

NERLITE® DARK FIELD



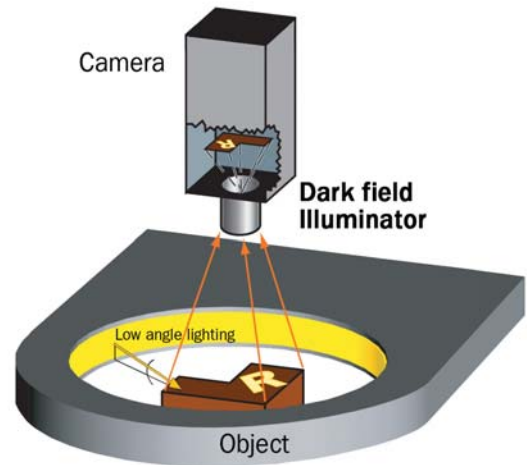
Low Angle Lighting Solution

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
- Strobe models are available for high speed machine vision applications



Illumination Example:

Object



Resulting Image



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

NERLITE® DARK FIELD SPECIFICATIONS AND OPTIONS

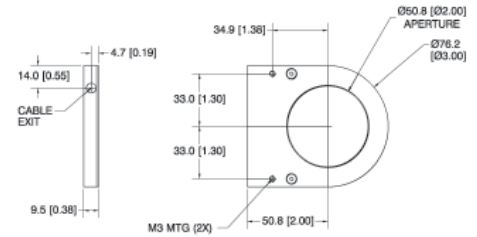
DF 50

DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT	mcd/cm ²
DF-50, Red Continuous	NON-DIFFUSE	660 nm	69 mA		6250
DF-50, Red Strobe	NON-DIFFUSE	660 nm		1.2 A	54300
DF-50, White Continuous	NON-DIFFUSE	6500 K	120 mA		7000
DF-50, White Strobe	NON-DIFFUSE	6500 K		2.4 A	70000
DF-50, Blue Continuous	NON-DIFFUSE	470 nm	120 mA		5600
DF-50, Blue Strobe	NON-DIFFUSE	470 nm		2.4 A	56000

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)



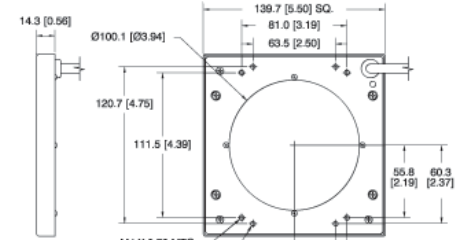
DF 100

DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT	mcd/cm ²
DF-100, Red Continuous	NON-DIFFUSE	636 nm	100 mA		760
DF-100, Red Continuous	DIFFUSE	636 nm	100 mA		400
DF-100, Red Strobe	DIFFUSE	636 nm		2.0 A	4000

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

DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT	mcd/cm ²
DF-150-1, Red Continuous	NON-DIFFUSE	636 nm	100 mA		340
DF-150-1, Red Strobe	NON-DIFFUSE	636 nm		2.0 A	3400
DF-150-1, White Continuous	NON-DIFFUSE	6500 K	196 mA		700
DF-150-1, White Strobe	NON-DIFFUSE	6500 K		4.0 A	7000
DF-150-1, Blue Continuous	NON-DIFFUSE	470 nm	196 mA		600
DF-150-1, Blue Strobe	NON-DIFFUSE	470 nm		4.0 A	6000
DF-150-1, Red Continuous	DIFFUSE	636 nm	100 mA		410
DF-150-1, Red Strobe	DIFFUSE	636 nm		2.0 A	1800
DF-150-1, White Continuous	DIFFUSE	6500 K	196 mA		380
DF-150-1, White Strobe	DIFFUSE	6500 K		4.0 A	3800

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)

LEDs = 3 ROWS

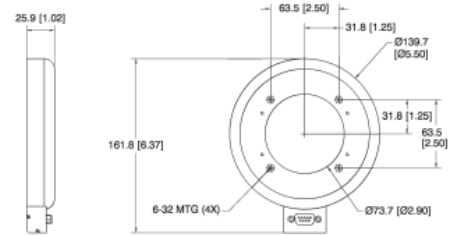
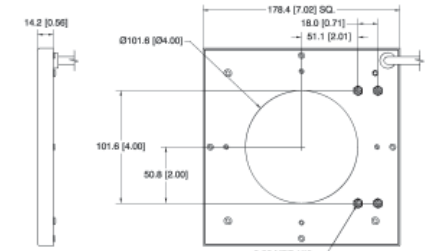
DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT	mcd/cm ²
DF-150-3, Red Continuous	NON-DIFFUSE	636 nm	300 mA	ROW 1, 2	2290
DF-150-3, Red Strobe	NON-DIFFUSE	636 nm		7.14 A	22900
DF-150-3, White Continuous	NON-DIFFUSE	6500 K	450 mA	ROW 3	3540
DF-150-3, White Strobe*	NON-DIFFUSE	6500 K		8.0 A	47200

* This product has two separate circuits.

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)



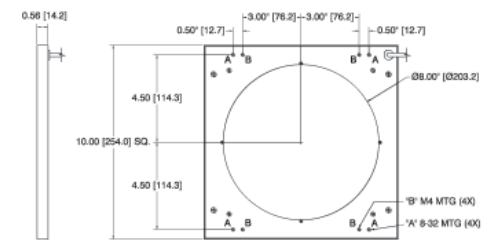
DF 200

DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT	mcd/cm ²
DF-200, Red Continuous	DIFFUSE	636 nm	200 mA		170
DF-200, Red Strobe	DIFFUSE	636 nm		4.0 A	1700

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: Millicandelas per square centimeter (mcd/cm²)

Expected Life: 50,000 hours (Red LEDs)

Expected Life: 10,000 hours (Blue, White LEDs)

Eye Safety: EN 60825-1: Class 1 (Red, White LEDs); Class 2 (Blue 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 (Continuous Models): 24 VDC +/- 1%

Power (Strobe Models): 1 ms max. pulse width, 6% max duty cycle, use of NERLITE NL-200 Series Lighting Controller is required.

CE COMPLIANT

ISO CERTIFICATION

Certified ISO 9001:2000 Quality Management System

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Microscan Applications Engineering is available to assist with evaluations. Results may vary depending on symbol quality. **Warranty**—One year limited warranty on parts and labor. Free extended three year warranty available with online product registration.

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