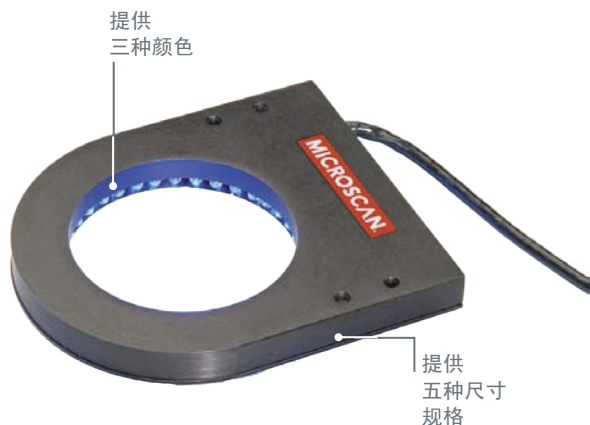


## NERLITE® 暗场照明灯



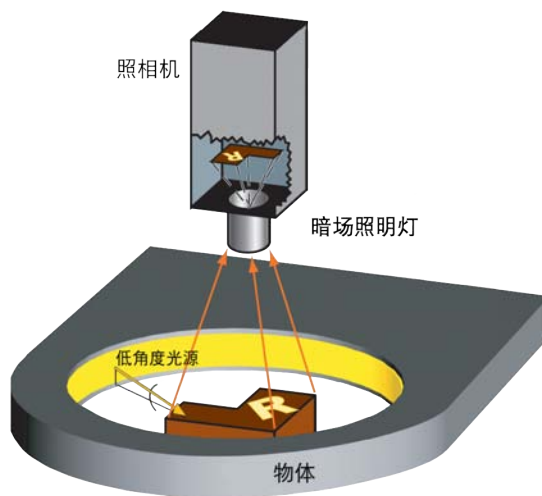
### 低角度 照明解决方案

Microscan 种类繁多的 NERLITE 产品可为所有部件或标记提供照明支持，从而成功实现机器视觉和自动识别应用。

暗场照明灯可为目标区域提供有效的低角度照明，并可增强表面图案（如激光浮凸或雕刻标记或表面缺陷）的对比度。暗场照明灯尤其适用于以下应用，如读取激光蚀刻标签和检查带有几何结构的表面。

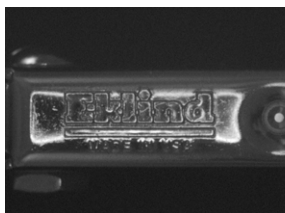
#### 暗场照明灯：简介

- 提供有效的低角度照明
- 增强表面图案（如激光浮凸或雕刻标记）的对比度
- 频闪模式可用于高速机器视觉应用



#### 照明示例：

物体



结果影像



金属表面上的浮凸徽标：低角度照明可提供高对比度的影像。

#### 应用实例

- 使粗糙表面以亮色显示
- 凸显仰角变化
- 读取激光蚀刻标签
- 检查带有几何结构的表面
- 标识检测应用
- BGA 植球

# NERLITE® DARK FIELD SPECIFICATIONS AND OPTIONS

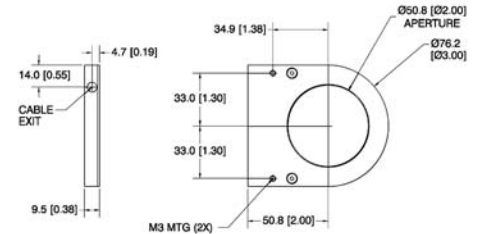
## DF 50

DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT	mcd/cm <sup>2</sup>
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)



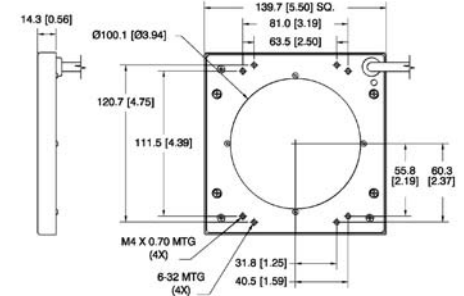
## DF 100

DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT	mcd/cm <sup>2</sup>
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

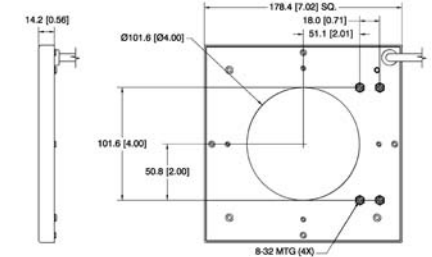
LEDs = 1 ROW

DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT	mcd/cm <sup>2</sup>
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

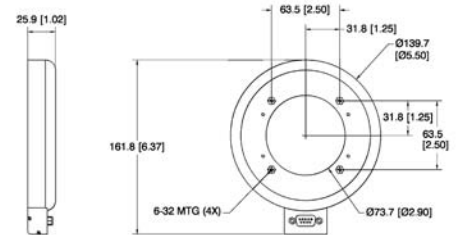
DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT		mcd/cm <sup>2</sup>
				ROW 1, 2	ROW 3	
DF-150-3, Red Continuous	NON-DIFFUSE	636 nm	300 mA			2290
DF-150-3, Red Strobe	NON-DIFFUSE	636 nm		7.14 A		22900
DF-150-3, White Continuous	NON-DIFFUSE	6500 K	450 mA			3540
DF-150-3, White Strobe*	NON-DIFFUSE	6500 K		8.0 A	4.0A	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)



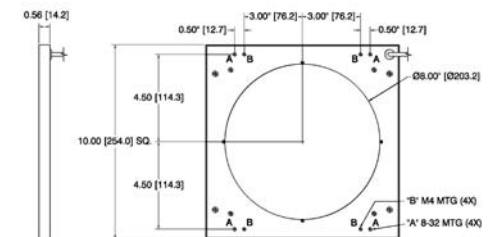
## DF 200

DESCRIPTION	TYPE	nm/K	CONT. CURRENT	STROBE CURRENT	mcd/cm <sup>2</sup>
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/cm<sup>2</sup>)

**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 9001:2008 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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