NERLITE® Dark Field

Low Angle Lighting Solution

Omron Microscan’s wide range of NERLITE products can illuminate any part or mark for successful machine vision and auto ID applications.

Dark field illuminators provide effective low-angle lighting to targeted regions, and enhance the contrast of surface features such as laser embossed or engraved marks or surface defects. Dark field illuminators are particularly well suited for applications such as reading laser-etched symbologies, and inspecting surfaces with geometric contours.

Dark Field: At a Glance

- Provides effective, low-angle illumination
- Enhances contrast of surface features such as laser embossed or engraved marks

Illumination Example:

Embossed logo on a metal surface: Low angle illumination provides a high contrast image.

Application Examples

- Make textured surfaces appear bright
- Emphasize elevation changes
- Reading laser-etched symbologies
- Inspecting surfaces with geometric contours
- Label inspection applications
- BGA ball placement

For more information on this product, visit www.microscan.com.
**NERLITE ® Dark Field Specifications and Options**

### DF 50

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<tr>
<th>DESCRIPTION</th>
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<th>nm/K</th>
<th>CONT. CURRENT</th>
<th>mcd/cm²</th>
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<td>DF-50, Red Continuous</td>
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- **Aperture Diameter:** 2” (51 mm) **Field of View:** 0.70” (18 mm)
- **Stand Off:** 0.30” (8 mm) **Weight:** 5 oz. (136 g)
- **Dimensions:** H 0.38” (9.5 mm) x W 3” (76.2 mm) x D 3.5” (88.9 mm)

### DF 100

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- **Aperture Diameter:** 3.9” (100 mm) **Field of View:** 2” (51 mm)
- **Stand Off:** 0.50” (13 mm) **Weight:** 9 oz. (256 g)
- **Dimensions:** H 0.56” (14.2 mm) x W 5.5” (139.7 mm) x D 5.5” (139.7 mm)

### DF 150

- **LEDs = 1 ROW**

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<td>DF-150-1, Red Continuous</td>
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- **Aperture Diameter:** 4” (102 mm) **Field of View:** 3” (76 mm)
- **Stand Off:** 0.50” (13 mm) **Weight:** 18 oz. (504 g)
- **Dimensions:** H 0.56” (14.2 mm) x W 7.02” (178.4 mm) x D 7.02” (178.4 mm)

### DF 150

- **LEDs = 3 ROWS**

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- **Aperture Diameter:** 2.9” (74 mm) **Field of View:** 1.5” (38 mm)
- **Stand Off:** 0.50” (13 mm) **Weight:** 7 oz. (193 g)
- **Dimensions:** H 1.02” (25.9 mm) x W 5.5” (139.7 mm) x D 6.37” (161.8 mm)

### DF 200

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- **Aperture Diameter:** 8” (203 mm) **Field of View:** 3.9” (100 mm)
- **Stand Off:** 0.50” (13 mm) **Weight:** 20 oz. (567 g)
- **Dimensions:** H 0.56” (14.2 mm) x W 10” (254 mm) x D 10” (254 mm)

### ENVIRONMENTAL

- **Operating Temperature:** 0° to 40° C (32° to 104° F)
- **Storage Temperature:** 0° to 50° C (32° to 122° F)
- **Humidity:** up to 95% (non-condensing)

### LIGHTING PARAMETERS

- **Aperture Diameter Defined:** Diameter of opening through the illuminator.
- **Field of View Defined:** Largest recommended evenly illuminated area as seen from the camera (also known as Area of Interest [AOI]).
- **Stand Off Defined:** Recommended distance between the bottom of the light and the surface of the object being illuminated.

### LIGHT SOURCE

- **Type:** High output LEDs
- **Light Output:** Milliacandelas per square centimeter (mcd/cm²)
- **Expected Life:** 50,000 hours (Red LEDs)
- **Expected Life:** 10,000 hours (White LEDs)
- **Eye Safety:** EN 60825-1: Class 1 (Red, White LEDs)

### CONNECTOR

- **Type:** 15 ft. (4.5 m) integrated cable with flying leads
- **Type (DF-150-3 Models Only):** DB9 male panel mount, 15 ft. (4.5 m) DB9 female to flying leads cable included

### ELECTRICAL

- **Power:** 24 VDC +/- 1%