Xenon & EmArc® Lamps

For Follow Spots & Search Lights

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Xenon & EmArc® lamps for followspots & searchlights.

E/T/C AUDIOVISUEL	WATTAGE	USHIO LAMP	ORDER CODE
pigi Xenon Projector 5/7K	6000	UXL-60SC	5000943
pigi Xenon Projector 5/7K	7000	UXL-70SC	5000634

L.P. ASSOCIATES	WATTAGE	USHIO LAMP	ORDER CODE
2kW Sky Dancer	2000	UXL-20SC	5001434
4kW Sky Dancer	4000	UXL-40SC	5000631
7kW Sky Dancer	7000	UXL-70SC	5000634
2kW XELAMP Architectural Spotlight	2000	UXL-20SC	5001434
4kW XELAMP Architectural Spotlight	4000	UXL-40SC	5000631
7kW XELAMP Architectural Spotlight	7000	UXL-70SC	5000634

LYCIAN STAGE LIGHTING	WATTAGE	USHIO LAMP	ORDER CODE
Lycian 1290 XLT	2000	UXL-20SC	5001434
Lycian 1293 X3K	3000	UXL-30SC	5001079
Lycian 1294 SuperArc 4K	4000	UXL-40SC	5000631

PHOEBUS MANUFACTURING	WATTAGE	USHIO LAMP	ORDER CODE
Imarc	200	SMR-202/D1	5001466
Imarc 850	850	SMH-850/D2	5001477
Silverbeam Cirrus	850	SMH-850/D2	5001477
Silverbeam PSL-14 2K Xenon	2000	UXL-20SC	5001434
Silverbeam PSL-20 4K Xenon	4000	UXL-40SC	5000631
Silverbeam PSL-20 7K Xenon	7000	UXL-70SC	5000634
Silverbeam 360 2kW	2000	UXL-20SC	5001434
Silverbeam 360 4kW	4000	UXL-40SC	5000631
Silverbeam 360 7kW	7000	UXL-70SC	5000634

SKY CANNON	WATTAGE	USHIO LAMP	ORDER CODE
SC1-600 and SC4-600	600	SMH-600/SC1	5001335
SC1-850 and SC4-850	850	SMH-850/SC1	5001470

SKYVIEW	WATTAGE	USHIO LAMP	ORDER CODE
AdLight	850	SMH-850/D2	5001477

SPACE CANNON ILLUMINATION	WATTAGE	USHIO LAMP	ORDER CODE
2.5kW	2500	UXL-25SC	5001077
3.0kW	3000	UXL-30SC	5001079
4.0kW	4000	UXL-40SC	5000631
7.0kW	7000	UXL-70SC	5000634

STRONG INTERNATIONAL	WATTAGE	USHIO LAMP	ORDER CODE
Radiance	850	SMH-850/SB1	5001634
Super Trouper	1000	UXL-10SB	5001075
Super Trouper	1600	UXL-16SB	5001076
Xenon Super Trouper	2000	UXL-2000FS	5001063
Super Trouper II Short Version	2000	UXL-20FS	5001062
Gladiator II	2500	UXL-25SC	5001077
Xenon Gladiator III	3000	UXL-3000FS	5001064

SYNCROLITE ENTERTAINMENT TECHNOLOGY	WATTAGE	USHIO LAMP	ORDER CODE
MX1000	850	SMH-850/D2	5001477
SX2K	2000	UXL-20SC	5001434
SX3K-2	3000	UXL-30SC	5001079
SXB-5/2	5000	UXL-50SC/A	5002044
SS7K	7000	UXL-70SC	5000634
SX7K	7000	UXL-70SC	5000634
SXB-8/2	7000	UXL-70SC	5000634

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FLUORESCENT LAMPS

AMALGAM CFL

AMALGAM COMPACT FLUORESCENT LAMPS FOR GENERAL LIGHTING

The energy saving Amalgam TE compact fluorescent lamps perform better in higher temperature applications making them ideal for use in enclosed fixtures and applications with excessive heat. USHIO's Amalgam TE CFL lamps achieve 85-90% light output while operating at 150° F. These lamps contain less than 1mg of mercury.

Available in 26W, 32W and 42W Triple Tube versions. Color temperatures available: 3500K and 4100K.

Amalgam Technology: Amalgam is a mercury alloy which is an upgrade from traditional liquid and pellet dosing mercury. Since amalgam gives better mercury vapor control in the lamp these lamps perform better over a wider variety of temperatures and operating positions.

APPLICATIONS

Enclosed Fixtures Where High Ambient Temperatures Are Expected:

- High Bay Lighting
- Recessed Lighting
- Outdoor Lighting
- Display Case and Cabinet Lighting

FEATURES AND BENEFITS

- Wide operating temperature range making them ideal for higher temperature or enclosed applications.
- Universal burn with stable light output in all burning positions
- Low mercury - Less than 1mg. of mercury per lamp
- Long life - 12,500 hour commercial life
- High color rendering - 82 CRI
- High efficacy - 67 lumens per watt

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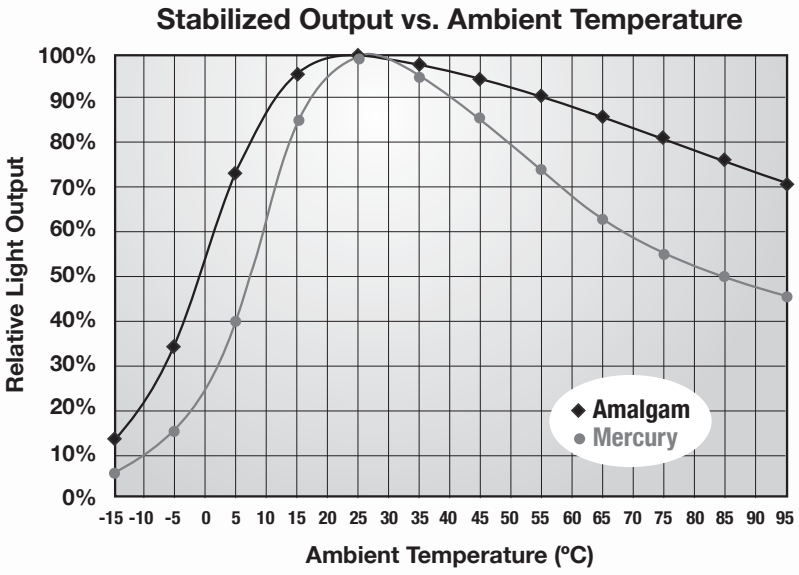
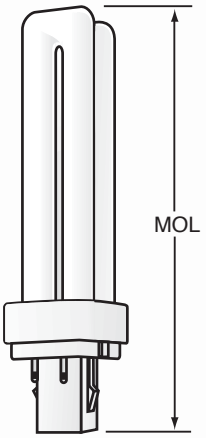
CHARACTERISTICS & SPECIFICATIONS

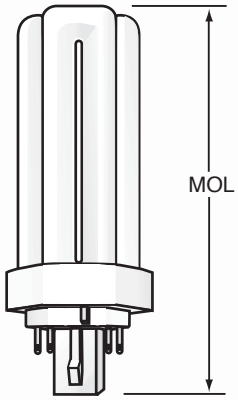
TRIPLE TUBE

Average Life: 10,000 hours
Commercial Life: 12,500 hours
Case Quantity: 50





4-Pin Base



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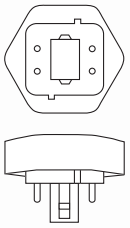
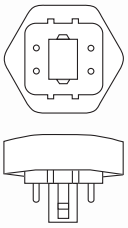


GX24q-3



GX24q-4

Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Volts (V)	Current (A)	Dimensions MOL (mm)	Dimensions MOL (in)	Luminous Flux Nom. (lm)	Luminous Flux Min. (lm)	Color Temp (K)	Base
	DE Triple Tube 4-Pin Base for Electronic Ballasts									
26	3000530	CF26DE/835A	105	0.325	165.1	5.2	1800	1620	3500	GX24q-3
26	3000531	CF26DE/841A	105	0.325	165.1	5.2	1800	1620	4100	GX24q-3
	TE Triple Tube 4-Pin Base for Electronic Ballasts									
26	3000532	CF26TE/835A	105	0.325	131	5.2	1800	1620	3500	GX24q-3
26	3000533	CF26TE/841A	105	0.325	131	5.2	1800	1620	4100	GX24q-3
32	3000534	CF32TE/835A	100	0.320	147	5.8	2400	2160	3500	GX24q-3
32	3000535	CF32TE/841A	100	0.320	147	5.8	2400	2160	4100	GX24q-3
42	3000536	CF42TE/835A	135	0.320	168	6.7	3200	2800	3500	GX24q-4
42	3000537	CF42TE/841A	135	0.320	168	6.7	3200	2800	4100	GX24q-4

Scan with a smartphone to view this product online.

CAUTION: Amalgam CFL lamps may not be compatible with all dimming systems and applications. Please consult the dimmer manufacturer for compatibility.

(Hg) - LAMP CONTAINS MERCURY
Manage in Accord with Disposal Laws
See: www.lamprecycle.org or 1-800-895-8842

Form No. S-ACFL/R-1211: The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

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METAL HALIDE LAMPS

AQUALITE™ SERIES

AQUALITE™ METAL HALIDE LAMPS FOR MARINE AQUARIUMS AND REEF SYSTEMS

USHIO Aqualite™ Metal Halide lamps feature the best combination of color balance, color rendering and photosynthetic light output for healthy marine aquarium and reef systems. Our USHIO BLV factory in Germany, collaborated with leading marine biologists to develop the first 10,000K Metal Halide lamps. We have successfully set the benchmark of quality for over ten years.

The Aqualite™ 10,000K lamps have a high color temperature from a single point source which simulates the appearance of sunlight near the equator in ocean depths of approximately 5 meters. Aqualite™ 14,000K and 20,000K+ lamps simulate water color at deeper depths and with differing wavelength spikes. Coral fluorescence will be excited in some species under the enhanced blue spectrum of the 14,000K and 20,000K+ lamps. The superior spectral balance of the Aqualite™ lamps are ideal for lighting and environmental conditions for reef systems. This includes fish, corals, invertebrates, marine fauna and flora.

At USHIO, we take the utmost care and inspection of our raw materials and maintain top standards in cleanliness during lamp production. USHIO Aqualite™ lamps utilize proprietary rare-earth mixtures to provide the most consistent lamp color over the entire lifetime of the lamp. Our arc tube forming process and coatings ensure that lumen depreciation levels are kept to a minimum. This is what sets USHIO apart from our competition.

FEATURES AND BENEFITS

- High color temperature — 10,000K, 14,000K, 20,000K+
- Excellent color rendering — up to 90 CRI
- Superior spectrum balance
- High PAR values
- High color stability
- High intensity
- Made in Germany

APPLICATIONS

- Marine / Aquariums
- Salt Water Reefs / Corals
- Marine Fauna & Flora
- Fountains
- Waterscape

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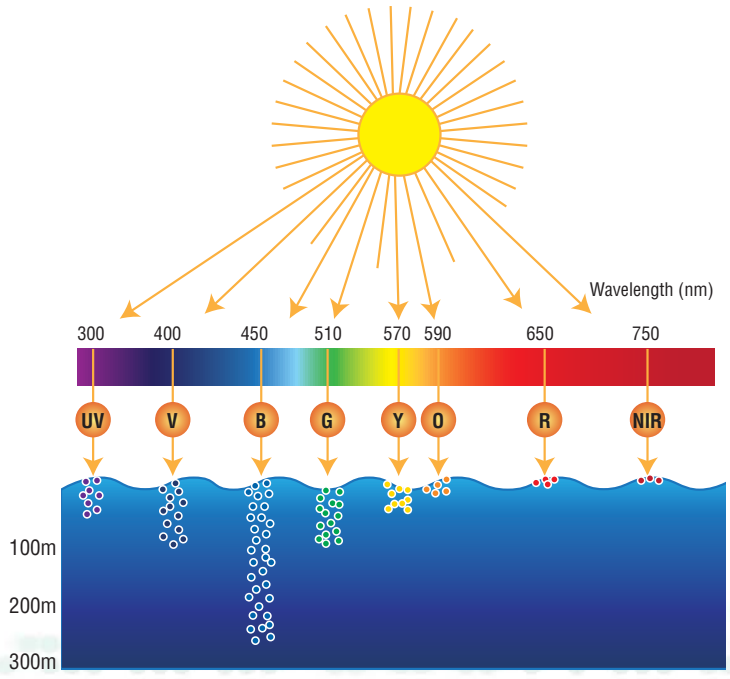
AQUALITE™

Natural Light in the Reef

Different wavelengths of light are absorbed at different rates by water. The red and infrared (IR) energy which have the longest wavelength and therefore the least amount of energy in the visible spectrum do not penetrate the water very far and are quickly absorbed at the surface. A red fish swimming near the surface will appear red and vibrant but that same fish at lower depths will appear black since there is no red light to reflect off of it. Next is orange, yellow, green, and then the blue region around 450nm which reaches the furthest.

Although it has the shortest wavelength and highest energy, ultraviolet light is also quickly absorbed from water. The smaller wavelengths of light are easily scattered by particles in the water.

The difference between natural light at a few meters below the surface and artificial light can be quite dramatic. Professional dive photographers use xenon strobe lamps at 6,000K daylight color temperature to best show off the colors of coral and marine life as we would prefer to see it. You can see how quickly the color of the corals and fish enhanced by a xenon strobe fall off and everything turns blue in the background of professional underwater photographs. Colors of the reef and fish that are enhanced under the artificial light would normally have a monotone bluish cast to it under natural light at that depth. This is why artificial light in reef aquariums can be very subjective when it comes to color rendering. The choice of lamp color temperature is tied to the individual aquarist's eye when other factors such as PAR ratings and coral growth are ruled out.



SPECTRAL DISTRIBUTION

Wavelength theory provides a graphical representation of radiant energy and the electromagnetic spectrum. The preferred unit of wavelength for the visible and ultraviolet (UV) regions of the spectrum is the nanometer (nm).

PAR (Photosynthetically Active/Available Radiation)

The first 200 meters of the ocean depth is termed the photic zone which is penetrated by sufficient sunlight for photosynthesis to occur and plants thrive.

PAR is a measurement used to help determine the photosynthetic amount of light needed by corals and plant life. Photosynthesis in corals utilizes energy between the blue 400nm wavelengths and red 700nm wavelengths.

What About the UV?

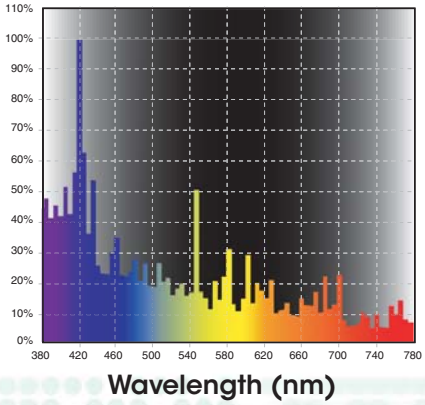
UVC and UVB in excessive amounts can be detrimental to fish and corals; However, UV light does occur naturally in sunlight which in balanced amounts is not necessarily harmful. Studies have found that the majority of coral reef fish produce mucus that absorbs harmful UVB rays. Corals also have developed a natural pigmentation as a protection from UV. Metal halide lamps produce UV light which can be significantly filtered by fixture glass and water depth. USHIO's Aqualite™ metal halide lamps are balanced to reduce excessive amounts of UV light for your reef system. (See section on use of safety fixture glass on back cover).

Aqualite™ 10,000K lamps produce the ideal balance of blue, white and red light in the spectrum to simulate daylight in the water. Our Aqualite™ lamps are designed to provide the reef environment with healthy levels of PAR and visible light values.

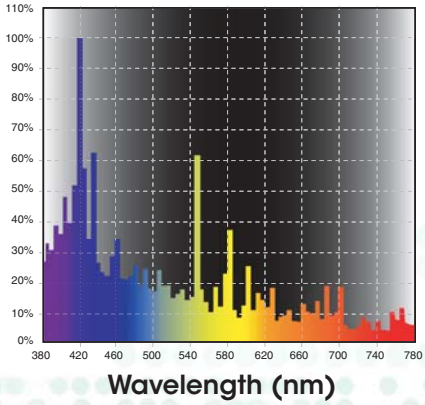
UVC = 100–280nm: Most harmful and used in sterilization to kill biological organisms. (Germicidal Lamp = 254nm peak)
UVB = 280–315nm: Harmful and causes sunburn, skin cancer, and eye damage.
UVA = 315–400nm: Longer wavelength and less energy than other UV. It is the least harmful but is still damaging to DNA and the human eye.
Black Light Blue Lamps = 368-371nm
Actinic Lamps = 420nm Peak: (Although actinic lamps peak at 420nm they do produce wavelengths in the UVA range so UV protective safety rules apply.)
Visible Light = 380–780nm
Photosynthetic Light = 400-700nm: (The more peaks across this broad spectrum will give you the best photosynthetic performance.)

SPECTRAL DISTRIBUTION CHART

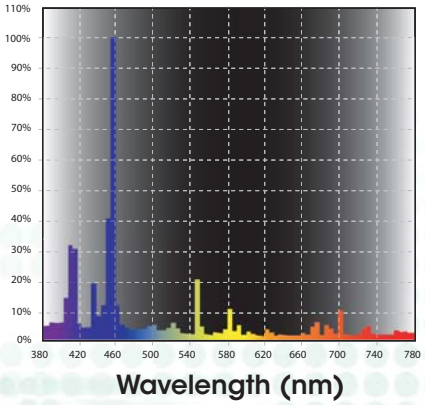
150W 10,000K



150W 14,000K



150W 20,000K+



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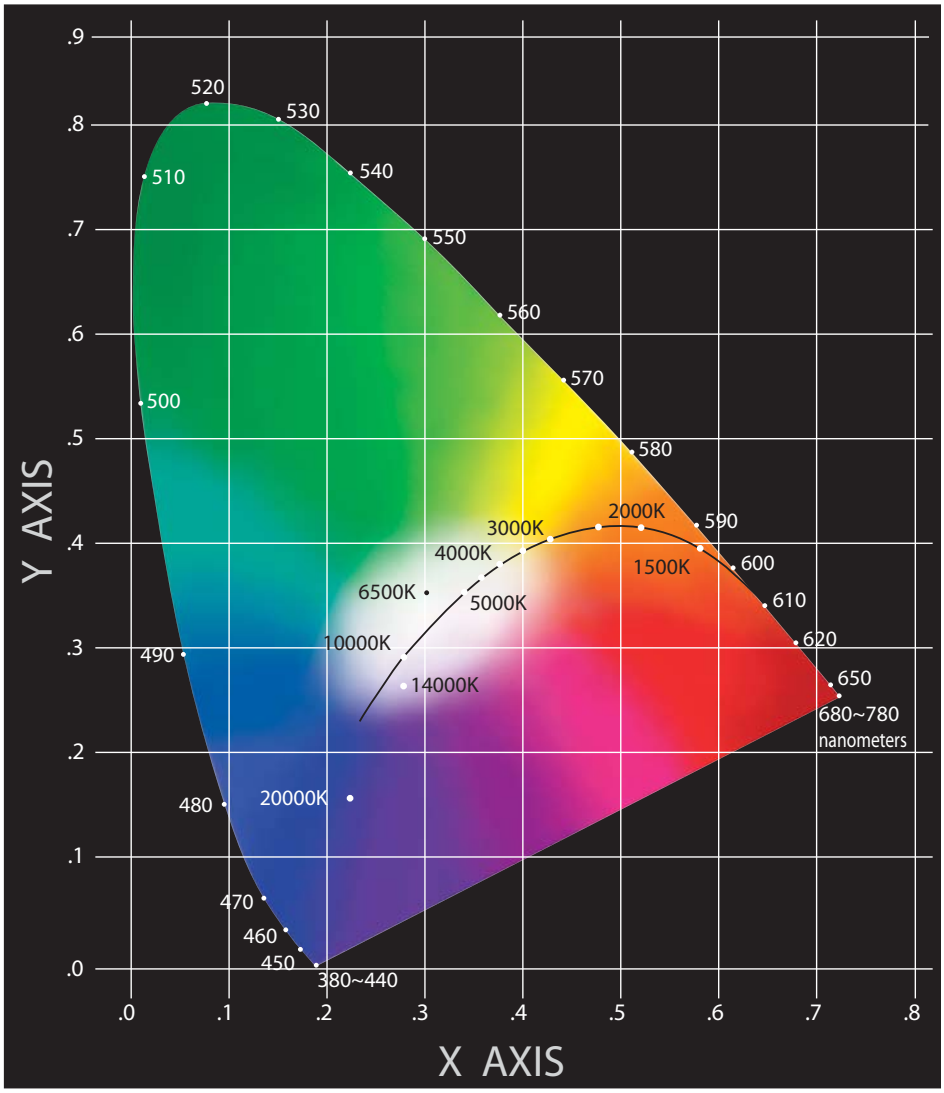
COLOR CHROMATICITY CHART



AQUALITE™ Chromaticity Coordinates

Double Ended

75W	10,000K	X=0.285	Y=0.275
75W	14,000K	X=0.287	Y=0.260
75W	20,000K+	X=0.200	Y=0.180
150W	10,000K	X=0.285	Y=0.275
150W	14,000K	X=0.287	Y=0.260
150W	20,000K+	X=0.220	Y=0.160
250W	10,000K	X=0.285	Y=0.275
250W	14,000K	X=0.287	Y=0.260
250W	20,000K+	X=0.220	Y=0.160

E39 Base

175W	6,500K	X=0.304	Y=0.360
175W	10,000K	X=0.285	Y=0.275
175W	14,000K	X=0.287	Y=0.260
175W	20,000K+	X=0.220	Y=0.160
250W	10,000K	X=0.285	Y=0.275
250W	14,000K	X=0.270	Y=0.250
250W	20,000K+	X=0.200	Y=0.140
400W	10,000K	X=0.285	Y=0.275
400W	14,000K	X=0.270	Y=0.250
400W	20,000K+	X=0.200	Y=0.140
400W	10,000K	X=0.285	Y=0.275
400W	14,000K	X=0.270	Y=0.270
400W	20,000K+	X=0.200	Y=0.140
1000W	10,000K	X=0.285	Y=0.275

Correlated Color Temperature: Measured in degrees of kelvin (K), color temperature is the absolute temperature of a blackbody radiator resembling that of the light source. This black body curve can be seen on the Color Chromaticity Chart. Color temperature can be used as a general rule of thumb to measure the appearance of "warmth" or "coolness" of a light source. It does have its limitations, since lamps with the same color temperature rating will not often look the same between manufacturers. This is due to the different gas/metal mixtures in metal halide lamps and different phosphors used in fluorescent lamps. Other measurements such as CRI, PAR values, spectral distribution and lumen depreciation should also be considered when choosing a light source for your reef system.

Outdoor daylight is approximately 5,600-6,000K. Aqualite™ 10,000K lamps approximate equatorial daylight at 5 meters of ocean depth. Aqualite™ 14,000K lamps have a bluer tone to enhance blue corals but maintain higher color rendering for white rock and sand. Aqualite™ 20,000K+ lamps are blue in appearance, simulating deeper water environments. Blue lamps are typically not given a color temperature just as we would not assign a color temperature for magenta or green lamps. For simplifying lamp choice selection, USHIO uses 20,000K+ as a marketing term for our blue lamp.

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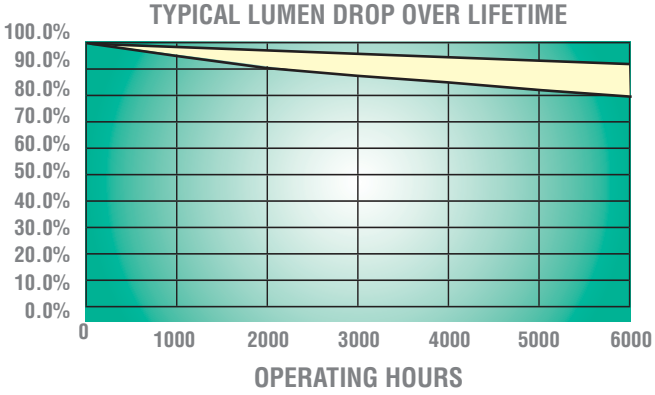
LUMINOUS FLUX

Luminous Flux: Measured in lumens is an industry standard for measuring the visible light output from the lamp. Luminous flux measure the photopic vision of the human eye from approximately 300-700nm. Lumens come into play in a marine aquarium, since a dim tank does not show off the marine life as expected. It will make a difference on what is seen at the bottom of the tank and how the tank is illuminated in comparison to the ambient light of the surrounding room. However, lumens alone cannot be a measurement of perceived brightness because other factors including color temperature and color rendering come into play. All metal halide lamps depreciate in lumen value over time. Because the metal halides used in the 10,000K lamp are more stable, the 10,000K lamps hold their luminous flux values over a much longer period than the 14,000K and 20,000K+ lamps and thus require less lamp changes over time. Out of the box, the 10,000K and 14,000K lamps have over twice the luminous flux values as a 20,000K+ lamp and thus you would have to double your wattage of a 20,000K+ lamp to get the same visible light output of a 10,000K or 14,000K lamp.

LUMEN DEPRECIATION

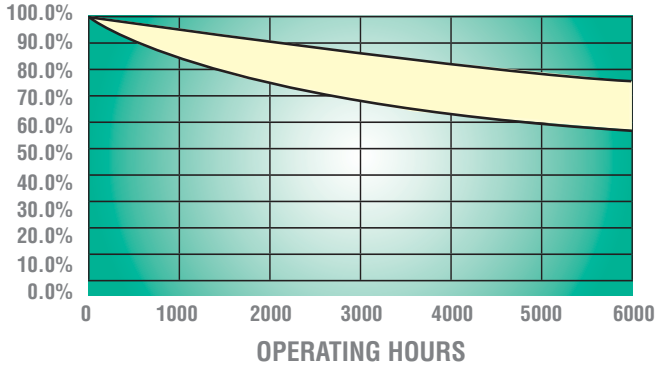
USHIO 150W 10,000K

TYPICAL LUMEN DROP OVER LIFETIME



USHIO 150W 14,000K

TYPICAL LUMEN DROP OVER LIFETIME



SAMPLE LUMEN DEPRECIATION & KELVIN PERFORMANCE OVER TIME

UHI-150AQ/10K — 7000 LUMENS 90CRI					
Operating Hours	0-100	1000	2000	4000	6000
Loss of Lumens	0% to 0%	1% to 4%	3% to 9%	4% to 15%	7% to 21%
Kelvin Performance	11100/111%	10300/103%	9500/95%	9250/93%	9000/90%
UHI-150AQ/14K — 6800 LUMENS 70CRI					
Operating Hours	0-100	1000	2000	4000	6000
Loss of Lumens	0% to 0%	6% to 16%	11% to 24%	17% to 34%	23% to 42%
Kelvin Performance	14100/101%	12000/86%	11000/79%	10550/75%	10100/72%

Color Shift: USHIO Aqualite™ lamps use a proprietary mixture of salts and metals to ensure that color is stable from lamp to lamp out of the box. Metal halides break down over the life of the lamp and thus all metal halide lamps will experience a color and Kelvin shift near the end of life.

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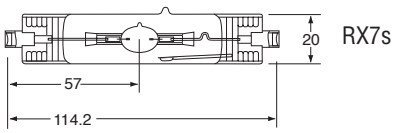
CHARACTERISTICS & SPECIFICATIONS

AQUALITE™ METAL HALIDE

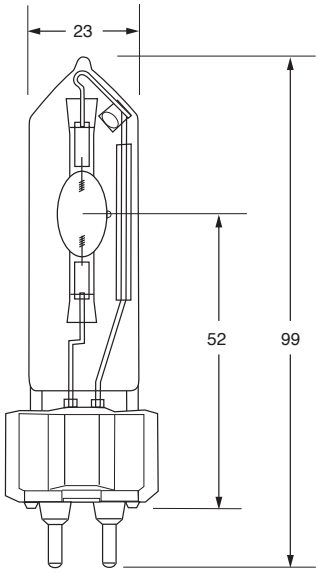
All dimensions are in millimeters

75W



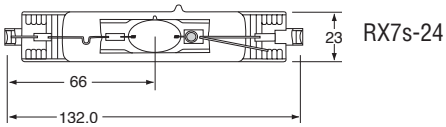
UHI-70AQ

14,000K



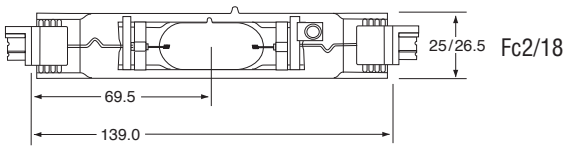
UHI-S150AQ/G12
150W

150W

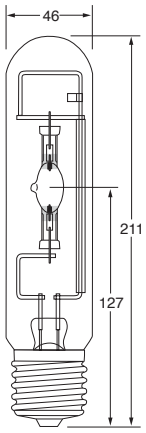


UHI-150AQ

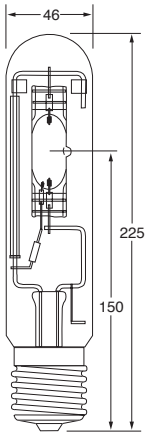
250W



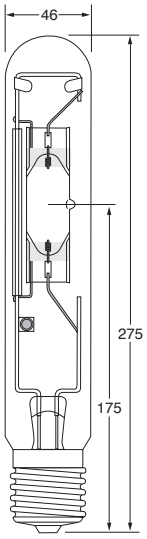
UHI-250AQ



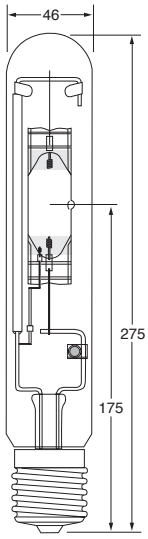
UHI-S175AQ
175W



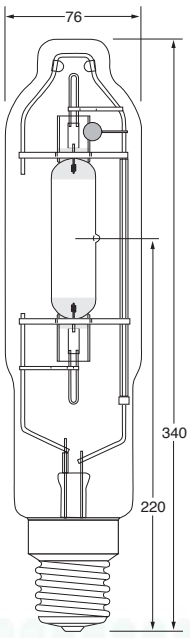
UHI-S250AQ/CWA
250W



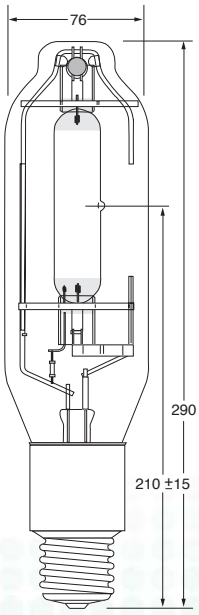
UHI-S400AQ
400W



UHI-S400AQ/CWA
400W



UHI-S1000AQ
1000W



UHI-S1000AQ/CWA
1000W

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CHARACTERISTICS & SPECIFICATIONS

AQUALITE™ METAL HALIDE

Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Color Temp (K)	Lamp Current (A)	Luminous Flux (lm)	CRI	PAR Value/ Watt	Recommended Life (h)	Ballast
	DOUBLE ENDED — RX7s & Fc2/18 BASE								
75	5000870	UHI-70AQ/10	10000	0.9	3100	80	14	6000	M85**
75	5001627	UHI-70AQ/14	14000	0.9	TBA	90	14	6000	M85**
75	5001606	UHI-70AQ/20+	20000+	0.9	1700	n/a	11	6000	M85**
150	5000440	UHI-150AQ/10	10000	1.8	7000	90	35	6000	M81**
150	5001587	UHI-150AQ/14	14000	1.8	6800	70	35	6000	M81**
150	5001588	UHI-150AQ/20+	20000+	1.8	3000	n/a	16	6000	M81**
250	5000763	UHI-250AQ/10	10000	3.0	10500	90	56	6000	M80**
250	5001589	UHI-250AQ/14	14000	3.0	10600	70	56	6000	M80**
250	5001590	UHI-250AQ/20+	20000+	3.0	5000	n/a	26	6000	M80**
	SINGLE ENDED — E39 BASE								
175	5001586	UHI-S175AQ/65	6500	1.5	11675	70	52	6000	M137*/M152
175	5000761	UHI-S175AQ/10	10000	1.5	7500	90	47	6000	M137*/M152
175	5001591	UHI-S175AQ/14	14000	1.5	7500	70	47	6000	M137*/M152
175	5001592	UHI-S175AQ/20+	20000+	1.5	4300	n/a	22	6000	M137*/M152
250	5001070	UHI-S250AQ/10/CWA	10000	3.0	11000	90	54	8000	M58
250	5002092	UHI-S250AQ/14/CWA	14000	3.0	11000	70	54	8000	M58
250	5002093	UHI-S250AQ/20/CWA	20000+	3.0	5000	n/a	38	8000	M58
400	5001492	UHI-S400AQ/10/CWA	10000	3.6	18500	90	95	8000	M59
400	5002094	UHI-S400AQ/14/CWA	14000	3.6	18500	70	95	8000	M59
400	5002095	UHI-S400AQ/20/CWA	20000+	3.6	8000	n/a	61	8000	M59
400	5000760	UHI-S400AQ/10	10000	3.2	18500	90	95	8000	M135*/M155
400	5001608	UHI-S400AQ/14	14000	3.2	18500	70	95	6000	M135*/M155
400	5001607	UHI-S400AQ/20+	20000+	3.2	8000	n/a	61	6000	M135*/M155
1000	5000910	UHI-S1000AQ/10	10000	9.5	50000	90	230	3000	M83**/M141
1000	5001493	UHI-S1000AQ/10/CWA	10000	4.1	46000	90	230	3000	M47
	SINGLE ENDED — G12 BASE								
150	5002143	UHI-S150AQ/14/G12	14000	1.8	7000	70	35	6000	M81, M102 M142

Burn Position: Double Ended: Horizontal ± 45^0
Single Ended: Universal 360^0
(1000W): Horizontal ± 60^0

Case quantity: Double Ended: 10/case
Single Ended: 12/case; 1000W 6/case
G12 Single Ended: 10/case

Aqualite™ Metal Halide lamps are manufactured under ISO 9001 guidelines ensuring quality and security for the purchaser.

Recommended Ignition Voltage: 4kV
*Pulse start ballast with ignitor **Need ignitor with 4kV
Lamp should be switched off for at least 15 minutes/week

Enclosed fixture rated:
!Use only in fixtures installed with tempered safety glass

R - Non Self-Extinguishing Lamp
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. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used.

AQUALITE™ - Glossary of Terms

Lamp Life: The median life of metal halide lamps is statistically determined under controlled conditions on a 11 hours on, 1 hour off, cycle. Environmental factors including the lamp ballast, lamp housing, reflector and thermal properties will affect lamp life considerably. All metal halide lamps degrade in light output and may shift in color over time. Inferior lamps are easy to spot since they significantly shift in color and drop off rapidly in output. The lamp life rating between different manufacturers may be the same on paper but performance over the life of the lamp will tell you your true cost of ownership. USHIO Aqualite™ metal halide lamps utilize proprietary rare-earth mixtures to provide the most consistent lamp color over the entire lifetime of that lamp. Our arc tube forming process and coatings ensure that light degradation levels are kept to a minimum. For the best health of your aquarium and reef system, it is recommended that you schedule regular lamp changes depending upon your timing cycles and rated lamp life. It is normal for metal halide lamps to stabilize in color and output within 100 hours of "burn in" operation.

Brand new lamps will always produce more light than lamps near their end of life (up to 40% difference). Your corals and fish will need time to adjust to the higher light levels. It is recommended that when a lamp is first replaced, that you first raise the light fixture and then lower it as the lamp ages.

CRI or Color Rendering Index: CRI is an internationally accepted system to measure the capability of a light source to render color naturally. The closer the number is to 100 the closer that light source is rendering color like natural daylight. Fish, coral and plant life will appear much more true to life under higher CRI light sources. The CRI of the Aqualite™ 10,000K metal halide is higher than the 14,000K and the 20,000K+. We do not measure the CRI of the 20,000K+ lamp because it is blue. Although blue lamps like the 20,000K+ would have a poor CRI and low luminous flux rating, they are appealing to some in the marine aquarium hobby. That is why when it comes to marine aquarium use, all measurements of lighting must be taken into consideration, color temperature, color rendering, luminous flux, and most importantly, spectral distribution and PAR.

Operating/Burn Position: The operating position of the lamp is specified to provide the proper light output and color. Changing the lamp operating position can change the thermal properties of the arc tube during operation causing some metals or salts to drop out of the arc stream and thus changing the color of the lamp.

Timing Cycles: For the health of your fish and reef system the lighting system should be turned on at least 6-12 hours per day. Check with marine biology sources to determine the proper amount of daylight hours needed for your specific species.

Ballasts and Power Supplies: USHIO always recommends ballasts that are UL recognized for safety and adhere to ANSI standards. It is extremely critical to match the proper ANSI coded lamp to the ANSI coded ballast. Failure to do so will cause improper lamp ignition, poor color and spectral performance, and short life. Check that the operating current of the ballast and ignition voltage matches the lamp. This information should be readily available from any reputable ballast manufacturer. Some ballasts intentionally overdrive the current to the lamp in order to push up luminous flux values on initial tests. The drawback to this intentional "overdriving" is a faster lumen depreciation and color shift.

For example: USHIO's 175W Aqualite™ is a pulse start lamp. Pulse start type lamps may ignite and work just fine on a probe start ballast for a few months; however, as the lamp ages, the electrodes erode and higher voltage is needed to start the lamp. The open circuit voltage provided by probe start ballasts is not sufficient to ignite a pulse start lamp. Pulse start lamps like our 175W Aqualite™ always require an ignitor to keep the lamp starting throughout its life cycle.

R - Non Self-Extinguishing Lamp
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. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used.

Use Safety Fixture Glass! Double Ended metal halide lamps are made of quartz which allows the transmission of UV wavelengths from the arc tube. It is mandatory that tempered safety glass be used with double ended metal halide type lamps. UV protective glass is required for any architectural use of Aqualite™ metal halide lamps where people are directly exposed to the light.

Single Ended metal halide lamps use a hard outer glass jacket which reduces UV. USHIO mandates the use of tempered safety glass on any fixtures using our Aqualite™ metal halide lamps. The safety glass not only reduces UV, but also extends the life of your lamps and sockets by protecting them from salt water corrosion. If the outer glass jacket of the single ended lamp is cracked or damaged in any way this will permit UV light exposure and the lamp should be replaced immediately.

Form No. S-UHI/AQ/R-0112

USHIO

ULTRAVIOLET LAMPS

UV-B, Blacklight (BL), Blacklight Blue (BLB)

SPECIAL COATED LOW-PRESSURE MERCURY-ARC LAMPS

USHIO offers 3 types of special coated Low-Pressure Mercury-Arc lamps: UV-B, BL, and BLB. These lamps are each coated with special blended phosphor to emit radiation peaking at 306nm (UV-B), 352nm (BL) or 368nm (BL & BLB).

The UV radiation emitted at specific wavelengths are used to create UV reaction and effects for various applications such as in Laboratory/Research, Industrial, Sanitation, Criminology, Cosmetics and Entertainment.

Manufacturing at an ISO9001 certified facility with tightly controlled manufacturing process, enables us to provide high quality lamps with reliable delivery to support your OEM product development as well as your daily operation.

These lamps are components which may be used by customers to manufacture a variety of finished products.

FEATURES & BENEFITS

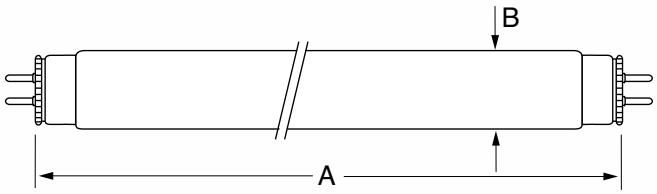
- 3 Wavelength variations: 306nm(UV-B), 352nm (UV-A) or 368nm(UV-A)
- Specially blended phosphor coating for maximum UV effect and output
- Low Mercury dose to meet environmental demands
- Large production capacity providing lamps with consistent quality and reliable delivery
- Flexible design capability for custom lamp development

APPLICATIONS

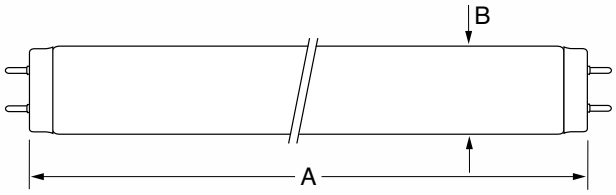
- UV Curing
- Fluorescence Illumination
- Fluorescence Analysis
- Laboratory/Research
- Photochemistry
- Chromatography
- Phototherapy
- Dermatology
- Non-Destructive Testing
- Inspection
- Detection
- Insect Luring
- Fluorescence Display
- Special Effects in Theatrical Presentation

USHIO

CHARACTERISTICS & SPECIFICATIONS



T5 Miniature Bi Pin G5 Base



T8 & T10 Medium Bi Pin G13 Base

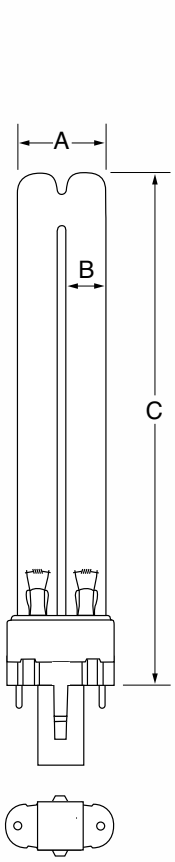
USHIO Ordering Code	USHIO Lamp Description	Dimensions Length (A) (mm)	(in)	Diameter (B) (mm)	(in)	Watts (W)	Current (A)	Volts (V)	Spectral Peak (nm)	UV Output (W)	Avg Life (h)	Base
	UV-B (306nm) MIDRANGE LAMP											
3000318	G8T5E	287.0	11.30	15.5	0.61	7.2	0.145	57	306	1.4	3000	G5
3000319	G15T8E	436.0	17.16	25.5	1.00	14.7	0.300	55	306	3.0	4000	G13
3000335	G25T8E	436.0	17.16	25.5	1.00	25.0	0.600	52	306	3.9	3000	G13
3000320	G40T10E	1198.0	47.17	32.5	1.28	39.5	0.420	106	306	9.3	5000	G13
	HALF COAT (254nm/352nm)											
3000333	G4T5/HC	134.5	5.30	15.5	0.61	4.5	0.170	29	254 / 352	0.4 / 0.2	3000	G5
	BLACKLIGHT T-5 DIAMETER											
3000105	F4T5BL	134.5	5.30	15.5	0.61	4.5	0.170	29	352**	0.5	3000	G5
3000110	F6T5BL	210.5	8.29	15.5	0.61	6.0	0.160	42	352**	1.0	3000	G5
3000115	F8T5BL	287.0	11.30	15.5	0.61	7.2	0.145	57	352**	1.2	3000	G5
	BLACKLIGHT T-8 DIAMETER											
3000077	F15T8BL	436.0	17.17	25.5	1.00	15.0	0.305	55	352**	2.6	4000	G13
	BLACKLIGHT BLUE T-5 DIAMETER											
3000106	F4T5BLB	134.5	5.30	15.5	0.61	4.5	0.170	29	368	0.5	3000	G5
3000111	F6T5BLB	210.5	8.29	15.5	0.61	6.0	0.160	42	368	1.0	3000	G5
3000116	F8T5BLB	287.0	11.30	15.5	0.61	7.2	0.145	57	368	1.2	3000	G5
	BLACKLIGHT BLUE T-8 DIAMETER											
3000305	F10T8BLB	330.0	12.99	25.5	1.00	9.5	0.230	46	368	1.5	4000	G13
3000078	F15T8BLB	436.0	17.16	25.5	1.00	15.0	0.305	55	368	2.6	4000	G13
3000307	F18T8BLB*	588.5	23.17	25.5	1.00	18.0	0.370	57	368	3.7	4000	G13
3000148	F30T8BLB	893.0	35.16	25.5	1.00	30.5	0.355	99	368	6.3	4000	G13
3000308	F36T8BLB*	1198.0	47.17	25.5	1.00	36.0	0.430	103	368	8.1	8000	G13
	BLACKLIGHT BLUE T-10 DIAMETER											
3000306	F20T10BLB	588.5	23.17	32.5	1.28	19.0	0.360	58	368	3.7	4000	G13
3000138	F40T10BLB	1198.0	47.17	32.5	1.28	39.5	0.420	106	368	8.1	5000	G13

* Preheat

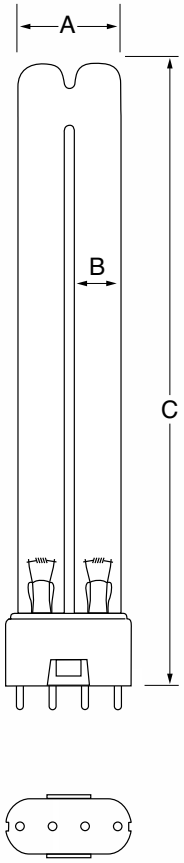
** 368nm available upon request

USHIO

CHARACTERISTICS & SPECIFICATIONS



G23



2G11

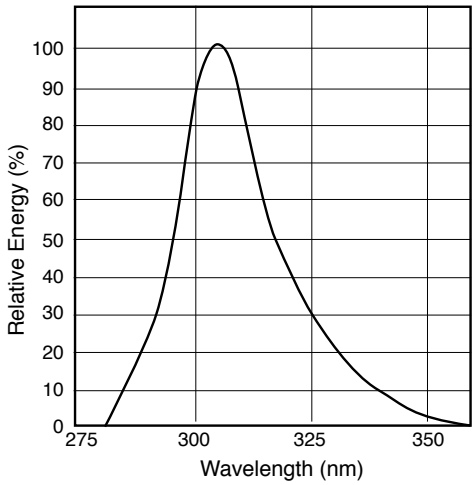
USHIO Ordering Code	USHIO Lamp Description	Dimensions Diameter (A) (mm)	(in)	Diameter (B) (mm)	(in)	Length (C) (mm)	(in)	Watts (W)	Current (A)	Volts (V)	Spectral Peak (nm)	UV Output (W)	Avg Life (h)	Base
	BLACKLIGHT, COMPACT LAMP													
3000331	FPX9BL	28.0	1.10	13.0	0.51	145.0	5.71	9.0	0.170	60	352**	1.4	4000	G23
3000332	FPX11BL	28.0	1.10	13.0	0.51	215.0	8.46	11.0	0.155	91	352**	1.7	4000	G23
	BLACKLIGHT BLUE, COMPACT													
3000330	FPX7BLB	28.0	1.10	13.0	0.51	115.0	4.53	7.0	0.180	45	368	1.0	4000	G23
3000325	FPX9BLB	28.0	1.10	13.0	0.51	145.0	5.71	9.0	0.180	59	368	1.4	4000	G23
3000327	FPX18KBLB	40.0	1.57	20.0	0.79	225.0	8.86	18.0	0.375	58	368	3.3	4000	2G11

** 368nm available upon request

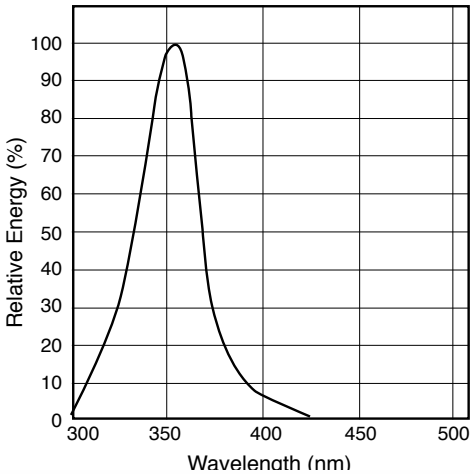
Average lamp life and output measurements taken under laboratory conditions in open air.
Lamps are cycled for 2hrs 45minutes on / 15minutes off when testing life and output.
Lamp data is for reference only. Actual lamp performance depends on system design and operating conditions.

Warning: Protect your eyes and skin when operating UV-B & BL lamps.
Equipment should be designed to completely screen or filter UV radiation.

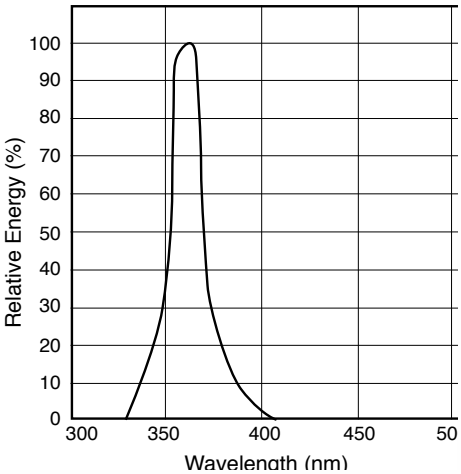
UV-B Lamp
306nm



Blacklight Lamp (BL)
352nm



Blacklight Lamp (BL) &
Blacklight Blue Lamp (BLB)
368nm



Form No. S-BL/BLB/R-0506

USHIO

FLUORESCENT LAMPS

C3™ SERIES

C3™ SERIES - COLD CATHODE LAMPS

Cold cathode lamps have been used for years in laptop displays, copiers and cell phones. Even some of the new flat panel LCD television screens and monitors utilize cold cathode technology because the technology is proven and reliable.

Recently, the technology has been adapted and applied to compact lighting products that have an average life rating of 25,000 hours and are dimmable. These long-life and energy saving lamps are ideal for special applications, such as signage, where reduced maintenance and energy costs are desired.

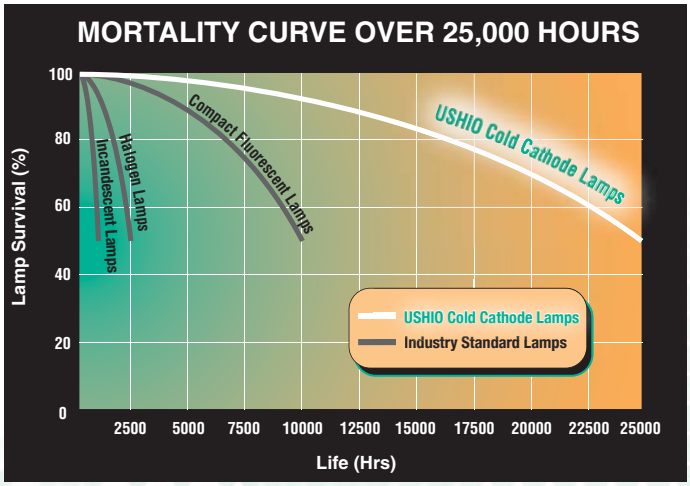
The soft starting of the cathodes ensures long lamp life and unparalleled performance under difficult ambient conditions.

FEATURES & BENEFITS

- Energy saving — Replaces higher wattage lamps
- Long lamp life — 25,000 hours
- Dimmable — For a wide variety of applications
- Minimizes the amount of maintenance required to support hard to reach lighting installations such as signs and marquees
- Dramatically reduces lamp costs — Eliminates up to 24 lamp replacements over the life of the cold cathode lamp
- Specially designed cathodes allow the lamps to cycle, flash and dim with no impact on life
- UL listed
- 24-month limited warranty

APPLICATIONS

- Signs
- Marquees
- Sign Backlighting
- Special Applications

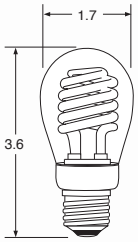


USHIO

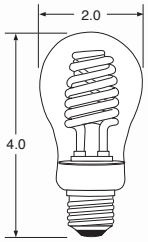
CHARACTERISTICS & SPECIFICATIONS

C³™ COLD CATHODE

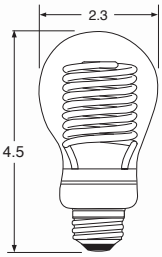
Universal Burn Position



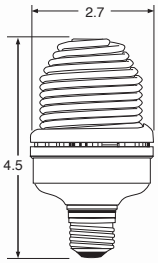
E26
S14
Fig. 1



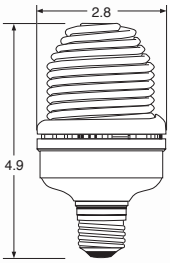
E26
A16
Fig. 2



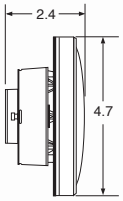
E26
A19
Fig. 3



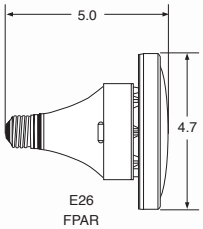
E26
CF13/CLT
Fig. 4



E26
CF18/CLT
Fig. 5



GX53
Fig. 6



E26
FPAR
Fig. 7

Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Dimensions Dia (in)	MOL (mm)	MOL (in)	CRI	Color Temp (K)	Approx Lumens (lm)	Avg Life (h)	Case Qty	Fig. No.
3	3000475	CF-3CC/2700/E26	1.7	91.4	3.6	82	2700	120	25,000	12	1
5	3000476	CF-5CC/2700/E26	2.0	101.6	4.0	82	2700	200	25,000	12	2
8	3000528	CF-8CC/2700/E26	2.3	114.3	4.5	82	2700	300	25,000	12	3
8	3000529	CF-8CC/FR/2700/E26	2.3	114.3	4.5	82	2700	290	25,000	12	3
13	3000510	CCFL13CLT/827/E26	2.7	114.3	4.5	82	2700	780	25,000	50	4
18	3000513	CCFL18CLT/827/E26	2.8	124.5	4.9	82	2700	1080	25,000	50	5
18	3000539	CF18CC/2700/GX53	4.7	61.0	2.4	82	2700	820	25,000	40	6
18	3000538	CF18CCFPAR/2700/E26	4.7	127.0	5.0	82	2700	820	25,000	24	7

Operating Characteristics

DIMMING:

USHIO's dimmable C³™ Cold Cathode Fluorescent lamps should only be used on modern analog dimmers. They will not work on digital dimming systems, which although uncommon, may still be found in certain new installations.

CCFL's will not dim to 0%. A Cold Cathode lamp functions similarly to a linear fluorescent lamp, which requires that an arc be maintained between the cathodes / electrodes. A certain amount of power is required to maintain this arc. There is also power that is consumed in the operation of the ballast. Due to the power consumed by these two items, a dimmable CCFL lamp has a much more restricted dimming range than other lamps. C³™ Cold Cathode lamps have a dimming range of 100% - 30%. Depending on the brand and type of dimmer used, you may experience flickering or shutdown with C³™ Cold Cathode lamps when dimmed below 30% of the lamp's power.

USHIO GX53 Lamp Holder

The model GX53 lamp holder is rated up to 100W, 250V with an overall length of 3.10 inches. The case quantity is 10. Use order code **1003642**.

ENVIRONMENT

The ideal ambient operating temperature for the C³™ Cold Cathode lamps is 25ºC (77ºF). These lamps will operate in ambient temperatures between -15ºC (5ºF) and 50ºC (122ºF).

The 3W, 5W and 8W C³™ lamps are suitable for use indoors or outdoors. The 13W and 18W C³™ lamps are for indoor use only.

Scan with a smartphone to view this product online.

LAMP CONTAINS MERCURY - (Hg)

Manage in Accord with Disposal Laws
See: www.lamprecycle.org or 1-800-895-8842

Distributed by:

Form No. S-C3CCFL/R-1111: The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

USHIO

METAL HALIDE LAMPS

CERAMIQUE™
SINGLE AND DOUBLE ENDED SERIES

CERAMIC METAL HALIDE LAMPS FOR GENERAL LIGHTING

USHIO Ceramique™ Compact Metal Halide Lamps feature a ceramic arc tube which provides excellent color rendering and high color stability over the entire life of the lamp. The UV protected glass envelope reduces the fading effect on textiles and artwork. The compact lamp size optimizes the use of advanced reflector and fixture designs to provide more precise beam distributions. USHIO Ceramique™ lamps are ideal for applications where color rendering and color consistency from lamp to lamp is critical.

Available in:
Single ended G12 Base— 35W, 70W and 150W
Double ended RX7s Base— 70W and 150W
with color temperatures ranging from 2800K to 4200K

FEATURES & BENEFITS

- Excellent color consistency from lamp to lamp
- High color stability over the entire lifetime
- Hot re-strike possible with RX7s base lamps
- Excellent color rendering — 80 to 90+ CRI
- Long life — Up to 15,000 hours average life
- UV Protection

APPLICATIONS

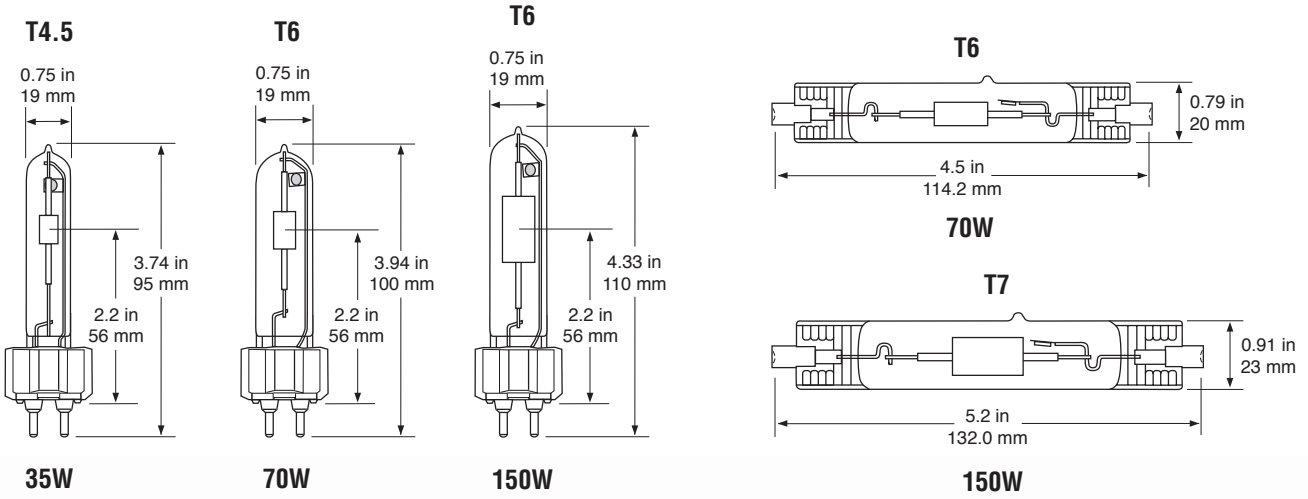
- Shop Windows
- Hotels, Restaurants
- Museums, Galleries
- Swimming Pools
- Landscape
- Spot Lighting
- Fiber Optic
- Track Lighting

Distributed by:

USHIO

CHARACTERISTICS & SPECIFICATIONS

CERAMIQUE™
G12 & RX7s Base



Watts (W)	USHIO Ordering Code	USHIO Lamp Description	Lamp Current (A)	Lumens Initial (lm)	Lumens Mean (lm)	Color Temp (K)	CRI	ANSI Ballast	Avg Life (h)	Burn Position
		SINGLE ENDED — G12 Base								
35	5002186	CMS-35/T4.5/830/G12	0.50	3400	2400	3000	80+	M/130E	10000	Universal
35	5002187	CMS-35/T4.5/942/G12	0.50	3200	2200	4200	90+	M/130E	10000	Universal
70	5001321	CMS-70/T6/830/G12	0.98	6200	5000	3000	80+	M85/E, M98/E, M139/E	15000	Universal
70	5001322	CMS-70/T6/942/G12	0.98	6400	5200	4200	>90	M85/E, M98/E, M139/E	15000	Universal
150	5001323	CMS-150/T6/830/G12	1.85	14000	11000	3000	80+	M81/E, M102/E, M142/E	12000	Universal
150	5001324	CMS-150/T6/942/G12	1.85	13000	11000	4200	>90	M81/E, M102/E, M142/E	12000	Universal
		DOUBLE ENDED — RX7s Base								
70	5001410	CMD-70/TD/828/RX7S	0.90	6500	—	2800	80+	M85/E, M98/E, M139/E	8000	Horiz ±45°
70	5001316	CMD-70/TD/830/RX7S	0.90	7000	5600	3000	80+	M85/E, M98/E, M139/E	15000	Horiz ±45°
70	5001317	CMD-70/TD/942/RX7S	0.90	7000	5600	4200	>90	M85/E, M98/E, M139/E	15000	Horiz ±45°
150	5001318	CMD-150/TD/830/RX7S	1.80	14500	11500	3000	80+	M81/E, M102/E, M142/E	15000	Horiz ±45°
150	5001319	CMD-150/TD/942/RX7S	1.80	12500	11500	4200	>90	M81/E, M102/E, M142/E	15000	Horiz ±45°

ANSI Fixture Requirement:
/E = Enclosed fixture required
UVB & UVC protected

(Hg) - LAMP CONTAINS MERCURY
Manage in Accord with Disposal Laws
See: www.lamprecycle.org or 1-800-895-8842

Ignition Voltage: 4kV
Use only in fixtures installed with safety glass

Lamp should be switched off for at least
15 minutes/week

Scan with a smartphone
to view this product online.

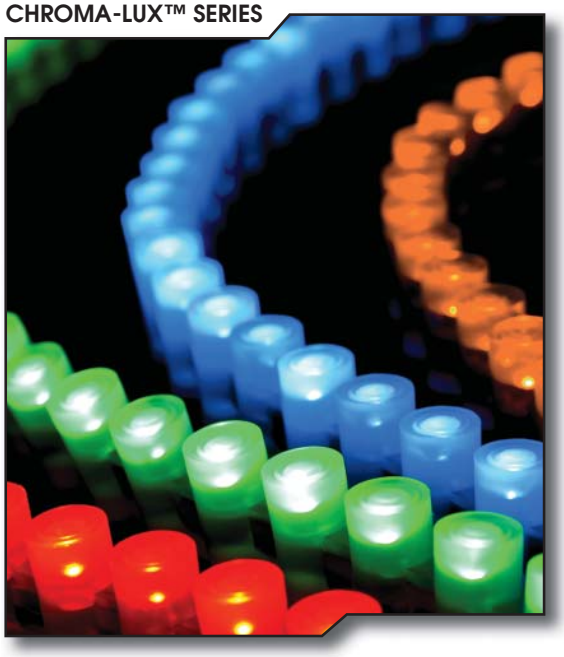
R - NON SELF-EXTINGUISHING LAMP
WARNING: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available. Complies with the USA Federal Standard 21 CFR 1040.30 and Canada Standard SOR/80-381.

Form No. S-CMH/R-1111

USHIO

FLEXIBLE LED STRINGS

CHROMA-LUX™ SERIES



CHROMA-LUX™ SERIES
ULTRA FLEXIBLE COLOR LED STRINGS

USHIO's Chroma-Lux™ flexible color LEDs are available in Red, Orange, Green, and Blue. What makes these colored LED strings special is their ultra flexible silicone coating. This ultra flexibility allows for a variety of complex lighting design applications. Operating safely on 12V DC power, Chroma-Lux™ LED strings comply with IP67 waterproof standard which means it can withstand accidental immersion for up to 30 minutes in 1 meter of water. The weatherproof durability of these strings ensures longevity of both indoor and outdoor lighting projects.

Consistent color, high brightness, energy efficiency, easy installation, and architectural-grade quality make USHIO's Chroma-Lux™ LED strings the ideal choice for new projects.

Each 1 meter string contains 96 individual LEDs available in Red, Orange, Green and Blue. Aluminum straight channel and aluminum flexible channels make for quick and easy installation.

FEATURES & BENEFITS

- Flexible construction for a variety of complex design applications
- Long life: Up to 50,000 hours with proper thermal management
- Quick and easy to install
- Low profile
- Cool operation
- Application Friendly: UV and IR free
- Environmentally friendly: Mercury free, lead free, RoHS compliant
- Water Resistant

APPLICATIONS

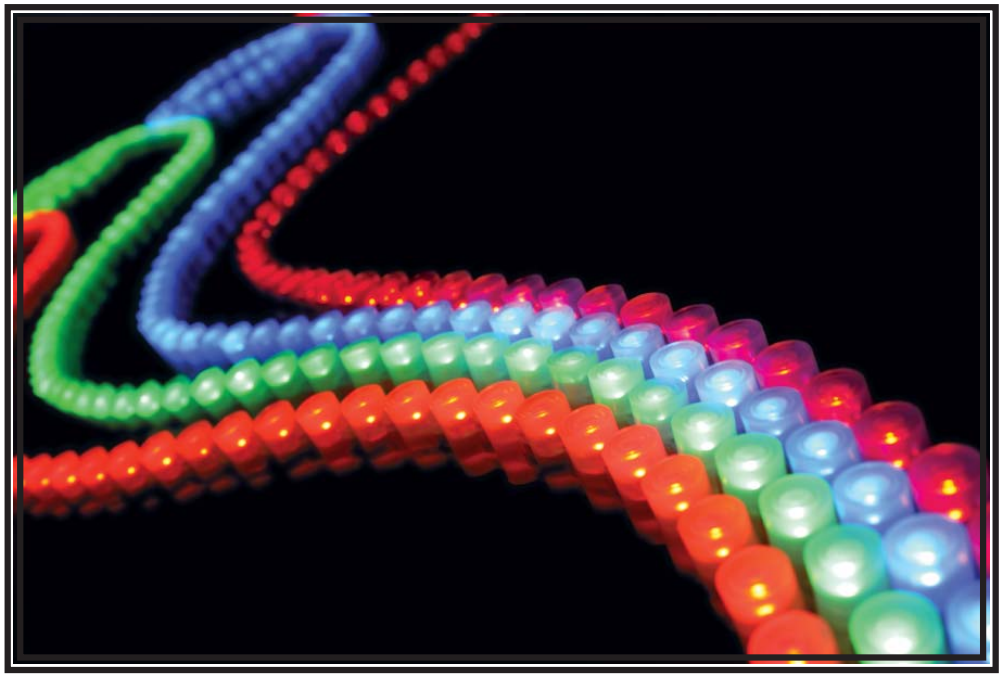
- Theatre & Stage lighting
- Architectural lighting
- Accent lighting
- Decorative lighting
- Backlighting

Distributed by:

USHIO

CHARACTERISTICS & SPECIFICATIONS

CHROMA-LUX™ LED STRINGS



Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Operating (V)	Height (in)	Length (in)	Width (in)	Weight (oz)	Environmental Standard
6	1003664	6W CHROMA-LUX/RED	12V DC	0.51	37.40	0.28	2.4 oz.	IP67
6	1003663	6W CHROMA-LUX/ORANGE	12V DC	0.51	37.40	0.28	2.4 oz.	IP67
6	1003662	6W CHROMA-LUX/GREEN	12V DC	0.51	37.40	0.28	2.4 oz.	IP67
6	1003661	6W CHROMA-LUX/BLUE	12V DC	0.51	37.40	0.28	2.4 oz	IP67
N/A	1003666	CHROMA-LUX AL STRAIGHT CHANNEL	N/A	0.40	37.40	0.40	–	–
N/A	1003665	CHROMA-LUX AL FLEXIBLE CHANNEL	N/A	0.40	37.40	0.40	–	–

Watts (W)	Ushio Ordering Code	Power Supply Description	Input V	Height (in)	Length (in)	Width (in)	Weight (oz)	Industry Standards
25	TBA	LED-25W DC 12V	100-277	1.2	5.24	1.57	10.58	UL Class 2
60	TBA	LED-60W DC 12V	100-277	1.57	7.80	1.73	20	UL Class 2
100	TBA	LED-100W DC 12V	100-277	1.67	9.06	2.56	28.2	UL Class 2 IP67

CHROMA-LUX™ LED STRINGS

INSTALLATION INFORMATION:

Power Supply Information

1. The LED strings contain no protection against short circuits, overload or overheating. Therefore, it is absolutely necessary to operate the strings on an electrically stable power supply with protection against the above mentioned safety risks.

2. The Chroma-Lux™ LED strings require a 12V DC Class 2 power supply. Each LED string has a maximum load rating of 6 watts.

3. Never operate an LED load in excess of the capacity of the power supply. Use a power supply with a current output that is greater than the total current consumed by the LED strings. Total current is equal to the number of LED strings X 0.5(A). So 6 LED strings will have a total current consumption of 6 X 0.5 = 3(A).

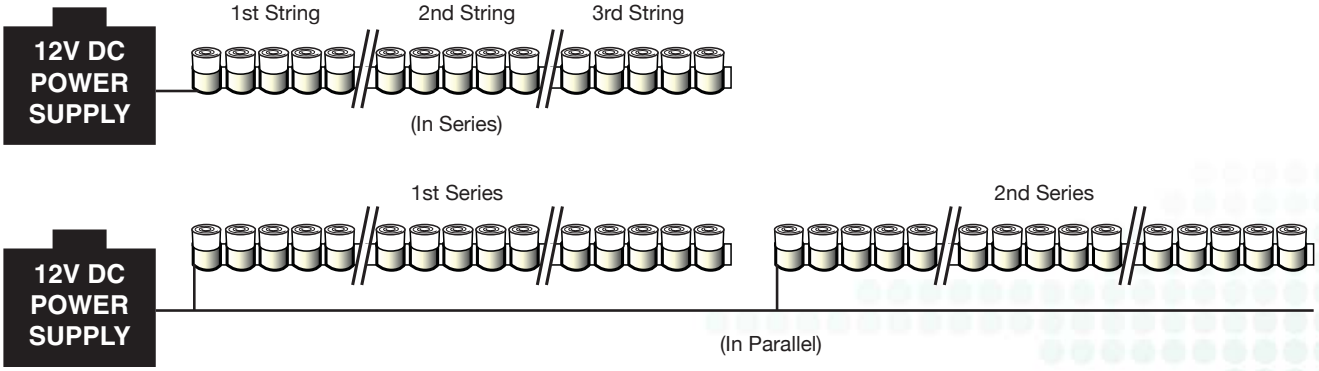
4. The Chroma-Lux™ LED strings can operate on DMX controlled systems and DMX controlled power supplies.

Electrical Connection

1. Chroma-Lux™ LED strings are equipped with polarized wires (red – positive, black – negative). To ensure correct electrical polarity, connect the low voltage load side of the power supply to the LED strings. When finished you may use silicone, shrink tubing, electrical tape or a wire nut to properly manage and protect the contact. Incorrect electrical polarity may destroy the strings. (See illustration 1).

2. Up to 3 LED strings can be connected in series to a single power supply connection. For large installations you may connect multiple (3 string sets) in parallel. (See illustration 2).

(Illustration 1)



(Illustration 2)

CHROMA-LUX™ LED STRINGS

INSTALLATION INFORMATION:

Temperature

Chroma-Lux™ LED strings are designed to be operated in environments between 14° F and 104° F.

Cutting

1. The Chroma-Lux™ strings can be cut to meet size or load constraints. However, due to the circuit design, cutting the Chroma-Lux™ LED strings differs between colors.

   For GREEN and BLUE, you may cut only every 3 LEDs. For example: (Starting on the band side), the cuts can be made between the following numbers: 3&4, 6&7, 9&10, etc. (See illustration 3).

   For RED and ORANGE, you may cut only every 4 LEDs. for example: (Starting on the band side), the cuts can be made between the following numbers: 4&5, 8&9, 12&13, etc. (See illustration 3 not shown are cuts between 8&9 , 12&13).

2. Apply a silicone sealant to the cut ends to keep the strings waterproof. (See illustration 4).

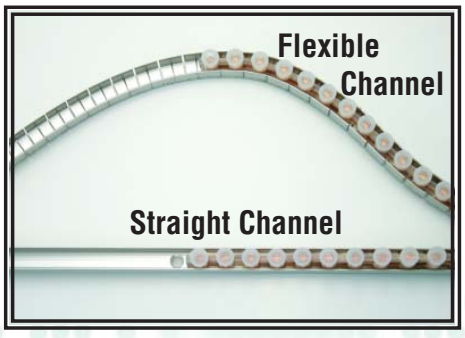
3. Each string can be cut into no more than two workable sections. You must maintain the end sections with the existing lead wires. The middle sections without leads cannot be used.

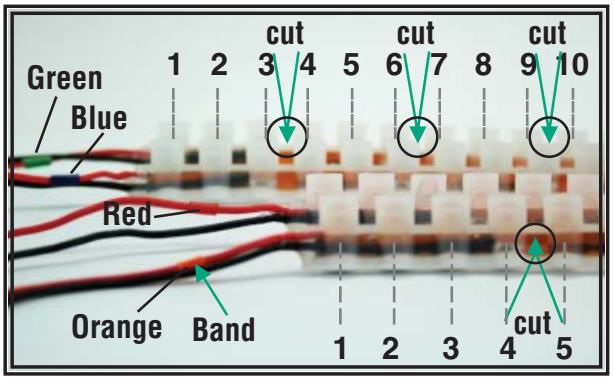
Attachment

Using the aluminum straight or flexible channels are the best way to attach the Chroma-Lux™ LED strings to most surfaces. When applying the strings to other substances such as plastic, glass, or metal it is recommended to use Loctite brand or similar products.

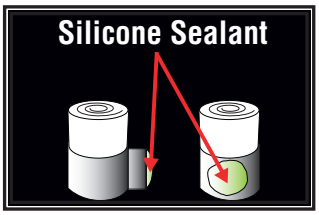
First, use Loctite 770 as a primer to clean and prepare both the back side of the silicone Chroma-Lux™ LED strings and the mounting surface.

Secondly, Loctite 401 can then be applied as an adhesive to the back side of the silicone LED strings and pressed to the mounting surface.

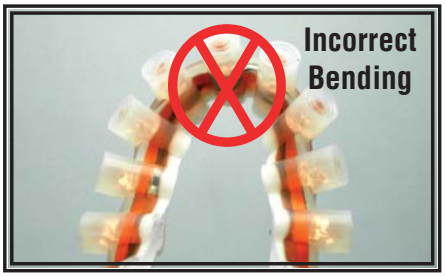




(Illustration 3)



(Illustration 4)



Precautions

- The installation of the strings must not damage or destroy any of the electrical connections or wiring.
- Chroma-Lux™ strings must not be subjected to physical stress or abuse.
- Chroma-Lux™ strings will not stretch like ordinary rubber. If forcefully extended the interior circuits will disconnect.
- If the lead wire is forcefully pulled, it may disconnect.
- The Chroma-Lux™ strings, while they are flexible, should only be bent at the spaces between the LEDs. Please avoid any unworkable angles that will cause stress to the circuit. Do not bend the LED module in the vertical axis or twist the LED string as this may cause the internal circuit to break.

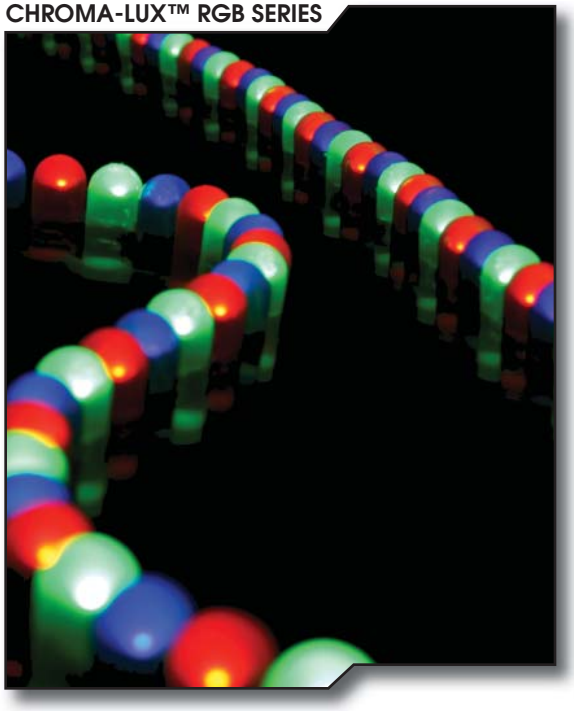
WARNING:
Installation of these Chroma-Lux™ products should be performed in accordance with all applicable electrical and safety standards. Only qualified, licensed electrical contractors should perform these installations.

The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

USHIO

FLEXIBLE LED STRINGS

CHROMA-LUX™ RGB SERIES



CHROMA-LUX™ RGB SERIES

USHIO's Chroma-Lux™ RGB light string utilizes the three primary colors Red, Green, and Blue to create a variety of color combinations and special effects. What makes these colored LED strings special is their ultra flexible silicone coatings. This ultra flexibility allows for the most configurable lighting designs. Operating safely on 15V DC power, Chroma-Lux™ RGB LED strings comply with IP67 standards. The weather proof durability of these strings ensures longevity of both indoor and outdoor lighting projects. Up to three Chroma-Lux™ RGB strings can be attached together in length for a continuous string of light up to 9.5 feet in length. Chroma-Lux™ RGB strings can be used with DMX control systems and DMX controlled power supplies.

High brightness, energy efficiency, easy installation, and architectural-grade quality make USHIO's Chroma-Lux™ RGB LED strings the ideal choice for new projects.

FEATURES & BENEFITS

- Flexible construction for a variety of complex design applications
- Long life: Up to 50,000 hours with proper thermal management
- Quick and easy to install
- Low profile
- Cool operation
- Application Friendly: UV and IR free
- Environmentally friendly: Mercury free, lead free, RoHS compliant
- Water Resistant

APPLICATIONS

- Theatre & Stage lighting
- Architectural lighting
- Accent lighting
- Decorative lighting
- Backlighting

Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Operating (V)	Height (in)	Length (in)	Width (in)	Weight (wt)	Environmental Standard
8	1003667	CHROMA-LUX/RGB	15V DC	0.65	38.50	0.31	4.2 oz.	IP67
N/A	1003622	*RESIN STRAIGHT CHANNEL	N/A	0.43	39.37	0.79	N/A	N/A
N/A	1003623	*RESIN FLEXIBLE CHANNEL	N/A	0.43	39.37	0.79	N/A	N/A
N/A	1003643	STRAIGHT ALUMINUM CHANNEL	N/A	0.43	39.37	0.79	N/A	N/A
N/A	1003644	FLEXIBLE ALUMINUM CHANNEL	N/A	0.43	39.37	0.79	N/A	N/A
N/A	1003668	CHROMA-LUX Demo Control Unit with 15V Power Supply						
N/A	1003669	15V DC 0.8A Wall Plug Power Supply						

*Resin Channels for Indoor Use Only.

The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

USHIO

FLUORESCENT LAMPS

COILIGHT™ & COILIGHT™ REFLECTOR

COMPACT FLUORESCENT LAMPS FOR GENERAL LIGHTING

USHIO Coilights™ have an ultra compact shape that allows for maximum axial and radial light distribution and less trapping and light absorption. This allows for true incandescent A-lamp replacement and more efficient reflector lamps. Coilights™ are an energy efficient alternative to higher wattage incandescent lamps with up to 10 times more life.

USHIO Coilight™ & Coilight™ Reflector Series	Incandescent "A" Line Equivalent
13W	60W incandescent
15W	65W incandescent
18W	75W incandescent
23W	75W incandescent
26W	100W incandescent

FEATURES & BENEFITS

- Energy efficient
- Long life — Up to 10,000 hours average life
- Low mercury — Less than 2mg per lamp
- 2700K & 4100K Color temperatures
- Tri-Phosphor coating — High color rendering (80+ CRI)
- Integrated electronic ballast
- Same light profile as incandescent lamps
- Reflector lamps for area lighting
- E26 and GU24 base types

Scan with a smartphone to view this product online.

Distributed by:

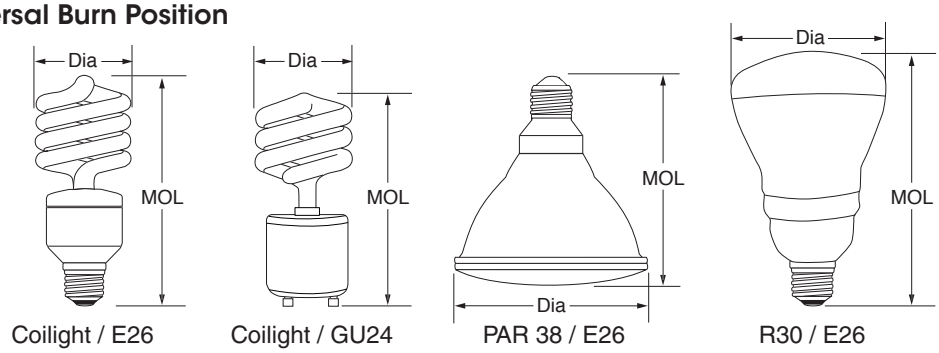
Form No. S-CFL/R-0112: The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

USHIO

CHARACTERISTICS & SPECIFICATIONS

COMPACT FLUORESCENT

Medium E26 Base, 2-Pin Base GU24
CRI 80+ , Universal Burn Position



Coilight / E26 | Coilight / GU24 | PAR 38 / E26 | R30 / E26

Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Dimensions Dia (in)	Dimensions MOL (mm)	Dimensions MOL (in)	Color Temp (K)	Approx Lumens (lm)	Average Rated Life* (h)	Commercial Life** (h)	Qty
		Coilight™ — E26 Base								
13	3000443	✷ CF13CLT/2700/E26	1.8	104.14	4.1	2700	825	10000	12500	10
13	3000552	✷ CF13CLT/4100/E26	1.8	104.14	4.1	4100	800	10000	12500	10
18	3000553	✷ CF18CLT/2700/E26	2.1	114.30	4.5	2700	1100	10000	12500	10
18	3000554	✷ CF18CLT/4100/E26	2.1	114.30	4.5	4100	1100	10000	12500	10
23	3000157	✷ CF23CLT/2700/E26	2.1	124.46	4.9	2700	1600	10000	12500	10
23	3000555	✷ CF23CLT/4100/E26	2.1	124.46	4.9	4100	1600	10000	12500	10
26	3000444	✷ CF26CLT/2700/E26	2.1	129.54	5.1	2700	1750	10000	12500	10
26	3000556	CF26CLT/4100/E26	2.1	129.54	5.1	4100	1750	10000	12500	10
		Coilight™ — GU24 Base								
13	3000544	✷ CF13CLT/2700/GU24	1.8	86.36	3.4	2700	800	10000	12500	10
13	3000545	✷ CF13CLT/4100/GU24	1.8	86.36	3.4	4100	800	10000	12500	10
18	3000546	✷ CF18CLT/2700/GU24	2.1	109.22	4.3	2700	1200	10000	12500	10
18	3000547	CF18CLT/4100/GU24	2.1	109.22	4.3	4100	1200	10000	12500	10
23	3000548	✷ CF23CLT/2700/GU24	2.1	127.00	5.0	2700	1435	10000	12500	10
23	3000549	CF23CLT/4100/GU24	2.1	127.00	5.0	4100	1600	10000	12500	10
26	3000550	✷ CF26CLT/2700/GU24	2.1	132.08	5.2	2700	1610	10000	12500	10
26	3000551	CF26CLT/4100/GU24	2.1	132.08	5.2	4100	1725	10000	12500	10
		PAR 38 — E26 Base								
23	3000559	CF23PAR38/2700/E26	4.8	127.0	5.0	2700	1100	10000	12500	12
23	3000560	✷ CF23PAR38/4100/E26	4.8	127.0	5.0	4100	1100	10000	12500	12
		R 30 — E26 Base								
15	3000557	✷ CF15R30/2700/E26	3.7	137.16	5.4	2700	700	10000	12500	12
15	3000558	✷ CF15R30/4100/E26	3.7	137.16	5.4	4100	700	10000	12500	12

ENERGY STAR

✷ ENERGY STAR® Qualified Products

Reliable operating temperatures 0° F to 120° F

Coilights™ are not designed for dimming circuits or photocells
Coilights™ are not to be used in fully enclosed fixtures without adequate ventilation

* Based on ANSI / IESNA standards of 3 hours per start
** Based on estimated commercial operating standards of 12 hours per start

(Hg) - LAMP CONTAINS MERCURY
Manage in Accord with Disposal Laws
See: www.lamprecycle.org or 1-800-895-8842

USHIO

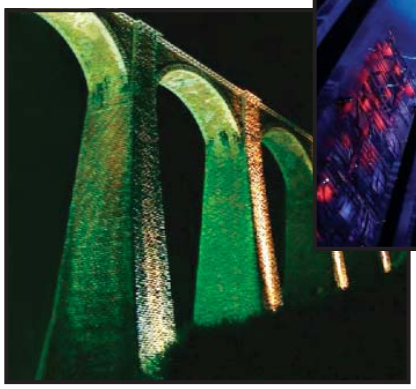
METAL HALIDE LAMPS

COLORLITE™ SERIES

COLORLITE™ METAL HALIDE LAMPS FOR GENERAL LIGHTING

Paint accents with colorful light! USHIO Colorlite™ Metal Halide lamps produce saturated colors of blue, green, magenta and orange. The special mixture of halides provide all of the color without the use of expensive gels or color filters. Colorlite™ lamps can be used with standard Metal Halide ballasts and fixtures.

Available in–
Double Ended 150W in Blue, Green, Magenta, & Orange
ED17 150W & 175W in Blue, Green, Magenta, & Orange
T15 250W in Blue, Green, Magenta, & Orange
T15 400W in Blue, Green, & Magenta
T25 1000W in Blue & Green



FEATURES & BENEFITS

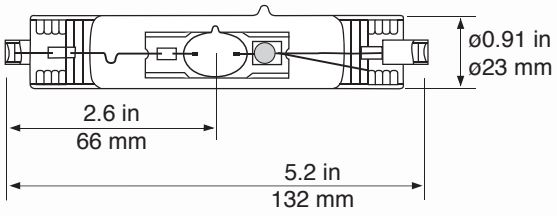
- High color saturation
- High efficiency
- Consistent color
- No color filter required for fixture

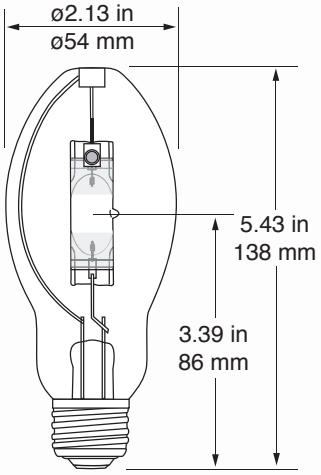
APPLICATIONS

- Theme parks
- Building facades
- Theatre and stage effects
- Recreation centers
- Bridges
- Gardens and parks
- Museums and galleries
- Shop windows
- Balloon lights
- Landscape
- Aquascape

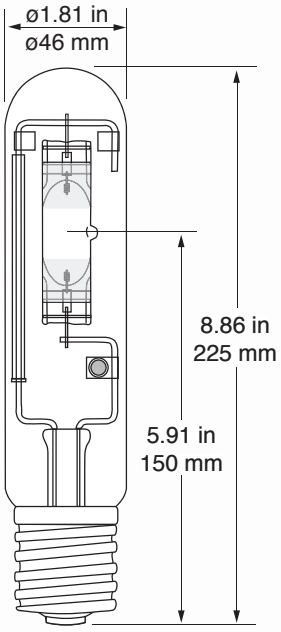
COLORLITE™ METAL HALIDE

T7
150W

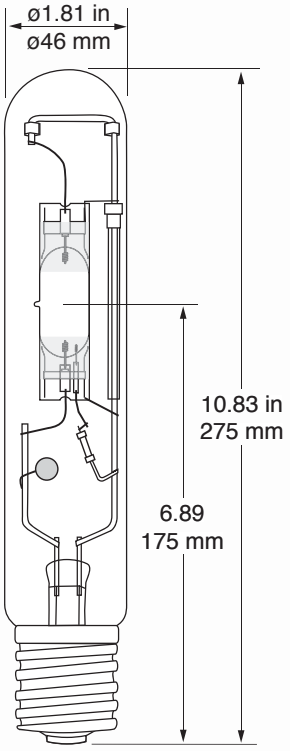




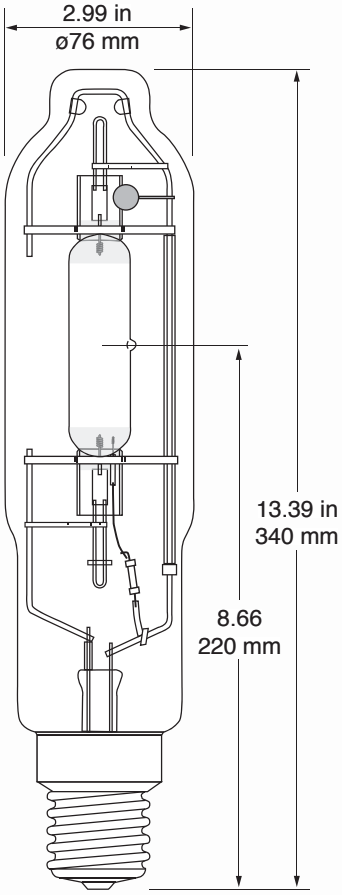
ED17
150W, 175W



T15
250W



T15
400W



T25
1000W

USHIO

CHARACTERISTICS & SPECIFICATIONS

COLORLITE™ METAL HALIDE

Watts (W)	USHIO Ordering Code	USHIO Lamp Description	Lamp Current (A)	Luminous Flux (lm)	Wavelength (nm)	Saturation (%)	Ballast	Burn Position
		RX7s Base – T7						
150	5000821	UHI-150BL, BLUE	1.80	3000	465	56	M81/E	Horiz ±45°
150	5000822**	UHI-150GR. GREEN	1.80	9500	530	50	M81/E	Horiz ±45°
		E26 Base – ED17						
150	5001453**	UHI-S150/BLUE	1.80	3900	470	70	M102/E	Universal
150	5001452**	UHI-S150/GREEN	1.80	12500	530	46	M102/E	Universal
150	5001498**	UHI-S150/MAGENTA	1.80	7500	-530	43	M102/E	Universal
150	5001499**	UHI-S150/ORANGE	1.80	11200	600	54	M102/E	Universal
175	5001455	UHI-S175/BLUE	1.50	3900	470	70	M57/E	Universal
175	5001454	UHI-S175/GREEN	1.50	12500	530	46	M57/E	Universal
		E39 Base – T15						
250	5001484	UHI-S250/BLUE	3.00	5400	465	66	M80/E*	Universal
250	5001485**	UHI-S250/GREEN	3.00	21000	530	50	M80/E*	Universal
250	5001486**	UHI-S250/MAGENTA	3.00	11000	-560	29	M80/E*	Universal
250	5001487**	UHI-S250/ORANGE	3.00	17000	595	54	M80/E*	Universal
400	5000947	UHI-S400BL, BLUE	3.25	8000	465	66	M59/E	Universal
400	5000946	UHI-S400GR, GREEN	3.25	35000	535	63	M59/E	Universal
400	5000948	UHI-S400MG, MAGENTA	3.25	21000	-540	32	M59/E	Universal
		E39 Base – T25						
1000	5001189	UHI-S1000BL, BLUE	4.10	22000	455	61	M47/E	Horiz ±60°
1000	5001188	UHI-S1000GR, GREEN	4.10	92000	535	60	M47/E	Horiz ±60°

Recommended Ignition Voltage: 4kV
* Need ignitor with 4kV
Lamp should be switched off for at least 15 minutes/week

ANSI Fixture Requirement:
/E =Enclosed Fixtures Only

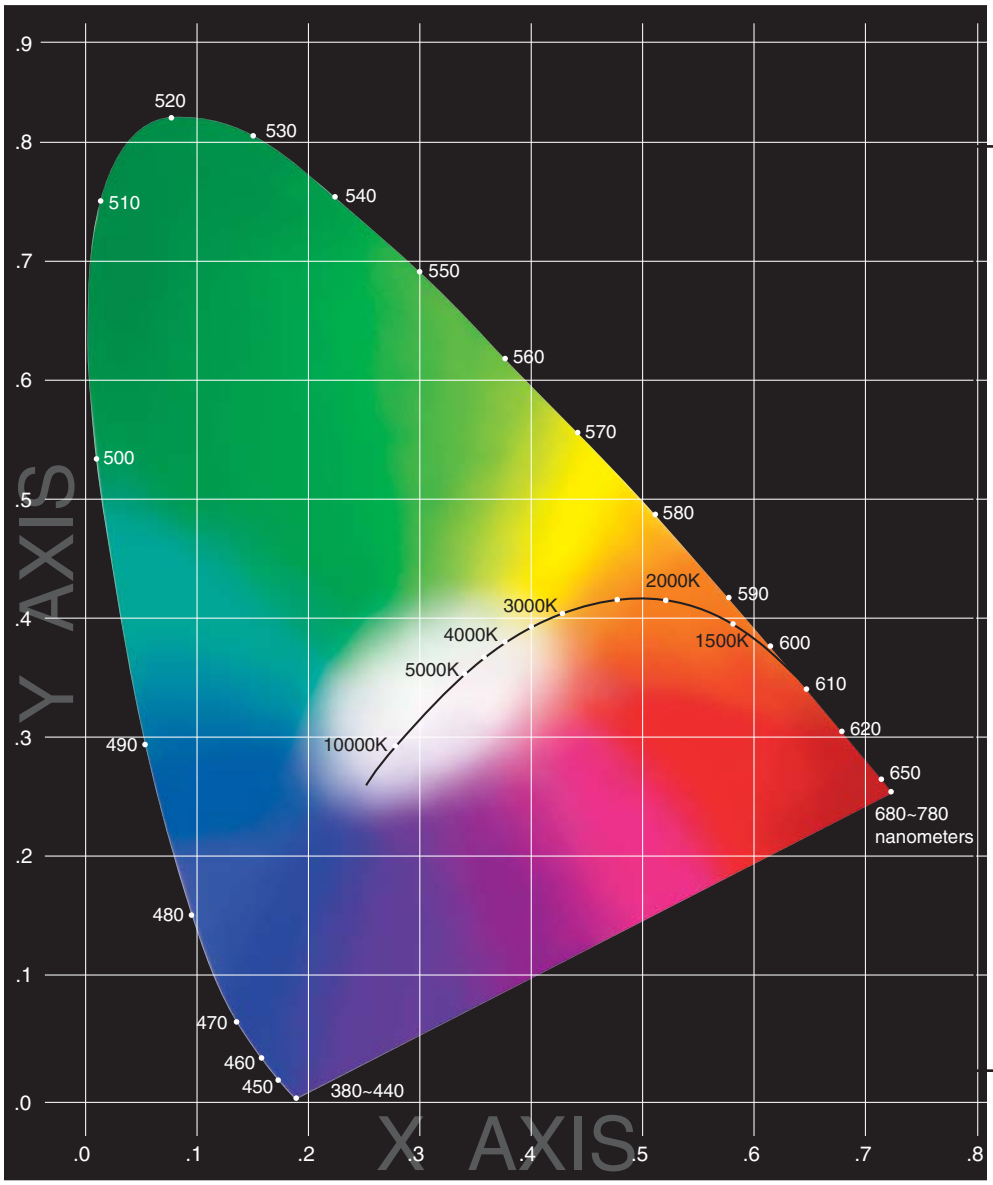
Average Life:
RX7s– 150W = 6000 hours
ED17– 150W, 175W = 6000 hours
T15– 250W, 400W = 8000 hours
T25– 1000W = 6000 hours

** Special order item only

(Hg) LAMP CONTAINS MERCURY
Manage in Accord with Disposal Laws
See: www.lamprecycle.org or 1-800-895-8842

R - NON SELF-EXTINGUISHING LAMP
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. 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. Complies with the USA Federal Standard 21 CFR 1040.30 and Canada Standard SOR/80-381.

CHROMATICITY DIAGRAM



COLORLITE™ Chromaticity Coordinates

	Double Ended		
150W	Blue	x = .22	y = .18
	Green	x = .25	y = .57
	Magenta	x = .37	y = .27
	Orange	x = .50	y = .37
	ED17		
150W	Blue	x = .19	y = .14
	Green	x = .25	y = .55
	Magenta	x = .37	y = .24
	Orange	x = .49	y = .36
175W	Blue	x = .19	y = .14
	Green	x = .25	y = .55
	Magenta	x = .37	y = .24
	Orange	x = .49	y = .36
	T15		
250W	Blue	x = .20	y = .14
	Green	x = .25	y = .57
	Magenta	x = .32	y = .25
	Orange	x = .48	y = .37
400W	Blue	x = .20	y = .14
	Green	x = .25	y = .59
	Magenta	x = .35	y = .26
	T25		
1000W	Blue	x = .22	y = .145
	Green	x = .24	y = .600

Scan with a smartphone to view this product online.

Distributed by:

Form No. S-UHI/CL-0112

USHIO

FLUORESCENT LAMPS

COMPACT FLUORESCENT

COMPACT FLUORESCENT LAMPS FOR GENERAL LIGHTING

USHIO's compact fluorescent lamps provide all the benefits of linear fluorescent lamps in a compact size. These lamps are highly efficient at 67 lumens per watt and 10,000 hours average life.

The Triphosphor coatings on these lamps render colors closer to that of nature allowing a coloring index of 82 in a variety of color temperatures.

Available in single, double and triple tubes with wattages ranging from 5 watts to 42 watts. Color temperatures range from 2700K to 6500K.

APPLICATIONS

- Downlights in Offices, Hotels, Retail Establishments
- Task Lighting
- Security
- Enclosed Outdoor Fixtures

FEATURES AND BENEFITS

- Long life — 10,000 hours average life
  - Reduces costs of lamp change-outs
  - At least ten times the life of ordinary incandescent lamps
- High Color Rendering — 82 CRI
- High efficacy — 67 lumens per watt
- Saves up to 75% in electricity costs compared to standard incandescent lamps
- Available in dimmable versions, 4-pin base

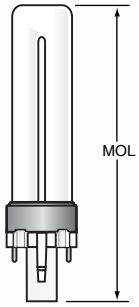
Distributed by:

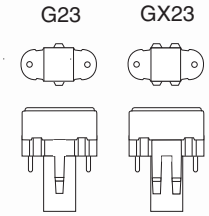
USHIO

CHARACTERISTICS & SPECIFICATIONS

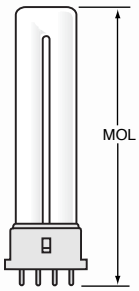
SINGLE TUBE

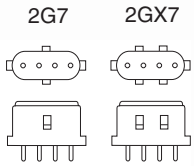
Average Life: 10,000 hours • CRI: 82





(1) 2-Pin Base





(2) 4-Pin Base

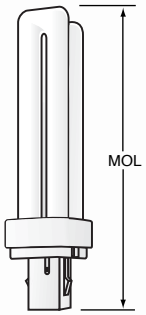
Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Volts (V)	Current (A)	Luminous Flux Nom. (lm)	Luminous Flux Min. (lm)	Color Temp (K)	Dimensions MOL (mm)	Dimensions MOL (in)	Base
	Single Tube 2-Pin Base (1)									
5	3000062	CF5S/827	35	0.180	250	230	2700	108	4.3	G23
5	3000163	CF5S/835	35	0.180	250	230	3500	108	4.3	G23
5	3000147	CF5S/841	35	0.180	250	230	4100	108	4.3	G23
5	3000164	CF5S/865	35	0.180	240	220	6500	108	4.3	G23
7	3000063	CF7S/827	45	0.180	400	360	2700	138	5.4	G23
7	3000061	CF7S/835	45	0.180	400	360	3500	138	5.4	G23
7	3000064	CF7S/841	45	0.180	400	360	4100	138	5.4	G23
7	3000165	CF7S/865	45	0.180	380	340	6500	138	5.4	G23
9	3000066	CF9S/827	59	0.180	600	540	2700	168	6.6	G23
9	3000060	CF9S/835	59	0.180	600	540	3500	168	6.6	G23
9	3000067	CF9S/841	59	0.180	600	540	4100	168	6.6	G23
9	3000166	CF9S/865	59	0.180	570	520	6500	168	6.6	G23
13	3000054	CF13S/827	59	0.285	800	720	2700	180	7.1	GX23
13	3000057	CF13S/835	59	0.285	800	720	3500	180	7.1	GX23
13	3000055	CF13S/841	59	0.285	800	720	4100	180	7.1	GX23
13	3000427	CF13S/850	59	0.285	800	720	5000	180	7.1	GX23
13	3000167	CF13S/865	59	0.285	760	690	6500	180	7.1	GX23
	Single Tube 4-Pin Base for Electronic Ballasts (2)—Dimmable									
5	3000168	CF5SE/827	35	0.180	250	230	2700	85	3.4	2G7
5	3000173	CF5SE/835	35	0.180	250	230	3500	85	3.4	2G7
7	3000169	CF7SE/827	47	0.175	400	360	2700	115	4.5	2G7
7	3000175	CF7SE/841	47	0.175	400	360	4100	115	4.5	2G7
9	3000170	CF9SE/827	60	0.170	600	540	2700	145	5.7	2G7
9	3000179	CF9SE/835	60	0.170	600	540	3500	145	5.7	2G7
9	3000178	CF9SE/841	60	0.170	600	540	4100	145	5.7	2G7
13	3000171	CF13SE/827	59	0.285	800	720	2700	160	6.3	2GX7
13	3000251	CF13SE/830	59	0.285	800	720	3000	160	6.3	2GX7
13	3000182	CF13SE/835	59	0.285	800	720	3500	160	6.3	2GX7
13	3000181	CF13SE/841	59	0.285	800	720	4100	160	6.3	2GX7

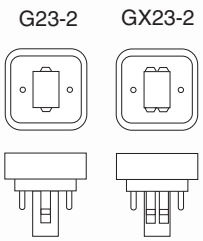
USHIO

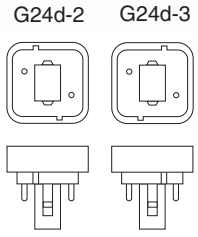
CHARACTERISTICS & SPECIFICATIONS

DOUBLE TUBE

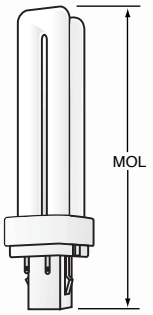
Average Life: 10,000 hours • CRI: 82

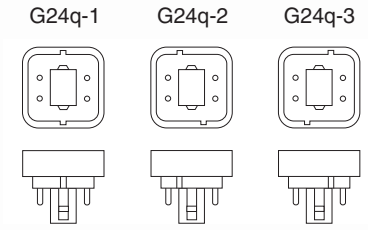






(3) 2-Pin Base





(4) 4-Pin Base

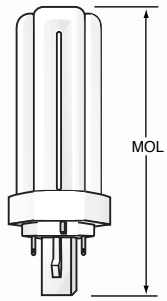
Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Volts (V)	Current (A)	Luminous Flux Nom. (lm)	Luminous Flux Min. (lm)	Color Temp (K)	Dimensions MOL (mm)	Dimensions MOL (in)	Base
	Double Tube 2-Pin Base (3)									
9	3000065	CF9D/827	59	0.180	525	475	2700	108	4.3	G23-2
9	3000139	CF9D/835	59	0.180	525	475	3500	108	4.3	G23-2
9	3000184	CF9D/841	59	0.180	525	475	4100	108	4.3	G23-2
9	3000185	CF9D/865	59	0.180	500	450	6500	108	4.3	G23-2
13	3000052	CF13D/827	59	0.285	780	700	2700	118	4.7	GX23-2
13	3000053	CF13D/835	59	0.285	780	700	3500	118	4.7	GX23-2
13	3000140	CF13D/841	59	0.285	780	700	4100	118	4.7	GX23-2
13	3000426	CF13D/850	59	0.285	780	700	5000	118	4.7	GX23-2
13	3000190	CF13D/865	59	0.285	740	670	6500	118	4.7	GX23-2
18	3000135	CF18D/827	100	0.220	1200	1080	2700	153	6.0	G24d-2
18	3000145	CF18D/835	100	0.220	1200	1080	3500	153	6.0	G24d-2
18	3000141	CF18D/841	100	0.220	1200	1080	4100	153	6.0	G24d-2
18	3000195	CF18D/865	100	0.220	1140	1030	6500	153	6.0	G24d-2
26	3000058	CF26D/827	105	0.325	1800	1620	2700	172	6.8	G24d-3
26	3000146	CF26D/835	105	0.325	1800	1620	3500	172	6.8	G24d-3
26	3000142	CF26D/841	105	0.325	1800	1620	4100	172	6.8	G24d-3
26	3000196	CF26D/865	105	0.325	1710	1540	6500	172	6.8	G24d-3
	Double Tube 4-Pin Base for Electronic Ballasts (4)—Dimmable									
10	3000239	CF10DE/827	64	0.190	600	540	2700	103	4.1	G24q-1
10	3000240	CF10DE/835	64	0.190	600	540	3500	103	4.1	G24q-1
10	3000241	CF10DE/841	64	0.190	600	540	4100	103	4.1	G24q-1
13	3000159	CF13DE/827	91	0.175	900	810	2700	131	5.2	G24q-1
13	3000246	CF13DE/835	91	0.175	900	810	3500	131	5.2	G24q-1
13	3000160	CF13DE/841	91	0.175	900	810	4100	131	5.2	G24q-1
13	3000235	CF13DE/865	91	0.175	860	770	6500	131	5.2	G24q-1
18	3000056	CF18DE/827	100	0.220	1200	1080	2700	146	5.8	G24q-2
18	3000143	CF18DE/835	100	0.220	1200	1080	3500	146	5.8	G24q-2
18	3000136	CF18DE/841	100	0.220	1200	1080	4100	146	5.8	G24q-2
26	3000059	CF26DE/827	105	0.325	1800	1620	2700	165	6.5	G24q-3
26	3000144	CF26DE/835	105	0.325	1800	1620	2700	165	6.5	G24q-3
26	3000137	CF26DE/841	105	0.325	1800	1620	4100	165	6.5	G24q-3
26	3000238	CF26DE/865	105	0.325	1710	1540	6500	165	6.5	G24q-3

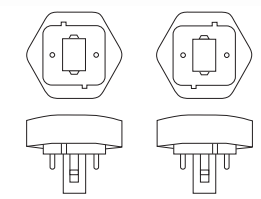
USHIO

CHARACTERISTICS & SPECIFICATIONS

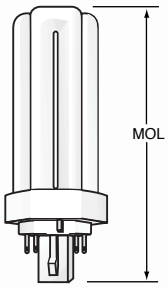
TRIPLE TUBE

Average Life: 10,000 hours • CRI: 82

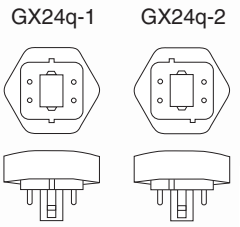


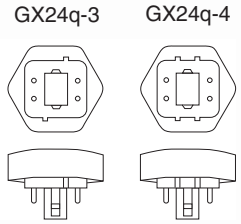


(5) 2-Pin Base



(6) 4-Pin Base





Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Volts (V)	Current (A)	Luminous Flux Nom. (lm)	Luminous Flux Min. (lm)	Color Temp (K)	Dimensions MOL (mm)	Dimensions MOL (in)	Base
	Triple Tube 2-Pin Base (5)									
18	3000199	CF18T/827	100	0.220	1200	1080	2700	123	4.8	GX24d-2
18	3000201	CF18T/835	100	0.220	1200	1080	3500	123	4.8	GX24d-2
18	3000200	CF18T/841	100	0.220	1200	1080	4100	123	4.8	GX24d-2
26	3000203	CF26T/827	105	0.325	1800	1620	2700	138	5.4	GX24d-3
26	3000205	CF26T/835	105	0.325	1800	1620	3500	138	5.4	GX24d-3
26	3000204	CF26T/841	105	0.325	1800	1620	4100	138	5.4	GX24d-3
	Triple Tube 4-Pin Base for Electronic Ballasts (6)—Dimmable									
13	3000207	CF13TE/827	91	0.175	900	810	2700	108	4.4	GX24q-1
13	3000209	CF13TE/835	91	0.175	900	810	3500	108	4.4	GX24q-1
13	3000208	CF13TE/841	91	0.175	900	810	4100	108	4.4	GX24q-1
18	3000211	CF18TE/827	100	0.220	1200	1080	2700	116	4.6	GX24q-2
18	3000255	CF18TE/830	100	0.220	1200	1080	3000	116	4.6	GX24q-2
18	3000213	CF18TE/835	100	0.220	1200	1080	3500	116	4.6	GX24q-2
18	3000212	CF18TE/841	100	0.220	1200	1080	4100	116	4.6	GX24q-2
18	3000214	CF18TE/865	100	0.220	1140	1025	6500	116	4.6	GX24q-2
26	3000215	CF26TE/827	105	0.325	1800	1620	2700	131	5.2	GX24q-3
26	3000254	CF26TE/830	105	0.325	1800	1620	3000	131	5.2	GX24q-3
26	3000217	CF26TE/835	105	0.325	1800	1620	3500	131	5.2	GX24q-3
26	3000216	CF26TE/841	105	0.325	1800	1620	4100	131	5.2	GX24q-3
26	3000218	CF26TE/865	105	0.325	1710	1540	6500	131	5.2	GX24q-3
32	3000219	CF32TE/827	100	0.320	2400	2160	2700	147	5.8	GX24q-3
32	3000252	CF32TE/830	100	0.320	2400	2160	3000	147	5.8	GX24q-3
32	3000221	CF32TE/835	100	0.320	2400	2160	3500	147	5.8	GX24q-3
32	3000220	CF32TE/841	100	0.320	2400	2160	4100	147	5.8	GX24q-3
32	3000222	CF32TE/865	100	0.320	2280	2052	6500	147	5.8	GX24q-3
42	3000223	CF42TE/827	135	0.320	3200	2880	2700	168	6.7	GX24q-4
42	3000253	CF42TE/830	135	0.320	3200	2800	3000	168	6.7	CX24q-4
42	3000225	CF42TE/835	135	0.320	3200	2880	3500	168	6.7	GX24q-4
42	3000224	CF42TE/841	135	0.320	3200	2880	4100	168	6.7	GX24q-4
42	3000226	CF42TE/865	135	0.320	3040	2740	6500	168	6.7	GX24q-4

Form No. S-CFL/R-1211

The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

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USHIO

LED LIGHTING

DLS

DLS DIRECT LED LIGHTING
AN ENGINEERED LIGHTING SOLUTION

USHIO introduces a new direct illumination LED system that will advance LED lighting into a new realm. The high-powered LED, mounted on a printed circuit board, provides 50,000 hours of maintenance-free operation. Manufactured with a powerful high brightness LED, the DLS system can be used in as little as 3" of depth. In addition to sign retrofits and new sign illumination, the DLS's low energy consumption meets the new "energy and sustainability" demands. The DLS system is dimmable and accepts various drive currents to achieve the ideal brightness.

The DLS system is UL certified and listed in the Sign Accessory Manual. Its Class 2 rating is approved for wet, dry, and damp locations.

APPLICATIONS

- Sign Lighting
- Architectural Lighting
- Cabinetry Lighting
- Display Cases
- Costume Lighting
- Kiosk Lighting
- Museum Lighting
- Vending Machine Lighting
- Automotive Lighting
- Marine Lighting
- Refrigeration Cabinets

FEATURES & BENEFITS

- Low Energy Usage
- New Sign Illumination
- Sign Illumination Retrofits to Meet New Energy & Sustainable Demands
- Replaces Fluorescent Tubes & LED Devices
- Sustainable Product – No Hazardous Materials
- Dimmable & Accepts Various Drive Currents to 'Dial-In' Desired Brightness Level
- Low Maintenance – Designed to Last 50,000 Hours
- Can Be Used in as Little as 3" of Depth

USHIO

CHARACTERISTICS & SPECIFICATIONS

DLS DIRECT LED

Dimensions: 2.25" Deep; 1.5" Height; 1.6" Deep
Module Weight 1.6 oz.

Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Luminous Intensity (lm) @ 350mA	Forward Voltage	Max DC Forward Current	Color Temp K	Color Spectrum	CRI
		DLS DIRECT LED						
3.3	1003731	Direct-LED Light Engine / White	139	3.3V @ 1000mA	1500mA	6500K	—	75
1.6	1003732	Direct-LED Light Engine / Red	45.7	2.3V @ 700mA	700mA	—	620-630nm	—
3.5	1003733	Direct-LED Light Engine / Blue	30.6	3.5V @ 1000mA	1000mA	—	465-480nm	—
3.8	1003734	Direct-LED Light Engine / Green	93.9	3.8V @ 1000mA	1000mA	—	520-535nm	
		POWER SUPPLIES FOR DLS DIRECT LED						
	1003735	20W 700mA Low Volt Power Supply						
	1003736	20W 1000mA Low Volt Power Supply						
	1003737	25W 700mA Low Volt Power Supply						
	1003738	25W 1040mA Low Volt Power Supply						

Lumen Maintenance 70% @ 50,000 Hours (@350mA)

Max Junction Temperature 150ºC
Certifications: RoHS Compliant; UL List for damp & wet locations

Power Supply: Voltage varies depending upon current. The 4 power supplies listed range from 9V to 36V.

Fastening: Mechanical or Adhesive

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DXL

FOR BARCO DIGITAL CINEMA PROJECTORS

As the new wave of digital cinema becomes the standard, BARCO digital cinema projectors and USHIO DXL digital Xenon lamps will provide the best technologies available for digital exhibition. USHIO and BARCO digital cinema have entered into a cooperative agreement to provide a joint supply chain for high brightness digital cinema Xenon lamps. USHIO's new DXL series of Xenon lamps provide high stability, high reliability and are officially approved for use in BARCO digital cinema projections.

USHIO Lighting—Edge Technologies

BARCO Visibly yours

DXL

FOR BARCO DIGITAL CINEMA PROJECTORS

USHIO's DXL series of digital xenon lamps achieve the highest performance for digital cinema projection. Digital cinema projectors have a more complex optical system than that of film projectors and require lamps with much higher brightness and a more stable arc. USHIO's DXL series are 20-50% brighter than that of standard film lamps of the same wattages. DXL lamps are optimized to meet technical standards especially for digital 3-D screenings.

BARCO Series I Projector	BARCO Series II Projector	USHIO Ordering Code	USHIO Lamp Description	Wattage	100% Warranty Hours	Barco Adapter Cathode/Anode Part #'s
DP-1200/1500/2000	DP2K-12C/15C/19B/20C/23B	5002117	DXL-12BAF	1200	3000	✸
DP-2000/1500	DP2K-12C/15C/19B/20C/23B	5002079	DXL-20BAF	2000	2400	✸
DP-3000/100/90	DP2K-32B	5002075	DXL-30BA	2400	1500	R859984K / R859985K
DP-2000/1500	DP2K-15C/19B/20C/23B	5002076	DXL-30BAF	2800	1500	R858100
DP-2000/1500	DP2K-15C/19B/20C/23B	5002085	DXL-40BAF	4200	1000	R858100
DP-3000/100/90	DP2K-32B	5002077	DXL-45BA	3700	1000	R8436111K
DP-3000/100/90	DP2K-32B	5002072	DXL-60BA2	6000	600	R8436111K
DP-3000/100/90	DP2K-32B	5002086	DXL-65BA	6500	500	R8436111K
	DP2K-32B	5002239	DXL-70BA	7000	300	

Operational Note for Digital Cinema Xenon Lamps:

Based upon our internal research experiments, operation cycles with "On/Off" mode every 2 hours (10 minutes off), delays the generation of lamp flicker by up to 30% when compared to the operation cycle of 11 hours continuous mode.

✸ Adapter not necessary.

Scan with a smartphone to view this product online.

DXL-B/0911

USHIO

USHIO AMERICA, INC.
5440 CERRITOS AVENUE
CYPRESS, CA 90630
T. 714.236.8600 F. 714.229.3180
TOLL FREE: 800.326.1960

WWW.USHIO.COM

BARCO
Visibly yours

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www.barco.com/digitalcinema
sales.digitalcinema@barco.com

11101 Trade Center Drive
Rancho Cordova, CA 95670, USA
T. 916.859.2500 F. 916.859.2515

DXL

FOR NEC DIGITAL PROJECTORS

USHIO's DXL series of Xenon lamps have been developed as the preferred light sources for NEC digital cinema projectors, providing high stability and high reliability. These high-luminance light sources are optimized to meet the increased demands of digital projection and 3-D exhibition standards. **USHIO's** DXL series are officially approved and recommended for use in NEC digital cinema projectors.

USHIO Lighting—Edge Technologies

DXL

DIGITAL LAMPS FOR NEC DIGITAL PROJECTORS

NEC PROJECTOR	USHIO Ordering Code	USHIO Lamp Description	Wattage Max. / Min.	Current Max. / Min.	Center Lumen Brightness	100% Warranty Hours
NC1200C NC1600C NC2000C	5002168	DXL-20SN3	2000 / 1400	83 / 53	9000	2400
NC1500C	5002169	DXL-30SN	3000 / 2100	107 / 71	12000	1500
NC1600C NC2000C	5002170	DXL-40SCN	4000 / 2800	138 / 97	11900	1500
	5002178	DXL-40SN2	4000 / 2800	133 / 91	14000	1000
	5002171	DXL-40SN	4000 / 2800	133 / 91	17000	650
NC3200S NC3240S	5002229	DXL-41SCN	4000 / 2800	138 / 97	15000	1500
	5002228	DXL-41SN2	4000 / 2800	133 / 91	19500	1000
	5002227	DXL-41SN	4000 / 2800	133 / 91	22500	650
NC2500S NC3200S	5002172	DXL-45SN	4500 / 3150	180 / 102	21000	1000
	5002173	DXL-60SN	6000 / 4200	180 / 116	25200	600
	5002174	DXL-70SN	7000 / 4900	180 / 127	31000	300

UXL

FILM LAMPS FOR NEC DIGITAL PROJECTORS

NEC PROJECTOR	USHIO Ordering Code	USHIO Lamp Description	Wattage Max.	Current Max./Min.	100% Warranty Hours	NEC Required Film Lamp Adapters
NC1200C	5002223	UXL-10SCB	1000	55 / 30	2000	For 2.0 kW film projector lamp bulbs use NEC standard film lamp adapter NC1200C
	5001434	UXL-20SC	2000	85 / 50	2400	
NC1600C NC2000C	5001434	UXL-20SC	2000	85 / 50	2400	Use NEC standard film lamp adapter NC1600C/NC2000C
	5001079	UXL-30SC	3000	110 / 60	1500	
NC2500S NC3200S	5001079	UXL-30SC	3000	110 / 60	1500	For 3.0 kW film projector lamp bulbs use NEC optional film lamp adapter NC-25CL02
	5000631	UXL-40SC	4000	150 / 80	1200	
	5002044	UXL-50SC	5000	150 / 100	1000	
	5000943	UXL-60SC	6000	170 / 120	600	For 4.0 kW film projector lamp bulbs use NEC standard film lamp adapter NC2500S/NC3200S
	5000634	UXL-70SC	7000	170 / 120	500	

USHIO

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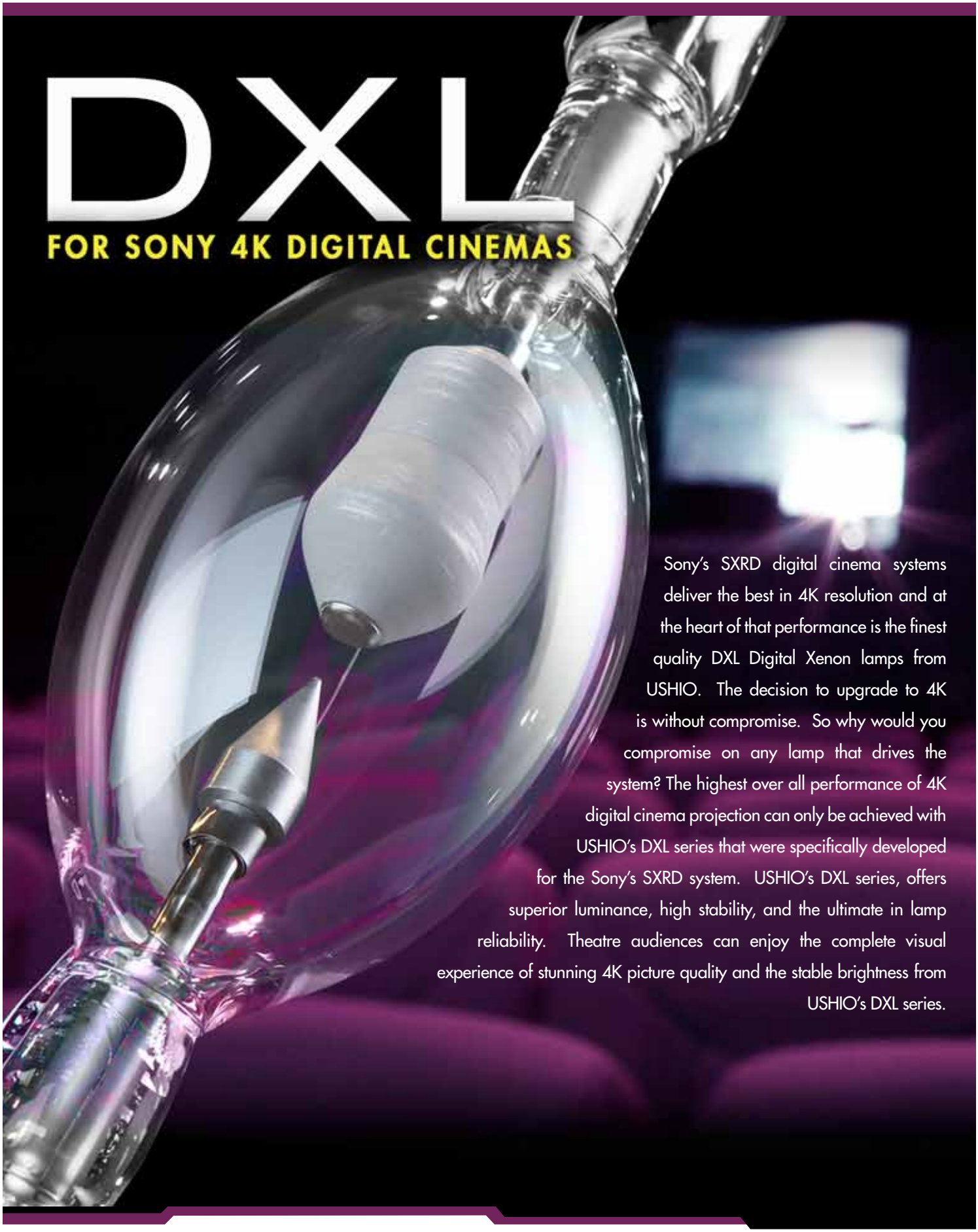
WWW.USHIO.COM

USHIO's DXL series of digital xenon lamps achieve the highest performance for digital cinema projection. Digital cinema projectors have a more complex optical system than that of film projectors and require lamps with much higher brightness and a more stable arc. USHIO's DXL series are 20-50% brighter than that of standard film lamps of the same wattages. DXL lamps are optimized to meet technical standards especially for digital 3-D screenings.

Scan with a smartphone to view this product online.



Sony's SXRD digital cinema systems deliver the best in 4K resolution and at the heart of that performance is the finest quality DXL Digital Xenon lamps from USHIO. The decision to upgrade to 4K is without compromise. So why would you compromise on any lamp that drives the system? The highest over all performance of 4K digital cinema projection can only be achieved with USHIO's DXL series that were specifically developed for the Sony's SXRD system. USHIO's DXL series, offers superior luminance, high stability, and the ultimate in lamp reliability. Theatre audiences can enjoy the complete visual experience of stunning 4K picture quality and the stable brightness from USHIO's DXL series.

USHIO Lighting—Edge Technologies

DXL

FOR SONY DIGITAL CINEMA PROJECTORS

SONY Projector	USHIO Ordering Code	USHIO Lamp Description	Wattage	100% Warranty Hours
SRX-R220 & SRX-R320P	5002089	DXL-20SRX	2000	3000
SRX-R220 & SRX-R320P	5002090	DXL-30SRX	3000	1000
SRX-R220 & SRX-R320P	5002091	DXL-40SRX	4200	500
SRX-R220	5002219	DXL-40SRX/L	4200	650
SRX-R320P	5002219	DXL-40SRX/L	4000	750

Operational Note for Digital Cinema Xenon Lamps:

Based upon our internal research experiments, operation cycles with “On/Off” mode every 2 hours (10 minutes off), delays the generation of lamp flicker by up to 30% when compared to the operation cycle of 11 hours continuous mode.

Sony Digital Cinema™

4K

www.sony.com/digitalcinema

DXL-S/0711

USHIO

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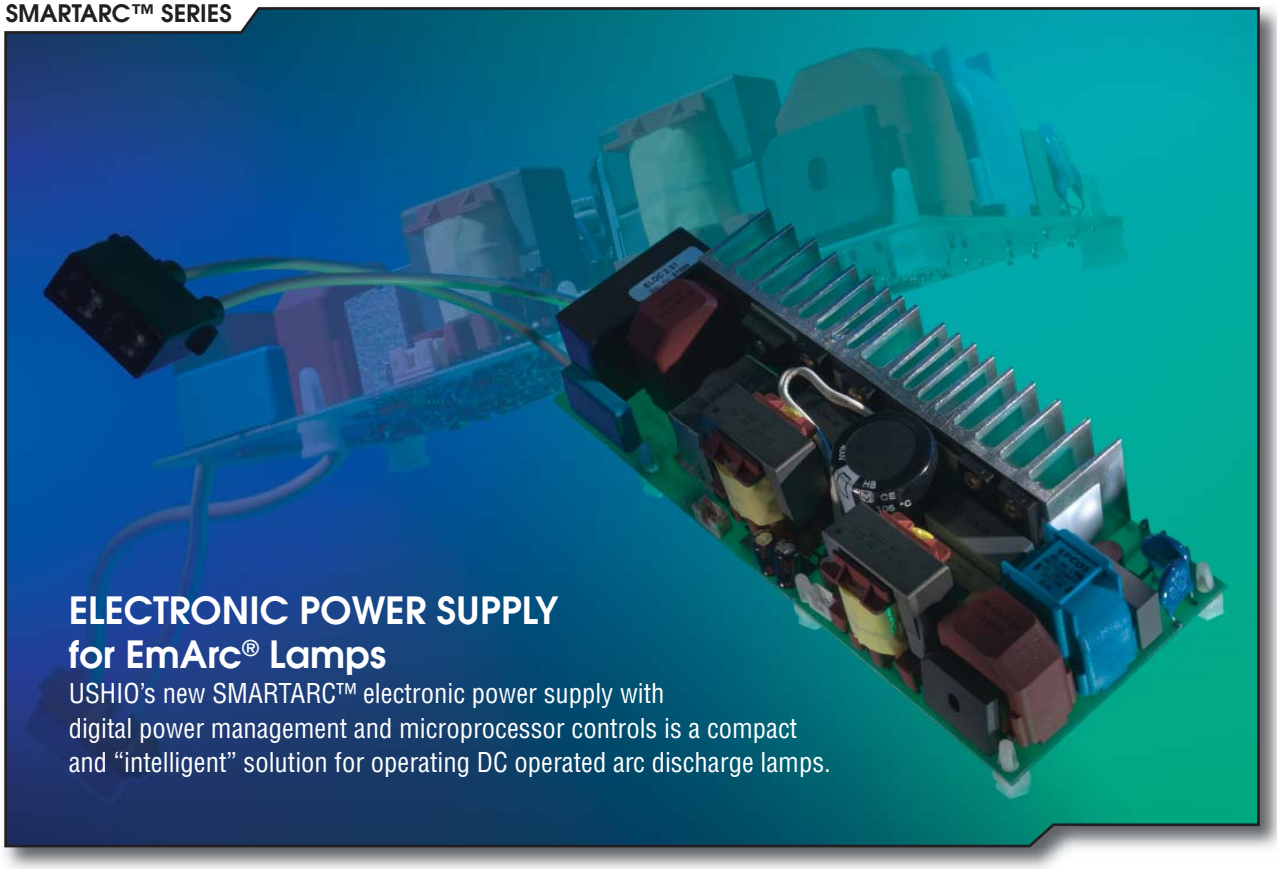
USHIO

ELECTRONIC POWER SUPPLY

SMARTARC™ SERIES

ELDC 2.31 & ELDC 2.31i



ELECTRONIC POWER SUPPLY for EmArc® Lamps

USHIO's new SMARTARC™ electronic power supply with digital power management and microprocessor controls is a compact and "intelligent" solution for operating DC operated arc discharge lamps.

FEATURES AND BENEFITS

- Operates EmArc® DC lamps in power ranges between 100W-200W and operating voltages between 36V-98V
- Output selections by solder bridges in 6 steps. *Please consult USHIO America, Inc. Engineering for further details.*
- Power factor corrected line input, built-in EMI-Filter voltage range 90VAC to 264VAC. Meets CE and FCC Part "A"
- Newly designed anti-aging and arc control circuit for high optical reliability over lamp lifetime
- Digital Power Management and micro-processor controlled with high output stability over life
- Output is short circuit protected
- 90°C thermal shut-off feature
- Photo feedback terminal connection enables customer individualized lighting system regulation
- Auxiliary 24V/200mA output at two terminals for fan drive –available when the lamp is in operation
- UL1950, UL508, UL2601, CSA C22.2 Certification

USHIO

ELDC 2.31 Item No. 5002001
ELECTRICAL DATA

All values are valid at 25º ±5ºC, unless otherwise noted

INPUT DATA		
Nominal Operation	**Nominal**	**Tolerance**
Input Voltage AC (V)	100 – 240	90 – 264
Input Voltage DC (V)	100 – 300	90 – 340
System Wattage (W)	200	100 – 200*
Input Current (A)	— — —	1-3
Line Frequency (Hz)	50/60	47 – 63
Power Factor (1)	1.0	>0.93

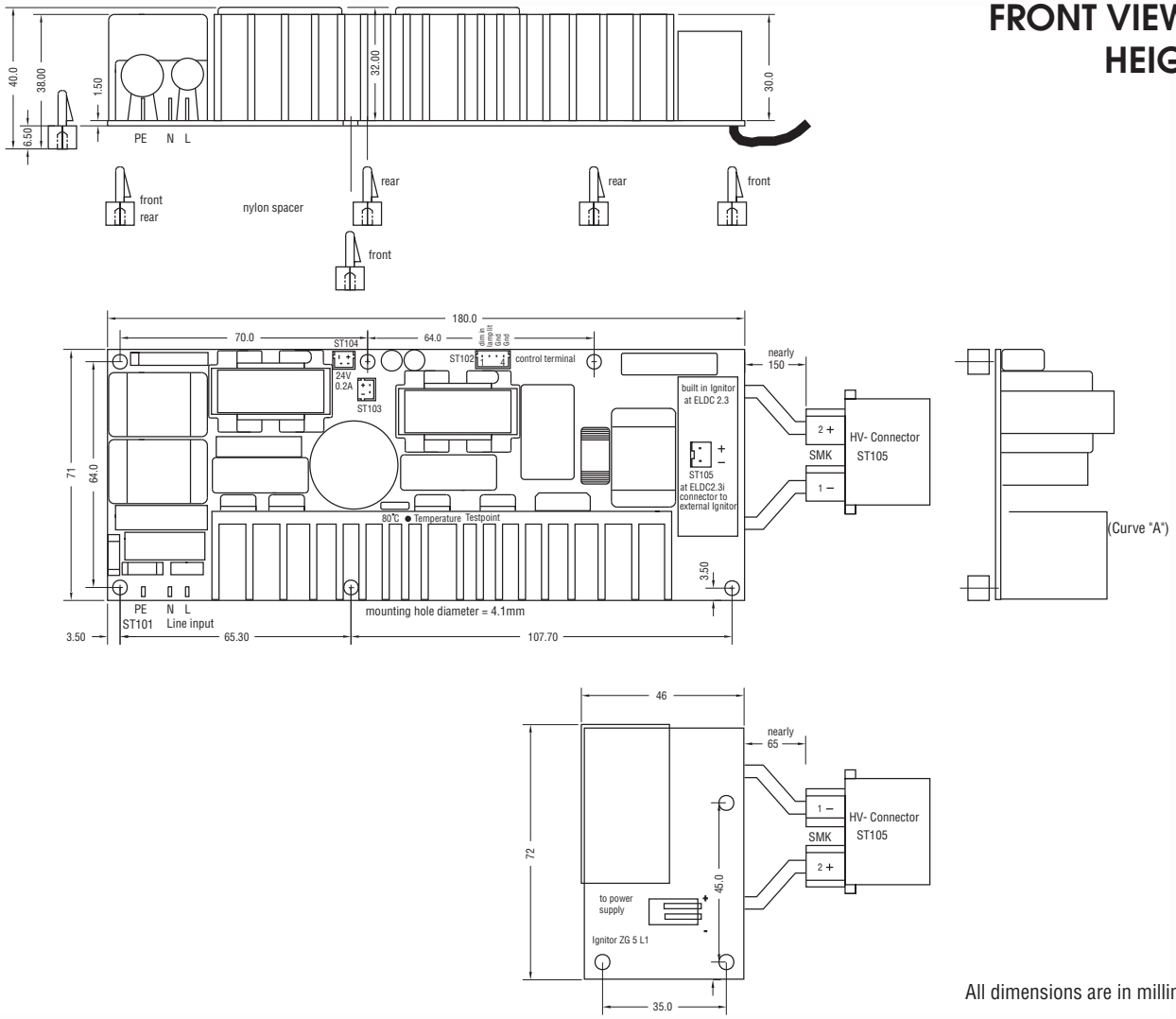
*Tolerance for System wattage dependent on preset

LAMP OUTPUT DATA			
Ignition	**Nominal**	**Tolerance**	**Remarks**
Ignition Voltage (kV peak)	±14V	±12 – ±16	Load capacity <20pF
Ignition Time (sec.)	1	0.9 – 1.1	
Automatic restart counter (1)	5	— — —	attempts
Nominal Operation	**Nominal**	**Tolerance**	
Lamp Voltage (V)	60	36 – 95	
Lamp Wattage (W)	100 – 200*	— — —	
Lamp Current (A)	— — —	I max = 5.7	
Cut-off voltage, End-Life (V)	98	99 – 101	
Open Circuit Voltage (V)	240	230 – 260	

*Presettable in 6 steps. Continuous variable from preset to 200W by optocoupler

MISCELLANEOUS		
Nominal Operation	**Nominal**	**Tolerance**
Efficiency (1)	0.88	— — —
Ambient Temperature (ºC)	+25	+10 – +50
Max. Temperature at test point (ºC)	+80	— — —
Switch off temperature (ºC)	+90	— — —

ELDC 2.31
FRONT VIEW & HEIGHT



All dimensions are in millimeters

Plugs and Cables	Manufacturer / Type	Remarks / Header / Contacts
Ballast Mains Plug	ST101 3X AMP faston 2.8 x 0.8 Single terminals	
Ballast Interface Plug	S102 JST/B4B-PH-K-S (grid 2mm) 4 pin	JST PHR4/SPH-002T-PO.5S
Fan Connection Plug	STH103, STH104 JST/B2B-EH-A For 24V fan 100mA (2.6W) max. Output capacity 200mA/25V±1V (Both terminals together)	JST EHR2/SEH-001T-PO.6
Connection Ballast-Ignitor	ST105 AMP640445-2 (ELDC 2.3i)	AMP 770 849-2/770522-1
Ignitor HV-plug to Lamp Lamp Cable	Housing: SMK/101CCT-09-01R Tecnosil/AWG20 UL Style 3239, 20kVDC	ZG 5L or built-in ignitor

ELDC 2.31

PIN ASSIGNMENT AND FUSE			
Connector	**Signal**	**Status**	**Description**
Line Input ST101 PIN 1 PIN 2 PIN 3	 AC in -L- AC in -N- PE		 AC wide range input voltage 90V-264VAC DC wide range input voltage 90V-340VDC
Control Interface PIN 1 input PIN 2 output PIN 3 PIN 4	 Photo-feedback/Dimming Lamp Running GND GND	 0-10mA (input) dim to preset level 2mA, true if low (output) open collector	

COOLING RECOMMENDATIONS

The unit has two 25V terminals for driving one or two fans. One is intended for the power supply and one for the lamp. The maximum total output current for both outputs is 200mA. Please note that the output voltage is only available when the lamp is in operation.

CAUTION!

HEAT SINK AND SAFETY

The heat sink is connected to line voltage.
Do not touch or connect to PE!

ENVIRONMENTAL REQUIREMENTS

Storage Temperature Range.....-20° C – +50° C
Humidity Range .....20% – 95% non-condensing
Altitude (operating).....0 ft. to 10,000 ft.

STANDARDS

Safety and Performance
CSA C22.2 No.60950 UL60950,UL508, UL2601 Certified
CB-Test and UL must be completed with the final product

Scan with a smartphone to view this product online.

Distributed by:

Form No. S-SMARTARC/ELDC/R-1211
The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

USHIO

METAL ARC LAMPS

EmArc®

EmArc® ENHANCED METAL ARC LAMPS

EmArc® lighting technology is the culmination of a dedicated effort to bring together the inherent advantages of a number of gas discharge sources into a single light source. The technology equates to a critical blending of rare gas and metal additives to derive, in a single source, many of the key properties and benefits of stand alone Xenon, Metal Halide and Mercury lamps.

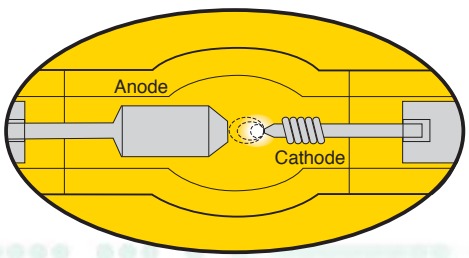
EmArc® light sources are a series of highly efficient, Enhanced Metal Arc, DC gas discharge lamps designed for use in medical, scientific, industrial and entertainment settings. EmArc® lamps are a progressive step ahead in lighting technology possessing features that offer advantages to an array of users for imaging, fiber optic and other important optical applications.

EmArc® lamps have geometric designs which enable alignment in dichroic visible light or UV specific coated reflectors facilitating use in numerous applications like lighting for minimally invasive surgery, curing of light sensitive resins and adhesives and, dental whitening procedures. EmArc® versatility enables its use in a number of entertainment applications including searchlights, followspots, special effects and automated fixtures.

EmArc® lamps are comparable to Metal Halide sources in luminous efficacy but with 2 times to 5 times the life. A correlated color temperature like that of Xenon at 6000K, with very small arc gap sizes, but with 2 times the luminous efficacy of Xenon lamps.

EmArc® technology differentiates itself as a new family of discharge lamps.

High luminance at tip of cathode with DC arc discharge



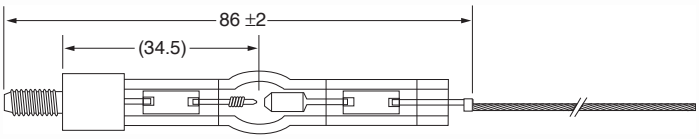
FEATURES & BENEFITS

- Medical fiber optics for endoscopy or headlight illumination
- Biotechnology/ micro-array
- Industrial UV curing
- Machine vision
- Cosmetic dentistry
- Projection / Entertainment
- Microscopy
- Entertainment

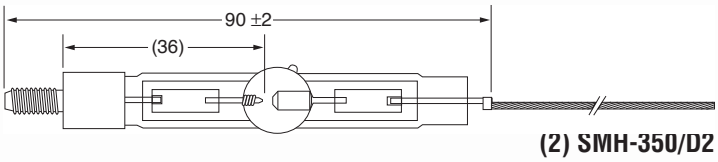
The construction of EmArc® arc tubes, electrodes and precise filling technique provide the environment for the tightly confined plasma arc discharge. EmArc® light output over time exceeds that of typical DC Xenon and AC short-arc Metal Halide lamps

See FEATURES & BENEFITS on back

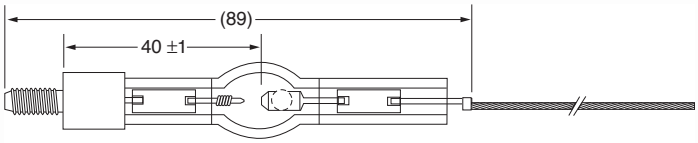
EmArc®
DOUBLE ENDED BARE BURNER VERSIONS



(1) SMH-200/D1



(2) SMH-350/D2



(3) SMH-600/D1

All dimensions are in millimeters

Wattage Power Range (W)	Ushio Lamp Description	Lamp Current (A)	Lamp Voltage (V)	Arc Gap (mm)	Luminous Flux (lm) nom	Avg Rated Life** (h)	Color Temp*** (K)	Fig No.
	DOUBLE ENDED BARE BURNER VERSIONS							
160-200	SMH-200/D1	4.65	43	1.2	10000	2000	6000	1
350	SMH-350/D2	7.3	48	1.8	21000	2000	6000	2
600	SMH-600/D1	8.8	68	3.0	44000	1000	5700	3

** Based on 50% spherical lumen depreciation at a duty cycle of 2 hours 45 minutes ON and 15 minutes OFF

***As measured in a sphere. All values ± 500K from nominal

USHIO

CHARACTERISTICS & SPECIFICATIONS

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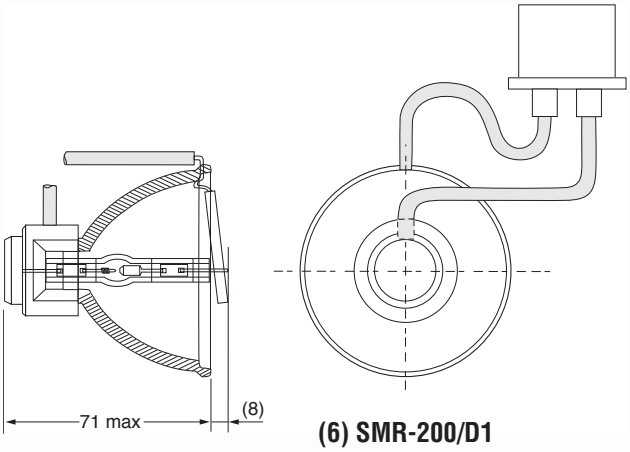
Interlight Specialty Bulbs
1-800-743-0005
www.interlight.biz

EmArc®
REFLECTORIZED VERSIONS
70mm Reflector

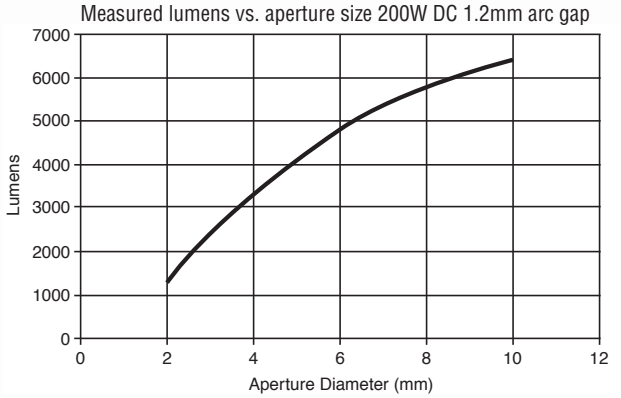


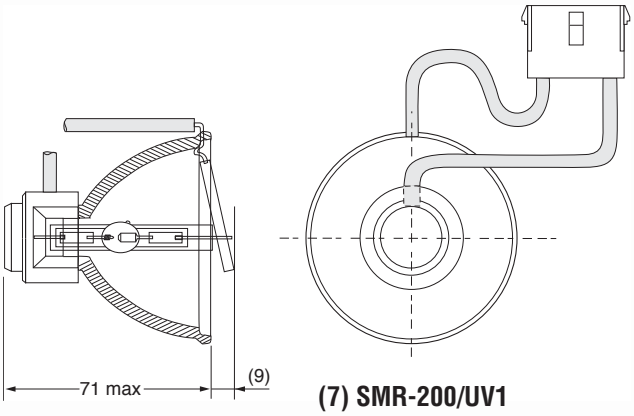
(6) SMR-200/D1

Lamp aligned for maximum throughput thru 6mm aperture at 52mm distance from reflector rim

FIBER OPTIC EFFICIENCY

Measured lumens vs. aperture size 200W DC 1.2mm arc gap





(7) SMR-200/UV1

All dimensions are in millimeters

Wattage Power Range (W)	Ushio Ordering Code	Ushio Lamp Description	Lamp Current (A)	Lamp Voltage (V)	Arc Gap (mm)	Luminous Flux* (lm) nom	Avg Rated Life ** (h)	Color Temp*** (K)	Fig No.
REFLECTORIZED VERSIONS									
160-200	5001399	SMR-200/D1	4.65	43	1.2	5100/6mm Aperture	2000	6500	6
160-200	5001523	SMR-201/D1	4.25	47	1.6	5500/8mm Aperture	2500	6500	6
160-200	5001466	SMR-202/D1	3.5	56	2.0	5900/10mm Aperture	4000	6900	6
160-200	5001506	•SMR-200/UV1	5.0	40	1.2	—	1500	—	7

•Radiant output is >5W

* Based on measurement through aperture into a sphere

** Based on 50% spherical lumen depreciation at a duty cycle of 2 hours 45 minutes ON and 15 minutes OFF

*** As measured in a sphere. All values ± 500K from nominal

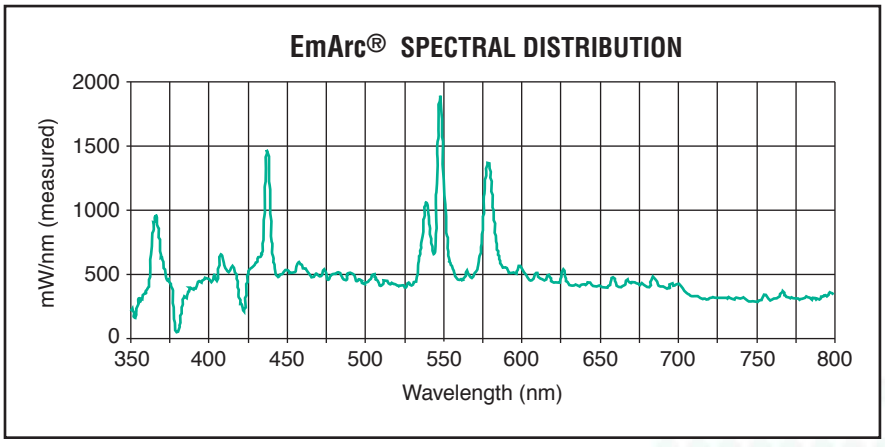
USHIO

METAL ARC LAMPS

EmArc®
ENHANCED METAL ARC TECHNOLOGY

FEATURES & BENEFITS

- Power ranges from 150-600 watts—
  versatility/ power tunability
- Custom reflector designs available
- Small arc gap sizes—
  down to 1.2mm highly effective optical collection capability
- Unique hybrid gas discharge technology—
  2,000 hours of life; no internal pressure when cold
- EmArc® DC technology—
  enables operation on lower cost DC power supplies reducing OEM system design costs
- 6000K correlated color temperature—
  Xenon-like light for crisp, white imaging
- Hot reignition
- Up to 60 lumens per watt efficacy—
  two times that of Xenon sources
- Highly durable, rugged elliptical and parabolic reflector designs—
  very high light path efficiencies for small diameter fiber optic bundle applications
- Precise filling control, electrode design and tight manufacturing tolerances with tipless arc tube construction allows for tightly confined and stable plasma discharge, long life with minimal color temperature drift over life, better optical control, no shadowing
- Far better color control over life than conventional metal halide lamps



Made in USA

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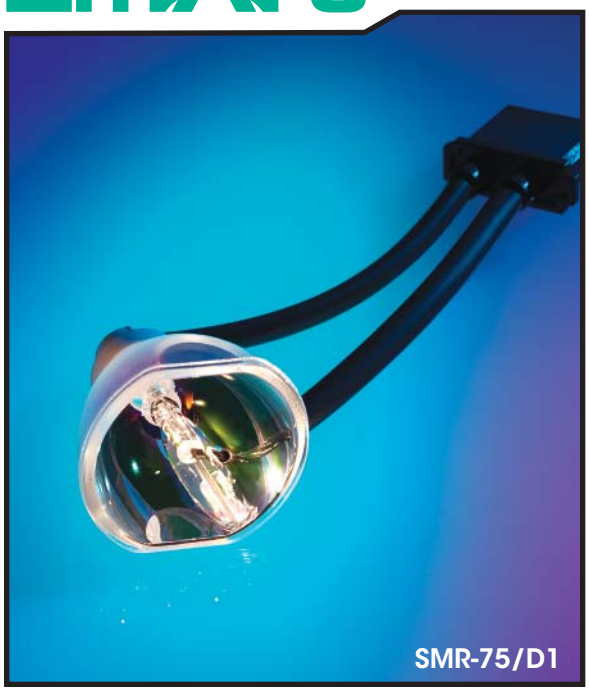
USHIO

METAL ARC LAMPS

EmArc®



NEW SMR-75/D1 EmArc® ENHANCED METAL ARC LAMPS

For over 50 years USHIO has been developing advanced lighting technologies for the world. Now there is EmArc® 75W - a new and exciting advancement in the world of light. This 75W compact package has precise and powerful light.

EmArc® lighting technology is the culmination of a dedicated effort to bring together the inherent advantages of a number of gas discharge sources into a single light source.

EmArc® light sources are a series of highly efficient, Enhanced Metal Arc, DC gas discharge lamps designed for use in medical, scientific, industrial and entertainment settings. EmArc® lamps are a progressive step ahead in lighting technology possessing features that offer advantages to an array of users for imaging, fiber optic and other important optical applications.

EmArc® lamps have geometric designs which enable alignment in dichroic visible light or UV specific coated reflectors facilitating use in numerous applications like lighting for minimally invasive surgery, curing of light sensitive resins and adhesives, and dental whitening procedures. EmArc® versatility enables its use in a number of entertainment applications including searchlights, followspots, special effects and automated fixtures.

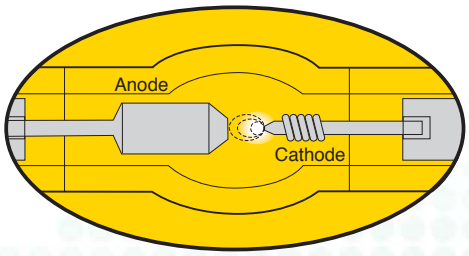
EmArc® lamps are comparable to metal halide sources in luminous efficacy but with 2 times to 5 times the life. EmArc® lamps have very small arc gap sizes and have more than 2 times the luminous efficacy of xenon lamps.

EmArc® technology differentiates itself as a new family of discharge lamps.

EmArc® DC arc discharge

The construction of EmArc® arc tubes, electrodes and precise filling technique provide the environment for the tightly confined plasma arc discharge. EmArc® lamp life exceeds that of typical DC xenon and AC short-arc metal halide lamps.

High luminance at tip of cathode with DC arc discharge



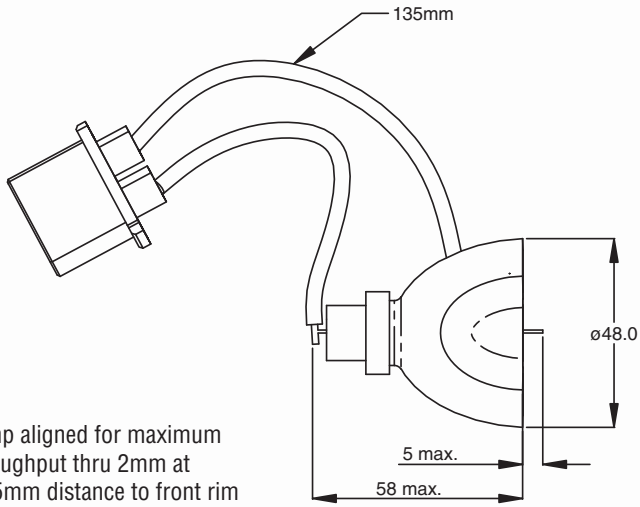
See FEATURES & BENEFITS on back

USHIO

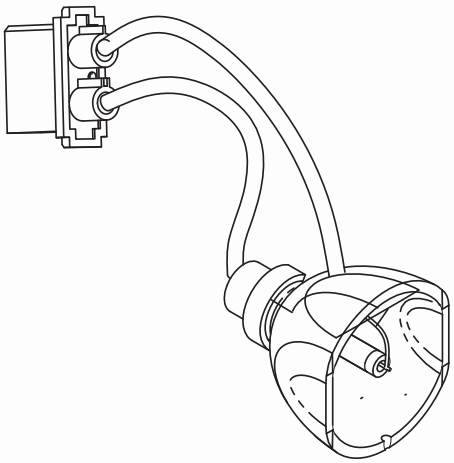
CHARACTERISTICS & SPECIFICATIONS

EmArc®
REFLECTORIZED VERSION

SMR-75/D1



Lamp aligned for maximum throughput thru 2mm at 27.5mm distance to front rim



All dimensions are in millimeters

Ushio Ordering Code	Ushio Lamp Description	Wattage Power Range (W)	Lamp Current (A)	Arc Gap (mm)	Luminous Flux* (lm) nom	Avg Rated Life (h)	Color Temp* (K)
	REFLECTORIZED VERSION						
5002046	SMR-75/D1	50-75W	1.33 nom.	1.2	750	1000	7800

Lamp Voltage ((V)	Maximum Allowable Starting Current	Ignition Voltage	Minimum Voltage After Start Up	Typical Warm Up Time
55V DC (-8+12)	2.3A	25kV (for Hot Re-ignition)	10–15V DC	90 sec. nom.

* Output and Correlated Color Temperature as measured through a 2mm aperture at 27.5mm from the reflector rim into a sphere. Actual values are dependent on the specific optical set-up used.

USHIO

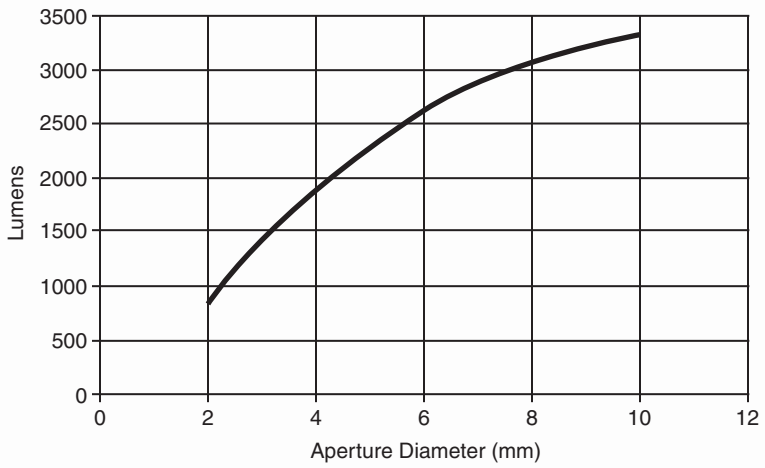
CHARACTERISTICS & SPECIFICATIONS

EmArc®

SMR-75/D1

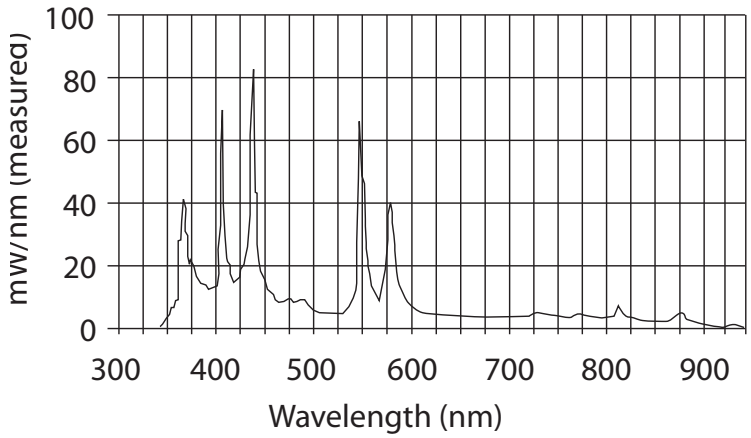
FIBER OPTIC EFFICIENCY

Measured lumens vs. aperture size



- Industrial fiber optics / Borescopy
- Dental / Surgical vision
- Medical fiber optics
- Bio-technology
- Machine vision
- Microscopy
- UV curing
- Analytical

EmArc® SPECTRAL DISTRIBUTION



USHIO

METAL ARC LAMPS

EmArc®

ENHANCED METAL ARC TECHNOLOGY

FEATURES & BENEFITS

- Power range from 50-75 watts—
  - Versatility/ power tunability
- Small arc gap size to 1.2mm—
  - Highly effective optical collection capability
- Unique hybrid gas discharge technology—
  - 1,000 hours of life provides staying power over other conventional gas discharge sources.
  - No high internal pressure when cold
- Special, rugged, compact, 48mm Ø elliptical reflector design—
  - Very high light path efficiencies for small diameter fiber-optic bundle applications
  - Highly durable
- Precise filling control, electrode design and tight manufacturing tolerances with tipless arc tube construction—
  - Tightly confined and stable plasma discharge, long life
  - Minimal color temperature drift over life
  - Better optical control, no shadowing
- EmArc® DC technology—
  - Enables operation on lower cost DC power supplies reducing OEM system design costs
- High correlated color temperature—
  - White light for crisp imaging
- Unique chemistry—
  - High efficacy nearly 2 times that of xenon sources
- USA engineered and manufactured—
  - Dependability, accessibility and flexibility
  - Development and engineering support close to the customer
- 1,000 hours of life—
  - 2 times to 4 times that of conventional AC short-arc metal halide or xenon sources
- EmArc® gas technology—
  - No heat sinks, less IR and thermal loads to work around. Less strain on components. Simpler system design issues.

NEW UBX-76 ELECTRONIC POWER SUPPLY

SMARTARC™ SERIES

NEW UBX-76 POWER SUPPLY

Operates EmArc® DC lamps in power ranges between 50W-75W

Find out more information about our NEW UBX-76 SMARTARC™ Power Supply by contacting your Regional Sales Manager.

Scan with a smartphone to view this product online.

Made in USA

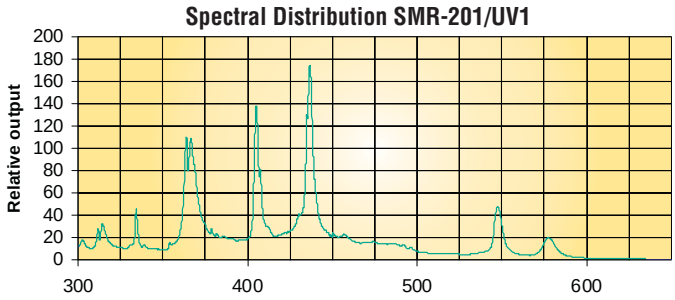
Form No. S-EmArc75/R-0212: The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

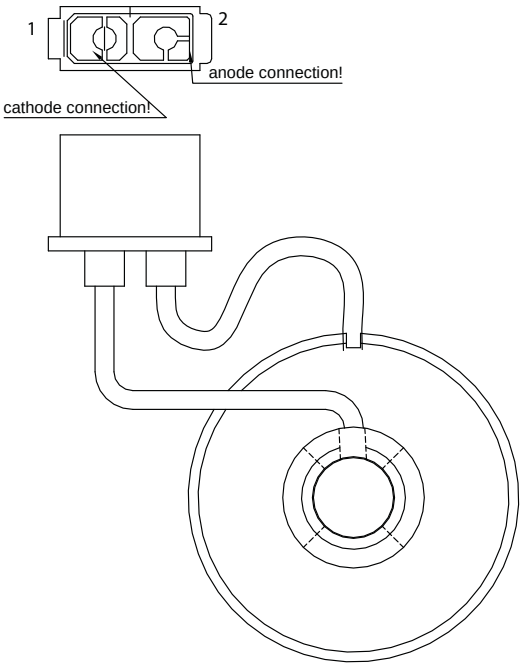
USHIO

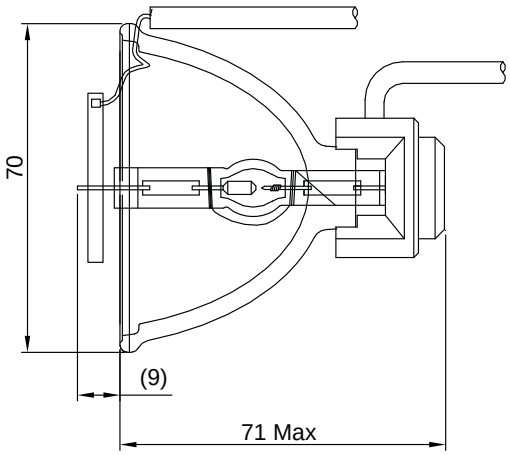
METAL ARC LAMPS

EmArc®
REFLECTORIZED VERSION

SPECIFICATIONS







Lamp aligned for max throughput thru
6mm aperture at 52mm dist from reflector rim.

All dimensions are in millimeters

Ushio Ordering Code	Ushio Lamp Description	Rated Power (W)	Lamp Current (A)	Arc Gap (mm)	Radiant Output (0 hrs)*	Avg Rated Life** (h)
	REFLECTORIZED VERSION					
N/A	SMR-201/UV1	200W	5 nom.	1.2	5.0W min.	1500

*As measured in the range of 320-400nm through a 6mm aperture at a working distance of 52nm from reflector rim.

**Life defined as time until output drops to 50% of initial value at 0 hours. (Strongly dependent upon operating conditions and environment).

Lamp Voltage (V)	Maximum Allowable Starting Current	Min. Ignition Voltage	Ignition Voltage	Minimum Voltage After Start Up	Typical Warm Up Time
40V DC (±5)	9A	5-10kV	25kV	10–15V DC	90 sec. nom.

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Made in USA

USHIO

METAL ARC LAMPS

EmArc®

NEW EmArc® SMR-75/LFL Lamp

The latest development in EmArc technology, the new SMR-75/LFL, 75 watt lamp, has an optimized design that addresses illumination challenges in fluorescent microscopy systems and other unique scientific or industrial optical applications.

The SMR-75/LFL lamp is another masterfully engineered lamp from USHIO America, that combines the benefits of our unique EmArc lamp discharge technology with precisely crafted and manufactured parts resulting in a powerful and compact lighting solution.

EmArc® lamps are a progressive step ahead in lighting technology, possessing features that offer advantages to an array of users for imaging, fiber optic and other important optical applications.

APPLICATIONS

- Microscopy
- Medical and industrial fiber optic illumination
- Bio-technology and bio-medical optical instrumentation

FEATURES & BENEFITS

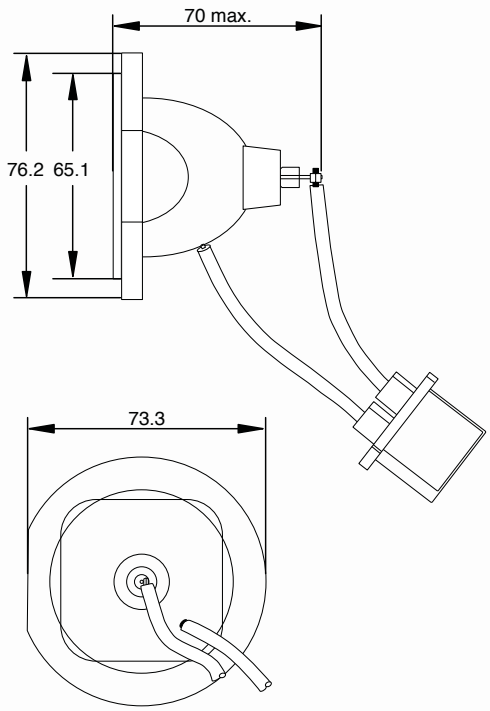
- Unique long focal length reflector design greatly improves optical throughput efficiency.
- 1.2 mm arc gap size enables very precise optical control and well defined light distribution pattern.
- 'Plug and Play' lamp design requires no lamp to lamp adjustment or alignment in your optical system compared to other traditional lamp sources.
- Highly durable and precisely machined reflector parts ensure lamp to lamp integrity, alignment and consistency in your equipment.
- EmArc DC, metal-arc technology, enables operation on simpler, lower cost DC power supplies reducing OEM system design costs.
- Lower power (wattage) reduces thermal to load to sensitive equipment, like microscopes, or sophisticated optical systems simplifying lamp house design and lowering overall system costs.
- Xenon-like correlated color temperature for crisp, white, bright illumination.
- Excellent field uniformity and intensity in fluorescent microscopy applications, featuring outputs and peak intensities in important spectral areas.
- Made in U.S.A.

USHIO

CHARACTERISTICS & SPECIFICATIONS

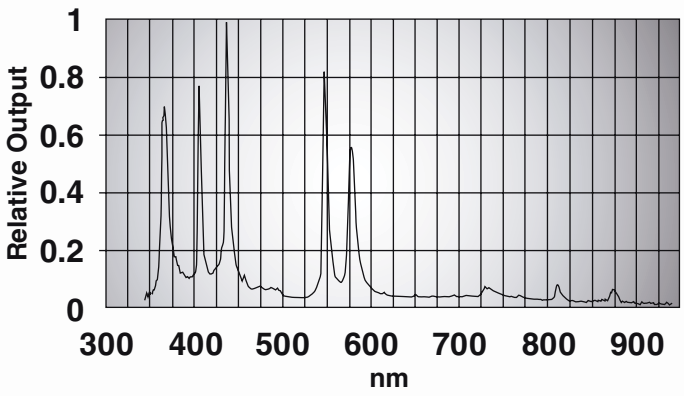
EmArc®
REFLECTORIZED VERSION

SMR-75/LFL



All dimensions are in millimeters

Spectrum



Ushio Ordering Code	Ushio Lamp Description	Wattage Power Range (W)	Lamp Current (A)	Arc Gap (mm)	Luminous Flux* (lm) nom	Avg Rated Life** (h)	Color Temp* (K)
	REFLECTORIZED VERSION						
N/A	SMR-75/LFL	50-75W	1.33 nom.	1.2	600	600	7800

Lamp Voltage ((V)	Maximum Allowable Starting Current	Ignition Voltage	Minimum Voltage After Start Up	Typical Warm Up Time
55V DC (-8+12)	2.3A	25kV (for Hot Re-ignition)	10–15V DC	90 sec. nom.

* Output and Correlated Color Temperature as measured through a 4mm aperture at 102.9mm from the reflector rim. Actual values are dependent upon optical set-up.

**Life at 50% down in luminous flux or 50% failure to operate. (Dependent upon system and operating conditions).

Ballast must be certified by USHIO.

Made in USA

Scan with a smartphone to view this product online.

Form No. S-EmArc75LFL-0212: The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

USHIO

METAL HALIDE LAMPS

EUROFIOOD™
DOUBLE ENDED

COMPACT METAL HALIDE LAMPS FOR GENERAL LIGHTING

USHIO Euroflood™ series of compact Metal Halide lamps use a sodium/scandium iodide chemical mixture which maximizes light output and ensures color stability while at the same time achieving excellent life characteristics and good color rendering.

The compact size provides versatility in fixture selection — from industrial and large areas to more compact display lighting applications. The Euroflood™ series offers design flexibility where high light density is desired.

Available in 75W, 150W and 250W with color temperatures ranging from 3000K – 5200K

Euroflood™ Metal Halide lamps are manufactured under ISO 9001 guidelines ensuring quality and security for the purchaser

FEATURES & BENEFITS

- Long life — 10,000 hours average life
- High color stability over entire life time
- High efficacy — 80 lm/W luminous output
- Excellent color rendering — 80 CRI
- UV Protection — protects textiles and plastics
- Compact tubular design

APPLICATIONS

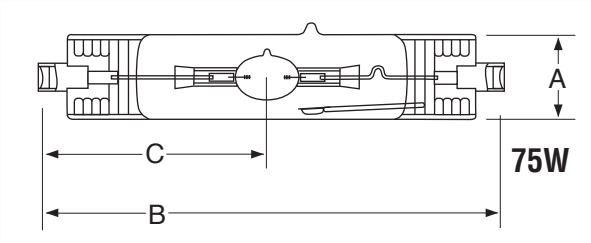
- Window Displays and Showrooms
- Museums and Galleries
- Landscape Lighting
- Lobbies, Hotels, Restaurants
- Athletic Fields, Arenas
- Exhibition Halls
- Floodlighting
- Wall Washing
- Aquariums (5200K)

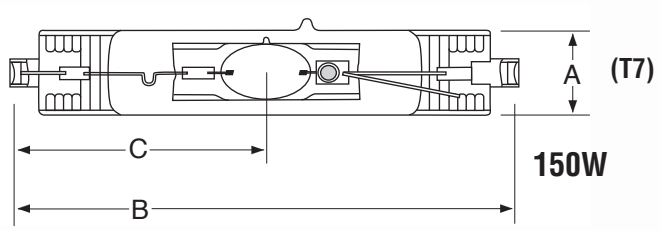
Distributed by:

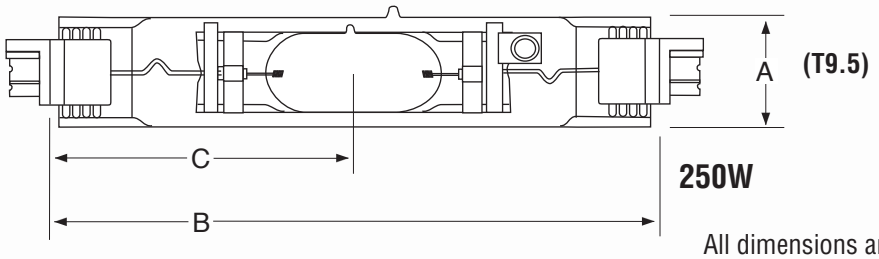
USHIO

CHARACTERISTICS & SPECIFICATIONS

EUROFLOOD™
RX7s & FC2 Base







All dimensions are in millimeters

Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Lamp Current (A)	Luminous Flux (lm)	Color Temp (K)	Dia (A)	Dimensions C-to-C (B)	Dimensions LCL (C)	Arc Gap	Ballast
	DOUBLE ENDED — RX7s Base									
75	5000194	UHI-70DW/UVP	0.9	6000	3000	20	114.2	57.0	8.5	M85/E
75	5000190	UHI-70DL/UVP	0.9	6000	3500	20	114.2	57.0	8.5	M85/E
75	5000192	UHI-70DM/UVP	0.9	6000	4200	20	114.2	57.0	8.5	M85/E
150	5000184	UHI-150DW/UVP	1.8	12000	3000	23	132.0	66.0	18.0	M81/E
150	5000180	UHI-150DL/UVP	1.8	12000	3500	23	132.0	66.0	18.0	M81/E
150	5000182	UHI-150DM/UVP	1.8	12000	4200	23	132.0	66.0	18.0	M81/E
150	5000178	UHI-150DD/UVP	1.8	11000	5200	23	132.0	66.0	18.0	M81/E
	DOUBLE ENDED — FC2 Base									
250	5000188	UHI-250DM/UVP	3.0	20000	4200	25	139.0	69.5	24.0	M80/E

/E = Enclosed fixture required
Burn Position: Horizontal ± 45⁰

Recommended Ignition Voltage: 4kV

Average life: 10,000 hours
Lamp should be switched off for at least 15 minutes/week

Lamp Code Suffix Designation:
DW = Warm White
DL = Brilliant White
DM = Cool White
DD = Daylight
/UVP = UV-absorbing quartz glass

Case quantity: 12/case

Scan with a smartphone to view this product online.

(Hg) - LAMP CONTAINS MERCURY
Manage in Accord with Disposal Laws
See: www.lamprecycle.org or 1-800-895-8842

R - NON SELF EXTINGUISHING LAMP
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. 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. Complies with the USA Federal Standard 21 CFR 1040.30 and Canada Standard SOR/80-381.

Form No. S-UHI/DE/R-0911

USHIO

MR-11 REFLECTOR LAMPS

EUROSTAR™ REFLEKTO™ SERIES

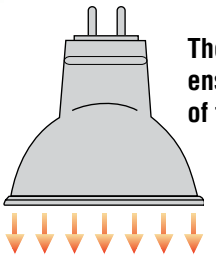
MR-11 ALUMINIZED REFLECTOR LAMPS FOR GENERAL LIGHTING

Eurostar™ Reflekto™ series of Halogen MR-11 lamps provide professional accent lighting without light back-spill. The Eurostar™ Reflekto™ combines an aluminum deposition and a high temperature colored coating on the reflector to prevent any back-spill of light and to reduce heat to the back of the lamp. The aluminized coating redirects heat through the front of the lamp, thus diminishing the risk of thermal damage to sockets, transformers, and ceilings. The Eurostar™ MR-11 Reflekto™ is offered in clear and two designer colors of matte black and silver— ideal for low voltage cable and track lighting.

Available in— 20W and 35W
Spot and Flood beam spreads

FEATURES & BENEFITS

- No light diffusion from back-spill
- Reduced heat to socket, fixture and transformers
- 80% reduction of IR to the back of the lamp
- Decorative Aluminum coating in clear and matte colors black and silver
- Axial filament for precise beam control
- Dimmable
- Crisp white Halogen light
- UV-cut Halogen capsule
- Flush fitting integral front glass

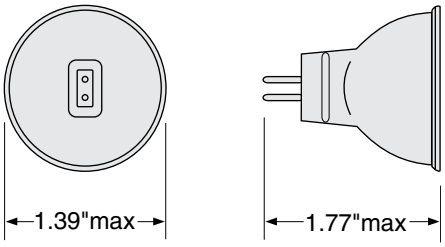


The aluminum coating of the reflector ensures lower heat radiation to the rear of the lamp

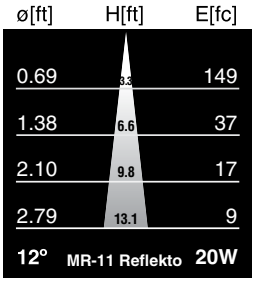
APPLICATIONS

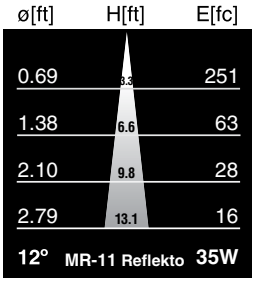
- Accent Lighting
- Restaurants
- Museums and Galleries
- Shop Windows, Displays
- Track and Cable Lighting
- Showcase Lighting

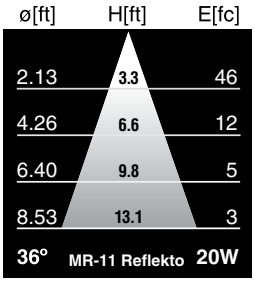
EUROSTAR™ REFLEKTO™ MR-11

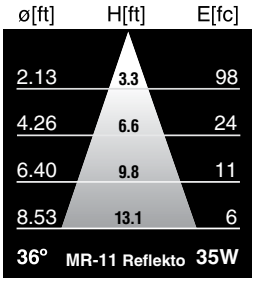


GU4 Base









Watts (W)	Ushio Ordering Code	Ushio Lamp Code	Voltage (V)	Color Temp (K)	Beam Angle	Beam Spread	Luminous Intensity (cd)	Reflector Color Coating	Avg Life (h)
20	1003344	20MR11/SP12/A/FG	12	2900	12°	Spot	1600	Clear	1500
20	1003345	20MR11/FL36/A/FG	12	2900	36°	Flood	500	Clear	1500
20	1003348	20MR11/SP12/B/FG	12	2900	12°	Spot	1600	Black	1500
20	1003349	20MR11/FL36/B/FG	12	2900	36°	Flood	500	Black	1500
20	1003352	20MR11/SP12/S/FG	12	2900	12°	Spot	1600	Silver	1500
20	1003353	20MR11/FL36/S/FG	12	2900	36°	Flood	500	Silver	1500
35	1003346	35MR11/SP12/A/FG	12	2900	12°	Spot	2700	Clear	1500
35	1003347	35MR11/FL36/A/FG	12	2900	36°	Flood	1050	Clear	1500
35	1003350	35MR11/SP12/B/FG	12	2900	12°	Spot	2700	Black	1500
35	1003351	35MR11/FL36/B/FG	12	2900	36°	Flood	1050	Black	1500
35	1003354	35MR11/SP12/S/FG	12	2900	12°	Spot	2700	Silver	1500
35	1003355	35MR11/FL36/S/FG	12	2900	36°	Flood	1050	Silver	1500

Eurostar™ Reflekto™ lamps are manufactured under ISO 9001 guidelines ensuring quality and security for the purchaser

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USHIO

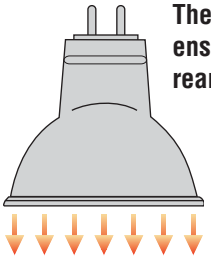
MR-16 REFLECTOR LAMPS

EUROSTAR™ REFLEKTO™ SERIES

MR-16 ALUMINIZED REFLECTOR LAMPS FOR GENERAL LIGHTING

Eurostar™ Reflekto™ lamps are made with an aluminum deposition to reduce process heat emission through the back of the lamp. These lamps are well suited for enclosed or recessed fixtures where there is a risk of thermal damage to sockets and transformers. Much like a PAR lamp, the aluminized coating reduces the back spill of light through the rear of the reflector.

Available in: 10W, 20W, 35W, and 50W in
spot, narrow flood, flood, and wide flood beam spreads



The aluminum coating of the reflector ensures lower heat radiation to the rear of the lamp

FEATURES & BENEFITS

- Aluminized coated reflector
- Less heat to the back of the lamp
- Consistent color
- Axial filament for precise beam control
- Dimmable
- Crisp white Halogen light
- UV-cut Halogen capsule
- Base type GU5.3

APPLICATIONS

- Recessed Down Lights
- Museums and Galleries
- Wall Washing
- Accent Lighting
- Offices and Commercial Areas
- Restaurants
- Enclosed Fixtures
- Display Cabinets

Eurostar™ Reflekto™ lamps are manufactured under ISO 9001 guidelines ensuring quality and security for the purchaser

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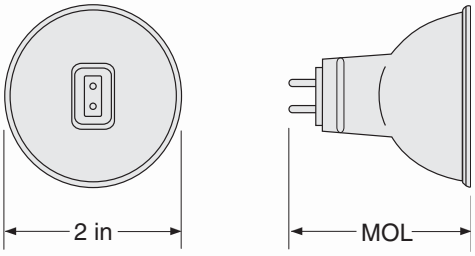
USHIO

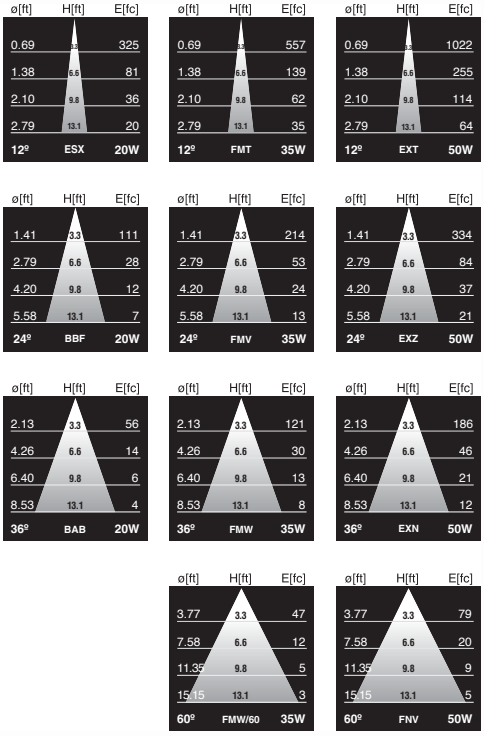
CHARACTERISTICS & SPECIFICATIONS

12V EUROSTAR™ REFLEKTO™

C-8 Filament
Universal Burn Position



GU5.3



Watts (W)	Ushio Ordering Code	Ushio Lamp Description	MOL (in)	Color Temp (K)	Beam Angle	Beam Spread	Luminous Intensity (cd)	Avg Life (h)
10	1002143	JR12V-10W/NFL24/A, EUROSTAR-REFLEKTO	1.77	2800	24°	Narrow Flood	400	1200
20	1000368	ESX/C/A, EUROSTAR-REFLEKTO	1.77	2950	12°	Spot	3500	3500
20	1000369	ESX/C/A/FG, EUROSTAR-REFLEKTO	1.78	2950	12°	Spot	3500	3500
20	1000033	BBF/C/A/FG, EUROSTAR-REFLEKTO	1.78	2950	24°	Narrow Flood	1200	3500
20	1000009	BAB/C/A, EUROSTAR-REFLEKTO	1.77	2950	36°	Flood	600	3500
20	1000010	BAB/C/A/FG, EUROSTAR-REFLEKTO	1.78	2950	36°	Flood	600	3500
35	1000549	FMT/C/A, EUROSTAR-REFLEKTO	1.77	2950	12°	Spot	6000	3500
35	1000550	FMT/C/A/FG, EUROSTAR-REFLEKTO	1.78	2950	12°	Spot	6000	3500
35	1000556	FMV/C/A, EUROSTAR-REFLEKTO	1.77	2950	24°	Narrow Flood	2300	3500
35	1000557	FMV/C/A/FG, EUROSTAR-REFLEKTO	1.78	2950	24°	Narrow Flood	2300	3500
35	1000570	FMW/C/A, EUROSTAR-REFLEKTO	1.77	2950	36°	Flood	1300	3500
35	1000571	FMW/C/A/FG, EUROSTAR-REFLEKTO	1.78	2950	36°	Flood	1300	3500
35	1001682	FMW/60/C/A, EUROSTAR-REFLEKTO	1.77	2950	60°	Wide Flood	510	3500
35	1001683	FMW/60/C/A/FG, EUROSTAR-RELEKTO	1.78	2950	60°	Wide Flood	510	3500
50	1000417	EXT/C/A, EUROSTAR-REFLEKTO	1.77	3000	12°	Spot	11000	3500
50	1000418	EXT/C/A/FG, EUROSTAR-REFLEKTO	1.78	3000	12°	Spot	11000	3500
50	1000427	EXZ/C/A, EUROSTAR-REFLEKTO	1.77	3000	24°	Narrow Flood	3600	3500
50	1000428	EXZ/C/A/FG, EUROSTAR-RELEKTO	1.78	3000	24°	Narrow Flood	3600	3500
50	1000402	EXN/C/A, EUROSTAR-REFLEKTO	1.77	3000	36°	Flood	2000	3500
50	1000403	EXN/C/A/FG, EUROSTAR-REFLEKTO	1.78	3000	36°	Flood	2000	3500
50	1000590	FNV/C/A, EUROSTAR-REFLEKTO	1.77	3000	60°	Wide Flood	850	3500
50	1000591	FNV/C/A/FG, EUROSTAR-REFLEKTO	1.78	3000	60°	Wide Flood	850	3500

USHIO

MR-16 REFLECTOR LAMPS

EUROSAVER™ SERIES

ENERGY-SAVING MR-16 LAMPS FOR GENERAL LIGHTING

These energy-saving halogen MR-16 lamps allow users the flexibility of choosing an energy-saving option or an increased brightness alternative. By replacing existing higher wattage halogen MR-16 lamps with these new Eurosaver™ lamps, the user can achieve a 30% reduction in energy without sacrificing light output. Or, the user can choose to replace existing standard MR-16 lamps with Eurosaver™ lamps of the same wattage and achieve a significantly brighter environment without additional energy costs.

The exceptional performances of the Eurosaver™ lamps are a direct result of USHIO's new advanced filament design as well as a proprietary blend of fill gas. This allows USHIO to achieve the dramatically improved light output without the need for expensive IR coatings which create excessive heat. The use of the multi-layer titanium oxide coated reflector produces consistent color throughout lamp life. Because the Eurosaver™ lamps are standard halogen light sources, they operate about 30% cooler than IR MR-16 lamps that use infrared coatings.

The 12V Eurosaver™ MR-16 lamps have an average rated life of 4,000 hours and are available in 24W, 35W and 50W versions. Users can choose from a variety of beam spreads including Spot 9°, Narrow Flood 20°, Flood 32° and Wide Flood 50°.

FEATURES & BENEFITS

- Up to 30% energy-savings
- 24W Eurosaver™ MR-16 replaces standard 35W halogen MR-16
- 35W Eurosaver™ MR-16 replaces standard 50W halogen MR-16
- 50W Eurosaver™ MR-16 replaces standard 75W halogen MR-16
- Roughly 60% brighter than standard halogen MR-16's of similar wattage
- 4,000 Hours life
- Consistent color
- UV protection

APPLICATIONS

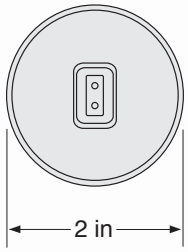
- Museums & Galleries
- Retail Shops
- Accent Lighting
- Offices and Commercial Areas

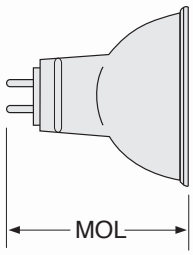
USHIO

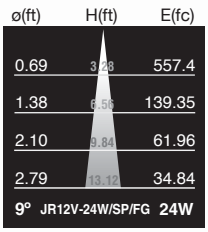
CHARACTERISTICS & SPECIFICATIONS

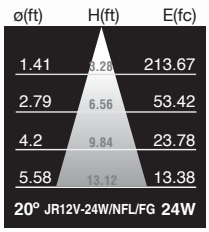
EUROSAVER™ MR-16 LAMPS

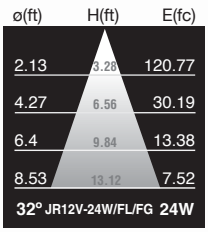
GU5.3 Base, C-8 Filament
Case Qty: 50

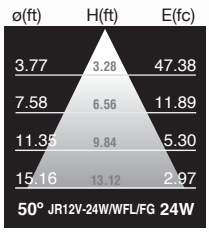


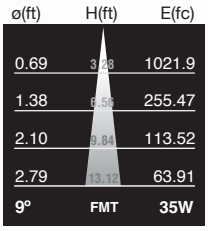


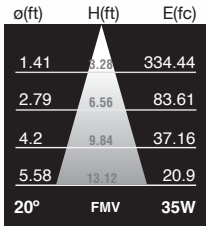


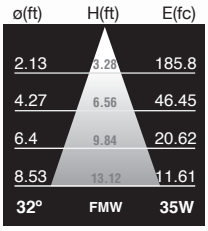


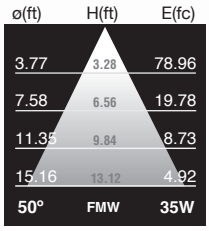


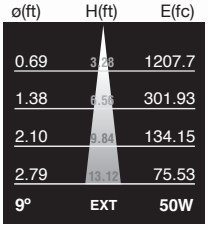


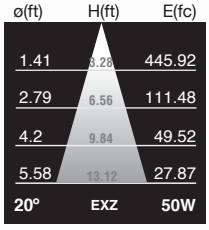


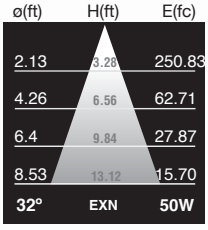


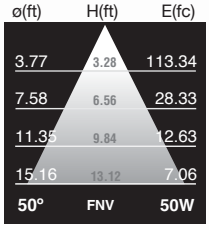












Watts (W)	Ushio Ordering Code	Ushio Lamp Description	MOL (in)	Color Temp (K)	Beam Angle	Beam Spread	Luminous Intensity (cd)	Avg Life (h)	Burn Position
24	1003696	JR12V-24W/SP/FG/EUROSAVER	1.78	3000	9°	Spot	6000	4,000	Universal
24	1003695	JR12V-24W/NFL/FG/EUROSAVER	1.78	3000	20°	Narrow Flood	2300	4,000	Universal
24	1003694	JR12V-24W/FL/FG/EUROSAVER	1.78	3000	32°	Flood	1300	4,000	Universal
24	1003697	JR12V-24W/WFL/FG/EUROSAVER	1.78	3000	50°	Wide Flood	510	4,000	Universal
35	1003673	FMT/FG/EUROSAVER	1.78	3000	9°	Spot	11000	4,000	Universal
35	1003674	FMV/FG/EUROSAVER	1.78	3000	20°	Narrow Flood	3600	4,000	Universal
35	1003676	FMW/FG/EUROSAVER	1.78	3000	32°	Flood	2000	4,000	Universal
35	1003675	FMW/50/FG/EUROSAVER	1.78	3000	50°	Wide Flood	850	4,000	Universal
50	1003690	EXT/FG/EUROSAVER	1.78	3000	9°	Spot	13000	4,000	Universal
50	1003691	EXZ/FG/EUROSAVER	1.78	3000	20°	Narrow Flood	4800	4,000	Universal
50	1003689	EXN/FG/EUROSAVER	1.78	3000	32°	Flood	2700	4,000	Universal
50	1003692	FNV/FG/EUROSAVER	1.78	3000	50°	Wide Flood	1220	4,000	Universal

Eurosaver™ lamps are manufactured under ISO 9001 guidelines ensuring quality and security for the purchaser.

Distributed by:

Scan with a smartphone to view this product online.

Form No. S-MR16EUROS/R-1211

The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

USHIO

METAL HALIDE LAMPS

EUROSPOT™ SINGLE ENDED SERIES

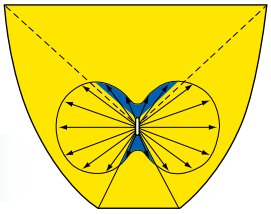
COMPACT METAL HALIDE LAMPS FOR GENERAL LIGHTING

USHIO Eurospot™ Single Ended Compact Metal Halide Lamps feature the same advanced chemistry as their double-ended counterparts, ensuring the best combination of color balance and color rendering quality available — minimal color shift, high efficacy of up to 80 lumens per watt and long life.

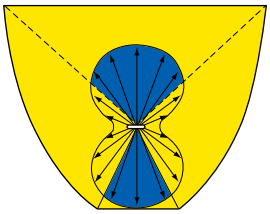
USHIO has incorporated an axial arc-tube which not only increases raw lumen output, but allows light to be more efficiently collected within a reflector.

Available in 75W and 150W with color temperatures of 3000K and 4200K

Influence of burner arrangement on luminous efficiency



Axial, low stray light portion: approximately 30% higher luminous efficiency can be attained by axial arrangement



Transverse, high stray light portion; stray light leads to dazzle or loss

FEATURES & BENEFITS

- Compact design
- Axial arc
- High color stability
- High efficacy — 80 Lm/W luminous output
- Excellent color rendering — 80 CRI
- Long life — 10,000 hours average life
- UV Protection

APPLICATIONS

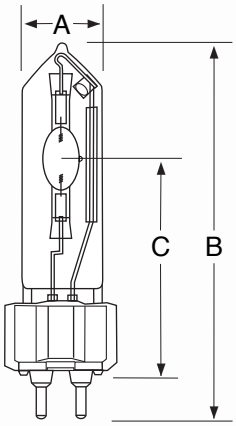
- Shop Windows
- Hotels, Restaurants
- Museums, Galleries
- Swimming Pools
- Landscape
- Spot Lighting
- Fiber Optic
- Track Lighting

Distributed by:

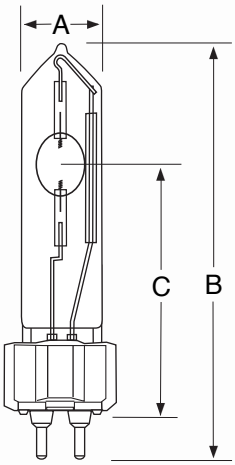
Eurospot™ Metal Halide lamps are manufactured under ISO 9001 guidelines ensuring quality and security for the purchaser

USHIO

EUROSPOT™
2-Pin G12 Base

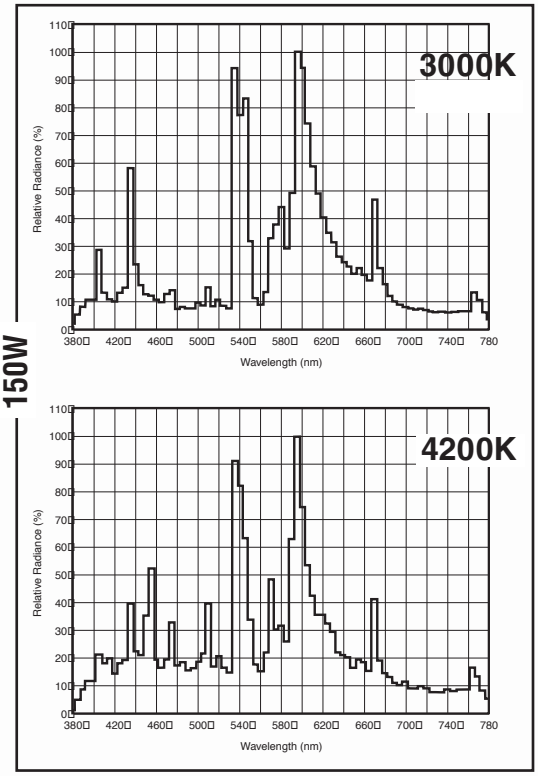


75W



150W

SPECTRAL DISTRIBUTION 150W



All dimensions are in millimeters

Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Lamp Current Amps	Luminous Flux (lm)	Color Temp (K)	Dimensions Dia (A)	Dimensions MOL (B)	Dimensions LCL (C)	Dimensions Arc Gap	Ballast
SINGLE ENDED — G12 Base										
75	5000439	UHI-S75DW/UVP	0.9	6000	3000	23	99	56	8.5	M98/E
150	5000950	UHI-S150DW/A/UVP	1.8	13000	3000	23	99	56	6.5	M102/E
150	5000875	UHI-S150DM/A/UVP	1.8	13000	4200	23	99	56	6.5	M102/E

/E = Enclosed fixture required

Burn Position: Universal 360°

Recommended Ignition Voltage: 4kV

Average life: 10,000 hours

Lamp should be switched off for at least 15 minutes/week

Lamp Code Suffix Designation:

DW = Warm White

DM = Cool White

/UVP = UV-absorbing quartz glass

Case Quantity: 10/case

(Hg) - LAMP CONTAINS MERCURY
Manage in Accord with Disposal Laws
See: www.lamprecycle.org or 1-800-895-8842

Scan with a smartphone to view this product online.

R - NON SELF EXTINGUISHING LAMP

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. 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. Complies with the USA Federal Standard 21 CFR 1040.30 and Canada Standard SOR/80-381.

Form No. S-UHI/SE/R-0911

USHIO

MR-16 REFLECTOR LAMPS

EUROSTAR™ 12 VOLT SERIES

12V DICHROIC MR-16 LAMPS FOR GENERAL LIGHTING

Have you ever seen a lighting application where the MR-16 lamps range from pink to orange and green? That is because the lamps have inferior reflector coatings. USHIO's Eurostar™ reflector utilizes a multilayer titanium oxide coating which is much more durable than the standard dichroic coatings. The thickness and application of these coatings ensure that they do not crack or peel under the stress of high temperatures. Our Eurostar™ MR-16's maintain color from lamp to lamp and throughout the life of the lamp.

Inferior lamps display uneven and inaccurate beam patterns. Beam accuracy and uniformity is controlled by proper alignment of the lamp filament within the reflector. USHIO focuses the lamp filament inside the reflector, thereby optimizing the lamp's specified beam pattern, light intensity, and beam uniformity.

Available in: 10W, 20W, 35W, 50W and 75W in
spot, narrow flood, flood, and wide flood beam spreads

FEATURES & BENEFITS

- Long Life — Up to 5000 hours average
- Excellent center-to-edge uniformity
- High quality Titanium Oxide coating
- Axial filament for precise beam control
- Dimmable
- Crisp white Halogen light
- UV-cut Halogen capsule
- Base type GU5.3

APPLICATIONS

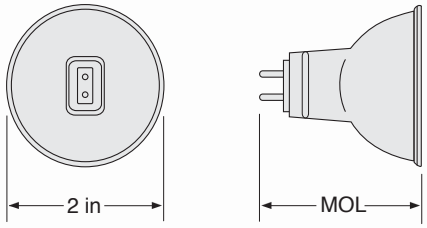
- Museums and Galleries
- Retail Shops
- Accent Lighting
- Offices and Commercial Areas
- Restaurants

USHIO

CHARACTERISTICS & SPECIFICATIONS

12V EUROSTAR™

GU5.3 Base
C-8 Filament
Universal Burn Position

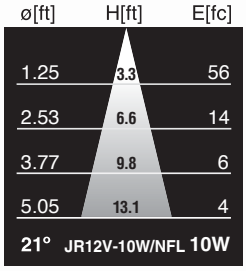


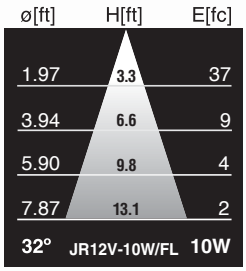
Watts (W)	Ushio Ordering Code	Ushio Lamp Description	MOL (in)	Color Temp (K)	Beam Angle	Beam Spread	Luminous Intensity (cd)	Avg Life (h)
10	1001107	JR12V-10W/NFL21	1.77	2800	21°	Narrow Flood	600	1200
10	1001108	JR12V-10W/NFL21/FG	1.78	2800	21°	Narrow Flood	600	1200
10	1003154	JR12V-10W/FL32	1.77	2800	32°	Flood	400	1200
20	1000366	ESX, JR12V-20W/SP12	1.77	2950	12°	Spot	3500	5000
20	1000370	ESX/FG, JR12V-20W/SP12/FG	1.78	2950	12°	Spot	3500	5000
20	1000028	BBF, JR12V-20W/NFL24	1.77	2950	24°	Narrow Flood	1200	5000
20	1000037	BBF/FG, JR12V-20W/NFL24/FG	1.78	2950	24°	Narrow Flood	1200	5000
20	1000000	BAB, JR12V-20W/FL36	1.77	2950	36°	Flood	600	5000
20	1000014	BAB/FG, JR12V-20W/FL36/FG	1.78	2950	36°	Flood	600	5000
20	1000001	BAB/60, JR12V-20W/WFL60	1.77	2950	60°	Wide Flood	270	5000
20	1000004	BAB/60/FG, JR12V-20W/WFL60/FG	1.78	2950	60°	Wide Flood	270	5000
35	1000548	FMT, JR12V-35W/SP12	1.77	2950	12°	Spot	6000	5000
35	1000551	FMT/FG, JR12V-35W/SP12/FG	1.78	2950	12°	Spot	6000	5000
35	1000552	FMV, JR12V-35W/NFL24	1.77	2950	24°	Narrow Flood	2300	5000
35	1000559	FMV/FG, JR12V-35W/NFL24/FG	1.78	2950	24°	Narrow Flood	2300	5000
35	1000564	FMW, JR12V-35W/FL36	1.77	2950	36°	Flood	1300	5000
35	1000573	FMW/FG, JR12V-35W/FL36/FG	1.78	2950	36°	Flood	1300	5000
35	1000565	FMW/60, JR12V-35W/WFL60	1.77	2950	60°	Wide Flood	510	5000
35	1000566	FMW/60/FG, JR12V-35W/WFL60/FG	1.78	2950	60°	Wide Flood	510	5000
50	1000416	EXT, JR12V-50W/SP12	1.77	3000	12°	Spot	11000	5000
50	1000419	EXT/FG, JR12V-50W/SP12/FG	1.78	3000	12°	Spot	11000	5000
50	1000424	EXZ, JR12V-50W/NFL24	1.77	3000	24°	Narrow Flood	3600	5000
50	1000430	EXZ/FG, JR12V-50W/NFL24/FG	1.78	3000	24°	Narrow Flood	3600	5000
50	1000398	EXN, JR12V-50W/FL36	1.77	3000	36°	Flood	2000	5000
50	1000405	EXN/FG, JR12V-50W/FL36/FG	1.78	3000	36°	Flood	2000	5000
50	1000589	FNV, JR12V-50W/WFL60	1.77	3000	60°	Wide Flood	850	5000
50	1000592	FNV/FG, JR12V-50W/WFL60/FG	1.78	3000	60°	Wide Flood	850	5000
75	1000451	EYF, JR12V-75W/SP12	1.77	3000	12°	Spot	13000	5000
75	1000452	EYF/FG, JR12V-75W/SP12/FG	1.78	3000	12°	Spot	13000	5000
75	1000454	EYJ/EZZ, JR12V-75W/NFL24	1.77	3000	24°	Narrow Flood	4800	5000
75	1000455	EYJ/EZZ/FG, JR12V-75W/NFL24/FG	1.78	3000	24°	Narrow Flood	4800	5000
75	1000444	EYC, JR12V-75W/FL36	1.77	3000	36°	Flood	2700	5000
75	1000447	EYC/FG, JR12V-75W/FL36/FG	1.78	3000	36°	Flood	2700	5000
75	1000445	EYC/60, JR12V-75W/WFL60	1.77	3000	60°	Wide Flood	1220	5000
75	1000446	EYC/60/FG, JR12V-75W/WFL60/FG	1.78	3000	60°	Wide Flood	1220	5000

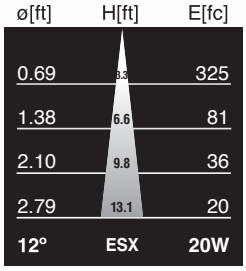
USHIO

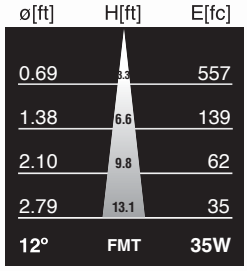
12V EUROSTAR™

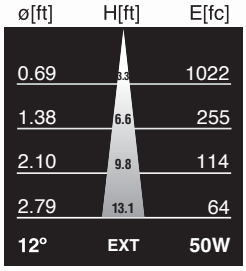
CHARACTERISTICS & SPECIFICATIONS

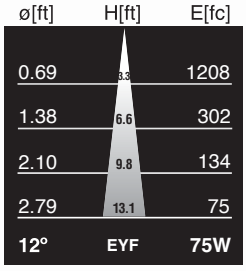


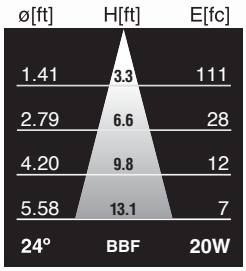


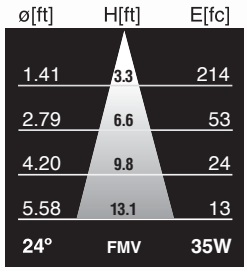


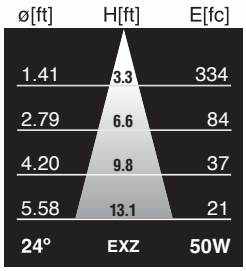


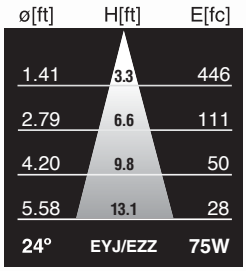


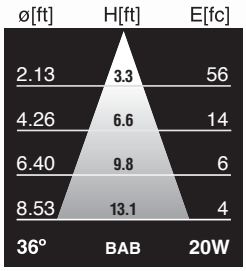


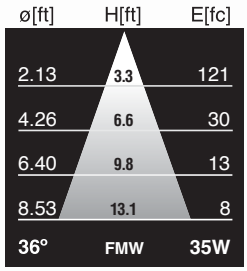


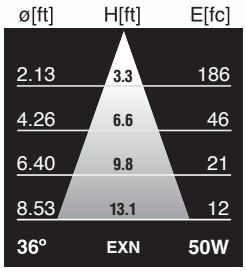


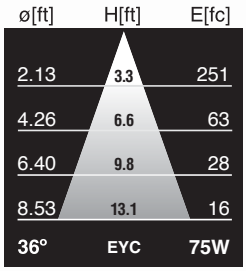


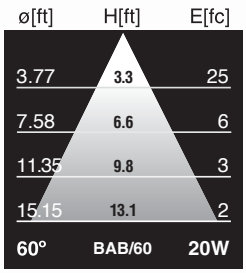


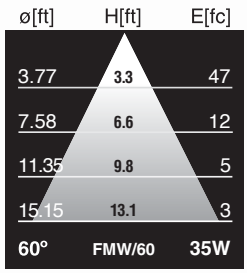


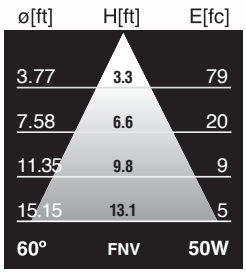


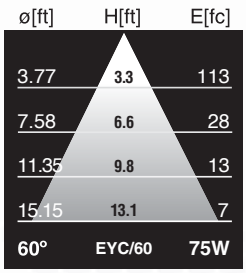




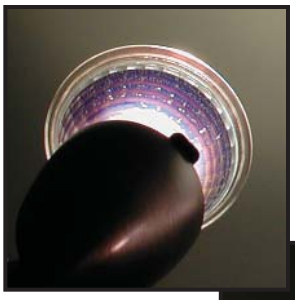




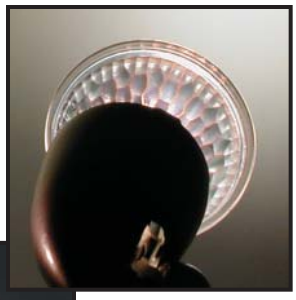




EUROSTAR™
There is a difference...



Brand X – Standard dichroic reflector
C-6 filament
Coating has cracked and degraded after only 3000 hours



USHIO – Titanium Oxide multilayer coating
C-8 filament
Coating remains clean and intact throughout its 5000 hour life rating

Brand X – Uneven beam pattern, low color temperature, green color and low output

USHIO – Total beam uniformity, white Halogen light and higher output

Eurostar™ lamps are manufactured under ISO 9001 guidelines ensuring quality and security for the purchaser

Scan with a smartphone to view this product online.

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USHIO

MR-16 REFLECTOR LAMPS

EUROSTAR™ 24 VOLT SERIES

24V DICHROIC MR-16 LAMPS FOR GENERAL LIGHTING

Eurostar™ 24 volt series of Halogen MR-16 lamps from USHIO provide professional grade lighting. The UV protected Halogen capsule is aligned within a Titanium Oxide coated reflector. The hard Titanium Oxide surface of the reflector provides consistent color throughout the life of the lamp.

The 24 volt systems use half the current (amperage) than 12 volt systems. This allows higher wattage loads and up to twice as many lamps on a longer lighting system. The 24 volt systems are less prone to voltage drop over longer wires and connections which results in more consistent brightness and color.

Available in: 20W, 35W, 50W and 75W in
spot, narrow flood, and flood beam spreads

FEATURES & BENEFITS

- Dimmable
- Crisp white Halogen light
- UV-cut Halogen capsule
- Base type GU5.3
- Titanium Oxide hard coating provides consistent color over the life of the lamp.
- 50% less current than 12 volt systems
- Less voltage drop over long lines

APPLICATIONS

- Museums and Galleries
- Mining
- Industrial Vehicles
- Offices and Commercial Areas
- Restaurants
- Boating
- Cruise Ships

Eurostar™ lamps are manufactured under ISO 9001 guidelines ensuring quality and security for the purchaser

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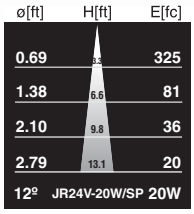
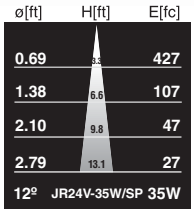
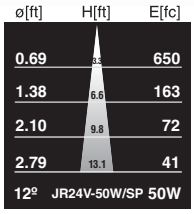
CHARACTERISTICS & SPECIFICATIONS

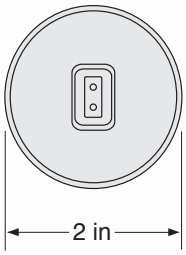
24V EUROSTAR™

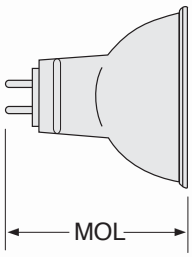
GU5.3 Base
C- 6 Filament
Universal Burn Position

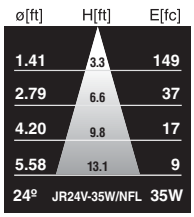


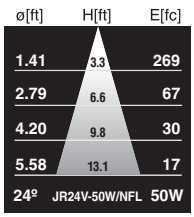


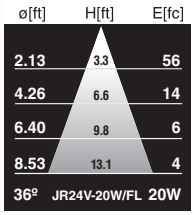


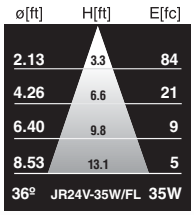


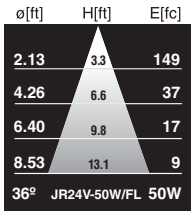


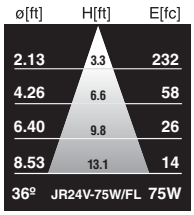












Watts (W)	Ushio Ordering Code	Ushio Lamp Description	MOL (in)	Color Temp (K)	Beam Angle	Beam Spread	Luminous Intensity (cd)	Avg Life (h)
20	1001112	JR24V-20W/SP12	1.77	2900	12º	Spot	3500	2500
20	1001113	JR24V-20W/SP12/FG	1.78	2900	12º	Spot	3500	2500
20	1001114	JR24V-20W/FL36	1.77	2900	36º	Flood	600	2500
20	1001115	JR24V-20W/FL36/FG	1.78	2900	36º	Flood	600	2500
35	1003110	JR24V-35W/SP12	1.77	2900	12º	Spot	4600	3500
35	1001119	JR24V-35W/SP12/FG	1.78	2900	12º	Spot	4600	3500
35	1003111	JR24V-35W/NFL24	1.77	2900	24º	Narrow Flood	1600	3500
35	1001117	JR24V-35W/NFL24/FG	1.78	2900	24º	Narrow Flood	1600	3500
35	1003112	JR24V-35W/FL36	1.77	2900	36º	Flood	900	3500
35	1001121	JR24V-35W/FL36/FG	1.78	2900	36º	Flood	900	3500
50	1003113	JR24V-50W/SP12	1.77	2950	12º	Spot	7000	4000
50	1001125	JR24V-50W/SP12/FG	1.78	2950	12º	Spot	7000	4000
50	1003114	JR24V-50W/NFL24	1.77	2950	24º	Narrow Flood	2900	4000
50	1001123	JR24V-50W/NFL24/FG	1.78	2950	24º	Narrow Flood	2900	4000
50	1003115	JR24V-50W/FL36	1.77	2950	36º	Flood	1600	4000
50	1001127	JR24V-50W/FL36/FG	1.78	2950	36º	Flood	1600	4000
75	1003281	JR24V-75W/FL36/FG	1.78	2900	36º	Flood	2500	3000

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USHIO

IR MR-16 REFLECTOR LAMPS

EUROSTAR™ IR 12 VOLT SERIES

INFRARED (IR) MR-16 LAMPS FOR GENERAL LIGHTING

Consumers today demand energy-saving, long life lighting options that will not sacrifice the quality of their lighted environment. USHIO's new Eurostar™ IR Infrared Halogen MR-16 lamps fulfill both of these demands. They reduce energy consumption by 30% compared to standard halogen MR-16 lamps, they last an average of 6,000 hours and they maintain the crisp, white halogen light and superior beam control that makes any application look its best.

Thanks to an advanced infrared-reflective film coating process applied to the halogen capsule which allows visible light to pass through the glass envelope while reflecting the infrared energy back to the filament. These lamps are able to produce a high light output while maintaining an optimum operating temperature and reduce the energy used by the lamp.

In addition to the advanced capsule design, the Eurostar™ IR lamps incorporate the same premium characteristics that other lamps in the Eurostar™ MR-16 family feature. This includes the multi-layer titanium oxide coated reflector that allows the lamp to produce consistent color throughout life, as well as the precision aligned axial filament for optimal beam control.

The Eurostar™ IR lamp series has the longest rated life of any IR MR-16 lamp on the market. At 6,000 hours average rated life the Eurostar™ IR lamps offer 20% greater life than other IR MR-16 lamps and 50% more life than some standard MR-16 lamps.

Available in 37W and 50W versions in Spot 9°, Narrow Flood 25°, Flood 35° and Wide Flood 60° beam spreads.

FEATURES & BENEFITS

- Special IR technology provides up to 30% energy savings
- 37W Eurostar™ IR MR-16 replaces standard 50W halogen MR-16
- 50W Eurostar™ IR MR-16 replaces standard 75W halogen MR-16
- Long Life – 6,000 hour average life
- Halogen Capsule Cuts Harmful UV – Reduces the amount of material wear from harmful UV radiation
- Advanced Titanium Oxide Coating – Consistent color throughout lamp life
- Axial Filament – Provides optimal light output and consistent beam spreads
- Crisp White Halogen Light

APPLICATIONS

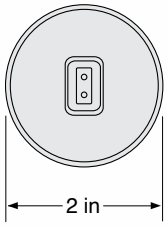
- Museums and Galleries
- Retail Shops
- Offices & Commercial Areas
- Hotels & Restaurants
- Track Lighting
- Accent Lighting

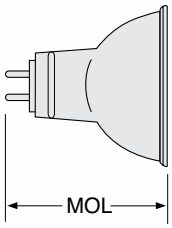
USHIO

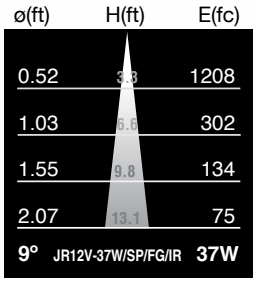
CHARACTERISTICS & SPECIFICATIONS

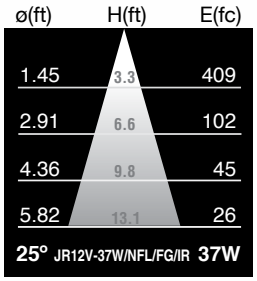
12V EUROSTAR™ IR

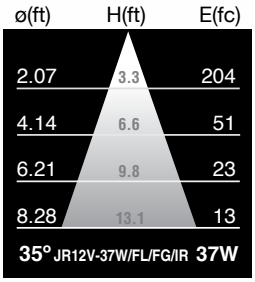
GU5.3 Base
C-6 Filament
Universal Burn Position
Case Quantity: 20

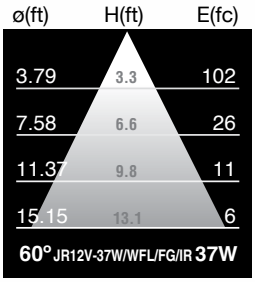


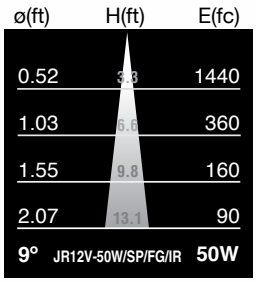


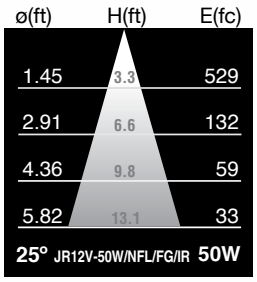


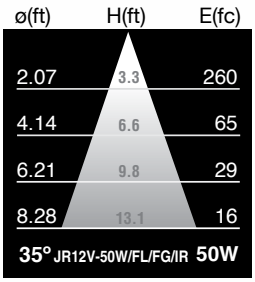


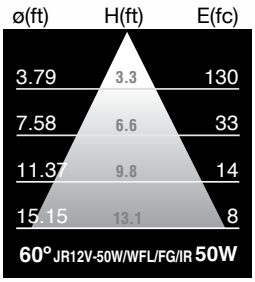












Watts (W)	Ushio Ordering Code	Ushio Lamp Description	MOL (in)	Color Temp (K)	Beam Angle	Beam Spread	Luminous Intensity (cd)	Avg Life (h)
37	1003706	JR12V-37W/SP/FG/IR	1.99	3000	9º	Spot	13000	6,000
37	1003705	JR12V-37W/NFL/FG/IR	1.99	3000	25º	Narrow Flood	4400	6,000
37	1003704	JR12V-37W/FL/FG/IR	1.99	3000	35º	Flood	2200	6,000
37	1003707	JR12V-37W/WFL/FG/IR	1.99	3000	60º	Wide Flood	1100	6,000
50	1003710	JR12V-50W/SP/FG/IR	1.99	3000	9º	Spot	15500	6,000
50	1003709	JR12V-50W/NFL/FG/IR	1.99	3000	25º	Narrow Flood	5700	6,000
50	1003708	JR12V-50W/FL/FG/IR	1.99	3000	35º	Flood	2800	6,000
50	1003711	JR12V-50W/WFL/FG/IR	1.99	3000	60º	Wide Flood	1400	6,000

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USHIO

LED LIGHTING

FLS

FLS FIBER-OPTIC LED SYSTEM "ENGINEERED LIGHTING SOLUTION"

USHIO introduces a new Fiber-Optic light system that will advance sign and backlighting into a new realm. Using the combination of a high-powered LED and fiber optic cable, the FLS system provides bright and consistent 360 degrees of uniform illumination. Manufactured with a powerful high brightness LED, the FLS system has a run length of up to 6 feet (length varies, see back page for details). The FLS system is ideal for applications currently using neon tubing and fluorescent tubes. In addition to sign retrofits and new sign illumination, the FLS's low energy consumption meets the new "energy and sustainability" demands. With a 50,000 hour life, the FLS system is also dimmable and accepts various drive currents to achieve the ideal brightness.

The FLS system is UL certified and listed in the Sign Accessory Manual. Its Class 2 rating is approved for wet, dry, and damp locations.

APPLICATIONS

- Sign Lighting
- Architectural Lighting
- Cabinetry Lighting
- Display Cases
- Kiosk Lighting
- Museum Lighting
- Vending Machine Lighting
- Automotive Lighting
- Marine Lighting
- Refrigeration Cases

FEATURES & BENEFITS

- Low energy usage
- Replaces neon tubing, fluorescent tubes & other LED devices
- Sustainable product – No hazardous materials.
- Dimmable & accepts various drive currents to 'Dial-In' desired brightness level
- Low maintenance – Designed to last 50,000 hours
- Adapts to both concealed & exposed curvilinear patterns & backgrounds

USHIO

CHARACTERISTICS & SPECIFICATIONS

FLS FIBER-OPTIC LED

Fiber Diameter: 10mm
Dimensions: 2.25" Deep; 1.5" Height; 1.6" Deep
Module Weight: 45g (1.6 oz.)

Watts (W)	Ushio Ordering Code	Ushio Lamp Description	Luminous Intensity (lm) @ 350mA	Forward Voltage	Max DC Forward Current	Color Temp K	Color Spectrum	CRI
		FLS FIBER LED						
3.3	1003727	Fiber-LED Light Engine / White	139	3.3V @ 1000mA	1500mA	6500K	—	75
1.6	1003728	Fiber-LED Light Engine / Red	45.7	2.3V @ 700mA	700mA	—	620-630nm	—
3.5	1003729	Fiber-LED Light Engine / Blue	30.6	3.5V @ 1000mA	1000mA	—	465-480nm	—
3.8	1003730	Fiber-LED Light Engine / Green	93.9	3.8V @ 1000mA	1000mA	—	520-535nm	
	1003752	Fiber-LED 10mm Fiber Cable (8-foot length)						
	1003740	Fiber-LED 10mm Fiber-Optic Cable Cap						
	1003741	Fiber-LED Reflective Material Sheet (23.62"W X 59.05"H)						
	1003742	Fiber-LED Reflective White Optic Sheet (Cut to size and sold by linear feet)						
		POWER SUPPLIES FOR FLS FIBER LED						
	1003735	20W 700mA Low Volt Power Supply						
	1003736	20W 1000mA Low Volt Power Supply						
	1003737	25W 700mA Low Volt Power Supply						
	1003738	25W 1040mA Low Volt Power Supply						

Lumen Maintenance 70% @ 50,000 Hours (@350mA)

Max Junction Temperature 150ºC
Certifications: RoHS Compliant; UL List for damp & wet locations

Fiber Length:
The usable length of fiber optic cable depends upon the application, color and driver current and will range up to 6 feet.

Power Supply:
Voltage varies depending upon current. The 4 power supplies listed range from 9V to 36V.

Fastening: Mechanical or Adhesive

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USHIO

MR-16 REFLECTOR LAMPS

FROSTLINE™ SERIES

FROSTED MR-16 LAMPS FOR GENERAL LIGHTING

USHIO's Frostline™ series of MR-16 lamps feature a Halogen capsule surrounded by a frosted reflector and frosted front glass cover. Because there is no reflective coating on the reflector, the light profile spills in all directions. Normal dichroic MR-16s typically cause color changes or disruptive patterns on colored fixture glass. The Frostline™ series was designed to fit into pendant glass fixtures and eliminate the back-spill of "dichroic color" often occurring when used in these type of fixtures.

Available in 20W, 35W, and 50W

FEATURES & BENEFITS

- Integrated frosted cover glass
- Diffused light
- Crisp Halogen color
- Standard bi-pin GU5.3 base
- 2900K color temperature
- 4000 hours average life
- Dimmable
- A-line type light profile

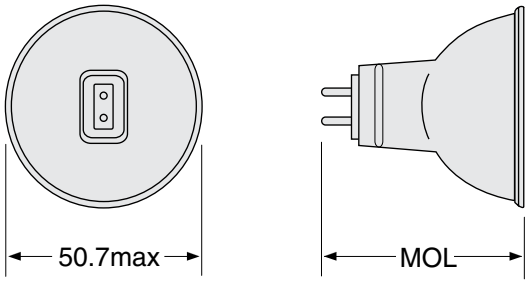
APPLICATIONS

- Glass Pendant Lighting
- Decorative Lighting

USHIO

CHARACTERISTICS & SPECIFICATIONS

FROSTLINE™ MR-16



GU5.3

All dimensions are in millimeters

Watts (W)	Ushio Ordering Code	Ushio Lamp Code	Voltage (V)	Dimension MOL (mm)	Color Temp (K)	Luminous Flux (lm)	Avg Life (h)
20	1003253	JR12V-20W/FR/FG	12	45.2	2900	250	4000
35	1003254	JR12V-35W/FR/FG	12	45.2	2900	520	4000
50	1003255	JR12V-50W/FR/FG	12	45.2	2950	850	4000

LAMP SOCKET

The model C-33U socket is rated up to 24V-7A for use with all low voltage USHIO GU5.3 based MR-16 lamps. The metal clips secure the lamp firmly into the socket. Use Ordering Code 1002142

Frostline™ lamps are manufactured under ISO 9001 guidelines ensuring quality and security for the purchaser

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USHIO

ULTRAVIOLET LAMPS

GERMICIDAL

GERMICIDAL LOW-PRESSURE MERCURY-ARC LAMPS

USHIO Germicidal lamps are Low-Pressure Mercury-Arc lamps that emit radiation peaking at 253.7nm(UV-C).

Designed by experienced engineers, and by using quality material in combination with a tightly controlled manufacturing process, we provide high quality lamps free of impurities to maintain strong and stable output throughout the life of the lamp.

Our Germicidal lamps are manufactured at an ISO9001 certified facility. Emphasis on quality control and our large production capacity makes us an ideal OEM partner for providing consistent quality lamps with reliable delivery.

These lamps are components which may be used by customers to manufacture a variety of finished products.

FEATURES & BENEFITS

- Low Mercury dose to meet environmental demands
- Specially formulated coating achieves high output over long life hours
- High purity lamp construction to stabilize UV output and minimizes depreciation (averages 20-25% depreciation at end of life)
- Large production capacity providing lamps with consistent quality and reliable delivery
- Flexible design capability for custom lamp development

APPLICATIONS

- Drinking Water
- Wastewater
- Air Conditioning System
- Pharmaceutical Processing
- Food Processing Facility
- Packaging Materials
- Laboratory/Research
- Photochemistry
- Clean Room
- Other Sterilization & Disinfection needs

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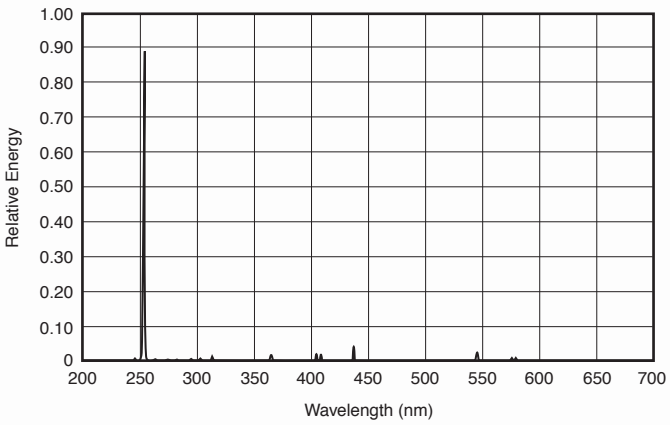
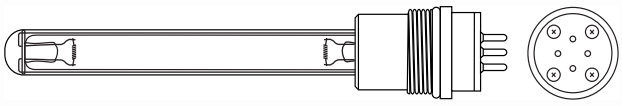
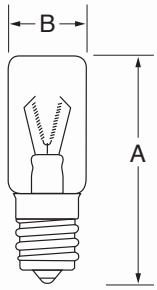
SPECTRAL DISTRIBUTION
GERMICIDAL LAMP
253.7nm

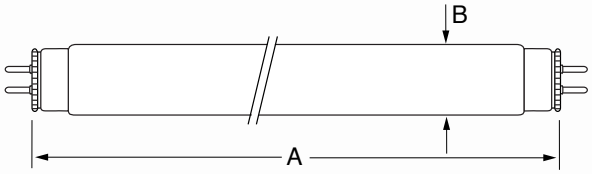


Double Tube Model is available by request
Contact USHIO's Germicidal product manager for more information

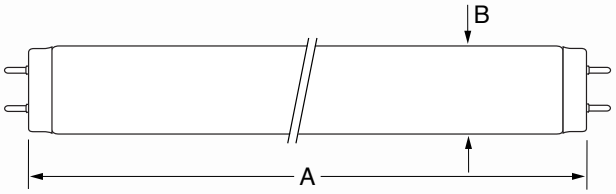




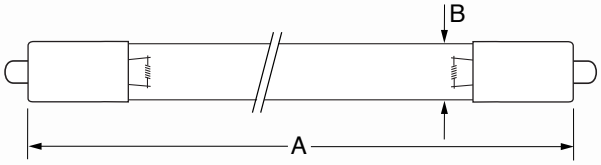
E17 Base



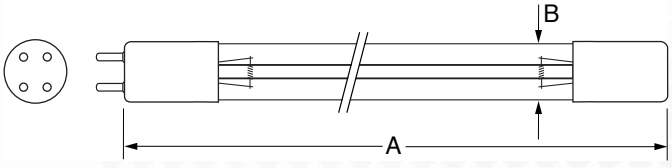
T5 Miniature Bi Pin G5 Base



T8 & T10 Medium Bi Pin G13 Base



T5 Single Pin Base



T5 4-Pin Base

USHIO

CHARACTERISTICS & SPECIFICATIONS

USHIO Ordering Code	USHIO Lamp Description	Dimensions Length (A) (mm)	(in)	Diameter (B) (mm)	(in)	Watts (W)	Current (A)	Volts (V)	Spectral Peak (nm)	UV Output (W)	Avg Life (h)	Base
	E17 BASE											
3000022	GTL3	63.0	2.48	20.0	0.79	3.0	0.300	10.5	253.7	0.16	3000	E17
	T5 - MINIATURE BI PIN G5 BASE											
3000013	G4T5	134.5	5.30	15.5	0.61	4.5	0.170	29.0	253.7	0.8	6000	G5
3000015	G6T5	210.5	8.29	15.5	0.61	6.0	0.160	42.0	253.7	1.8	8000	G5
3000016	G8T5	287.0	11.30	15.5	0.61	7.2	0.145	57.0	253.7	2.2	8000	G5
3000310	G11T5	210.5	8.29	15.5	0.61	11.0	0.330	37.0	253.7	2.2	8000	G5
3000311	G16T5	287.0	11.30	15.5	0.61	16.0	0.350	50.0	253.7	3.2	8000	G5
	T8 - MEDIUM BI PIN G13 BASE											
3000006	G10T8	330.0	12.99	25.5	1.00	9.5	0.230	46.0	253.7	2.7	8000	G13
3000007	G15T8	436.0	17.16	25.5	1.00	15.0	0.305	55.0	253.7	4.9	8000	G13
3000008	G25T8	436.0	17.16	25.5	1.00	25.0	0.600	46.0	253.7	6.9	8000	G13
3000009	G30T8	893.0	35.16	25.5	1.00	30.5	0.355	99.0	253.7	13.9	8000	G13
3000316	G55T8	893.0	35.16	25.5	1.00	55.0	0.770	83.0	253.7	18.0	8000	G13
	T10 - G13 BASE											
3000314	G20T10	588.5	23.17	32.5	1.28	19.0	0.360	58.0	253.7	7.5	8000	G13
3000315	G40T10	1198.0	47.17	32.5	1.28	39.5	0.420	106.0	253.7	19.8	8000	G13
	T5 - SINGLE PIN											
3000338	G10T5L	357.0	14.06	15.5	0.61	16.0	0.425	55.0	253.7	5.3	9000	Single Pin
3000312	G36T5L	846.0	33.31	15.5	0.61	39.0	0.425	115.0	253.7	13.0	9000	Single Pin
3000313	G64T5L	1553.6	61.17	15.5	0.61	65.0	0.425	250.0	253.7	27.0	9000	Single Pin
	T5 - 4-PIN BASE											
3000348	G14T5L/4P (GPH287)	287.0	11.30	15.5	0.61	14.0	0.400	40.0	253.7	3.0	8000	4-Pin
3000355	G10T5L/4P	357.0	14.06	15.5	0.61	16.0	0.425	55.0	253.7	5.3	9000	4-Pin
3000350	G22T5L/4P (GPH436)	436.0	17.16	15.5	0.61	22.0	0.420	62.0	253.7	7.0	8000	4-Pin
3000343	G36T5L/4P	846.0	33.31	15.5	0.61	39.0	0.425	115.0	253.7	13.0	9000	4-Pin
3000423	G64T5L/4P	1554.0	61.18	15.0	0.59	65.0	0.425	220.0	253.7	25.0	9000	4-Pin

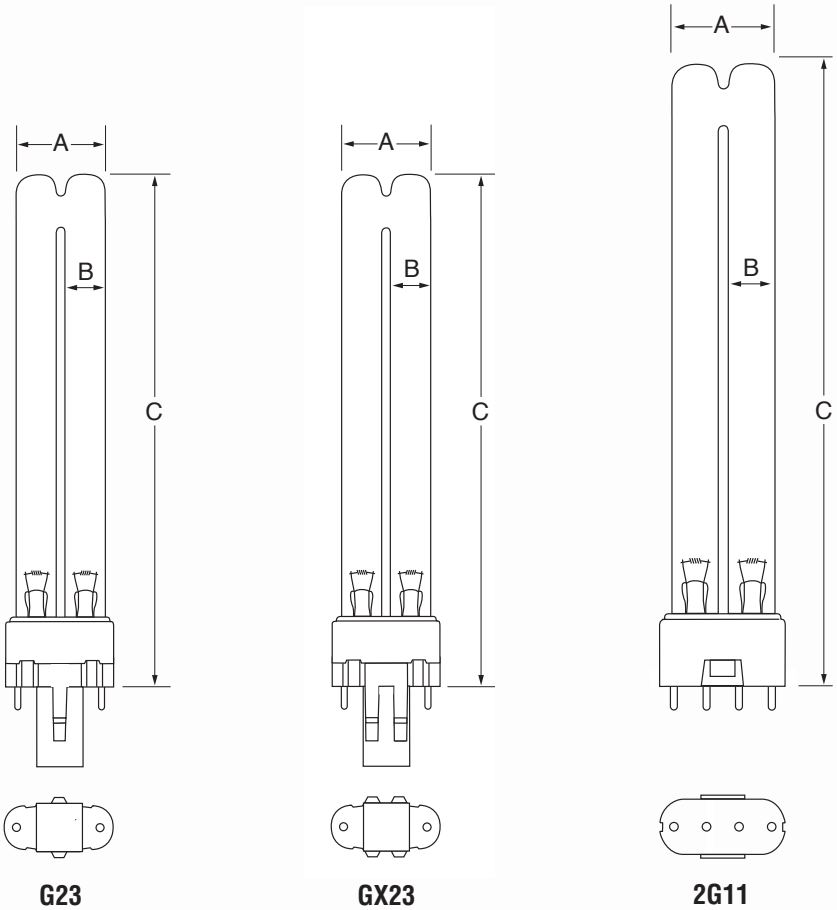
Average lamp life and output measurements taken under laboratory conditions in open air.
Lamps are cycled for 2hrs 45minutes on / 15minutes off when testing life and output.
Lamp data is for reference only. Actual lamp performance depends on system design and operating conditions.

Warning: Protect your eyes and skin when operating Germicidal lamps.
Equipment should be designed to completely screen or filter UV-C radiation.

(Hg) - LAMP CONTAINS MERCURY
Manage in Accord with Disposal Laws
See: www.lamprecycle.org or 1-800-895-8842

USHIO

CHARACTERISTICS & SPECIFICATIONS



G23 **GX23** **2G11**

USHIO Ordering Code	USHIO Lamp Description	Dimensions Diameter (A) (mm)	(in)	Diameter (B) (mm)	(in)	Length (C) (mm)	(in)	Watts (W)	Current (A)	Volts (V)	Spectral Peak (nm)	UV Output (W)	Avg Life (h)	Base
	G23 & GX23 BASE													
3000321	GPX5	28.0	1.10	13.0	0.51	85.0	3.35	5.5	0.180	35	253.7	1.2	8000	G23
3000328	GPX7	28.0	1.10	13.0	0.51	115.0	4.53	7.0	0.180	45	253.7	1.9	8000	G23
3000304	GPX9	28.0	1.10	13.0	0.51	145.0	5.71	9.0	0.180	59	253.7	2.4	8000	G23
3000322	GPX11	28.0	1.10	13.0	0.51	215.0	8.46	11.8	0.155	91	253.7	3.0	8000	G23
3000323	GPX13	28.0	1.10	13.0	0.51	170.0	6.69	13.4	0.285	59	253.7	3.6	8000	GX23
	2G11 BASE													
3000324	GPL18K	40.0	1.57	20.0	0.79	225.0	8.86	18.0	0.375	58	253.7	5.5	8000	2G11
3000339	GPL36K	40.0	1.57	20.0	0.79	415.0	16.33	36.0	0.435	106	253.7	12.0	8000	2G11

Average lamp life and output measurements taken under laboratory conditions in open air.
Lamps are cycled for 2hrs 45minutes on / 15minutes off when testing life and output.
Lamp data is for reference only. Actual lamp performance depends on system design and operating conditions.

Warning: Protect your eyes and skin when operating Germicidal lamps. Equipment should be designed to completely screen or filter UV-C radiation.

Scan with a smartphone to view this product online.

Form No. S-GRM/R-120811

USHIO

ULTRAVIOLET LAMPS

HBX 76 & HBX 76i

SMARTARC™ SERIES

ELECTRONIC POWER SUPPLY for Short Arc Mercury and Xenon Lamps

USHIO's new SMARTARC™ electronic power supply with digital power management and microprocessor controls is a compact and "intelligent" solution for operating DC operated arc discharge lamps.

FEATURES AND BENEFITS

- Operates short arc Mercury and Xenon DC lamps in power ranges between 50W, 75W and 100W
- Output power is selectable by DIL 16 step switch set-up
- Power factor corrected line input, built-in EMI-Filter voltage range 90VAC to 264VAC. Meets CE and FCC Part "A"
- Built-in cooling fan — no external cooling needed
- Newly designed anti-aging and arc control circuit for high optical reliability over lamp lifetime
- Digital Power Management and micro-processor controlled with high output stability over life
- Output is short circuit protected and arc to ground protected
- 90°C thermal shut-off feature
- Auto shut-off feature at end of lamp life or lamp failure
- Auxiliary regulated 12V/0.2A output for fan drive available when the lamp is in operation
- Available with "on-board" ignitor as HBX 76 or "off-board" ignitor as HBX 76i

USHIO

HBX 76 Item No. 5001474
ELECTRICAL DATA

All values are valid at 25° ±5°C, unless otherwise noted

INPUT DATA		
Nominal Operation	**Nominal**	**Tolerance**
Input Voltage AC (V)	100 – 240	90 – 264
Input Voltage DC (V)	100 – 300	90 – 340
System Wattage (W)	123	60 – 120*
Input Current (A)	— — —	0.6 – 1.4*
Line Frequency (Hz)	50/60	47 – 63
Power Factor (1)	1.0	0.93 – 1.0

*Depends on lamp select. Presettable

LAMP OUTPUT DATA			
Ignition	**Nominal**	**Tolerance**	**Remarks**
Ignition Voltage (kV peak)	±14	±12 – ±16	Load capacity <20pF
Ignition Time (sec.)	1	0.9 – 1.1	
Automatic restart counter (1)	5	— — —	attempts
Nominal Operation	**Nominal**	**Tolerance**	
Lamp Voltage (V)	12.8 – 34	±5%*	
Lamp Wattage (W)	50, 75, 100*	selectable 50, 75, 100	
Lamp Current (A)	— — —	I max = 7.5*	
Cut-off voltage (V)	43	±2	
Open Circuit Voltage (V)	45	45 – 48	

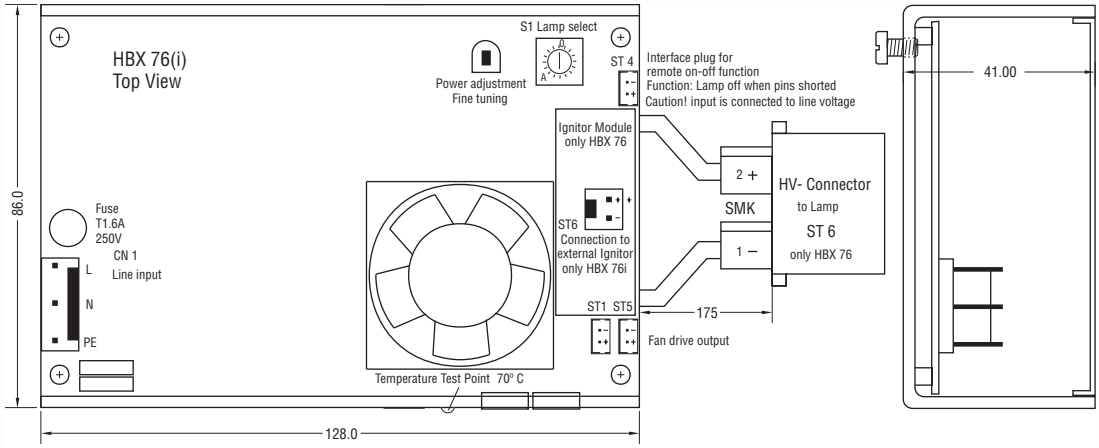
*Depends on lamp select. Presettable

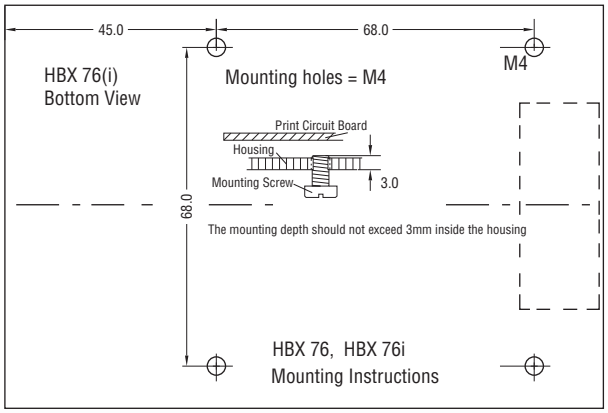
LIFETIME DATA				
	Symbol	**Nominal**	**Tolerance**	**Remarks**
Ballast lifetime (h)	t_{Life}	25,000	>25,000	acc. to MIL HDBK for nominal operation

All values for U_u = 230 V_{rms} Temperature at test point = 70° C

MISCELLANEOUS		
Nominal Operation	**Nominal**	**Tolerance**
Efficiency (1)	0.8	0.75 – 0.8
Ambient Temperature (°C)	+25	+10 to +50
Max. Temperature at test point (°C)	+70	Case surface near output at U-profile
Switch off temperature (°C)	+90	+85 to +95

HBX 76
TOP & BOTTOM VIEW





Nominal Dimensions

Length (mm).....128
Width (mm) 86
Height (mm) 41

Weight (Kg / lb).....0.41 / 1.11

All dimensions are in millimeters

Plugs and Cables	Manufacturer / Type	Remarks / Header / Contacts
Ballast Mains Plug	CN1 AMP 643495-2 Wiring with AWG 18, 105ºC, 900V recommended	AMP 770 849-5/770522-1
Ballast Interface Plug	ST4 JST/B2B-EH-A	JST EHR-2/SEH-001T-PO.6
Fan Connection Plug	ST 1/ST5, JST/B2B-EH-A For 12V fan 200mA	JST EHR-2/SEH-001T-PO.6
Connection Ballast-Ignitor	ST 6 AMP 640445-2 (HBX 76i)	AMP 770 849-2/770522-1
Ignitor HV-plug to Lamp Lamp Cable	Housing: SMK/101CCT-091-01R Tecnosil/AWG20 UL Style 3239, 20kVDC, 150ºC	

USHIO

HBX 76

PIN ASSIGNMENT AND FUSE		
Connector	**Signal**	**Description**
Line Input ST101 PIN 3 PIN 2 PIN 1	 AC in -L- AC in -N- PE	 AC wide range input voltage 90V-264VAC DC wide range input voltage 90V300VDC Safety Ground
ST1 & ST5 Fan Drive JST B2B-EHA PIN 1 + PIN 2 -	 Fan + 12V Fan - (0V) 200mA (both outputs)	 Fan drive output voltage is only available when lamp is lit
Lamp output terminal ST6 PIN 1 - PIN 2 +	 Minus lamp voltage Plus and Power	 Connection to external ignitor HBX76i or High voltage output to lamp HBX76 SMK standard wiring length 175mm
Fuse	Built-in and fixed T 1.6A 250V	

COOLING RECOMMENDATIONS

The unit has two 12V terminals for driving one or two fans. One is intended for the power supply and one for the lamp. By default, one is connected to the built-in power supply cooling fan. The combined maximum total output current for both outputs is 200mA. This leaves 135mA for an external fan. Please note that this output voltage is only available when the lamp is in operation. Temperature of the power supply should not exceed 70ºC. Temperature overload is protected by an internal temperature switch at 90ºC.

CAUTION!

SAFETY

Due to hot restrike capabilities of the power supply, the output voltage to the lamp can reach 15,000 volts. Ensure a minimum 15mm (>1/2") clearance between all lamp terminals to the power supply. All primary wiring must meet all local national safety regulations.

ENVIRONMENTAL REQUIREMENTS

Storage Temperature Range.....-20º C – +50º C
Operating Temperature Range.....0º C to 60º C
Humidity Range .....20% – 95% non-condensing
Altitude (operating).....0 ft. to 10,000 ft.

STANDARDS

Safety and Performance
CSA C22.2 No.60950 UL60950,UL508
CB-Test and UL must be completed with the final product

Scan with a smartphone to view this product online.

Distributed by:

Form No. S-SMARTARC/HBX/R-1211
The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.

Hi-LUX GRO™

made in Germany

USHIO Lighting — Edge Technologies

professional grade horticulture lamps

USHIO, INC. - THE LIGHTING SPECIALIST

USHIO, Inc. was established in 1964, with the aim of developing illumination and energy-related applications for light. Throughout its history, USHIO has focused on developing light sources and units in tandem with the evolution of industrial technologies.

USHIO, Inc. is Japan's foremost producer of high-quality light sources, units, and systems. USHIO has earned its reputation by developing products that integrate state-of-the-art lighting technologies and designs with the specific application needs of industry-leading clients in a wide range of fields, from semiconductors, electronics, image information and processing of biotechnology, medicine and horticulture. You may be surprised to learn that USHIO supplies majority of the exposure lamps used for commercial copy machines, IMAX theater projector machines, and provide essential light sources to make computer chips that you rely daily in your computer and cell phone.

USHIO maintains ISO9001 certified production facilities in Japan, North America, Europe, and Asia and they are complemented by a worldwide sales and marketing network.

As the market for light sources and their application products grow, USHIO is expanding its group of highly specialized companies into an ever-increasing range of countries and regions. Through the internal synergy of the USHIO Group, we are able to produce and market a diverse lineup of the high-quality light sources and their application products and services that are essential to manufacturers. The USHIO Group aims to be the world's leading provider of lighting-edge technology products. Visit www.USHIO.com for more information.

E-BALLAST FRIENDLY

USHIO has seen the development of electronic ballasts in the lighting industry since its first introduction into the fluorescent lamp market. Once a new technology for fluorescent lamp is now a mass produced item that has achieved consistency in its high performance and reliability.

Since then, electronic ballasts continues to evolve in capacity to operate higher pressure lamps up to 12,000W in high technology industrial markets. (as of 3/2009)

Electronic ballast for HID lamps will become the preferred technology of the future, and it will become the horticulture industry standard, just like the evolution that happened in the fluorescent lamp era. That is why we support the electronic ballast technology in the horticulture market, and work with various electronic ballast manufacturers in strategic alliance to improve the industry standard.

APPLICATION NOTES

To achieve optimum lamp performance, the manufacturer's recommended length of lamp cord from the ballast is less than 5ft.

When operating lamps on a longer range, lamp operator must make sure specified ignition voltage is supplied to the lamp.

Please make sure your igniter and capacitor is well maintained on magnetic ballasts, and make sure the electronic ballast of your choice is designed to ANSI standards electronic characteristics.

With any HID lamp, operation voltage will increase as the lamp ages. If you notice misfiring of lamps, please make sure specified ignition voltage is supplied to the lamp.

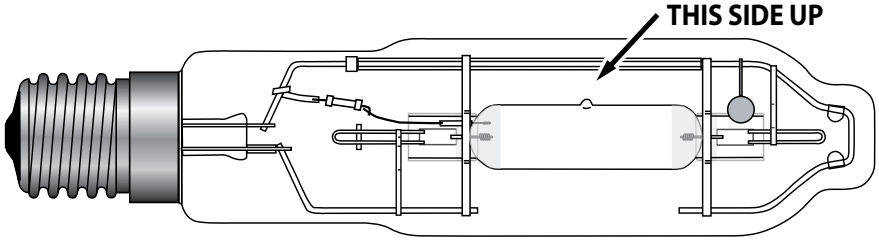
USHIO horticulture lamps are filled with higher pressure to achieve higher output in comparison to standard HID lamps. Higher pressure in the arc tube requires ignition voltage to be at the specified range.

Super HPS and Super MH lamps achieve their unique spectrum by mixing proprietary gas and chemical into the arc tube. HID lamps require approximately 100 hours burn-in time for these gasses and chemicals to blend properly resulting in the correct spectrum output.

Over cooling or uneven cooling may cause cool spots in the lamp causing spectrum shift.

Overheating may cause seal leaks or bulb deformation resulting in short life.

When operating the Metal Halide Dual Core bulbs in horizontal position, please install the lamp with the "tip-off" of the Metal Halide burner pointing UP. This lamp positioning will allow better circulation of the gas mixture inside the burner, optimizing the lamp operation, ensuring best spectrum and maximum output. It will also improve ignition characteristics and extend lamp's life.



LAMP SAFETY

METAL HALIDE & HIGH PRESSURE SODIUM DISCHARGE LAMPS

- ANSI Type E = Enclosed Fixture Required
  Lamps that are enclosed fixture rated should only be operated in an enclosed fixture that safely contains all lamp parts in the event of a lamp burst or rupture. These lamps operate at a high internal pressure and at high temperatures which can emit harmful ultraviolet light if the outer glass bulb is broken. A lamp may burst causing physical injury and property damage unless protective safety glass is used with the fixture. Use fixture that meets requirements per UL standard #1572.
- Metal Halide discharge lamps can emit ultraviolet radiation that may be harmful to eyes and skin. Metal Halide discharge lamps that are not open fixture rated should only be used in enclosed fixtures with ultraviolet absorbing filter glass. Do not operate these lamps if the ultraviolet absorbing filter glass is broken or not installed.
- Metal Halide and High Pressure Sodium discharge lamps should only be operated with the compatible ballast, rated ignition voltage, and socket. (See lamp specification for electronic characteristic information.)
- Only operate the lamp in its designated operating position. (See lamp specification for lamp operation position)
- Metal Halide lamps should be turned off for a minimum of 15 minutes per week.
- Lamps should never be operated beyond their rated useful life. The risk of a lamp burst increases with lamp age, temperature, improper operation and improper handling. Replace the lamp at or before the end of its rated life. Group relamping is always recommended.
- Never bump, drop, apply excessive stress, or scratch the lamp. This could cause the lamp to burst! Do not operate any lamps with any traces of scratches, cracks, or physical damage.
- Never operate a lamp above or below its rated current or voltage. This may cause the lamp to leak or burst.
- Always turn off the electrical power before inserting, removing, or cleaning the lamp.
- Clean any dirt, oil, or lint away from the lamp with alcohol and a lint-free cloth or tissue. Dirt or other contaminants will affect light output and may cause the lamp to overheat and decrease lamp life.
- Electrical connections should be clean and in good condition. Replace lamp holders and sockets when needed. Affix the lamp securely in the socket. Improper installations will cause electrical arcing, overheating and short life to lamp and socket.
- Never touch the lamp when it is on, or soon after it has been turned off, as it is hot and will cause serious burns. Lamps should be allowed to cool for a minimum of ten (10) minutes after the lamp is turned off.
- Do not use lamp in close proximity of paper, cloth or other combustible material that can cause a fire hazard.
- Do not look directly at the operating lamp for any period of time; this may cause serious eye injury.
- Metal Halide discharge lamps contain mercury. USHIO strives to preserve the environment and make efficient use of resources. Please refer to your local environmental laws regarding disposal and recycling of mercury containing lamps. For more information, please go to www.lamprecycle.org.

R - NON SELF-EXTINGUISHING 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. 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. Complies with the USA Federal Standard 21 CFR 1040.30 and Canada Standard SOR/80-381.

USHIO
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