

Philips MasterColor®  
Ceramic Metal Halide  
CDM-MR16 Lamps

*Ideal for accent/decorative  
lighting, general lighting  
and downlighting in  
retail applications; or for  
outdoor landscaping and  
architectural effects.*

MASTERCOLOR®



## Accent with sparkling, energy efficient light

Philips MasterColor® CDM-MR16 combines the familiar compact shape of MR-16 halogen lamps with the performance of ceramic metal halide MasterColor lamps.

### MasterColor® technology

- Energy savings—up to 2 times less energy consumed than standard 50W halogen MR-16 lamps with comparable light output
- Long life—12,000 hours rated average life<sup>1</sup>, 4 times longer than standard 3000 hour 50W halogen MR-16 lamps
- Sparkling light—85+ CRI with crisp white light (3000K)
- Lamp-to-lamp color consistency

### Easy to install, easy to replace

- GX10 twist-and-lock design locks base into place
- 100% compatible with existing HID systems in market today
- Miniturized reflector eliminates need for optical design

### Excellent choice for today's lighting designs

- Compact size suitable for open fixtures
- Beam spreads available in 10°, 25° and 40°

(1. See back page for footnotes)

**PHILIPS**

sense and simplicity

Ordering Data

Product Number	Ordering Code	Nom. Watt.	MBCP <sup>2</sup>	Beam Angle <sup>3</sup>	Approx. Initial Lumens <sup>4</sup>	Approx. Mean Lumens <sup>5</sup>
40496-1	CDM-MR16 20W/830 10D	22	11,000	10°	1080	750
40497-9	CDM-MR16 20W/830 25D	22	3500	25°	1080	750
40498-7	CDM-MR16 20W/830 40D	22	1700	40°	1080	750

Electrical and Technical Data

Lamp Operating Volt. (rms)(Nom.)<sup>6</sup> \_\_\_\_\_ 103  
 Initial Lamp Volt. Range (rms)<sup>7</sup> \_\_\_\_\_ 97-109  
 Lamp Operating Current (Amps) Nominal (rms) \_\_\_\_\_ 0.215  
 Lamp Current Crest Factor (Maximum) \_\_\_\_\_ 1.8  
 Warm-up to 80% Full Brightness \_\_\_\_\_ 2 minutes  
 Restrike Time for Hot Lamps \_\_\_\_\_ 15 minutes  
 Ballast Open Circuit Voltage \_\_\_\_\_ 198 RMS Min.  
 Pulse Peak Volts \_\_\_\_\_ 3000-4000  
 Pulse Width @ 90% Peak \_\_\_\_\_ 2 Micro Sec. Minimum  
 Pulse Repetition Rate (Minimum)<sup>8</sup> \_\_\_\_\_ 1 per Half Cycle  
 Minimum Operating Temp. \_\_\_\_\_ -30°C (-22°F)

Ordering Information

ANSI Designation \_\_\_\_\_ C156/C175/O  
 Package Quantity \_\_\_\_\_ 6

Physical Characteristics

Bulb Size \_\_\_\_\_ MR-16  
 Bulb Finish \_\_\_\_\_ Clear  
 Base \_\_\_\_\_ GX-10  
 Max. Overall Length (MOL) \_\_\_\_\_ 2.6" (65.4mm)  
 Max. Permissible Temperatures:  
 Bulb \_\_\_\_\_ 300°C (572°F)  
 Base \_\_\_\_\_ 200°C (392°F)  
 Lens-to-Reflector Rim \_\_\_\_\_ 160°C (320°F)  
 Arc Tube Material \_\_\_\_\_ Polycrystalline Alumina

Operating Characteristics

Rated Average Life, Hours<sup>1</sup> \_\_\_\_\_ 12,000  
 CRI \_\_\_\_\_ 85  
 Correlated Color Temp. (CCT)<sup>9</sup> \_\_\_\_\_ 3000K  
 CIE Chromaticity Approx.<sup>9</sup> \_\_\_\_\_ x-.438, y-.394  
 Efficacy (lpw) \_\_\_\_\_ 49

Operating Position

Universal—Open or Enclosed Luminaire

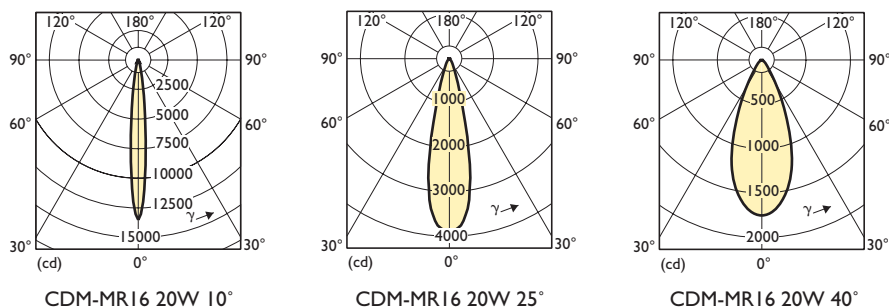
**Note: Use on thermally protected electronic ballast only.**

1) Rated average life is the life obtained, on the average, from large representative groups of lamps in laboratory tests under controlled conditions at 10 or more operating hours per start. It is based on survival of at least 50% of the lamps and allows for individual lamps or groups of lamps to vary considerably from the average.  
 2) Maximum Beam Candlepower  
 3) Beam Angle at 50% of MBCP  
 4) Measured at 100 hrs. life. Approximate lumen values listed are for vertical operation of the lamp.

5) Approximate lumen output at 40% of lamp rated average life.  
 6) Measured at rated lamp watts on a linear reactor.  
 7) Measured with the lamp operating at rated watts.  
 8) Option-Pulse Width @ 90% Peak, 1 micro second minimum with 2 pulses per half cycle.  
 9) Measured at 100 hours life.  
**Above specifications subject to change without notice.**

Polar Intensity Diagram

Beam spread at 50% Maximum Beam Candlepower—0° Primary Angle



WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS

**R** "WARNING: These lamps can cause serious skin burn and eye inflammation from short wave 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. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available." This lamp complies with FDA radiation performance standard 21 CFR subchapter J. (USA:21 CFR 1040.30 Canada:SOR/DORS/80-381)

**If the outer bulb is broken or punctured, turn off at once and replace the lamp to avoid possible injury from hazardous short wave ultraviolet radiation. Do not scratch the outer bulb or subject it to pressure as this could cause the outer bulb to crack or shatter. A partial vacuum in the outer bulb may cause glass to fly if the envelope is struck.**

**WARNING:** The arc-tube of metal halide lamps are designed to operate under high pressure and at temperatures up to 1000° C and can unexpectedly rupture due to internal or external factors such as a ballast failure or misapplication. If the arc-tube ruptures for any reason, the outer bulb may break and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE. These lamps are designed to retain all the glass particles should an arc tube rupture occur. The following operating instructions are recommended to minimize these occurrences.**

**RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE. Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.**

**This lamp contains an arc tube with a filling gas containing less than 10 nCi of Kr-85 and is distributed by Philips Lighting Company, a Division of Philips Electronics North America Corporation, Somerset, New Jersey, 08875.**

**CAUTION: TO REDUCE THE RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE RESULTING FROM AN ARC-TUBE RUPTURE THE FOLLOWING LAMP OPERATING INSTRUCTIONS MUST BE FOLLOWED:**

**LAMP OPERATING INSTRUCTIONS:**

- RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE. Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.
- Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
- Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
  - A. Operate lamp only within specified limits of operation.
  - B. For total supply load refer to ballast manufacturers electrical data.
  - C. Operate lamps only on thermally protected electronic ballast.**
- Periodically inspect the outer envelope. Replace any lamps that show scratches, cracks or damage.
- If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
- Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.
- Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock, and color appearance may vary between individual lamps.
- Lamps may require up to 15 minutes to re-light if there is a power interruption.
- Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
- For proper installation and removal, lamp should be handled by the sides of the reflector and not by the aluminum front anti-glare cap.



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