VENTURE LIGHTING®

VENTURE® LIGHTING

LIGHTING SYSTEMS SOURCE BOOK

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PRODUCT DESCRIPTION CODES

INTRODUCTION INFORMATION

Lamp Description Codes

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

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Lamp Type
- **HIT** -MH tubular G12 enclosed rated
- **MBIL** -High wattage, double ended
- **MH** -Enclosed rated Metal halide
- **MH-DE** -Metal halide, double ended
- **MHC** -Ceramic MH enclosed rated
- **MHL** - Enclosed rated, long life (40,000hrs.) lamp
- **MP** - Open Rated, shrouded arc tube *Uni-Form* pulse start lamp
- **MPC** -Open rated Ceramic MH
- **MPI** -Open rated, probe start lamp (shrouded arc tube)
- **MPL** -Open rated, long life (40,000hrs.) lamp
- **MPSE** - Natural White® 320W for use on Electronic ballast
- **MS** -Enclosed rated, high output lamps for dedicated operating positions

Wattage
- 20 Watts-2000 Watts

Finish
- Nothing = Clear
- **C**- Coated

Operating Position
- **BD** - Base Down (±15°)
- **BU** - Base Up (±15°)
- **H75** - Horizontal (±75°)
- **HBU** - Hor. to Base Up (±60°, ±90°, or ±105°)
- **HOR** - Horizontal (±45° or ±15°) with POM base
- **U** - Universal
- **V** - Vertical (±15°)

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

UV Protection
- Nothing = no extra UV protection
- **UVS** - UV Shield®

Start Type
- **EM** - Energy Saving
- **LU** - HPS retrofit lamp
- **PS** - Pulse start

Color Code
- (CCT) in degrees Kelvin
- **3K** -3000K to 3200K
- **4K** - 3700K to 4000K
- **5K** - 5000K
- **6K** - 6500K
- **10K** -10,000K
- **728** - 70 CRI, 2800K
- **732** - 70 CRI, 3200K,
- **734** - 70 CRI, 3400K
- **737** - 70 CRI, 3700K
- **740** - 68 CRI, 4000K
- **830** - 85 CRI, 3000K
- **850** - 80 CRI, 5000K
- **930** - 90 CRI, 3000K
- **942** - 90 CRI, 4200K
- **950** - 90+ CRI, 5000K

Beam Angle
- **FL25** - Flood, 25° Angle
- **SP10** - Spot, 10° Angle
- **WF40** -Wide flood, 40° Angle

Venture Lamp Description Example:

MP 350W/C/V/ED28/UVS/PS/737

MP = Metal halide, protected, shrouded arc tube for open rated fixtures; **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** = 70 CRI with Color temperature of 3700K

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
- **AM**-120/208/240/277/480
- **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 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

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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, use less chemicals and have extended life. Venture is also constantly enhancing existing product offerings and developing new lighting solutions. Venture Lighting® products are designed to have the highest quality and output of light, creating safe and productive environments.

At Venture, sustainability is not only a top priority, it is a business philosophy. Balancing economic, environmental and social factors while developing product families that provide energy-saving lighting solutions results in less negative environmental impact. Value is placed on every decision, from materials to people, that impacts the company's business, products and team. In Venture facilities, energy usage is minimized through controls and employee procedures, and employees are encouraged to recycle and support community involvement.

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

- Received over 25 patents related to metal halide technology
- Introduced Uni-Form® pulse start technology 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
- Introduced the Super Pulse Start families of lamps for extended long life and enhanced color rendering
- Offers lamp wattages ranging from 20W to 2000W
- Offers a full line of magnetic and Ventronic™ high frequency electronic ballasts, specifically designed to optimize lamp performance

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 significant energy savings
- Free lamp recycling with Venture's Smartpac® program
- "One-Call" extended system warranty
- Technical and field support

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Brighter Ideas Start Here

The Venture Lighting Institute (VLI) is proud to offer superior education on a wide variety of lighting solutions, not just metal halide lamp and ballast systems. Beginning with our certified training staff, the VLI offers several key lighting design courses throughout each year to teach better lighting design by implementing the newest technology available. Maintaining a focus on legislative and industry standards also helps promote sustainability in the lighting industry.

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, and classes are recognized by professional organizations such as IESNA and AIA.

Classes

The Venture Lighting Institute continuously delivers an intensive educational series on industry trends and lighting challenges. Classes are taught by leading industry professionals and feature hands-on activities to assist with applying lighting concepts to real lighting applications. View classes offered this year at **VentureLighting.com/Institute**.

Class schedules may include:

- The Fundamentals of Metal Halide Technology
- The Great Debate: Fluorescent vs. Pulse Start Metal Halide
- Application Design
- Pulse Start Metal Halide Dimming & Controls
- 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 through our website at **VentureLighting.com/Institute.** If you have questions or difficulty registering, please contact us at 800.451.2605.

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.

VentureLighting.com/Institute

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Saving The Environment

Introduction Information

Just one Venture customer, 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 customers continue to utilize this service. Smartpac is just another way that Venture Lighting makes a difference in the world.

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 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.

Smartpac® HID Recycling Service

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 includes the added bonus of a recycling program. Simply put the used lamps in the Venture Lighting® packaging and seal it.

2. Contact *a Venture customer representative.*
Obtain a Smartpac Return Authorization Number by calling 888-223-6359, faxing 1-800-200-9718 or e-mailing us at smartpac@adlt.com.

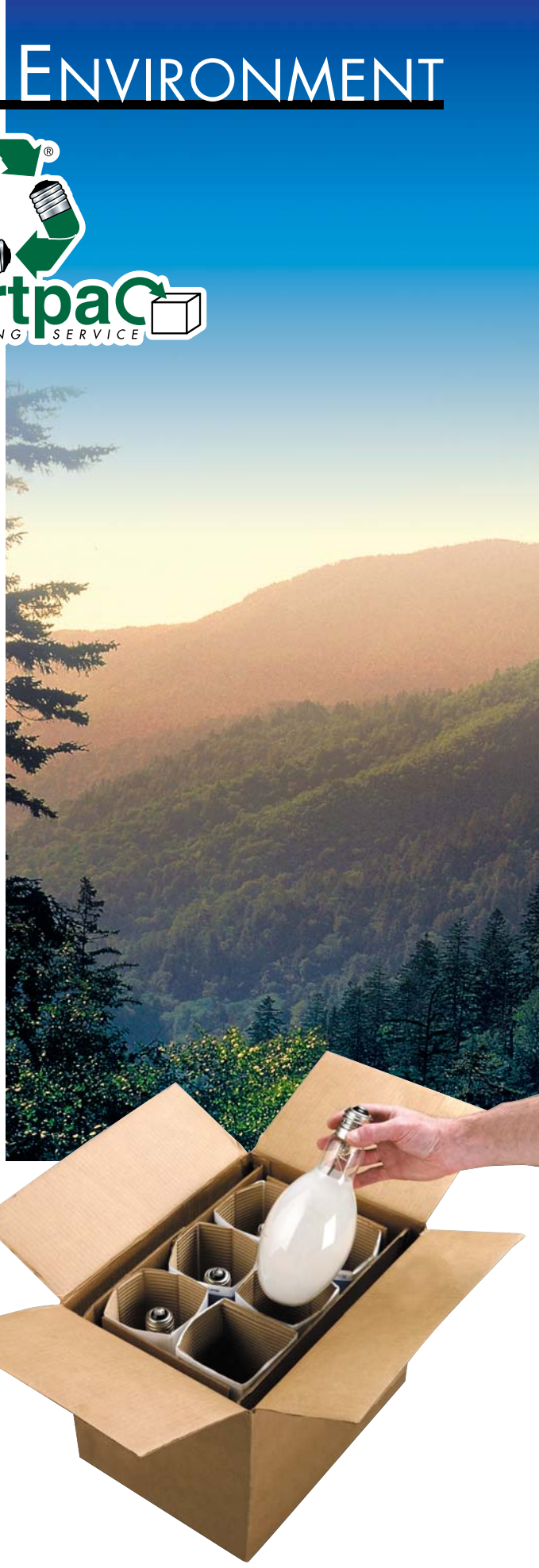
3. Ship *the lamps back to Venture.*
Only lamps shipped in Venture packaging will be accepted. If you are in a state or province that promotes recycling, you can use a bill of lading.

Mercury (Hg) Recycling

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

- Simply return used lamps to Venture in Venture packaging and shipping cartons
- No cost to you for the service; only pay shipping
- 100% of the mercury is reclaimed so that none enters the environment
- Solid materials are reprocessed for use as raw materials or disposed of safely
- Meets all North American regulatory guidelines

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



Smartpac® Recycling

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

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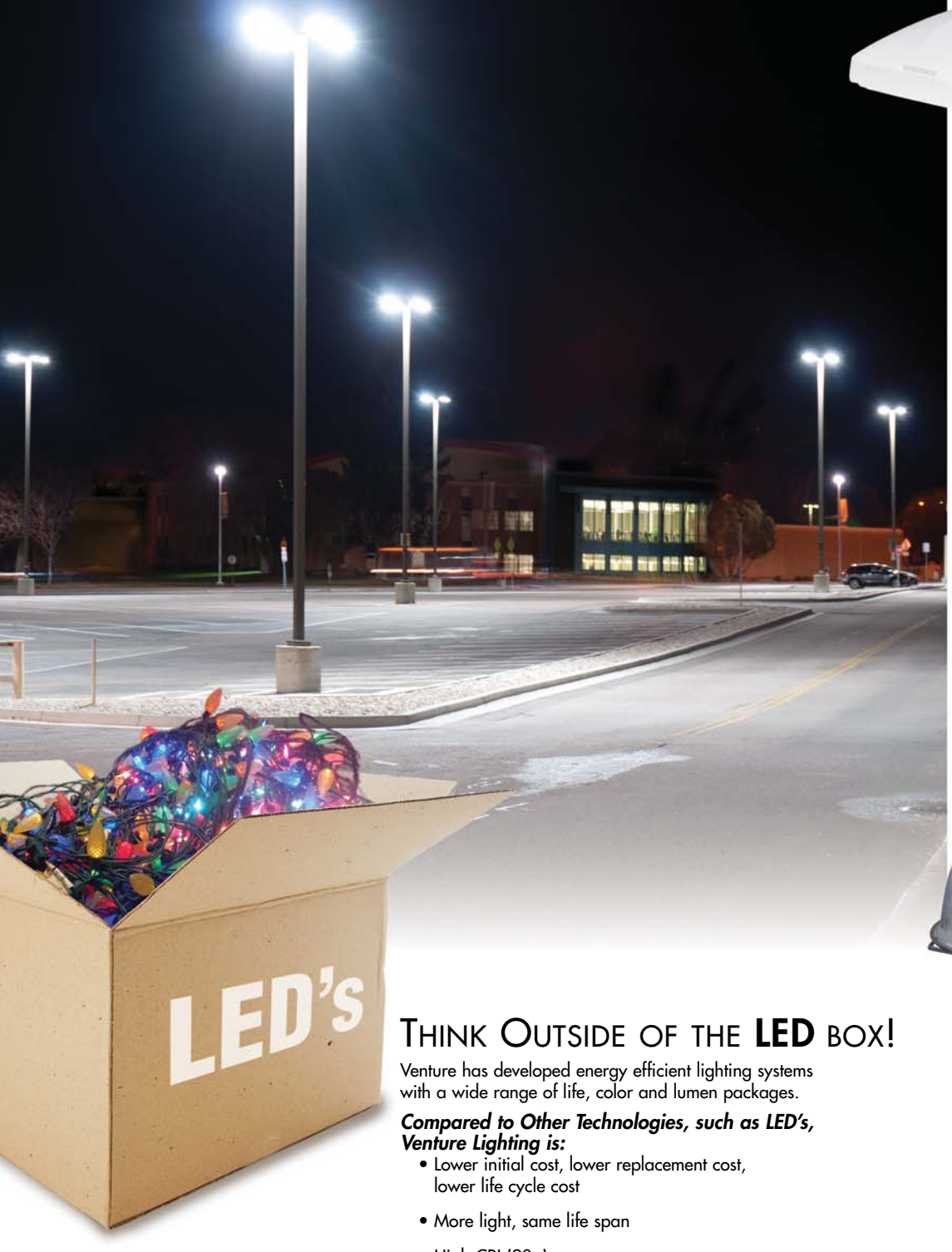
Retrofit Innovations

Introduction Information

Don't Be MisLED



LeafNut™: Advanced intelligent, complete 24/7 web-based, easy-to-install wireless communications control, dimming and monitoring system for area or street lighting

RIO: *(Retrofit Integrated Optics)* Brilliant ceramic metal halide with optimized electronic power supply and highly efficient (95%) reflective glass optic - Like a whole new fixture, without the cost!

SPL: Achieve 40,000 hour rated life with Super Pulse Start Long Life *(SPL)* lamp series, comparable to the true life span of LED's.

Jewel™: Precision glass optics that are up to 96% efficient - Maximize energy efficiency with that attractive 'glass sparkle'

Think Outside of the **LED** box!

Venture has developed energy efficient lighting systems with a wide range of life, color and lumen packages.

Compared to Other Technologies, such as LED's, Venture Lighting is:

- Lower initial cost, lower replacement cost, lower life cycle cost
- More light, same life span
- High CRI (90+)
- Immediate and greater return on investment

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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 composition enhances the overall system performance. The unique, formed body arc tube improves the thermal profile to deliver superior lamp efficacy and uniform light output. This focus on metal halide innovation allows Venture to offer a vast array of integrated packages, providing optimum lighting performance and quality for virtually any application.

Benefits of Uni-Form® Pulse Start MH

- Superior lumen maintenance of 90% (depreciation factor of 0.90)
- Exceptional color uniformity with consistent thermal characteristics in every arc tube
- Reliable starting at extreme temperatures
- Fast warm up and restrike times
- Protective quartz shrouds contain hot particles within lamp in event of arc tube rupture
- All products meet requirements of the NEC, ANSI Type-O and UL are for use in open or enclosed luminaires
- Open rated lamps utilize UV Shield® technology to protect merchandise and signage

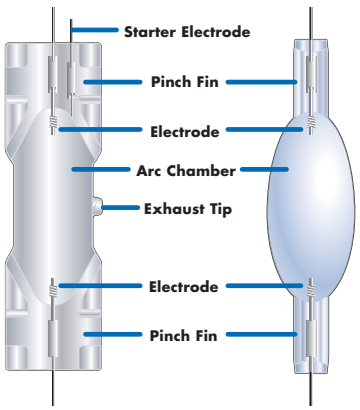
Ventronic™ HF Electronic Ballasts

- Achieve up to 15% 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 electronic
- Even Longer Lamp Life - 20,000 and 40,000 rated life hours
- High Frequency Ballast - Lightweight and quiet with "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. The walls of the arc tube are made of thicker quartz material than regular pulse start lamps; this results in more uniform heating of the upper side of the arc tube to deliver longer overall lamp life.

- 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, provides better light control and less light pollution
- No position oriented socket needed



Standard Probe Start Arc Tube

Patented Uni-Form®
Quartz Formed-Body Pulse Start Arc Tube

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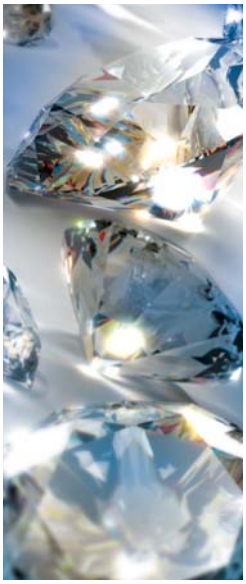
NATURAL WHITE®

Pulse Start Metal Halide Systems

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

- High CRI lighting, 90+
- 90% Lumen Maintenance (0.90 LLD)
- Daylight color of 5000K CCT - Perfect for daylight harvesting
- Excellent color uniformity and color rendering
- 2 year, 100% lamp warranty with electronic systems
- Energy savings on pulse start ballasts - Just change the lamp!
- Long life: Up to 30,000 hours rated life
- Merchandise and signage are protected from fading with UV Shield® technology
- Designed for open or enclosed luminaires

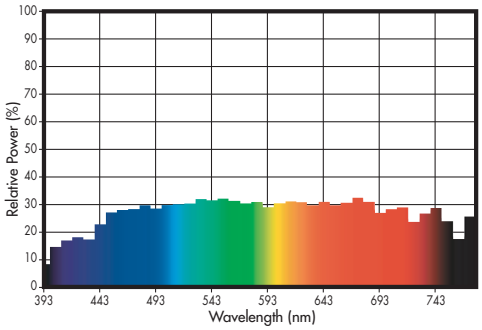
See our brochure online



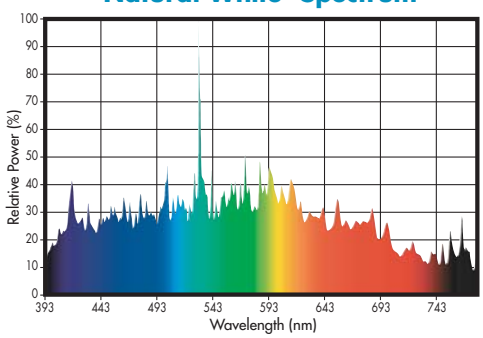
Applications

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

Spectrum of Daylight



Natural White® Spectrum



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Strength, Vitality, Longevity

Introduction Information

Super Pulse Start Long Life *(SPL)*

Extended Life Lamp Series

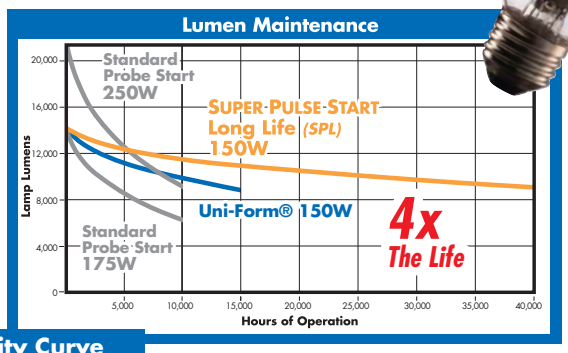
Venture's Super Pulse Start Long Life lamp series delivers up to twice the rated life of many regular pulse start products.

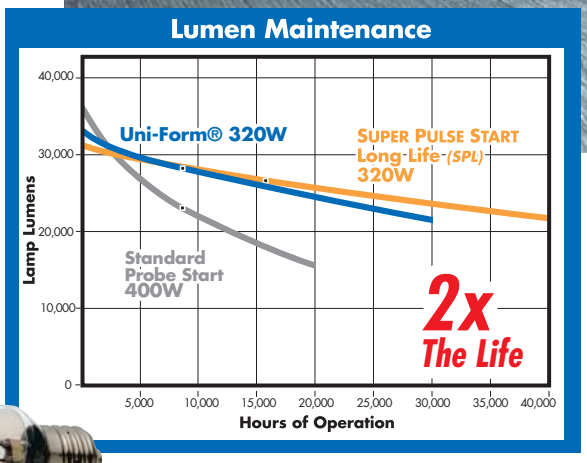
- 40,000 hours rated life
- Patent pending for long life technology
- Quartz metal halide
- Available in 70-875 Watts
- Excellent maintained lumens with up to 114 LPW
- Ultimate retrofit solution
- Cuts maintenance costs nearly in half, while doubling life and lumen maintenance

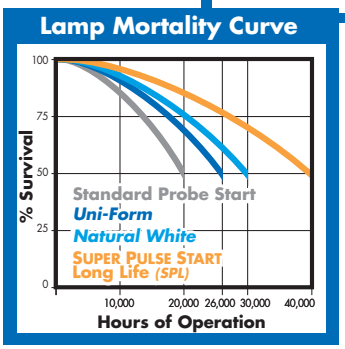
See our brochure online

Applications

- Parking Garage
- Roadway & Street
- Parking Lot
- Utility/Municipal
- Security, Flood & Site Lighting
- Warehouse







575 Watt SPL Lamp

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

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SUPER PULSE START Ceramic *(SPC)*

Ceramic Metal Halide

Venture's Super Pulse Start Ceramic provides warm white light, achieves high CRI and reveals vibrant colors.

- Up to 90 CRI, typical 3000K and 4200K CCT
- Available in 20-315 Watts
- Wide variety of outer jacket sizes
- Up to 30,000 hours rated life
- Vibrant color rendering
- Up to 123 lumens per Watt

See our brochure online

Applications

- Parking Garage
- Roadway & Street
- Parking Lot
- Utility/Municipal
- Security, Flood & Site Lighting
- Warehouse

UNI-FORM®
PULSE START METAL HALIDE LIGHTING SYSTEMS

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CLARITY, FOCUS, SENSIBLE

INTRODUCTION INFORMATION

RIO SYSTEM

RETROFIT INTEGRATED OPTICS

SUPER PULSE START
Ceramic *(SPC)*

Venture RIO kits are the green choice for updating outdoor lighting systems and re-purposing existing fixtures. RIO kits offer the most cost effective solution to upgrade roadway and site lighting while saving energy with the same fixture.

- High efficiency electronic gear with 0.95 power factor for long lamp life
- Lamp delivers up to 118 LPW
- Up to 30,000 hour rated life
- Free formed optics with ultra smooth glass surface and dichroic anti-frost coating
- Unique independent optic rotation feature for precisely aligned light distribution

See our brochure online

RIO Lamp Module

Ventronic™ Ballast

Before:
HPS Street Lighting

After:
RIO Street Lighting

Before:
Existing HPS lamp & ballast in cobra head fixture
250W HPS
24000 Hours Rated Life
2100K Color
22 CRI
0.3 Minimum Maintained Foot candles
System Watts: 295

After:
Same fixture now with RIO kit & Ventronic™ ballast
RIO 140W
30000 Hours Rated Life
2800K Color
70 CRI
0.6 Minimum Maintained Foot candles
System Watts: ***15400***

141 Saved System Watts = $51.47 per fixture*
** Based on 10 hrs/day @ $0.10/kWh*

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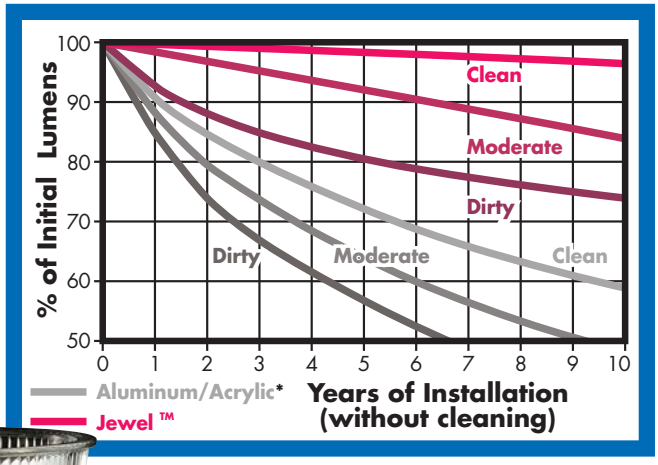
JEWEL™

High Efficiency Glass Optics

- Prismatic glass reflector provides attractive "Glass Sparkle"
- Increase light levels while reducing energy consumption with Venture's Uni-Form® pulse start lamp and ballast systems
- Maximize energy efficiency
- Up to 96% efficient TIR (Total Internal Reflection) for minimizing glare
- Self-Cleaning optic for maintained optical efficiency over time
- Superior 5 year dirt factor of 0.92 versus 0.64 for aluminum and acrylic reflectors

See our brochure online

Dirt Factor Effect on Luminaire Light Loss



*NOTE: * IES Standard Category III*

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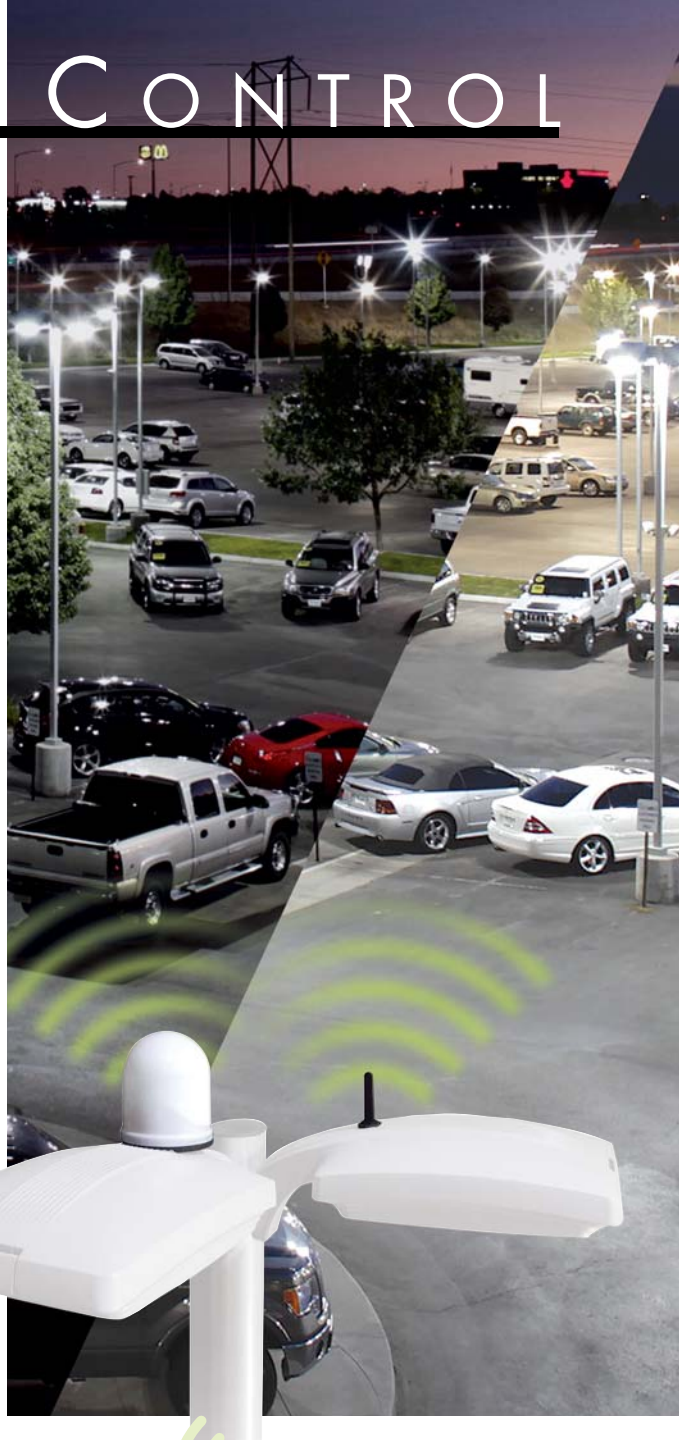
Monitor, Report, Control

Introduction Information



LeafNut™

Wireless Lighting Control System

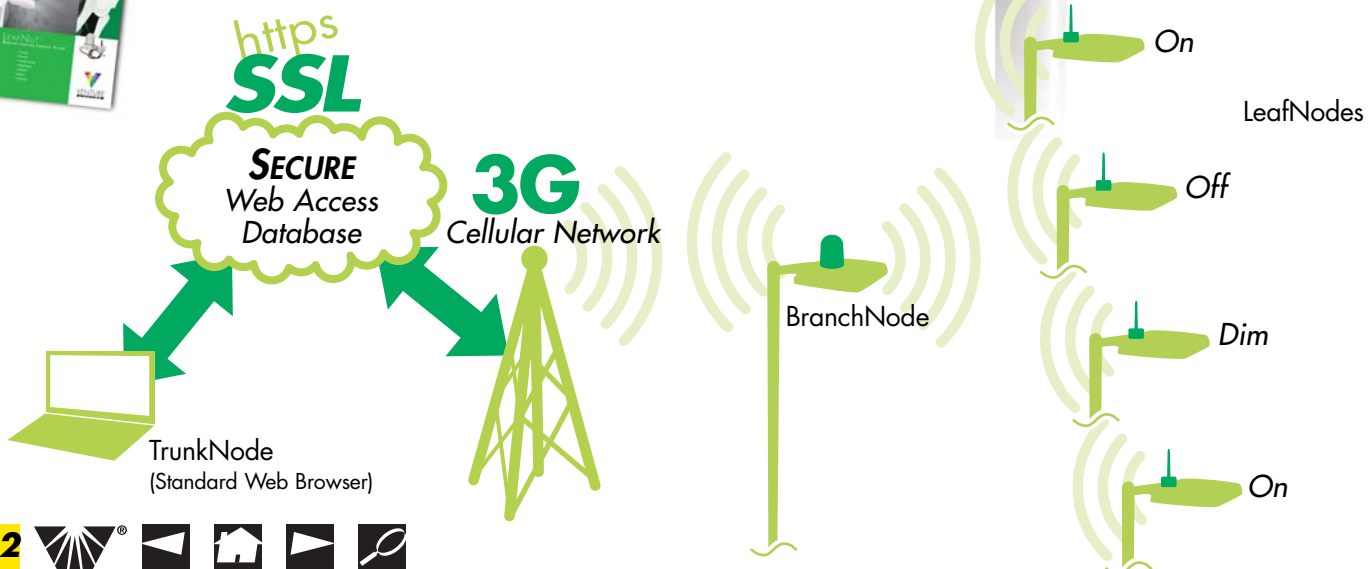
Venture's LeafNut™ system is an advanced intelligent wireless lighting control system for area and street lighting. The end user can control, adjust, monitor and receive maintenance messages from each light fixture. With the upgrade kit of energy efficient pulse start ballasts and Uni-Form® lamps, plus the power of the *LeafNut* system, energy consumption expenses are drastically reduced while improving the site with bright, white lighting.

- 24/7 control and real-time monitoring
- Completely wireless with no software, WiFi or dedicated computer necessary
- Energy savings through dimming
- Control lights as individuals, as groups or by sites
- Energy reporting per fixture
- Unlimited number of nodes

How *LeafNut* Systems Works

Venture's *LeafNut* system is comprised of small electrical control units called nodes. These nodes are either the master site controller, called a BranchNode, or individual fixture nodes, called LeafNodes. These nodes are wired and mounted directly into, or on top of, the existing fixtures. The *LeafNut* nodes are housed in each light fixture and communicate via radio, satellite and cellular systems to deliver control and status messages to a secure web page that can be accessed 24/7 from any web-accessible electronic device. After installation and initial programming by Venture's experts, the end user is trained to use the secure web site for control and reporting. There are no panels or controls to install and no connection to servers or computers required.

See our brochure online



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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?

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Retail Lighting

Applications and Case Studies

Case Study

Project:
Major retail chain of infant and children's apparel and toys

Location:
Nationally within U.S.

Lighting Solution:
Venture's 210W Super Pulse Start Ceramic *(SPC)* metal halide with Ventronic ballast lighting systems

Benefits

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

Project Summary

A national retailer of infant products, children's apparel and toys with a large number of stores was evaluating lighting choices for a retrofit/upgrade program. In addition, a corporate mandate of energy reduction was a key driver towards identifying a green solution.

The Challenge

The customer wanted a solution that would save energy, non intrusive to install and create a retail environment that was inviting to their customers. The existing stores had 400w probe start metal halide fixtures that varied type, condition and age. The owner wanted a solution that would be quick to install during non-store hours allowing for minimal to no disruption to the retail experience.

Technologies evaluated included metal halide, fluorescent, induction and LED. Test stores were installed and monitored during an evaluation period with ceramic metal halide emerging as the most efficient and energy saving platform.

The Solution

The retailer choose the Venture Lighting® retrofit high bay 22″ acrylic precision optic which included a high performance 210 Watt ceramic metal halide lamp with dimmable electronic ballast. This solution delivered real savings while improving the retail experience with a warm 4200k color temperature and 90CRI that allows product to be seen in true color.

The solution was a simple one for one replacement of the existing fixture. No new line voltage wiring was needed and retrofit fixtures used the same spacing criteria as originally designed. This reduced the costs and time of the retrofit substantially allowing retrofit crews to compete entire store retrofits in less than one week's time.

The Benefits

The retail environment is more inviting and product displayed for sale is illuminated in true color making customers want to purchase more items. Energy savings was achieved store which exceeded their original estimates on energy reduction. The company has also take advantage utility rebates that improved the pay back on their investment. In summary the customer achieved energy savings while increasing display floor light levels, with a higher color rendering (CRI) through Venture's 210 Watt ceramic metal halide lighting solution.

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Auto Dealership

Applications and Case Studies

Project Summary

Located in Moon Township, Northstar Chevrolet is western Pennsylvania's leading dealer of new and used Chevrolet vehicles with full service, parts and collision repair departments. Northstar Chevy was looking to replace their current 1000W probe start lighting system with a more energy efficient lighting solution that would also offer a utility rebate.

The Challenge

With 74 lamps and ballasts to be replaced in a mix of shoebox and flood fixtures, Northstar Chevy needed a lighting solution that produced substantial energy savings, increased light levels and improved light quality to showcase the color and appearance of the automobiles. The CRI of 65 with the current system did not highlight the merchandise, and the outdated 1000W lamps caused high energy consumption and costs.

The Solution

Venture's 575W Natural White® pulse start metal halide system was the obvious choice for exceptional light color, quality and output. Offering 90+ CRI with 5000K CCT, the *Natural White* lighting system is ideal for automotive dealerships because the crisp, white light is comparable to natural sunlight.

The 90% maintained lumens combined with 40,000 hour rated life resulted in less maintenance and decreased maintenance costs.

In comparison to the previous 1000W probe start lighting, the 575W pulse start system also provided cost savings through the drastic reduction in energy consumption. With Venture's advanced metal halide technology, the considerable decrease in wattage actually supplied more light with less energy. Northstar Chevy achieved all the benefits of a new total integrated lighting solution while using the existing 25-foot poles and fixtures by retrofitting, as opposed to replacing the entire lighting system.

The Benefits

Thanks to a substantial energy savings over the first year, Northstar Chevrolet was able to cut the payback period on the new energy efficient lighting system to 1.2 years. The significantly reduced energy consumption also allowed the customer to qualify for a utility rebate from Duquesne Light that equaled almost half of the total material and labor cost of the entire retrofit.

Aside from the valuable energy savings and rebate, the improved color, clarity and lumen output of the *Natural White* lamps offered excellent positive enhancements for Northstar Chevrolet's merchandise.

Case Study

Project:
Northstar Chevy

Location:
Pittsburgh, PA

Lighting Solution:
Venture Lighting Natural White® Systems

Benefits

- Energy Savings
- More than **3X** the lamp life
- Higher CRI (90+)
- Increased Light Levels
- Reduced Maintenance

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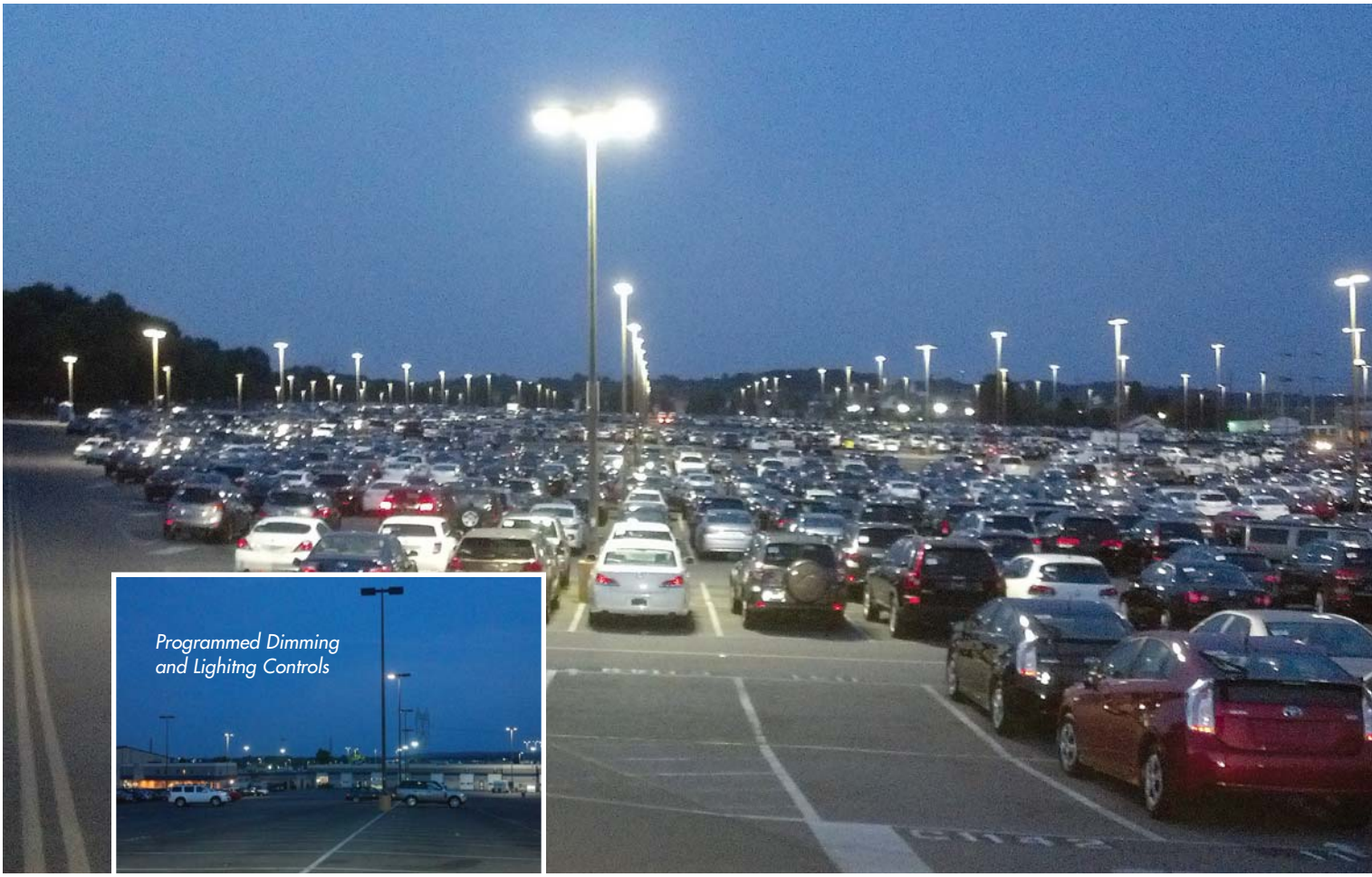
Auto Auction Lot

Applications and Case Studies



Case Study

Project:
Large, national auto auction company's lot

Location:
Multiple locations across the U.S. and Canada

Lighting Solution:
Venture's 575W pulse start metal halide systems with LeafNut™ Wireless dimming controls

Benefits

- Wireless dimming capabilities, reducing energy costs
- Ultra flexible timing schedules
- Light grouping

Project Summary

A nationwide leading automotive services company's vehicle auction division was looking to reduce energy usage and maintenance and increase light levels at their flagship location in eastern Pennsylvania. This facility, seeing millions of vehicles every year, is used for vehicle auctions, repair and certification services. With 106 locations and 20,000 employees in the company, this site is only a piece of an immense energy savings project.

The Challenge

The site had multiple fixture styles with varying pole heights and a wide range of wattages from 1000W to 250W. Venture was challenged to present a lighting system to meet several needs; two of these main concerns were the extensive maintenance and low light levels furnished by the current lighting system.

In addition to significant energy savings, the customer was interested in a wireless control system with the ability to control, dim and set a lighting schedule for each fixture. Initially, LED options were considered. However, LED lighting systems were not able to provide the return on investment or higher light levels required for this job.

The Solution

Venture's 575W Uni-Form® Super Pulse Start Long Life (SPL) lamp with revolutionary LeafNut™ system was the perfect fit to exceed this customer's goals of reduced energy consumption, increased light levels and less maintenance. With Venture's superior technology, the reduction from the existing 1000W system to the new 575W system actually provided more light output with less energy. While not all the lamps installed were 575W (lower wattages were used in a small amount of specific areas), the *LeafNut* controls and monitoring were used on each fixture.

The Benefits

Programming the *LeafNut* system to operate some lights at 100% power from dusk to 10pm, 50% power from 10pm to midnight, and one security light per pole operating at 100% power from midnight to dawn helped achieve an energy savings of over $205,000 annually. There are less maintenance costs and labor, as the new lamps last more than three times longer than older technology, and the *LeafNut* system alerts the customer to all lamps, ballasts and other system disruptions that need attention. These system control options combined with the significant reduction in energy consumption paid for the investment in less than two and a half years.

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Project Summary

Glasgow Airport Business Park is a thriving industrial parkway that offers prime real estate directly next to Glasgow International Airport for many offices, hotels and warehouses. Among the numerous well known businesses that reside at this desirable location, the Cirrus Building stands out with its modern steel and glass exterior and striking profile.

The Challenge

ECG Facilities Services, the facilities management company maintaining the Cirrus Building, was unsatisfied with the upkeep of the aging 250W High Pressure Sodium (HPS) lighting system. This previous HPS system was creating a costly situation of excessive energy consumption. Not only were operating costs at an unparalleled high, but ECG Facilities Services was in the market for a more environmentally-friendly and sustainable lighting solution.

Characteristic of HPS lighting, the Cirrus Building was surrounded by inadequate yellow light. This yellow hue, while unpleasing to the eye, was more importantly a safety issue. The dim yellow light did not provide enough visibility in the parking lot and area surrounding the building.

The Solution

Venture's 140W RIO kit was retrofitted into the existing fixtures to achieve brighter and whiter light output with less energy consumption than the previous 250W HPS system. In comparison to the large price tag of installing a completely new system, using the existing poles and fixtures cut the cost of the lighting upgrade in half. RIO's brilliant white light delivered an impressive jump to 70 CRI from the 22 CRI with the HPS lighting.

The Benefits

The simplicity of RIO kit installation allowed for all 38 fixtures to be upgraded in one weekend, which avoided any disruptions to the facility during work hours. With an estimated payback period of 24 months, the extended lamp life and simple installation translates to less maintenance for ECG Facilities Services. As the first RIO installation in Scotland, the goals of replacing dim yellow light with vivid white light and significant energy savings were met and exceeded.

Comparisons

Existing System 250 Watt HPS	vs	Venture's 140 Watt RIO
24,000	Rated Life Hours	30,000
285	System Watts	151
22	CRI	70
2100K	Color Temperature	2800K
285	System Watts	151
	Savings	*134 System Watts Saved = $94 per luminaire**

** Based on 12 hrs/day @ $0.16/kWh*

Case Study

PROJECT:
Cirrus Building

LOCATION:
Glasgow, Scotland

LIGHTING SOLUTION:
Venture's 140W Area RIO system

Benefits

- Reduction in energy usage
- Brighter, whiter lighting
- Higher CRI and longer rated life

Venture's RIO Lamp Module

Ventronic™ Ballast

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Gas Station Canopy

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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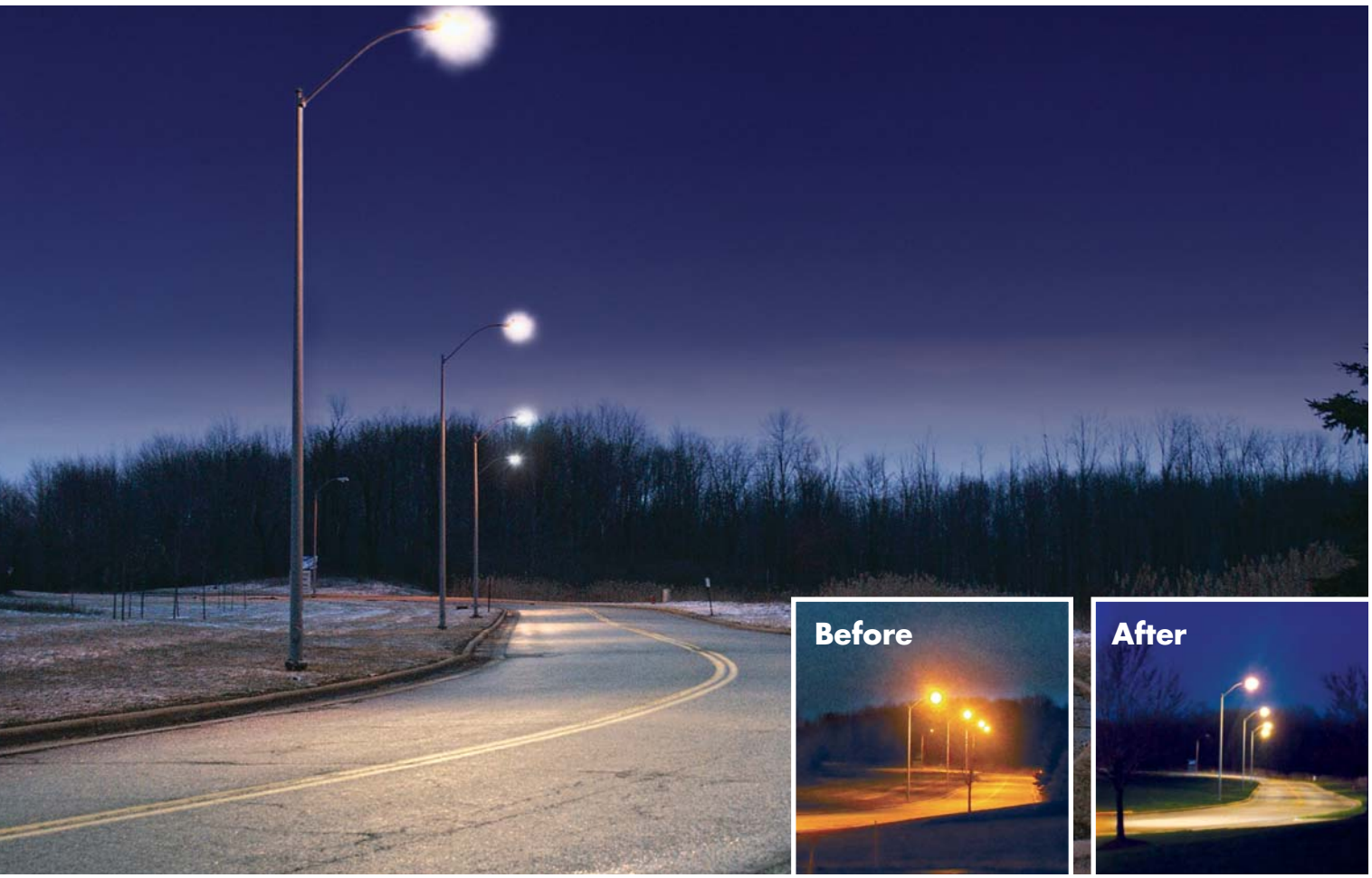
Roadway Lighting

Applications and Case Studies



Project Summary

Philipps Parkway in Streetsboro, Ohio changed

The Challenge

HPS to Metal Halide

The Solution

Venture's 140W RIO kit was retrofitted into the existing fixtures to achieve brighter and whiter light output with less energy consumption than the previous 250W HPS system. In comparison to the large price tag of installing a completely new system, using the existing poles and fixtures cut the cost of the lighting upgrade in half. RIO's brilliant white light delivered an impressive jump to 70 CRI from the 22 CRI with the HPS lighting.

The Benefits

The simplicity of RIO kit installation allowed for all 14 fixtures to be upgraded. As the first RIO installation in America, the goals of replacing dim yellow light with vivid white light and significant energy savings were met and exceeded.

Comparisons

Existing System 250 Watt HPS	vs	Venture's 140 Watt RIO
24,000	Rated Life Hours	30,000
295	System Watts	154
0.3	Min. Maintained Fc	0.6
22	CRI	70
2100K	Color Temperature	2800K
	Operation @ $0.13/kWh	
0	Total Annual Savings	$51.47

** Per fixture, based on 10 hrs/day @ $0.10/kWh*

Case Study

Project:
Based on Philipp Parkway

Location:
Streetsboro, Ohio

Lighting Solution:
Venture's 140W Roadway RIO system

Benefits

- Energy savings: 141 System Watts or $51.47 per fixture
- 90% lumen maintenance (0.90 LLD)
- Higher CRI, Higher Footcandles, etc.

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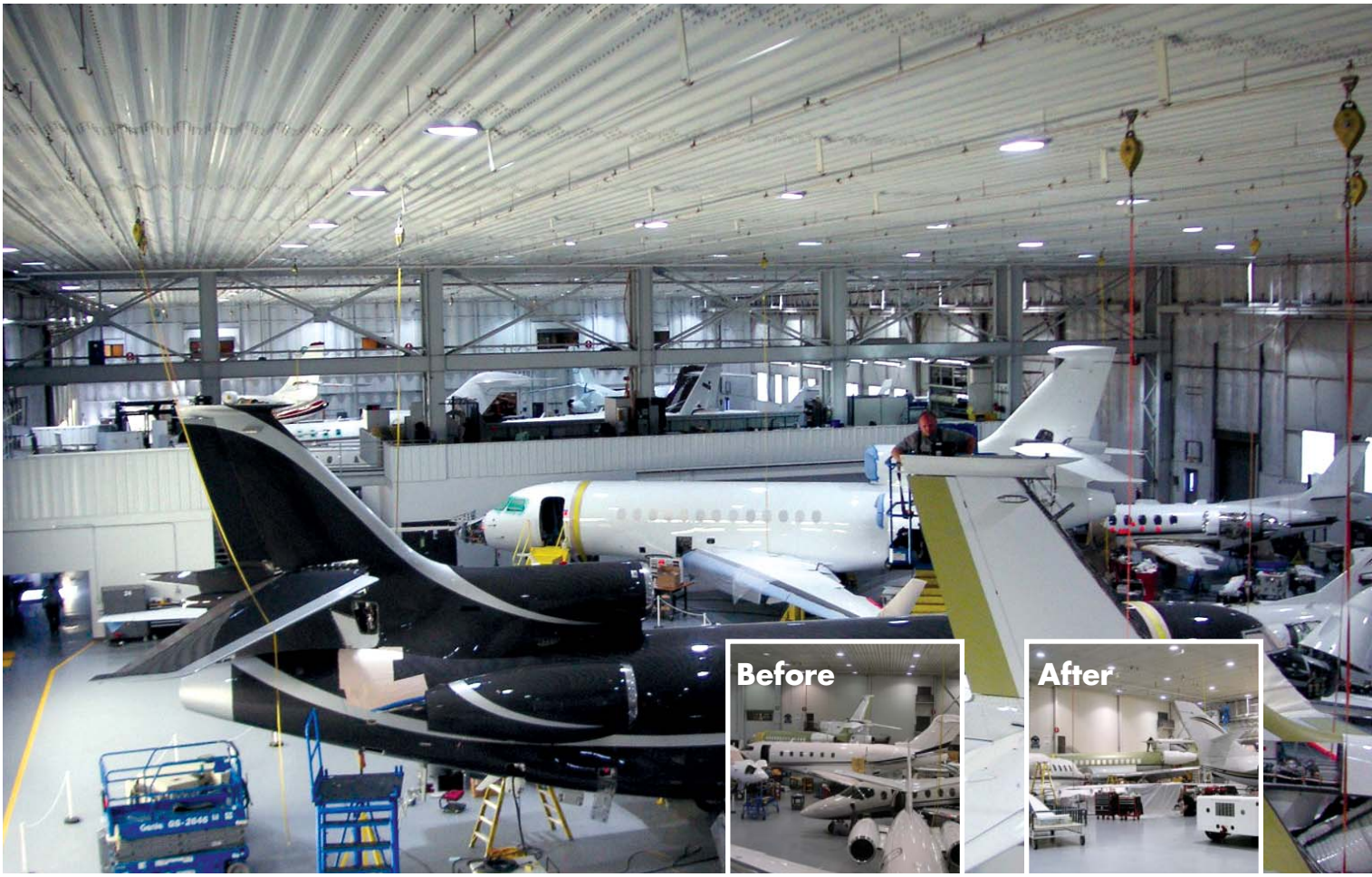
Aircraft Maintenance

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

Project Summary

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 for a wide variety of business aircraft at facilities across the United States.

The Challenge

Duncan Aviation has an active "Green Team" that has been working for several years to lower its impact on the environment through responsible chemical usage and decreased waste and energy consumption. Duncan identified their airplane hangars as an energy savings retrofit opportunity.

Due to their fixtures being built into the ceiling, Duncan needed a simple one-to-one lamp and ballast upgrade to replace their outdated 1000W probe start system. After comparing two different options in their hangars, they selected Venture's 775W Natural White® for its superior lamp life and CRI.

The Solution

The 775W high bay solution delivered higher light output, longer life, superior CRI and an effective way to maintain Duncan's existing lighting system without changing the look and integrity of the ceiling. The system drastically reduced maintenance costs, as Duncan now receives 2.16 times the lamp life it did with the old 1000W system.

The Benefits

As a bonus, the longer lamp life and increased energy savings allowed Duncan to receive a rebate from Consumer's Energy to help fund half of the total project costs. The 775W Natural White system saved 23,030 system watts per year and provided 14,000 hours of additional lamp life. This was more than double the life of each lamp in their previous system, so maintenance costs were also drastically reduced.

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Warehouse Lighting

Applications and Case Studies

Project Summary

A leading national manufacturer of commercial roofing solutions was looking to improve the lighting in its 150,000 square foot Bristol, CT warehouse. Specifically, they were looking to gain substantial energy savings, provide brighter and whiter light, and have the capability to dim lights in areas of the warehouse that were often unoccupied for significant amounts of time.

The Challenge

Aside from the enormous amount of energy consumed (over 1,000,000 kWh of energy annually) by the old 400W high pressure sodium system, there was also much difficulty with color rendering because of the light's yellow color. With 420 fixtures to replace, minimal maintenance and installation simplicity were also major factors in choosing a metal halide lighting system.

Linear fluorescent lamps were considered but ultimately not chosen as the solution. Unlike metal halide, linear fluorescent technology is adversely affected by temperature changes, a particular concern in an unconditioned space like the Bristol warehouse.

The Solution

The solution specified was 200 fixtures of Venture's 320W Uni-Form® pulse start lamps on Ventronic™ HF electronic ballasts. Advanced controls and sensors were used to achieve greater savings, such as with dimming lamps to 50% power. The drastic reduction in energy costs was realized through the wattage reduction (from 400W to 320W) and the huge reduction in number of fixtures (from 420 to 200). With Venture products, the customer was able to obtain white light and increased light levels by reducing their number of fixtures and the wattage.

The Benefits

The annual energy savings of 650,000 kWh at full brightness were further enhanced by the additional 260,000 kWh saved through dimming. Due to the superior metal halide pulse start technology, maintenance costs were greatly reduced with fewer lamps replacements. Even more beneficial was the Connecticut Light & Power utility rebate that paid for a full half of the material and installation cost; the customer qualified for this rebate because of the energy-efficient Venture products used. The success of this project has been turned into a national specification of Venture's dimmable 320W and Ventronic system.

Comparisons

Existing System 400 Watt HPS	vs	Venture's 320W Uni-Form® Pulse Start
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

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

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Multi-modal Parking Garage

Applications and Case Studies

Case Study

Project:
Kent Central Gateway

Location:
Kent, OH

Lighting Solution:
(140) Venture's 125W
Super Pulse Start
Long Life (SPL) Lamp

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

Project Summary

The Kent Central Gateway (KCG) is a multi-modal facility located in downtown Kent, OH within one-quarter mile of Kent State University and the Cuyahoga Riverfront. The structure not only provides parking for the public transportation bus bay it houses, but it also includes bicycle amenities to improve transit accessibility in Kent and connections to Cleveland and Akron.

The Challenge

Comparing metal halide technology to LED, induction and fluorescent lighting systems showed that while the fluorescent option offered the overall lowest cost, it could not operate in the temperature extremes present in a Northeast Ohio parking garage and could not match the excellent lumen output of Venture's metal halide system.

Similarly, the LED system could not stack up to metal halide. LED energy savings of about $15,000 did not trump the fact that the LED life cycle cost was more than $150,000 higher than the life cycle cost of Venture's metal halide system. The client was also concerned with the cost of replacement lamps and components, the ease of obtaining replacement parts and the level of maintenance necessary. LED technology did not win out in this department either; replacing a metal halide lamp is much simpler and more cost effective than replacing an entire LED board.

The Solution

In addition to having the lowest replacement lamp price, Venture's 125W SPL lamp with 40,000 hours rated life was chosen because it presented a low energy cost for the high maintained lumens and lumen output, low initial installation price and low life cycle cost. Along with the lowest price for the most value, the SPL metal halide system also offered the best uniformity in both horizontal and vertical burning positions. The vertical foot candle level and uniformity were important at the KCG to ensure proper security camera performance, and the LED option could not offer comparable uniformity.

Exceeding LED performance and value, Venture Lighting's SPL extended life lamp series provided unequaled benefits. This unique metal halide exterior lighting and parking deck design added the perfect sparkle to the new hub of Kent.

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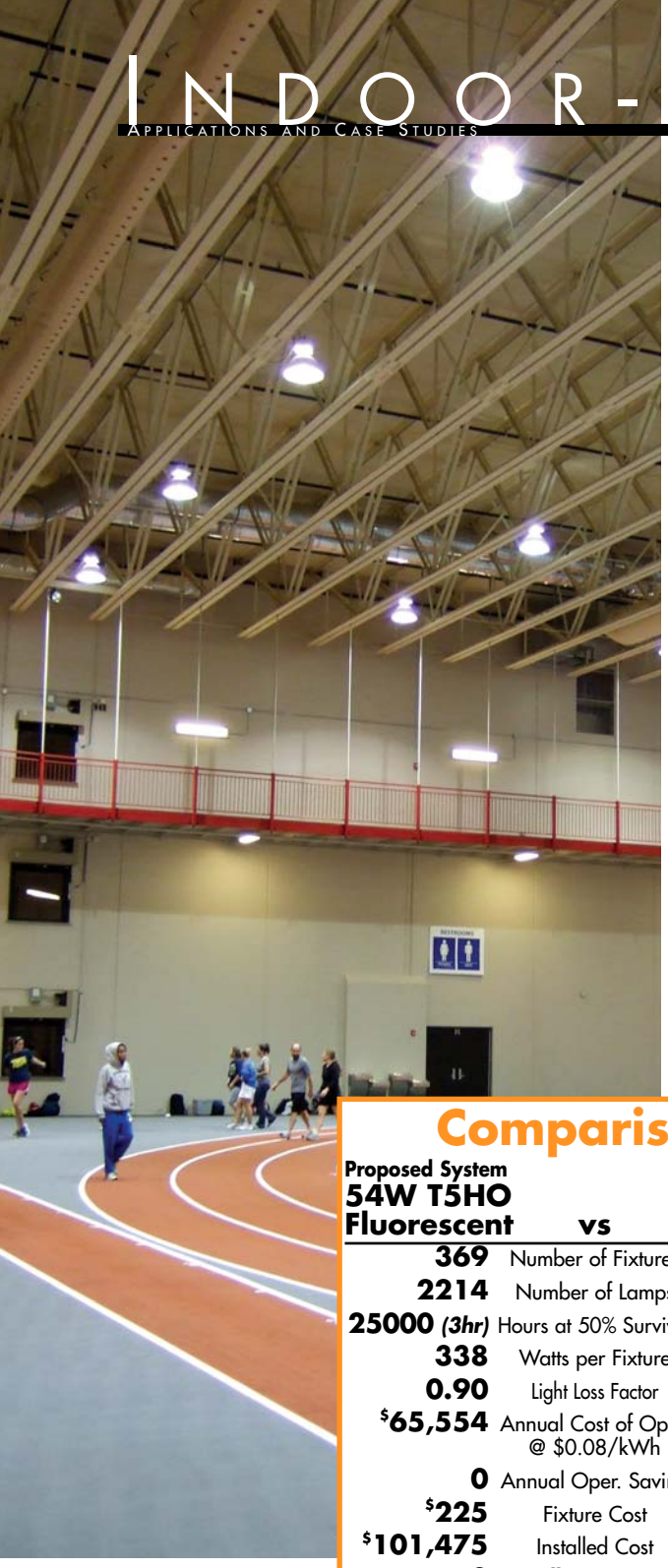
Indoor - Gymnasium Lighting

Applications and Case Studies



Project Summary

The North Central College Cardinals of Naperville, Illinois are often in the spotlight for their outstanding Track & Field program. When the 100,000 square foot Al Carius Track was built as an indoor gymnasium, track and recreation facility, the Cardinals had some big lighting needs. In fact, they needed a lighting solution that would deliver 100 footcandles to the track so North Central College could televise their Division III NCAA meets in high definition.

The Challenge

Of the two lighting technologies considered, fluorescent and metal halide, the 54W six-lamp T5HO high bay is often thought to be the most energy efficient high bay on the market. 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 high bay solution achieved more light output with 75% fewer fixtures. The layout resulted in 83 maintained footcandles with a 1.5:1 average/minimum light level uniformity. The 875W high bay solution also saved 313 megawatts per year while getting more light to the desired task area at a much lower initial cost than the fluorescent option considered.

The Benefits

Aside from relieving the North Central College maintenance team from having to replace thousands of T5's, the 875W lamps last 26,000 hours, so the first group re-lamping will not be necessary for several years. With an annual operation cost savings of $25,109 and an installation cost of $20,250, the customer gained more in energy savings during the first year than they spent on the new lighting system.

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

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University Outdoor Lighting

Applications and Case Studies

Case Study

Project:
Idaho State University

Location:
Pocatello, Idaho

Lighting Solution:
Venture's 575W pulse start metal halide systems with LeafNut™ wireless lighting controls

Benefits

- Whiter light, high CRI
- Reduced energy consumption
- Security level lighting
- Long life: 40,000 rated life hours
- Same day maintenance warnings
- Custom timing and schedules for venues

Project Summary

At Idaho State University's main campus, located in Pocatello, Idaho, the scenic surroundings called for a sustainable lighting solution; replacing the outdated high pressure sodium system was a priority to increase campus safety and decrease energy consumption and maintenance costs.

The Solution

The choice for a total integrated lighting system that exceeded all Idaho State University's goals was a combination of multiple innovative Venture Lighting technologies. Choosing Venture's Natural White® lighting system provided bright white light with excellent maintained lumens, 90+ CRI and a 5000K CCT. Taking the upgrade even further, the 575W Super Pulse Start long life lamp option delivered 40,000 hour rated life to reduce maintenance labor and costs.

The additional technology of Venture's LeafNut™ wireless control system offers the capability to control lights as groups or individuals. This upgrade allows facility managers to program a dimming schedule from any electronic device with internet access that significantly reduced energy consumption while maintaining the desired light levels. The *LeafNut* system also produces real time information on the status of each individual lamp; this allows for repairs to be accomplished without depending on observers to report issues.

The Benefits

The extended lamp life achieved with the metal halide Super Pulse Start long life system resulted in less labor for the university maintenance staff due to less re-lamping; the *LeafNut* system also cut down on maintenance because issues are communicated and solved quickly and easily with the intelligent reporting functions. Both of these advantages directly translated to lower costs for Idaho State.

Higher light levels with brighter, whiter light provided the five-square-mile campus with increased visibility and safety for students, faculty and visitors. Reducing the wattage to 575 from the former 1000W HPS system still provided more light with less energy. This significant reduction in energy consumption also qualified the university for rebates through Idaho Power. The rebate funds allowed Idaho State University to begin more campus sustainability projects and far surpass the goal of obtaining a new lighting system that made the campus more environmentally friendly.

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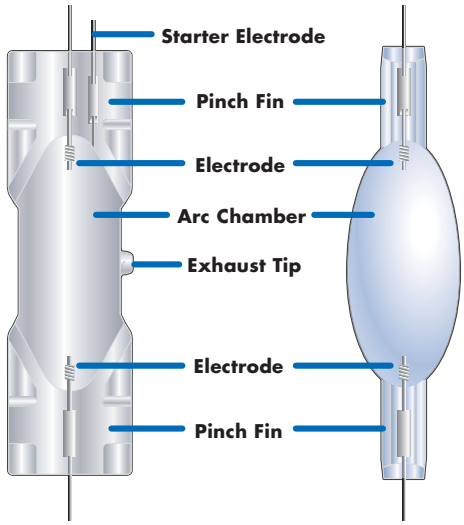
Pulse Start Metal Halide Systems

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 NEC criteria for open fixtures
- Pleasant environment and better system performance thanks to quiet, cool-running **magnetic** ballasts or Ventronic™ **electronic** ballasts
- Natural White® and Horizontal pulse start lamps
- Super Pulse Start Families of products



Standard Probe Start Arc Tube

Patented Uni-Form® *Quartz Formed-Body Pulse Start Arc Tube*

Super Pulse Start

Long Life *(SPL)*

See page 8

Ceramic *(SPC)*

See page 9

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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.	Qty	Additional Notes
MPC 20W/U/MR16/PS/830/FL25	38801	1050	0.84	53	15000	3000K	85	Clear	U	S	12	4500 MBCP; 25° Angle
MPC 20W/U/MR16/PS/830/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.	Qty	Additional Notes
MHC 20W/U/T4/UVS/PS/830	38806	1800	0.86	90	15000	3000K	85	Clear	U	V	12	
MHC 20W/U/T6/UVS/PS/830	38809	1800	0.86	90	15000	3000K	85	Clear	U	T	12	

ELECTRONIC BALLASTS Ventronic™ 50/60Hz *For SPC Lamps* ANSI C156/M156

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD(%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-020D-ME	Metal	120-277	12" Side Exit Leads	24	0.21/0.09	1	15	0.9	-20°C/-4°F	8

NOTE: Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are not sold separately.

Key

- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*

S MR16

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

T T6

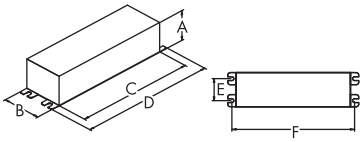
Dia. = 0.8" (20mm)
MOL = 3.9" (99mm)
LCL = 2.2" (56mm)
Base = G12

V T4

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

8 VEN6-XXXD-ME

VENTRONIC



A = 1.2" (30mm)
B = 1.7" (44mm)
C = 5.0" (127mm)
D = 5.5" (140mm)
E = 1.0" (26mm)
F = 5.3" (135mm)

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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	54	12000	3000K	90	Clear	U	S	12	8000 MBCP; 25° Angle
MPC 39W/U/MR16/PS/930/WF40	38805	2100	0.84	54	12000	3000K	90	Clear	U	S	12	3900 MBCP; 40° Angle
MPC 39W/U/PAR20/UVS/PS/830/SP10	38833	2000	0.65	51	9000	3000K	81	Clear	U	N2	6	23000 MBCP; 10°Angle
MPC 39W/U/PAR20/UVS/PS/830/FL30	38834	2000	0.65	51	9000	3000K	81	Clear	U	N2	6	5000 MBCP; 30°Angle
MPC 39W/U/PAR30L/UVS/PS/830/SP10	38825	2200	0.65	56	11000	3000K	81	Clear	U	W	6	44000 MBCP; 10°Angle
MPC 39W/U/PAR30L/UVS/PS/830/FL30	38826	2200	0.65	56	11000	3000K	81	Clear	U	W	6	9300 MBCP; 30°Angle

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	103	15000	3000K	90	Clear	U	V	12	
MHC 39W/U/T6/UVS/PS/930	38810	4000	0.87	103	15000	3000K	90	Clear	U	T	12	

ELECTRONIC BALLASTS Ventronic™ 50/60Hz *For SPC Lamps* ANSI C130/M130

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD(%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-039D-ME	Metal	120-277	12" Side Exit Leads	44/43	0.38/0.16	1	15	0.9	-20°C/-4°F	8

NOTE: Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (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 PAR30L

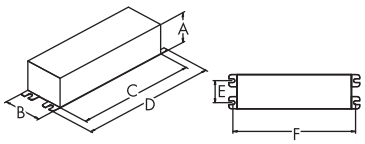
Dia. = 3.8" (97mm)
MOL = 4.5" (114mm)
Base = Medium (E26)

N2 PAR20

Dia. = 2.5" (64mm)
MOL = 3.6" (91mm)
Base = Medium (E26)

8 VEN6-XXXD-ME

VENTRONIC



A = 1.2" (30mm)
B = 1.7" (44mm)
C = 5.0" (127mm)
D = 5.5" (140mm)
E = 1.0" (26mm)
F = 5.3" (135mm)

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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	

Enclosed Rated LAMPS ANSI Type-E ANSI C148/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHC 50W/U/T4/UVS/PS/930	38835	5400	0.88	108	15000	3000K	90	Clear	U	V	12	
MHC 50W/U/T6/UVS/PS/930	38836	5400	0.88	108	15000	3000K	90	Clear	U	U2	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

ELECTRONIC BALLASTS Ventronic™ 50/60Hz *For SPC Lamps* ANSI C193/M110

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD(%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-050D-ME	Metal	120-277	12" Side Exit Leads	57/56	0.48/020	1	15	0.9	-20°C/-4°F	8

NOTE: Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are not sold separately.

Key

- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*

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

V T4

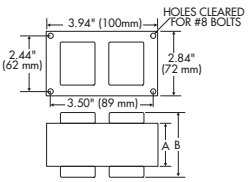
Dia. = 0.6" (15mm)
MOL = 3.3" (85mm)
LCL = 2.0" (51mm)
Base = G8.5

U2 T6

Dia. = 0.8" (20mm)
MOL = 4.0" (102mm)
LCL = 2.2" (56mm)
Base = G12

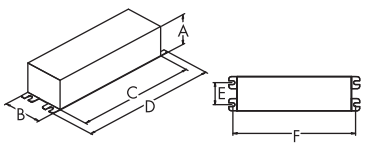
4 3x4 Core

HX



8 VEN6-XXXD-ME

VENTRONIC



A = 1.2" (30mm)
B = 1.7" (44mm)
C = 5.0" (127mm)
D = 5.5" (140mm)
E = 1.0" (26mm)
F = 5.3" (135mm)

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60 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

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	7200	0.90	120	30000	2800K	70	Clear	U	U	12	

ELECTRONIC BALLASTS Ventronic™ 50/60Hz *For SPC Lamps* ANSI C187

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD(%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-060B-PMLS	Plastic	120	Side Exit Connector	68	0.58	1	15	0.95	-30°C/-22°F	9
VEN6-060L-PNLS	Plastic	208-277	Side Exit Connector	67	0.33/0.24	1	15	0.95	-30°C/-22°F	14

NOTE: Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are not sold separately.

Applications

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

Ballast Options

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

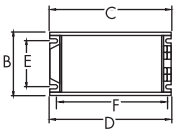
Cap. and Ignitor Fig.: pg. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

U
T6C

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

9 VEN6-XXXB-PMLS

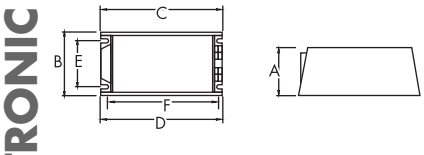
VENTRONIC



A = 2.6″ (65mm)
B = 2.6″ (65mm)
C = 5.9″ (150mm)
D = 5.9″ (150mm)
E = 1.8″ (47mm)
F = 5.4″ (136mm)

14 VEN6-XXXL-PNLS

VENTRONIC



A = 2.6″ (65mm)
B = 2.6″ (65mm)
C = 5.3″ (135mm)
D = 5.3″ (135mm)
E = 1.8″ (47mm)
F = 4.9″ (126mm)

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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

Key

- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*

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
MPL 70W/U/ED28/PS/740	66524	5300	0.80	76	40000	4000K	68	Clear	U	M2	12	
MPL 70W/C/U/ED28/PS/737	35472	5000	0.80	71	40000	3700K	70	Coated	U	M2	12	
MP 70W/U/UVS/PS/EM/950	95071	4800	0.90	69	20000	5000K	90+	Clear	U	B	12	Saves 10 Watts*
MP 70W/C/U/UVS/PS/EM/950	95072	4500	0.90	64	20000	5000K	90+	Coated	U	B	12	Saves 10 Watts*
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	0.65	71	12000	3000K	83	Clear	U	W	6	MBCP=66000, SP10
MPC 70W/U/PAR30L/UVS/PS/830/FL40	38828	5000	0.65	71	12000	3000K	83	Clear	U	W	6	MBCP=10000, FL40

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	I2	12	
MHL 70W/C/U/ED17/PS/737	32618	5300	0.80	76	40000	3700K	70	Coated	U	I2	12	
MHL 70W/U/ED28/PS/740	86501	5600	0.80	80	40000	4000K	68	Clear	U	J2	12	
MHL 70W/C/U/ED28/PS/737	36519	5300	0.80	76	40000	3700K	70	Coated	U	J2	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	

NOTE: * = Benefit is when operating on magnetic ballasts.

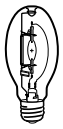
A ED17

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

B EDX17

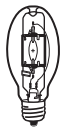
Dia. = 2.1" (54mm)
MOL = 5.4" (138mm)
LCL = 3.4" (86mm)
Base = Medium (E26)
Narrow Neck

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

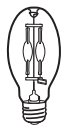
W PAR30L

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

I2 ED17

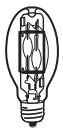
Dia. = 2.1" (54mm)
MOL = 5.4" (138mm)
LCL = 3.4" (86mm)
Base = Medium (E26)

J2 ED28



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

M2 ED28



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

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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

ELECTRONIC BALLASTS Ventronic™ 50/60Hz ANSI C139/M139; C98/M98

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD(%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-070D-ME	Metal	120-277	12" Side Exit Leads	80/78	0.68/0.29	1	15	0.9	-20°C/-4°F	8

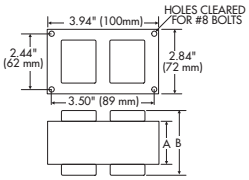
NOTE: Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are not sold separately.

Applications

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

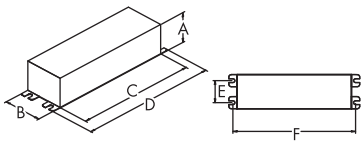
4 3x4 Core

HX



8 VEN6-XXXD-ME

VENTRONIC



A = 1.2" (30mm)
B = 1.7" (44mm)
C = 5.0" (127mm)
D = 5.5" (140mm)
E = 1.0" (26mm)
F = 5.3" (135mm)

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. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

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

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

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	0.85	117	30000	2800K	70	Clear	U	S2	12	

ELECTRONIC BALLASTS Ventronic™ 50/60Hz *For SPC Lamps* ANSI C188

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD(%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-090L-CWPMLS	Plastic	208-277	Side Exit Connector	99	0.49/0.37	1	15	0.95	-30°C/-22°F	9

NOTE: Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are not sold separately.

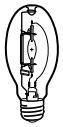
A ED17

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

B EDX17

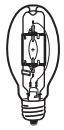
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



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

D ED28

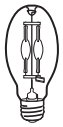


Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

I2 ED17

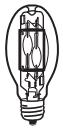
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

J2 ED28



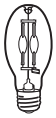
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

M2 ED28



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

P2 ED23.5



Dia. = 3.0″ (76mm)
MOL = 7.5″ (190mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

R2 T6

Dia. = 0.8″ (20mm)
MOL = 4.3″ (110mm)
LCL = 2.2″ (56mm)
Base = G12

S2 T6C

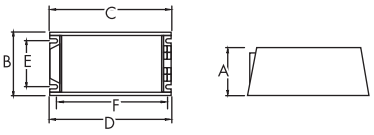
Dia. = 0.8″ (20mm)
MOL = 5.6″ (143mm)
LCL = 2.6″ (66mm)
Base = PGZ12

Key

- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*

9 VEN6-XXXL-CWPMLS

VENTRONIC



A = 2.6″ (65mm)
B = 2.6″ (65mm)
C = 5.9″ (150mm)
D = 5.9″ (150mm)
E = 1.8″ (47mm)
F = 5.4″ (136mm)

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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/UVS/PS/EM/950	95100	7000	0.90	70	20000	5000K	90+	Clear	U	B	12	Saves 10 Watts*
MP 100W/C/U/UVS/PS/EM/950	92534	6700	0.90	67	20000	5000K	90+	Coated	U	B	12	Saves 10 Watts*
MPL 100W/U/ED28/PS/740	66525	8000	0.80	80	40000	4000K	68	Clear	U	M2	12	
MPL 100W/C/U/ED28/PS/737	66530	7600	0.80	76	40000	3700K	70	Coated	U	M2	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	Coated	U	D	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	I2	12	
MHL 100W/C/U/ED17/PS/737	54231	8600	0.80	86	40000	3700K	70	Coated	U	I2	12	
MHL 100W/U/ED23.5/PS/740	46484	9000	0.80	90	40000	4000K	68	Clear	U	P2	12	
MHL 100W/U/ED28/PS/740	22498	9000	0.80	90	40000	4000K	68	Clear	U	J2	12	
MHL 100W/C/U/ED28/PS/737	54286	8600	0.80	86	40000	3700K	70	Coated	U	J2	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	R2	12	

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)	Dimensions 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

ELECTRONIC BALLASTS Ventronic™ 50/60Hz *For SPC Lamps* ANSI C191,C90/M90, M140

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD(%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-100D-MD	Metal	120-277	12" Side Exit Leads	110/109	0.92/0.40	1	15	0.9	-20°C/-4°F	11

NOTE: Lamp diagrams are on page 32 and pages 109-111.

* = Benefit is when operating on magnetic ballasts.

Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are not sold separately.

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)

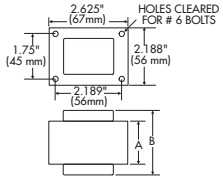
K - With Capacitor and Bracket Kit

B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

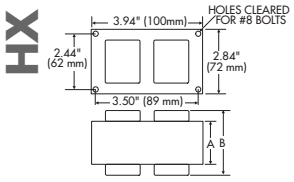
2 7/8 in Core

REACTOR



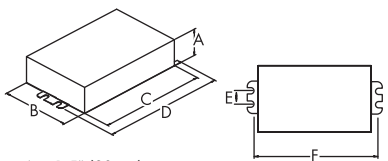
4 3x4 Core

HX



11 VEN6-XXXD-MD

VENTRONIC



A = 1.5" (38mm)
B = 3.0" (77mm)
C = 4.3" (108mm)
D = 5.0" (128mm)
E = 0.7" (19mm)
F = 4.6" (118mm)

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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
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	I2	12	
MHL 125W/C/U/ED17/PS/737	38509	11400	0.80	91	40000	3700K	70	Coated	U	I2	12	
MHL 125W/U/ED28/PS/740	93256	12000	0.80	96	40000	4000K	68	Clear	U	J2	12	
MHL 125W/C/U/ED28/PS/737	43928	11400	0.80	91	40000	3700K	70	Coated	U	J2	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	

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®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*

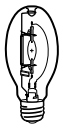
A ED17

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

B EDX17

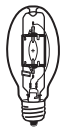
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



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

D ED28

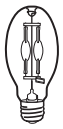


Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

I2 ED17

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

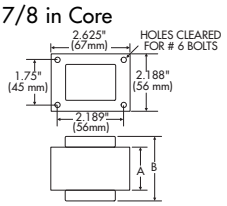
J2 ED28



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

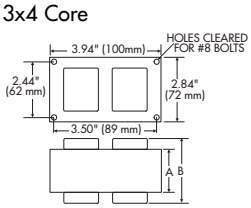
2 7/8 in Core

REACTOR



4 3x4 Core

CWA



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140 Watt

UNI-FORM® Pulse Start Metal Halide Lighting Systems

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.	Case Fig.	Case Qty	Additional Notes
MHC 140W/U/T6C/UVS/PS/728	38824	16500	0.90	118	30000	2800K	70	Clear	U	T2	12	

ELECTRONIC BALLASTS Ventronic™ 50/60Hz *For SPC Lamps* ANSI C189

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD(%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-140B-CWPTLS	Plastic	120	Side Exit Connector	154	1.30	1	15	0.95	-30°C/-22°F	10
VEN6-140L-CWPMLS	Plastic	208-277	Side Exit Connector	153	0.75/0.57	1	15	0.95	-30°C/-22°F	9

NOTE: Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are not sold separately.

Applications

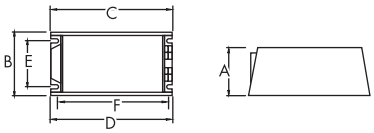
- Parking Garage
- Downlighting
- Bollards
- Signage
- Security
- Floodlighting
- Hazardous Location Lighting

T2 T6C

Dia. = 0.8″ (20mm)
MOL = 5.9″ (150mm)
LCL = 2.6″ (66mm)
Base = PGZ12

9 VEN6-XXXL-CWPMLS

VENTRONIC



A = 2.6″ (65mm)
B = 2.6″ (65mm)
C = 5.9″ (150mm)
D = 5.9″ (150mm)
E = 1.8″ (47mm)
F = 5.4″ (136mm)

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. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

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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/UVS/PS/EM/950	95150	11100	0.90	74	20000	5000K	90+	Clear	U	B	12	Saves 10 Watts*
MP 150W/C/U/UVS/PS/EM/950	22961	10500	0.90	70	20000	5000K	90+	Coated	U	B	12	Saves 10 Watts*
MP 150W/U/ED28/UVS/PS/EM/950	95152	11100	0.90	74	20000	5000K	90+	Clear	U	D	12	Saves 10 Watts*
MP 150W/C/U/ED28/UVS/PS/EM/950	95153	10500	0.90	70	20000	5000K	90+	Coated	U	D	12	Saves 10 Watts*
MPL 150W/U/ED28/PS/740	66526	13300	0.80	89	40000	4000K	68	Clear	U	M2	12	
MPL 150W/C/U/ED28/PS/737	71387	12600	0.80	84	40000	3700K	70	Coated	U	M2	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	I2	12	
MHL 150W/C/U/ED17/PS/737	68542	13300	0.80	89	40000	3700K	70	Coated	U	I2	12	
MHL 150W/U/ED23.5/PS/740	29613	14000	0.80	93	40000	4000K	68	Clear	U	P2	12	
MHL 150W/U/ED28/PS/740	46105	14000	0.80	93	40000	4000K	68	Clear	U	J2	12	
MHL 150W/C/U/ED28/PS/737	93218	13300	0.80	89	40000	3700K	70	Coated	U	J2	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/ED23.5/PS/740	75418	14000	0.75	93	15000	4000K	68	Clear	U	X2	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	

NOTE: * = Benefit is when operating on magnetic ballasts.

Key

- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

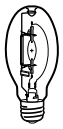
A ED17

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

B EDX17

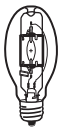
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



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

D ED28

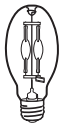


Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

I2 ED17

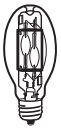
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

J2 ED28



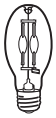
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

M2 ED28



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

P2 ED23.5



Dia. = 3.0″ (76mm)
MOL = 7.5″ (190mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

X2 ED23.5

Dia. = 3.0″ (76mm)
MOL = 7.5″ (190mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

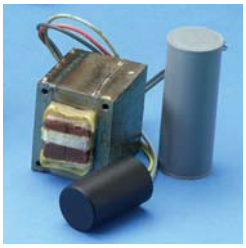
800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

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

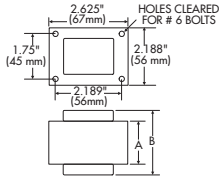


Applications

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

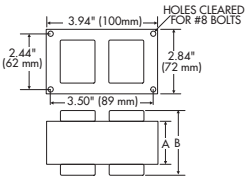
2 7/8 in Core

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. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

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

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.	Fig.	Case Qty	Additional Notes
MP 175W/BU/MED/UVS/PS/EM/950	95176	12800	0.90	73	15000	5000K	90+	Clear	BU±15°	B	12	Saves 10 Watts*
MP 175W/BU/UVS/PS/EM/950	95175	12800	0.90	73	15000	5000K	90+	Clear	BU±15°	D	12	Saves 10 Watts*
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.	Fig.	Case Qty	Additional Notes
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/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/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

NOTE: * = Benefit is when operating on magnetic ballasts.

Key

- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

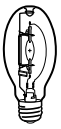
A ED17

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

B EDX17

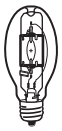
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

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

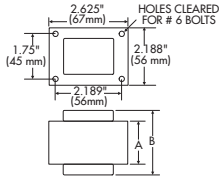
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U7221	Reactor	195	1.05	A	B1	2	0.85	2.90	4.0	10/280	A6	Dry	D	2
120/208/240/277	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

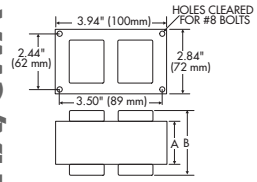
2 7/8 in Core

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. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

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

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

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	Saves 15 Watts*
MPL 200W/V/ED28/PS/740	33585	20000	0.86	100	40000	4000K	68	Clear	V±15°	M2	12	
MPL 200W/C/V/ED28/PS/737	33587	17100	0.86	86	40000	3700K	70	Coated	V±15°	M2	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	
MP 200W/C/V/UVS/PS/732	44872	19000	0.86	95	20000	3200K	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°	J2	12	
MHL 200W/C/V/ED28/PS/737	14357	19000	0.86	95	40000	3700K	70	Coated	V±15°	J2	12	
MHL 200W/H75/ED28/PS/740	60375	19000	0.86	95	40000	4000K	68	Clear	Hor±75°	J2	12	Horizontal Operation
MHL 200W/C/H75/ED28/PS/737	10237	18100	0.86	91	40000	3700K	70	Coated	Hor±75°	J2	12	Horizontal Operation
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/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/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	V90D7331	HX-HPF	228	3.35/1.95/1.65/1.45	A/A/A/A	Y	4	2.25	3.70	7.1	16/280	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	A7	Dry	D	2
120/208/240/277	V90D7312	CWA	227	1.90/1.10/0.95/0.85	A/A/A/A	E	4	2.50	3.90	8.0	15/330	A6	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	A6	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	V90Y7312T	CWA	228	0.50	A	S1	4	3.10	4.50	9.5	15/330	A6	Dry	D	10
480/120T	V90Y7311T	CWA	228	0.50	A	S1	5	2.00	4.10	11.5	15/330	A6	Dry	D	2

NOTE: * = Benefit is when operating on magnetic ballasts.

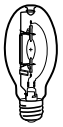
Key

- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

A ED17

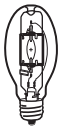
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

C ED28



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

D ED28

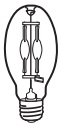


Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

G T15

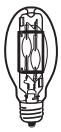
Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

J2 ED28



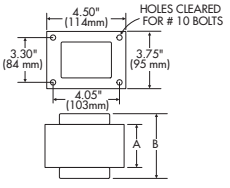
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

M2 ED28

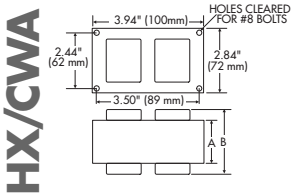


Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

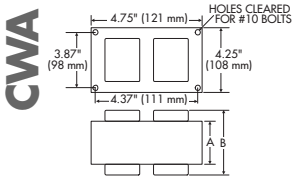
3 3¾ x 4½ Core — REACTOR



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.	Case Fig.	Qty	Additional Notes
MPC 210W/U/T12/UVS/PS/930	38818	23300	0.90	111	25000	3000K	90	Clear	U	Y	12	
MPC 210W/U/T12/UVS/PS/942	38820	22800	0.90	109	30000	4200K	90	Clear	U	Y	12	
MPC 210W/U/ED28/PS/930	38838	23300	0.90	111	25000	3000K	90	Clear	U	V2	12	
MPC 210W/C/U/ED28/PS/930	38839	22100	0.90	105	25000	3000K	90	Coated	U	V2	12	
MPC 210W/U/ED28/PS/942	38840	22800	0.90	109	30000	4200K	90	Clear	U	V2	12	
MPC 210W/C/U/ED28/PS/942	38841	21700	0.90	103	30000	4200K	90	Coated	U	V2	12	

Enclosed Rated LAMPS ANSI Type-E ANSI C183/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MHC 210W/U/T9/UVS/PS/930	38814	24150	0.90	115	30000	3000K	90	Clear	U	X	12	
MHC 210W/U/T9/UVS/PS/942	38815	23000	0.89	110	30000	4200K	90	Clear	U	X	12	

ELECTRONIC BALLASTS Ventronic™ 50/60Hz *For SPC Lamps* ANSI C183

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD (%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-210L-MRD5	Metal	208-277	11"±1" Side Exit Leads*	229/227	1.20/0.82	1	15	0.9	-20°C/-4°F	13

MAGNETIC BALLASTS 60Hz ANSI M___

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	V90D5310	CWA	251	2.15/1.25/1.05/0.95	C/B/B/B	E	5	1.20	3.00	8.2	28/240	A13	Dry	D	2
120/277/347	V90J5310	CWA	250	2.00/0.95/0.75	A/B/B	K	5	1.20	3.00	8.2	28/240	A13	Dry	D	2
480/120T	V90Y5310T	CWA	251	0.55	B	A	5	1.20	3.00	8.3	28/240	A13	Dry	D	2
120/208/240/277	V90D5311	CWA	238	2.00/1.15/1.00/0.90	A/A/A/A	E	5	1.50	3.65	10.9	26/280	A13	Dry	D	5
480/120T	V90Y5311T	CWA	240	0.55	A	A	5	1.50	3.65	10.5	26/280	A13	Dry	D	5

NOTE: Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are not sold separately.

* = Dimming Leads (0-10Vdc)

Applications

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

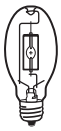
X T9

Dia. = 1.1" (28mm)
MOL = 7.4" (188mm)
LCL = 3.5" (90mm)
Base = PGZ18

Y T12

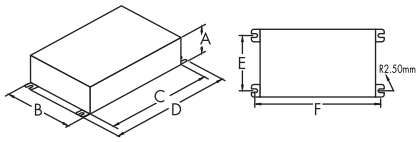
Dia. = 1.5" (38mm)
MOL = 7.6" (193mm)
LCL = 3.5" (89mm)
Base = PGZX18

V2 ED28



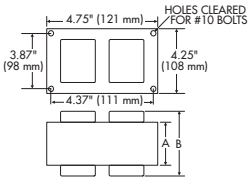
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (EX39)

13 VEN6-XXXL-MRD5 VENTRONIC



A = 2.2" (56mm)
B = 4.9" (124mm)
C = 7.5" (191mm)
D = 8.2" (208mm)
E = 3.4" (86mm)
F = 7.7" (196mm)

5 4x4 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. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

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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.	Fig.	Case Qty	Additional Notes
MP 250W/BU/UVS/PS/EM/950	19523	17500	0.90	70	20000	5000K	90+	Clear	BU±15°	D	12	Saves 15 Watts*
MP 250W/C/BU/UVS/PS/EM/950	19525	16500	0.90	66	20000	5000K	90+	Coated	BU±15°	D	12	Saves 15 Watts*
MP 250W/H75/T15/UVS/PS/EM/950	59324	17000	0.90	74	15000	5000K	90+	Clear	HOR±75°	P	12	Horizontal Operation
MPL 250W/BU/T25/PS/740	29328	23800	0.86	95	40000	4000K	68	Clear	BU±15°	Y2	12	Long Life (SPL) lamp
MPL 250W/C/BU/T25/PS/737	43516	22600	0.86	90	40000	3700K	70	Coated	BU±15°	Y2	12	Long Life (SPL) lamp
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.	Fig.	Case Qty	Additional Notes
MHL 250W/BU/ED28/PS/EM/950 □	95259	17500	0.90	70	40000	5000K	90+	Clear	BU±15°	J2	12	Long Life (SPL) lamp
MHL 250W/H75/ED28/PS/EM/950 □	91319	17000	0.90	74	40000	5000K	90+	Clear	HOR±75°	J2	12	Long Life (SPL) Horizontal lamp
MHL 250W/V/ED28/PS/740	46895	23800	0.86	95	40000	4000K	68	Clear	V±15°	J2	12	
MHL 250W/C/V/ED28/PS/737	71638	22600	0.86	90	40000	3700K	70	Coated	V±15°	J2	12	
MHL 250W/H75/ED28/PS/740	65413	22000	0.86	88	40000	4000K	68	Clear	HOR±75°	J2	12	Horizontal Operation
MHL 250W/C/H75/ED28/PS/737	32393	20900	0.86	84	40000	3700K	70	Coated	HOR±75°	J2	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

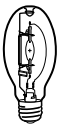
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
277	V90U8421	Reactor	275	1.35	A	B1	3	1.25	3.40	6.0	13/280	A1	Dry	D	5
120/208/240/277	V90D8412	CWA	278	2.40/1.40/1.20/1.05	A/A/A/A	E	5	2.00	4.05	12.5	16/370	A13	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	A13	Dry/Oil	D	2
120/277/347	V90J8411	CWA	284	2.45/1.05/0.85	A/A/A	K	5	2.00	4.10	10.0	16/370	A13	Dry/Oil	D	5
480/120T	V90Y8412T	CWA	278	0.60	A	S1	5	2.00	4.05	12.5	16/370	A13	Dry/Oil	D	2
480/120T	V90Y8411T	CWA	284	0.60	A	S1	5	2.00	4.05	11.5	16/370	A13	Dry/Oil	D	2

NOTE: * = Benefit is when operating on magnetic ballasts.

Key

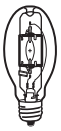
- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

C ED28



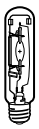
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (E39)

D ED28



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

G T15

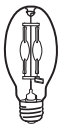


Dia. = 1.9" (46mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (E39)

P T15

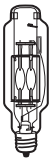
Dia. = 2.0" (52mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (EX39)

J2 ED28



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

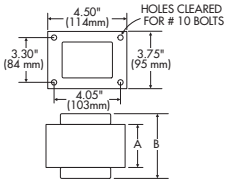
Y2 T25



Dia. = 3.1" (76mm)
MOL = 11.5" (292mm)
LCL = 5.0" (127mm)
Base = Mogul (EX39)

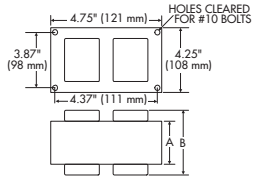
3 3¾ x 4½ Core

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.	Case Fig.	Qty	Additional Notes
MPC 315W/U/ED37/PS/942	38844	35000	0.90	111	25000	4200K	90	Clear	U	W2	6	
MPC 315W/C/U/ED37/PS/942	38845	33200	0.90	105	25000	4200K	90	Coated	U	W2	6	
MPC 315W/U/T12/UVS/PS/930	38819	36200	0.90	115	21000	3000K	90	Clear	U	Y	12	
MPC 315W/U/T12/UVS/PS/942	38821	35000	0.90	111	25000	4200K	90	Clear	U	Y	12	

Enclosed Rated LAMPS ANSI Type-E ANSI C182/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Case Fig.	Qty	Additional Notes
MHC 315W/U/T9/UVS/PS/930	38816	38700	0.89	123	30000	3000K	90	Clear	U	X	12	
MHC 315W/U/T9/UVS/PS/942	38817	35500	0.88	113	30000	4200K	90	Clear	U	X	12	

ELECTRONIC BALLASTS Ventronic™ 50/60Hz *For SPC Lamps* ANSI C182

Product No.	Case Mater.	Input Voltage Range	Input Connection	Input Power	Input Current	Ballast Factor	Max. THD (%)	Min. Pwr. Factor	Min. Start. Temp.	Fig.
VEN6-315L-MRD5	Metal	208-277	11"±1" Side Exit Leads*	343/341	1.80/1.25	1	15	0.9	-20°C/-4°F	13

NOTE: Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are available when sold as a system. Electronic ballasts for Super Pulse Start Ceramic (SPC) lamps are not sold separately.

* = Dimming Leads (0-10Vdc)

Applications

- Street Lighting
- Architectural Lighting

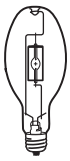
X T9

Dia. = 1.1" (28mm)
MOL = 7.4" (188mm)
LCL = 3.5" (90mm)
Base = PGZ18

Y T12

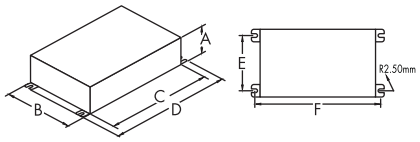
Dia. = 1.5" (38mm)
MOL = 7.6" (193mm)
LCL = 3.5" (89mm)
Base = PGZX18

W2 ED37



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

13 VEN6-XXXL-MRD5 VENTRONIC



A = 2.2" (56mm)
B = 4.9" (124mm)
C = 7.5" (191mm)
D = 8.2" (208mm)
E = 3.4" (86mm)
F = 7.7" (196mm)

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. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

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320 Watt Lamps

UNIFORM® 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.	Fig.	Case Qty	Additional Notes
MPSE 320W/BU/ED28/UVS/950	47216	24500	0.90	77	30000	5000K	90+	Clear	BU±15°	D	12	Optimized for use on electronics
MPSE 320W/BU/ED37/UVS/950	28712	24500	0.90	77	30000	5000K	90+	Clear	BU±15°	F	6	Optimized for use on electronics
MPSE 320W/C/BU/ED37/UVS/950	35698	23500	0.90	73	30000	5000K	90+	Coated	BU±15°	F	6	Optimized for use on electronics
MP 320W/BU/ED37/UVS/PS/EM/950	98520	22500	0.90	76	26000	5000K	90+	Clear	BU±15°	F	6	Saves 25 Watts*
MP 320W/C/BU/ED37/UVS/PS/EM/950	95123	21500	0.90	73	26000	5000K	90+	Coated	BU±15°	F	6	Saves 25 Watts*
MP 320W/BU/ED28/UVS/PS/EM//950	98530	22500	0.90	76	26000	5000K	90+	Clear	BU±15°	D	12	Saves 25 Watts*
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
MPL 320W/BU/T25/PS/740	30577	31000	0.86	97	40000	4000K	68	Clear	BU±15°	O2	6	
MPL 320W/C/BU/T25/PS/737	30578	27500	0.86	86	40000	3700K	70	Coated	BU±15°	O2	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/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/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

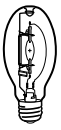
Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHL 320W/V/ED28/PS/740	18635	31000	0.86	97	40000	4000K	68	Clear	V±15°	J2	12	
MHL 320W/C/V/ED28/PS/737	25796	29000	0.86	91	40000	3700K	70	Coated	V±15°	J2	12	
MHL 320W/H75/ED28/PS/740	20116	30000	0.86	94	40000	4000K	68	Clear	HOR±75°	J2	12	Horizontal Operation
MHL 320W/C/H75/ED28/PS/737	11086	28000	0.86	88	40000	3700K	70	Coated	HOR±75°	J2	12	Horizontal Operation
MHL 320W/V/ED37/PS/740	38765	31000	0.86	97	40000	4000K	68	Clear	V±15°	K2	6	
MHL 320W/C/V/ED37/PS/737	72378	29000	0.86	91	40000	3700K	70	Coated	V±15°	K2	6	
MHL 320W/H75/ED37/PS/740	28699	30000	0.86	94	40000	4000K	68	Clear	HOR±75°	K2	6	Horizontal Operation
MHL 320W/C/H75/ED37/PS/737	34778	28000	0.86	88	40000	3700K	70	Coated	HOR±75°	K2	6	Horizontal Operation
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/C/H75/ED28/PS/737	12758	28000	0.80	88	26000	3700K	70	Coated	HOR±75°	C	12	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/H75/T15/S/PS/740	57626	30000	0.80	94	26000	4000K	68	Clear	HOR±75°	P	12	Horizontal Operation
MS 320W/H75/T15/L/PS/740	79710	30000	0.80	94	26000	4000K	68	Clear	HOR±75°	Q	12	Horizontal Operation

NOTE: * = Lamp is for use on magnetic ballast only.

Key

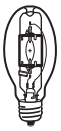
- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

C ED28



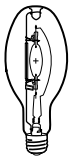
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



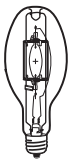
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

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)

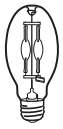
P T15

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

Q T15

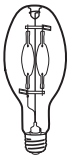
Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

J2 ED28



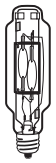
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

K2 ED37



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

O2 T25



Dia. = 3.1″ (76mm)
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

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

ELECTRONIC BALLASTS Ventronic™ 50/60Hz M154

c UL us LISTED

Product No.	Case Mater.	Input Voltage Range	Input/Output Connection	Input Power	Input Current	Max. THD(%)	Power Factor	Min. Start. Temp.	Fig.	EMI
VEN8-320L	Metal	208-277	12" Leads	339	1.63A@208V/1.22A@277V	<5	>0.95	-30°C/-22°F	16	FCC Part 18

Applications

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

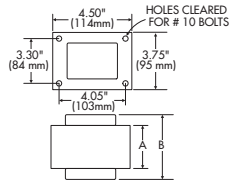
Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap
D5 -Available ONLY with *VEN8* 50% Lamp Dimming

Cap. and Ignitor Fig.: pg. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

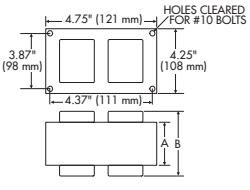
3 3¾ x 4½ Core

REACTOR



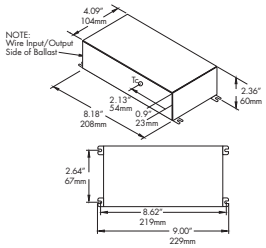
5 4x4 Core

HX/CWA



16 VEN8-XXXL-XX

VENTRONIC



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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/ED28/UVS/PS/EM/950	33149	26000	0.90	74	30000	5000K	90+	Clear	BU±15°	D	12	Saves 25 Watts*
MP 350W/BU/UVS/PS/EM/950	51628	26000	0.90	74	30000	5000K	90+	Clear	BU±15°	F	6	Saves 25 Watts*
MP 350W/C/BU/UVS/PS/EM/950	38197	24500	0.90	70	30000	5000K	90+	Coated	BU±15°	F	6	Saves 25 Watts*
MPL 350W/V/T25/PS/740	60024	35000	0.86	100	40000	4000K	68	Clear	V±15°	O2	6	
MPL 350W/C/V/T25/PS/737	60025	31000	0.86	89	40000	3700K	70	Coated	V±15°	O2	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/V/UVS/PS/740	22149	35000	0.86	100	30000	4000K	68	Clear	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/C/V/UVS/PS/732	27845	33000	0.86	94	30000	3200K	70	Coated	V±15°	F	6	
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

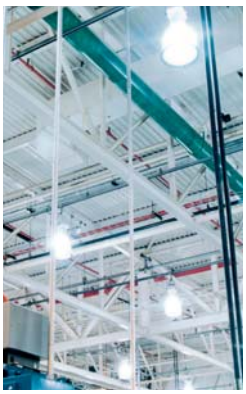
Enclosed Rated LAMPS ANSI Type-E ANSI M131/E

Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MHL 350W/H75/ED28/PS/740	20117	33000	0.86	94	40000	4000K	68	Clear	HOR±75°	J2	12	Horizontal Operation
MHL 350W/C/H75/ED28/PS/737	11087	31000	0.86	89	40000	3700K	70	Coated	HOR±75°	J2	12	Horizontal Operation
MHL 350W/V/BT37/PS/740	74625	35000	0.86	100	40000	4000K	68	Clear	V±15°	L2	6	
MHL 350W/C/V/BT37/PS/737	74626	33000	0.86	94	40000	3700K	70	Coated	V±15°	L2	6	
MHL 350W/H75/ED37/PS/740	28700	33000	0.86	94	40000	4000K	68	Clear	HOR±75°	K2	6	Horizontal Operation
MHL 350W/C/H75/ED37/PS/737	34779	31000	0.86	89	40000	3700K	70	Coated	HOR±75°	K2	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/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/H75/T15/S/PS/740	60258	33000	0.80	94	26000	4000K	68	Clear	HOR±75°	F2	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

NOTE: Lamp diagrams are on page 47 and pages 109-111.
* = Benefit is when operating on magnetic ballasts.

Key

- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007



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350 Watt Ballasts

UNI-FORM® Pulse Start Metal Halide Lighting Systems

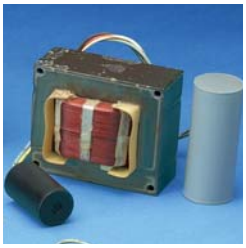
MAGNETIC BALLASTS 60Hz ANSI M131

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	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

ELECTRONIC BALLASTS Ventronic™ 50/60Hz M131

c UL us LISTED

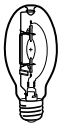
Product No.	Case Mater.	Input Voltage Range	Input/Output Connection	Input Power	Input Current	Max. THD(%)	Power Factor	Min. Start. Temp.	Fig.	EMI
VEN8-350L	Metal	208-277	12" Leads	371	1.78A@208V/1.34A@277V	<5	>0.95	-30°C/-22°F	16	FCC Part 18



Applications

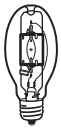
- Big Box Retail
- Warehouse
- Architectural/Site Lighting
- Printing/Graphics
- Floodlighting
- Hazardous Sites
- Energy Retrofits

C ED28



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

D ED28

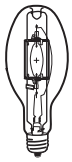


Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (EX39)

E ED37

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

F ED37

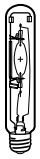


Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (EX39)

Q T15

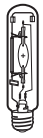
Dia. = 2.0" (52mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (EX39)

F1 T15



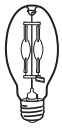
Dia. = 2.0" (52mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (E39)

F2 T15



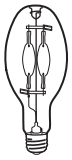
Dia. = 2.0" (52mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (E39)

J2 ED28



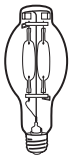
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (E39)

K2 ED37



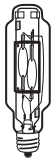
Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (E39)

L2 BT37



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

O2 T25



Dia. = 3.1" (76mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (EX39)

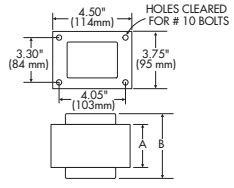
Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap
D5 -Available ONLY with *VEN8* 50% Lamp Dimming

Cap. and Ignitor Fig.: pg. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

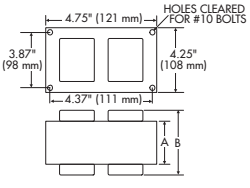
3 3³/₄ x 4¹/₂ Core

REACTOR



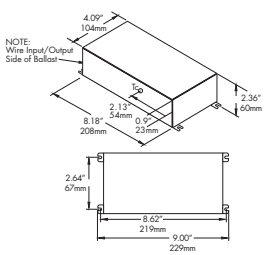
5 4x4 Core

HX/CWA



16 VEN8-XXXL-XX

VENTRONIC



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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/ED28/UVS/PS/EM/950	72315	30500	0.90	76	30000	5000K	90+	Clear	BU±15°	D	12	Saves 25 Watts*
MP 400W/BU/UVS/PS/EM/950	57129	30500	0.90	76	30000	5000K	90+	Clear	BU±15°	F	6	Saves 25 Watts*
MP 400W/C/BU/UVS/PS/EM/950	89410	29000	0.90	73	30000	5000K	90+	Coated	BU±15°	F	6	Saves 25 Watts*
MPL 400W/V/T25/PS/740	59421	41000	0.86	103	40000	4000K	68	Clear	V±15°	O2	6	
MPL 400W/C/V/T25/PS/737	59422	35000	0.86	88	40000	3700K	70	Coated	V±15°	O2	6	
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/BT37/PS/740	15678	41000	0.86	103	40000	4000K	68	Clear	V±15°	L2	6	
MHL 400W/C/V/BT37/PS/737	61147	39000	0.86	98	40000	3700K	70	Coated	V±15°	L2	6	
MHL 400W/H75/BT37/PS/740	15619	40000	0.80	100	40000	4000K	68	Clear	HOR±75°	L2	6	Horizontal Operation
MS 400W/V/ED28/PS/740	85260	44000	0.86	110	30000	4000K	68	Clear	V±15°	C	12	
MS 4000W/C/V/ED28/PS/737	46416	42000	0.86	105	30000	3700K	70	Coated	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/V/PS/740	73531	44000	0.86	110	30000	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/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°	F2	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.	Dimensions Fig.	A (in)	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

ELECTRONIC BALLASTS Ventronic™ 50/60Hz M155

Product No.	Case Mater.	Input Voltage Range	Input/Output Connection	Input Power	Input Current	Max. THD(%)	Power Factor	Min. Start. Temp.	Fig.	EMI
VEN8-400L	Metal	208-277	12" Leads	424	2.04A@208V/1.53A@277V	<5	>0.95	-30°C/-22°F	16	FCC Part 18

NOTE: Lamp diagrams are on page 49 and pages 109-111.
* = Benefit is when operating on magnetic ballasts.
Ballast diagrams are on page 49 and page 111.

Key

- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*
- Ⓔ Energy-efficient (≥88%) ballast compliant with EISA 2007

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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.	Qty	Additional Notes
MP 450W/BU/UVS/PS/740	65072	47000	0.86	104	30000	4000K	68	Clear	BU±15°	F	6	
MP 450W/C/BU/UVS/PS/737	59216	45000	0.86	100	30000	3700K	70	Coated	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.	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. (µfd/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

ELECTRONIC BALLASTS Ventronic™ 50/60Hz M144

Product No.	Case Mater.	Input Voltage Range	Input/Output Connection	Input Power	Input Current	Max. THD(%)	Power Factor	Min. Start. Temp.	Fig.	EMI
VEN8-450L	Metal	208-277	12" Leads	477	2.29@208V/1.72@277V	<5	>0.95	-30°C/-22°F	16	FCC Part 18

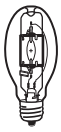
Applications

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

C ED28

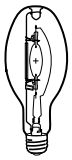
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (E39)

D ED28



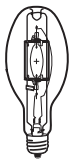
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (EX39)

E ED37



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

F ED37

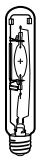


Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (EX39)

Q T15

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

F1 T15

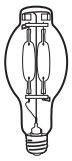


Dia. = 2.0" (52mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (E39)

F2 T15

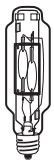
Dia. = 2.0" (52mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (E39)

L2 BT37



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

O2 T25



Dia. = 3.1" (76mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (EX39)

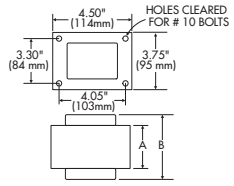
Ballast Options

Add Suffix for Options:
C - With Capacitor (Standard)
K - With Capacitor and Bracket Kit
B - With Welded Bracket, No Cap
D5 -Available ONLY with *VEN8* 50% Lamp Dimming

Cap. and Ignitor Fig.: pg. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

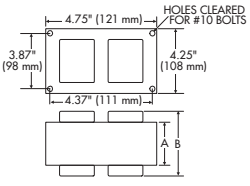
3 3 3/4 x 4 1/2 Core

REACTOR



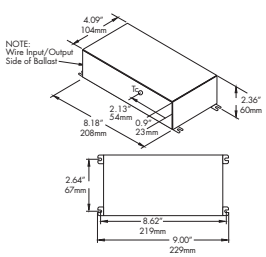
5 4x4 Core

HX/CWA



16 VEN8-XXXL-XX

VENTRONIC



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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.	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/BD/BT37/PS/EM/950	95576	45000	0.90	82	26000	5000K	90+	Clear	BD±15°	K	6	
MP 575W/BU/BT37/PS/740	60023	60000	0.80	104	26000	4000K	68	Clear	BU±15°	K	6	
MP 575W/C/BU/BT37/PS/737	60020	57000	0.80	99	26000	3700K	70	Coated	BU±15°	K	6	
MP 575W/BD/BT37/PS/740	16458	60000	0.80	104	26000	4000K	68	Clear	BD±15°	K	6	
MP 575W/H75/T25/PS/740	56423	55000	0.80	96	20000	4000K	68	Clear	HOR±75°	Q2	6	Horizontal Operation

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.	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/EM/950 ☐	43926	45000	0.90	82	40000	5000K	90+	Clear	BU±15°	L2	6	
MHL 575W/BD/BT37/PS/EM/950 ☐	97438	45000	0.90	82	40000	5000K	90+	Clear	BD±15°	L2	6	
MHL 575W/H75/BT37/PS/EM/950 ☐	17921	45000	0.90	82	40000	5000K	90+	Clear	HOR±75°	L2	6	Horizontal Operation
MHL 575W/BU/BT37/PS/740	68735	60000	0.80	104	40000	4000K	68	Clear	BU±15°	L2	6	
MHL 575W/H75/BT37/PS/740	20897	55000	0.80	96	40000	4000K	68	Clear	HOR±75°	L2	6	Horizontal Operation

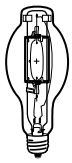
MAGNETIC BALLASTS 60Hz ANSI M178

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	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	3	2.05	4.00	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	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	5	3.25	5.05	18.0	38/330	A14	Dry	D	2
480/120T	V90Y5530T	HX-HPF	645	2.30	D	5	3.25	5.05	18.5	38/330	A14	Dry	D	2
120/208/240/277	V90D5510	CWA	640	5.65/3.15/2.85/2.45	C/C/D/D	5	2.90	4.95	15.0	38/330	A14	Dry	D	2
120/277/347	V90J5510	CWA	640	5.70/2.35/1.95	C/C/D	5	2.90	4.95	15.5	38/330	A14	Dry	D	2
480/120T	V90Y5510T	CWA	640	1.40	D	5	2.90	4.95	15.5	38/330	A14	Dry	D	2

Key

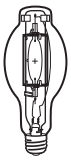
- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*

K BT37



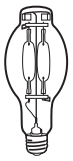
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

H2 BT37



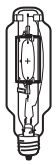
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

L2 BT37



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

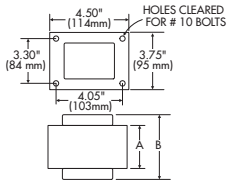
Q2 T25



Dia. = 3.1″ (76mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

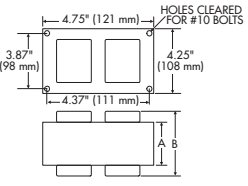
3 3¾ x 4½ Core

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

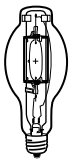
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions B (in)	Wt. (lbs)	Total Cap. (pfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
120/208/240/277/480	V90AM9610	CWA	848	7.20/4.25/3.70/3.25/1.95	B/A/A/B/D	D2	6	3.00	5.15	19.5	22/500	B12	Oil	F	10
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	B12	Oil	F	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	B12	Oil	F	10
480/120T	V90Y9610T	CWA	855	1.85	D	S1	6	2.80	4.95	21.0	22/490	B12	Oil	F	10

Applications

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

K

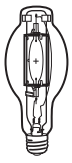
BT37



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

H2

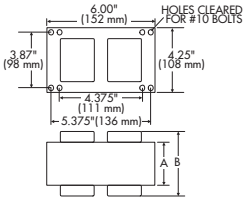
BT37



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. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

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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	98000	0.80	112	26000	4000K	68	Clear	BU±15°	K	6	
MP 875W/C/BU/BT37/PS/737	41686	93000	0.80	106	26000	3700K	70	Coated	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
MHL 875W/BU/BT37/PS/740	29325	100000	0.80	114	40000	4000K	68	Clear	BU±15°	L2	6	
MHL 875W/H75/BT37/PS/740	56412	90000	0.80	103	30000	4000K	68	Clear	HOR±75°	L2	6	Horizontal Operation
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°	M	6	Horizontal Operation

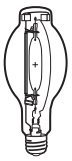
MAGNETIC BALLASTS 50Hz and 60Hz ANSI M166

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)
480	V90Y8620	Reactor	927	2.75	C	B1	3	3.30	5.20	13.5	15/480	B9	Oil	F	5
120/208/240/277/480	V90AM8610	CWA	948	8.05/4.75/4.05/3.55/2.15	B/A/A/B/C	D2	6	3.00	5.15	19.5	22/480	B12	Oil	F	10
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
220/240 (50Hz)	V905R8610	CWA	946	2.10/2.05	C/D	C2	6	3.20	5.15	21.0	26/480	B12	Oil	F	10

Key

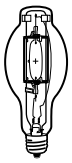
- Natural White®
- Super Pulse Start Ceramic *(SPC)*
- Super Pulse Start Long Life *(SPL)*

M BT37



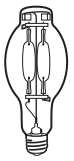
Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (E39)

K BT37



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

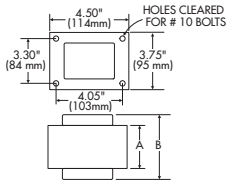
L2 BT37



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

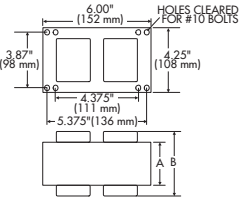
3 3 3/4 x 4 1/2 Core

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	*

MAGNETIC BALLASTS 50Hz and 60Hz ANSI M141

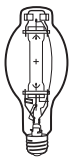
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max.Dist. (ft)
120/208/240/277/480	V90AM7810	CWA	1080	9.10/5.25/4.50/4.00/2.35	E/B/C/C/D	D2	6	3.00	5.15	19.5	24/480	B12	Oil	F	10
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
220/240 (50Hz)	V905R7810	CWA	1060	9.05/4.75	E/A	C2	6	3.20	5.20	19.7	26/500	B12	Oil	F	10

NOTE: * Permitted rotation about horizontal lamp axis ±15°.

Applications

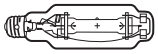
- Industrial
- Area Lighting
- Warehouse
- Aircraft Hangers
- Site Lighting

J BT37



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

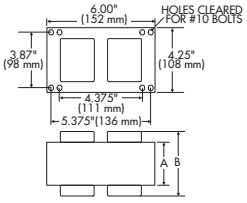
N T25



Dia. = 3.1" (76mm)
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. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

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Wiring Diagrams

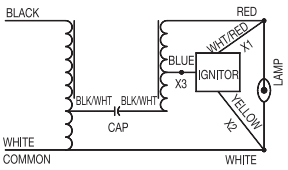
UNI-FORM® Pulse Start Metal Halide Lighting Systems

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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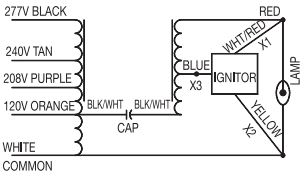

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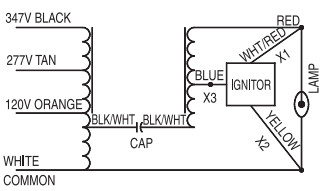

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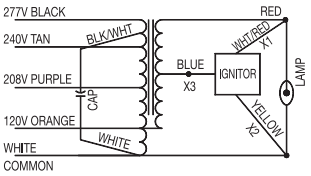
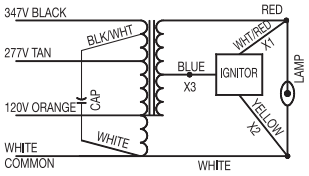


A1



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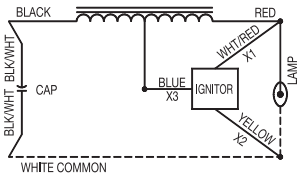
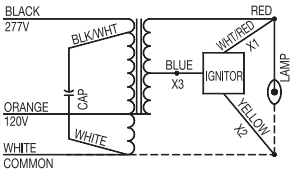
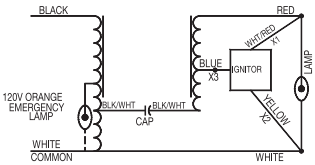


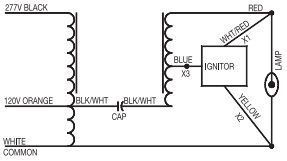
Q1



S1



T1



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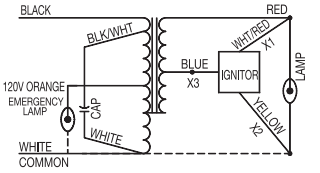
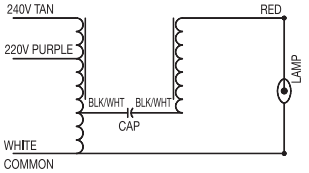
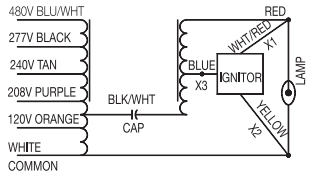


C2



D2



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Retrofit Systems

UNI-FORM® Pulse Start Metal Halide Lighting Systems

Energy Saving Options

Venture has the widest selection and variety of energy saving, pulse start metal halide lighting systems. Achieve equal or more light while using less energy than older standard probe start metal halide wattages. With so many options available, Venture Lighting has the perfect energy saving solution for all your lighting needs.

One Call Warranty

Our warranty program leads the industry in comprehensive system coverage, which doubles the warranty period on lamps and ballasts that are purchased and installed as part of the Uni-Form® pulse start system.

Retrofit Systems

- Upgrade and start saving energy
- Lamp and ballast upgrade system kits are available
- Upgrade system units are available as complete systems with a housing, ballast and lamp. Need a reflector? Jewel™ glass optics increase the efficiency of the light output.
- Retrofit existing outdoor area or roadway lighting with RIO systems: Retrofit Integrated Optics system

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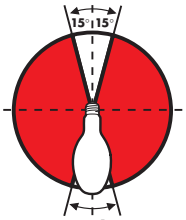
Energy Saving Retrofit Kits

UNI-FORM® Pulse Start Metal Halide Lighting Systems

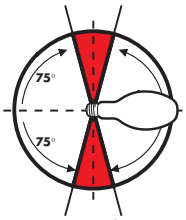
Upgrade and Save - It's Simple as 1,2,3 Save!

Step 1 *Assess the Fixture!*

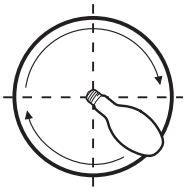
Are the fixture and reflector in good condition? If "Yes", you're on your way!



Vertical ±15°
(V)



Horizontal ±75°
(H75)



Universal
(U)
Any Position

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. Determine which lamp is needed from the diagrams below.

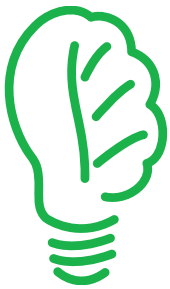
Step 2 *Choose a Lamp!*

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!

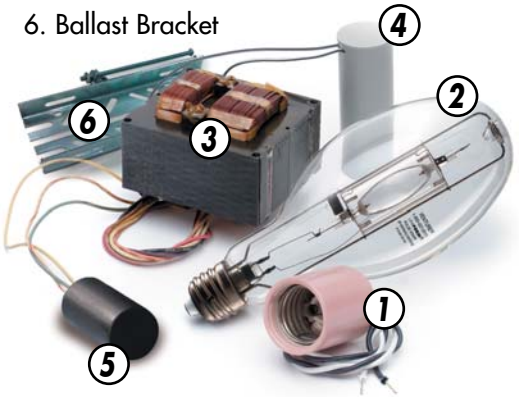


Compare and See the Savings!

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[5]
1000W REPLACE WITH	875W (SPL)	158	$69	V: +46% H: +49%	+28000 +2100	90 82
	775W [4]	240	$105	V: +4% H: +5%	+14000 +6000	77 70
	575W (SPL)	465	$204	V: -11% H: -9%	+28000 +31000	83 77
400W REPLACE WITH	350W (SPL)	78	$34	V: +35% H: +41%	+20000 +25000	86 81
	320W (SPL)	109	$48	V: +19% H: +28%	+20000 +25000	83 81
	250W (SPL)	183	$80	V: -8% H: -6%	+20000 +25000	82 76
250W REPLACE WITH	200W (SPL)	71	$31	V: +90% H: +101%	+30000 +32500	86 82
	175W	95	$42	V: +48%	+5000	86
	150W (SPL)	120	$53	V: +33%	+30000	75
	125W (SPL)	150	$66	V: +14%	+30000	77
175W REPLACE WITH	150W (SPL)	45	$20	V: +100%	+30000	75
	125W (SPL)	75	$33	V: +71%	+30000	77
	100W (SPL)	97	$42	V: +29%	+30000	72

Kits Include:

1. 4KV pulse rated socket
2. Venture's high performing Uni-Form® pulse start lamp
3. Venture's energy efficient pulse start ballast
4. Capacitor
5. High pulse ignitor
6. Ballast Bracket



Notes:

1 Based on use of CWA ballast for Standard Probe Start and 775W, reactors for all other lamps

2 Based upon 12 hours operation per day, $0.10 per kWh

3 Lumen depreciation compared at 8000 hrs

4 Natural White 775W Scotopic light output appears 25% brighter

5 Maintained Lumens Per Watt of probe start 1000W = 72, 400W = 59, 250W = 54, 175W = 52

V = Vertical, **H** = Horizontal lamp burn operation

= *Uni-Form* Pulse Start

= Natural White

= Horizontal Pulse Start

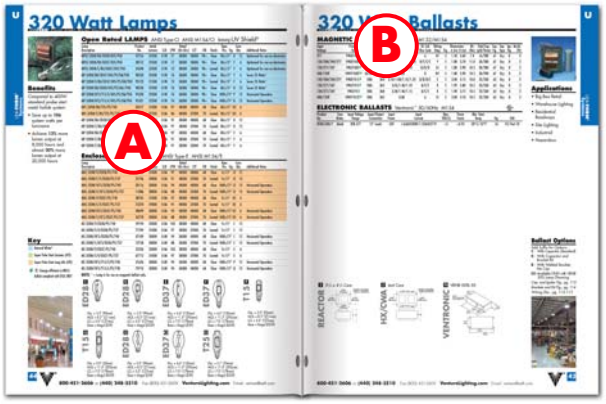
800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

How to Order Upgrade Kits

Find the Kit that Fits

Lamp/Ballast System Example: 18635/V90D7413K/DIM

For the 320W SPL Upgrade System, turn to the 320W pages of this catalog. Then Select the correct lamp, using the product number (A) and the correct ballast, using ballast product number (B), adding a "K" for "Kit" and any options.



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.	Fig.	Case Qty
MHL 320W/V/ED28/PS/740 (A)	18635	31000	0.86	97	40000	4000K	68	Clear	V±15°	J2	12
MHL 320W/C/V/ED28/PS/737	25796	29000	0.86	91	40000	3700K	70	Coated	V±15°	J2	12
MHL 320W/H75/ED28/PS/740	20116	30000	0.86	94	40000	4000K	68	Clear	HOR±75°	J2	12
MHL 320W/C/H75/ED28/PS/737	11086	28000	0.86	88	40000	3700K	70	Coated	HOR±75°	J2	12

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)	B (in)	Wt. (lbs)	Total Co (µfd/Vr
277	V90U7421	Reactor	349	1.70	A	B1	3	1.50	3.60	7.0	16/2
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	20/28
120/277/347	V90J7430	HX-HPF	364	5.25/2.25/1.70	D/D/D	A1	5	1.80	3.90	10.5	20/2
480/120T (B)	90Y7430T	HX-HPF	364	1.20	D	W1	5	1.80	3.90	10.5	20/2
120/208/240/2	V90D7413	CWA	364	3.10/1.80/1.55/1.35	B/B/B/C	E	5	2.00	4.15	10.0	22/3
120/277/347	V90J7413	CWA	365	3.05/1.40/1.10	B/C/C	K	5	1.92	3.80	10.5	23/3

Upgrade Kits

Now shipping our "Upgrade Systems" in 1 box - not 2-3 different packages - No more confusion at the distributor level *Simple, Direct, Easier - Less Space Needed to Stock!*

Retrofit or Upgrade System **ORDERING Information**

The product description code gives you complete information. Example: **18635/V90D7413K/DIM**

18635
Lamp Part Number
Always a 5 digit number
For lamp product description code explanation, see page 1

V90D7413K
Ballast Product Number
Manufacturer's Code
Always starting with "V"
For lamp product description code explanation, see page 1

DIM
Suffix Code
DIM - Hi/Low Dimming without LeafNut
LEAFNUT - Dimming with LeafNut Wireless Controls

Dimmable 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

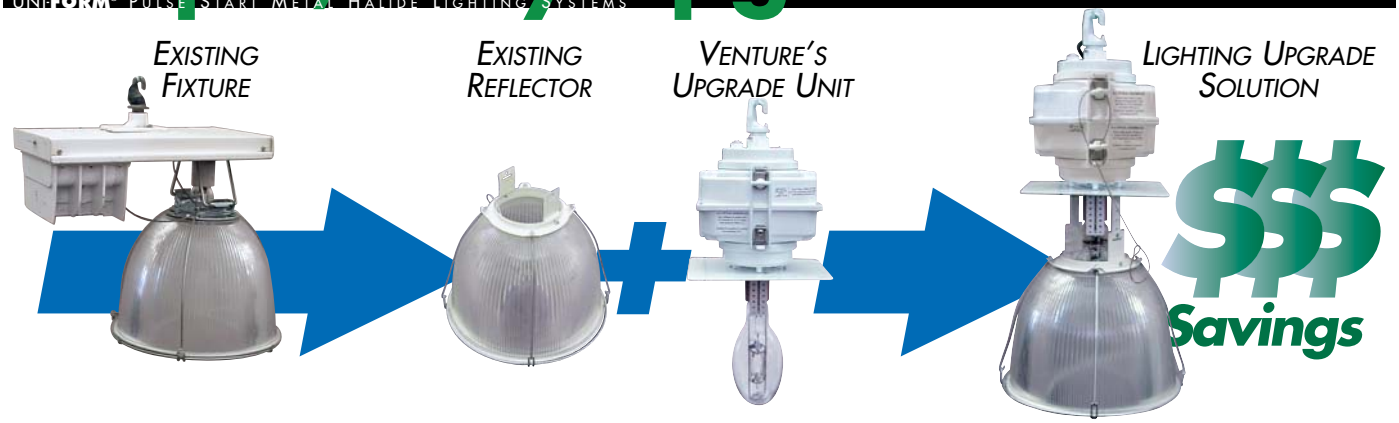
Our warranty program leads the industry in comprehensive system coverage, which doubles the warranty period on lamps and ballasts that are purchased and installed as part of the Uni-Form® pulse start system.

One Call LIMITED System Warranty

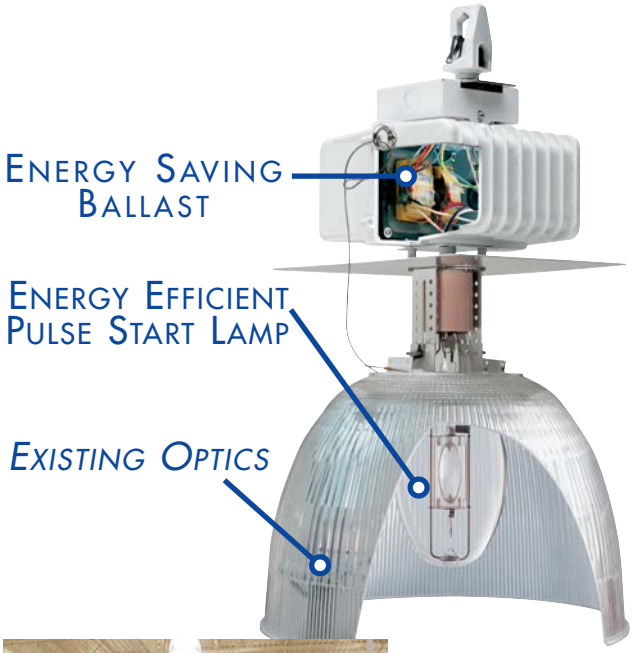
800-451-2606 or **(440) 248-3510** Fax (800) 451-2605 **VentureLighting.com** E-mail: venture@adlt.com

Simple, Easy Upgrade Solution

UNIFORM® Pulse Start Metal Halide Lighting Systems



Save Time & Money! Use Your *Existing* Fixture Reflector And You Get All The Benefits of an Energy-Saving Upgrade



Venture's Upgrade Lighting System

- Cost is less than a new fixture
- Less overall expense than retrofitting just the lamp and ballast
- Factory pre-installed components save labor costs and avoid unnecessary warranty issues
- Greater return on investment - Rebates are available for upgrading to pulse start MH
- Save up to 465 watts per luminaire
- Achieve up to 120 lamp lumens per watt
- Long life: **40,000** rated life hours with Super Pulse Start Long Life *(SPL)* - Comparable to LED
- Dimming capable - Venture's LeafNut™ wireless lighting controls are an additional energy-saving option available
- Agency Approvals: cULus listed to UL 1598
- Brackets included to fit most reflectors
  - Most aluminum reflectors over 15"
  - Most glass reflectors over 14.25"
  - Most acrylic or polycarbonate reflectors over 16"

Applications

- Grocery Stores and big box retail
- Industrial and manufacturing
- Auto dealership showrooms and service bays
- Aircraft Hangers
- Indoor Sports/Recreation

Comparison

Lamp Watts	CRI	Rated Life	System Watts	Venture's Lighting Retrofit System	CRI	Rated Life	System Watts	Annual Savings Per Fixture @$0.10/kWh
1000W	65	12000	1085	REPLACE WITH → SPL 875W	68	40000	950	$54.00
				775W NW	90	26000	845	$96.00
				SPL 575W NW	90	40000	595	$196.00
400W	65	20000	458	SPL 350W	68	40000	385	$29.20
				SPL 320W	68	40000	364	$37.60
				REPLACE WITH → SPC 315W	90	30000	341	$46.80
				SPL 250W	68	40000	278	$72.00
				SPC 210W	90	30000	227	$92.40
				SPL 200W	68	40000	226	$92.80

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ELECTRONIC UPGRADE SYSTEM UNIT

UNIFORM® PULSE START METAL HALIDE LIGHTING SYSTEMS

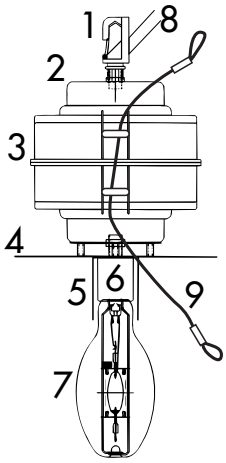
ELECTRONIC BALLAST Upgrade System 60Hz Ventronic™

c UL us LISTED

Watts	Product Number	Input Voltage Range	ANSI Code	System Watts	Line Current	Fig.	Total Wt. (lbs)	EMI
210	OPE6-210(options)	208-277	C183	227	0.84A@277V	1	15	FCC Part 18
250	OPE2-250(options)	208-277	M153	269	1.00A@277V	1	15	FCC Part 18
315	OPE6-315(options)	208-277	C182	341	1.28A@277V	1	15	FCC Part 18
320	OPE8-320(options)	208-277	M154	339	1.63A@208V/1.22A@277V	1	15	FCC Part 18
350	OPE8-350(options)	208-277	M131	371	1.78A@208V/1.34A@277V	1	15	FCC Part 18
400	OPE8-400(options)	208-277	M155	424	2.04A@208V/1.53A@277V	1	15	FCC Part 18
450	OPE8-450(options)	208-277	M144	477	2.29A@208V/1.72A@277V	1	15	FCC Part 18

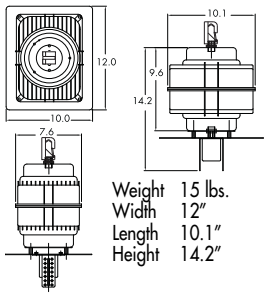
Electronic Ballast Housing **OPE**

COMPONENTS of the Upgrade Unit



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

1 OPE



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

Electronic Ballast Retrofit Housing ORDERING Information 60Hz Ventronic™

The product description code gives you complete information about the fixture. An explanation appears below. Example: **OPE8-320L-D5**

OPE	8	320	L	D5
Housing Type	**Ballast Code**	**Lamp Wattage**	**Voltage Code**	**Suffix Code**
OPE - Electronic Ballast Housing	Manufacturer's Code	**210W** **250W** **315W** **320W** **350W** **400W** **450W**	**L** - 208 to 277 Volt	**Q** - Quartz Restrike *(Additional Options)* **D5** - 50% Lamp Dimming **D7** - 70% Lamp Dimming †

Notes: UL Listed, approved for damp location. Standards sold with open rated socket and lamp. Enclosed rated versions are available, contact Venture for information. Shipped with 5 foot length white usable 3 wire conductor 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**: Electronic Ballast 3 years, Lamp 2 years. No warranty for quartz restrike lamp. **Operating Temperature:** -30° to 55°C; Ambient per UL1598;

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Magnetic Upgrade System Unit

UNIFORM® Pulse Start Metal Halide Lighting Systems

Small Magnetic Ballast Housing **OPM**

Large Magnetic Ballast Housing **OPHM**

Extreme High Ambient Temperature Ballast Housing **OPHM-HT**

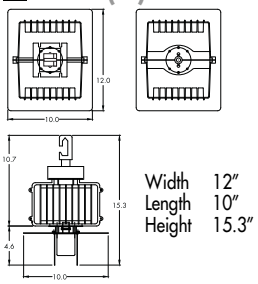
MAGNETIC BALLAST Upgrade System 60Hz

Watts	Product Number	Input Voltage Options Available	ANSI Code	Circuit Type Options Available	Fig.	Total Weight (lbs)
200	OPM(x)-200(options)	120/208/240/277/347/480	M136	Reactor/CWA	2	11.5 - 15.0
210	OPM1-210(options)	120/208/240/277/347/480	N/A	CWA	2	12.0 - 17.0
250	OPM(x)-250(options)	120/208/240/277/347/480	M153	Reactor/CWA	2	13.0 - 17.0
315	OPM1-315(options)	120/208/240/277/347/480	N/A	CWA	2	14.0 - 18.5
320	OPM(x)-320(options)	120/208/240/277/347/480	M132/M154	Reactor/HX-HPF/CWA	2	14.0 - 18.5
350	OPM(x)-350(options)	120/208/240/277/347/480	M131	Reactor/HX-HPF/CWA	2	14.4 - 21.5
400	OPHM(x)-400(options)	120/208/240/277/347/480	M155	Reactor/CWA	3	18.5 - 21.5
450	OPHM(x)-450(options)	120/208/240/277/347/480	M144	Reactor/HX-HPF/CWA	3	17.6 - 23.5
575	OPHM(x)-575(options)	120/208/240/277/347/480	M178	Reactor/HX-HPF/CWA	3	17.5 - 28.0
775	OPHM1-775(options)	120/208/240/277/347/480	M181	CWA	3	30.5
875	OPHM1-875(options)	120/208/240/277/347/480	M166	CWA	3	30.5

MAGNETIC BALLAST *High Temperature* Upgrade System 60Hz

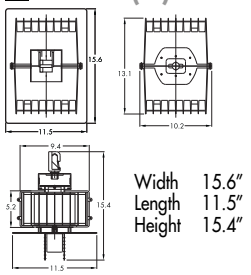
Watts	Product Number	Input Voltage Options Available	ANSI Code	Circuit Type Options Available	Fig.	Total Weight (lbs)
400*	OPHM1-400(options)-HT-(options)	120/208/240/277/347/480	M155	Reactor/CWA	4	18.5 - 21.5
575*	OPHM1-575(options)-HT-(options)	120/208/240/277/347/480	M178	Reactor/HX-HPF	5	17.5 - 28.0
875*	OPHM1-875(options)-HT-(options)	120/208/240/277/347/480	M166	CWA	5	30.5

2 OPM(x)



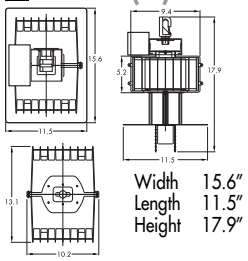
Width 12″
Length 10″
Height 15.3″

3 OPHM(x)



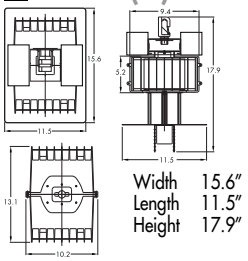
Width 15.6″
Length 11.5″
Height 15.4″

4 OPHM(x)-HT



Width 15.6″
Length 11.5″
Height 17.9″

5 OPHM(x)-HT



Width 15.6″
Length 11.5″
Height 17.9″

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**

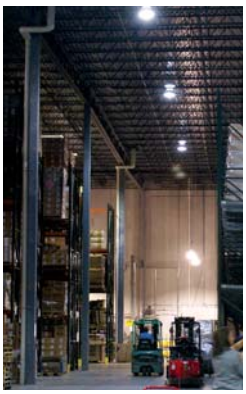
OPHM — Housing Type
- **OPM** - Small Magnetic Ballast Housing
- **OPHM** - Large Magnetic Ballast Housing

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

400 — Lamp Wattage
- **200W**
- **210W**
- **250W**
- **320W**
- **350W**
- **400W**
- **450W**
- **575W**
- **775W**
- **875W**

B — Voltage Code
- **B** - 120 Volt
- **P** - 208 Volt
- **S** - 240 Volt
- **U** - 277 Volt
- **V** - 347 Volt
- **Y** - 480 Volt

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



Notes: = Ⓔ 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. UL Listed, approved for damp location. Standards sold with open rated socket and lamp. Enclosed rated versions are available, contact Venture for information. Shipped with 5 foot length white usable 3 wire conductor 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**: Magnetic Ballast 5 years, Lamp 2 years. No warranty for quartz restrike lamp. **Operating Temperature:** -30° to 55°C; Ambient per UL1598; 775W and 875W systems limited to 40°C when used with acrylic or polycarbonate reflectors; **HT = Operating Temperature:** -30° to 65°C; Ambient with glass or aluminum optics ONLY

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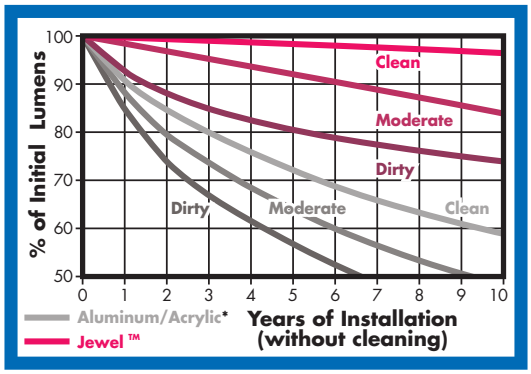
Jewel™ Glass Optics

Uni-Form® Pulse Start Metal Halide Lighting Systems

The Jewel™ optic, 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 up to 96% efficient with over 80% of its output directed downward to task areas or merchandise. Increase existing light levels and reduce energy consumption by completing the package with Venture's Uni-Form® pulse-start lamp and ballast systems.

Dirt Factor Effect on Luminaire Light Loss



*NOTE: * IES Standard Category III*

Benefits

- Prismatic glass optics
- Maximize energy efficiency
- Up to 96% efficient TIR (Total Internal Reflection) for minimizing glare
- Self-cleaning, to maintain optical efficiency over time
- Superior 5 year dirt factor of 0.92 versus 0.64 for aluminum and acrylic reflectors

Jewel™ 14.5" J15 Order Code: 6800-000 Photometrics

OPTIC
Catalog No.: OPE8-350L-J15
Open prismatic glass 14.5" Jewel™ reflector

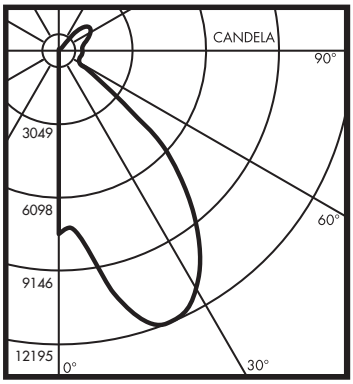
LAMP
Lamp Cat. No.: MP 350W/V/ED28/UVS/PS/740
350W Clear ED28 Open-Rated PSMH Lamp
CRI: 68; Color Temperature: 4000K
Initial Lamp Lumens: 35,000

TEST SET-UP/PERFORMANCE
Lamp Position: Lamp LCL at 5.4" (138mm) above bottom of reflector.
Optic Position: Set at notch #5
Delivered Lumens per Watt: 93
Spacing Criterion: 1.5
Test Report Number: 72807

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	9452	27.0%	29%
0-40	15792	45.1%	49%
0-60	22976	65.6%	71%
0-90	**25941**	**74.1%**	**80%**
90-120	3525	10.1%	11%
90-130	4941	14.1%	15%
90-150	6354	18.2%	20%
90-180	**6473**	**18.5%**	**20%**
0-180	**32414**	**92.6%**	**100%**

Total Luminaire Efficiency = 92.6%



Jewel™ 16.5" J17 Order Code: 6900-000 Photometrics

OPTIC
Catalog No.: OPHM1-400U-HT-J17
Open prismatic glass 16.5" Jewel™ reflector

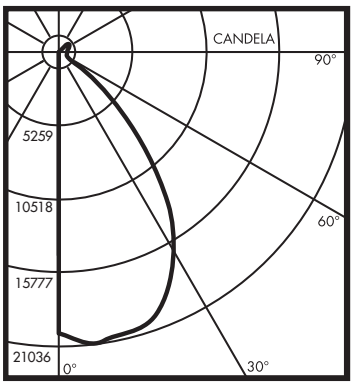
LAMP
Lamp Cat. No.: MP 400W/V/ED28/UVS/PS/740
400W Clear ED28 Open-Rated Pulse Start Lamp
CRI: 68; Color Temperature: 4000K
Initial Lamp Lumens: 41,000

TEST SET-UP/PERFORMANCE
Lamp Position: Lamp LCL at 6.0" (153mm) above bottom of reflector.
Optic Position: Set at notch #6
Delivered Lumens per Watt: 95
Spacing Criterion: 1.2
Test Report Number: 74919R1

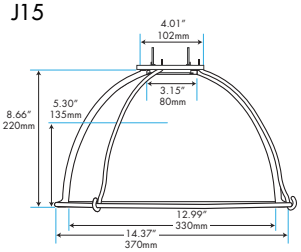
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	16308	39.8%	43%
0-40	24901	60.7%	66%
0-60	32503	79.3%	86%
0-90	**34418**	**83.9%**	**91%**
90-120	2180	5.3%	6%
90-130	3026	7.4%	8%
90-150	3498	8.5%	9%
90-180	**3584**	**8.7%**	**9%**
0-180	**38002**	**92.7%**	**100%**

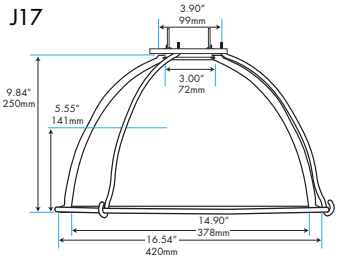
Total System Efficiency = 92.7%



REFLECTOR J15



REFLECTOR J17



Retrofit Systems

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

RIO (Retrofit Integrated Optics) Systems

UNIFORM® Pulse Start Metal Halide Lighting Systems

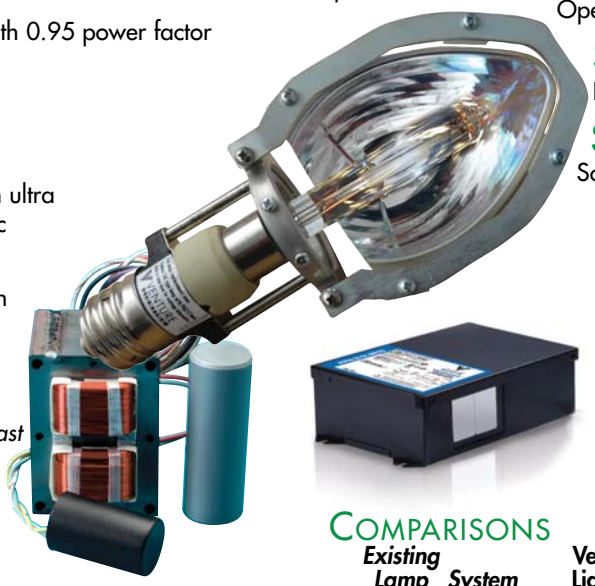
The Smart Choice for Retrofit Street & Area Lighting

Upgrade to RIO

Venture RIO kits are the green choice for updating outdoor lighting systems and re-purposing existing fixtures. RIO kits offer the most cost effective solution to upgrade roadway and site lighting while saving energy with the same fixture.

- High efficiency electronic gear with 0.95 power factor for long lamp life
- Lamp delivers up to 118 LPW
- Up to 30,000 hour rated life
- Free formed SUPRAX™ optics with ultra smooth glass surface and dichroic anti-frost coating
- Unique independent optic rotation feature for precisely aligned light distribution

Venture's RIO Lamp Module



CWA Ballast

Ventronic™ Ballast

Easy to Install

RIO kits install in minutes, the savings will last a lifetime.

Step 1
Open fixture. Remove Lamp and Ballast.

Step 2
Replace Ballast.

Step 3
Screw in RIO lamp module.

Old Standard Wattage	RIO Wattage
400W	**210W** **140W**
250W	**140W** **125W** **100W** **90W**
175W or 150W	**100W** **90W** **70W** **60W**
100W	**60W** **45W**

RIO Ships All in One Box

Comparisons

	Existing Lamp Watts	System Watts	Venture Lighting Retrofit Kit	System Watts	Watts Saved	Annual Savings Per Fixture $0.10/kWh
HPS	150W	REPLACE WITH 190	RIO 60W	67	**123**	$53.87
			RIO 90W	99	**91**	$39.86
	250W	REPLACE WITH 295	RIO 90W	99	**196**	$85.85
			RIO 140W	154	**141**	$61.76
	400W	REPLACE WITH 460	RIO 140W	154	**306**	$134.03
			RIO 210W	227	**233**	$102.05
MH	175W	REPLACE WITH 215	RIO 60W	67	**148**	$64.82
			RIO 90W	99	**116**	$50.81
	250W	REPLACE WITH 290	RIO 90W	99	**191**	$83.66
			RIO 140W	154	**136**	$59.57
	400W	REPLACE WITH 455	RIO 140W	154	**301**	$131.84
			RIO 210W	227	**228**	$99.86

Note: *Based on 12 hours per day per year*

Works in All Type II and Type III Applications, Including:

Street/Roadway

Area/Site Lighting

Wall Packs

Canopy Lighting

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

Wall Pack Lighting

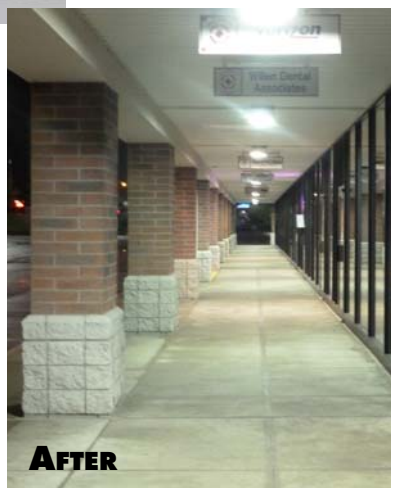
RETROFIT SOLUTIONS

Venture's RIO system inside a wall pack

- Significantly Lower Installation Cost than LED & Induction Systems
- Increase Security with Improved Visibility from Superior Quality White Light
- Decrease Maintenance Costs with 30,000 Hour Rated Life
- RIO System is Like a Whole New Fixture Without the Cost
- Up to 70% Energy Savings with the Same Light Level
- RIO's 95% Efficient Adjustable Optic Provides Simple Installation with No Tools Required

Canopy Lighting

RETROFIT SOLUTIONS



RIO (RETROFIT INTEGRATED OPTICS) SYSTEM
Wall Pack Retrofit Kits *30,000 HR RATED LIFE*

Ballast Type	Kit Order #	Lamp Description	Ballast Description
60 WATT ANSI C187			
Ventronic	RIO2856•	RIO 60W/T6C/728/TYP3-AR/E39	VEN6-060B-PMLS
	RIO3752•	RIO 60W/T6C/728/TYP3-AR/E39	VEN6-060L-PNLS
70 WATT ANSI M98			
Quad HX	RIO4128•	RIO 70W/ED17/740/TYP3-AR/E39	V90D5833K
347V HX	RIO3215•	RIO 70W/ED17/740/TYP3-AR/E39	V90J5832K
90 WATT ANSI C188			
Ventronic	RIO3429•	RIO 90W/T6C/728/TYP3-AR/E39	VEN6-090L-CWPMLS
100 WATT ANSI M90			
Quad HX	RIO2817•	RIO 100W/ED17/740/TYP3-AR/E39	V90D5932K
347V HX	RIO4923•	RIO 100W/ED17/740/TYP3-AR/E39	V90J5932K
125 WATT ANSI M150			
Quad CWA	RIO1367•	RIO 125W/ED17/740/TYP3-AR/E39	V90D8812K
480V CWA	RIO3045•	RIO 125W/ED17/740/TYP3-AR/E39	V90Y8811TK
347V CWA	RIO7316•	RIO 125W/ED17/740/TYP3-AR/E39	V90J8811K
140 WATT ANSI C189			
Ventronic	RIO1645•	RIO 140W/T6C/728/TYP3-AR/E39	VEN6-140B-CWPTLS
	RIO2962•	RIO 140W/T6C/728/TYP3-AR/E39	VEN6-140L-CWPMLS

RIO (RETROFIT INTEGRATED OPTICS) SYSTEM
Canopy Retrofit Kits *30,000 HR RATED LIFE*

Ballast Type	Kit Order #	Lamp Description	Ballast Description
100 WATT ANSI M90			
Quad HX	RIO2817•	RIO 100W/ED17/740/TYP3-AR/E39	V90D5932K
347V HX	RIO4923•	RIO 100W/ED17/740/TYP3-AR/E39	V90J5932K
125 WATT ANSI M150			
Quad CWA	RIO1367•	RIO 125W/ED17/740/TYP3-AR/E39	V90D8812K
480V CWA	RIO3045•	RIO 125W/ED17/740/TYP3-AR/E39	V90Y8811TK
347V CWA	RIO7316•	RIO 125W/ED17/740/TYP3-AR/E39	V90J8811K
210 WATT ANSI C183			
Ventronic	RIO7135•	RIO 210W/T9/930/TYP3-AR/E39	VEN6-210L-MRD5
	RIO2498•	RIO 210W/T9/930/TYP3-AR/E39	VEN6-210L-MRD5
	RIO5749•	RIO 210W/T9/942/TYP3-AR/E39	VEN6-210L-MRD5
	RIO8142•	RIO 210W/T9/942/TYP3-AR/E39	VEN6-210L-MRD5
Quad CWA	RIO7213•	RIO 210W/T9/930/TYP3-AR/E39	V90D5310K
	RIO2736•	RIO 210W/T9/942/TYP3-AR/E39	V90D5310K
480V CWA	RIO6419•	RIO 210W/T9/930/TYP3-AR/E39	V90Y5310TK
	RIO5129•	RIO 210W/T9/942/TYP3-AR/E39	V90Y5310TK

NOTES: • Super Pulse Start Long Life *(SPL)*
• Super Pulse Start Ceramic *(SPC)*

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Roadway Lighting RIO Systems

UNIFORM® Pulse Start Metal Halide Lighting Systems

RIO Retrofit Integrated Optics for ROADWAY Lighting; Base E39, Clear Finish, Type II Distribution

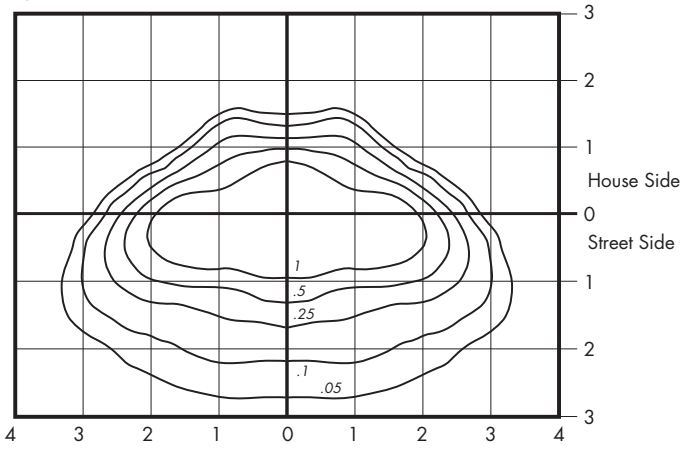
Watts	ANSI Code	Kit Order Code	Lamp Module Description	Ballast Number	Input Voltage Range	Initial Lumens	LLD	Rated Life (hrs)	CCT	CRI	Module Fig.	Input Power	Input Current	Ballast Fig.
60	C187/E	RIO6129	RIO 60W/T6C/728/TYP2-RD/E39	VEN6-060B-PMLS	120	7200	0.90	30000	2800K	70	A	68	0.58	9
60	C187/E	RIO4315	RIO 60W/T6C/728/TYP2-RD/E39	VEN6-060L-PNLS	208-277	7200	0.90	30000	2800K	70	A	67	0.33/0.24	17
70	M98/E	RIO3784	RIO 70W/ED17/740/TYP2-RD/E39	V90D5833K	120/208/240/277	5600	0.75	30000	4000K	68	I	92	1.65/0.95/.080/0.70	4
70	M98/E	RIO8546	RIO 70W/ED17/740/TYP2-RD/E39	V90J5832K	347	5600	0.75	30000	4000K	68	I	93	1.70/0.75/0.60	4
90	C188/E	RIO1893	RIO 90W/T6C/728/TYP2-RD/E39	VEN6-090L-CWPMLS	208-277	10500	0.85	30000	2800K	70	B	98	0.49/0.37	17
100	M90/E	RIO2912	RIO 100W/ED17/740/TYP2-RD/E39	V90D5932K	120/208/240/277	9000	0.75	30000	4000K	68	I	125	2.60/1.50/1.30/1.15	4
100	M90/E	RIO6174	RIO 100W/ED17/740/TYP2-RD/E39	V90J5932K	347	9000	0.75	30000	4000K	68	I	126	2.60/1.15/0.90	4
125	M150/E	RIO2523	RIO 125W/ED17/740/TYP2-RD/E39	V90D8812K	120/208/240/277	12000	0.75	30000	4000K	68	I	155	1.40/0.80/0.70/0.60	4
125	M150/E	RIO5019	RIO 125W/ED17/740/TYP2-RD/E39	V90Y8811TK	480	12000	0.75	30000	4000K	68	I	155	0.35	4
125	M150/E	RIO7931	RIO 125W/ED17/740/TYP2-RD/E39	V90J8811K	347	12000	0.75	30000	4000K	68	I	155	1.25/0.55/0.45	4
140	C189/E	RIO2718	RIO 140W/T6C/728/TYP2-RD/E39	VEN6-140B-CWPTLS	120	16500	0.90	30000	2800K	70	B	154	1.3	10
140	C189/E	RIO3621	RIO 140W/T6C/728/TYP2-RD/E39	VEN6-140L-CWPMLS	208-277	16500	0.90	30000	2800K	70	B	153	0.75/0.57	17
210	C183/E	RIO4319	RIO 210W/T9/930/TYP2-RD/E39	VEN6-210L-MRD5	208-240	24150	0.90	30000	3000K	90	C	229	1.11/0.96	13
210	C183/E	RIO1685	RIO 210W/T9/930/TYP2-RD/E39	VEN6-210L-MRD5	277	24150	0.90	30000	3000K	90	C	227	0.83	13
210	C183/E	RIO5926	RIO 210W/T9/942/TYP2-RD/E39	VEN6-210L-MRD5	208-240	23000	0.90	30000	4200K	90	C	229	1.11/0.96	13
210	C183/E	RIO3815	RIO 210W/T9/942/TYP2-RD/E39	VEN6-210L-MRD5	277	23000	0.90	30000	4200K	90	C	227	0.83	13
210	C183/E	RIO2621	RIO 210W/T9/930/TYP2-RD/E39	V90D5310K	120/208/240/277	24150	0.90	30000	3000K	90	C	238	2.15/1.25/1.05/0.95	5
210	C183/E	RIO3813	RIO 210W/T9/930/TYP2-RD/E39	V90Y5310TK	480	24150	0.90	30000	3000K	90	C	240	0.55	5
210	C183/E	RIO1568	RIO 210W/T9/942/TYP2-RD/E39	V90D5310K	120/208/240/277	23000	0.90	30000	4200K	90	C	238	2.15/1.25/1.05/0.95	5
210	C183/E	RIO5714	RIO 210W/T9/942/TYP2-RD/E39	V90Y5310TK	480	23000	0.90	30000	4200K	90	C	240	0.55	5

NOTE: Module and ballast figures are located on page 66. Kit includes RIO lamp module, high performance lamp, ballast and ballast mounting strap

Venture's RIO Roadway Lamp Module

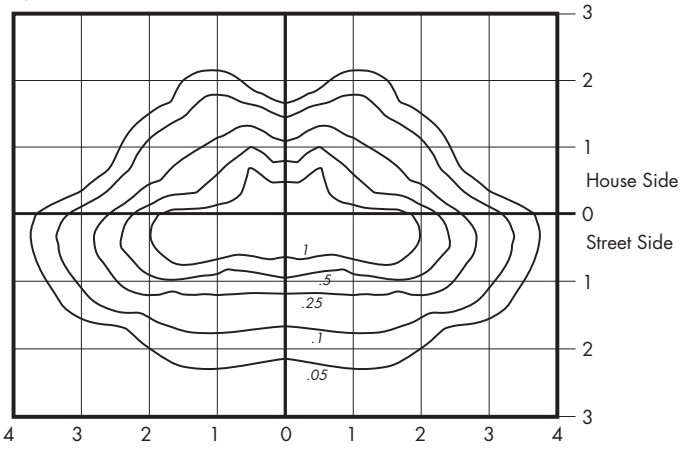
Ventronic™ Ballast

Light Distribution: IES Type II



'Cobrahead' Streetlight | Clear Flat Lens | Uptilted Davit Arm | 30 Foot Mounting Height
Distribution shown is for 140W ROADWAY RIO

Light Distribution: IES Type II



'Cobrahead' Streetlight | Clear Flat Lens | Uptilted Davit Arm | 30 Foot Mounting Height
Distribution shown is for 125W ROADWAY RIO

IES Type II Distribution

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AREA LIGHTING RIO SYSTEMS

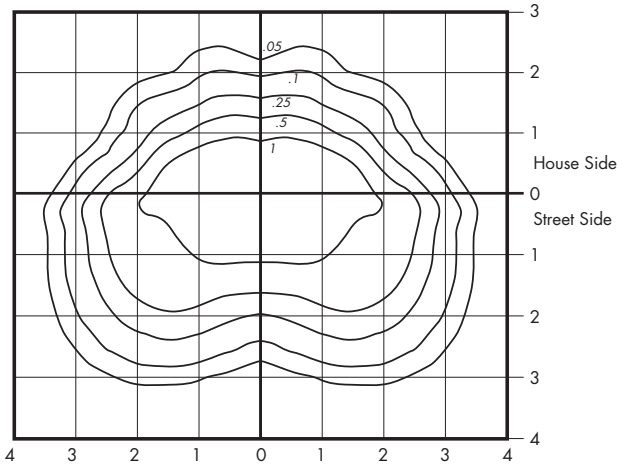
UNIFORM® PULSE START METAL HALIDE LIGHTING SYSTEMS

RIO Retrofit Integrated Optics for AREA Lighting; Base E39, Clear Finish, Type III Distribution

Watts	ANSI Code	Kit Order Code	Lamp Module Description	Ballast Number	Input Voltage Range	Initial Lumens	LLD	Rated Life (hrs)	CCT	CRI	Module Fig.	Input Power	Input Current	Ballast Fig.
60	C187/E	RIO2856	RIO 60W/T6C/728/TYP3-AR/E39	VEN6-060B-PMLS	120	7200	0.90	30000	2800K	70	H	68	0.58	9
60	C187/E	RIO3752	RIO 60W/T6C/728/TYP3-AR/E39	VEN6-060L-PNLS	208-277	7200	0.90	30000	2800K	70	H	67	0.33/0.24	17
70	M98/E	RIO4128	RIO 70W/ED17/740/TYP3-AR/E39	V90D5833K	120/208/240/277	5600	0.75	30000	4000K	68	J	92	1.65/0.95/.080/0.70	4
70	M98/E	RIO3215	RIO 70W/ED17/740/TYP3-AR/E39	V90J5832K	347	5600	0.75	30000	4000K	68	J	93	1.70/0.75/0.60	4
90	C188/E	RIO3429	RIO 90W/T6C/728/TYP3-AR/E39	VEN6-090L-CWPMLS	208-277	10500	0.85	30000	2800K	70	D	99	0.49/0.37	17
100	M90/E	RIO2817	RIO 100W/ED17/740/TYP3-AR/E39	V90D5932K	120/208/240/277	9000	0.75	30000	4000K	68	J	125	2.60/1.50/1.30/1.15	4
100	M90/E	RIO4923	RIO 100W/ED17/740/TYP3-AR/E39	V90J5932K	347	9000	0.75	30000	4000K	68	J	126	2.60/1.15/0.90	4
125	M150/E	RIO1367	RIO 125W/ED17/740/TYP3-AR/E39	V90D8812K	120/208/240/277	12000	0.75	30000	4000K	68	J	155	1.40/0.80/0.70/0.60	4
125	M150/E	RIO3045	RIO 125W/ED17/740/TYP3-AR/E39	V90Y8811TK	480	12000	0.75	30000	4000K	68	J	155	0.35	4
125	M150/E	RIO7316	RIO 125W/ED17/740/TYP3-AR/E39	V90J8811K	347	12000	0.75	30000	4000K	68	J	155	1.25/0.55/0.45	4
140	C189/E	RIO1645	RIO 140W/T6C/728/TYP3-AR/E39	VEN6-140B-CWPTLS	120	16500	0.90	30000	2800K	70	D	154	1.3	10
140	C189/E	RIO2962	RIO 140W/T6C/728/TYP3-AR/E39	VEN6-140L-CWPMLS	208-277	16500	0.90	30000	2800K	70	D	153	0.75/0.57	17
140	C189/E	RIO2413	RIO 140W/T6C/728/TYP3-AR/CM	VEN6-140B-CWPTLS	120	16500	0.90	30000	2800K	70	F	154	1.3	10
140	C189/E	RIO6892	RIO 140W/T6C/728/TYP3-AR/CM	VEN6-140L-CWPMLS	208-277	16500	0.90	30000	2800K	70	F	153	0.75/0.57	17
210	C183/E	RIO7135	RIO 210W/T9/930/TYP3-AR/E39	VEN6-210L-MRD5	208-240	24150	0.90	30000	3000K	90	E	229	1.11/0.96	13
210	C183/E	RIO2498	RIO 210W/T9/930/TYP3-AR/E39	VEN6-210L-MRD5	277	24150	0.90	30000	3000K	90	E	227	0.83	13
210	C183/E	RIO5749	RIO 210W/T9/942/TYP3-AR/E39	VEN6-210L-MRD5	208-240	23000	0.90	30000	4200K	90	E	229	1.11/0.96	13
210	C183/E	RIO8142	RIO 210W/T9/942/TYP3-AR/E39	VEN6-210L-MRD5	277	23000	0.90	30000	4200K	90	E	227	0.83	13
210	C183/E	RIO7213	RIO 210W/T9/930/TYP3-AR/E39	V90D5310K	120/208/240/277	24150	0.90	30000	3000K	90	E	238	2.15/1.25/1.05/0.95	5
210	C183/E	RIO6419	RIO 210W/T9/930/TYP3-AR/E39	V90Y5310TK	480	24150	0.90	30000	3000K	90	E	240	0.55	5
210	C183/E	RIO2736	RIO 210W/T9/942/TYP3-AR/E39	V90D5310K	120/208/240/277	23000	0.90	30000	4200K	90	E	238	2.15/1.25/1.05/0.95	5
210	C183/E	RIO5129	RIO 210W/T9/942/TYP3-AR/E39	V90Y5310TK	480	23000	0.90	30000	4200K	90	E	240	0.55	5
210	C183/E	RIO1946	RIO 210W/T9/942/TYP3-AR/CM	VEN6-210L-MRD5	208-240	23000	0.89	30000	4200K	90	G	229	1.11/0.96	13
210	C183/E	RIO1471	RIO 210W/T9/942/TYP3-AR/CM	VEN6-210L-MRD5	277	23000	0.89	30000	4200K	90	G	227	0.83	13
210	C183/E	RIO6433	RIO 210W/T9/942/TYP3-AR/CM	V90D5310K	120/208/240/277	23000	0.89	30000	4200K	90	G	238	2.15/1.25/1.05/0.95	5
210	C183/E	RIO6375	RIO 210W/T9/942/TYP3-AR/CM	V90Y5310TK	480	23000	0.89	30000	4200K	90	G	240	0.55	5
210	C183/E	RIO7935	RIO 210W/T9/930/TYP3-AR/CM	VEN6-210L-MRD5	208-240	24150	0.90	30000	3000K	90	G	229	1.11/0.96	13
210	C183/E	RIO7258	RIO 210W/T9/930/TYP3-AR/CM	VEN6-210L-MRD5	277	24150	0.90	30000	3000K	90	G	227	0.83	13
210	C183/E	RIO5249	RIO 210W/T9/930/TYP3-AR/CM	V90D5310K	120/208/240/277	24150	0.90	30000	3000K	90	G	238	2.15/1.25/1.05/0.95	5
210	C183/E	RIO3628	RIO 210W/T9/930/TYP3-AR/CM	V90Y5310TK	480	24150	0.90	30000	3000K	90	G	240	0.55	5

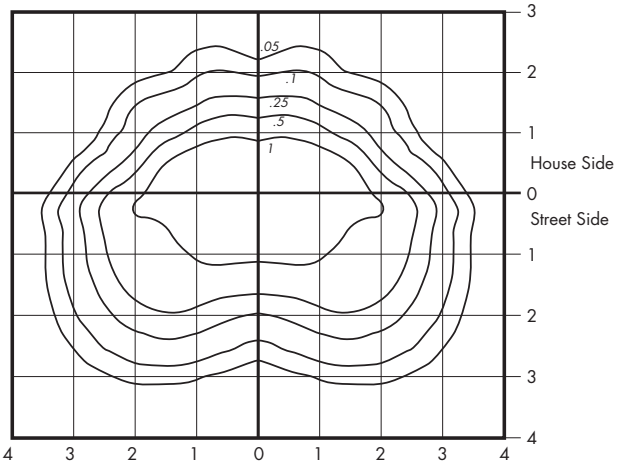
NOTE: Module and ballast figures are located on page 66. Kit includes RIO lamp module, high performance lamp, ballast and ballast mounting strap

140W Light Distribution: IES Type III



Full Cutoff Area Luminaire | Clear Flat Lens | 25 Foot Mounting Height

210W Light Distribution: IES Type III



Full Cutoff Area Luminaire | Clear Flat Lens | 30 Foot Mounting Height

IES TYPE III DISTRIBUTION

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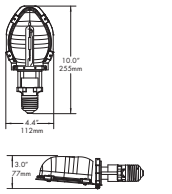
RIO (Retrofit Integrated Optics) Systems

UNIFORM® Pulse Start Metal Halide Lighting Systems

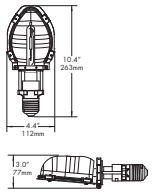
RIO Module and Ballast Diagrams

A MODULE RD



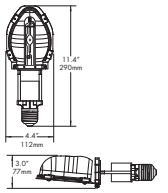
Width = 4.4″ (112mm)
Height = 3.0″ (77mm)
MOL = 10.0″ (255mm)
Base = Mogul (E39)

B MODULE RD



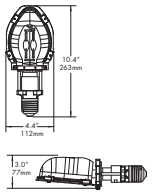
Width = 4.4″ (112mm)
Height = 3.0″ (77mm)
MOL = 10.4″ (263mm)
Base = Mogul (E39)

C MODULE RD



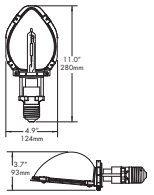
Width = 4.4″ (112mm)
Height = 3.0″ (77mm)
MOL = 11.4″ (290mm)
Base = Mogul (E39)

I MODULE RD



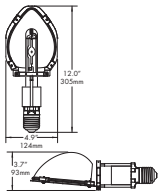
Width = 4.4″ (112mm)
Height = 3.0″ (77mm)
MOL = 10.4″ (263mm)
Base = Mogul (E39)

D MODULE AR



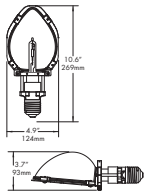
Width = 4.9″ (124mm)
Height = 3.7″ (93mm)
MOL = 11.0″ (280mm)
Base = Mogul (E39)

E MODULE AR



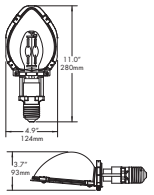
Width = 4.9″ (124mm)
Height = 3.7″ (93mm)
MOL = 12.0″ (305mm)
Base = Mogul (E39)

H MODULE AR



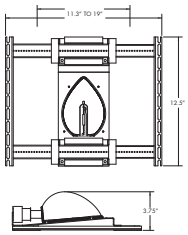
Width = 4.9″ (124mm)
Height = 3.9″ (93mm)
MOL = 10.6″ (269mm)
Base = Mogul (E39)

J MODULE AR



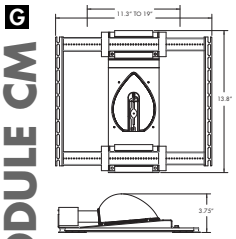
Width = 4.9″ (124mm)
Height = 3.7″ (93mm)
MOL = 11.0″ (280mm)
Base = Mogul (E39)

F MODULE CM



Width = 11.3″ - 19″ (130mm)
Height = 12.5″ (99mm)
Depth = 3.75″ (310mm)
Base = None

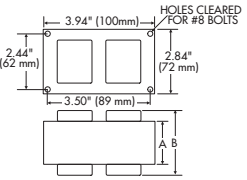
G MODULE CM



Width = 11.3″ - 19″ (130mm)
Height = 13.8″ (99mm)
Depth = 3.75″ (310mm)
Base = None

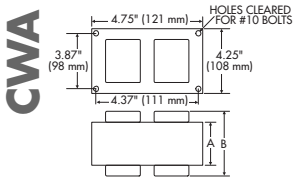
4 3x4 Core

HX/CWA



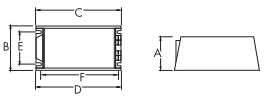
5 4x4 Core

CWA



9 VEN6-XXXB-PMLS

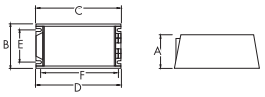
VENTRONIC



A = 2.6″ (65mm)
B = 2.6″ (65mm)
C = 5.9″ (150mm)
D = 5.9″ (150mm)
E = 1.8″ (47mm)
F = 5.4″ (136mm)

10 VEN6-XXXB-CWPTLS

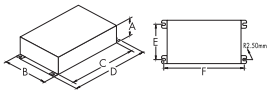
VENTRONIC



A = 2.4″ (60mm)
B = 3.9″ (100mm)
C = 6.5″ (166mm)
D = 6.5″ (166mm)
E = 3.2″ (82mm)
F = 6.1″ (156mm)

13 VEN6-XXXL-MRD5

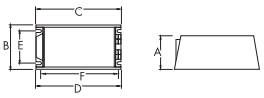
VENTRONIC



A = 2.2″ (56mm)
B = 4.9″ (124mm)
C = 7.5″ (191mm)
D = 8.2″ (208mm)
E = 3.4″ (86mm)
F = 7.7″ (196mm)

17 VEN6-XXXL-PNLS, VEN6-XXXL-CWPMLS

VENTRONIC



A = 1.5″ (37mm)
B = 3.5″ (90mm)
C = 5.9″ (150mm)
D = 5.9″ (150mm)
E = 2.7″ (70mm)
F = 5.1″ (129mm)

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Wireless Lighting Controls

UNI-FORM® Pulse Start Metal Halide Lighting Systems

What is LeafNut™?

Venture's LeafNut™ system is an advanced intelligent wireless control system for area and street lighting. The *LeafNut* "nodes" are housed in each light fixture and communicate via radio, satellite and cellular systems to deliver control and status messages to a secure web page accessed from any computer on the web. You can control, adjust, monitor and receive maintenance messages from each light fixture. With the upgrade kit of energy efficient pulse start ballasts and Uni-Form® lamps plus the power of the *LeafNut* system, you can drastically reduce your energy consumption expenses while improving with bright, white site lighting.

LeafNut™

WIRELESS LIGHTING CONTROL SYSTEM

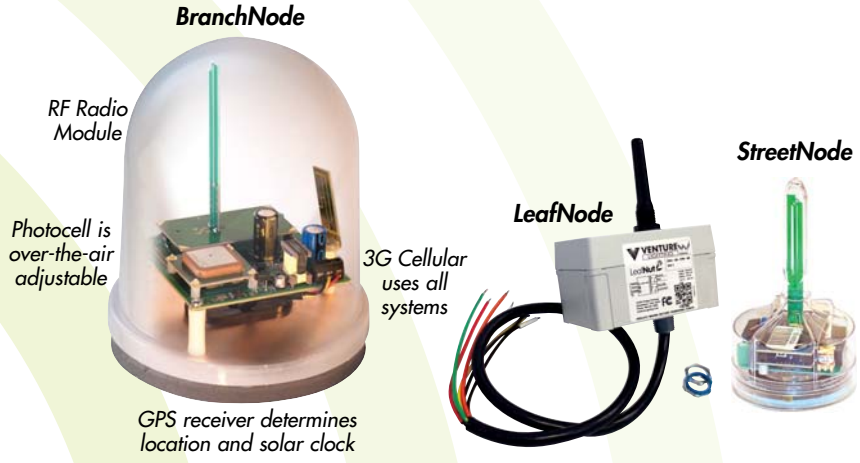
Benefits

Venture's *LeafNut* system with Venture's EISA compliant ballasts offers many benefits. These benefits are apparent from the first day the system is in place and continue to enhance your lighting over time. Benefits include:

- Energy savings through dimming
- 24/7 Control and programming
- No WiFi needed
- Unlimited number of nodes
- No dedicated computer to maintain
- Lamp/Ballast condition reporting
- Control lights as individuals, groups, or by sites
- Web based control
- No software
- Energy reporting per fixture
- Secure web site access control
- 24/7 real-time monitoring
- Lamp aging report by fixture
- No panels to install

How it Works

The Venture Lighting® LeafNut system is comprised of small electrical control units called nodes. These nodes are either the master site controller, called a BranchNode, or individual fixture nodes, called LeafNodes. These nodes are wired and mounted directly into, or on top of the existing fixtures. All nodes communicate through wireless methods to each other and then to the secure off-site server that can be accessed 24/7. After installation and initial programming by Venture's experts, the end user will be trained on how to use the very powerful secure web site for control and reporting. There are no panels or controls to install and no connection to servers or computers required.



SECURE WEB CONTENT | ENERGY SAVINGS | WIRELESS NETWORK | TOTAL CONTROL | WEB-BASED | ALL WEATHER | PHOTO CELL & SOLAR CLOCK | GPS WEB MAPPING

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Lighting Control System

UNIFORM® Pulse Start Metal Halide Lighting Systems

A Turnkey Solution

Venture's *LeafNut* system is a complete turnkey solution for street lighting, outdoor area and indoor lighting. From socket and user interface to server hosting and monitoring, Venture provides a complete wireless control & dimming system that dramatically increases energy savings and overall light quality.

Monitoring and Control

Using the secure https web page created just for your site, you will be able to monitor, control, dim and report on energy usage for each light fixture. The system also indicates lamp outage errors and ballast issues, which allows maintenance support to react quickly. The *LeafNut* system also has built-in safeguards in the event of communications loss. Each LeafNode will act autonomously and use its own internal program until given a new set of programming codes.

Managed Web Servers and Security

Each site location has a unique URL address created for that site and is further secured through https protocol and password protection. Passwords and security levels can be customized at any time by the administrative contact. The web servers are located in secure off-site facilities with dual hosting and come with a full disaster recovery plan for safe measure. Venture experts can assist with password changes and security issues with a single phone call.

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.

The Technology

All components of the *LeafNut* system communicate through wireless methods, across 3G networks to each other, and then to the secure off-site server that you can access 24/7.

How to Order

Even if you do not know the details of your current system, a knowledgeable Venture Lighting representative will be able to help you decide on a lighting package for your specific application and expand your energy saving through dimming control. Follow these simple steps:

Step 1: Contact

Contact your trained Venture Lighting representative, or Venture directly, to arrange an assessment of the site's current lighting and energy consumption.

Step 2: Choosing the Right System

See page 9 of this brochure, and look at the wattages and *LeafNut* systems available. A Venture representative can help determine the most light output for the desired energy savings.

Step 3: Installation

Our team of Certified Installers can have your system up and operating very quickly. The energy savings will begin immediately upon installation and initial programming. Afterward, you can adjust your own pattern or have our helpful Venture Tech Support assist with changing timing and dimming profiles.

Step 4: Reporting

One of the biggest benefits of having a *LeafNut* system is the reporting. Easily accessible from the secure URL web site, you will be able to view, print or download power consumption information down to the INDIVIDUAL fixture. Grouping of lights will allow group power reports as well as other group functions, such as instant "All-ON" and pattern lighting. The Interactive Monitor (IM) allows for real-time communications with all lighting fixtures and LeafNodes. Other reporting items, such as ballast issues, lamp out and lamp hours, can be easily viewed and downloaded.

Did You Know?

Tame Your Lighting Beast

The LeafNut *system installed with EISA Compliant Venture ballasts can cut your outdoor area lighting costs by more than 50%! Venture can help "pattern" lighting through programs that will require much less energy and still provide adequate lumens where they are needed most.*

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Wireless Lighting Controls

UNIFORM® Pulse Start Metal Halide Lighting Systems

Proven Installations

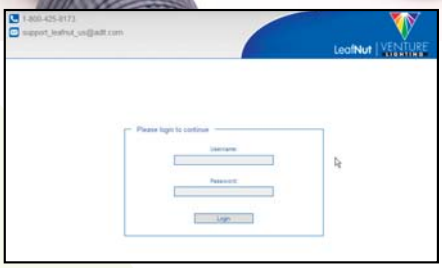
LeafNut has been installed in many locations around the U.S. and Overseas. With thousands of installations worldwide, *LeafNut* is THE system for lighting control and energy reporting. Applications for *LeafNut* can be any outdoor area lighting and many indoor lighting areas such as warehouses and factories. From street lighting to parking lot lighting, the *LeafNut* System is well suited to any lighting situation or new construction. Other applications include:

- City, County or State Parks
- Municipality Owned Street Lighting
- Walk and Bike trails
- Kiss-n-Ride Lots
- Bus Transfer Lots
- Truck Stop parking areas
- RV Parking and Rec Areas
- Hospital, Hotel, College and Airport Parking Lots
- Airport Tarmac and Gate Lighting
- Shopping Centers
- Open Parking Garages
- Business and Factory Parking Lots
- Automotive Dealerships

You Are In Control - System Control

A secure https URL web site ensures the system is secure from all unauthorized users and viruses. System integrity is also maintained through individual logins and access levels established for each authorized user.

- HTTPS security layered URL web site
- Login passwords are access level controlled
- 15 minute activity time out
- Access and activity reports record each user
- Anytime and anywhere access from any web connected device
- Daily event and error reports sent to each login email address independently
- No Software to download or update
- No on-site PC or controller



Tools

The *LeafNut* URL web site has all the software tools needed to fully control and monitor the system. These tool categories keep the programming and monitoring simple to use and organized in easy to understand modules.

Home

- Quick summary of the system and any events
- User profile changes

Administration

- Timing and dimming schedules
- Adding or modifying future nodes
- System changes and modifications
- Photocell adjustments

Health Check

- Easy to use inquiry for any issues
- Daily Scout Report shows the latest events

Interactive Monitor

- Live system viewing
- Live status via Google mapping
- Live testing of nodes and ballasts
- Click and change features provide instant feedback

Group Control

- Instantly turn on any groups of lights
- Instantly turn on all lights
- Emergency "lights on" feature

Reports

- Event mapping pinpoints issues on maps
- Power reporting down to an individual fixture
- Energy usage (in kWh) history from date of installation

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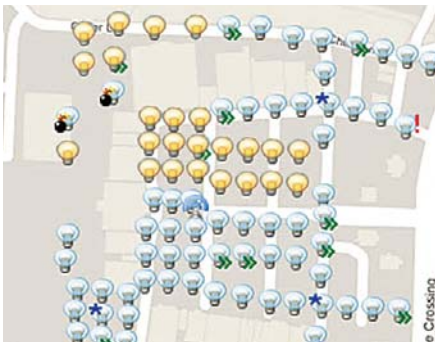
Lighting Control System

UNIFORM® Pulse Start Metal Halide Lighting Systems

LIVE Mapping Status

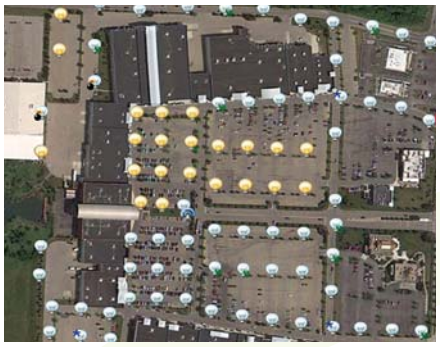
Utilize advanced mapping capabilities with street and physical views that show the real-time status of each node, fixture, ballast and lamp. These mapping tools highlight events or problems on the site with simple symbols. The online controls allow for easy viewing of the entire site and quick access to useful information. Simply hold the cursor over any fixture to reveal detailed data about that specific fixture.



Simple Street

Blue = Off

Yellow = On



Physical Mapping

Data from Site

The intuitive reporting that is fundamental to the *LeafNut* system offers the opportunity to accurately monitor everything from energy consumption to ROI with ease. These easily accessible downloads of information include data from the Solar Clock, actual daily light levels and fixture conditions and hours, and many other beneficial reports.

The data reporting system was created with endless flexibility to suit the needs of each individual end user with an accuracy that will eliminate the uncertainty from budgeting and usage. This flexibility provides countless options to explore, organize and utilize the data. View the kWh used every 30 minutes over the course of one week, or view the daily usage from the very first day the *LeafNut* system was installed.

Event Map Reporting

The Reports tool easily shows any events or issues on the site via the same mapping tools highlighted on page 6 of this brochure. This tool can filter the events and view specific problems or failures. Practical troubleshooting is made simple and efficient with this Event Map Reporting.

Red lamps show event issues

Event Emails

Each person with login capabilities is able to receive automated emails from the system identifying events or issues on site that need attention. These critical events, like a lamp failure, lamp cycling, ballast problems, or loss of power, can be addressed quickly with the help of these Event Emails.

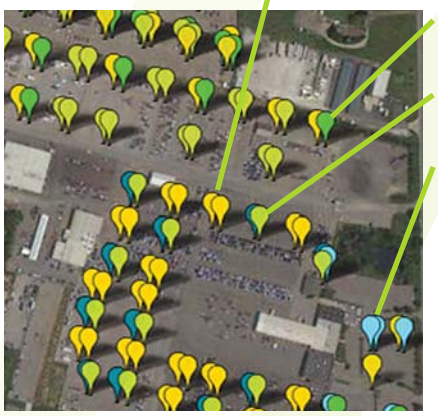
Node Grouping

Detailed system programming maps show each node with its status and grouping. The intelligent online controls present the end user with the convenient ability to change node profiles on screen and without ever being at the site.

Examples of Grouping

Group 1 Solar Clock (Yellow)

- On full until 22:00 then dim M-F
- Saturday and Sunday dim all night



Actual Node Map

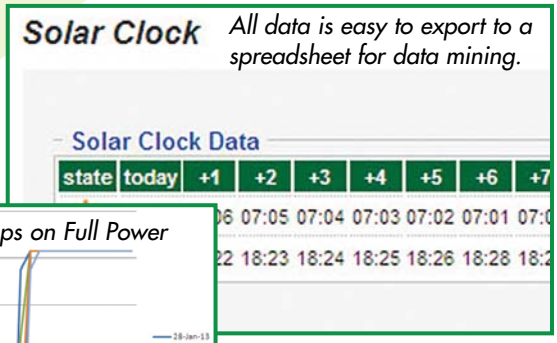
Group 2 Light Level (Dark Green)

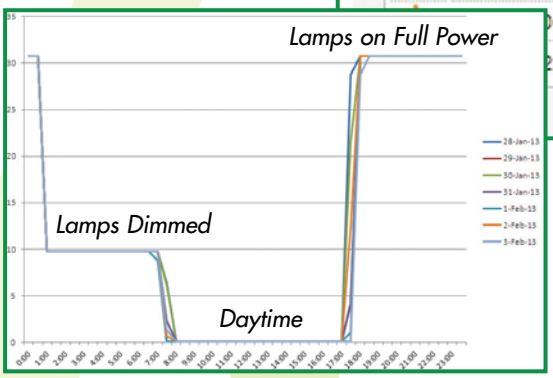
- Full until 20:00 then dim

Group 3 Security Group (Light Green)

- Dusk until dawn at full power

Group 4 Timed (Light Blue)





See the future solar clock times for the site and use the system offset to control

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Select Your Lamp/Ballast Kit

UNI-FORM® PULSE START METAL HALIDE LIGHTING SYSTEMS

Lamp and Ballasts for *LeafNut* Systems

Wattage	CWA Ballast Input Voltages	Venture Ballast Part Number	Venture Lamp Type*	Nominal System Watts At Full Power	4K Uni-Form® PSMH Lamp Reduced System Watts	4K Uni-Form® PSMH Lamp Venture Dual Cap Part No.	5K Natural White® PSMH Lamp Reduced System Watts	5K Natural White® PSMH Lamp Venture Dual Cap Part No.	Ballast Retrofit Kit Part Number†
125	120/208/240/277	V90D8812	125W/740	155	85	ACD0210V			V90D8812KH7
	120/277/347	V90J8811							V90J8811KH7
	480/120T	V90Y8811T							V90Y8811TKH7
150	120/208/240/277	V90D7110	150W/740	188	100	ACD0200V			V90D7110KH7
	120/277/347	V90J7110							V90J7110KH7
	480/120T	V90Y7110T							V90Y7110TKH7
175	120/208/240/277	V90D7211	175W/740	196	86	ACD0090V			V90D7211KH7
	480/120T	V90Y7211T							V90Y7211TKH7
200	120/208/240/277	V90D7312***	200W/740	227	135	ACD0080V			V90D7312KH7
	480/120T	V90Y7312T***							V90Y7312TKH7
	120/208/240/277	V90D7311††							V90D7311KH7
	480/120T	V90Y7311T††							V90Y7311TKH7
	120/208/240/277	V90D7312***	200W/950	214			165	ACD0190V	V90D7312KH9
	480/120T	V90Y7312T***							V90Y7312TKH9
	120/208/240/277	V90D7311††							V90D7311KH9
	480/120T	V90Y7311T††							V90Y7311TKH9
250	120/208/240/277	V90D8411	250W/740	284	170	ACD0070V			V90D8411KH7
	120/277/347	V90J8411							V90J8411KH7
	480/120T	V90Y8411T							V90Y8411TKH7
	120/208/240/277	V90D8411	250W/950	275			215	ACD0180V	V90D8411KH9
	120/277/347	V90J8411							V90J8411KH9
	480/120T	V90Y8411T							V90Y8411TKH9
320	120/208/240/277	V90D7413	320W/740	364	185	ACD0060V			V90D7413KH7
	120/277/347	V90J7411							V90J7411KH7
	480/120T	V90Y7412T							V90Y7412TKH7
	120/208/240/277	V90D7413	320W/950	332			265	ACD0170V	V90D7413KH9
	120/277/347	V90J7411							V90J7411KH9
	480/120T	V90Y7412T							V90Y7412TKH9
350	120/208/240/277	V90D7513	350W/740	398	210	ACD0050V			V90D7513KH7
	120/277/347	V90J7512							V90J7512KH7
	480/120T	V90Y7513T							V90Y7513TKH7
	120/208/240/277	V90D7513	350W/950	385			300	ACD0160V	V90D7513KH9
	120/277/347	V90J7512							V90J7512KH9
	480/120T	V90Y7513T							V90Y7513TKH9
400	120/208/240/277	V90D7613	400W/740	450	240	ACD0040V			V90D7613KH7
	120/277/347	V90J7612							V90J7612KH7
	480/120T	V90Y7612T							V90Y7612TKH7
	120/208/240/277	V90D7613	400W/950	438			330	ACD0150V	V90D7613KH9
	120/277/347	V90J7612							V90J7612KH9
	480/120T	V90Y7612T							V90Y7612TKH9
450	120/208/240/277	V90D8512	450W/740	507	275	ACD0100V			V90D8512KH7
	120/277/347	V90J8511							V90J8511KH7
	480/120T	V90Y8512T							V90Y8512TKH7
575	120/208/240/277	V90D5510	575W/740	640	365	ACD0130V			V90D5510KH7
	120/277/347	V90J5510							V90J5510KH7
	480/120T	V90Y5510T							V90Y5510TKH7
	120/208/240/277	V90D5510	575W/950	595			465	ACD0140V	V90D5510KH9
	120/277/347	V90J5510							V90J5510KH9
	480/120T	V90Y5510T							V90Y5510TKH9
775	120/208/240/277	V90D9610	775W/950	855			660	ACD0120V	V90D9610KH9
	120/277/347	V90J9610							V90J9610KH9
	480/120T	V90Y9610T							V90Y9610TKH9
875	120/208/240/277	V90D8612	875W/740	950	570	ACD0020V			V90D8612KH7
	120/277/347	V90J8612							V90J8612KH7
	480/120T	V90Y8612T							V90Y8612TKH7

Notes: * Lamp Type: 740 = Uni-Form® Pulse Start Series ; 950 = Natural White® Pulse Start Series; ** Call for the availability 800-425-8173
† Kit contains Ballast, dual cap, ignitor, wiring, hardware mounting items; *** 3x4 style ballast; †† 4x4 style ballast

BALLAST RETROFIT KIT

(BALLAST AND DIMMING CAP)

+

LAMP

+

LEAFNODE

Lamp and LeafNode Ordered Separately

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LeafNut™ Product Offering

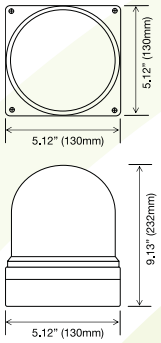
UNIFORM® Pulse Start Metal Halide Lighting Systems

LeafNut™ Control Modules 60Hz ANSI M136

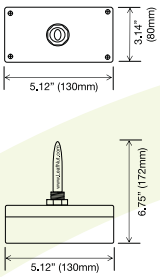
	LeafNut Product	Product Number	Communication	Operating Frequency	Range
	BranchNode	DRA-BN-320-875-002	3G/Quad band Cellular	915 or 868 MHz FM* Narrow band	5 miles (8Km) or urban 0.6 miles (1Km)
	LeafNode	DRA-LN-320-875-002	Radio frequency; random channel hopping to BranchNode	915 or 868 MHz FM* Narrow band	5 miles (8Km) or urban 0.6 miles (1Km)
	StreetNode	SNTL-G3-915 (twist-lock)	Radio frequency; pseudo random channel hopping	915 or 868 MHz FM* Narrow band	5 miles (8Km) or urban 0.6 miles (1Km)

Notes: * Based on Country

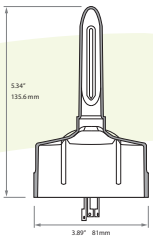
BRANCHNODE



LEAFNODE



STREETNODE



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REBATE$

Many energy utility producers in the U.S. offer initiatives for technology or usage reduction. As a part of any Energy Savings Programs your local utility company offers, you could be entitled to funding based on the dimming, control and reporting functions of the LeafNut™ System.

Contact your local Venture representative for details on any local rebates available.

APPLIANCE EFFICIENCY PROGRAM
CALIFORNIA ENERGY COMMISSION

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause unwanted operation.

FEDERAL COMMUNICATIONS COMMISSION · USA ·

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

SPECIALTY METAL HALIDE LAMPS

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. Or Replace your standard probe start or even pulse start with Venture's Ever-Start™ 330W lamp; Save 70 watts over a 400W. Save energy by changing just the lamp!

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

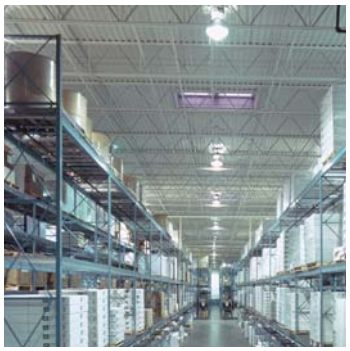
Double Ended Lamps:

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".*



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Energy Master® Lamps

SPECIALTY METAL HALIDE LAMPS

360W Open Rated *Probe Start Lamps* ANSI Type-O

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	

330W Ever-Start™ Open Rated *Pulse Start/Probe Start Lamps* ANSI Type-O

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 330W/U/EM	87645	M59/155/0	31500	0.80	95	20000	4000K	70	Clear	U	F	6	400/U; 400/BU	70	
MPI 330W/BU/EM	91834	M59/155/0	31500	0.80	95	20000	4000K	70	Clear	BU±15°	F	6	400/BU	70	
MPI 330W/C/BU/EM	91844	M59/155/0	30000	0.80	91	20000	3700K	70	Coated	BU±15°	F	6	400/C/BU	70	

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/C/U/EM	39083	M57/107/E	12800	0.65	85	10000	3700K	70	Coated	U	A1	12	175/C/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 330 and 360 watt lamps

Applications

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

Save Energy, 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
400W	31,500	**330W**	$25.50
175W	13,500	**150W**	$9.10

Based on 10 hrs/day, 0.10 kWh

A Simple Lamp Change Does It!

Save Up to 70 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 70 watts per fixture or a full 18% with virtually the same light output.

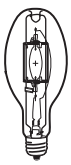
Change Just the Lamp!

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. Venture's *Ever-Start* lamps work on both probe start or pulse start ballast-types.

Retrofit for Safety

For applications where safety is an issue, Venture Lighting's *Ever-Start* lamps are open-rated, meeting 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. Lamps are intended primarily for open-rated fixtures and provide an added measure of safety in enclosed fixtures.

F ED37

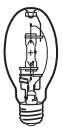


Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (EX39)

A1 ED17

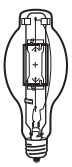
Dia. = 2.1" (54mm)
MOL = 5.4" (138mm)
LCL = 3.4" (86mm)
Base = Medium (E26)

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)

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White-Lux® Lamps

SPECIALTY METAL HALIDE LAMPS

Open Rated *Probe Start Lamps* ANSI Type-O

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	
400	MH 400W/C/U/LU	72190	S51/E[2]	39000	0.65	91	20000	3700K	70	Coated	U	O1	6	LU 400/C	
750	MH 750W/U/LU/BT37	33940	S111/E[3]	72000	0.65	96	12000	4000K	65	Clear	U	G1	6	LU 750	
1000	MS 1000W/V/LU/BT37	35892	S52/E[4]	110000	0.65	110	15000	4000K	65	Clear	V±15°	G1	6	LU 1000	

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.

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

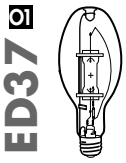
As Simple as a Change of a Lamp

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

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

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

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



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

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)

Applications

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

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High Wattage/Sports

SPECIALTY METAL HALIDE LAMPS

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

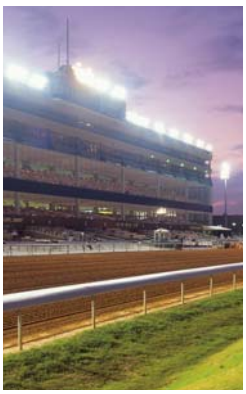
Lamp Description	Product No.	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
MPI 1000W/BU	62948	107000	0.65	107	12000	3500K	65	Clear	BU±15°	M1	6	

Enclosed Rated PROBE START LAMPS ANSI Type-E Mogul Base

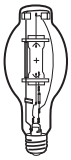
Watts	Lamp Description	Product No.	ANSI Code	Initial Lumens	LLD	LPW	Rated Life (hrs)	CCT	CRI	Finish	Oper. Pos.	Fig.	Case Qty	Additional Notes
1000	MS 1000W/V/LU/BT37	35892	S52/E	110000	0.65	110	15000	4000K	65	Clear	V±15°	G1	6	
1000	MH 1000W/U	72051	M47/E	110000	0.65	110	12000	4000K	65	Clear	U	I1	6	
1000	MH 1000W/U/BT37	15332	M47/E	110000	0.65	110	12000	4000K	65	Clear	U	G1	6	
1000	MH 1000W/U/5K	35914	M47/E	80000	0.65	80	9000	5000K	75	Clear	U	I1	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°	P1	6	
1650	MS 1650W/HOR/XP/SPORT 60	16419	M112/E	177000	0.82	107	3000	3200K	70	Clear	HOR±60°	P1	6	

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)

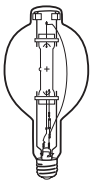


G1 BT37



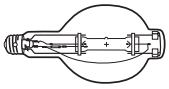
Dia. = 4.6" (120mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (E39)

I1 BT56



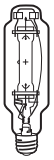
Dia. = 7.0" (180mm)
MOL = 15.3" (391mm)
LCL = 9.5" (241mm)
Base = Mogul (E39)

J1 BT56



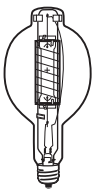
Dia. = 7.0" (180mm)
MOL = 15.3" (391mm)
LCL = 9.5" (241mm)
Base = Mogul POMB (EP39)

K1 T25



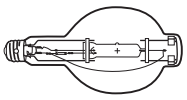
Dia. = 3.1" (79mm)
MOL = 11.5" (292mm)
LCL = 7.0" (178mm)
Base = Mogul (E39)

M1 BT56



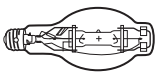
Dia. = 7.0" (180mm)
MOL = 15.4" (391mm)
LCL = 9.5" (241mm)
Base = Mogul (EX39)

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

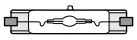
Applications

- Retail store downlights
- Flood-lighting

Z G12

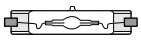
Dia. = 0.9" (23mm)
MOL = 4.3" (110mm)
LCL = 2.2" (56mm)
Base = G12

R1 MH-DE



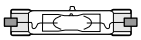
T6
Dia. = 20mm
Insertion Length = 117.6mm
Contact to Contact = 114.2mm
Base = RSC (R7s)

S1 MH-DE



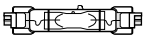
T7
Dia. = 23mm
Insertion Length = 135.4mm
Contact to Contact = 132.0mm
Base = RSC (R7s)

T1 MH-DE



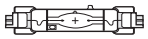
T8
Dia. = 25mm
Insertion Length = 161.3mm
Contact to Contact = 157.9mm
Base = RSC (RX7s)

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

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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 S52 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.
† M48 ballast requires an ignitor to operate lamp 22151

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)	Wt. (lbs)	Total Cap. (µfd/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	1075	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. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

W1

MBIL S

T5
MOL = 256mm
Effective arc length = 183mm
Base = RSC (RX7s)

X1

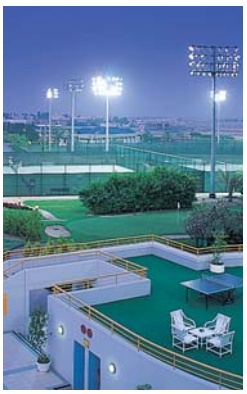
MBIL S

T7
MOL = 256mm
Effective arc length = 168mm
Base = RSC (RX7s)

Y1

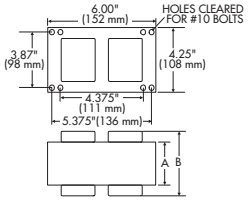
MBIL S

T8
MOL = 311mm
Effective arc length = 191mm
Base = *Custom
Contact Manufacturer



6 4x6 Core

CWA



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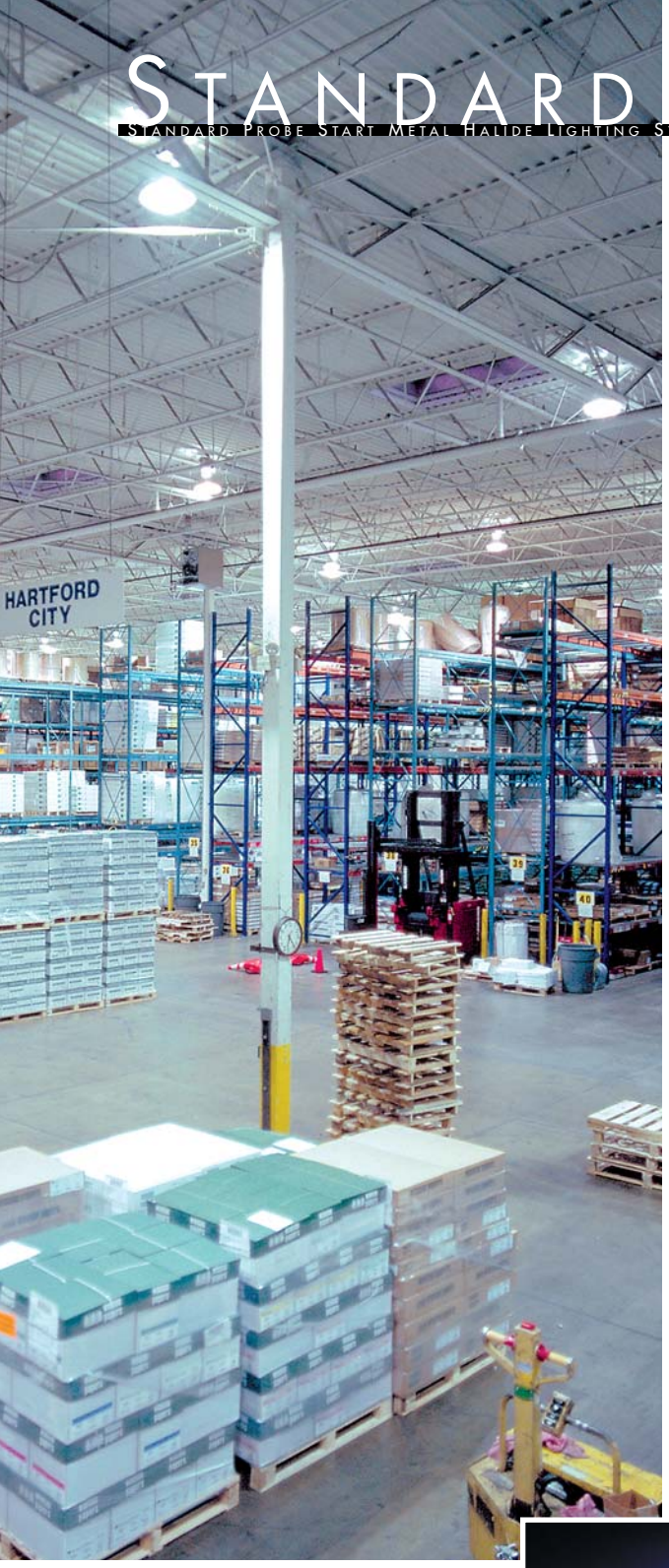
Standard Probe Start MH

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, quad and quint 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

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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

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	
MH 175W/U/T15	40335	14000	0.65	80	10000	4000K	65	Clear	U	B2	12	
MS 175W/HOR	57330	15000	0.65	86	10000	4000K	65	Clear	HOR±45°	Z1	12	
MS 175W/BU/MED	70310	15000	0.65	86	10000	4000K	65	Clear	BU±15°	A1	12	
MS 175W/BU	55087	15000	0.65	86	10000	4000K	65	Clear	BU±15°	C1	12	
MS 175W/C/BU/3K	20981	13600	0.65	78	10000	3200K	70	Coated	BU±15°	C1	12	
MH 175W/U/5K	79881	12000	0.65	69	7500	5000K	75	Clear	U	C1	12	
MH 175W/U/T15/10K	70136	-	-	-	8000	10000K	65	Clear	U	B2	12	

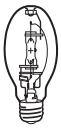
175 WATT MAGNETIC BALLASTS 60Hz ANSI M57

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
120/208/240/277	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
120/277/347	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
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
120/240	V90E6150	CWI	225	1.90/0.95	B/B	W	4	2.65	4.13	9.0	9/520	B5	Oil
208/120T	V90P6150T	CWI	226	1.10	C	P	4	2.65	4.13	9.0	9/520	B5	Oil
600	V90Z6150	CWI	226	0.40	D	O	4	2.65	4.13	9.0	9/520	B5	Oil

A1 ED17

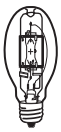
Dia. = 2.1" (54mm)
MOL = 5.4" (138mm)
LCL = 3.4" (86mm)
Base = Medium (E26)

C1 ED28



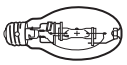
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (E39)

D1 ED28



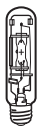
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (EX39)

Z1 ED28



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

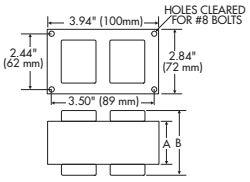
B2 T15



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

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	
MH 250W/U/5K	27252	19000	0.65	76	7500	5000K	75	Clear	U	D1	12	
MS 250W/HOR/T15	88353	23000	0.65	92	10000	4000K	65	Clear	HOR±45°	D2	12	
MH 250W/U/T15/10K	63897	-	-	-	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
120/208/240/277/480	V90AM6215	CWA	284	2.50/1.55/1.30/1.10/0.65	A/A/A/A/B	E2	5	1.60	3.35	9.8	15/400	A13	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
120/208/240/277	V90D6211	CWA	291	2.60/1.45/1.30/1.10	B/A/C/B	H	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	A13	Dry/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
480/120T	V90Y6212T	CWA	295	0.63	B	B	5	1.55	3.35	8.8	15/400	A13	Dry/Oil
480	V90Y6211	CWA	288	0.60	D	B	4	3.00	4.40	9.1	15/360	A13	Dry/Oil
120/240	V90E6250	CWI	303	2.60/1.30	A/A	W	5	2.16	3.75	14.0	12/480	B12	Oil
208/120T	V90P6250T	CWI	303	1.50	A	P	5	2.16	3.75	14.0	12/480	B12	Oil
600	V90Z6250	CWI	303	0.50	D	O	5	2.16	3.75	14.0	12/480	B12	Oil

Applications

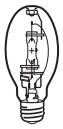
- Floodlighting
- Warehouse
- Parking Garage
- Architectural Downlighting
- Site Lighting

Ballast Options

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

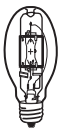
Cap. and Ignitor Fig.: pg. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

C1 ED28



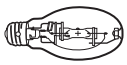
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (E39)

D1 ED28



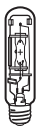
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul (EX39)

Z1 ED28



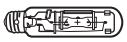
Dia. = 3.5" (90mm)
MOL = 8.3" (211mm)
LCL = 5.0" (127mm)
Base = Mogul POMB (EP39)

B2 T15



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

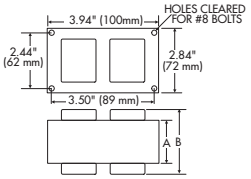
D2 T15



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

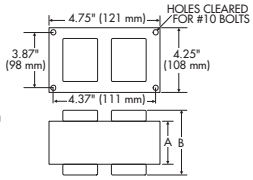
4 3x4 Core

CWA/CWI



5 4x4 Core

CWA/CWI



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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

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	-	-	-	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/BU/ED28	40013	40000	0.65	100	20000	4000K	65	Clear	BU±15°	C1	12	
MS 400W/HOR	40509	40000	0.65	100	20000	4000K	65	Clear	HOR±45°	A2	6	
MS 400W/C/HOR	64648	38000	0.65	95	20000	3700K	70	Coated	HOR±45°	A2	6	
MS 400W/C/HOR/ED28	24573	38000	0.65	95	20000	3700K	70	Coated	HOR±45°	Z1	12	
MH 400W/U/T15	55422	36000	0.65	90	15000	4000K	65	Clear	U	C2	12	
MS 400W/HOR/T15	55100	40000	0.65	100	15000	4000K	65	Clear	HOR±45°	E2	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
120/208/240/277/480	V90AM6411	CWA	457	4.00/2.40/2.00/1.70/1.00	C/E/E/D/E	E2	5	2.15	4.20	11.4	24/365	A13	Dry/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
120/277/347	V90J6414	CWA	454	4.00/1.75/1.40	C/D/D	M	5	2.15	4.20	10.5	24/360	A13	Dry/Oil
480/120T	V90Y6413T	CWA	457	1.00	E	V1	5	2.15	4.10	11.5	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
208/120T	V90P6450T	CWI	475	2.35	C	P	5	3.50	5.50	21.0	19.5/520	B12	Oil
600	V90Z6450T	CWI	475	0.70	C	P	5	3.50	5.50	21.0	19.5/520	B12	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)

K1 T25

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

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)

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)

Q1 BT37

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

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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	MH 1000W/U/5K	35914	M47/E	80000	0.65	80	9000	5000K	75	Clear	U	I1	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

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)	Total Wt. (lbs)	Capacitor (µfd/Vmin)	Cap. Fig.	Cap. Type
1000	120/208/240/277/480	V90AM6514	M47	CWA	1080	9.40/5.45/4.60/4.05/2.40	E/E/D/D/D	E2	6	3.00	5.15	19.0	24/480	A13	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	B12	Oil
1000	220/240	V905R6510	M47	CWA	1068	4.85/4.60	A/A	C2	6	3.20	5.90	23.0	28/480	B12	Oil
1000	480/120T	V90Y6517T	M47	CWA	1085	2.30	D	V1	6	2.80	4.90	18.5	24/480	B12	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	120/230	V905AL6510	M47	CWA	1060	9.05/4.75	E/A	F2	6	3.20	5.20	19.7	26/500	B12	Oil
1000	230	V905AE6510	M47	CWA	1060	4.85	C	B	6	3.20	5.20	21.0	28/480	B12	Oil
1000	208	V90P6550T	M47	CWI	1100	5.70	C	P	6	4.50	6.00	31.0	24/480	B12	Oil
1000	120	V90B6517	M47	CWA	1085	9.00	D	B	6	2.80	4.90	16.5	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
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
1500	230/380/415	V905AF6610	M48	CWA	1600	7.30/4.40/4.00	D/D/D	B2	6	4.50	6.50	35.0	39/520	B14	Oil
1500	220/240	V905R6610	M48	CWA	1570	8.45/7.65	C/C	C2	6	4.50	6.50	31.0	39/520	B14	Oil
1500	480	V90Y6612T	M48	CWA	1625	3.40	E	V1	6	4.20	6.20	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

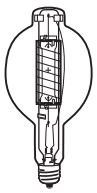
- Reduced jacket options
- Burn positions include universal, horizontal and vertical

Ballast Options

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

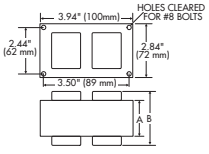
Cap. and Ignitor Fig.: pg. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113

M1 BT56

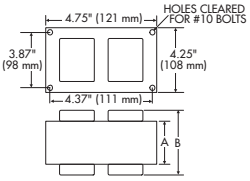


Dia. = 7.0" (180mm)
MOL = 15.4" (391mm)
LCL = 9.5" (241mm)
Base = Mogul (EX39)

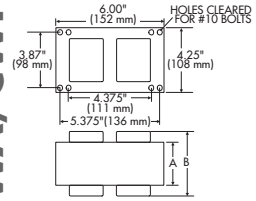
4 3x4 Core CWA/CWI



5 4x4 Core CWA/CWI



6 4x6 Core CWA/CWI



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Probe Start Metal Halide

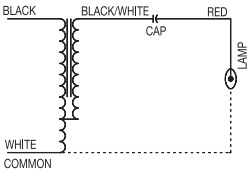
STANDARD PROBE START METAL HALIDE LIGHTING SYSTEMS

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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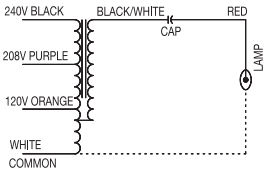

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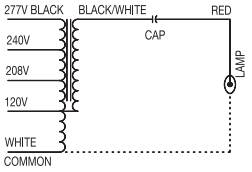

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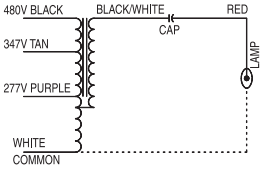

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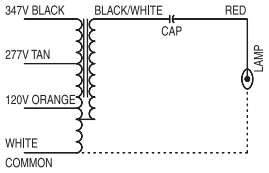

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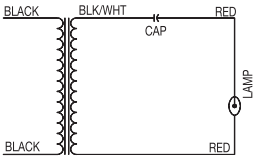

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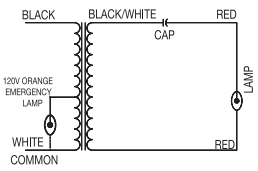

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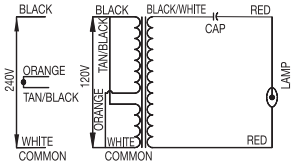

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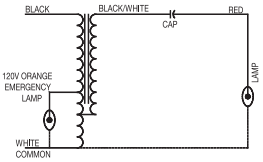

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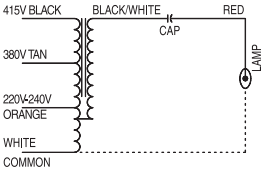
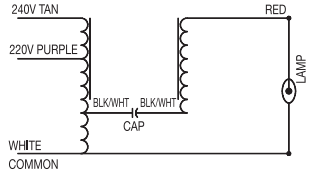
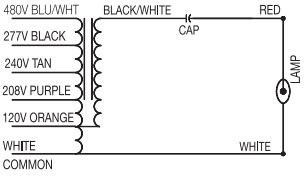


C2



E2



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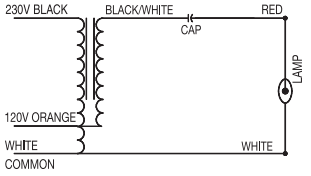

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High Pressure Sodium Ballasts

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

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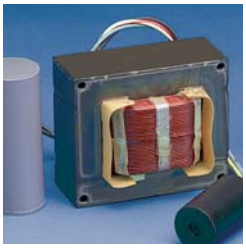
35W - 200W HPS Ballasts

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
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
347	V90V1030	HX-HPF	54	0.30	A	X	4	0.70	2.00	4.0	4.5/300	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
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
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

70 WATT High Pressure Sodium BALLASTS 60Hz ANSI S62

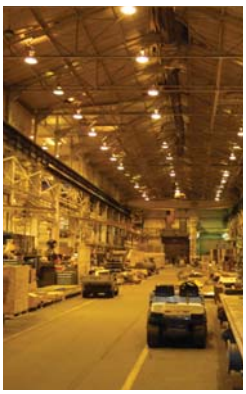
Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120	V90B1222	R-NPF	85	1.70	B	U1	2	1.29	2.55	3.0	-	-	N/A	D	12
120	V90B1222C	R-HPF	85	1.30	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	0.60	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



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250W - 1000W HPS Ballasts

High Pressure Sodium Systems

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)	Dimensions B (in)	Total Wt. (lbs)	Total Cap. (µfd/Vmin)	Cap. Fig.	Cap. Type	Ign. Fig.	Max. Dist.(ft)
120/208/240/277	V90D1610	CWA	240	2.00/1.20/1.00/0.90	C/C/C/C	E	5	1.20	3.00	8.4	28.0/240	A13	Dry	E	2
120/277/347	V90J1610	CWA	240	1.95/0.90/0.70	B/C/C	K	5	1.20	3.00	8.2	28.0/240	A13	Dry	E	2
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
347	V90V1650	CWI	241	0.75	F	N	5	1.33	3.00	10.0	22.5/330	A2	Dry	E	12
480	V90Y1610T	CWA	240	0.50	B	S1	5	1.20	3.00	8.4	28.0/240	A13	Dry	E	2

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)	Dimensions 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)	Dimensions 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
600	V90Z1950	CWI	470	0.80	D	N	5	2.45	4.30	14.6	45/330		Dry		2

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)	Dimensions 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

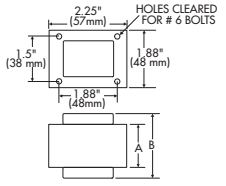
600 WATT High Pressure Sodium BALLASTS 60Hz ANSI S106

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions 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

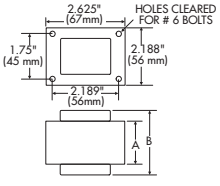
1000 WATT High Pressure Sodium BALLASTS 60Hz ANSI S52

Input Voltage	Product No.	Circuit Type	Input Watts	Max. Line Current	UL Coil Rise Code	Wiring Diag.	Fig.	Dimensions A (in)	Dimensions 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	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

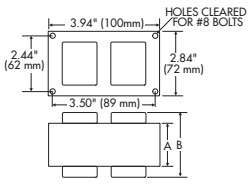
1 3/4 in Core — REACTOR



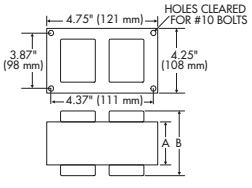
2 7/8 in Core — REACTOR



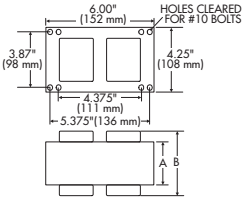
4 3x4 Core — HX/CWA/CWI



5 4x4 Core — CWA/CWI



6 4x6 Core — CWA/CWI



Applications

- Street Lighting
- Architectural Lighting
- Warehouses

Ballast Options

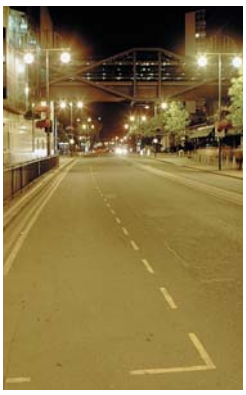
Add Suffix for Options:

C - With Capacitor (Standard)

K - With Capacitor and Bracket Kit

B - With Welded Bracket, No Cap

Cap. and Ignitor Fig.: pg. 113
Brackets and Kit Fig.: pg. 114
Wiring Dia.: pg. 112-113



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HPS Ballasts

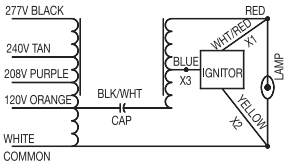
High Pressure Sodium Systems

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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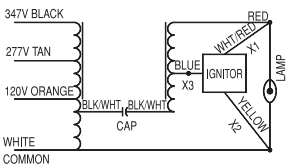

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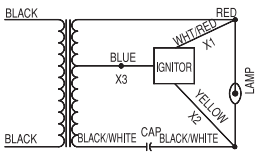

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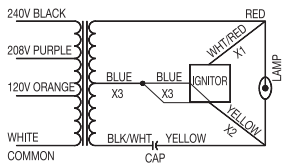

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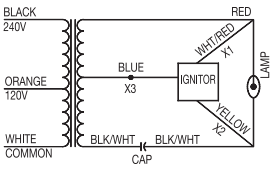

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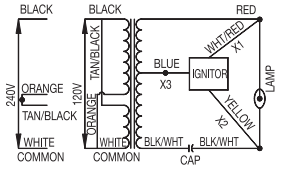

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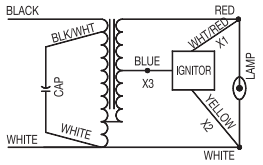

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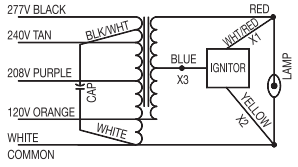

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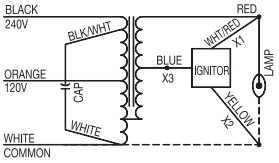

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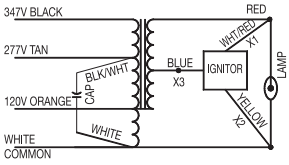

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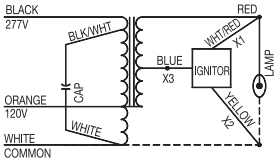

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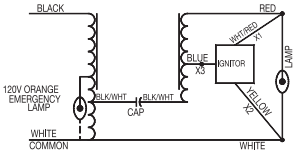

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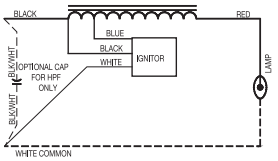

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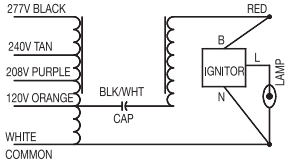

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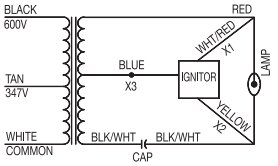

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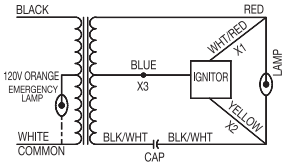

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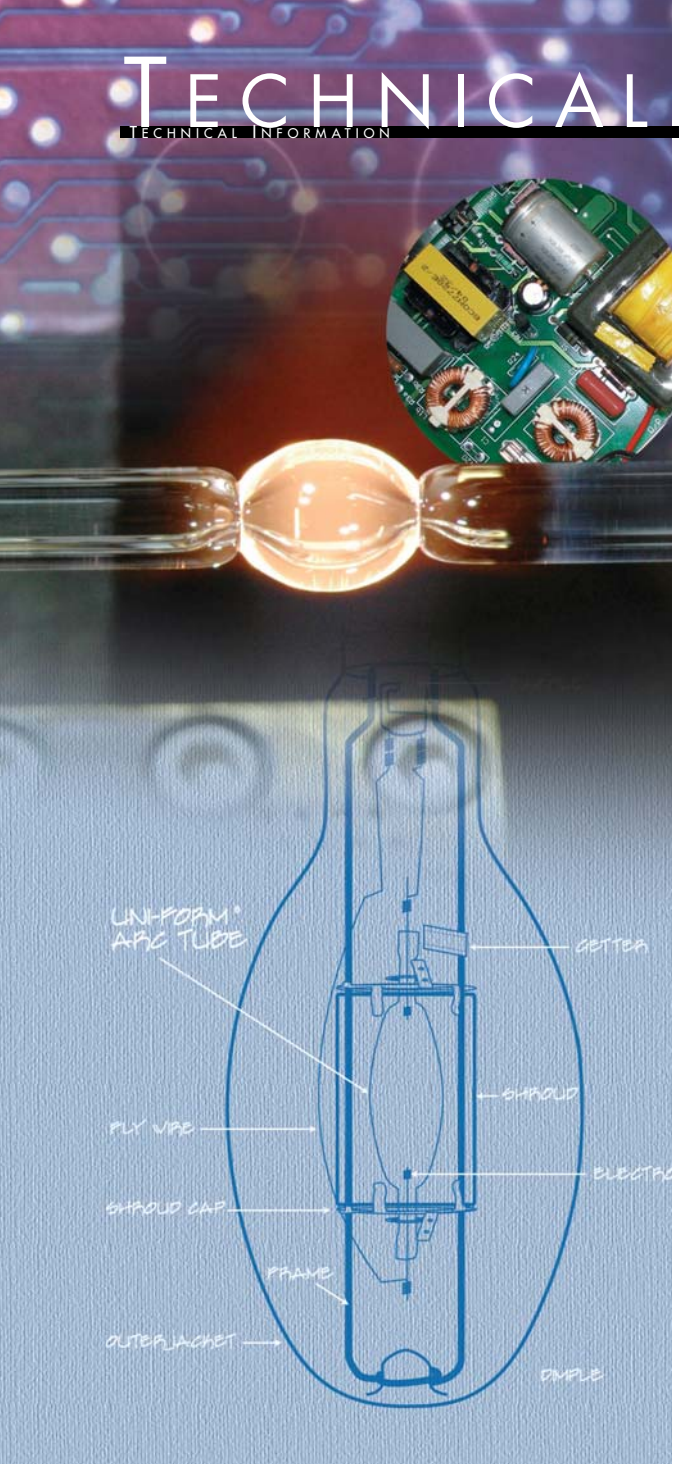

Introduction

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 Super Pulse Start Long Life (SPL) lamps have 40,000 hour life ratings.
- **Great Light Quality:** The output of metal halide lamps is close to natural sunlight. 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 65-90+ 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 123 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.

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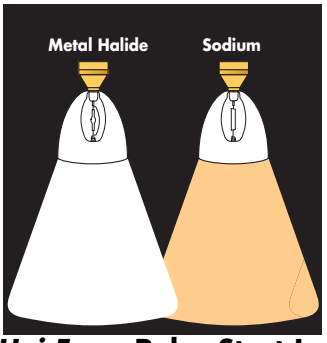
Comparison of Light Technology

TECHNICAL INFORMATION

Technology Goes Head-to-Head

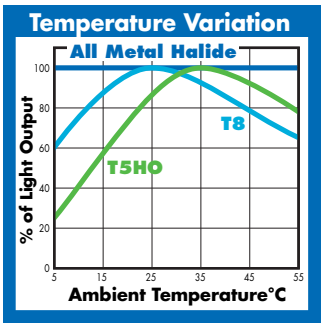
MH vs. HPS

While HPS lighting technology features good performance, it does not deliver the same light quality as metal halide lighting technology. Because of the 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.



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

MH vs. Fluorescent

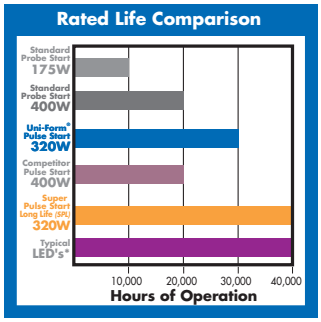


Less Temperature Variation

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

Fluorescent lamps are difficult to direct because of the large size. One 100 watt 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).

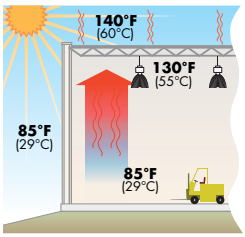
MH vs. LED



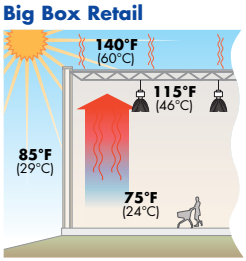
** Typical data is rated above 40,000 hours but there is inconclusive proof of validity of manufacturer's claims*

Venture's Super Pulse Start Long Life (SPL) family of lamps provides the same light performance of a typical pulse start metal halide product within its class, yet it delivers up to twice the life. The 40,000 hours achieved with SPL lamps is comparable to current LED claims; that equates to over ten years of life at ten 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 for indoor and outdoor projects, and it has become increasingly popular for sports facilities, supermarkets, building lobbies and big box stores. It is also ideal for industrial, commercial, retail and municipal spaces.

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 standard probe start metal halide lamps and ballasts, and the vast capabilities continue to improve. Venture offers *Uni-Form* lamps optimized for both vertical and horizontal operation.

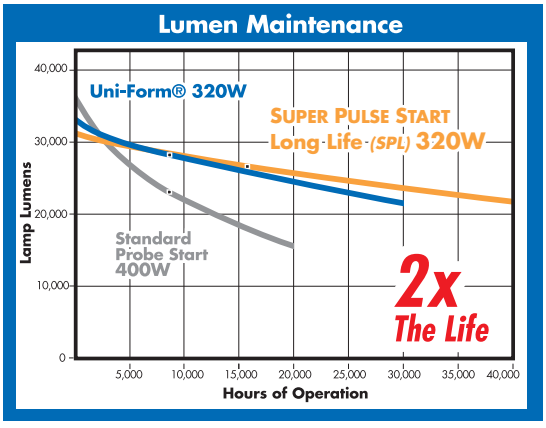
Uni-Form Pulse Start Lamp Technology

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 that is 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. Compared to standard CWA ballasts, energy losses are reduced by as much as 50%, 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 low current crest factor and electronic ballasts.

Longer Life

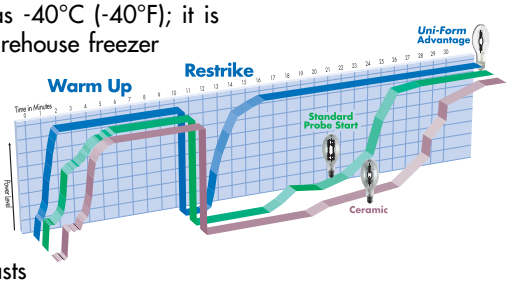
Uni-Form systems, like Venture's Super Pulse Start Long Life *(SPL)*, offer up to 100% longer lamp life with improved lumen maintenance. This directly benefits end users by reducing lifetime operating costs.

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 as low as -40°C (-40°F); it is ideal for winter weather or warehouse freezer conditions.

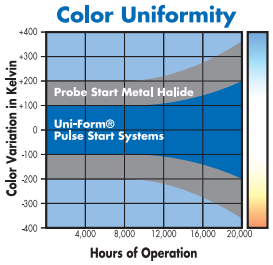


Faster Warm-Up/Restrike

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 times.

Improved Lamp Power Control

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



Quieter Operation

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

Ventronic™ Ballast For Improved Performance

Venture's *Ventronic* line of electronic ballasts sets the standard in ballast performance with an optimized current wave form. To maximize a 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 reduce energy costs. 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! That savings is achieved while still producing the same, or more, high quality light.

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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 8,000 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 ten or more hours per start (except where noted).

System Performance Factors in Lighting Design

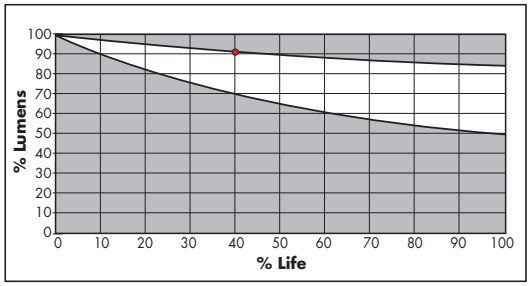
Optimized Conditions	*Light-Reducing Conditions*
Pulse start lamps	Standard probe start lamps
Designated V or H75 operating position	Universal operating positions
Operating cycles > 10 hours	Short operating cycles <10 hours
Low current crest factor (CCF) ballasts	High CCF ballasts
Clear lamps	Coated lamps
UV-blocking lamps	Non-UV-blocking lamps
Open luminaires	Enclosed luminaires

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.

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. 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.

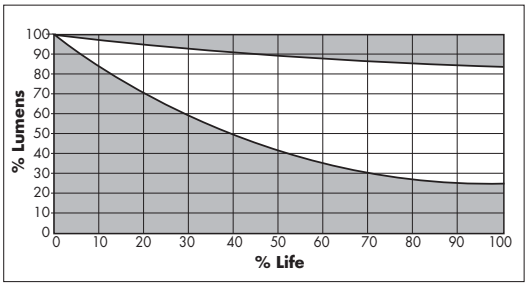
For example, Venture's *Uni-Form* lamps, operated on a low current crest factor single voltage hybrid reactor ballast with other optimized conditions, can be expected to deliver up to 90% mean lumens. In contrast, a standard probe start metal halide system operating under light-reducing conditions may deliver only 50% lumen maintenance.

Uni-Form® Pulse Start Lumen Maintenance



Even within the *Uni-Form* system, a range of lumen maintenance from 70% to 80% can be expected. 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



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.

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Lamp Technical Information

Spectral Energy Distribution

When humans look at a light source, the eye perceives a single color. In reality, it is 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 and 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 eight 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 two light sources with different CRI values, personal preference of color rendering and color temperature are important.

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.

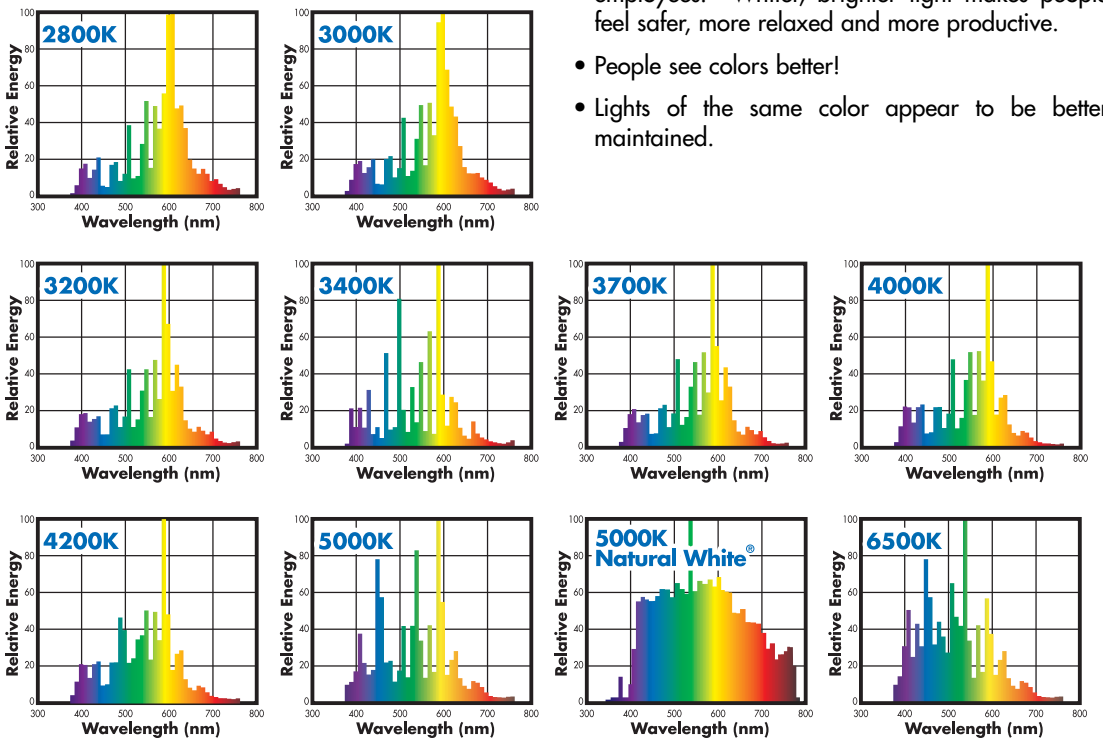
Color Shift and Variation

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.
- People see colors better!
- Lights of the same color appear to be better maintained.

Spectral Distribution



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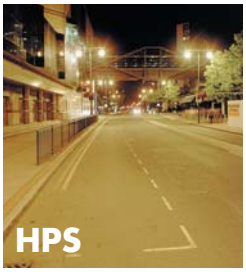
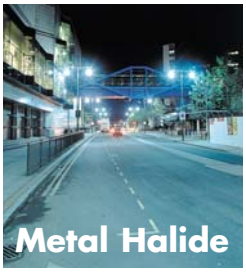
Lamp Technical Information





Lighting Design for Low Light Levels

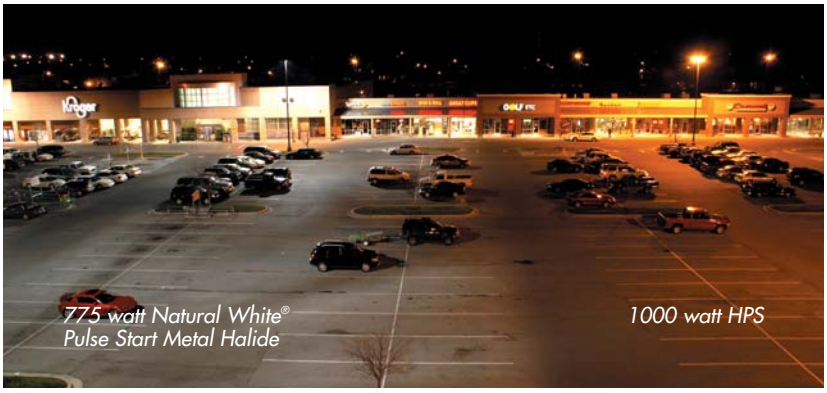
Studies on nighttime visibility demonstrate experimentally that the sensitivity of the human eye to different colors of light at various light levels determines the true, or effective, lumen output of a lamp. Recent research shows that the color output of a light source has a significant effect on nighttime 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. Almost all light meters measure photopic light levels.

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 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 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. They are sensitive to blue-green light. 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) and are responsible for seeing color. 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 and color
- 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 two 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 0.6. 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. Studies have shown that the S/P values, previously thought to be applicable only to nighttime conditions, can be used to describe the "effective lumens" of indoor lighting as well. For example, if two identical objects in two different rooms are lighted separately with 4000K and 5000K lamps to equal photopic luminance, the 5000K room may appear 18% brighter $(2.1/1.7)^{0.78}$.

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Lamp Technical Information

Eye Color Sensitivity And Lumens

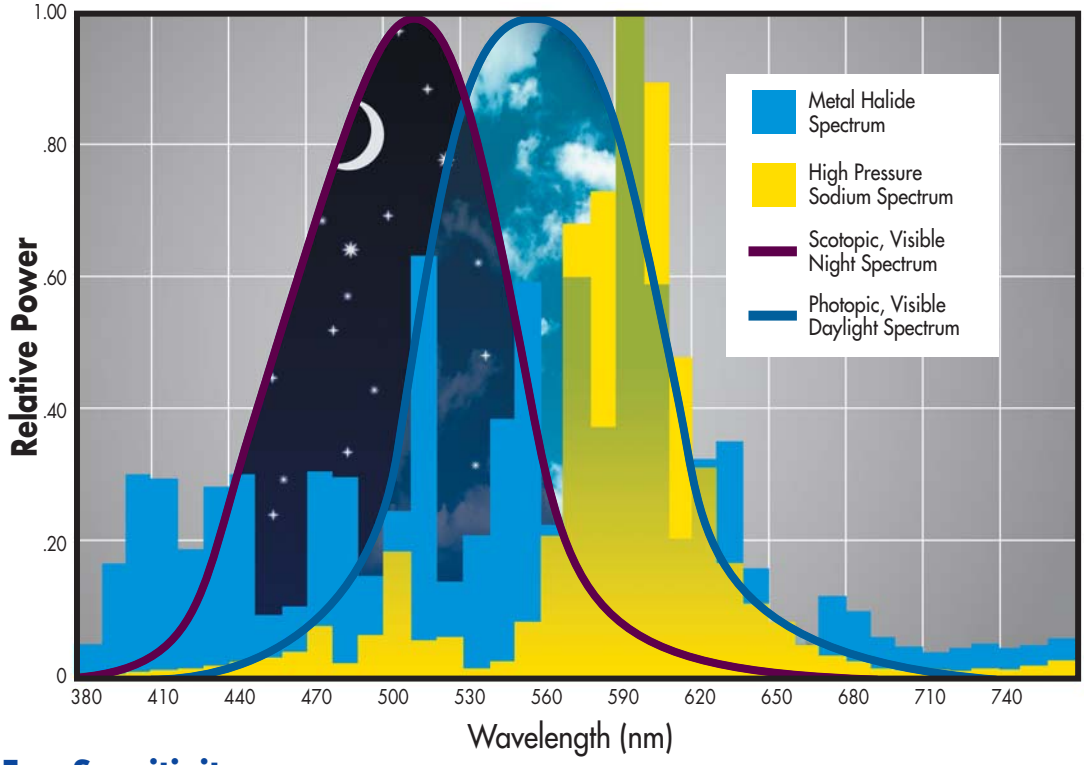
The value of a lamp's lumen output is different when considering the shifting color sensitivity of the eye at low light levels. The effective lumens will be different from the measured photopic lumens. As light diminishes from photopic to scotopic conditions, the effective lumens of yellow HPS light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

This effect is even more dramatic for low pressure sodium (LPS) lamps. Almost all the energy output from this type of 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; this leads to 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 blue/green peak sensitivity.

The ability to detect objects is also significantly better under metal halide light sources than sodium. In street lighting, driver reaction time under LPS and HPS lighting are roughly 50% slower than under metal halide lighting. 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 more effective than HPS. This can make a significant 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

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 and 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 is not 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 the lamp 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 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 the 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 previously 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.
- Operate Uni-Form® pulse start metal halide lamps on pulse start ballasts with sockets that can withstand a 4000 volt pulse. The substitution of standard probe start (non-pulse start) metal halide lamps will result in poor performance and is not recommended.
- A specially designed socket that 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. Wear safety glasses and gloves when installing or removing high intensity discharge lamps.
- Install lamp firmly, but not forcibly, into the socket to minimize loosening from 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/or 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 type of failure is significantly reduced by group re-lamping at or before the rated end of life (see Group Re-lamping). In any application where enclosed rated (Type-E) lamps are operated continuously (24 hours per day, seven days per week), the lamps should always be turned off for a period of at least 15 minutes each week; this precaution can reduce the possibility of violent failures. This procedure is not required with Venture's open rated (ANSI Type-O) shrouded lamps. These lamps are easily identified by the prefix "MP," "MPI," "MPL," "MPE," "MPSE" or "MPC" in the lamp description code.

Starting and Restarting Characteristics

Venture's Uni-Form® pulse start metal halide lamps 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; after starting, there is a time delay of at least three to six minutes 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 can be as short as three 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 standard probe start metal halide lamps.

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

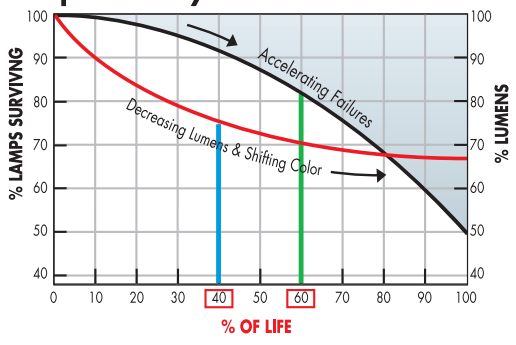
Operating Position

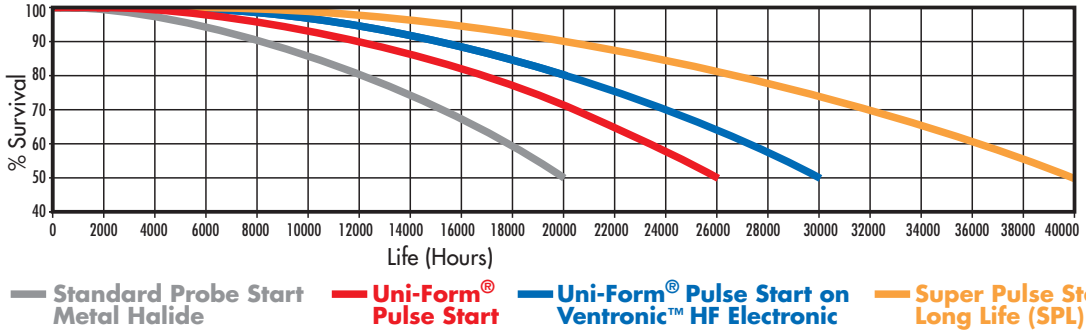
Various operating conditions affect lamp life. One key factor is operating position. Position-oriented lamps (designed to operate in one specific position) are tested and rated based on that designated position; operating these lamps in any other position can dramatically shorten life, reduce lumen output 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.

Lamp Mortality & Maintenance Curves





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Lamp Technical Information

Group Relamping

Effective Lighting Management

Group re-lamping offers significant savings in time and labor costs over spot replacing single 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 peak performance when a lighting installation is new. Many standard probe start metal halide lamps decrease to as low as 25% of initial light output by the end of rated life. A number of factors may accelerate this reduction in efficacy (lumens per watt). Group re-lamping 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 re-lamping saves time and helps maintain optimum light levels. A cleaner, well-lit environment increases safety and security, contributes to higher worker productivity and creates a better impression for visitors.

2) Aesthetic Quality:

The quality of light changes over economic life; 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.

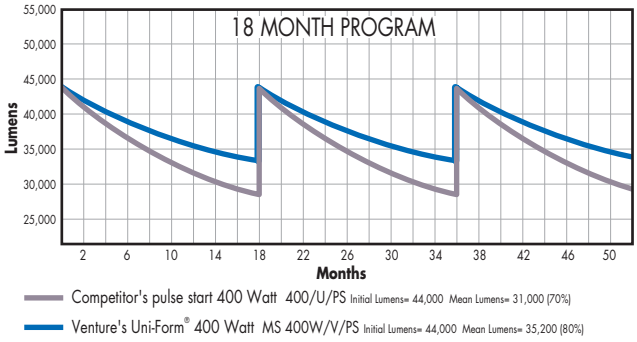
3) Optimum Energy Efficiency:

While the light output of a metal halide lamp decreases over the life span, the lamp will still consume the same (or sometimes more) electricity. Since energy is the largest cost of lighting, group re-lamping prevents almost half of the energy from being wasted by under-performing lamps. For example, a 400 watt lamp 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 re-lamping wastes energy dollars; the cost of a new lamp and the labor to install it as part of group re-lamping is generally less than 5% of the total energy cost.

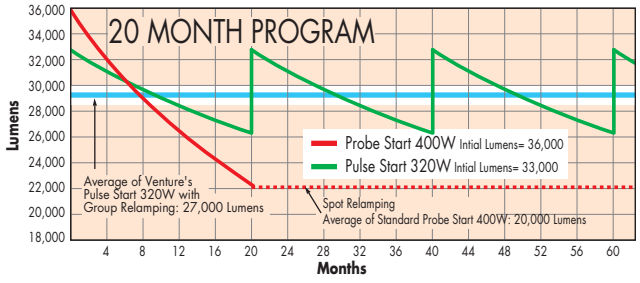
4) Cost Effective Replacement:

Group re-lamping, as a planned maintenance program, reduces labor costs and interference with facility operations. Spot re-lamping often takes an employee away from regular duties to replace a single burned out lamp; this inconvenience grows as lamp failures increase towards the end of rated life. Group re-lamping eliminates workday disruptions, allowing re-lamping to take place during normal shutdown periods. Also, group re-lamping at economic life is a practical way to sustain workers' visual acuity with a bright workplace environment.

MAINTENANCE PROGRAM
TYPICAL LAMP LUMEN PERFORMANCE



MAINTENANCE PROGRAM
TYPICAL LAMP LUMEN PERFORMANCE



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Technical Information

Open Rated Lamps

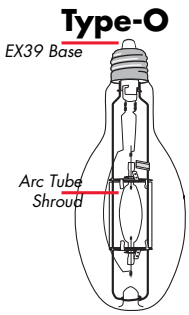
Open luminaires offer significant advantages over enclosed luminaires. They do not require cover lenses which reduce light output and accumulate dirt. In addition, enclosed luminaires make lamp replacements more difficult. For safety, open luminaires need open rated (ANSI Type-O) metal halide lamps.

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:

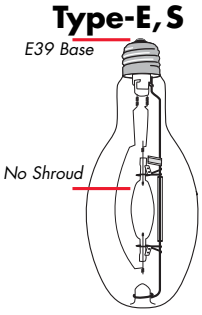


1. There is a shroud around the arc tube, which helps prevent damage to the outer bulb in the event of an arc tube rupture.

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

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," "MPSE" 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 new open luminaires, according to UL1598 and the NEC.

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

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 over 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 testing requirements for a rating of Type-O. Venture is building lighting systems with the safety of you and your customers in mind.

Venture's Open Rated Lamp Benefits

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

- Meet requirements of the UL1598 and the National Electric Code
- Meet ANSI criteria for a Type-O rating
- 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 with most wattages featuring Venture's UV Shield® technology
- Operate in open or enclosed luminaires

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 25-2008
2. FMGlobal Property Loss Prevention Data Sheets, 5–21, Rev. May 2001.

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Ballast Technical Information

Ballast Introduction

Venture Lighting focuses not only on metal halide lamps, but also on metal halide ballasts. The same level of passion for quality and performance is applied to Venture ballasts as is used when creating Venture lamps. To assure compatibility, refer to the Venture Lighting 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)

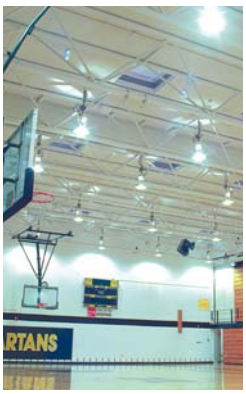
Standard probe start metal halide lamps utilize an auxiliary (i.e. probe) electrode in the arc tube to facilitate starting. The arc tubes are filled with a relatively low pressure of argon gas. Breakdown occurs when several hundred volts are applied. The lower the fill pressure, the lower the breakdown voltage; 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 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 hybrid single voltage 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 hybrid single voltage reactor and HX ballasts minimize the same.

Ballast Types

Venture makes a full line of high performance ballasts for metal halide and HPS lamps. Venture's hybrid single voltage 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. The ballasts 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, OEM's 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

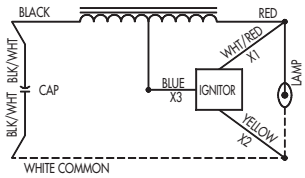
Venture has the *Ventronic* line of HF ballasts for mid-wattage lamps. Venture continues to investigate a number of exciting performance phenomena. Lamps operating on electronic ballasts provide higher maintained lumens over life; this is a rapidly evolving topic. Look to Venture's website for new developments.

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	No	No	Yes

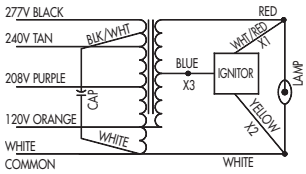
Hybrid Single Voltage Reactor

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. See page 108 for examples.

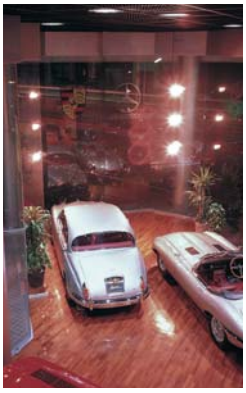


High Reactance Autotransformer (HX-HPF) Ballasts

These are two coil ballasts consisting of a primary winding that provides the voltage transformation for OCV requirements and 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 the 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, these provide more consistent lamp-to-lamp color than CWA ballasts. The HX-HPF ballasts can also 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.



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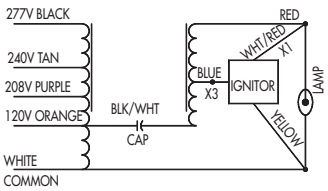
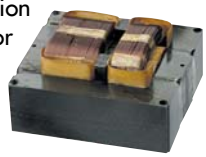
Constant Wattage Autotransformer (CWA)

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.



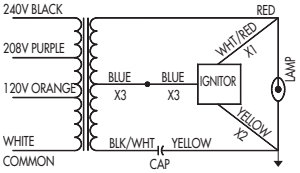
CWA ballasts have two coils. One acts as an autotransformer with multiple input taps, and a second provides inductance that, in series with a capacitor, controls lamp current. In pulse start designs, the capacitor usually connects between the primary and secondary coils. A tap near the lamp output on the secondary coil is connected to the ignitor circuit.

"Constant Wattage" is actually a misnomer. The circuit provides constant current to the lamp, and 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 manifests 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, but 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 but 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

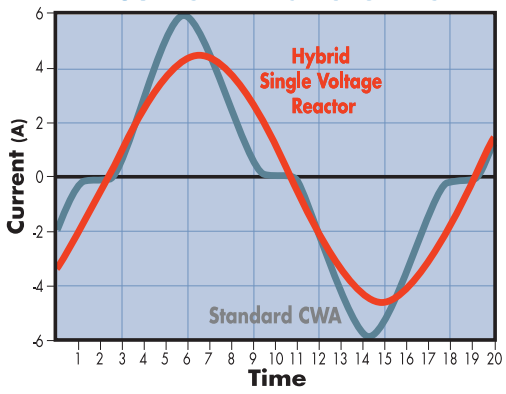
Ballast Performance

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 hybrid single voltage 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) 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, hybrid single voltage 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

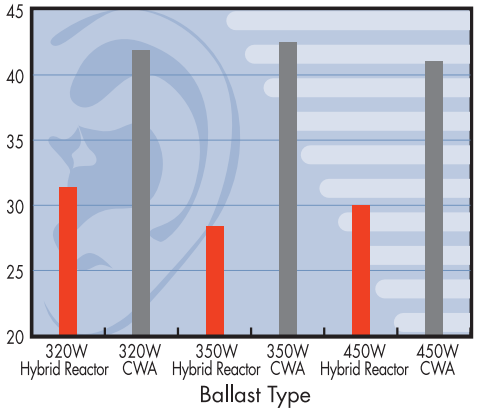
By definition, lamp voltage regulation is the change in lamp wattage divided by the corresponding change in lamp voltage initially and during life.

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 hybrid single voltage 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



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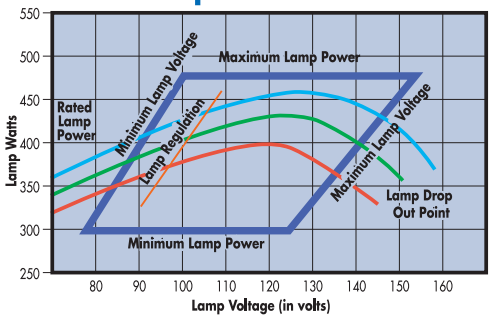
Lamp Starting

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 as little as 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.

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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 benefits of simplicity and low cost.

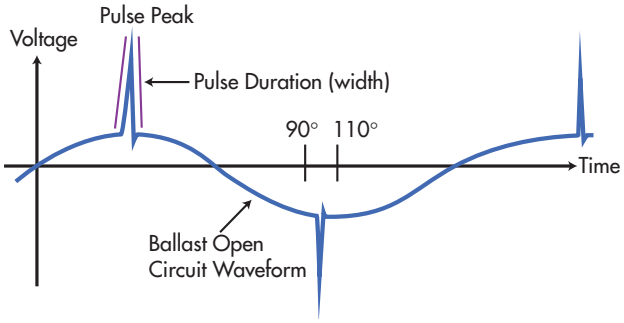
The second ignitor circuit consists of a capacitor charging circuit and a voltage sensitive switch. It connects to a tap on the output inductive element of the ballast and uses it as a high frequency pulse transformer. This circuit works with both lag and CWA ballasts. It is the most common type of ignitor used in North America and is growing in popularity internationally, and it offers 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 benefits 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, and it can be used with any ballast type. This is the most commonly used circuit internationally. It 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 2-15 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.



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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, the 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 (2012) Rule 30-308] requires that screw shells of lamp holders be connected to the grounded conductor of the electrical system. Luminaires supplied by 208, 240, 480 or 600V circuits that do not incorporate a grounded circuit conductor, must use an isolating-type ballast (CWI) with the screw shell separately bonded to ground. An exception to this rule is allowed when a luminaire has some means to remove the shock hazard by preventing contact with a live screw shell (ex. socket guard).

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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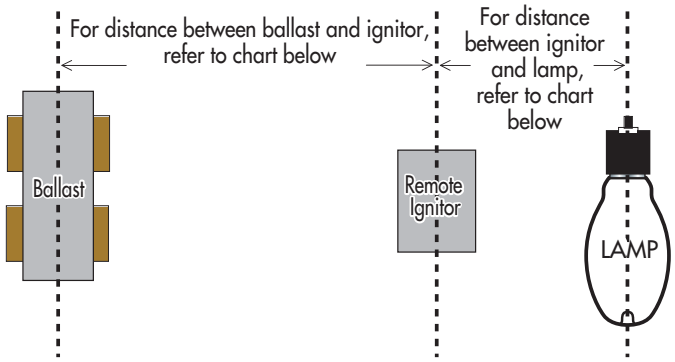
Remote Mounting

The ballast-to-lamp (BTL) distance that metal halide lamps and ballasts 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

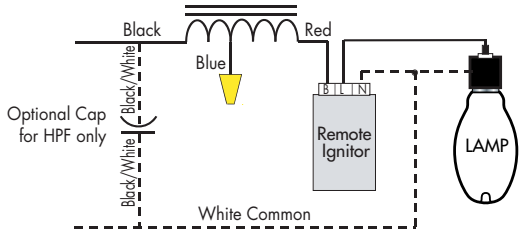
NOTE 1: A minimum 5KV pulse rated lamp socket must be used.
2: Mount ignitor within 10 feet of lamp.

High Pressure Sodium Lamps

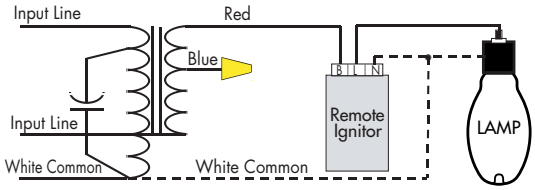
Lamp Wattage	ANSI Code	AWG 10	AWG 12	AWG 14	AWG 16	AWG 18	Remote Ignitor for HPS
600W HPS	S106	105	70	45	25	N/A	BVS046
1000W HPS	S52	290	180	115	70	45	BVS002

NOTE 1: A minimum 5KV pulse rated lamp socket must be used.
2: Mount ignitor within 15 feet of lamp.

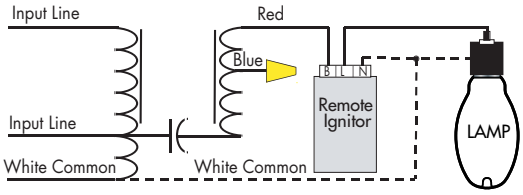
Typical Hybrid Reactor Wiring Diagram with Remote Ignitor



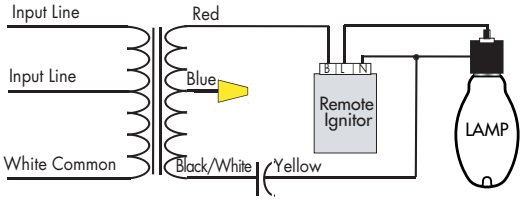
Typical HX Wiring Diagram with Remote Ignitor



Typical CWA Wiring Diagram with Remote Ignitor



Typical CWI Wiring Diagram with Remote Ignitor



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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 normal operating current of the ballast. Then divide the current rating of the circuit breaker by the higher of either the open circuit current or the normal operating current of the ballast. The correct number of ballasts on a circuit is the smaller number of ballasts of the two calculations. 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; 20 Amp Breaker

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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Lamp Diagrams

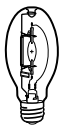
A ED17

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

B EDX17

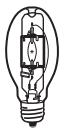
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)
Narrow Neck

C ED28



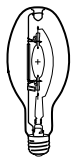
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

D ED28



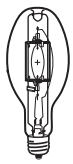
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

E ED37



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

F ED37

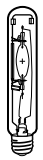


Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

G T15

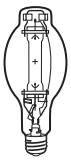
Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

I T15



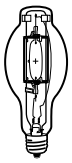
Dia. = 1.9″ (46mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

J BT37



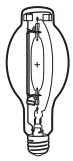
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

K BT37



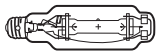
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

M BT37



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

N T25



Dia. = 3.1″ (76mm)
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)

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 PAR30L

Dia. = 3.8″ (97mm)
MOL = 4.5″ (114mm)
Base = Medium (E26)

X T9

Dia. = 1.1″ (28mm)
MOL = 7.4″ (188mm)
LCL = 3.5″ (90mm)
Base = PGZ18

Y T12

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

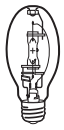
Z G12

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

A1 ED17

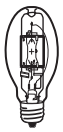
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

C1 ED28



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

D1 ED28



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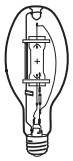
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

E1 ED37

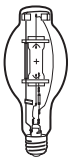


Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

F1 T15

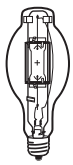
Dia. = 2.0″ (52mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

G1 BT37



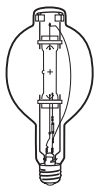
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

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)

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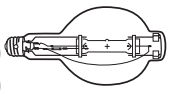
Lamp Diagrams

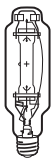
TECHNICAL INFORMATION

J1 BT56



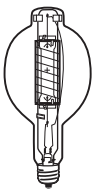
Dia. = 7.0″ (180mm)
MOL = 15.3″ (391mm)
LCL = 9.5″ (241mm)
Base = Mogul POMB (EP39)

K1 T25



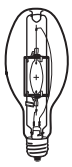
Dia. = 3.1″ (79mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

M1 BT56



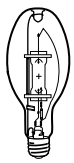
Dia. = 7.0″ (180mm)
MOL = 15.4″ (391mm)
LCL = 9.5″ (241mm)
Base = Mogul (EX39)

N1 ED37



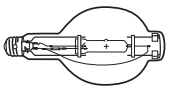
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 5.9″ (149mm)
Base = Mogul (EX39)

O1 ED37



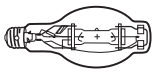
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 5.9″ (150mm)
Base = Mogul (E39)

P1 BT56



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

Q1 BT37

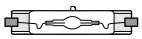


Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul POMB (EP39)

R1 MH-DE

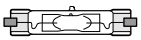
T6
Dia. = 20mm
Insertion Length = 117.6mm
Contact to Contact = 114.2mm
Base = RSC (R7s)

S1 MH-DE



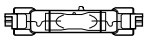
T7
Dia. = 23mm
Insertion Length = 135.4mm
Contact to Contact = 132.0mm
Base = RSC (R7s)

T1 MH-DE



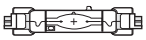
T8
Dia. = 25mm
Insertion Length = 161.3mm
Contact to Contact = 157.9mm
Base = RSC (RX7s)

U1 MH-DE



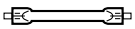
T8
Dia. = 25mm
Distance between cap reference planes = 139mm +0, -1
Base = Fc2

V1 MH-DE



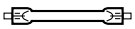
T8
Dia. = 25mm
Distance between cap reference planes = 139mm +0, -1
Base = Fc2

W1 MBIL S



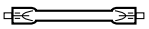
T5
MOL = 256mm
Effective arc length = 183mm
Base = RSC (RX7s)

X1 MBIL S



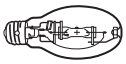
T7
MOL = 256mm
Effective arc length = 168mm
Base = RSC (RX7s)

Y1 MBIL S



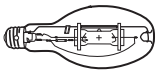
T8
MOL = 311mm
Effective arc length = 191mm
Base = *Special, Contact Manufacturer

Z1 ED28



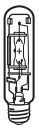
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul POMB (EP39)

A2 ED37



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

B2 T15

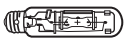


Dia. = 1.9″ (46mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

C2 T15

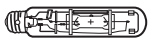
Dia. = 2.0″ (52mm)
MOL = 9.8″ (248mm)
LCL = 5.8″ (146mm)
Base = Mogul (E39)

D2 T15



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

E2 T15

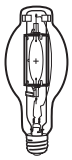


Dia. = 2.0″ (52mm)
MOL = 9.8″ (248mm)
LCL = 5.8″ (146mm)
Base = Mogul POMB (EP39)

F2 T15

Dia. = 2.0″ (52mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

H2 BT37

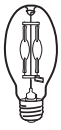


Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

I2 ED17

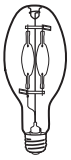
Dia. = 2.1″ (54mm)
MOL = 5.4″ (138mm)
LCL = 3.4″ (86mm)
Base = Medium (E26)

J2 ED28



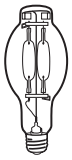
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

K2 ED37



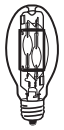
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (E39)

L2 BT37



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

M2 ED28

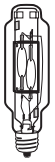


Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

N2 PAR20

Dia. = 2.5″ (64mm)
MOL = 3.6″ (91mm)
Base = Medium (E26)

O2 T25



Dia. = 3.1″ (76mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

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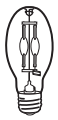
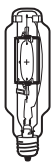
Lamp & Ballast Diagrams

P2 ED23.5



Dia. = 3.0″ (76mm)
MOL = 7.5″ (190mm)
LCL = 5.0″ (127mm)
Base = Mogul (E39)

Q2 T25



Dia. = 3.1″ (76mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

R2 T6

Dia. = 0.8″ (20mm)
MOL = 4.3″ (110mm)
LCL = 2.2″ (56mm)
Base = G12

S2 T6C

Dia. = 0.8″ (20mm)
MOL = 5.6″ (143mm)
LCL = 2.6″ (66mm)
Base = PGZ12

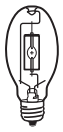
T2 T6C

Dia. = 0.8″ (20mm)
MOL = 5.9″ (150mm)
LCL = 2.6″ (66mm)
Base = PGZ12

U2 T6

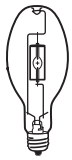
Dia. = 0.8″ (20mm)
MOL = 4.0″ (102mm)
LCL = 2.2″ (56mm)
Base = G12

V2 ED28



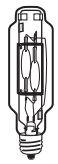
Dia. = 3.5″ (90mm)
MOL = 8.3″ (211mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

W2 ED37



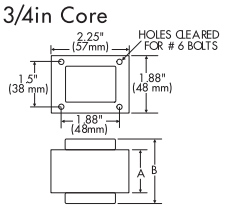
Dia. = 4.6″ (120mm)
MOL = 11.5″ (292mm)
LCL = 7.0″ (178mm)
Base = Mogul (EX39)

X2 T25

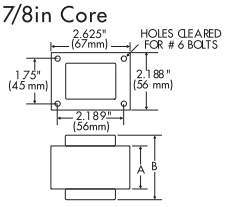


Dia. = 3.1″ (76mm)
MOL = 11.5″ (292mm)
LCL = 5.0″ (127mm)
Base = Mogul (EX39)

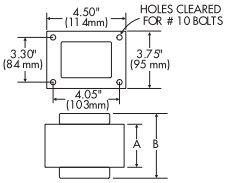
1 3/4in Core — REACTOR



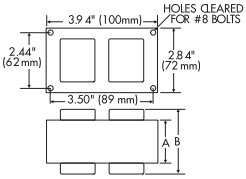
2 7/8in Core — REACTOR



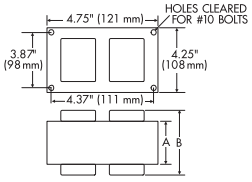
3 3¾ x 4½ Core — REACTOR



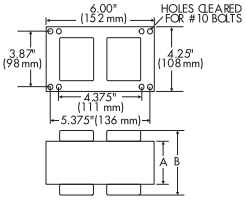
4 3x4 Core — HX/CWA/CWI



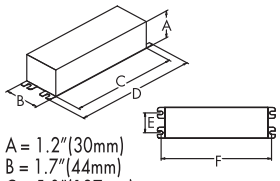
5 4x4 Core — HX/CWA/CWI



6 4x6 Core — HX/CWA/CWI

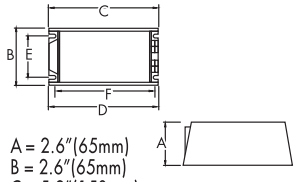


8 VEN6-XXXD-ME — VENTRONIC



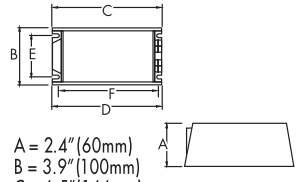
A = 1.2″(30mm)
B = 1.7″(44mm)
C = 5.0″(127mm)
D = 5.5″(140mm)
E = 1.0″(26mm)
F = 5.3″(135mm)

9 VEN6-XXXL-CWPMLS, VEN6-XXXB-PMLS — VENTRONIC



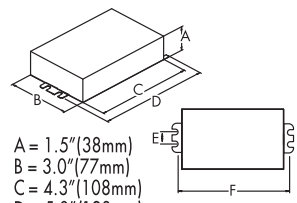
A = 2.6″(65mm)
B = 2.6″(65mm)
C = 5.9″(150mm)
D = 5.9″(150mm)
E = 1.8″(47mm)
F = 5.4″(136mm)

10 VEN6-XXXB-CWPTLS — VENTRONIC



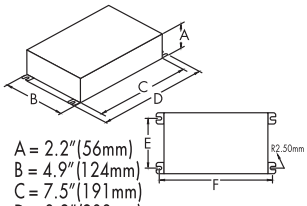
A = 2.4″(60mm)
B = 3.9″(100mm)
C = 6.5″(166mm)
D = 6.5″(166mm)
E = 3.2″(82mm)
F = 6.1″(156mm)

11 VEN6-XXXD-MD — VENTRONIC



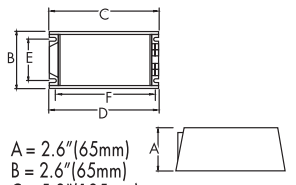
A = 1.5″(38mm)
B = 3.0″(77mm)
C = 4.3″(108mm)
D = 5.0″(128mm)
E = 0.7″(19mm)
F = 4.6″(118mm)

13 VEN6-XXXL-MRD5 — VENTRONIC



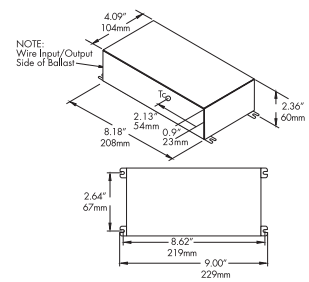
A = 2.2″(56mm)
B = 4.9″(124mm)
C = 7.5″(191mm)
D = 8.2″(208mm)
E = 3.4″(86mm)
F = 7.7″(196mm)

14 VEN6-XXXL-PNLS — VENTRONIC



A = 2.6″(65mm)
B = 2.6″(65mm)
C = 5.3″(135mm)
D = 5.3″(135mm)
E = 1.8″(47mm)
F = 4.9″(126mm)

16 VEN8-XXXL-XX — VENTRONIC



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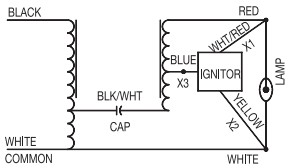
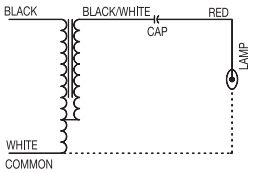
Ballast Wiring Diagrams

A



B



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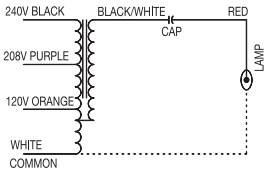

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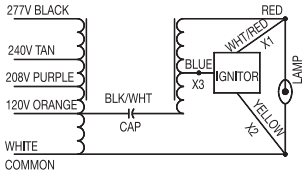

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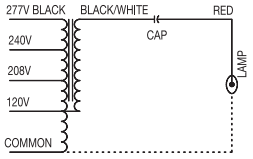

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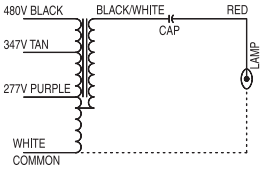

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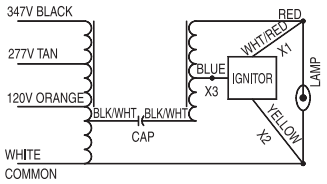

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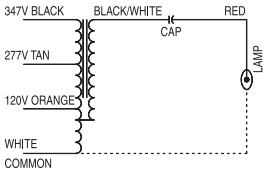

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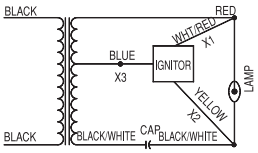

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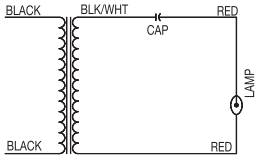

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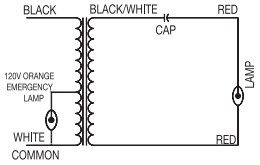

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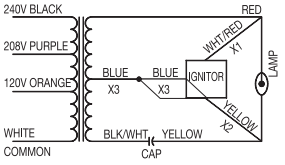

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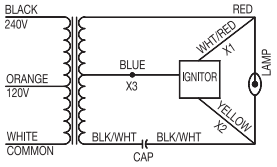

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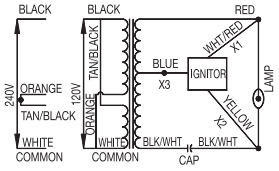

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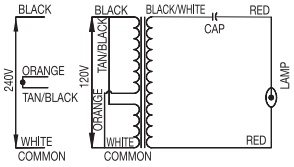

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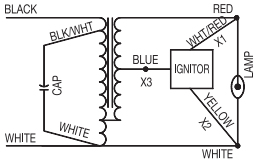

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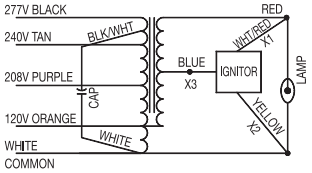

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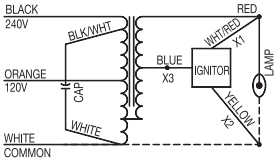

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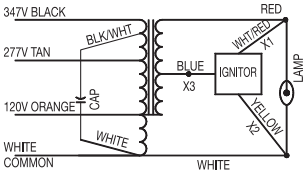

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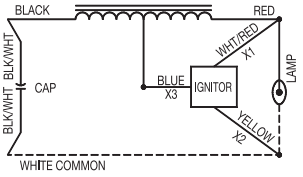

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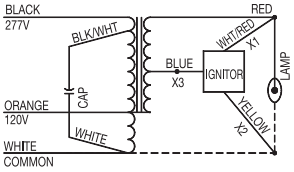

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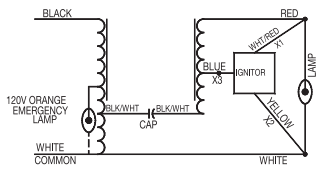

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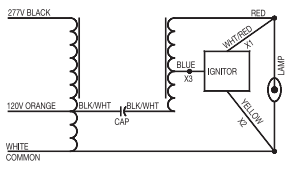

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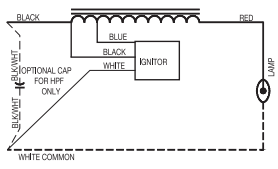

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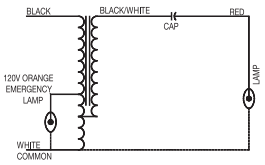
Ballast Wiring Diagrams

TECHNICAL INFORMATION

V1



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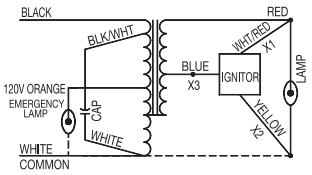

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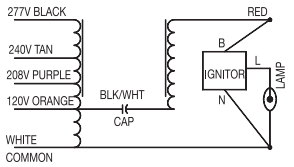

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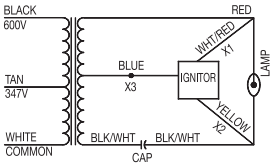

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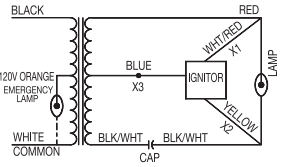

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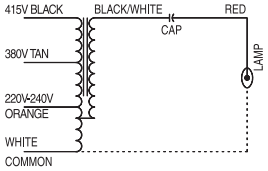

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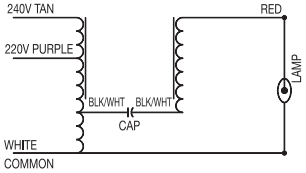

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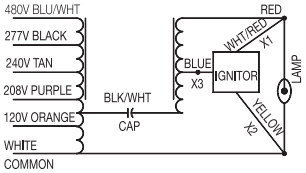

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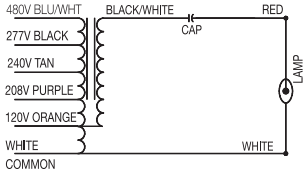

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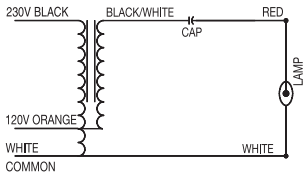
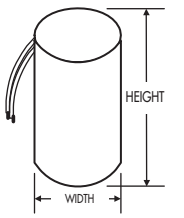


Capacitors and Ignitors

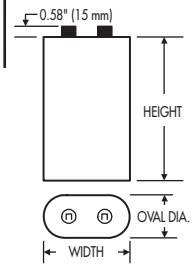
TECHNICAL INFORMATION

A CAPACITOR– DRY FILM



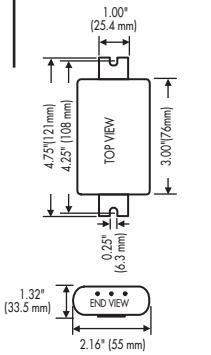
	(Inches) HT	WD
A1	3.93	1.38
A2	3.93	1.60
A3	3.93	1.75
A4	4.88	1.75
A5	2.73	1.38
A6	2.73	1.49
A7	3.93	1.49
A8	4.88	1.97
A9	2.93	1.38
A10	4.88	1.49
A13	3.69	1.80
A14	4.60	1.75

B CAPACITOR– OIL FILLED

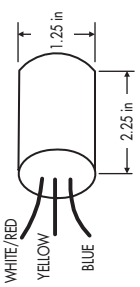


	(Inches) HT	DIA	WD
B1	3.00	1.97	2.97
B2	3.25	1.62	2.75
B3	3.68	1.97	2.97
B4	3.37	1.97	2.97
B5	3.87	1.62	2.75
B6	4.00	1.97	2.97
B7	3.37	1.62	2.75
B8	2.87	1.97	2.97
B9	4.00	1.97	2.97
B10	4.94	2.03	3.72
B11	6.00	2.03	3.72
B12	4.37	1.97	2.97
B13	3.87	1.97	2.97
B14	4.44	2.03	3.72
B15	4.37	2.03	3.72
B16	4.37	2.03	3.72
B17	3.00	1.62	

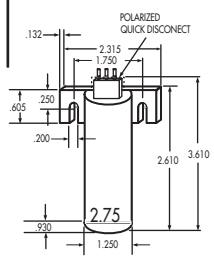
C IGNITOR– OVAL



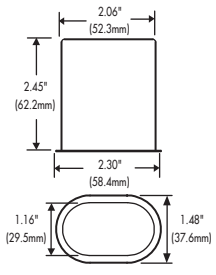
D IGNITOR– ROUND



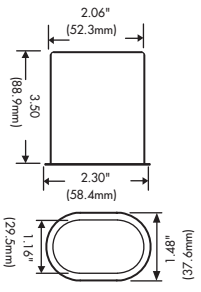
E IGNITOR– ROUND



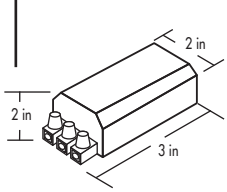
F IGNITOR– OVAL



G IGNITOR– OVAL



H IGNITOR- BVS-046



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Brackets

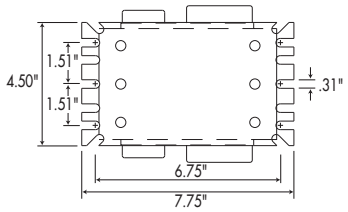
TECHNICAL INFORMATION

Core & Coil Welded Brackets

These brackets are supplied as an option by adding a "B" suffix to the ballast product number

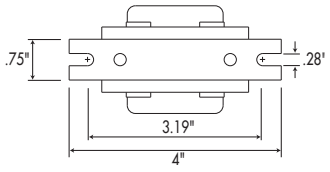
1500-2000W
4 x 6 Core T&L

A



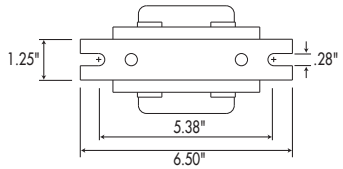
Small Core E&I Reactors
(3/4, 7/8, and 1 in)

B



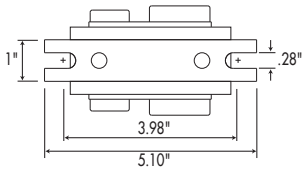
4 x 4, 4 x 6 Core T&L
3.75 x 4.5 Core E&I Reactors

C



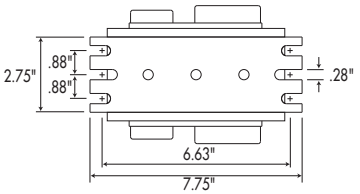
3 x 4 Core T&L

D



2x400W-1000W
4 x 6 Core T&L

E

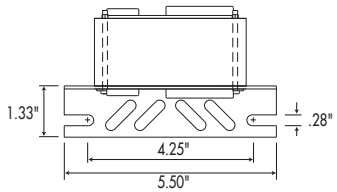


Core & Coil Adjustable Mounting Brackets

(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

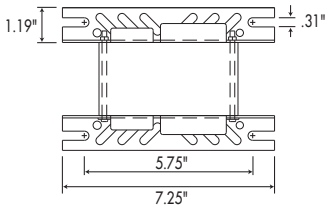
3 x 4 Core T&L
Small Core E&I Reactors (3/4, 7/8, and 1")

F



4 x 4, 4 x 6 Core T&L
3.75 x 4.5 Core E&I Reactors

G

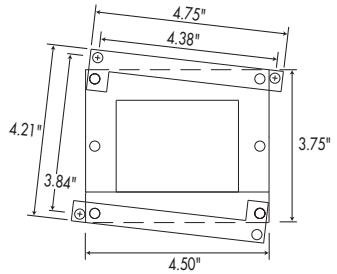


Core & Coil Adapter Mounting Bracket Kits

These brackets along with appropriate hardware are available in kits

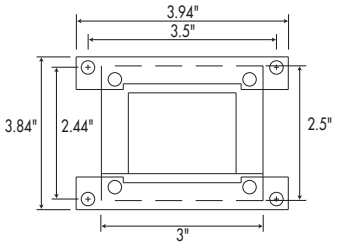
BCK-015
To mount 3.75 x 4.5 Core E&I Reactors in fixtures with a 4 x 4 T&L footprint

H



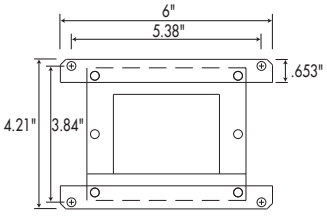
BCK-016
To mount 1" Core E&I Reactors in fixtures with a 3 x 4 T&L footprint

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

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 (quartz and ceramic), 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

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

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.

LeafNut™: A wireless lighting control system that gives the user the ability to control, adjust, monitor and communicate with each light fixture. See pages 12, and 67-72

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

Lumens 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.

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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

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 94

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

RIO: Retrofit Integrated Optics system. A retrofit kit that combines a ceramic metal halide lamp with a highly efficient (95%) reflective glass optic and an optimized power supply. See page 10

RMS: root-mean-square

S/P Ratio: The ratio of photopic lumens to scotopic lumens. See page 94-95

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 94-95

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

Super Pulse Start Ceramic (SPC): *Uni-Form* pulse start, ceramic metal halide lamp, with high CRI

Super Pulse Start Long Life (SPL): *Uni-Form* super pulse start lamp, with longer rated life of 40,000 hours

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 99

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 99

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 99

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

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

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Trouble Shooting Guide

TECHNICAL INFORMATION

#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.

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Trouble Shooting Guide

TECHNICAL INFORMATION

#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.

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Product Index - Lamps

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20	38801	MPC 20W/U/MR16/PS/830/FL25	*Uni-Form*	26
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70	86501	MHL 70W/U/ED28/PS/740	*Uni-Form*	30
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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	V90Y1454	480V	CWI	S55	HPS Ballasts	86
150	V90C1454	TRI	CWI	S55	HPS Ballasts	86
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150	V90J1434	TRI	HX-HPF	S55	HPS Ballasts	86
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150	V90Z1454T	600V	CWI	S55	HPS Ballasts	86
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175	V90J6112	TRI	CWA	M57	Standard MH	80
175	V90B6112	120V	CWA	M57	Standard MH	80
175	V90Y6111T	480V	CWA	M57	Standard MH	80
175	V90E6150	DUAL	CWI	M57	Standard MH	80
175	V90P6150T	208V	CWI	M57	Standard MH	80
175	V90Z6150	600V	CWI	M57	Standard MH	80
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200	V90D7312	QUAD	CWA	M136	Uni-Form	40
200	V90D7311	QUAD	CWA	M136	Uni-Form	40
200	V90J7310	TRI	CWA	M136	Uni-Form	40
200	V90Y7312T	480V	CWA	M136	Uni-Form	40
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250	V90D6211	QUAD	CWA	M58	Standard MH	81
250	V90J6215	TRI	CWA	M58	Standard MH	81
250	V90J6211	TRI	CWA	M58	Standard MH	81
250	V90Y6212T	480V	CWA	M58	Standard MH	81
250	V90Y6211	480V	CWA	M58	Standard MH	81
250	V90E6250	DUAL	CWI	M58	Standard MH	81
250	V90P6250T	208V	CWI	M58	Standard MH	81
250	V90Z6250	600V	CWI	M58	Standard MH	81
250	V90D1711	QUAD	CWA	S50	HPS Ballasts	87
250	V90E1750	DUAL	CWI	S50	HPS Ballasts	87
250	V90J1711	TRI	CWA	S50	HPS Ballasts	87
250	V90Y1711T	480V	CWA	S50	HPS Ballasts	87
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400	V90P6450T	208V	CWI	M59	Standard MH	82
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1000	V90J6517	TRI	CWA	M47	Standard MH	83
1000	V905R6510	220/240	CWA	M47	Standard MH	83
1000	V905AL6510	120/230	CWA	M47	Standard MH	83
1000	V90Y6517T	480V	CWA	M47	Standard MH	83
1000	V90E6550	DUAL	CWI	M47	Standard MH	83
1000	V905AE6510	230	CWA	M47	Standard MH	83
1000	V90P6550T	208	CWI	M47	Standard MH	83
1000	V90B6517	120V	CWA	M47	Standard MH	83
1000	V90Z6550	600V	CWI	M47	Standard MH	83
1000	V90Z2353	600V	CWI	S52	HPS Ballasts	87
1000	V90D2315	QUAD	CWA	S52	HPS Ballasts	87
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1000	V90J2310	TRI	CWA	S52	HPS Ballasts	87
1000	V90Y2311T	480V	CWA	S52	HPS Ballasts	87
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1500	V905AF6610	230/380/415	CWA	M48	Standard MH	83
1500	V905R6610	220/240	CWA	M48	Standard MH	83
1500	V90Y6612T	480V	CWA	M48	Standard MH	83
1650	V90C6910	120/208/240	CWA	M112	Standard MH	83
1650	V90AA6910	277/347/480	CWA	M112	Standard MH	83
2000	V90Y6810	480V	CWA	M134	Specialty	78
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Cross Reference - Lamps

Product Index and Cross Reference

Lamp Description	Product Number	ANSI Code	Philips	Osram/ Sylvania	GE
20 WATT					
MHC 20W/U/T4/UVS/PS/830	38806	C156/E	CDM Elite 20/Tc/830	MC20TC/U/G8.5/830	CMH20TC/U830G8.5
MHC 20W/U/T6/UVS/PS/830	38809	C156/E	20W/830 T6 1CT	-	-
MPC 20W/U/MR16/PS/830/FL25	38801	C156/0	CDM-MR16/20W/830/25D ELITE	-	CMH20MR16/830/FL
MPC 20W/U/MR16/PS/830/WF40	38802	C156/0	CDM-MR16/20W/830/40D ELITE	-	CMH20MR16/830WFL
39 WATT					
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	-
MPC 39W/U/MR16/PS/930/FL25	38804	C130/0	CDM-MR16/35W/930/25D ELITE	-	CMH39MR16/930/FL
MPC 39W/U/MR16/PS/930/WF40	38805	C130/0	CDM-MR16/35W/930/40D ELITE	-	CMH39MR16/930WFL
MPC 39W/U/PAR20/UVS/PS/830/FL30	38834	C130/0	CDM 35W/830 Med PAR20 FL 1CT	-	CMH39PAR20FL25
MPC 39W/U/PAR20/UVS/PS/830/SP10	38833	C130/0	CDM 35W/830 Med PAR20 SP 1CT	-	CMH39PAR20/FL4K
MPC 39W/U/PAR30L/UVS/PS/830/FL30	38826	C130/0	35W/830 Med PAR30L FL 1CT	MCP39PAR30LN/U/830/FL/ECO PB	-
MPC 39W/U/PAR30L/UVS/PS/830/SP10	38825	C130/0	35W/830 Med PAR30L SP 1CT	MCP39PAR30LN/U/830/SP/ECO PB	CMH39/PAR30LSP10
50 WATT					
MH 50W/C/U/PS	13093	M110/E	-	-	MXR50/C/U/MED
MH 50W/U/PS	52312	M110/E	-	-	MXR50/U/MED
MHC 50W/U/T4/UVS/PS/930	38835	C148/E	CDM-TC ELITE 50W/930 G8.5 1CT	-	-
MHC 50W/U/T6/UVS/PS/930	38836	C148/E	CDM-T ELITE 50W/930 T6 CL 1CT	-	-
MP 50W/C/U/UVS/PS	30041	M110/0	-	MP50/C/U/MED	-
MP 50W/C/U/UVS/PS/3K	10381	M110/0	-	-	MXR50/C/U/MED/0
MP 50W/U/UVS/PS	32100	M110/0	-	MP50/U/MED	-
MP 50W/U/UVS/PS/3K	10226	M110/0	-	-	MXR50/U/MED/0
60 WATT					
MHC 60W/U/T6C/UVS/PS/728	38822	C187/E	CPO-TW 60W/728 White PGZ12 1CT	-	-
70 WATT					
HIT 70W/G12/UVS/3K	12108	M85/M98/E	-	-	-
HIT 70W/G12/UVS/4K	52983	M85/M98/E	-	-	-
HIT 70W/G12/UVS/FS/6K	39682	M85/M98/E	-	-	-
MH 70W/C/U/PS	12180	M98/E	-	M70/C/U/MED	MVR70/C/U/MED
MH 70W/U/ED28/PS	16017	M98/E	-	-	-
MH 70W/U/PS	78138	M98/E	-	M70/U/MED	MVR70/U/MED
MH-DE 70W/UVS/3K	16786	M85/M98/E	-	-	ARC70/TD/UVC/730
MH-DE 70W/UVS/4K	60248	M85/M98/E	-	-	ARC70/TD/UVC/743
MH-DE 70W/UVS/FS/6K	79470	M85/M98/E	-	-	-
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
MHL 70W/C/U/ED17/PS/737	32618	M98/E	-	-	-
MHL 70W/C/U/ED28/PS/737	36519	M98/E	-	-	-
MHL 70W/U/ED17/PS/740	15632	M98/E	-	-	-
MHL 70W/U/ED28/PS/740	86501	M98/E	-	-	-
MP 70W/C/U/ED17/UVS/PS/950	95072	M98/0	-	-	-
MP 70W/C/U/ED28/UVS/PS/3K	22466	M98/0	-	-	-
MP 70W/C/U/UVS/PS	67115	M98/0	-	MP70/C/U/MED	-
MP 70W/C/U/UVS/PS/3K	14611	M98/0	-	-	MXR70/C/U/MED/0
MP 70W/U/ED17/UVS/PS/950	95071	M98/0	-	-	-
MP 70W/U/UVS/PS	40389	M98/0	-	MP70/U/MED	-
MP 70W/U/UVS/PS/3K	45424	M98/0	-	-	MXR70/U/MED/0
MPC 70W/U/PAR30L/UVS/PS/830/FL30	38828	C139/0	70W/830 Med PAR30L FL 1CT	MCP70PAR30LN/U/930/FL/ECO PB	CMH70PAR30L830FL
MPC 70W/U/PAR30L/UVS/PS/830/SP10	38827	C139/0	70W/830 Med PAR30L SP 1CT	MCP70PAR30LN/U/930/SP/ECO PB	CMH70PAR30L830SP
MPL 70W/C/U/ED28/PS/737	35472	M98/0	-	-	-
MPL 70W/U/ED28/PS/740	66524	M98/0	-	-	-
90 WATT					
MHC 90W/U/T6C/UVS/PS/728	38823	C188/E	CPO-TW 90W/728 White PGZ12 1CT	-	-
100 WATT					
HIT 100W/G12/UVS/4K	89887	M90/E	-	-	-
MH 100W/C/U/ED28/PS	79986	M90/E	-	-	-
MH 100W/C/U/PS	15823	M90/E	-	-	-
MH 100W/U/ED28/PS	67868	M90/E	-	M100/C/U/MED	MVR100/C/U/MED
MH 100W/U/PS	27266	M90/E	-	M100/U/MED	MVR100/U/MED
MHC 100W/U/T6/UVS/PS/930	38812	C191/E	CDM Elite 100/T6/930	-	-
MHL 100W/C/U/ED17/PS/737	54231	M90/E	-	-	-
MHL 100W/C/U/ED28/PS/737	54286	M90/E	-	-	-
MHL 100W/U/ED17/PS/740	21982	M90/E	-	-	-
MHL 100W/U/ED23.5/PS/740	46484	M90/E	-	-	-
MHL 100W/U/ED28/PS/740	22498	M90/E	-	-	-
MP 100W/C/U/ED17/UVS/PS/950	92534	M90/0	-	-	-
MP 100W/C/U/ED28/UVS/PS/3K	22145	M90/0	-	-	-
MP 100W/C/U/UVS/PS	11278	M90/0	-	MP100/C/U/MED	-
MP 100W/C/U/UVS/PS/3K	11245	M90/0	-	-	MXR100/C/U/MED/0
MP 100W/U/ED17/UVS/PS/950	95100	M90/0	-	-	-
MP 100W/U/UVS/PS	96267	M90/0	-	MP100/U/MED	-
MP 100W/U/UVS/PS/3K	96770	M90/0	-	-	MXR100/U/MED/0
MPL 100W/C/U/ED28/PS/737	66530	M90/0	-	-	-
MPL 100W/U/ED28/PS/740	66525	M90/0	-	-	-
125 WATT					
MH 125W/C/HBU/PS	35638	M150/E	-	-	-
MH 125W/HBU/ED28/PS	61914	M150/E	-	-	-
MH 125W/HBU/PS	76602	M150/E	-	-	-
MHL 125W/C/U/ED17/PS/737	38509	M150/E	-	-	-
MHL 125W/C/U/ED28/PS/737	43928	M150/E	-	-	-
MHL 125W/U/ED17/PS/740	41256	M150/E	-	-	-
MHL 125W/U/ED28/PS/740	93256	M150/E	-	-	-
MP 125W/BU/UVS/PS	13341	M150/0	-	-	-
MP 125W/C/BU/UVS/PS	43319	M150/0	-	-	-
MP 125W/V/ED28/UVS/PS	25813	M150/0	-	-	-
140 WATT					
MHC 140W/U/T6C/UVS/PS/728	38824	C189/E	CPO-TW 140W/728 White PGZ12 1CT	-	-
150 WATT					
HIT 150W/G12/UVS/3K	12106	M81/M102/E	-	-	ARC150T/U/830G12
HIT 150W/G12/UVS/4K	25779	M81/M102/E	-	HQI-SE 150/NDX	ARC150T/U/840G12
HIT 150W/G12/UVS/FS/6K	78564	M81/M102/E	-	-	-
MH 150W/C/U/ED28/PS/737	21344	M102/E	-	-	-
MH 150W/C/U/EM	39083	M57/107/E	150W/635 Med BD17 CL	-	-
MH 150W/C/U/PS/737	94986	M102/E	-	M150/C/U/MED	MVR150/C/U/MED
MH 150W/U/ED23.5/PS/740	75418	M102/E	-	-	-
MH 150W/U/ED28/EM	69559	M57/107/E	-	M150/SS/U/BT28	MVR150/U/WM
MH 150W/U/ED28/PS/740	13556	M102/E	-	-	-
MH 150W/U/EM	44810	M57/107/E	150W/635 Med BD17 CL	-	-
MH 150W/U/PS/740	99584	M102/E	-	M150/U/MED	MVR150/U/MED
MH-DE 150W/UVS/10K PLUS	80244	M81/M102/E	-	-	-
MH-DE 150W/UVS/3K	11295	M81/M102/E	-	-	ARC150/TD/730R7S
MH-DE 150W/UVS/4K	74756	M81/M102/E	-	-	ARC150/TD/742R7S
MH-DE 150W/UVS/FS/6K	29963	M81/M102/E	-	-	-
MHL 150W/C/U/ED17/PS/737	68542	M102/E	-	-	-
MHL 150W/C/U/ED28/PS/737	93218	M102/E	-	-	-
MHL 150W/U/ED17/PS/740	35985	M102/E	-	-	-
MHL 150W/U/ED23.5/PS/740	29613	M102/E	-	-	-
MHL 150W/U/ED28/PS/740	46105	M102/E	-	-	-
MP 150W/C/U/ED17/UVS/PS/950	22961	M102/0	-	-	-
MP 150W/C/U/ED28/UVS/PS/737	32147	M102/0	-	-	-
MP 150W/C/U/ED28/UVS/PS/950	95153	M102/0	-	-	-
MP 150W/C/U/UVS/PS/732	80039	M102/0	-	-	MXR150/C/U/MED/0
MP 150W/C/U/UVS/PS/737	22888	M102/0	-	MP150/C/U/MED	-
MP 150W/U/ED17/UVS/PS/950	95150	M102/0	-	-	-
MP 150W/U/ED28/UVS/PS/740	58963	M102/0	-	-	-
MP 150W/U/ED28/UVS/PS/950	95152	M102/0	-	-	-
MP 150W/U/UVS/PS/732	22522	M102/0	-	-	MXR150/U/MED/0
MP 150W/U/UVS/PS/740	22455	M102/0	-	MP150/U/MED	-
MPL 150W/C/U/ED28/PS/737	71387	M102/0	-	-	-
MPL 150W/U/ED28/PS/740	66526	M102/0	-	-	-
175 WATT					
MH 175W/C/U	96627	M57/E	175W/640 Mog ED28 CO	M175/C/U	MVR175/C/U
MH 175W/C/U/MED	63187	M57/E	175W/640 Med BD17 CO	M175/C/U/MED	MVR175/C/U/MED
MH 175W/U	88791	M57/E	175W Mog ED28 TG	M175/U	MVR175/U
MH 175W/U/5K	79881	M57/E	MH175/U	M175/U/T15/5000K	MVR175/U 5000K
MH 175W/U/MED	15556	M57/E	175W/640 Med BD17 CL	M175/U/MED	MVR175/U/MED
MH 175W/U/T15	40335	M57/E	-	-	-
MH 175W/U/T15/10K	70136	M57/E	-	-	-
MP 175W/BU/MED/UVS/PS/EM/95	095176	M152/0	-	-	-
MP 175W/BU/UVS/PS/740	69854	M152/0	175W Excl Mog ED28 CL	-	MPR175/VBU/PA/0
MP 175W/BU/UVS/PS/EM/950	95175	M152/0	-	-	-
MP 175W/C/BU/UVS/PS/737	42346	M152/0	-	-	-
MPI 175W/BU	32519	M57/0	175W/640 EX39 ED28 CL	MP175/BU-ONLY	MPR175/VBU/0
MPI 175W/C/BU	32520	M57/0	-	MP175/C/BU-ONLY	MPR175/C/VBU/0
MS 175W/BU	55087	M57/E	175W Mog ED28 TG	M175/U	MVR175/U
MS 175W/BU/MED	70310	M57/E	175W/640 Med BD17	M175/C/U/MED	MVR175/U/MED
MS 175W/BU/MED/PS/740	16497	M152/E	175W/640 CW PS Medium ED17 1SL	MS175/PS/BU-ONLY/MED	MVR175/VBU/MEDPA
MS 175W/BU/PS/740	68475	M152/E	175W/635 Mog ED28 CL	MS175PSBUONLY	MVR175/VBU/PA (23.5 bulb)
MS 175W/C/BU/3K	20981	M57/E	-	-	-
MS 175W/C/BU/MED/3K	52522	M57/E	-	-	-
MS 175W/C/BU/MED/PS/737	34691	M152/E	-	MS175CPSBUONLYMED	MVR175/CVBUMEDPA
MS 175W/C/BU/PS/737	68246	M152/E	175W/635 Mog ED28 CO	MS175CPSBUONLY	MVR175/C/VBU/PA (23.5 bulb)
MS 175W/H75/PS/740	99585	M152/E	175W Mog ED28	-	-
MS 175W/H75/T15/PS/740	99586	M152/E	-	-	-
MS 175W/HOR	57330	M57/E	-	MS175/HOR	MVR175/HOR

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
200 WATT					
MHL 200W/C/H75/ED28/PS/737	10237	M136/E	-	-	-
MHL 200W/C/V/ED28/PS/737	14357	M136/E	-	-	-
MHL 200W/H75/ED28/PS/740	60375	M136/E	-	-	-
MHL 200W/V/ED28/PS/740	98434	M136/E	-	-	-
MP 200W/BU/UVS/PS/EM/950	95200	M136/0	-	-	-
MP 200W/C/V/UVS/PS/732	44872	M136/0	-	-	-
MP 200W/C/V/UVS/PS/737	59174	M136/0	-	-	-
MP 200W/V/UVS/PS/740	22147	M136/0	-	-	-
MPL 200W/C/V/ED28/PS/737	33587	M136/0	-	-	-
MPL 200W/V/ED28/PS/740	33585	M136/0	-	-	-
MS 200W/BU/MED/PS/740	60811	M136/E	-	-	-
MS 200W/C/BU/MED/PS/737	60812	M136/E	-	-	-
MS 200W/C/V/PS/737	70345	M136/E	-	MS200CPSBUONLYBT28	-
MS 200W/H75/T15/PS/740	70764	M136/E	200W PS Mog T15 1SL	-	-
MS 200W/V/PS/740	57739	M136/E	200W PS Mog 1SL	MS200PSBUONLYBT28	-
210 WATT					
MHC 210W/U/T9/UVS/PS/930	38814	C183/E	CDM-TMW ELITE 210W/930 T9	-	-
MHC 210W/U/T9/UVS/PS/942	38815	C183/E	CDM-TMW ELITE 210W/942 T9 U	-	-
MPC 210W/C/U/ED28/PS/930	38839	C183/0	CDM ELITE 210W ED28 CO U	-	-
MPC 210W/C/U/ED28/PS/942	38841	C183/0	CDM ELITE 210W ED28 CO U	-	-
MPC 210W/U/ED28/PS/930	38838	C183/0	CDM ELITE 210W ED28 CL U	-	-
MPC 210W/U/ED28/PS/942	38840	C183/0	CDM ELITE 210W ED28 CL U	-	-
MPC 210W/U/T12/UVS/PS/930	38818	C183/0	CDM-T ELITE 210W/930	-	-
MPC 210W/U/T12/UVS/PS/942	38820	C183/0	CDM-T ELITE 210W/942	-	-
250 WATT					
MH 250W/C/U	61290	M58/E	250W/735 Mog ED28 CO	M250/C/U	MVR250/C/U
MH 250W/U	63052	M58/E	250W/640 Mog ED28 CL	M250/U	MVR250/U
MH 250W/U/5K	27252	M58/E	MH250/U 5000K	MVR250/U	M250/U
MH 250W/U/LU	91051	S50/E1	-	-	MVR250/VBU/R
MH 250W/U/T15	33479	M58/E	-	M250/U/ET18	-
MH 250W/U/T15/10K	63897	M58/E	-	-	-
MH-DE 250W/UVS/3K/Fc2	84727	M80/M153/E	-	-	-
MH-DE 250W/UVS/4K/Fc2	72748	M80/M153/E	-	-	-
MH-DE 250W/UVS/4K/RSC	22468	M80/M153/E	-	-	-
MHL 250W/BU/ED28/PS/EM/950	95259	M153/E	-	-	-
MHL 250W/C/H75/ED28/PS/737	32393	M153/E	-	-	-
MHL 250W/C/V/ED28/PS/737	71638	M153/E	-	-	-
MHL 250W/H75/ED28/PS/740	65413	M153/E	-	-	-
MHL 250W/V/ED28/PS/740	46895	M153/E	-	-	-
MP 250W/BU/UVS/PS/740	64658	M153/0	-	MP250/PS/BU-ONLY	MPR250/VBU/PA/0
MP 250W/BU/UVS/PS/EM/950	19523	M153/0	250W Excl Mog ED28 CL	-	-
MP 250W/C/BU/UVS/PS/737	32658	M153/0	-	MP250/C/PS/BU-ONLY	-
MP 250W/C/BU/UVS/PS/EM/950	19525	M153/0	-	-	-
MP 250W/H75/T15/UVS/PS/740	19252	M153/0	-	-	-
MP 250W/H75/T15/UVS/PS/EM/950	59324	M153/0	-	-	-
MP 250W/H75/UVS/PS/740	49822	M153/0	-	-	-
MPI 250W/BU	60722	M58/0	250W/640 EX39 ED28 CL	MP250/BU-ONLY	MPR250/VBU/0
MPI 250W/BU/LU	24785	S50/01	-	-	-
MPI 250W/C/BU	60723	M58/0	-	MP250/C/BU-ONLY	MPR250/C/VBU/0
MPI 250W/C/BU/LU	10206	S50/01	-	-	-
MS 250W/BU	36297	M58/E	-	-	-
MS 250W/C/BU/3K	18477	M58/E	-	M250/3K/BU-ONLY	-
MS 250W/C/V/PS/737	81365	M153/E	-	MS250/C/PS/BU-ONLY	MVR250/C/VBU/PA
MS 250W/H75/PS/740	81054	M153/E	-	-	MVR250/HOR/PA
MS 250W/H75/T15/PS/740	57625	M153/E	-	-	-
MS 250W/HOR	94883	M58/E	-	MS250/HOR	MVR250/HOR
MS 250W/HOR/T15	88353	M58/E	-	-	-
MS 250W/HOR/T15/3K	54843	M58/E	-	-	-
MS 250W/V/PS/740	49621	M153/E	250W/645 Mog ED28 CL	MS250/PS/BU-ONLY	MVR250/VBU/PA
315 WATT					
MHC 315W/U/T9/UVS/PS/930	38816	C182/E	CDM-TMW ELITE 315W/930		
MHC 315W/U/T9/UVS/PS/942	38817	C182/E	CDM-TMW ELITE 315W/942		
MPC 315W/C/U/ED37/PS/942	38845	C182/0	CDM ELITE 315W ED37 CO U		
MPC 315W/U/ED37/PS/942	38844	C182/0	CDM ELITE 315W ED37 CL U		
MPC 315W/U/T12/UVS/PS/930	38819	C182/0	CDM-T ELITE 315W/930	-	-
MPC 315W/U/T12/UVS/PS/942	38821	C182/0	CDM-T ELITE 315/942	-	-
320 WATT					
MHL 320W/C/H75/ED28/PS/737	11086	M154/E	-	-	-
MHL 320W/C/H75/ED37/PS/737	34778	M154/E	-	-	-
MHL 320W/C/V/ED28/PS/737	25796	M154/E	-	-	-
MHL 320W/C/V/ED37/PS/737	72378	M154/E	-	-	-
MHL 320W/H75/ED28/PS/740	20116	M154/E	-	-	-
MHL 320W/H75/ED37/PS/740	28699	M154/E	-	-	-
MHL 320W/V/ED28/PS/740	18635	M154/E	-	-	-
MHL 320W/V/ED37/PS/740	38765	M154/E	-	-	-
MP 320W/BU/ED28/UVS/PS/740	10103	M154/0	-	MP320/350/PS/BU-ONLY/BT28	-
MP 320W/BU/ED28/UVS/PS/EM/950	98530	M154/0	-	-	-
MP 320W/BU/ED37/UVS/PS/740	21714	M154/0	-	-	MPR320/VBU/XHOPA
MP 320W/BU/ED37/UVS/PS/EM/950	98520	M154/0	-	-	-
MP 320W/C/BU/ED28/UVS/PS/737	10104	M154/0	-	MP320/350/C/PS/BU-ONLY/BT28	MPR320/C/PA/ED28
MP 320W/C/BU/ED37/UVS/PS/732	66506	M154/0	-	-	-
MP 320W/C/BU/ED37/UVS/PS/737	32795	M154/0	320W Excl Mog ED37 CO	-	MPR320C/VBUXHOPA
MP 320W/C/BU/ED37/UVS/PS/EM/950	95123	M154/0	-	-	-
MP 320W/H75/T15/L/UVS/PS/EM/950	95321	M154/0	-	-	-
MP 320W/H75/T15/S/UVS/PS/EM/950	95320	M154/0	-	-	-
MPL 320W/BU/T25/PS/740	30577	M154/0	-	-	-
MPL 320W/C/BU/T25/PS/737	30578	M154/0	-	-	-
MS 320W/C/H75/ED28/PS/737	12758	M154/E	MS320/U/PS	MVR320/HOR/ED28/PA	MS320/PS/BU-HOR
MS 320W/C/V/ED28/PS/737	77594	M154/E	320W/735 Mog ED28 CO	-	MVR320C/VBU/XHO/PA
MS 320W/C/V/ED37/PS/737	67712	M154/E	-	-	-
MS 320W/H75/ED28/PS/740	47549	M154/E	-	-	MVR320HOR/ED28PA
MS 320W/H75/T15/L/PS/740	79710	M154/E	-	-	-
MS 320W/H75/T15/S/PS/740	57626	M154/E	-	-	-
MS 320W/V/ED28/PS/740	59194	M154/E	320W/640 Mog ED28 CL	-	MVR320/VBU/HO/PA
MS 320W/V/ED37/PS/740	52236	M154/E	-	-	-
330 WATT					
MPI 330W/BU/EM	91834	M59/165/0	CDM330/V/0/4K/EA LL Allstart	-	-
MPI 330W/C/BU/EM	91844	M59/165/0	CDM330/U/0/4K/EA/ED37/CL Allstart	-	-
MPI 330W/U/EM	87645	M59/165/0	CDM330/U/0/4K/EA/ED28 Allstart	-	-
350 WATT					
MHL 350W/C/H75/ED28/PS/737	11087	M131/E	-	-	-
MHL 350W/C/H75/ED37/PS/737	34779	M131/E	-	-	-
MHL 350W/C/V/BT37/PS/737	74626	M131/E	-	-	-
MHL 350W/H75/ED28/PS/740	20117	M131/E	-	-	-
MHL 350W/H75/ED37/PS/740	28700	M131/E	-	-	-
MHL 350W/V/BT37/PS/740	74625	M131/E	-	-	-
MP 350W/BU/ED28/UVS/PS/EM/950	33149	M131/0	-	-	-
MP 350W/BU/UVS/PS/EM/950	51628	M131/0	-	-	-
MP 350W/C/BU/UVS/PS/EM/950	38197	M131/0	-	-	-
MP 350W/C/V/ED28/UVS/PS/737	55401	M131/0	-	MP320/350/C/PS/BU-ONLY/BT28	-
MP 350W/C/V/UVS/PS/732	27845	M131/0	-	-	MPR350C/VBU3K/PA
MP 350W/C/V/UVS/PS/737	44097	M131/0	-	MP350/400/C/PS/BU-ONLY	MPR350/C/VBU/PA
MP 350W/H75/T15/L/UVS/PS/740	51208	M131/0	-	-	-
MP 350W/H75/UVS/PS/740	65218	M131/0	-	-	-
MP 350W/V/ED28/UVS/PS/740	47887	M131/0	-	MP320/350/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
MPL 350W/C/V/T25/PS/737	60025	M131/0	-	-	-
MPL 350W/V/T25/PS/740	60024	M131/0	-	-	-
MS 350W/C/H75/PS/737	64866	M131/E	-	-	-
MS 350W/C/V/PS/737	71329	M131/E	350W/635 Mog ED37 CO	-	MVR350CVBUXHOPAE
MS 350W/H75/ED28/PS/740	46959	M131/E	-	-	-
MS 350W/H75/T15/L/PS/740	93749	M131/E	-	-	-
MS 350W/H75/T15/S/PS/740	60258	M131/E	-	-	-
MS 350W/V/ED28/PS/740	52980	M131/E	-	-	-
MS 350W/V/PS/740	98389	M131/E	350W/640 Mog ED37 CL	-	MVR350VBUXHOPA/E
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					
MH 400W/C/U	83545	M59/E	400W/540 Mog ED37 CO	M400/C/U	MVR400/C/U
MH 400W/C/U/ED28	20753	M59/E	-	M400/C/U/BT28	MVR400/C/U/ED28
MH 400W/C/U/LU	72190	S51/E2	-	-	MVR400/C/VBU/R
MH 400W/U	18520	M59/E	400W/540 Mog ED37 CL	M400/U	MVR400/U
MH 400W/U/5K	36813	M59/E	-	-	-
MH 400W/U/ED28	57540	M59/E	-	M400/U/BT28	MVR400/U/ED28
MH 400W/U/ED28/10K	27540	M59/E			
MH 400W/U/LU	52134	S51/E2	-	-	MVR400/VBU/R
MH 400W/U/LU/ED28	59441	S51/E2	-	-	MVR400/U/ED28/R
MH 400W/U/T15	55422	M59/E	-	M400/U/ET18	-
MHL 400W/C/V/BT37/PS/737	61147	M155/E	-	-	-
MHL 400W/H75/BT37/PS/740	15619	M155/E	-	-	-
MHL 400W/V/BT37/PS/740	15678	M155/E	-	-	-
MP 400W/BU/ED28/UVS/PS/EM/950	72315	M155/0	-	-	-
MP 400W/BU/UVS/PS/EM/950	57129	M155/0	-	-	-
MP 400W/C/BU/UVS/PS/EM/950	89410	M155/0	-	-	-
MP 400W/C/V/ED28/UVS/PS/737	88648	M155/0	-	-	-

Cross Reference Lamps/Ballasts

Product Index and Cross Reference

Lamp Description	Product Number	ANSI Code	Philips	Osram/ Sylvania	GE
MP 400W/C/V/UVS/PS/737	45541	M155/0	400W Excl Mog ED37 CO	MP350/400/C/PS/BU-ONLY	MPR400C/VBUXHOPA
MP 400W/H75/T15/L/UVS/PS/740	73189	M155/0	-	-	-
MP 400W/H75/UVS/PS/740	17611	M155/0	-	-	-
MP 400W/V/ED28/UVS/PS/740	12445	M155/0	-	-	-
MP 400W/V/UVS/PS/740	71642	M155/0	400W Excl Mog ED37 CL	MP350/400/PS/BU-ONLY	MPR400/VBU/XHOPA
MPI 400W/BU	95527	M59/0	400W/635 EX39 ED37 CO	MP400/BU-ONLY	MPR400/VBU/HO/O
MPI 400W/BU/LU	10044	S51/02	-	-	-
MPI 400W/C/BU	26091	M59/0	400W/640 EX39 ED37 CL	MP400/C/BU-ONLY	MPR400C/VBU/HO/O
MPL 400W/C/V/T25/PS/737	59422	M155/0	-	-	-
MPL 400W/V/T25/PS/740	59421	M155/0	-	-	-
MS 4000W/C/V/ED28/PS/737	46416	M155/E	400W/640 CW Mog ED28	MS400/PS/BU-ONLY/BT28	MVR400CVBUED28PA
MS 400W/BU/ED28	40013	M59/E	-	MS400/PS/BU-ONLY	MVR400/VBUED28HO
MS 400W/C/H75/ED28/PS/737	55459	M155/E	-	-	-
MS 400W/C/HOR	64648	M59/E	-	-	MVR400/C/HOR/MOG
MS 400W/C/HOR/ED28	24573	M59/E	-	MS400/HOR/BT28	MVR400/HOR/BT28
MS 400W/C/V/PS/737	42401	M155/E	400W/635 Mog ED37 CO	MS400/C/PS/BU-ONLY	MVR400/CVBUXHOPA
MS 400W/H75/ED28/PS/740	40124	M155/E	400W/640 Mog ED28 1WR	-	MVR400HOR/ED28PA
MS 400W/H75/PS/740	58788	M155/E	-	-	MVR400HOR/PA
MS 400W/H75/T15/L/PS/740	74151	M155/E	-		-
MS 400W/H75/T15/S/PS/740	60260	M155/E	-	-	-
MS 400W/HOR	40509	M59/E	-	MS400/HOR	MVR400/HOR/MOG
MS 400W/HOR/ED28	21929	M59/E	-	MS400/HOR/BT28	MVR400/HOR/BT28
MS 400W/HOR/T15	55100	M59/E	-	-	-
MS 400W/HOR/T15/3K	32225	M59/E	-	-	-
MS 400W/V/ED28/PS/740	85260	M155/E	400W/640 CW Mog ED28	MS400/PS/BU-ONLY/BT28	MVR400/VBUED28PA
MS 400W/V/PS/740	73531	M155/E	400W/640 Mog ED37 CL	MS400/PS/BU-ONLY	MVR400/VBU/HO/PA
450 WATT					
MP 450W/BU/UVS/PS/740	65072	M144/0	-	-	-
MP 450W/C/BU/UVS/PS/737	59216	M144/0	-	-	-
MS 450W/C/V/PS/737	10138	M144/E	-	-	-
MS 450W/V/PS/740	10079	M144/E	-	-	-
575 WATT					
MHL 575W/BU/BT37/PS/740	68735	M178/E	-	-	-
MHL 575W/BU/BT37/PS/EM/950	43926	M178/E	-	-	-
MHL 575W/H75/BT37/PS/740	20897	M178/E	-	-	-
MHL 575W/H75/BT37/PS/EM/950	17921	M178/E	-	-	-
MP 575W/BD/BT37/PS/740	16458	M178/0	-	-	-
MP 575W/BD/BT37/PS/EM/950	95576	M178/0	-	-	-
MP 575W/BU/BT37/PS/740	60023	M178/0	-	-	-
MP 575W/BU/BT37/PS/EM/950	95575	M178/0	-	-	-
MP 575W/C/BU/BT37/PS/737	60020	M178/0	-	-	-
MP 575W/H75/T25/PS/740	56423	M178/0	-	-	-
MS 575W/H75/BT37/PS/EM/950	95577	M178/E	-	-	-
775 WATT					
MP 775W/BD/BT37/PS/950	24988	M181/0	-	-	-
MP 775W/BU/BT37/PS/950	24983	M181/0	-	-	-
MS 775W/H75/BT37/PS/950	24999	M181/E	-	-	-
875 WATT					
MHL 875W/BU/BT37/PS/740	29325	M166/E	-	-	-
MHL 875W/H75/BT37/PS/740	56412	M166/E	-	-	-
MP 875W/BU/BT37/PS/740	58953	M166/0	-	-	-
MP 875W/C/BU/BT37/PS/737	41686	M166/0	-	-	-
MS 875W/BD/BT37/PS/740	35426	M166/E	-	-	-
MS 875W/BU/BT37/PS/740	22619	M166/E	-	-	-
MS 875W/H75/BT37/PS/740	74892	M166/E	-	-	-
1000 WATT					
MBIL S 1000W	22417	M__/F	-	-	-
MH 1000W/C/U	88460	M47/E	1000W CO U	M1000/C/U	MVR1000/C/U
MH 1000W/U	72051	M47/E	1000W Mog BT56 CL	M1000/U	MVR1000/U
MH 1000W/U/5K	35914	M47/E	-	-	-
MH 1000W/U/BT37	15332	M47/E	1000W/635 Mog BT37 CL	M1000/U/BT37	MVR1000/U/BT37
MPI 1000W/BU	62948	M47/0	1000W/640 EX39 BT56 CL	MP1000/BU-ONLY	MPR1000/VBU/HO/O
MS 1000W/BU	89113	M47/E	1000W WH Mog BT56	MS1000/BU-ONLY	MVR1000/VBU/HO
MS 1000W/BU/BT37	13090	M47/E	-	-	-
MS 1000W/BU/BT37/PS/740	71722	M141/E	1000W/635 Mog BT37 CL	M1000/PS/U/BT37	MVR1000U/BT37/PA
MS 1000W/BU/T25	78952	M47/E	-	-	-
MS 1000W/HOR/BT37/3K	53702	M47/E	-	-	-
MS 1000W/HOR/BT37/4K	80091	M47/E	-	-	-
MS 1000W/HOR/SPORT 60	47503	M47/E	-	-	-
MS 1000W/HOR/T25/PS/734	49111	M141/E	-	-	-
MS 1000W/V/LU/BT37	35892	S52/E4	-	-	-

Lamp Description	Product Number	ANSI Code	Philips	Osram/ Sylvania	GE
1500 WATT					
MBIL S 1500W	22151	M__/F	-	M1500T7/DE	-
MH 1500W/HBU	18360	M48/E	-	M1500/BU-HOR	-
MH 1500W/U/XL	12342	M48/E	1500W Mog BT56 CL	-	MVR1500/HBU
MS 1500W/HOR/XP/SPORT 60	82070	M48/E	-	-	-
1650 WATT					
MS 1650W/HOR/XP/SPORT 60	16419	M112/E	-	-	-
2000 WATT					
MBIL S 2000W	22132	M__/F	-	-	-

Ballasts

Product Description	Venture Catalog #	Philips Advanced Catalog #	Universal Catalog #	Howard Catalog #
Pulse Start Metal Halide Ballasts				
20W Electronic 120-277	VEN6-020D-ME	IMH-G20-x	M2012-27CK	-
39W Electronic 120-277	VEN6-039D-ME	IMH-39-x	M3912-27CK	-
50W Electronic 120-277	VEN6-050D-ME	IMH-50-x	M5012-27CK	-
50W QUAD HX	V90D5731	71A5181-500D	M50MLTLC3M	-
50W DUAL HX	V90H5731	71A5181-500D	-	-
50W TRI HX	V90J5731	-	M50TRILC3M	-
60W Electronic 120V	VEN6-060B-PMLS	RCW-60-M-LS	-	-
60W Electronic 208-277	VEN6-060L-PNLS	I(D)CW-60-N-LS	-	-
70W Electronic 120-277	VEN6-070D-ME	IMH-70-x	M7012-27CK	-
70W QUAD HX	V90D5833	-	M70MLTLC3M	-
70W DUAL HX	V90H5833	71A5292-001D	-	-
70W TRI HX	V90J5832	71A52A2-001D	M70TRILC3M	-
90W Electronic 208-277	VEN6-090L-CWPMLS	I(D)CW-90-M-LS	-	-
100W Electronic 120-277	VEN6-100D-MD	IMH-100-x	M10012-27CK	-
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	-	-	-
140W Electronic 120V	VEN6-140B-CWPTLS	RCW-140-T-LS	-	-
140W Electronic 208-277	VEN6-140L-CWPMLS	I(D)CW-140-M-LS	-	-
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	-	-	
210W Electronic 208-277	VEN6-210L-MRD5	IZTMH-210315-R-LF	M21020-27CK-2EUN-DF	
210W QUAD CWA	V90D5310	-	-	-
210W 480 CWA	V90Y5310T	-	-	-
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	-
315W Electronic 208-277	VEN6-315L-MRD5	IZTMH-210315-R-LF	-	-

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Cross Reference - Ballasts

Product Description	Venture Catalog #	Philips Advanced Catalog #	Universal Catalog #	Howard Catalog #
320W Electronic 208-277	VEN8-320L	-	-	-
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 Electronic 208-277	VEN8-350L	-	-	-
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 Electronic 208-277	VEN8-400L	-	-	-
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 Electronic 208-277	VEN8-450L	-	-	-
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	-	-	-
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	-	-	-
775W QUAD CWA	V90D9610	-	-	-
775W QUINT CWA	V90AM9610	-	-	-
775W TRI CWA	V90J9610	-	-	-
775W TRI CWA	V90Y9610T	-	-	-
875W QUAD CWA	V90D8612	-	P875MLTAC5M	-
875W QUINT CWA	V90AM8610	-	-	-
875W TRI CWA	V90J8612	-	-	-
875W 480 CWA	V90Y8612T	-	-	-
875W 480 RCTR	V90Y8620	-	-	-
1000W QUAD CWA	V90D7811	-	M1000MLTAC5M	-
1000W QUINT CWA	V90AM7810	-	-	-
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	-	-	-
250W QUINT CWA	V90AM6215	-	-	-

Product Description	Venture Catalog #	Philips Advanced Catalog #	Universal Catalog #	Howard Catalog #
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	-	-	-
400W QUINT CWA	V90AM6411	-	-	-
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	-	-	-
1000W QUINT CWA	V90AM6514	-	-	-
1500W QUAD CWA	V90D6612	71A6772-001	M1500MLTAC5M	M1500-71C-212
1500W 480 CWA	V90Y6612T	71A6742-001	M150048TAC5M	M1500-11C-212
1500W DUAL 220/240	V905R6610	-	-	-
1500W TRI 230/380/415	V905AF6610	-	-	-
1650W TRI CWA	V90AA6910	71A68F0-500	-	-
1650W TRI CWA	V90C6910	71A6890-500	-	-
High Pressure Sodium Ballasts				
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	-	-	-
200W 480 CWA	V90Y1610T	71A8940-500D	-	-
200W Quad CWA	V90D1610	71A8990-500D	-	-
200W Tri 120/277/347 CWA	V90J1610	-	-	-
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	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	-	-	-

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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. agrees to warrant their lamps per the standard lamp warranty when operated on dimmable ballasts provided the following conditions are met:

1) The reduced wattage level for a metal halide lamp must be achieved with a ballast which meets the recommended ANSI specifications for operation of an ANSI reference lamp[1] at the rated lamp power. See ANSI C78.43[2] for specifications.

2) A pulse start lamp must warm up for at least 5 minutes (15 minutes for probe start lamps) after the lamp has cold started or hot restarted before dimming can commence. The lamp must never be started in the dimmed operating mode.
   - See Venture Lighting's individual Lamp Data Sheets for minimum dimmed lamp wattage levels.

3) Operating position requirements:
   - See Venture Lighting's individual Lamp Data Sheets for dimmed lamp allowable orientations.

4) System Requirements
   - For magnetic and electronic ballasts, see Venture Lighting's individual Ballast Specification Sheets for system/ballast wattage values in both full and minimum dimmed operating modes.

a) CWA/CWI Switched Capacitor Dimming
   - The ballast must provide sufficient sustaining voltage to operate lamps throughout their rated life in both the full and dimmed wattage modes.

b) Electronic Ballast Dimming
   - The ballast must provide sufficient voltage to sustain lamps throughout their rated life in both the full and dimmed wattage modes.
   - On high frequency ballasts the dimming frequencies must be higher than the nominal wattage operating frequency.
   - To reduce cycling as lamps age, it is recommended that the time for reduction in lamp wattage, i.e. ramp down, from 100% to the minimum dimmed lamp wattage level be no shorter than 30 seconds.

c) Line Voltage Dimming (Venture magnetic ballasts, only)
   - Dimming must be accomplished by line voltage reduction only, not by waveform chopping, i.e. phase control.
   - To reduce cycling problems as lamps age, it is recommended that the ramp down time for line voltage from 100% to the minimum specified line voltage level (see below) be no shorter than 60 seconds.
   - For CWA/CWI ballasts line voltage must not drop below 70% of the minimum ANSI rated ballast input voltage
   - For Lag (HX and Reactor) ballasts line voltage must not drop below 85% of the minimum ANSI rated ballast input voltage.

Notes:
1 = Reference lamps available upon request
2 = Available at www.nema.org/standards

"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 Lamps	One Year	One Year
	150W-875W Lamps	One Year	Two Years
	All SPL Lamps	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.
32000 Aurora Road, Suite A
Solon, Ohio 44139

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

(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

Americas
and Sales Headquarters:

Venture Lighting International
32000 Aurora Rd., Suite A
Solon, Ohio 44139 U.S.A.
800-451-2606
440-248-3510
Fax: 800-451-2605
venture@adlt.com
www.venturelighting.com

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United Kingdom WD3 1RT
+(44) 0845-2302222
Fax: +(44) 1923-692659
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www.venturelightingeurope.com

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Dubai, U.A.E.
(971-4) 883-7370
Fax: (971-4) 883-7371
sales@venturelighting.ae

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Unit 44, Boulevard Way
Capricorn Business Park
Marina Da Gama
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+(27) 21-709-0180
Fax: +(27) 21-709-0181
sales@venturelighting.co.za

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Venture Lighting
6889 Rexwood Road
Units 6 & 7
Mississauga, Ontario L4V 1R2
Canada
1-800-265-2690
Fax:1-800-668-0393
venturecanadasales@adlt.com

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Wantirna South
Victoria 3152 Australia
+(61) 3 9800 5600
Fax: +(61) 3 9800 5533
sales@advancedlighting.com.au

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+(64) 09-07 415 6332
Fax: +(64) 09-07 415 6255
light@adlt.co.nz

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D5, Phase II Zone B, MEPZ
Tambaram, Chennai
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+(91) 44-22623094
Fax +(91) 44-22625569
mail@vlindia.com

Latin America:

Venture Lighting International
5805 Blue Lagoon Drive
Suite 395
Miami, Florida 33126
USA
305-269-8114
Fax: 305-269-8727
vllatinamerica@adlt.com

Singapore:

Advanced Lighting Technologies
Asia Pacific Pte Ltd.
Block 4008, Ang Mo Kio Avenue 10
#04-06, Techplace I.
Singapore S787059
(65) 6844-2338
Fax: (65) 6844-2339
vlseasia@adlt.com

Japan:

Venture Lighting
Japan, Inc.
Bunmeido Bldg. 6F
16-5, Taito 3-Chome
Taito-Ku, Tokyo 110
(81) 03-3839-5711
Fax (81) 03-3839-3724
vljapan@adlt.com