Q-RAY™

Not all LED bulbs are created equal

MR-16 LED Bulb

(Halogen bulb replacement)

Product Description

The Q-RAY™ MR-16 is an energy saving direct replacement for Halogen MR-16. It operates both in 12V AC, 50-60Hz or 12V DC, with typical 150 lumens ouput.

Applications

Accent lighting at commercial building, hotel, lounge, shopping mall, showroom, museum, gallery and landscape.

Design Concept

Unlike many MR-16 with LED, Q-RAY™ MR-16 offers direct Halogen replacement. With its unique air-flow design, the overall heat management improves and thus ensures it lasts per life span claimed.

There are three air-flow vents around the body for proper ventilation and heat dissipation. This design achieves lower body temperature and improves LED lifespan. The structural design is to ensure mechanical shock-prove to protect the product.

Up to **80%** Energy Saving

Long lasting, No mercury, No UV.
Environmental Friendly

ENERGY STAR PARTNER

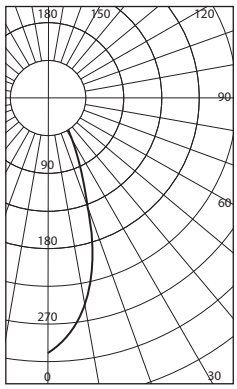
Photometric Test Report

Q-RAY™ products go through stringent tests before its release to the market.

Digital Lighting Inc - LED MR16 Lamp, CAT# QMR16-USF-30G533
With Individual Plastic Focusing Lenses
Three LEDs. Luminaire Output - 151 LMS.
Lamp Operating At 12 Vac And 3.2 Watts

Intensity (Candlepower) Summary

Angle	Mean CP	Lumens
0	309	
5	287	26
10	249	
15	209	56
20	146	
25	68	34
30	38	
35	27	17
40	20	
45	13	10
50	8	
55	4	4
60	3	
65	2	2
70	2	
75	1	1
80	1	
85	0	0
90	0	



Zonal Lumens And Percentages

Zone	Lumens	%Luminaire
0-30	117	77.25
0-40	134	88.47
0-60	148	97.85
0-90	151	100.00
40-90	17	11.53
60-90	3	2.15
90-180	0	0.00
0 -180	151	100.00

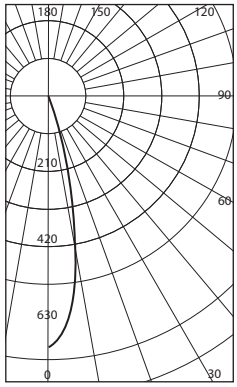
Efficacy (Lumens Per Watt) : 47.3

*** This is an Absolute Test ***

Digital Lighting Inc - LED MR16 Lamp,CAT# QMR16-USN-30G533
With Individual Plastic Focusing Lenses
Three LEDs. Luminaire Output = 151 LMS.
Lamp Operating At 12.0 Vac And 3.2 Watts

Intensity (Candlepower) Summary

Angle	Mean CP	Lumens
0	717	
5	646	54
10	411	
15	187	54
20	86	
25	44	21
30	26	
35	15	10
40	9	
45	6	5
50	4	
55	4	3
60	3	
65	2	2
70	1	
75	1	1
80	0	
85	0	0
90	0	



Zonal Lumens And Percentages

Zone	Lumens	%Luminaire
0-30	130	86.01
0-40	140	92.50
0-60	148	97.90
0-90	151	100.00
40-90	11	7.50
60-90	32	10
90-180	0	0.00
0-180	151	100.00

Efficacy (Lumens Per Watt) : 47.3

*** This is an Absolute Test ***

Application Requirements

This is a drop-in replacement. Q-RAY™ MR-16 is powered by 12V AC (installed transformer) or 12V DC (new installation). Simple and easy to handle. However, if flickers occur, please verify if existing transformer calls for minimum load requirement. If problem exists, please change the electronic transformer.

Light Emitting Diodes

Stringent test requirement will allow high quality lighting class LEDs to be used. This philosophy is maintained in the design of Q-RAY™ MR16 product line.

Body Material & Construction

Q-RAY™ MR-16 body is constructed using Alloy material with ability to sink heat fast and effectively. The air-flow vent design provides an alternative route for heat dissipation to ensure Q-RAY™ MR-16 lasts per life span claimed.

Optical Properties

The Optical system adopted by Q-RAY MR-16 is based on conventional beam angles such as flood and narrow flood.

Additional to that, Q-RAY™ MR-16 offers consistent Color Temperature. Every bulb will illuminate within stipulated Color Temperature according to ANSI C78.377-2008 specifications. This is extremely important to ensure whole interior using Q-RAY™ MR-16 demonstrates consistent shade of white.

Technical Specifications

Total Flux Produced (Typical)	150 lumens
Minimum Power	3.2 W
Maximum Power	3.6 W
CCT Level	2700K (2580K to 2870K) 3000K (2870K to 3220K)
System Efficacy	minimum 45 Lumens per Watt
Color Rendering Index, CRI	Minimum 82 (2700K & 3000K)
Illumination Angle (Typical)	22° for Narrow Flood (N) 36° for Flood (F)
Dimension	H 1.56" (without pin), 1.86" (with pin)
Diameter	1.99" (subject to 1% tolerance)

Note: CCT level is accordance to ANSI C 78.377-2008 Specifications.

Benefits of Q-RAY™ MR-16

- No heat generated through beam.
- Protect your valuables on display.
- Lower power consumption to minimize carbon emission to protect the environment.
- No Mercury content.
- No UV emission.
- Durable & long lasting up to 50,000 hours or more.
- Retrofitable directly to most MR-16 halogen fixtures.
- Accept a wider voltage fluctuation band compared to halogen.
- Lifetime* warranty on color consistency.
- Dimmable with magnetic transformer up to 70% .

Ordering Information

Part Number	Product Description
Q MR16-US F-30 G533	Q-RAY™ MR16, with Flood Lens, 3000K CCT with GU5.3 Connector, 150 Lumens
Q MR16-US N-30 G533	Q-RAY™ MR16, with Narrow Flood Lens, 3000K CCT with GU5.3 Connector, 150 Lumens
Q MR16-US F-27 G533	Q-RAY™ MR16, with Flood Lens, 2700K CCT with GU5.3 Connector, 150 Lumens
Q MR16-US N-27 G533	Q-RAY™ MR16, with Narrow Flood Lens, 2700K CCT with GU5.3 Connector, 150 Lumens

Optional Models

Part Number	Product Description
Q MR16-US F-65 G533	Q-RAY™ MR16, with Flood Lens, 6500K CCT with GU5.3 Connector, 150 Lumens
Q MR16-US N-65 G533	Q-RAY™ MR16, with Narrow Flood Lens, 6500K CCT with GU5.3 Connector, 150 Lumens

* *Warranty depends on LED drive capability. Lifetime warranty expires when flux level of LED drops below 50% of original brightness. Optional Models are available upon request. These models are out of ENERGY STAR scope of CCT.*

Note : While all effort has been made to ensure this product works well in existing system, it is known that most electronic transformers use with minimum load requirement may not be compatible with this product. It is recommended to use this product with magnetic type transformers with no minimum load requirement.