lamps

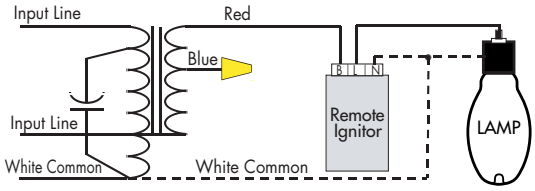
Lamp Wattage	ANSI Code	AWG 10	AWG 12	AWG 14	AWG 16	AWG 18	Remote Ignitor for HPS
600W HPS	S106	105	70	45	25	N/A	BVS046
1000W HPS	S52	290	180	115	70	45	BVS002

NOTE 1: A minimum 5KV pulse rated lamp socket must be used.
2: Mount ignitor within 15 feet of lamp.

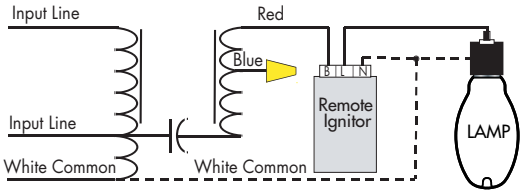
Typical Hybrid Reactor Wiring Diagram with Remote Ignitor



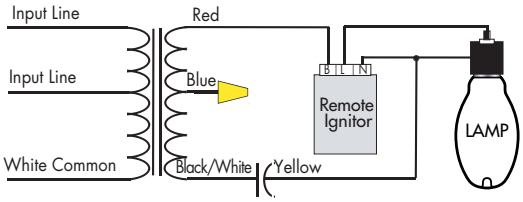
Typical HX Wiring Diagram with Remote Ignitor



Typical CWA Wiring Diagram with Remote Ignitor



Typical CWI Wiring Diagram with Remote Ignitor



Circuit Loading

How many lamps can be operated on a circuit? According to the 2005 National Electric Code® (NEC), in Section 210-20:

"Where a branch circuit supplies continuous loads, or any combination of continuous and non-continuous loads, the rating of the over-current device shall not be less than the non-continuous load plus 125% of the continuous load."

"A Continuous Load is a load where the maximum current is expected to continue for three hours or more."

For CWA ballasts the highest current draw is during continuous operation. The total number of ballasts on a breaker must draw less current than 80% of the circuit breaker rating. A conservative approach would use the current draw of ballasts operating aged lamps. As lamps age, system wattage on CWA ballasts climbs, leading to higher than rated input current. A safety factor of 1.2 times the rated current is a reasonable de-rating factor.

For new installations of single voltage hybrid reactor and HX ballasts, the highest current draw is when the lamp is off, or just after starting. This occurs for seconds during starting or for minutes following a power interruption. Per the NEC, this is a non-continuous load. Following a lamp failure, power could be applied for a long time. The NEC provides no guidance for dealing with failed lamps that result in an open circuit current draw. While it is unlikely that a lamp will be replaced in less than three hours, it is equally unlikely that users will tolerate very many lamp outages without replacements on a given circuit. As in the CWA case, a 1.2 safety factor seems reasonable.

To determine the number of ballasts that can be connected on a circuit breaker, first calculate 80% of the circuit breaker current rating and divide by the higher of either the open circuit current of the ballast or the normal operating current of the ballast. The resulting value is the maximum number of ballasts that are permitted on the Circuit. In retrofit applications, higher wattage lamps and ballasts are usually replaced with better performing, lower wattage lamps and ballasts. Circuit loading is rarely an issue as long as the circuit was properly loaded initially.

Circuit Loading Comparison

Lamp Type	277V CWA Operating Current	277V CWA Systems Per Breaker	277V Hybrid-Reactor Operating Current	277V Hybrid-Reactor Open Circuit Current	277V Hybrid-Reactor Systems Per Breaker	277V Multi-tap HX Operating Current	277V Multi-tap HX Open Circuit Current or Starting Current Max	277V Multi-tap Systems Per Breaker
125W, M150	0.55	29	0.55	0.85	23	Not Available	Not Available	Not Available
175W, M137/M152	0.80	20	0.75	1.05	19	0.80	1.10	18
200W, M136	0.85	18	0.80	1.25	16	0.90	1.15	17
250W, M138/M153	1.10	14	1.10	1.35	14	1.20	1.40	14
320W, M132/M154	1.40	11	1.40	1.70	11	1.45	1.80	11
350W, M131	1.55	10	1.50	1.90	10	1.60	2.00	10
400W, M135/M155	1.75	9	1.70	2.10	9	1.75	2.20	9
450W, M144	1.90	8	1.90	2.30	8	2.00	2.50	8

Note: 16A max continuous load and 20A max short term load used to calculate systems/breaker

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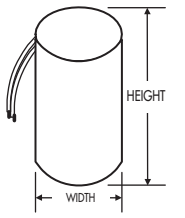
Capacitors and Ignitors

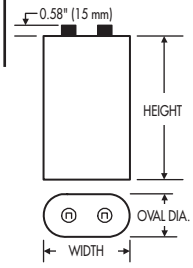
TECHNICAL INFORMATION

A CAPACITOR– DRY FILM



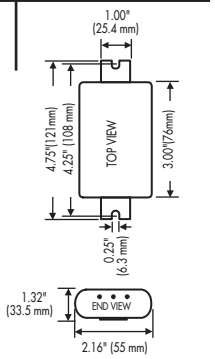
	(Inches) HT	WD
A1	3.93	1.38
A2	3.93	1.60
A3	3.93	1.75
A4	4.88	1.75
A5	2.73	1.38
A6	2.73	1.49
A7	3.93	1.49
A8	4.88	1.97
A9	2.93	1.38
A10	4.88	1.49
A13	3.69	1.80
A14	4.60	1.75

B CAPACITOR– OIL FILLED

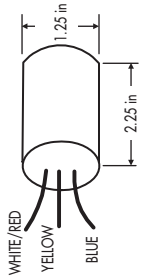


	(Inches) HT	DIA	WD
B1	3.00	1.97	2.97
B2	3.25	1.62	2.75
B3	3.68	1.97	2.97
B4	3.37	1.97	2.97
B5	3.87	1.62	2.75
B6	4.00	1.97	2.97
B7	3.37	1.62	2.75
B8	2.87	1.97	2.97
B9	4.00	1.97	2.97
B10	4.94	2.03	3.72
B11	6.00	2.03	3.72
B12	4.37	1.97	2.97
B13	3.87	1.97	2.97
B14	4.44	2.03	3.72
B15	4.37	2.03	3.72
B16	4.37	2.03	3.72
B17	3.00	1.62	

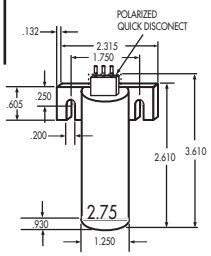
C IGNITOR– OVAL



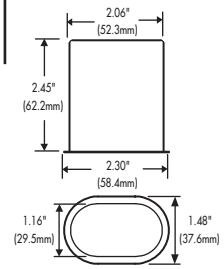
D IGNITOR– ROUND



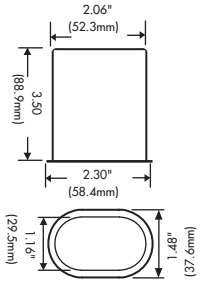
E IGNITOR– ROUND



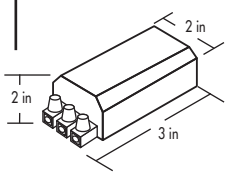
F IGNITOR– OVAL



G IGNITOR– OVAL

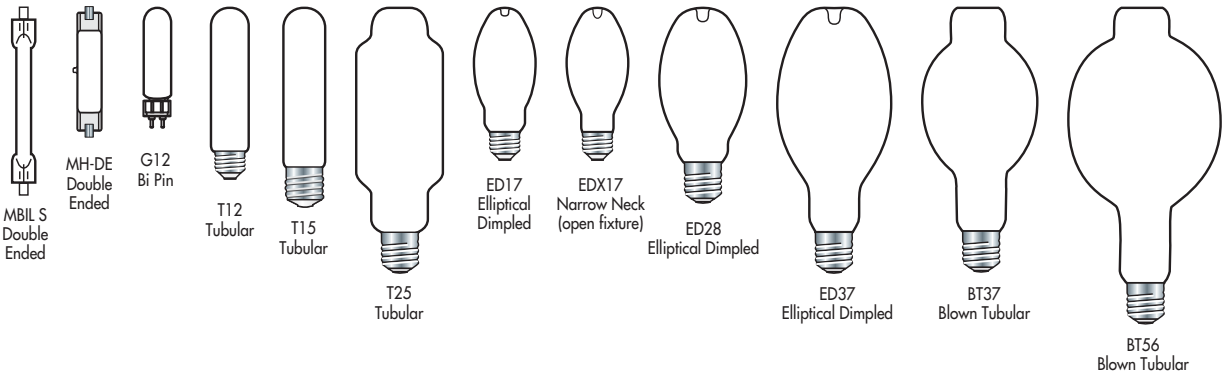


H IGNITOR- BVS-046

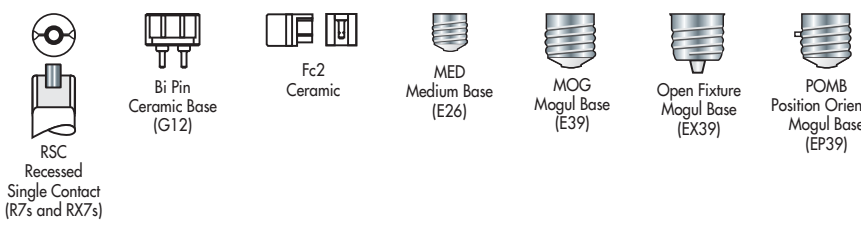


Lamp Shapes and Bases

Lamps



Bases



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Lamp Diagrams

TECHNICAL INFORMATION

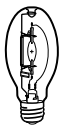
A ED17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B EDX17

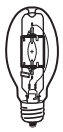
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



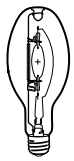
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



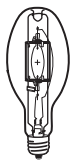
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

E ED37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

F ED37

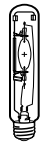


Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

G T15

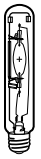
Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

H T15



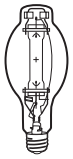
Dia. = 1.9″ (46mm)
MOL = 9.8″ (248mm)
LCL = 5.8″ (146mm)
Base = Mogul (E39)

I T15



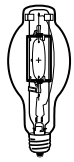
Dia. = 1.9″ (46mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

J BT37



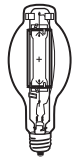
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

K BT37



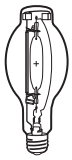
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

L BT37



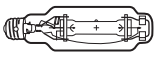
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

M BT37



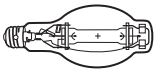
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

N T25



Dia. = 3.1″ (79mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul POMB (EP39)

O BT37



Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul POMB (EP39)

P T15

Dia. = 2.0″ (52mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

Q T15

Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

R MR16

Dia. = 2.4″ (60mm)
MOL = 3.6″ (92mm)
Base = GX10

S MR16

Dia. = 2.0″ (50mm)
MOL = 2.6″ (65mm)
Base = GX10

T T6

Dia. = 0.8″ (20mm)
MOL = 3.9″ (99mm)
LCL = 2.2″ (56mm)
Base = G12

U T6C

Dia. = 0.8″ (20mm)
MOL = 5.2″ (132mm)
LCL = 2.3″ (59mm)
Base = PGZ12

V T4

Dia. = 0.6″ (15mm)
MOL = 3.3″ (85mm)
LCL = 2.0″ (51mm)
Base = G8.5

W PAR30

Dia. = 3.8″ (95mm)
MOL = 4.5″ (114mm)
Base = Medium (E26)

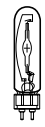
X PAR38

Dia. = 4.8″ (121mm)
MOL = 5.4″ (138mm)
Base = Medium (E26)

Y T12

Dia. = 1.5″ (38mm)
MOL = 7.6″ (193mm)
LCL = 3.5″ (89mm)
Base = PGZX18

Z G12



Dia. = 0.9″ (23mm)
MOL = 4.3″ (110mm)
LCL = 2.2″ (56mm)
Base = G12

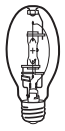
A1 ED17

Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

B1 EDX17

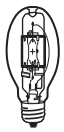
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C1 ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D1 ED28



Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

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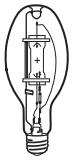
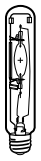
Lamp Diagrams

E1 ED37



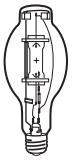
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

F1 T15



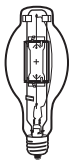
Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

G1 BT37



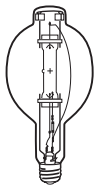
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

H1 BT37



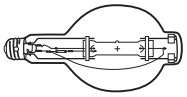
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

I1 BT56



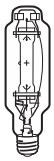
Dia. = 7.0″ (180mm)
MOL = 15.3″ (391mm)
LCL = 9.5″ (241mm)
Base = Mogul (E39)

J1 BT56



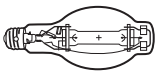
Dia. = 7.0″ (180mm)
MOL = 15.3″ (391mm)
LCL = 9.5″ (241mm)
Base = Mogul POMB (EP39)

K1 T25



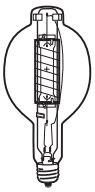
Dia. = 3.1″ (79mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

L1 BT37



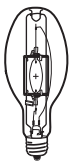
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul POMB (EP39)

M1 BT56



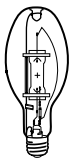
Dia. = 7.0″ (180mm)
MOL = 15.4″ (391mm)
LCL = 9.5″ (241mm)
Base = Mogul (EX39)

N1 ED37



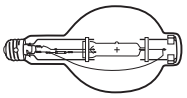
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 5.9″ (149mm)
Base = Mogul (EX39)

O1 ED37



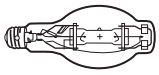
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 5.9″ (150mm)
Base = Mogul (E39)

P1 BT56



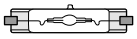
Dia. = 7.0″ (180mm)
MOL = 15.3″ (391mm)
LCL = 9.5″ (241mm)
Base = Mogul POMB (EP39)

Q1 BT37



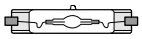
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul POMB (EP39)

R1 MH-DE



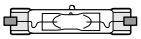
T6
Dia. = 20mm
Insertion Length = 117.6mm
Contact to Contact = 114.2mm
Base = RSC (R7s)

S1 MH-DE



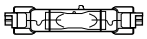
T7
Dia. = 23mm
Insertion Length = 135.4mm
Contact to Contact = 132.0mm
Base = RSC (R7s)

T1 MH-DE



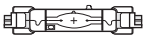
T8
Dia. = 25mm
Insertion Length = 161.3mm
Contact to Contact = 157.9mm
Base = RSC (RX7s)

U1 MH-DE



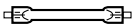
T8
Dia. = 25mm
Distance between cap reference planes = 139mm +0, -1
Base = Fc2

V1 MH-DE



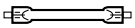
T8
Dia. = 25mm
Distance between cap reference planes = 139mm +0, -1
Base = Fc2

W1 MBIL S



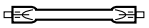
MOL = 256mm
Effective arc length = 183mm
Base = RSC (RX7s)

X1 MBIL S



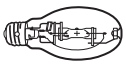
MOL = 256mm
Effective arc length = 168mm
Base = RSC (RX7s)

Y1 MBIL S



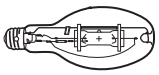
MOL = 311mm
Effective arc length = 191mm
Base = *Special, Contact Manufacturer

Z1 ED28



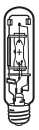
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul POMB (EP39)

A2 ED37



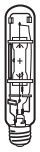
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul POMB (EP39)

B2 T15



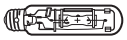
Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

C2 T15



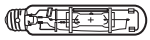
Dia. = 2.0″ (52mm)
MOL = 9.8″ (248mm)
LCL = 5.8″ (146mm)
Base = Mogul (E39)

D2 T15



Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul POMB (EP39)

E2 T15

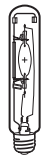


Dia. = 2.0″ (52mm)
MOL = 9.8″ (248mm)
LCL = 5.8″ (146mm)
Base = Mogul POMB (EP39)

F2 T15

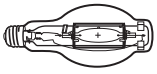
Dia. = 2.0″ (52mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

G2 T15



Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

H2 BT37

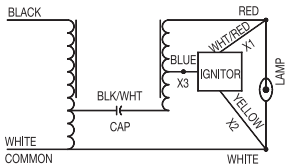


Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

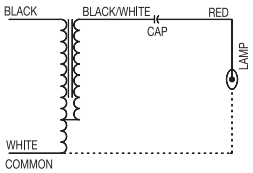
Ballast Wiring Diagrams

TECHNICAL INFORMATION

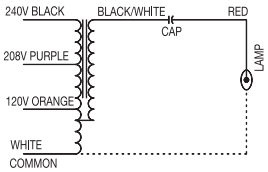
A



B



D



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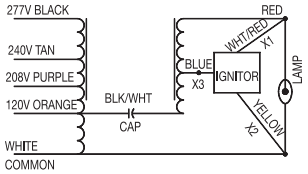

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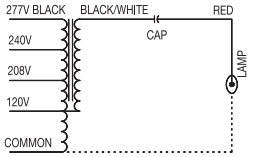

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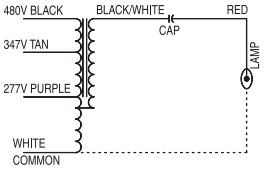
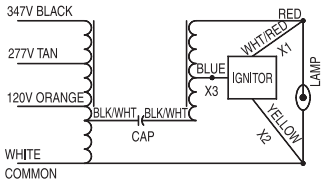
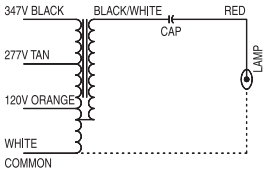


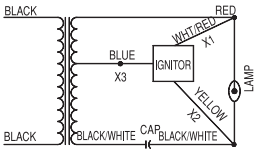
K



M



N



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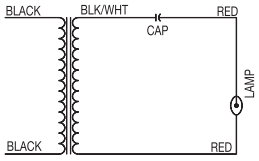

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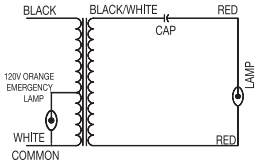

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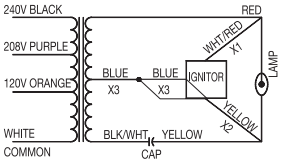
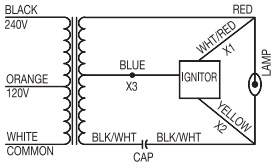
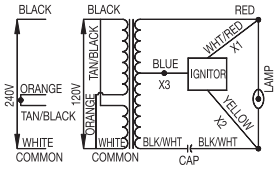


U



V



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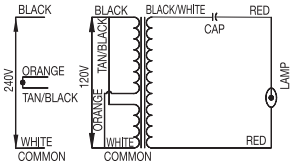

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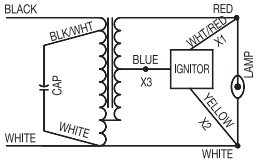

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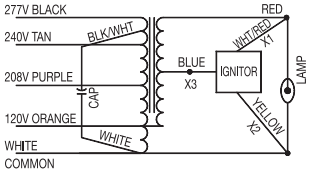

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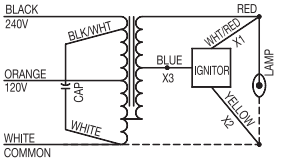

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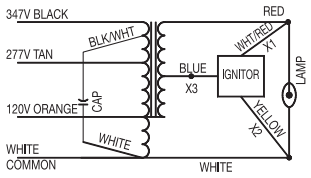
Ballast Wiring Diagrams

TECHNICAL INFORMATION

A1



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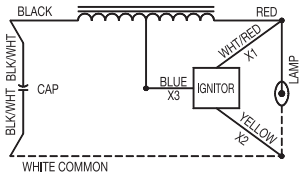

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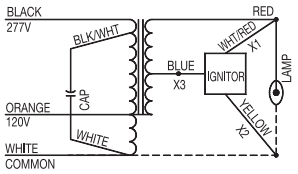

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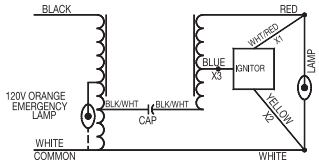

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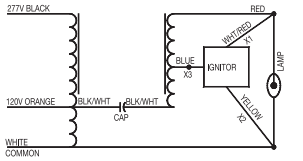

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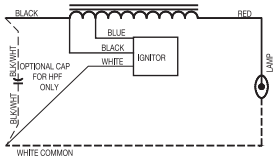

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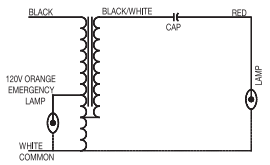

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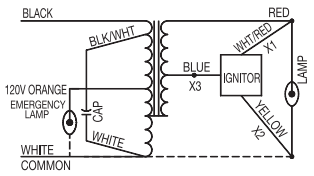

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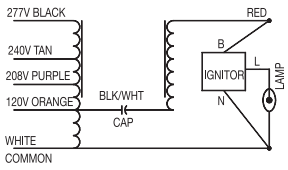

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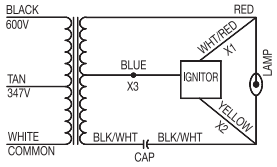

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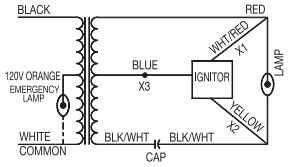
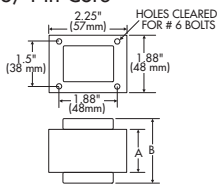


Ballast Diagrams

TECHNICAL INFORMATION

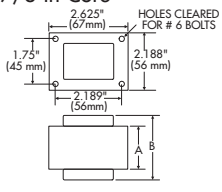
1 3/4 in Core

REACTOR



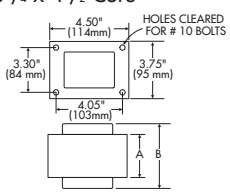
2 7/8 in Core

REACTOR



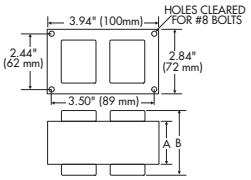
3 $3^3/_4$ x $4^1/_2$ Core

REACTOR



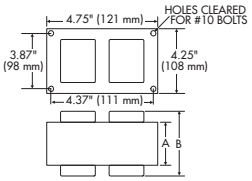
4 3x4 Core

HX/CWA/CWI



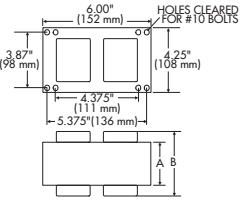
5 4x4 Core

HX/CWA/CWI



6 4x6 Core

HX/CWA/CWI



Brackets

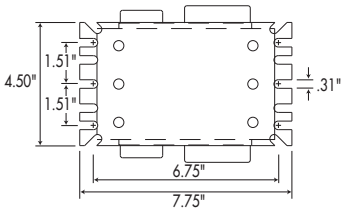
TECHNICAL INFORMATION

Core & Coil Welded Brackets

These brackets are supplied as an option by adding a "B" suffix to the ballast product number

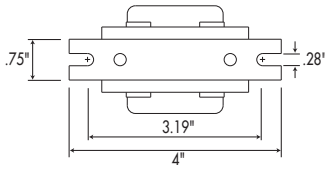
1500-2000W
4 x 6 Core T&L

A



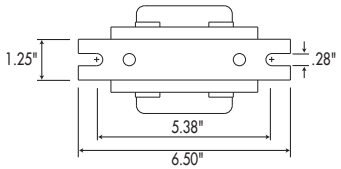
Small Core E&I Reactors
(3/4, 7/8, and 1 in)

B



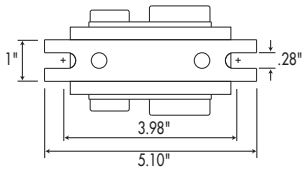
4 x 4, 4 x 6 Core T&L
3.75 x 4.5 Core E&I Reactors

C



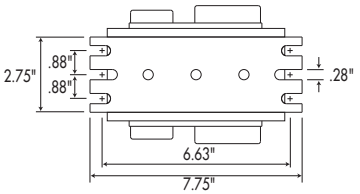
3 x 4 Core T&L

D



2x400W-1000W
4 x 6 Core T&L

E

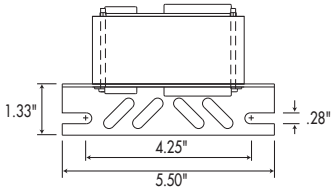


Core & Coil Adjustable Mounting Brackets

(Included with Capacitor and Bracket Kits)
These brackets, along with appropriate hardware, are supplied as an option by adding a "K" suffix to the ballast product number

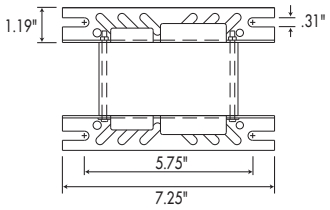
3 x 4 Core T&L
Small Core E&I Reactors (3/4, 7/8, and 1")

F



4 x 4, 4 x 6 Core T&L
3.75 x 4.5 Core E&I Reactors

G

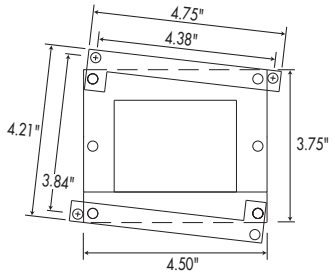


Core & Coil Adapter Mounting Bracket Kits

These brackets along with appropriate hardware are available in kits

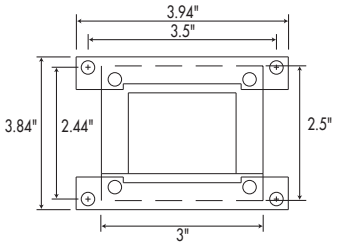
BCK-015
To mount 3.75 x 4.5 Core E&I Reactors in fixtures with a 4 x 4 T&L footprint

H



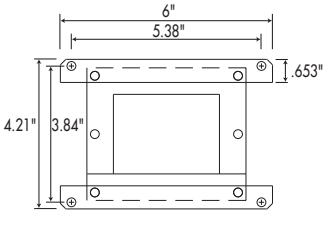
BCK-016
To mount 1" Core E&I Reactors in fixtures with a 3 x 4 T&L footprint

I



BCK-017
To mount 3.75 x 4.5 Core E&I Reactors in fixtures with a 4 x 6 T&L footprint

J



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Glossary of Terms

TECHNICAL INFORMATION

Arc Tube: A completely sealed quartz or ceramic tube where the electrical discharge (arc) occurs and light is generated

Ballast: A device that, by means of resistance, inductance, capacitance or electronic elements, singly or in combination, controls the current, voltage and waveform to the required values for proper lamp starting and operation

Ballast Characteristic Curve: The curve of lamp wattage vs. lamp voltage over a range of normal lamp voltages when a HID ballast is operated at a given supply voltage

Ballast Power Factor: Power (watts) consumed by the lamp and ballast divided by the product of line voltage and line current ("volt-amps" or "VA"); A measure of power quality and of concern to utilities

BTL: The distance from ballast-to-lamp

Burning Position: The position or orientation in which a lamp operates

Cold Start Time: The amount of time from the application of ballast voltage to ignition of the arc discharge in a cold lamp.

Color Rendering Index (CRI or Ra): A measure of a light source's ability to render colors relative to a standard of 100

Constant Wattage Autotransformer (CWA) Ballast: A magnetic autotransformer lead ballast circuit incorporating a capacitor in series with the lamp. Compared to other ballasts, the CWA regulates over a wider input voltage range, holding lamp current nearly constant

Constant Wattage Isolated (CWI) Ballast: A magnetic lead ballast circuit incorporating a fully-isolated secondary winding; it has a capacitor in series with the lamp and the same performance features as the CWA ballast

Correlated Color Temperature (CCT): The perceived "color" of the light emitted by a lamp expressed in kelvin (K) units

Current Crest Factor: The ratio of the peak-to-RMS value of lamp current. Metal halide magnetic ballast values range from 1.5 to 1.8

Economic Life: The number of hours a group of lamps will burn before it is economically and aesthetically advisable to group relamp (typically 60% to 75% of rated life)

Efficacy (Lamp): A ratio of lamp lumens to lamp power measured in lumens per watt (LPW)

Energy Master®: Venture's line of energy-saving retrofit lamps that operate on existing ballasts at lower wattages than the original lamps

Extinction Voltage: The RMS value of supply voltage at which a reference lamp extinguishes when the supply voltage is slowly reduced from its rated value. The ANSI procedure calls for a 2 to 3% reduction in supply voltage per second

Formed Body Arc Tube: Precisely reproducible ellipsoidal arc tube formed by pressurizing molten quartz inside a mold; produces consistent arc tubes with higher efficacy and improved color uniformity

HID: High Intensity Discharge lamps; includes metal halide, mercury vapor and high pressure sodium

High-Power-Factor (HPF) Ballast: A ballast designed so that the input power factor is not less than 90% when the ballast is operated at the rated supply voltage using an appropriate reference lamp

High Reactance Autotransformer (HX) Ballast: An autotransformer lag circuit that uses a magnetic shunt path between primary and secondary coils to control reactance; has operating characteristics similar to those of a reactor and has input taps to accept a wide range of supply voltages

Hot Restart or Restrike Time: The time from lamp extinction to lamp re-start after a supply voltage interruption

Ignitor: An electronic device, which provides, by itself or in combination with other circuit components, the appropriate electrical pulses to start a discharge lamp

Initial Lumens: The light output of a lamp at rated power on a reference ballast after 100 hours of operation

Input Power: See System Power

Lag Ballast: A magnetic ballast having a lagging lamp current with respect to the supply voltage. Current limiting is primarily inductive; holds lamp power reasonably constant with respect to lamp voltage variations

Lamp Lumen Depreciation (LLD) factor: The ratio of lumen output of a lamp at a given operating time as a percentage of 100 hour lumens

Lamp Power Factor: Power consumed by the lamp divided by the product of RMS lamp voltage and RMS lamp current; it is less than unity on magnetic ballasts operating at 50 or 60 hz

Lamp Voltage: The true RMS voltage of a fully warmed-up lamp

Lamp Power: The power consumed by a lamp after warm-up, measured in watts

Lamp Regulation: The ratio of changes in lamp power to changes in lamp voltage, often expressed in graphical format. See Ballast Characteristic Curve.

Lead Ballast: A magnetic ballast having a leading lamp current with respect to the supply voltage; current limiting is accomplished by means of an inductor as well as a capacitor connected in series with the lamp. This includes CWA and CWI ballasts

Light Center Length (LCL): The distance from the center of the visible arc discharge to the bottom contact of the base

Line Regulation: The ratio of changes in lamp power to changes in ballast input voltage often expressed as a percentage

Lumens (photopic): A measurement of light at daytime levels; takes into account the human eye sensitivity curve so that more weight is given to the yellow-green part of the light spectrum

Lumens (scotopic): A measurement of light at nighttime levels; takes into account the human eye sensitivity curve so that more weight is given to the blue-green part of the light spectrum.

Lumen Maintenance: The lumen output of a lamp at a given operating time as a percentage of 100 hour lumens

Lumen Per Watt (LPW): See Efficacy

Maximum Overall Length (MOL): The maximum allowable distance from the top of the glass bulb to the end contact of the base

Mean Lumens: Light output at 40% of rated lamp life or in some cases, at 8000 hours.

^{x}-SPC: *Uni-Form* enhanced super pulse start ceramic metal halide lamp, with high CRI

^{x}-SPE: *Uni-Form* enhanced super pulse start lamp, optimized for best performance on electronic ballasts

^{x}-SPL: *Uni-Form* enhanced super pulse start lamp, with longer rated life of 40,000 hours

Glossary of Terms

TECHNICAL INFORMATION

Natural White®: Venture's line of pulse start lamps that have a 5000K color temperature, 90+ CRI and 90% lumen maintenance

Normal (Low) Power-Factor (NPF) Ballast: A ballast designed so that the input power factor is less than 90% when the ballast is operated at the rated supply voltage using a reference lamp

Open Circuit Current (Line): The RMS current measured at the input terminals of a ballast with lamp removed or inoperative

Open Circuit Voltage, Ballast (OCV): The voltage across the output terminals of a ballast when no load is connected (true RMS, unless otherwise stated)

Operating Current (Line): The RMS current measured at the input terminals of a ballast which is operating a reference lamp

Operating Voltage: See Lamp Voltage

Hybrid Ballast: A Venture lag (magnetic) ballast designed with a low current crest factor for improved lamp performance. Peak Lead Ballast: A CWA ballast that produces a highly peaked open circuit voltage wave shape and a peaked current wave shape

Photopic Light: Applicable during normal daytime lighting conditions; describes lumen values measured using the high luminance eye sensitivity function centered at 555 nm (yellow-green). See pages t6

Position Oriented Mogul Base (POMB): Used with probe start lamps which are specially designed for horizontal operation; has an alignment pin in the base for proper lamp orientation when installed into an EP39 socket

Power Factor (Ballast): The ratio of the ballast input power (watts) divided by the product of the RMS ballast supply voltage and ballast supply current

Probe Start Lamp: A metal halide lamp which uses a starter electrode (probe) to assist in starting instead of an ignitor pulse; also contains a bimetal switch and resistor

Pulse Start CWA Ballast: A CWA ballast using an ignitor to start the lamp

Pulse Start Lamp: Specially designed metal halide lamp that requires a high voltage pulse for starting; has no starter electrode (probe).

Quad-tap Ballast: A magnetic lag ballast with input voltage taps for four standard voltages - 120, 208, 240 and 277 volts

Rated Life: The number of operating hours at which 50% of the lamps will still be operating.

Rated Supply Voltage: The input voltage for which a ballast is designed to operate, and to which performance characteristics are referred

Reactor Ballast: A lag ballast with a single input voltage tap

Regulated Lag Ballast: A lag ballast with a third coil for improved lamp power regulation

Restrike: To re-ignite the arc of an HID lamp

RMS: root-mean-square

S/P Ratio: The ratio of photopic lumens to scotopic lumens. See pages t6-t7

Scotopic Light: Applicable during dark nighttime lighting conditions; describes lumen values measured using the low luminance eye sensitivity function centered at 507 nm (blue-green). See pages t6-t7

Short-Circuit Current (Ballast): The current at the output terminals of a ballast when the output is shorted (RMS, unless otherwise stated)

Shroud: A quartz cylinder surrounding the arc tube of a Venture open-rated (ANSI Type-O) metal halide lamp; designed to reduce the damage to the outer bulb if an arc tube rupture occurs; required to pass the ANSI Type-O containment test

Spectral Power Distribution: The distribution of radiant power (watts) of a lamp as a function of wavelength (nm)

Starter: See Ignitor

Starting Current (Line): The RMS current measured through the input terminals of a ballast 5 to 15 seconds after a lamp has started

Starting Pulse: A high-voltage, low-energy pulse superimposed on the open circuit voltage of some HID ballasts to aid in starting a lamp

Sustaining Voltage: The instantaneous voltage available to the lamp from the ballast at the time the lamp current passes through zero

System Power: The power measured at the input terminals of a ballast while operating a reference lamp

Type-E Lamps (Enclosed Rated Lamps): Lamps that must be used in enclosed luminaires which meet the requirements of UL1598. See page t11

Type-S Lamps: Lamps that do not contain a shroud around the arc tube yet are considered "suitable" for open luminaire operation, only if operated in the vertical ±15° position. They do not meet ANSI criteria for containment and must be turned off at least once per week for a minimum of 15 minutes if operated continuously; These lamps must be replaced at or before reaching rated lamp life; not recommended by the NEC or UL1598 for open luminaires. See page t11

Type-O Lamps (Open Rated Lamps): Lamps that can be operated in either open or enclosed luminaires and do not need a weekly shut-off; meet the ANSI criteria for containment-rated operation; special exclusionary sockets are available for these lamps to ensure that the wrong lamp type is not used. See page t11

Uni-Form®: Venture's pulse start lamp that contains a formed body arc tube; requires a high voltage pulse for starting; has improved lumen maintenance and life.

Ventronic™ ballast: Venture's low frequency square wave and high frequency electronic pulse start ballasts

Warm-Up Time: The amount of time from ignition of the lamp to 90% of full light output

Watts: A measure of power or energy (in joules) being used or emitted each second

White-Lux®: Venture's line of retrofit metal halide lamps that operate on high pressure sodium ballasts

UL "Temp code": An Underwriters Laboratories (UL) alphabetic temperature code for ballasts which designates a range of temperature rise of wire over ambient temperature. The code is found on the label directly following the number 1029X, where X is the appropriate alphabetic character

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Trouble Shooting Guide

#1
How can I distinguish between lamp failure and fixture failure?

All of Venture's retrofit ballast housings shipped from our facility are tested to operate a compatible lamp. First check to see that you have the correct wattage lamp that matches the ballasts. The label affixed to the side of the fixture identifies the wattage of that specific fixture and the coordinating lamp and ballast ANSI Codes.

If the lamp does not ignite, replace with a known good lamp. If that lamp does not operate there may be a wiring or ballast problem.

#2
What do I need to check within the system prior to operation?

Be certain that the lamp you are using is compatible with the fixture wattage and ANSI code.

#3
What are the dimming wires that come out of an electronic fixture?

Dimming wires from the fixture are Orange and Brown. Please follow the instructions exactly for correct wiring. If a motion sensor is used, please follow the wiring diagrams provided by the sensor manufacturer.

The cord coming from the fixture is already wired to the inside of the ballast and is ready to be utilized. If a rework of the cord connection for length extension or compatibility with a specific plug is required, a re-wiring of the new cord is necessary. Note that the Pink (light red color) wires are for the lamp connection (which is already connected to the socket). The Green wire is the ground wire, Yellow is the low or neutral wire, and the Black is the high or hot wire. All of these wires are integrated into our own cord; be certain that you are connecting the plug correctly to the fixture's cord. In the case of the use of a longer cord, please follow the standard wiring diagrams approved by the lighting industry.

#4
What if the lamp will not start?

1) Check to see if lamp is loose in the socket. Check for arcing (blackening) at the center contact button and retighten lamp until it is properly seated. Tightening too much may cause lamp breakage.
2) No power to ballast: Check circuit breakers or other causes of potential power outages.
3) Normal end of lamp life: Test operating lamp in adjacent luminaire. Replace if necessary.
4) Sensing devices: Replace sensing device as needed.
5) Defective/improper wiring: Verify fixture has been properly wired. Correct as needed.
6) Voltage at luminaire is too low: Line voltage at input of ballast should be within 10% of label rating (increased loading/demand decreases available voltage at ballast primary). Check at full load. If tapped ballast, match ballast tap connection to supply voltage measured at ballast. Verify that lamp to ballast distance is acceptable.
7) Ballast/Lamp: Use a ballast compatible with your lamp. Ensure ballast and lamp are not defective.
8) Improper lamp operating position: Be certain operating position agrees with lamp specifications.
9) Hot restrike: When power is cut or interrupted for HID lamps, they require a cool-down period of up to 20 minutes for "hot restrike" with standard probe start metal halide systems and 8-12 minutes with Uni-Form® pulse start systems.

Verify ignitor pulse is present.

#5
What if the lamp life is reduced?

1) Lamp compatibility: Check that the lamp is the correct wattage and ANSI Code.
2) Lamp damaged: Visually check interior and exterior bulb, arc tube and base for defects.
3) Ballast: Make certain that the ballast label agrees with the line voltage and lamp.
4) Lamp in incorrect position: Replace incorrect lamp with suitable lamp in proper position.

#6
What if lamp flickers or cycles?

1) Check the photocell (if applicable): If a photocell is used to switch the fixture, cover the photocell window or eye completely with black electrical tape and check for proper operation.
   A. If the cycling STOPS, re-aim the photocell (or the fixture) to reduce fixture light spill onto the photocell eye.
   B. If the cycling CONTINUES, replace the photocell with a shortening cap if available or bypass the photocell completely in the circuit temporarily. If the lamp remains on the photocell is defective. If the cycling STILL CONTINUES, the lamp is probably bad.
2) Wrong ballast: New lamps may "cycle." If lamp doesn't stabilize after 3 starts or after 30-60 sec. intervals, check ballast.

Measure lamp operating voltage. Measure ballast open circuit voltage. Replace as necessary.

3) Variable voltage: Other machinery on lighting circuits may cause flickering. Remove lighting circuits from those serving these devices. Provide voltage regulators.

Trouble Shooting Guide

#7
What if the lamp starts slowly?

1) Hard starter: If lamp doesn't ignite rapidly, check voltage and ballast. Replace if necessary.

#8
What if the fuses are blown or circuit breakers are open on lamp start?

1) Overloaded circuit: Rewire to accommodate starting open circuit current of lamp and ballast found on lamp specification sheet.
2) High momentary transient current: Limit amperage by reducing luminaire quantity to each circuit.

#9
What if the lamp output light is low?

1) Lamp depreciation: Refer to published technical characteristics to see if depreciation is within normal range. The lighting system may be due for a group re-lamp.
2) Incorrect voltage: Check if rating designation conforms to lamp rating description. Check line voltage at ballast and compare to rated voltage requirements. Look at wiring connections for voltage loss points. Check socket contact point.
3) Incorrect ballast output: Determine if it conforms to lamp requirements. If voltage & current don't stabilize within 5-10 min. of warm-up time, ballast output is incorrect & adjustment should be made.
4) Dirt accumulation: Regularly clean and maintain your lamp and luminaire.

#10
What if the arc tube becomes blackened or swollen?

1) Over-wattage operation/improper ballasting: Check if lamp is operated on ballast designed for higher wattages, check ballast label against lamp specification.
2) Reflector problem: If you suspect reflector is refocusing damaging energy on arc tube, contact luminaire manufacturer.
3) "Glow state" operation: Under certain conditions, lamps will go into a partial discharge (dim glow). Replace lamp and check ballast.

#11
What if a difference in lamp color is noted?

1) Normal maintenance: Color shift may occur as lamps age. Using Uni-Form® pulse start systems and/or group re-lamping will minimize this.
2) Wrong lamp color: Etching on lamps will be different if lamps are not the same. Replace as needed.
3) Variations in luminaires: Variations in the surface or finish of the reflectors and/or lenses can introduce color differences. Interchange lamps to check for possible luminaire differences. Make certain that luminaries are clean.
4) Environmental variations: A room's walls, floors, furnishings, etc. may affect appearance of lamp color.

Measure capacitance to specification using capacitance meter. Replace capacitors if needed.

#12
What if the reflector has changed shape and color?

Verify the reflector meets the following guidelines:

Plastic: Any open optic greater than a 22 inch diameter and 3570 cubic inch volume.

Glass and Metal: Any open optic greater than a 15 inch diameter and 1390 cubic inch volume:

Optics specifications are UL requirements based on heat constraints. Optics may also be referred to as a Reflector, Reflexor, Refractor etc. by various manufacturers. All of Venture's retrofit ballast housings are "Open Rated" only.

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

Product Index - Lamps

Product Index and Cross Reference

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20	38806	MHC 20W/U/T4/UVS/PS/930	Uni-Form®	2
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20	38801	MPC 20W/U/MR16/PS/930/FL25	*Uni-Form*	2
20	38802	MPC 20W/U/MR16/PS/930/WF40	*Uni-Form*	2
39	38807	MHC 39W/U/T4/UVS/PS/930	*Uni-Form*	3
39	38810	MHC 39W/U/T6/UVS/PS/930	*Uni-Form*	3
39	38804	MPC 39W/U/MR16/PS/930/FL25	*Uni-Form*	3
39	38805	MPC 39W/U/MR16/PS/930/WF40	*Uni-Form*	3
39	38826	MPC 39W/U/PAR30L/UVS/PS/830/FL30	*Uni-Form*	3
39	38825	MPC 39W/U/PAR30L/UVS/PS/830/SP10	*Uni-Form*	3
50	13093	MH 50W/C/U/PS	*Uni-Form*	4
50	52312	MH 50W/U/PS	*Uni-Form*	4
50	30041	MP 50W/C/U/UVS/PS	*Uni-Form*	4
50	10381	MP 50W/C/U/UVS/PS/3K	*Uni-Form*	4
50	32100	MP 50W/U/UVS/PS	*Uni-Form*	4
50	10226	MP 50W/U/UVS/PS/3K	*Uni-Form*	4
60	38822	MHC 60W/U/T6C/UVS/PS/728	*Uni-Form*	5
60	32984	MHL 60W/C/U/ED17/PS/737	*Uni-Form*	5
60	12657	MHL 60W/C/U/ED28/PS/737	*Uni-Form*	5
60	55554	MHL 60W/U/ED17/PS/740	*Uni-Form*	5
60	62892	MHL 60W/U/ED28/PS/740	*Uni-Form*	5
60	95061	MP 60W/C/U/ED17/UVS/PS/950	*Uni-Form*	5
60	95060	MP 60W/U/ED17/UVS/PS/950	*Uni-Form*	5
60	50049	MPE 60W/U/ED17/UVS/PS/740	*Uni-Form*	5
60	77678	MPE 60W/U/ED28/UVS/PS/740	*Uni-Form*	5
70	12108	HIT 70W/G12/UVS/3K	Specialty	5
70	52983	HIT 70W/G12/UVS/4K	Specialty	5
70	39682	HIT 70W/G12/UVS/FS/6K	Specialty	5
70	16786	MH-DE 70W/UVS/3K	Specialty	5
70	60248	MH-DE 70W/UVS/4K	Specialty	5
70	79470	MH-DE 70W/UVS/FS/6K	Specialty	5
70	12180	MH 70W/C/U/PS	*Uni-Form*	6
70	16017	MH 70W/U/ED28/PS	*Uni-Form*	6
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70	38808	MHC 70W/U/T4/UVS/PS/930	*Uni-Form*	6
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70	15632	MHL 70W/U/ED17/PS/740	*Uni-Form*	6
70	86501	MHL 70W/U/ED28/PS/740	*Uni-Form*	6
70	95072	MP 70W/C/U/ED17/UVS/PS/950	*Uni-Form*	6
70	22466	MP 70W/C/U/ED28/UVS/PS/3K	*Uni-Form*	6
70	67115	MP 70W/C/U/UVS/PS	*Uni-Form*	6
70	14611	MP 70W/C/U/UVS/PS/3K	*Uni-Form*	6
70	95071	MP 70W/U/ED17/UVS/PS/950	*Uni-Form*	6
70	40389	MP 70W/U/UVS/PS	*Uni-Form*	6
70	45424	MP 70W/U/UVS/PS/3K	*Uni-Form*	6
70	38828	MPC 70W/U/PAR30L/UVS/PS/830/FL30	*Uni-Form*	6
70	38827	MPC 70W/U/PAR30L/UVS/PS/830/SP10	*Uni-Form*	6
70	38830	MPC 70W/U/PAR38/UVS/PS/830/FL30	*Uni-Form*	6
70	38829	MPC 70W/U/PAR38/UVS/PS/830/SP10	*Uni-Form*	6
70	49542	MPE 70W/U/ED17/UVS/PS/740	*Uni-Form*	6
70	33291	MPE 70W/U/ED28/UVS/PS/740	*Uni-Form*	6
90	38823	MHC 90W/U/T6C/UVS/PS/728	*Uni-Form*	8
90	35798	MHL 90W/C/U/ED17/PS/737	*Uni-Form*	8
90	33548	MHL 90W/C/U/ED28/PS/737	*Uni-Form*	8
90	78352	MHL 90W/U/ED17/PS/740	*Uni-Form*	8
90	89865	MHL 90W/U/ED28/PS/740	*Uni-Form*	8
90	95091	MP 90W/C/U/ED17/UVS/PS/950	*Uni-Form*	8
90	95090	MP 90W/U/ED17/UVS/PS/950	*Uni-Form*	8
90	14155	MPE 90W/U/ED17/UVS/PS/740	*Uni-Form*	8
90	29588	MPE 90W/U/ED28/UVS/PS/740	*Uni-Form*	8
100	89887	HIT 100W/G12/UVS/4K	Specialty	5
100	79986	MH 100W/C/U/ED28/PS	*Uni-Form*	9
100	15823	MH 100W/C/U/PS	*Uni-Form*	9
100	67868	MH 100W/U/ED28/PS	*Uni-Form*	9
100	27266	MH 100W/U/PS	*Uni-Form*	9
100	38812	MHC 100W/U/T6/UVS/PS/930	*Uni-Form*	9
100	54231	MHL 100W/C/U/ED17/PS/737	*Uni-Form*	9
100	54286	MHL 100W/C/U/ED28/PS/737	*Uni-Form*	9
100	21982	MHL 100W/U/ED17/PS/740	*Uni-Form*	9
100	22498	MHL 100W/U/ED28/PS/740	*Uni-Form*	9
100	92534	MP 100W/C/U/ED17/UVS/PS/950	*Uni-Form*	9
100	22145	MP 100W/C/U/ED28/UVS/PS/3K	*Uni-Form*	9
100	11278	MP 100W/C/U/UVS/PS	*Uni-Form*	9
100	11245	MP 100W/C/U/UVS/PS/3K	*Uni-Form*	9
100	95100	MP 100W/U/ED17/UVS/PS/950	*Uni-Form*	9
100	96267	MP 100W/U/UVS/PS	*Uni-Form*	9
100	96770	MP 100W/U/UVS/PS/3K	*Uni-Form*	9
100	38832	MPC 100W/U/PAR38/UVS/PS/830/FL30	*Uni-Form*	9
100	38831	MPC 100W/U/PAR38/UVS/PS/830/SP10	*Uni-Form*	9
100	62456	MPE 100W/U/ED17/UVS/PS/740	*Uni-Form*	9
100	85799	MPE 100W/U/ED28/UVS/PS/740	*Uni-Form*	9
125	35638	MH 125W/C/HBU/PS	*Uni-Form*	10
125	61914	MH 125W/HBU/ED28/PS	*Uni-Form*	10
125	76602	MH 125W/HBU/PS	*Uni-Form*	10
125	38509	MHL 125W/C/U/ED17/PS/737	*Uni-Form*	10
125	43928	MHL 125W/C/U/ED28/PS/737	*Uni-Form*	10
125	41256	MHL 125W/U/ED17/PS/740	*Uni-Form*	10
125	93256	MHL 125W/U/ED28/PS/740	*Uni-Form*	10
125	13341	MP 125W/BU/UVS/PS	*Uni-Form*	10
125	43319	MP 125W/C/BU/UVS/PS	*Uni-Form*	10
125	25813	MP 125W/V/ED28/UVS/PS	*Uni-Form*	10
125	19572	MPE 125W/U/ED17/UVS/PS/740	*Uni-Form*	10
125	24455	MPE 125W/U/ED28/UVS/PS/740	*Uni-Form*	10
140	38824	MHC 140W/U/T6C/UVS/PS/728	*Uni-Form*	11
140	45465	MHL 140W/C/U/ED17/PS/737	*Uni-Form*	11
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140	76548	MHL 140W/U/ED17/PS/740	*Uni-Form*	11
140	23542	MHL 140W/U/ED28/PS/740	*Uni-Form*	11
140	95141	MP 140W/C/U/ED17/UVS/PS/950	*Uni-Form*	11
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Finding It

This section lists all of the Venture Lighting® products contained in this catalog, listed by wattage. The key to finding a given product is in this index.

You may ask "why so many choices?" and the answer is simple- Solutions. Venture Lighting offers more choices of pulse start metal halide lighting systems in order to have the right system solution for any application need. Venture has more choices of lumen packages, color temperatures, open or enclosed fixture rated lamps and energy saving solutions

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150	25779	HIT 150W/G12/UVS/4K	Specialty	5
150	78564	HIT 150W/G12/UVS/FS/6K	Specialty	5
150	69559	MH 150W/U/ED28/EM	Specialty	2
150	44810	MH 150W/U/EM	Specialty	2
150	80244	MH-DE 150W/UVS/10K PLUS	Specialty	5
150	11295	MH-DE 150W/UVS/3K	Specialty	5
150	74756	MH-DE 150W/UVS/4K	Specialty	5
150	29963	MH-DE 150W/UVS/FS/6K	Specialty	5
150	21344	MH 150W/C/U/ED28/PS/737	Uni-Form	12
150	94986	MH 150W/C/U/PS/737	Uni-Form	12
150	13556	MH 150W/U/ED28/PS/740	Uni-Form	12
150	99584	MH 150W/U/PS/740	Uni-Form	12
150	68542	MHL 150W/C/U/ED17/PS/737	Uni-Form	12
150	93218	MHL 150W/C/U/ED28/PS/737	Uni-Form	12
150	35985	MHL 150W/U/ED17/PS/740	Uni-Form	12
150	46105	MHL 150W/U/ED28/PS/740	Uni-Form	12
150	22961	MP 150W/C/U/ED17/UVS/PS/950	Uni-Form	12
150	32147	MP 150W/C/U/ED28/UVS/PS/737	Uni-Form	12
150	95153	MP 150W/C/U/ED28/UVS/PS/950	Uni-Form	12
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150	95150	MP 150W/U/ED17/UVS/PS/950	Uni-Form	12
150	58963	MP 150W/U/ED28/UVS/PS/740	Uni-Form	12
150	95152	MP 150W/U/ED28/UVS/PS/950	Uni-Form	12
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150	22455	MP 150W/U/UVS/PS/740	Uni-Form	12
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150	57492	MPE 150W/U/ED28/UVS/PS/740	Uni-Form	12
175	96627	MH 175W/C/U	Standard MH	2
175	63187	MH 175W/C/U/MED	Standard MH	2
175	88791	MH 175W/U	Standard MH	2
175	15556	MH 175W/U/MED	Standard MH	2
175	70136	MH 175W/U/T15/10K	Standard MH	2
175	32519	MPI 175W/BU	Standard MH	2
175	32520	MPI 175W/C/BU	Standard MH	2
175	52522	MS 175W/C/BU/MED/3K	Standard MH	2
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175	95176	MP 175W/BU/MED/UVS/PS/EM/950	Uni-Form	14
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175	95175	MP 175W/BU/UVS/PS/EM/950	Uni-Form	14
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175	16497	MS 175W/BU/MED/PS/740	Uni-Form	14
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175	68246	MS 175W/C/BU/PS/737	Uni-Form	14
175	99585	MS 175W/H75/PS/740	Uni-Form	14
175	99586	MS 175W/H75/T15/PS/740	Uni-Form	14
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200	98434	MHL 200W/V/ED28/PS/740	Uni-Form	16
200	95200	MP 200W/BU/UVS/PS/EM/950	Uni-Form	16
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200	33587	MPL 200W/C/V/ED28/UVS/PS/737	Uni-Form	16
200	60811	MS 200W/BU/MED/PS/740	Uni-Form	16
200	60812	MS 200W/C/BU/MED/PS/737	Uni-Form	16
200	70345	MS 200W/C/V/PS/737	Uni-Form	16
200	70764	MS 200W/H75/T15/PS/740	Uni-Form	16
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250	72748	MH-DE 250W/UVS/4K/Fc2	Specialty	5
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250	24785	MPI 250W/BU/LU	Specialty	3
250	10206	MPI 250W/C/BU/LU	Specialty	3
250	61290	MH 250W/C/U	Standard MH	3
250	63052	MH 250W/U	Standard MH	3
250	33479	MH 250W/U/T15	Standard MH	3
250	63897	MH 250W/U/T15/10K	Standard MH	3
250	60722	MPI 250W/BU	Standard MH	3
250	60723	MPI 250W/C/BU	Standard MH	3
250	36297	MS 250W/BU	Standard MH	3
250	18477	MS 250W/C/BU/3K	Standard MH	3
250	94883	MS 250W/HOR	Standard MH	3
250	88353	MS 250W/HOR/T15	Standard MH	3
250	54843	MS 250W/HOR/T15/3K	Standard MH	3
250	32393	MHL 250W/C/H75/ED28/PS/737	Uni-Form	18
250	71638	MHL 250W/C/V/ED28/PS/737	Uni-Form	18
250	65413	MHL 250W/H75/ED28/PS/740	Uni-Form	18
250	46895	MHL 250W/V/ED28/PS/740	Uni-Form	18
250	64658	MP 250W/BU/UVS/PS/740	Uni-Form	18
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315	38821	MPC 315W/U/T12/UVS/PS/942	Uni-Form	19
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320	34778	MHL 320W/C/H75/ED37/PS/737	Uni-Form	20
320	25796	MHL 320W/C/V/ED28/PS/737	Uni-Form	20
320	72378	MHL 320W/C/V/ED37/PS/737	Uni-Form	20
320	20116	MHL 320W/H75/ED28/PS/740	Uni-Form	20
320	28699	MHL 320W/H75/ED37/PS/740	Uni-Form	20
320	18635	MHL 320W/V/ED28/PS/740	Uni-Form	20
320	38765	MHL 320W/V/ED37/PS/740	Uni-Form	20
320	10103	MP 320W/BU/ED28/UVS/PS/740	Uni-Form	20
320	98530	MP 320W/BU/ED28/UVS/PS/EM//950	Uni-Form	20
320	21714	MP 320W/BU/ED37/UVS/PS/740	Uni-Form	20
320	98520	MP 320W/BU/ED37/UVS/PS/EM/950	Uni-Form	20
320	10104	MP 320W/C/BU/ED28/UVS/PS/737	Uni-Form	20
320	66506	MP 320W/C/BU/ED37/UVS/PS/732	Uni-Form	20
320	32795	MP 320W/C/BU/ED37/UVS/PS/737	Uni-Form	20
320	95123	MP 320W/C/BU/ED37/UVS/PS/EM/950	Uni-Form	20
320	95321	MP 320W/H75/T15/L/UVS/PS/EM/950	Uni-Form	20
320	95320	MP 320W/H75/T15/S/UVS/PS/EM/950	Uni-Form	20
320	77594	MS 320W/C/V/ED28/PS/737	Uni-Form	20
320	67712	MS 320W/C/V/ED37/PS/737	Uni-Form	20
320	47549	MS 320W/H75/ED28/PS/740	Uni-Form	20
320	79710	MS 320W/H75/T15/L/PS/740	Uni-Form	20
320	57626	MS 320W/H75/T15/S/PS/740	Uni-Form	20
320	59194	MS 320W/V/ED28/PS/740	Uni-Form	20
320	52236	MS 320W/V/ED37/PS/740	Uni-Form	20

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350	27845	MP 350W/C/V/UVS/PS/732	*Uni-Form*	22
350	44097	MP 350W/C/V/UVS/PS/737	*Uni-Form*	22
350	51208	MP 350W/H75/T15/L/UVS/PS/740	*Uni-Form*	22
350	65218	MP 350W/H75/UVS/PS/740	*Uni-Form*	22
350	47887	MP 350W/V/ED28/UVS/PS/740	*Uni-Form*	22
350	22149	MP 350W/V/UVS/PS/740	*Uni-Form*	22
350	64866	MS 350W/C/H75/PS/737	*Uni-Form*	22
350	71329	MS 350W/C/V/PS/737	*Uni-Form*	22
350	46959	MS 350W/H75/ED28/PS/740	*Uni-Form*	22
350	60258	MS 350W/H75/T15/S/PS/740	*Uni-Form*	22
350	93749	MS 350W/H75/T15/L/PS/740	*Uni-Form*	22
350	52980	MS 350W/V/ED28/PS/740	*Uni-Form*	22
350	98389	MS 350W/V/PS/740	*Uni-Form*	22
360	38029	MPI 360W/BU/EM	Specialty	2
360	67293	MPI 360W/C/BU/EM	Specialty	2
400	52134	MH 400W/U/LU	Specialty	3
400	59441	MH 400W/U/LU/ED28	Specialty	3
400	10044	MPI 400W/BU/LU	Specialty	3
400	83545	MH 400W/C/U	Standard MH	4
400	20753	MH 400W/C/U/ED28	Standard MH	4
400	18520	MH 400W/U	Standard MH	4
400	36813	MH 400W/U/5K	Standard MH	4
400	57540	MH 400W/U/ED28	Standard MH	4
400	27540	MH 400W/U/ED28/10K	Standard MH	4
400	55422	MH 400W/U/T15	Standard MH	4
400	95527	MPI 400W/BU	Standard MH	4
400	26091	MPI 400W/C/BU	Standard MH	4
400	40509	MS 400W/HOR	Standard MH	4
400	21929	MS 400W/HOR/ED28	Standard MH	4
400	55100	MS 400W/HOR/T15	Standard MH	4
400	32225	MS 400W/HOR/T15/3K	Standard MH	4
400	15678	MHL 400W/V/ED37/PS/740	*Uni-Form*	24
400	72315	MP 400W/BU/ED28/UVS/PS/EM/950	*Uni-Form*	24
400	57129	MP 400W/BU/UVS/PS/EM/950	*Uni-Form*	24
400	88648	MP 400W/C/V/ED28/UVS/PS/737	*Uni-Form*	24
400	45541	MP 400W/C/V/UVS/PS/737	*Uni-Form*	24
400	73189	MP 400W/H75/T15/L/UVS/PS/740	*Uni-Form*	24
400	17611	MP 400W/H75/UVS/PS/740	*Uni-Form*	24
400	12445	MP 400W/V/ED28/UVS/PS/740	*Uni-Form*	24
400	71642	MP 400W/V/UVS/PS/740	*Uni-Form*	24
400	55459	MS 400W/C/H75/ED28/PS/737	*Uni-Form*	24
400	42401	MS 400W/C/V/PS/737	*Uni-Form*	24
400	40124	MS 400W/H75/ED28/PS/740	*Uni-Form*	24
400	58788	MS 400W/H75/PS/740	*Uni-Form*	24
400	60260	MS 400W/H75/T15/S/PS/740	*Uni-Form*	24
400	74151	MS 400W/H75/T15/L/PS/740	*Uni-Form*	24
400	85260	MS 400W/V/ED28/PS/740	*Uni-Form*	24
400	73531	MS 400W/V/PS/740	*Uni-Form*	24
450	65072	MP 450W/BU/UVS/PS/740	*Uni-Form*	25
450	10138	MS 450W/C/V/PS/737	*Uni-Form*	25
450	10079	MS 450W/V/PS/740	*Uni-Form*	25
575	68735	MHL 575W/BU/BT37/PS/740	*Uni-Form*	26
575	60023	MP 575W/BU/BT37/PS/740	*Uni-Form*	26
575	95575	MP 575W/BU/BT37/PS/EM/950	*Uni-Form*	26
575	95577	MS 575W/H75/BT37/PS/EM/950	*Uni-Form*	26
750	33940	MH 750W/U/LU/BT37	Specialty	3
775	24988	MP 775W/BD/BT37/PS/950	*Uni-Form*	27
775	24983	MP 775W/BU/BT37/PS/950	*Uni-Form*	27
775	24999	MS 775W/H75/BT37/PS/950	*Uni-Form*	27
875	58953	MP 875W/BU/BT37/PS/740	*Uni-Form*	28
875	35426	MS 875W/BD/BT37/PS/740	*Uni-Form*	28
875	22619	MS 875W/BU/BT37/PS/740	*Uni-Form*	28
875	74892	MS 875W/H75/BT37/PS/740	*Uni-Form*	28
1000	22417	MBIL S 1000W	Specialty	6
1000	62948	MPI 1000W/BU	Standard MH	5
1000	53702	MS 1000W/HOR/BT37/3K	Specialty 4, Standard	5
1000	47503	MS 1000W/HOR/SPORT 60	Specialty 4, Standard	5
1000	88460	MH 1000W/C/U	Standard MH	5
1000	72051	MH 1000W/U	Standard MH	5
1000	15332	MH 1000W/U/BT37	Standard MH	5
1000	89113	MS 1000W/BU	Standard MH	5
1000	13090	MS 1000W/BU/BT37	Standard MH	5
1000	78952	MS 1000W/BU/T25	Standard MH	5
1000	80091	MS 1000W/HOR/BT37/4K	Standard MH	5
1000	71722	MS 1000W/BU/BT37/PS/740	*Uni-Form*	29
1000	49111	MS 1000W/HOR/T25/PS/734	*Uni-Form*	29
1500	22151	MBIL S 1500W	Specialty	6
1500	18360	MH 1500W/HBU	Specialty 4, Standard	5
1500	12342	MH 1500W/U/XL	Specialty 4, Standard	5
1500	82070	MS 1500W/HOR/XP/SPORT 60	Specialty 4, Standard	5
1650	16419	MS 1650W/HOR/XP/SPORT 60	Specialty 4, Standard	5
2000	22132	MBIL S 2000W	Specialty	6

Product Index - Ballasts

Product Index and Cross Reference

Watts	Part Number	Voltage	Circuit Type	ANSI	Catalog Section	Page #
35	V90B1020	120V	R-NPF	S76	HPS Ballasts	2
35	V90B1020C	120V	R-HPF	S76	HPS Ballasts	2
35	V90V1030	347V	HX-HPF	S76	HPS Ballasts	2
35	V90E1030	DUAL	HX-HPF	S76	HPS Ballasts	2
50	V90D5731	QUAD	HX-HPF	M110	Uni-Form®	4
50	V90J5731	TRI	HX-HPF	M110	*Uni-Form*	4
50	V90H5731	DUAL	HX-HPF	M110	*Uni-Form*	4
50	V90B1120V	120V	R-NPF	S68	HPS Ballasts	2
50	V90B1120VC	120V	R-HPF	S68	HPS Ballasts	2
50	V90V1131	347V	HX	S68	HPS Ballasts	2
50	V90E1131	DUAL	HX-HPF	S68	HPS Ballasts	2
50	V90E1151	DUAL	CWI	S68	HPS Ballasts	2
50	V90H1132	DUAL	HX-HPF	S68	HPS Ballasts	2
70	V90D5833	QUAD	HX-HPF	M98	*Uni-Form*	7
70	V90J5832	TRI	HX-HPF	M98	*Uni-Form*	7
70	V90H5833	DUAL	HX-HPF	M98	*Uni-Form*	7
70	V90B1222	120V	R-NPF	S62	HPS Ballasts	2
70	V90B1222C	120V	R-HPF	S62	HPS Ballasts	2
70	V90Z1252	600V	CWI	S62	HPS Ballasts	2
70	V90P1252	208V	CWI	S62	HPS Ballasts	2
70	V90D1233	QUAD	HX-HPF	S62	HPS Ballasts	2
70	V90E1250	DUAL	CWI	S62	HPS Ballasts	2
70	V90E1252	DUAL	CWI	S62	HPS Ballasts	2
70	V90J1232	TRI	HX-HPF	S62	HPS Ballasts	2
100	V90U5920	277V	Reactor	M90	*Uni-Form*	9
100	V90D5932	QUAD	HX-HPF	M90	*Uni-Form*	9
100	V90J5932	TRI	HX-HPF	M90	*Uni-Form*	9
100	V90H5932	DUAL	HX-HPF	M90	*Uni-Form*	9
100	V90B1322	120V	R-NPF	S54	HPS Ballasts	2
100	V90B1322C	120V	R-HPF	S54	HPS Ballasts	2
100	V90Z1352	600V	CWI	S54	HPS Ballasts	2
100	V90C1353	TRI	CWI	S54	HPS Ballasts	2
100	V90D1333	QUAD	HX-HPF	S54	HPS Ballasts	2
100	V90E1350	DUAL	CWI	S54	HPS Ballasts	2
100	V90J1332	TRI	HX-HPF	S54	HPS Ballasts	2
125	V90U8820	277V	Reactor	M150	*Uni-Form*	10
125	V90D8812	QUAD	CWA	M150	*Uni-Form*	10
125	V90J8811	TRI	CWA	M150	*Uni-Form*	10
125	V90Y8811T	480V	CWA	M150	*Uni-Form*	10
150	V90U7121	277V	Reactor	M102	*Uni-Form*	13
150	V90D7130	QUAD	HX-HPF	M102	*Uni-Form*	13
150	V90J7130	TRI	HX-HPF	M102	*Uni-Form*	13
150	V90H7130	DUAL	HX-HPF	M102	*Uni-Form*	13
150	V90D7110	QUAD	CWA	M102	*Uni-Form*	13
150	V90J7110	TRI	CWA	M102	*Uni-Form*	13
150	V90Y7110T	480V	CWA	M102	*Uni-Form*	13
150	V90B1422	120V	R-NPF	S55	HPS Ballasts	2
150	V90B1422C	120V	R-HPF	S55	HPS Ballasts	2
150	V90Y1454	480	CWI	S55	HPS Ballasts	2
150	V90C1454	TRI	CWI	S55	HPS Ballasts	2
150	V90D1435	QUAD	HX-HPF	S55	HPS Ballasts	2
150	V90J1434	TRI	HX-HPF	S55	HPS Ballasts	2
150	V90V1454T	347V	CWI	S55	HPS Ballasts	2
150	V90Z1454T	600V	CWI	S55	HPS Ballasts	2

Watts	Part Number	Voltage	Circuit Type	ANSI	Catalog Section	Page #
175	V90U7221	277V	Reactor	M152	*Uni-Form*	15
175	V90D7211	QUAD	CWA	M152	*Uni-Form*	15
175	V90J7210	TRI	CWA	M152	*Uni-Form*	15
175	V90Y7211T	480V	CWA	M152	*Uni-Form*	15
175	V90B6112	120V	CWA	M57	Standard MH	2
175	V90Y6111T	480	CWA	M57	Standard MH	2
175	V90Z6150	600	CWI	M57	Standard MH	2
175	V90D6112	QUAD	CWA	M57	Standard MH	2
175	V90E6150	DUAL	CWI	M57	Standard MH	2
175	V90J6112	TRI	CWA	M57	Standard MH	2
175	V90P6150T	208V	CWI	M57	Standard MH	2
200	V90U7321	277V	Reactor	M136	*Uni-Form*	16
200	V90D7330	QUAD	HX-HPF	M136	*Uni-Form*	16
200	V90J7330	TRI	HX-HPF	M136	*Uni-Form*	16
200	V90Y7330T	480V	HX-HPF	M136	*Uni-Form*	16
200	V90D7311	QUAD	CWA	M136	*Uni-Form*	16
200	V90D7312	QUAD	CWA	M136	*Uni-Form*	16
200	V90J7310	TRI	CWA	M136	*Uni-Form*	16
200	V90Y7311T	480V	CWA	M136	*Uni-Form*	16
200	V90Y7312T	480V	CWA	M136	*Uni-Form*	16
200	V90V1650	347V	CWI	S66	HPS Ballasts	2
200	V90E1650	DUAL	CWI	S66	HPS Ballasts	2
250	V90U8421	277V	Reactor	M153	*Uni-Form*	18
250	V90D8412	QUAD	CWA	M153	*Uni-Form*	18
250	V90D8411	QUAD	CWA	M153	*Uni-Form*	18
250	V90J8410	TRI	CWA	M153	*Uni-Form*	18
250	V90Y8412T	480V	CWA	M153	*Uni-Form*	18
250	V90Y8411T	480V	CWA	M153	*Uni-Form*	18
250	V90Z6250	600	CWI	M58	Standard MH	3
250	V90D6211	QUAD	CWA	M58	Standard MH	3
250	V90D6215	QUAD	CWA	M58	Standard MH	3
250	V90E6250	DUAL	CWI	M58	Standard MH	3
250	V90J6211	TRI	CWA	M58	Standard MH	3
250	V90J6215	TRI	CWA	M58	Standard MH	3
250	V90P6250T	208V	CWI	M58	Standard MH	3
250	V90Y6212T	480V	CWA	M58	Standard MH	3
250	V90Y6211	480	CWA	M58	Standard MH	3
250	V90D1711	QUAD	CWA	S50	HPS Ballasts	3
250	V90E1750	DUAL	CWI	S50	HPS Ballasts	3
250	V90J1711	TRI	CWA	S50	HPS Ballasts	3
250	V90Y1711T	480V	CWA	S50	HPS Ballasts	3
250	V90AS1750	600V	CWI	S50	HPS Ballasts	3
320	V90U7421	277V	Reactor	M132/M154	*Uni-Form*	21
320	V90D7430	QUAD	HX-HPF	M132/M154	*Uni-Form*	21
320	V90J7430	TRI	HX-HPF	M132/M154	*Uni-Form*	21
320	V90Y7430T	480V	HX-HPF	M132/M154	*Uni-Form*	21
320	V90D7413	QUAD	CWA	M132/M154	*Uni-Form*	21
320	V90J7413	TRI	CWA	M132/M154	*Uni-Form*	21
320	V90J7411	TRI	CWA	M132/M154	*Uni-Form*	21
320	V90Y7412T	480V	CWA	M132/M154	*Uni-Form*	21
350	V90U7521	277V	Reactor	M131	*Uni-Form*	23
350	V90D7530	QUAD	HX-HPF	M131	*Uni-Form*	23
350	V90J7530	TRI	HX-HPF	M131	*Uni-Form*	23
350	V90Y7530T	480V	HX-HPF	M131	*Uni-Form*	23
350	V90D7512	QUAD	CWA	M131	*Uni-Form*	23
350	V90D7513	QUAD	CWA	M131	*Uni-Form*	23
350	V90J7512	TRI	CWA	M131	*Uni-Form*	23
350	V90Y7513T	480V	CWA	M131	*Uni-Form*	23

Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

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Product Index - Ballasts

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400	V90U7621	277V	Reactor	M135/M155	*Uni-Form*	24
400	V90D7613	QUAD	CWA	M135/M155	*Uni-Form*	24
400	V90J7612	TRI	CWA	M135/M155	*Uni-Form*	24
400	V90Y7613T	480V	CWA	M135/M155	*Uni-Form*	24
400	V90Z6450T	600	CWI	M59	Standard MH	4
400	V90D6414	QUAD	CWA	M59	Standard MH	4
400	V90E6450	DUAL	CWI	M59	Standard MH	4
400	V90J6414	TRI	CWA	M59	Standard MH	4
400	V90P6450T	208V	CWI	M59	Standard MH	4
400	V90Y6413T	480V	CWA	M59	Standard MH	4
400	V90D1912	QUAD	CWA	S51	HPS Ballasts	3
400	V90E1950	DUAL	CWI	S51	HPS Ballasts	3
400	V90J1911	TRI	CWA	S51	HPS Ballasts	3
400	V90P1950T	208V	CWI	S51	HPS Ballasts	3
400	V90AS1950	600V	CWI	S51	HPS Ballasts	3
400	V90Y1912T	480V	CWA	S51	HPS Ballasts	3
430	V90C2050	TRI	CWI	S145	HPS Ballasts	3
450	V90U8521	277V	Reactor	M144	*Uni-Form*	25
450	V90D8530	QUAD	HX-HPF	M144	*Uni-Form*	25
450	V90J8530	TRI	HX-HPF	M144	*Uni-Form*	25
450	V90Y8530T	480V	HX-HPF	M144	*Uni-Form*	25
450	V90D8512	QUAD	CWA	M144	*Uni-Form*	25
450	V90J8511	TRI	CWA	M144	*Uni-Form*	25
450	V90Y8512T	480V	CWA	M144	*Uni-Form*	25
575	V90U5521	277V	Reactor	M178	*Uni-Form*	26
575	V90D5530	QUAD	HX-HPF	M178	*Uni-Form*	26
575	V90J5530	TRI	HX-HPF	M178	*Uni-Form*	26
575	V90Y5530T	480V	HX-HPF	M178	*Uni-Form*	26
575	V90D5510	QUAD	CWA	M178	*Uni-Form*	26
575	V90J5510	TRI	CWA	M178	*Uni-Form*	26
575	V90Y5510T	480V	CWA	M178	*Uni-Form*	26
600	V90D2111	QUAD	CWA	S106	HPS Ballasts	3
775	V90D9610	QUAD	CWA	M181	*Uni-Form*	27
775	V90J9610	TRI	CWA	M181	*Uni-Form*	27
775	V90Y9610T	480V	CWA	M181	*Uni-Form*	27
875	V90Y8620	480	Reactor	M166	*Uni-Form*	28
875	V90D8612	QUAD	CWA	M166	*Uni-Form*	28
875	V90J8612	TRI	CWA	M166	*Uni-Form*	28
875	V90Y8612T	480V	CWA	M166	*Uni-Form*	28

Watts	Part Number	Product Description Voltage, Circuit Type, ANSI			Catalog Section	Page #
1000	V90D7811	QUAD	CWA	M141	*Uni-Form*	29
1000	V90J7811	TRI	CWA	M141	*Uni-Form*	29
1000	V90Y7811T	480V	CWA	M141	*Uni-Form*	29
1000	V90D7811	QUAD	CWA	M141	Specialty	6
1000	V90J7811	TRI	CWA	M141	Specialty	6
1000	V90Y7811T	480V	CWA	M141	Specialty	6
1000	V90P6550T	208V	CWI	M47	Standard MH	5
1000	V90Z6550	600	CWI	M47	Standard MH	5
1000	V90D6516	QUAD	CWA	M47	Standard MH	5
1000	V90D6517	QUAD	CWA	M47	Standard MH	5
1000	V90J6517	TRI	CWA	M47	Standard MH	5
1000	V90E6550	DUAL	CWI	M47	Standard MH	5
1000	V905R6510	220/240	CWA	M47	Standard MH	5
1000	V90Y6517T	480V	CWA	M47	Standard MH	5
1000	V90Z2353	600	CWI	S52	HPS Ballasts	3
1000	V90D2311	QUAD	CWA	S52	HPS Ballasts	3
1000	V90D2315	QUAD	CWA	S52	HPS Ballasts	3
1000	V90E2353	DUAL	CWI	S52	HPS Ballasts	3
1000	V90J2310	TRI	CWA	S52	HPS Ballasts	3
1000	V90Y2311T	480V	CWA	S52	HPS Ballasts	3
1500	V90Y6612T	480	CWA	M48	Standard MH	5
1500	V90D6612	QUAD	CWA	M48	Standard MH	5
1650	V90C6910	120V/208V/240	CWA	M112	Standard MH	5
1650	V90AA6910	277V/347V/480	CWA	M112	Standard MH	5
2000	V90Y6810	480	CWA	M134	Specialty	6
2000	V90V6810	347V	CWA	M134	Specialty	6

Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

Cross Reference - Lamps

Product Index and Cross Reference

Lamp Description	Product Number	ANSI Code	Philips	Osram/ Sylvania	GE
20 WATT					
MPC 20W/U/MR16/PS/930/FL25	38801	C156/O	CDM-MR16/20W/830/25D ELITE	-	CMH20MR16/830/FL
MPC 20W/U/MR16/PS/930/WF40	38802	C156/O	CDM-MR16/20W/830/40D ELITE	-	CMH20MR16/830WFL
MPC 20W/U/MR16/PS/930/SP10	38800	C156/O	CDM-MR16/20W/830/10D ELITE		-
MHC 20W/U/T4/UVS/PS/930	38806	C156/E	CDM Elite 20/Tc/830	MC20TC/U/G8.5/830	CMH20TC/U830G8.5
MHC 20W/U/T6/UVS/PS/930	38809	C156/E	20W/830 T6 1CT	-	-
39 WATT					
MPC 39W/U/MR16/PS/930/FL25	38804	C130/O	CDM-MR16/35W/930/25D ELITE	-	CMH39MR16/930/FL
MPC 39W/U/MR16/PS/930/WF40	38805	C130/O	CDM-MR16/35W/930/40D ELITE	-	CMH39MR16/930WFL
MPC 39W/U/PAR30L/UVS/PS/830/SP10	38825	C130/O	35W/830 Med PAR30L SP 1CT	MC39PAR30LN/U/830/SP/ECO PB	CMH39/PAR30LSP10
MPC 39W/U/PAR30L/UVS/PS/830/FL30	38826	C130/O	35W/830 Med PAR30L FL 1CT	MC39PAR30LN/U/830/FL/ECO PB	-
MHC 39W/U/T4/UVS/PS/930	38807	C130/E	CDM Elite 35/TC/930	-	CMH39TCU830/G8.5
MHC 39W/U/T6/UVS/PS/930	38810	C130/E	CDM Elite 35/T6/930	MC39T6/U/G12/930	-
50 WATT					
MH 50W/U/PS	52312	M110/E	-	-	MXR50/U/MED
MH 50W/C/U/PS	13093	M110/E	-	-	MXR50/C/U/MED
MP 50W/U/UVS/PS	32100	M110/O	-	MP50/U/MED	-
MP 50W/C/U/UVS/PS	30041	M110/O	-	MP50/C/U/MED	-
MP 50W/U/UVS/PS/3K	10226	M110/O	-	-	MXR50/U/MED/O
MP 50W/C/U/UVS/PS/3K	10381	M110/O	-	-	MXR50/C/U/MED/O
60 WATT					
MP 60W/U/ED17/UVS/PS/950	95060	M___/O	-	-	-
MP 60W/C/U/ED17/UVS/PS/950	95061	M___/O	-	-	-
MPE 60W/U/ED17/UVS/PS/740	50049	M___/O	-	-	-
MPE 60W/U/ED28/UVS/PS/740	77678	M___/O	-	-	-
MHL 60W/U/ED17/PS/740	55554	M___/E	-	-	-
MHL 60W/C/U/ED17/PS/737	32984	M___/E	-	-	-
MHL 60W/U/ED28/PS/740	62892	M___/E	-	-	-
MHL 60W/C/U/ED28/PS/737	12657	M___/E	-	-	-
MHC 60W/U/T6C/UVS/PS/728	38822	C187/E	CPO-TW 60W/728 White PGZ12 1CT	-	-
70 WATT					
MH 70W/U/PS	78138	M98/E	-	M70/U/MED	MVR70/U/MED
MH 70W/C/U/PS	12180	M98/E	-	M70/C/U/MED	MVR70/C/U/MED
MH 70W/U/ED28/PS	16017	M98/E	-	-	-
MP 70W/U/UVS/PS	40389	M98/O	-	MP70/U/MED	-
MP 70W/C/U/UVS/PS	67115	M98/O	-	MP70/C/U/MED	-
MP 70W/U/UVS/PS/3K	45424	M98/O	-	-	MXR70/U/MED/O
MP 70W/C/U/UVS/PS/3K	14611	M98/O	-	-	MXR70/C/U/MED/O
MP 70W/C/U/ED28/UVS/PS/3K	22466	M98/O	-	-	-
MP 70W/U/ED17/UVS/PS/950	95071	M98/O	-	-	-
MP 70W/C/U/ED17/UVS/PS/950	95072	M98/O	-	-	-
MPE 70W/U/ED17/UVS/PS/740	49542	M98/O	-	-	-
MPE 70W/U/ED28/UVS/PS/740	33291	M98/O	-	-	-
MHL 70W/U/ED17/PS/740	15632	M98/E	-	-	-
MHL 70W/C/U/ED17/PS/737	32618	M98/E	-	-	-
MHL 70W/U/ED28/PS/740	86501	M98/E	-	-	-
MHL 70W/C/U/ED28/PS/737	36519	M98/E	-	-	-
MPC 70W/U/PAR30L/UVS/PS/830/SP10	38827	C139/O	70W/830 Med PAR30L SP 1CT	MC70PAR30LN/U/830/SP/ECO PB	CMH70PAR30L830SP
MPC 70W/U/PAR30L/UVS/PS/830/FL30	38828	C139/O	70W/830 Med PAR30L FL 1CT	MC70PAR30LN/U/830/FL/ECO PB	CMH70PAR30L830FL
MPC 70W/U/PAR38/UVS/PS/830/SP10	38829	C139/O	70W/830 Med PAR38 CL 1CT	MC70PAR38/U/SP/830/ECO PB	-
MPC 70W/U/PAR38/UVS/PS/830/FL30	38830	C139/O	70W/830 Med PAR38 FL CL 1CT	MC70PAR38/U/FL/830/ECO PB	-
MHC 70W/U/T4/UVS/PS/930	38808	C139/E	CDM Elite 70/TC/930	-	-
MHC 70W/U/T6/UVS/PS/930	38811	C139/E	CDM Elite 70/T6/930	MC70T6/U/G12/930	CMH70TU/830/G12
MH-DE 70W/UVS/3K	16786	M85/E	-	-	ARC70/TD/UVC/730
MH-DE 70W/UVS/4K	60248	M85/E	-	-	ARC70/TD/UVC/743
MH-DE 70W/UVS/FS/6K	79470	M85/E	-	-	-
HIT 70W/G12/UVS/3K	12108	M85/E	-	-	-
HIT 70W/G12/UVS/4K	52983	M85/E	-	-	-
HIT 70W/G12/UVS/FS/6K	39682	M85/E	-	-	-
90 WATT					
MP 90W/U/ED17/UVS/PS/950	95090	M___/O	-	-	-
MP 90W/C/U/ED17/UVS/PS/950	95091	M___/O	-	-	-
MPE 90W/U/ED17/UVS/PS/740	14155	M___/O	-	-	-
MPE 90W/U/ED28/UVS/PS/740	29588	M___/O	-	-	-
MHL 90W/U/ED17/PS/740	78352	M___/E	-	-	-
MHL 90W/C/U/ED17/PS/737	35798	M___/E	-	-	-
MHL 90W/U/ED28/PS/740	89865	M___/E	-	-	-
MHL 90W/C/U/ED28/PS/737	33548	M___/E	-	-	-
MHC 90W/U/T6C/UVS/PS/728	38823	C188/E	CPO-TW 90W/728 White PGZ12 1CT	-	-

Lamp Description	Product Number	ANSI Code	Philips	Osram/ Sylvania	GE
100 WATT					
MH 100W/U/PS	27266	M90/E	-	M100/U/MED	MVR100/U/MED
MH 100W/C/U/PS	15823	M90/E	-	M100/C/U/MED	MVR100/C/U/MED
MH 100W/U/ED28/PS	67868	M90/E	-	-	-
MH 100W/C/U/ED28/PS	79986	M90/E	-	-	-
MP 100W/U/UVS/PS	96267	M90/O	-	MP100/U/MED	-
MP 100W/C/U/UVS/PS	11278	M90/O	-	MP100/C/U/MED	-
MP 100W/U/UVS/PS/3K	96770	M90/O	-	-	MXR100/U/MED/O
MP 100W/C/U/UVS/PS/3K	11245	M90/O	-	-	MXR100/C/U/MED/O
MP 100W/C/U/ED28/UVS/PS/3K	22145	M90/O	-	-	-
MP 100W/U/ED17/UVS/PS/950	95100	M90/O	-	-	-
MP 100W/C/U/ED17/UVS/PS/950	92534	M90/O	-	-	-
MPE 100W/U/ED17/UVS/PS/740	62456	M90/O	-	-	-
MPE 100W/U/ED28/UVS/PS/740	85799	M90/O	-	-	-
MHL 100W/U/ED17/PS/740	21982	M90/E	-	-	-
MHL 100W/C/U/ED17/PS/737	54231	M90/E	-	-	-
MHL 100W/U/ED28/PS/740	22498	M90/E	-	-	-
MHL 100W/C/U/ED28/PS/737	54286	M90/E	-	-	-
MPC 100W/U/PAR38/UVS/PS/830/SP10	38831	C191/O	100W/830 Med PAR38 CL	MCP100PAR38/U/SP/830/ECO PB	CMH100PAR38SPECO
MPC 100W/U/PAR38/UVS/PS/830/FL30	38832	C191/O	100W/830 Med PAR38 CL	MCP100PAR38/U/FL/830/ECO PB	CMH100PAR38FLECO
MHC 100W/U/T6/UVS/PS/930	38812	C191/E	CDM Elite 100/T6/930	-	-
HIT 100W/G12/UVS/4K	89887	M90/E	-	-	-
125 WATT					
MH 125W/HBU/PS	76602	M150/E	-	-	-
MH 125W/C/HBU/PS	35638	M150/E	-	-	-
MH 125W/HBU/ED28/PS	61914	M150/E	-	-	-
MP 125W/BU/UVS/PS	13341	M150/O	-	-	-
MP 125W/C/BU/UVS/PS	43319	M150/O	-	-	-
MP 125W/V/ED28/UVS/PS	25813	M150/O	-	-	-
MPE 125W/U/ED17/UVS/PS/740	19572	M150/O	-	-	-
MPE 125W/U/ED28/UVS/PS/740	24455	M150/O	-	-	-
MHL 125W/U/ED17/PS/740	41256	M150/E	-	-	-
MHL 125W/C/U/ED17/PS/737	38509	M150/E	-	-	-
MHL 125W/U/ED28/PS/740	93256	M150/E	-	-	-
MHL 125W/C/U/ED28/PS/737	43928	M150/E	-	-	-
140 WATT					
MP 140W/U/ED17/UVS/PS/950	95140	M___/O	-	-	-
MP 140W/C/U/ED17/UVS/PS/950	95141	M___/O	-	-	-
MPE 140W/U/ED28/UVS/PS/950	95142	M___/O	-	-	-
MPE 140W/C/U/ED28/UVS/PS/950	95143	M___/O	-	-	-
MPE 140W/U/ED17/UVS/PS/740	37811	M___/O	-	-	-
MPE 140W/U/ED28/UVS/PS/740	48421	M___/O	-	-	-
MHL 140W/U/ED17/PS/740	76548	M___/O	-	-	-
MHL 140W/C/U/ED17/PS/737	45465	M___/O	-	-	-
MHL 140W/U/ED28/PS/740	23542	M___/O	-	-	-
MHL 140W/C/U/ED28/PS/737	56421	M___/O	-	-	-
MHC 140W/U/T6C/UVS/PS/728	38824	C189/E	CPO-TW 140W/728 White PGZ12 1CT	-	-
150 WATT					
MH 150W/U/PS/740	99584	M102/E	-	M150/U/MED	MVR150/U/MED
MH 150W/C/U/PS/737	94986	M102/E	-	M150/C/U/MED	MVR150/C/U/MED
MH 150W/U/ED28/PS/740	13556	M102/E	-	-	-
MH 150W/C/U/ED28/PS/737	21344	M102/E	-	-	-
MP 150W/U/UVS/PS/740	22455	M102/O	-	MP150/U/MED	-
MP 150W/C/U/UVS/PS/737	22888	M102/O	-	MP150/C/U/MED	-
MP 150W/U/UVS/PS/732	22522	M102/O	-	-	MXR150/U/MED/O
MP 150W/C/U/UVS/PS/732	80039	M102/O	-	-	MXR150/C/U/MED/O
MP 150W/U/ED28/UVS/PS/740	58963	M102/O	-	-	-
MP 150W/C/U/ED28/UVS/PS/737	32147	M102/O	-	-	-
MP 150W/U/ED17/UVS/PS/950	95150	M102/O	-	-	-
MP 150W/U/ED28/UVS/PS/950	95152	M102/O	-	-	-
MP 150W/C/U/ED28/UVS/PS/950	95153	M102/O	-	-	-
MP 150W/C/U/ED17/UVS/PS/950	22961	M102/O	-	-	-
MPE 150W/U/ED17/UVS/PS/740	70435	M102/O	-	-	-
MPE 150W/U/ED28/UVS/PS/740	57492	M102/O	-	-	-
MHL 150W/U/ED17/PS/740	35985	M102/E	-	-	-
MHL 150W/C/U/ED17/PS/737	68542	M102/E	-	-	-
MHL 150W/U/ED28/PS/740	46105	M102/E	-	-	-
MHL 150W/C/U/ED28/PS/737	93218	M102/E	-	-	-
MH 150W/U/EM	44810	M107/57/E	150W/635 Med BD17 CL	-	-
MH 150W/U/ED28/EM	69559	M107/57/E	-	M150/SS/U/BT28	MVR150/U/WM
HIT 150W/G12/UVS/3K	12106	M81/E	-	-	ARC150T/U/830G12
HIT 150W/G12/UVS/4K	25779	M81/E	-	HQI-SE 150/NDX	ARC150T/U/840G12
HIT 150W/G12/UVS/FS/6K	78564	M81/E	-	-	-
MH-DE 150W/UVS/3K	11295	M81/E	-		ARC150/TD/730R7S
MH-DE 150W/UVS/4K	74756	M81/E	-		ARC150/TD/742R7S
MH-DE 150W/UVS/FS/6K	29963	M81/E	-	-	-
MH-DE 150W/UVS/10K/PLUS	80244	M81/E	-	-	-

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

Cross Reference - Lamps

Product Index and Cross Reference

Lamp Description	Product Number	ANSI Code	Philips	Osram/ Sylvania	GE
175 WATT					
MS 175W/BU/MED/PS/740	16497	M137/152/E	175W/640 CW PS Medium ED17 1SL	MS175/PS/BU-ONLY/MED	MVR175/VBU/MEDPA
MS 175W/C/BU/MED/PS/737	34691	M137/152/E	-	MS175CPSBUONLYMED	MVR175/CVBUMEDPA
MS 175W/BU/PS/740	68475	M137/152/E	175W/635 Mog ED28 CL	MS175PSBUONLY	MVR175/VBU/PA (23.5 bulb)
MS 175W/C/BU/PS/737	68246	M137/152/E	175W/635 Mog ED28 CO	MS175CPSBUONLY	MVR175/C/VBU/PA (23.5 bulb)
MS 175W/H75/PS/740	99585	M137/152/E	175W Mog ED28	-	-
MS 175W/H75/T15/PS/740	99586	M137/152/E	-	-	-
MP 175W/BU/UVS/PS/740	69854	M137/152/0	175W Excl Mog ED28 CL	-	MPR175/VBU/PA/O
MP 175W/C/BU/UVS/PS/737	42346	M137/152/0	-	-	-
MP 175W/BU/UVS/PS/EM/950	95175	M137/152/0	-	-	-
MP 175W/BU/MED/UVS/PS/EM/950	95176	M137/152/0	-	-	-
MH 175W/U/MED	15556	M57/E	175W/640 Med BD17 CL	M175/U/MED	MVR175/U/MED
MH 175W/C/U/MED	63187	M57/E	175W/640 Med BD17 CO	M175/C/U/MED	MVR175/C/U/MED
MS 175W/C/BU/MED/3K	52522	M57/E	-	-	-
MH 175W/U	88791	M57/E	175W Mog ED28 TG	M175/U	MVR175/U
MH 175W/C/U	96627	M57/E	175W/640 Mog ED28 CO	M175/C/U	MVR175/C/U
MS 175W/HOR	57330	M57/E	-	MS175/HOR	MVR175/HOR
MH 175W/U/T15/10K	70136	M57/E	-	-	-
MPI 175W/BU	32519	M57/0	175W/640 EX39 ED28 CL	MP175/BU-ONLY	MPR175/VBU/O
MPI 175W/C/BU	32520	M57/0	-	MP175/C/BU-ONLY	MPR175/C/VBU/O
200 WATT					
MS 200W/BU/MED/PS/740	60811	M136/E	-	-	-
MS 200W/C/BU/MED/PS/737	60812	M136/E	-	-	-
MS 200W/V/PS/740	57739	M136/E	200W PS Mog 1SL	MS200PSBUONLYBT28	-
MS 200W/C/V/PS/737	70345	M136/E	-	MS200CPSBUONLYBT28	-
MS 200W/H75/T15/PS/740	70764	M136/E	200W PS Mog T15 1SL	-	-
MP 200W/V/UVS/PS/740	22147	M136/0	-	-	-
MP 200W/C/V/UVS/PS/737	59174	M136/0	-	-	-
MP 200W/BU/UVS/PS/EM/950	95200	M136/0	-	-	-
MPL 200W/C/V/ED28/UVS/PS/737	33587	M136/0	-	-	-
MHL 200W/V/ED28/PS/740	98434	M136/E	-	-	-
MHL 200W/C/V/ED28/PS/737	14357	M136/E	-	-	-
MHL 200W/H75/ED28/PS/740	60375	M136/E	-	-	-
MHL 200W/C/H75/ED28/PS/737	10237	M136/E	-	-	-
210 WATT					
MPC 210W/U/T12/UVS/PS/930	38818	C183/0	210W/930 T12 U 1CT	-	-
MPC 210W/U/T12/UVS/PS/942	38820	C183/0	210W/942 T12 1CT	-	-
250 WATT					
MS 250W/V/PS/740	49621	M138/153/E	250W/645 Mog ED28 CL	MS250/PS/BU-ONLY	MVR250/VBU/PA
MS 250W/C/V/PS/737	81365	M138/153/E	-	MS250/C/PS/BU-ONLY	MVR250/C/VBU/PA
MS 250W/H75/PS/740	81054	M138/153/E	-	-	MVR250/HOR/PA
MS 250W/H75/T15/PS/740	57625	M138/153/E	-	-	-
MP 250W/BU/UVS/PS/740	64658	M138/153/0	320W Excl Mog ED37 CO	MP250/PS/BU-ONLY	MPR250/VBU/PA/O
MP 250W/C/BU/UVS/PS/737	32658	M138/153/0	-	MP250/C/PS/BU-ONLY	-
MP 250W/H75/UVS/PS/740	49822	M138/153/0	-	-	-
MP 250W/H75/T15/UVS/PS/740	19252	M138/153/0	-	-	-
MP 250W/BU/UVS/PS/EM/950	19523	M138/153/0	250W Excl Mog ED28 CL	-	-
MP 250W/C/BU/UVS/PS/EM/950	19525	M138/153/0	-	-	-
MP 250W/H75/T15/UVS/PS/EM/950	59324	M138/153/0	-	-	-
MHL 250W/V/ED28/PS/740	46895	M153/E	-	-	-
MHL 250W/C/V/ED28/PS/737	71638	M153/E	-	-	-
MHL 250W/H75/ED28/PS/740	65413	M153/E	-	-	-
MHL 250W/C/H75/ED28/PS/737	32393	M153/E	-	-	-
MH 250W/U	63052	M58/E	250W/640 Mog ED28 CL	M250/U	MVR250/U
MH 250W/C/U	61290	M58/E	250W/735 Mog ED28 CO	M250/C/U	MVR250/C/U
MS 250W/BU	36297	M58/E	-	-	-
MS 250W/C/BU/3K	18477	M58/E	-	M250/3K/BU-ONLY	-
MS 250W/HOR	94883	M58/E	-	MS250/HOR	MVR250/HOR
MH 250W/U/T15	33479	M58/E	-	M250/U/ET18	-
MH 250W/U/T15/10K	63897	M58/E	-	-	-
MS 250W/HOR/T15/3K	54843	M58/E	-	-	-
MS 250W/HOR/T15	88353	M58/E	-	-	-
MPI 250W/BU	60722	M58/0	250W/640 EX39 ED28 CL	MP250/BU-ONLY	MPR250/VBU/O
MPI 250W/C/BU	60723	M58/0	-	MP250/C/BU-ONLY	MPR250/C/VBU/O
MH-DE 250W/UVS/4K/RSC	22468	M80/E	-	-	-
MH-DE 250W/UVS/4K/FC2	72748	M80/E	-	-	-
MH-DE 250W/UVS/3K/FC2	84727	M80/E	-	-	-
MH 250W/U/LU	91051	S50/E	-	-	MVR250/VBU/R
MPI 250W/BU/LU	24785	S50/0	-	-	-
MPI 250W/C/BU/LU	10206	S50/0	-	-	-
315 WATT					
MPC 315W/U/T12/UVS/PS/930	38819	C182/0	315W/930 T12 U 1CT	-	-
MPC 315W/U/T12/UVS/PS/942	38821	C182/0	315W/942 T12 U 1CT	-	-

Lamp Description	Product Number	ANSI Code	Philips	Osram/ Sylvania	GE
320 WATT					
MS 320W/V/ED28/PS/740	59194	M132/154/E	320W/640 Mog ED28 CL	-	MVR320/VBU/HO/PA
MS 320W/C/V/ED28/PS/737	77594	M132/154/E	320W/735 Mog ED28 CO	-	MVR320C/VBU/XHO/PA
MS 320W/H75/ED28/PS/740	47549	M132/154/E	-	-	MVR320HOR/ED28PA
MS 320W/V/ED37/PS/740	52236	M132/154/E	-	-	-
MS 320W/C/V/ED37/PS/737	67712	M132/154/E	-	-	-
MS 320W/H75/T15/S/PS/740	57626	M132/154/E	-	-	-
MS 320W/H75/T15/L/PS/740	79710	M132/154/E	-	-	-
MP 320W/BU/ED28/UVS/PS/740	10103	M132/154/0	-	MP320/350/PS/BU-ONLY/BT28	-
MP 320W/C/BU/ED28/UVS/PS/737	10104	M132/154/0	-	MP320/350/C/PS/BU-ONLY/BT28	MPR320/C/PA/ED28
MP 320W/BU/ED37/UVS/PS/740	21714	M132/154/0	-	-	MPR320/VBU/XHOPA
MP 320W/C/BU/ED37/UVS/PS/737	32795	M132/154/0	320W Excl Mog ED37 CO	-	MPR320C/VBUXHOPA
MP 320W/C/BU/ED37/UVS/PS/732	66506	M132/154/0	-	-	-
MP 320W/BU/ED28/UVS/PS/EM/950	98530	M132/154/0	-	-	-
MP 320W/BU/ED37/UVS/PS/EM/950	98520	M132/154/0	-	-	-
MP 320W/C/BU/ED37/UVS/PS/EM/950	95123	M132/154/0	-	-	-
MP 320W/H75/T15/S/UVS/PS/EM/950	95320	M132/154/0	-	-	-
MP 320W/H75/T15/L/UVS/PS/EM/950	95321	M132/154/0	-	-	-
MHL 320W/V/ED28/PS/740	18635	M154/E	-	-	-
MHL 320W/C/V/ED28/PS/737	25796	M154/E	-	-	-
MHL 320W/V/ED37/PS/740	38765	M154/E	-	-	-
MHL 320W/C/V/ED37/PS/737	72378	M154/E	-	-	-
MHL 320W/H75/ED28/PS/740	20116	M154/E	-	-	-
MHL 320W/C/H75/ED28/PS/737	11086	M154/E	-	-	-
MHL 320W/H75/ED37/PS/740	28699	M154/E	-	-	-
MHL 320W/C/H75/ED37/PS/737	34778	M154/E	-	-	-
350 WATT					
MS 350W/V/ED28/PS/740	52980	M131/E	-	-	-
MS 350W/H75/ED28/PS/740	46959	M131/E	-	-	-
MS 350W/V/PS/740	98389	M131/E	350W/640 Mog ED37 CL	-	MVR350VBUXHOPA/E
MS 350W/C/V/PS/737	71329	M131/E	350W/635 Mog ED37 CO	-	MVR350CVBUXHOPAE
MS 350W/C/H75/PS/737	64866	M131/E	-	-	-
MS 350W/H75/T15/L/PS/740	93749	M131/E	-	-	-
MS 350W/H75/T15/S/PS/740	60258	M131/E	-	-	-
MP 350W/V/ED28/UVS/PS/740	47887	M131/0	-	MP320/350/PS/BU-ONLY/BT28	-
MP 350W/C/V/ED28/UVS/PS/737	55401	M131/0	-	MP320/350/C/PS/BU-ONLY/BT28	-
MP 350W/V/UVS/PS/740	22149	M131/0	350W Excl Mog ED37 CL	MP350/400/PS/BU-ONLY	MPR350/VBU/PA
MP 350W/C/V/UVS/PS/737	44097	M131/0	-	MP350/400/C/PS/BU-ONLY	MPR350/C/VBU/PA
MP 350W/C/V/UVS/PS/732	27845	M131/0	-	-	MPR350C/VBU3K/PA
MP 350W/H75/UVS/PS/740	65218	M131/0	-	-	-
MP 350W/H75/T15/L/UVS/PS/740	51208	M131/0	-	-	-
MP 350W/BU/UVS/PS/EM/950	51628	M131/0	-	-	-
360 WATT					
MPI 360W/BU/EM	38029	M165/59/0	360W/640 EX39 ED37 CL	MSP360/SS/BU-ONLY	MPR360VBUWM/HO/0
MPI 360W/C/BU/EM	67293	M165/59/0	-	MSP360/C/SS/BU-ONLY	MPR360CVBUWMHO/0
400 WATT					
MS 400W/V/ED28/PS/740	85260	M135/155/E	400W/640 CW Mog ED28	MS400/PS/BU-ONLY/BT28	MVR400/VBUED28PA
MS 400W/H75/ED28/PS/740	40124	M135/155/E	400W/640 Mog ED28 1WR	-	MVR400HOR/ED28PA
MS 400W/C/H75/ED28/PS/737	55459	M135/155/E	-	-	-
MS 400W/V/PS/740	73531	M135/155/E	400W/640 Mog ED37 CL	MS400/PS/BU-ONLY	MVR400/VBU/HO/PA
MS 400W/C/V/PS/737	42401	M135/155/E	400W/635 Mog ED37 CO	MS400/C/PS/BU-ONLY	MVR400/CVBUXHOPA
MS 400W/H75/PS/740	58788	M135/155/E	-	-	MVR400HOR/PA
MS 400W/H75/T15/S/PS/740	60260	M135/155/E	-	-	-
MS 400W/H75/T15/L/PS/740	74151	M135/155/E	-	-	-
MP 400W/V/ED28/UVS/PS/740	12445	M135/155/0	-	-	-
MP 400W/C/V/ED28/UVS/PS/737	88648	M135/155/0	-	-	-
MP 400W/V/UVS/PS/740	71642	M135/155/0	400W Excl Mog ED37 CL	MP350/400/PS/BU-ONLY	MPR400/VBU/XHOPA
MP 400W/C/V/UVS/PS/737	45541	M135/155/0	400W Excl Mog ED37 CO	MP350/400/C/PS/BU-ONLY	MPR400C/VBUXHOPA
MP 400W/H75/UVS/PS/740	17611	M135/155/0	-	-	-
MP 400W/H75/T15/L/UVS/PS/740	73189	M135/155/0	-	-	-
MP 400W/BU/ED28/UVS/PS/EM/950	72315	M135/155/0	-	-	-
MP 400W/BU/UVS/PS/EM/950	57129	M135/155/0	-	-	-
MHL 400W/V/ED37/PS/740	15678	M155/E	-	-	-
MH 400W/U/ED28	57540	M59/E	-	M400/U/BT28	MVR400/U/ED28
MH 400W/C/U/ED28	20753	M59/E	-	M400/C/U/BT28	MVR400/C/U/ED28
MS 400W/HOR/ED28	21929	M59/E	-	MS400/HOR/BT28	MVR400/HOR/BT28
MH 400W/U	18520	M59/E	400W/540 Mog ED37 CL	M400/U	MVR400/U
MH 400W/C/U	83545	M59/E	400W/540 Mog ED37 CO	M400/C/U	MVR400/C/U
MH 400W/U/5K	36813	M59/E	-	-	-
MS 400W/HOR	40509	M59/E	-	MS400/HOR	MVR400/HOR/MOG
MS 400W/C/HOR	64648	M59/E	-	-	MVR400/C/HOR/MOG
MH 400W/U/T15	55422	M59/E	-	M400/U/ET18	-
MS 400W/HOR/T15	55100	M59/E	-	-	-
MS 400W/HOR/T15/3K	32225	M59/E	-	-	-
MPI 400W/BU	95527	M59/0	400W/635 EX39 ED37 CO	MP400/BU-ONLY	MPR400/VBU/HO/0
MPI 400W/C/BU	26091	M59/0	400W/640 EX39 ED37 CL	MP400/C/BU-ONLY	MPR400C/VBU/HO/0
MH 400W/U/LU/ED28	59441	S51/E	-	-	MVR400/U/ED28/R
MH 400W/U/LU	52134	S51/E	-	-	MVR400/VBU/R
MPI 400W/BU/LU	10044	S51/0	-	-	-

Cross Reference Lamps/Ballasts

Lamp Continued...

450 WATT					
MS 450W/V/PS/740	10079	M144/E	-	-	-
MS 450W/C/V/PS/737	10138	M144/E	-	-	-
MP 450W/BU/UVS/PS/740	65072	M144/O	-	-	-
575 WATT					
MP 575W/BU/BT37/PS/740	60023	M178/O	-	-	-
MP 575W/BU/BT37/PS/EM/950	95575	M178/O	-	-	-
MS 575W/H75/BT37/PS/EM/950	95577	M178/E	-	-	-
MHL 575W/BU/BT37/PS/740	68735	M178/E	-	-	-
750 WATT					
MH 750W/U/LU/BT37	33940	S111/E	-	-	-
775 WATT					
MS 775W/H75/BT37/PS/950	24999	M181/E	-	-	-
MP 775W/BU/BT37/PS/950	24983	M181/O	-	-	-
MP 775W/BD/BT37/PS/950	24988	M181/O		-	-
875 WATT					
MS 875W/BU/BT37/PS/740	22619	M166/E	-	-	-
MS 875W/BD/BT37/PS/740	35426	M166/E	-	-	-
MP 875W/BU/BT37/PS/740	58953	M166/O	-	-	-
MS 875W/H75/BT37/PS/740	74892	M166/E	-	-	-
1000 WATT					
MS 1000W/BU/BT37/PS/740	71722	M141/E	1000W/635 Mog BT37 CL	M1000/PS/U/BT37	MVR1000U/BT37/PA
MS 1000W/HOR/T25/PS/734	49111	M141/E	-	-	-
MH 1000W/U/BT37	15332	M47/E	1000W/635 Mog BT37 CL	M1000/U/BT37	MVR1000/U/BT37
MS 1000W/BU/BT37	13090	M47/E	-	-	-
MS 1000W/HOR/BT37/4K	80091	M47/E	-	-	-
MH 1000W/U	72051	M47/E	1000W Mog BT56 CL	M1000/U	MVR1000/U
MH 1000W/C/U	88460	M47/E	1000W CO U	M1000/C/U	MVR1000/C/U
MS 1000W/BU	89113	M47/E	1000W WH Mog BT56	MS1000/BU-ONLY	MVR1000/VBU/HO
MS 1000W/BU/T25	78952	M47/E	-	-	-
MPI 1000W/BU	62948	M47/O	1000W/640 EX39 BT56 CL	MP1000/BU-ONLY	MPR1000/VBU/HO/O
MS 1000W/HOR/SPORT 60	47503	M47/E	-	-	-
MS 1000W/HOR/BT37/3K	53702	M47/E	-	-	-
MBIL S 1000W	22417	M___/F	-	-	-
1500 WATT					
MH 1500W/U/XL	12342	M48/E	1500W Mog BT56 CL	-	MVR1500/HBU
MH 1500W/HBU	18360	M48/E	-	M1500/BU-HOR	-
MS 1500W/HOR/XP/SPORT 60	82070	M48/E	-	-	-
MBIL S 1500W	22151	M___/F	-	M1500T7/DE	-
1650 WATT					
MS 1650W/HOR/XP/SPORT 60	16419	M112/E	-	-	-
2000 WATT					
MBIL S 2000W	22132	M___/F	-	-	-

Pulse Start Metal Halide Ballasts

Product Description	Venture Catalog #	Advanced Catalog #	Universal Catalog #	Howard Catalog #
50W QUAD HX	V90D5731	71A5181-500D	M50MLTLC3M	-
50W DUAL HX	V90H5731	71A5181-500D	-	-
50W TRI HX	V90J5731	-	M50TRILC3M	-
70W QUAD HX	V90D5833	-	M70MLTLC3M	-
70W DUAL HX	V90H5833	71A5292-001D	-	-
70W TRI HX	V90J5832	71A52A2-001D	M70TRILC3M	-
100W QUAD HX	V90D5932	71A5390-001D	M100MLTLC3M	M0100-71C-511-E
100W DUAL HX	V90H5932	71A5390-001D	-	-
100W TRI HX	V90J5932	71A53A0-001D	M100TRILC3M	-
100W 277 RCTR	V90U5920	71A5337-500D	113314R	-
125W QUAD CWA	V90D8812	-	-	-
125W TRI CWA	V90J8811	-	-	-
125W 277 RCTR	V90U8820	-	-	-
125W 480 CWA	V90Y8811T	-	-	-
150W QUAD CWA	V90D7110	71A5492-500D	M150MLTAC3M	-
150W QUAD HX	V90D7130	71A5492-500D	M150MLTLC3M	-
150W DUAL HX	V90H7130	71A5482-500D	-	-
150W TRI CWA	V90J7110	71A54A3-500D	M150TRILC3M	-
150W TRI HX	V90J7130	71A54A2-500D	M150TRILC3M	-
150W 277 RCTR	V90U7121	-	-	-
150W 480 CWA	V90Y7110T	71A5442-500DT	-	-
175W QUAD CWA	V90D7211	-	P175MLTAC3L	-
175W TRI CWA	V90J7210	71A55A3-500D	P175TRIAC3M	-
175W 277 RCTR	V90U7221	-	P175277RCEM	-
175W 480 CWA	V90Y7211T	-	-	-
200W QUAD CWA	V90D7311	71A5692-001D	P200MLTAC4M	M0200-71C-611-E
200W QUAD CWA	V90D7312	71A5692-001D	P200MLTAC4M	M0200-71C-611-E
200W QUAD HX	V90D7330	-	-	-
200W TRI CWA	V90J7310	71A56A2-500D	P200TRIAC4M	-
200W TRI HX	V90J7330	-	-	-
200W 277 RCTR	V90U7321	71A5637-001D	P200277RCEM	M0200-08C-611-E
200W 480 CWA	V90Y7311T	-	-	-
200W 480 CWA	V90Y7312T	-	-	-
200W 480 HX	V90Y7330T	-	-	
250W QUAD CWA	V90D8411	-	P250MLTAC40	-
250W QUAD CWA	V90D8412	-	P250MLTAC40	-
250W TRI CWA	V90J8410	71A57A2-500D	P250TRIAC4M	-
250W 277 RCTR	V90U8421	71A5737-001D	P250277RCEM	-
250W 480 CWA	V90Y8411T	-	P25048TAC4L	-
250W 480 CWA	V90Y8412T	-	P25048TAC4L	-
320W QUAD CWA	V90D7413	-	P320MLTAC40	-
320W QUAD HX	V90D7430	-	-	-
320W TRI CWA	V90J7411	71A58A2-500D	P320TRIAC4M	-
320W TRI HX	V90J7413	71A58A2-500D	P320TRIAC4M	-
320W TRI HX	V90J7430	-	-	-
320W 277 RCTR	V90U7421	71A5837-001D	P320277RCEM	M0320-08C-711-E
320W 480 CWA	V90Y7412T	-	P32048TAC4L	-
320W 480 HX	V90Y7430T	-	-	-
350W QUAD CWA	V90D7513	71A5993-001D	P350MLTAC4M	M0350-71C-611-E
350W QUAD HX	V90D7530	-	-	-
350W TRI CWA	V90J7512	71A59A3-500D	P350TRIAC4M	-
350W TRI HX	V90J7530	-	-	-
350W 277 RCTR	V90U7521	71A5937-001D	P350277RCEM	M0350-08C-711-E
350W 480 CWA	V90Y7513T	-	P350MLTAC4M	-
350W 480 HX	V90Y7530T	-	-	-
400W QUAD CWA	V90D7613	-	P400MLTAC4M	-
400W TRI CWA	V90J7612	71A60A2-500D	P400TRIAC4M	-
400W 277 RCTR	V90U7621	71A6137-001D	P400277RCEM	M0400-08C-711-E
400W 480 CWA	V90Y7613T	-	P40048TAC4M	-
450W QUAD CWA	V90D8512	71A6393-500D	P450MLTAC4M	-
450W QUAD HX	V90D8530	-	-	-
450W TRI CWA	V90J8511	71A63A3-500D	P450TRIAC4M	-
450W TRI HX	V90J8530	-	-	-
450W 277 RCTR	V90U8521	71A6337-500DB	-	-
450W 480 CWA	V90Y8512T	-	P45048TAC4M	-
450W 480 HX	V90Y8530T	-	-	-

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

Cross Reference - Ballasts

Pulse Start Metal Halide Ballasts *continued*

Product Description	Venture Catalog #	Advanced Catalog #	Universal Catalog #	Howard Catalog #
575W QUAD CWA	V90D5510	-	-	-
575W TRI CWA	V90J5510	-	-	-
575W 480 CWA	V90Y5510T	-	-	-
575W QUAD HX	V90D5530	-	-	-
575W TRI HX	V90J5530	-	-	-
575W REACTOR	V90U5521	-	-	-
575W 480 HX	V90Y5530T	-	-	-
750W QUAD CWA	V90D7910	71A64E2-500D	P750MLTAC5M	-
750W TRI CWA	V90J7910	71A64F2-500D	P750TRIAC5M	-
750W 480 CWA	V90Y7910T	71A64F2-500DT	P75048TAC5M	-
775W QUAD CWA	V90D9610	-	-	-
775W TRI CWA	V90J9610	-	-	-
775W TRI CWA	V90Y9610T	-	-	-
875W QUAD CWA	V90D8612	-	P875MLTAC5M	-
875W TRI CWA	V90J8612	-	-	-
875W 480 CWA	V90Y8612T	-	-	-
875W 480 RCTR	V90Y8620	-	-	-
1000W QUAD CWA	V90D7811	-	M1000MLTAC5M	-
1000W TRI CWA	V90J7811	-	-	-
1000W 480 CWA	V90Y7811T	-	M100048TAC5M	-
2000W 347 CWA	V90V6810	-	-	-
2000W 480 CWA	V90Y6810	-	-	-

Probe Start Metal Halide Ballasts

175W 120 CWA	V90B6112	71A5570-001D	M175120AC3M	M0175-02C-212
175W QUAD CWA	V90D6112	-	M175MLTAC3M	-
175W DUAL CWI	V90E6150	71A5570-001D	-	-
175W TRI CWA	V90J6112	-	M175TRIAC30	-
175W 208 CWI	V90P6150T	71A5570-001D	-	-
175W 480 CWA	V90Y6111T	71A5540-500DT	M17548TAC3M	M0175-11C-211
175W 600 CWI	V90Z6150	-	-	-
250W QUAD CWA	V90D6211	71A5771-001D	M250MLTAC3M	M0250-71C-212
250W QUAD CWA	V90D6215	71A5771-001D	M250MLTAC4M	M0250-71C-212
250W DUAL CWI	V90E6250	71A57E6-500	-	-
250W TRI CWA	V90J6211	71A57A0-001D	M250TRIAC3M	-
250W TRI CWA	V90J6215	71A57A0-001D	M250TRIAC4M	-
250W 208 CWI	V90P6250T	71A57E6-500	-	-
250W 480 CWA	V90Y6211	71A5741-001D	M25048TAC3M	M0250-11C-212
250W 480 CWA	V90Y6212T	71A5740-500DT	M25048TAC4M	M0250-11C/29C-211
250W 600 CWI	V90Z6250	-	-	-
400W QUAD CWA	V90D6414	-	M400MLTAC4M	-
2X400W DUAL CWI	V90E6350	71A6382-001D	-	-
400W DUAL CWI	V90E6450	71A60E6-500	-	-
400W TRI CWA	V90J6414	-	-	-
400W 208 CWI	V90P6450T	70A60E6-500	-	-
400W 480 CWA	V90Y6413T	71A6041-500DT	M40048TAC4M	M0400-11C/29C-211
2X400W 600 CWI	V90Z6350	-		-
400W 600 CWI	V90Z6450T	-	-	-
1000W DUAL CWA Z	V905R6510	-	-	-
1000W QUAD CWA	V90D6516	-	M1000MLTAC5M	-
1000W QUAD CWA	V90D6517	-	M1000MLTAC5M	-
1000W DUAL CWI	V90E6550	71A65E6-500DT	-	-
1000W TRI CWA	V90J6517	-	-	-
1000W 208 CWI	V90P6550T	71A6572-001	-	-
1000W 480 CWA	V90Y6517T	-	M100048TAC5M	-
1000W 600 CWI	V90Z6550	-	-	-
1500W QUAD CWA	V90D6612	71A6772-001	M1500MLTAC5M	M1500-71C-212
1500W 480 CWA	V90Y6612T	71A6742-001	M150048TAC5M	M1500-11C-212
1650W TRI CWA	V90AA6910	71A68F0-500	-	-
1650W TRI CWA	V90C6910	71A6890-500	-	-

High Pressure Sodium Ballasts

Product Description	Venture Catalog #	Advanced Catalog #	Universal Catalog #	Howard Catalog #
35W 120 Reactor HPF/NPF	V90B1020	71A7707-001DB	1233251W	S0035-02C-111-E
35W Dual 120/240 HX-HPF	V90E1030	-	-	-
35W 347 HX-HPF	V90V1030	-	-	-
50W 120 Reactor HPF/NPF	V90B1120	71A7807-001DB	123335W	S0050-02C-111-E
50W Dual 120/240 HX-HPF	V90E1131	71A7801-001D	S50MLTLC3M	-
50W Dual 120/240 CWI	V90E1151	-	-	-
50W Dual 120/277 HX-HPF	V90H1132	71A7801-001D	S50MLTLC3M	-
50W 347 HX-HPF	V90V1131	-	-	-
70W 120 Reactor HPF/NPF	V90B1222	71A7907-001DB	1233142W	S0070-02C-111-E
70W Quad 120/208/240/277 HX-HPF	V90D1233	71A7971-001D	S70MLTLC3M	S0070-71C-511-E
70W Dual 120/240 CWI	V90E1250	71A79E6-500D	-	-
70W Dual 120/240 CWI	V90E1252	71A79E6-500D	-	-
70W Tri 120/277/347 HX-HPF	V90J1232	71A79A1-001D	S70TRILC3M	-
70W 208 CWI	V90P1252	71A79E6-500D	-	-
70W 600 CWI	V90Z1252	-	-	-
100W 120 Reactor HPF/NPF	V90B1322	71A8007-001DB	123310W	S0100-02C-111-E
100W Tri 120/208/240 CWI	V90C1353	-	-	-
100W Quad 120/208/240/277 HX-HPF	V90D1333	71A8071-001D	S100MLTLC3M	S0100-71C-511-E
100W Dual 120/240 CWI	V90E1350	71A80E6-500D	-	-
100W Tri 120/277/347 HX-HPF	V90J1332	71A80A1-001D	S100TRILC3M	-
100W 600 CWI	V90Z1352	-	-	-
150W 120 Reactor HPF/NPF	V90B1422	71A8107-001DB	1233154W	S0150-02C-111-E
150W Tri 120/208/240 CWI	V90C1454	-	-	-
150W Quad 120/208/240/277 HX-HPF	V90D1435	71A8172-001D	S150MLTLC3M	S0150-71C-511-E
150W Tri 120/277/347 HX-HPF	V90J1434	71A81A2-001D	S150TRILC3M	-
150W 347 CWI	V90V1454T	71A81A2-001D	-	-
150W 480 CWI	V90Y1454	71A8142-001D	-	-
150W 600 CWI	V90Z1454T	-	-	-
200W Dual 120/240 CWI	V90E1650	71A8954-500D	-	-
200W 347 CWI	V90V1650	-	-	-
250W Dual 600/347 CWI	V90AS1750	-	-	-
250W Quad 120/208/240/277 CWA	V90D1711	71A8271-001D	S250MLTAC4M	S0250-71C-211-E
250W Dual 120/240 CWI	V90E1750	71A82E6-500D	-	-
250W Tri 120/240/347 CWA	V90J1711	71A82A1-001D	S250TRIAC4M	-
250W 480 CWA	V90Y1711T	71A8241-001D	S25048TAC4M	S0250-11C/29C-211-E
400W Dual 600/347 CWI	V90AS1950	-	-	-
400W Quad 120/208/240/277 CWA	V90D1912	71A8473-001D	S400MLTAC4M	S0400-71C-211-E
400W Dual 120/240 CWI	V90E1950	71A84E6-500D	-	-
400W Tri 120/277/347 CWA	V90J1911	71A84A3-001D	S400TRIAC4M	-
400W 208 CWI	V90P1950T	71A84E6-500D	-	-
400W 480 CWA	V90Y1912T	71A8443-001D	S40048TAC4M	S0400-11C-211-E
400W 480 CWI	V90Y1950	71A8440-500T	-	-
430W/400W Tri 120/208/240 CWI	V90C2050	71A85E6-500D	S430MLTAC4M	-
600W Quad 120/208/240/277 CWA	V90D2111	-	S600MLTAC5M	-
1000W Quad 120/208/240/277 CWA	V90D2311	71A8773-001	S1000MLTAC5M	S1000-71C-211-E
1000W Quad 120/208/240/277 CWA	V90D2315	71A8773-001	S1000MLTAC5M	S1000-71C-211-E
1000W Dual 120/240 CWI	V90E2353	71A8773-001	-	-
1000W Tri 120/277/347 CWA	V90J2310	71A87A3-001	S1000TRIAC5M	-
1000W 480 CWA	V90Y2311T	71A8743-001	S100048TAC5M	S1000-11C-211-E
1000W 480 CWI	V90Y2353	71A8743-001	-	-
1000W 600 CWI	V90Z2353	-	-	-

Warranty Information

STANDARD WARRANTY

Limited Warranty on Lamps:

Venture Lighting statement on lamp life

For years, most lamp manufacturers have used typical life expectancy as the basis for lamp replacements under warranty. Venture Lighting International understands the parameters involved in life expectancy and also uses typical life expectancy curves as part of their lamp warranty. Venture is aware of their customers' needs and offers additional warranty protection.

Warranty

1. Upon receipt and/or initial installation by the customer, Venture Lighting International will replace any lamp determined to be defective in materials, workmanship, or proper operating parameters.
2. Venture Lighting will replace any lamp that fails within one year from the purchase date (based on 5000 hrs./yr. operation) when the failure is determined to be lamp related. (Applies to lamps with life ratings of greater than 7500 hrs.)
3. During economic life, Venture Lighting will supply replacement lamps for failed lamps in excess of the failure rate projected by life expectancy curves, when the lamps are operated correctly and in accordance with the guidelines outlined in this technical guide.

Lamp Performance

All performance ratings are based on lamp testing at rated watts, under controlled conditions, using primary AC electrical circuits with the highest quality auxiliary equipment. The performance of any lamp may vary somewhat under typical service conditions. All lamp specifications and ratings are subject to change without notice.

Limited Warranty on Ballasts:

Venture® ballast products are warrantied free from manufacturing and workmanship defects for a period of two years from the date of shipment. During this period, Venture will, at its option, repair or replace ballast products which prove to be defective or out of specification. This warranty is granted by Venture only to the original purchaser or first end-user of such ballast products.

This warranty is conditional upon installation, maintenance and operation in accordance with Venture's instructions and specifications set forth in the purchase order or contract at the time of order and in accordance with the standards of The National Electric Code (NEC), Underwriters' Laboratory, Inc. (UL) and the American National Standards Institute (ANSI) and, in Canada, with the standards of the Canadian Standards Association (CSA). Damage by misuse or abnormal conditions of storage, installation, maintenance or operation, including, but not limited to, excessive temperatures or evidence of partial or complete disassembly beyond normal maintenance or expansion procedure void this warranty in its entirety. The conditions of any tests performed concerning any ballast product claimed to be defective in accordance with the terms of this warranty shall be mutually agreed upon in writing between the original purchaser or first end-user and Venture and Venture may be represented at any such test.

No implied statutory warranty of merchantability or fitness for a particular purpose shall apply beyond the afore-mentioned warranty period. This warranty excludes other warranties, expressed or implied and is the exclusive remedy of the claimant. Venture shall not be liable for any special, indirect or consequential damages. Venture's liability on any claim of any kind, nature or description arising out of, resulting from or concerning any aspect of this warranty agreement or from the product or services furnished hereunder shall not exceed the price of the specific ballast or ballasts which give rise to the claim. For warranty service or repair, the buyer shall prepay all shipping charges to Venture and Venture shall pay shipping charges to return the repaired or replaced item to the buyer. However, the buyer shall pay all shipping charges, duties and taxes for products returned to Venture from a country other than that of the United States of America.

Product replacement/liability limits

The foregoing warranty shall be the sole and exclusive remedy of the purchaser and Venture's sole and exclusive remedy to the purchaser. NO WARRANTY OF FITNESS FOR ANY SPECIFIC OR PARTICULAR PURPOSE IS MADE OR IS TO BE IMPLIED. NO OTHER WARRANTY APPLIES. Venture will not, under any circumstance, whether as a result of breach of contract, warranty tort or otherwise, be liable for any costs or damages, including lost profits or revenues, incidental, special or consequential damages.

Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state and province to province. No distributor, salesperson, dealer, retailer or other representative has the authority to change or modify this warranty, either orally or in writing, in any respect.

Dimming Policy

Warranty policy on the dimming of Venture Lighting International metal halide lamps:

WARRANTY POLICY: Venture Lighting International, Inc. provides a one-year warranty on lamp life for lamps operated on dimmable ballasts provided the following conditions are met:

1) A lamp must not be started in the dimmed operating mode.

2) The lamp must warm up and attain full wattage for at least 15 minutes (20 minutes for lamp wattages greater than 450 watts) before dimming can commence.

3) Operating position requirements:

Note: See individual Lamp Data Sheets for minimum dimmed wattage levels.

a) Pulse start lamps - Dimmable in all published lamp orientations.

b) Probe start lamps - Dimmable only in the base up (±15°) orientation.

c) SPC, Ceramic Lamps can not be dimmed.

4) The reduced wattage level for a metal halide lamp must be achieved with a ballast which meets the recommended ANSI specifications for starting and operating an ANSI reference lamp at the rated lamp power. Magnetic and electronic ballasts should not lower the lamp wattage below the Venture specified dimming level (see Specification sheets) when using a reference lamp at

- 90% of the rated line voltage for CWA/CWI and electronic ballasts
- 95% of the rated line voltage for Lag (HX & Reactor) ballasts.

5) System Requirements

a) CWA/CWI Switched Capacitor Dimming

- The sustaining voltage of the ballast in the minimum dimmed mode must be maintained at a high enough level to sustain lamps throughout life.

b) Electronic Ballast Dimming

- The ballast must be capable of sustaining lamps throughout the rated lamp life in both the full and dimmed wattage modes.
- To reduce cycling as lamps age, it is recommended that the time for reduction in lamp wattage from 100% to the minimum dimmed level be no shorter than 60 seconds.

c) Line Voltage Dimming (Venture magnetic ballasts, only)

- Line voltage dimming must be accomplished by voltage reduction only, not by waveform chopping, i.e. phase control.
- To reduce cycling problems as lamps age, it is recommended that the time for reduction in line voltage from 100% to the minimum specified level (see below) be no shorter than 60 seconds.
- For CWA/CWI ballasts line voltage must not drop below 70% of the rated ballast input voltage
- For Lag (HX lag and Reactor) ballasts line voltage must not drop below 85% of rated ballast input voltage.

"ONE CALL" WARRANTY

Venture's "One Call" limited warranty program is first in the industry in its comprehensive system coverage. It doubles the warranty period on lamps and ballasts purchased and installed as part of the Uni-Form® pulse start system. Since Venture designs and manufactures the lamps and ballasts, customers who purchase a complete system need to make only "one call" to receive full service on any component from Venture's team of technical experts. This means no finger pointing; one source, one call to 1-800-451-2606 for service. Technical assistants will answer all your questions.

Warranty Activation/Service Claims - You Must Register

To activate the One Call warranty, Venture must receive a completed registration form within 30 days after installation of the *Uni-Form* pulse start system. You may complete the registration form on Venture's web site at www.venturelighting.com or call our toll-free number to have the form sent to you. Venture will send an acknowledgment for each registration received. For information, service, technical assistance or replacement claims, call the One Call toll-free number at 1-800-451-2606. If a lamp or ballast in the *Uni-Form* pulse start system fails to operate within the warranty period (based on a maximum 5000hrs./yr. operation and normal mortality), Venture will provide a free replacement. No reimbursement for labor is made for lamp or ballast replacement.

Warranty Terms And Conditions

Venture's One Call warranty covers lamps and ballasts purchased and installed together as a *Uni-Form* system. The installation must be operated under proper environmental conditions and in accordance with current National Electrical Code, Underwriters Laboratory and ANSI specifications. This warranty will be voided if conditions demonstrate abnormal use or stress, such as operating temperatures in excess of maximum rated temperatures, under/over voltage conditions, excessive switching cycles or operating hours or improper lamp or ballast installation. The lamp warranty will be voided if Venture® lamps are replaced with any other manufacturer's lamps. The entire warranty will be voided if Venture ballasts are replaced with any other manufacturer's ballasts.

Product Replacement/liability Limits

The foregoing warranty shall be the sole and exclusive remedy of the purchaser and Venture's sole and exclusive remedy to the purchaser. **NO WARRANTY OF FITNESS FOR ANY SPECIFIC OR PARTICULAR PURPOSE IS MADE OR IS TO BE IMPLIED. NO OTHER WARRANTY APPLIES.** Venture will not, under any circumstance, whether as a result of breach of contract or warranty tort, or otherwise, be liable for any costs or damages, including lost profits or revenues, incidental, special or consequential damages.

Venture reserves the right to examine all failed lamps and ballasts purchased as part of a *Uni-Form* system.

Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. No distributor, salesperson, dealer, retailer or other representative has the authority to change or modify this warranty, either orally or in writing, in any respect.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state and province to province.

Ballasts/Lamps	Product Type	Standard Warranty Period	"One Call" System Warranty
	20W - 125W	One Year	One Year
	150W - 875W	One Year	Two Years
	All *Uni-Form*-SPL	Two Years	Three Years
	Magnetic Ballasts	Two Years	Five Years
	Electronic Ballasts	Two Years	Three Years

800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

Warranty Information

TECHNICAL INFORMATION

"One Call" System Warranty Registration

To receive warranty service, register any installation featuring Uni-Form® pulse start systems.
Warranty coverage begins on the date of installation. Call 1-800-451-2606 with any questions.

Complete and Return To:
Venture Lighting International, Inc.
10295 Philipp Parkway
Streetsboro, Ohio 44241

Complete and Fax To:
Venture Lighting International, Inc.
1-800-451-2605

Rep Agency: _____ Distributor: _____
Contact: _____ Contact: _____

Installation Information

Today's Date: _____

Job Name: _____

Location Name: _____ Installation Date: _____

Street Address: _____

City: _____ State/Province: _____ Zip/Postal Code: _____

Contact Name: _____ Phone: _____

Description and Product # (as shown on product packaging)

Fixture Type	Manufacturer	Qty	Lamp Product #	Lamp Description	Ballast Product #	Ballast Description
C	Brite Lite Mfg	126	MP 350W/C/V/PS	350W, coated, open rated	V90U7521C	350W Opti-Wave

(Optional) Restrike Controls Product Number _____ Quantity _____
Fixture Description and Item#: _____

Note: Must include Venture® lamps and ballasts purchased together as a system to qualify. Sales order from distributor and invoice from fixture manufacturer, if new fixture is involved, must accompany this form to validate the system warranty.

Note: This form must be completed and returned to Venture within 30 days of installation.

VentureLighting.com

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and Sales Headquarters:

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Fax: +(27) 21-709-0181
sales@venturelighting.co.za

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venturecanadasales@adlt.com

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Fax: 305-269-8727
vllatinamerica@adlt.com

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Asia Pacific Pte Ltd.
Block 4008, Ang Mo Kio Avenue 10
#04-06, Techplace I.
Singapore S787059
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Fax: (65) 6844-2339
vlseasia@adlt.com

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Taito-Ku, Tokyo 110
(81) 03-3839-5711
Fax (81) 03-3839-3724
vljapan@adlt.com

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