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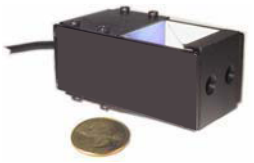
Find the *Microscan DOAL-25-LED 12VDC* at our website: ***Click HERE***

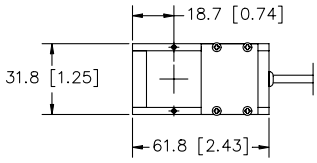
MICROSCAN®

NERLITE® DOAL®-25-LED

DOAL-25-LED Series products provide diffuse, LED illumination in the same optical path as the camera. DOALs are designed for applications that have flat specular surfaces requiring uniform lighting. With the DOAL, light rays hit the illuminated object at nearly 90°. The result: specular surfaces perpendicular to the camera appear illuminated, while surfaces at an angle to the camera appear dark.

Model #	Description
NER-010201301	DOAL-25, R LED-D, 12V-C, 18" (0.5M) Cbl w/DB9
NER-010201305	DOAL-25, R LED-D, 24V-C, 15' (4.5M) Cbl w/Flying Leads
NER-010201319	DOAL-25, R LED-D, 24V-C, 6.6' (2M) Cbl w/DB9, w/AR Cover
NER-010201314	DOAL-25, R LED-D, 24V-S, 6.6' (2M) Cbl w/DB9
NER-010201310	DOAL-25, W LED-D, 12V-C, 18" (0.5M) Cbl w/DB9
NER-010201312	DOAL-25, W LED-D, 24V-C, 6.6' (2M) Cbl w/DB9, w/AR Cover
NER-010201313	DOAL-25, W LED-D, 24V-C, 15' (4.5M) Cbl w/Flying Leads
NER-010201311	DOAL-25, B LED-D, 12V-C, 18" (0.5M) Cbl w/DB9
NER-010201316	DOAL-25, B LED-D, 24V-S, 6.6' (2M) Cbl w/DB9
NER-010201320	DOAL-25, G LED-D, 12V-C, 18" (0.5M) Cbl w/DB9
010-201308	DOAL-25, I LED-D, 12V-C, 880nm, 18" (0.5M) Cbl w/DB9
NER-010201317	DOAL-25, I LED-D, 24V-C, 880nm, 6.6' (2M) Cbl w/DB9
010-201321	DOAL-25, I LED-D, 24V-S, 800nm, 6.6' (2M) Cbl w/DB9
010-201322	DOAL-25, I LED-D, 24V-C, 940nm, 6.6' (2M) Cbl w/DB9

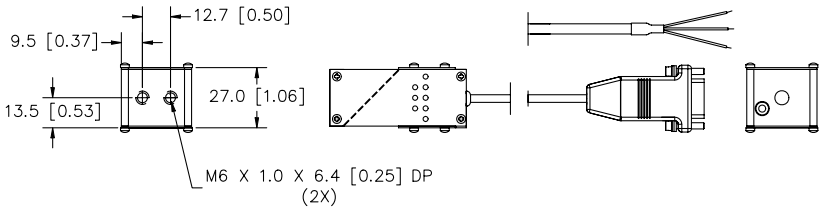




Description Key Example

DOAL-xx, R LED-D,12V-C

- Family Designation
- Aperture (mm - approx.)
- Color: R-Red, W-White, B-Blue, G-Green, I-Infrared, U-Ultraviolet
- Source: FO-Fiber Optic, FL-Fluorescent, LED- Light Em. Diode
- Delivery: D-Diffused, ND- Non-Diffused, F-Focused
- Voltage (DC): C-Continuous, S-Strobe



Illumination & Electrical:

Lighting Technique: Diffuse On-Axis Light (DOAL®)
Light Aperture: 25 mm x 25 mm (1 in. x 1 in.)
Field Of View x Stand-Off[1]: 12.5 mm x 12.5 mm (0.5 in. x 0.5 in.)

Light Characteristics:

Source	Color (nm)	Exp. Life	Voltage/Current (max.) 12V-C	24V-C	24V-S
LED	Red (636)	60k hrs.	88 mA	40 mA	800 mA pk.[2]
LED	White – 6500 Kelvin	10k hrs.	80 mA	64 mA	n/a
LED	Blue (470)	10k hrs.	80 mA	n/a	1.46 A pk.[2]
LED	Green (533)	10k hrs.	80 mA	n/a	n/a
LED	IR (880)	50k hrs.	84 mA	20mA	n/a
LED	IR (800)	50k hrs.	n/a	n/a	492 mA pk.[2]
LED	IR (940)	50k hrs.	n/a	21mA	n/a

[1] Suggested
[2] Strobe max. Pulse width = 1 ms; max. Frequency = 60 Hz

CE Conformity: Yes

Mechanical:

L x W x H (mm/in.): 61.8 mm x 31.8 mm x 27.0 mm (2.43 in. x 1.25 in. x 1.06 in.)
Mounting: (2) M6
Housing Material: Black Anodized Aluminum
Weight: 113 grams (4 oz.)

Environmental:

Max. Operating Humidity 95% non-condensing
Operating Temp. 40°C (104°F)
Storage Temp. 50°C (122°F)

Accessories:

Part #	Description	Models Used On
NER-010500301	CPS-12 3.5A, 12VDC, US Cord	12V-C
NER-010500303	CPS-12 3.5A, 12VDC, EU Cord	12V-C
NER-010502601	CPS-24T, 24VDC US w/9-pin D-sub	24V-C & 24V-S[1, 2]
NER-010502602	CPS-24T, 24VDC EU w/9-pin D-sub	24V-C & 24V-S[1, 2]
NER-BA00-0AA0	DSP60, 24VDC, 2.5A DIN Mount Power Supply	24V-C & 24V-S[1]
NER-BA00-0AB0	DSP100, 24VDC, 4.2A DIN Mount Power Supply	24V-C & 24V-S[1]
NER-010502700	ICM-1, M/D Intensity Cntrl, 12V-C	12V-C
NER-010502701	ICM-1, M/D Intensity Cntrl, 24V-C	24V-C[2]
NER-010502702	SCM-1, 1 Channel M/D Strobe Cntrl.	24V-S
NER-010901900	SCM-2, 2 Channel Strobe Cntrl.	24V-S
NER-010503500	VPS-II, 2 Ch. Variable PS, US Cord	12V-C
NER-010503501	VPS-II, 2 Ch. Variable PS, EU Cord	12V-C
NER-DA00-0AB0	AC Power Cord, US, 1.8 M (6.0 ft.)	DIN Mount PS
NER-DA00-0AC0	AC Power Cord, EU, 2.5 M (8.2 ft.)	DIN Mount PS
NER-DA00-0AD0	AC Power Cord, UK, 2.0 M (6.6 ft.)	DIN Mount PS
NER-030003702	Ext. Cable, Cont., 1.8 M (6 ft.)	12V-C & 24V-C[2]
NER-030003703	Ext. Cable, Cont., 3.0 M (10 ft.)	12V-C & 24V-C[2]
NER-030003601	Y cable, 2 Lights, 9 pin D-sub Cont.	12V-C & 24V-C[2]
NER-030007006	Ext. Cable, Strobe, 1.8 M (6 ft.)	24V-S
NER-030007010	Ext. Cable, Strobe, 3.0 M (10 ft.)	24V-S
NER-030006900	Y cable, 2 Lights, 9 pin D-sub Strb.	24V-S

[1] NER-BA00-0AA0 or NER-BA00-0AB0 used only with NER-010901900 or 24V-C lights with flying leads; NER-01050260x used with either NER-010502702 or 24V-C lights with DB-9 connectors
[2] These 24V-C accessories are not available for "Flying Leads" configurations

Cables/Connectors:

	Connector	Length	Pin# 1	2	3	4	5	6	7	8	9
12V-C Models	9 pin D-sub Male	0.5 M (18 in.)	n/a	n/a	GND	+12VDC	n/a	n/a	n/a	n/a	n/a
24V-S Models	9 pin D-sub Male	2.0 M (6.6 ft.)	V-	n/a	n/a	+24VDC	n/a	n/a	n/a	n/a	n/a
24V-C Models [1]	9 pin D-sub Male [1]	2.0 M (6.6 ft.) [1]	n/a	n/a	n/a	n/a	n/a	n/a	+24VDC	n/a	GND

[1] Note: 24V-C Models w/"Flying Leads" have a 4.5 M (15 ft.) cable with two (2) tinned leads plus shield and no connector; leads are labeled GND, V+ (+24VDC), and SHIELD

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When provided, affix peel and stick eye safety warning labels to a system location visible to system operators and supporting personnel.

WARNINGS: For safe use of this product, observe the following warnings:

Handling: Surfaces hot during and after operation, avoid contact.

Service: No user serviceable parts inside, contact supplier for service.

Eye Safety: Products containing LEDs fall under the IEC standard for laser product safety (IEC 60825-1). Please refer to the IEC classifications and categorization of NERLITE products below for safe operation.

IEC Laser Safety Class Definitions pertinent to NERLITE LED products:

IEC Class Code	Definition
1	Considered as safe to eye and skin under all reasonably foreseeable conditions of operation.
1M	Considered as safe to eye and skin under all reasonably foreseeable conditions of operation, provided they are not viewed with magnifying optics of any kind.
2	Will not cause permanent eye damage under all reasonably foreseeable conditions of operation, provided that any exposure may be terminated by the blink reflex of the eye. Since this assumes the eye can detect this radiation, the wavelength range is limited to visible light (400nm to 700nm).

IEC Laser Safety Class Codes of NERLITE LED Machine Vision Illuminators

IEC Class Code	NERLITE Products (Refer to Model Descriptions)
1	R LED, W LED, G LED, I LED
1M	U LED
2	B LED, B1 LED, B3 LED, R1 LED, R3 LED, W1 LED, W3 LED, G1 LED, G3 LED, I1 LED, DUAL AXIS LIGHTS containing I LED

Training: Customers are encouraged to document their unique application and instruct employees on procedures to limit exposure to LED radiation. The documentation and instruction should include but not necessarily be limited to:

- Operational overview of equipment including LED lighting.
- Need for personal protection (e.g. protective eyewear, UV protective eyewear)
- Understanding hazard controls (e.g. warning signs)
- Bio-effects of LED radiation upon the eyes and skin (refer to http://www.icnirp.de/documents/led.pdf for the International Commission on Non-Ionizing Radiation Protection's statement on "LEDS and Laser Diodes: Implications for Hazard Assessment")

General LED Precautions:

These devices contain visible and non-visible LEDs – Light Emitting Diodes.

WARNING – RISK OF DISCOMFORT:

Observation of the Class 1 and 2 code definitions are substantial for eye protection.

Flashing LED Precautions:

This device contains LEDs – Light Emitting Diodes – that are flashing (aka strobing or pulsing) during operation.

WARNING – RISK OF DISCOMFORT:

Flashing (aka strobing or pulsing) lights have been known to cause discomfort in people; you can prevent this by taking precautions during use.

Ultra Violet (UV) LED Precautions:

This device contains UV Light LEDs – Ultra Violet Light Emitting Diodes. The LED during operation radiates intense UV light.

WARNING – RISK OF CORNEA AND LENS DAMAGE:

Viewing the LED output with certain optical instruments (for example: eye loupes, magnifiers and microscopes) within a distance of 100 mm may pose an eye hazard.

During operation, these LEDs radiate UV light, requiring that precautions must be taken to prevent looking directly at the UV light with unprotected eyes.

Do not look directly, or through an optical system, into the UV light. When there is a possibility to receive a reflection of light, protect your eyes by using UV light protective glasses so that light will not reach eyes directly.

Blue LED Precautions:

This device contains Blue LEDs – Blue Light Emitting Diodes.

WARNING – RISK OF RETINAL DAMAGE:

During operation, these LEDs radiate Blue light, requiring that precautions must be taken to prevent looking directly at the Blue light with unprotected eyes.

Eye protection from visible "blue light" LED radiation can be provided by normal aversion responses (e.g. looking away from light source, blink reflex).

Infra Red (IR) LED Precautions:

This device contains IR LEDs – IR Light Emitting Diodes.

WARNING – THERMAL HAZARD: RISK OF LENS DAMAGE:

During operation, these LEDs radiate non-visible thermal energy. Eye hazards are dependent upon brightness of the source and since IR LED output is non-visible, precautions must be taken to prevent looking toward the output of the LED assembly.

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