RODER

LED Illuminators
DL5 Series

Revisione IT2602

2026

INNOVATIVE
SOLUTIONS
PROVIDER

www.rodervision.com

DL5 SERIES

Modular High-Flux LED illuminators for Large-Scale industrial vision systems

Scalable Modular Architecture: Built upon foundational 100×100 mm tiles, this design allows the creation of expansive lighting panels. It seamlessly scales up to 1000×1000 mm, accommodating complex machine geometries and very large inspection areas without compromising optical uniformity.

Integrated Lens Options: Features advanced High-Flux LEDs that can operate with a natural 120-degree emission or specialized focusing lenses. This versatility allows system integrators to easily switch between wide-angle diffusion and highly concentrated light beams.

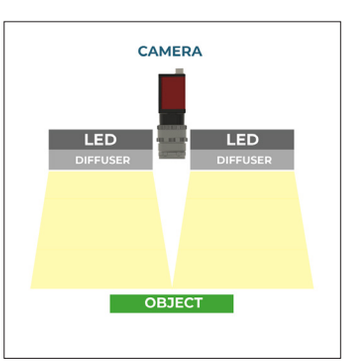
Internal MCCD Stabilization: Incorporates Multi Constant Current Driver technology to ensure every LED receives identical current regardless of voltage drops. This electronic stabilization eliminates flicker and intensity drift, providing consistent brightness for sensitive vision algorithms.

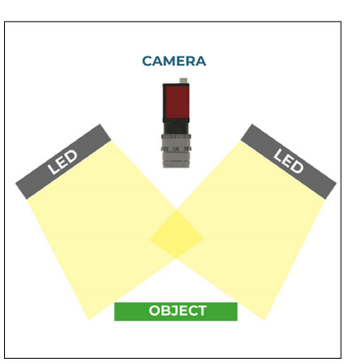
Applications

- Machine Vision applications
- ROBOT guide
- Pick and Place
- Logistic applications
- Video recording
- Ultra-Fast imaging
- Barcode reader
- Optical inspection

Key Features

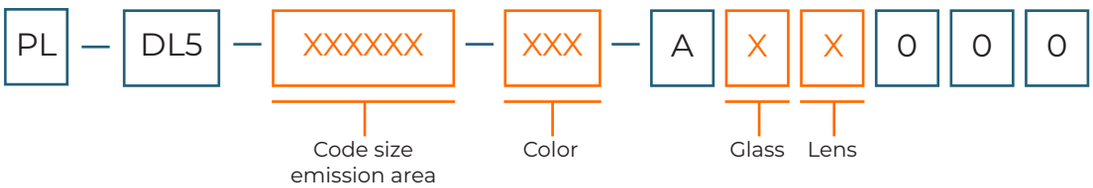
- HTTM technology for efficient LED heat dissipation
- Integrated driver for LED current stabilisation
- Possibility of remote ON/OFF control for power modulation
- Aluminium body with side fixing points and mounting brackets
- Reduced thickness and made of structural aluminium profiles
- Connection with industrial connector and screw ring fixing
- Possibility to choose the lens installed on the LED





Composition of the product identification code

he acronyms in orange color are to be filled in according to the desired configuration



Code size emission area

Highlighted models are from normal production - Other models are made to order and may have longer production times

engthemissione area - mm (order code)					
100 x 100 (010010)	100 x 200 (010020)	100 x 300 (010030)	100 x 400 (010040)	100 x 500 (010050)	100 x 600 (010060)
100 x 700 (010070)	100 x 800 (010080)	100 x 900 (010090)	100 x 1000 (010100)	200 x 200 (020020)	200 x 300 (020030)
200 x 400 (020040)	200 x 500 (020050)	200 x 600 (020060)	200 x 700 (020070)	200 x 800 (020080)	200 x 900 (020090)
200 x 1000 (020100)	300 x 300 (030030)	300 x 400 (030040)	300 x 500 (030050)	300 x 600 (030060)	300 x 700 (030070)
300 x 800 (030080)	300 x 900 (030090)	300 x 1000 (030100)	400 x 400 (040040)	400 x 500 (040050)	400 x 600 (040060)
400 x 700 (040070)	400 x 800 (040080)	400 x 900 (040090)	400 x 1000 (040100)	500 x 500 (050050)	500 x 600 (050060)
500 x 700 (050070)	500 x 800 (050080)	500 x 900 (050090)	500 x 1000 (050100)	600 x 600 (060060)	600 x 700 (060070)
600 x 800 (060080)	600 x 900 (060090)	600 x 1000 (060100)	700 x 700 (070070)	700 x 800 (070080)	700 x 900 (070090)
700 x 1000 (070100)	800 x 800 (080080)	800 x 900 (080090)	800 x 1000 (080100)	900 x 900 (090090)	1000 x 1000 (100100)

Glass

LED protection glass and/or light diffusion

0 = transparent glass
1 = semi-trasparent glass (low diffusion - “dome” effect)
2 = opal glass (high diffusion - “dome” effect)

Lens

Note: the angular value represents the angle of emission referring to 50% of the maximum intensity emitted by the LED

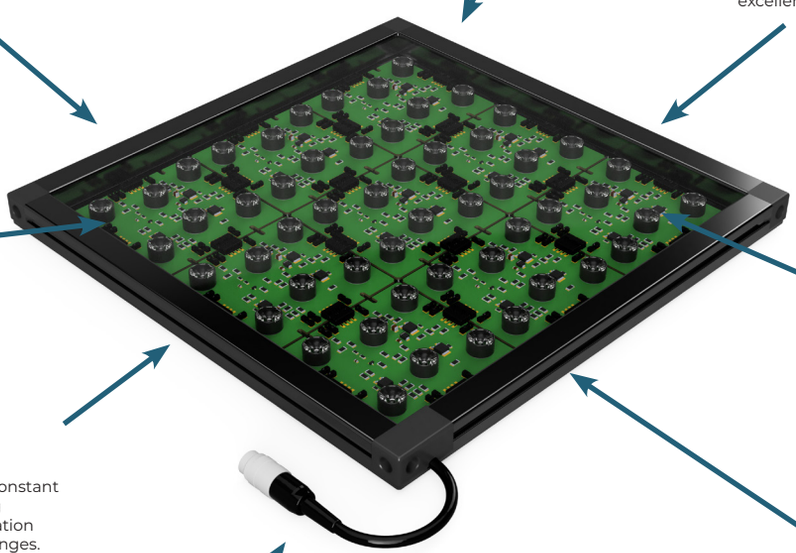
0 = no lens (natural emission LED 120°)
1 = lens 15°
2 = lens 30°
3 = lens 45°

Color

Other LED models on request

WH1 : Neutral White 5000K
WH2 : Warm White 2700K
WH3 : Cold White 6200K
BL1 : Deep Blue 450 nm
BL2 : Standard Blue 465 nm
GR1 : Green 520 nm
RD1 : Red 620 nm
RD2 : Photo Red 650 nm
RD3 : Deep Red 720 nm
IN1 : Infrared 850 nm
IN2 : Infrared 940 nm

Why choose a RODER DL1 series illuminator ?



HTTM© Technology
Use of HTTM technology for high heat dissipation produced by LEDs. A special material layer is used inside the illuminator for contact between the LEDs and the housing.

Profile with side groove
Profile with side fixing groove for easy, fast and flexible attachment to walls or structures

Aluminium enclosure
Black anodised aluminium enclosure. The use of aluminium ensures high heat dissipation from the LEDs and excellent mechanical robustness.

48H-Test certificate
Each illuminator undergoes a 48-hour test cycle and a test certificate is issued with the product. This procedure ensures high quality of the product delivered to the client.

Dome or optical lens on LEDs
The illuminator can be used both in dome mode and with LEDs equipped with a focusing lens

Internal Driver
MCCD© technology maintains constant current across all LEDs, ensuring perfectly homogeneous illumination regardless of supply voltage changes.

Very high efficiency and high intensity LEDs
Use of the latest generation of high-brightness, low-power LEDs. The LEDs used in the DL1 series have a built-in lens, have state-of-the-art features, and are produced by the world's largest LED manufacturer.

Industrial connector
Connector with threaded fastening for easy assembly and quick disconnection in case of maintenance. The cable is fixed through a flexible grommet to ensure a small bending radius.

Reverse polarity protection
The internal circuits are protected against reverse polarity of the supply voltage. Protection takes action in case of incorrect connection of power cables.

Main features common to the DL1 family

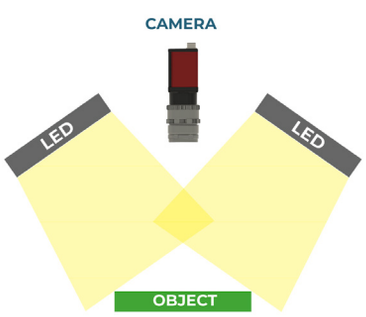
Features	Value
Supply voltage	24 Vdc +/- 10%
IP rating	IP40
Temperature range	0° - 50° C
Electrical connection	M8 3-pin connector with threaded ring nut

The DL5 Series LED **panel illuminators** are precisely engineered to provide expansive, high-intensity lighting for large-scale machine vision systems. Utilizing a highly scalable modular architecture, these panels are constructed from standardized 100×100 mm blocks, allowing seamless customization up to very large formats while maintaining absolute optical uniformity.

To accommodate diverse industrial inspection tasks, the system features interchangeable lens options on its High-Flux LEDs, granting engineers total control over beam concentration. Furthermore, the internal MCCD stabilization technology protects the entire array from power supply fluctuations, ensuring that the luminous output remains perfectly stable during every acquisition cycle.

Mechanically, the DL5 Series is designed for straightforward integration. The heavy-duty aluminium frame prevents bending across large spans and utilizes lateral T-slot grooves for rapid, highly adaptable mounting. Consequently, supported by advanced HTTM thermal management, these panels deliver a durable, reliable, and cost-effective solution for demanding automated production lines.

Typical configuration



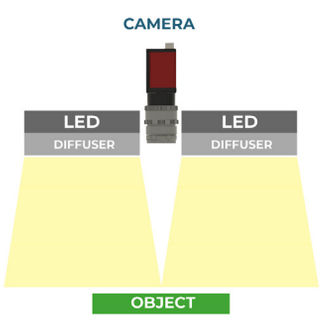
Direct illumination

The DL5 series of illuminators can be used for direct illumination of the object to be inspected. The angle of incidence of the light can be chosen according to the characteristics of the object, the degree of detail to be highlighted or the type of inspection to be carried out.

Low cost backlight

The DL5 series of illuminators can be used to make very economical backlights. By placing a diffuser glass, it is possible to realise economical backlights with high luminosity.

Note:
The diffuser must be positioned at the optimal distance from the illuminator to ensure optimal uniformity. The diffuser is not available as a standard product.

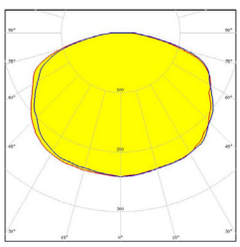


Direct illumination

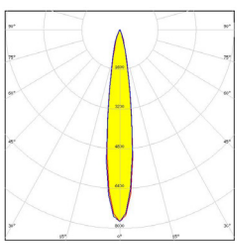
The DL5 series of illuminators can be used for low-angle lighting systems. Installing the illuminators in low-angle mode makes it possible to highlight defects or features that would not be visible or hardly noticeable in other lighting modes

Type of light emission

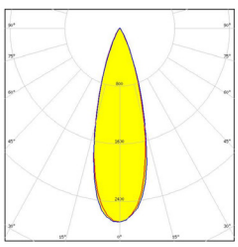
Main characteristics of the DL5 family's light output



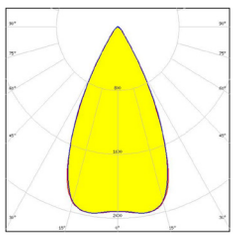
Typical LED output without lens



Typical LED emission with 15° lens



Typical LED emission with 30° lens



Typical LED emission with 45° lens

Models and accessories

LED illuminators model 100 x 100

ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-07-42	PL-DL5-010010-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-07-49	PL-DL5-010010-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-07-50	PL-DL5-010010-RD1-A00000	RED	TRANSPARENT	NO
10-07-51	PL-DL5-010010-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-07-52	PL-DL5-010010-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-07-53	PL-DL5-010010-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-07-54	PL-DL5-010010-RD1-A01000	RED	TRANSPARENT	15°
10-07-55	PL-DL5-010010-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-07-56	PL-DL5-010010-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-07-57	PL-DL5-010010-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-07-58	PL-DL5-010010-RD1-A02000	RED	TRANSPARENT	30°
10-07-59	PL-DL5-010010-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-07-60	PL-DL5-010010-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-09-65	PL-DL5-010010-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-09-66	PL-DL5-010010-RD1-A03000	RED	TRANSPARENT	45°
10-09-67	PL-DL5-010010-IN1-A03000	INFRARED 850	TRANSPARENT	45°

Illuminatore a LED serie DL5 100 x 200

ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-09-68	PL-DL5-010020-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-09-69	PL-DL5-010020-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-09-70	PL-DL5-010020-RD1-A00000	RED	TRANSPARENT	NO
10-09-71	PL-DL5-010020-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-09-72	PL-DL5-010020-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-09-73	PL-DL5-010020-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-09-74	PL-DL5-010020-RD1-A01000	RED	TRANSPARENT	15°
10-09-75	PL-DL5-010020-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-09-76	PL-DL5-010020-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-09-77	PL-DL5-010020-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-09-78	PL-DL5-010020-RD1-A02000	RED	TRANSPARENT	30°
10-09-79	PL-DL5-010020-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-09-80	PL-DL5-010020-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-09-81	PL-DL5-010020-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-09-82	PL-DL5-010020-RD1-A03000	RED	TRANSPARENT	45°
10-09-83	PL-DL5-010020-IN1-A03000	INFRARED 850	TRANSPARENT	45°

*Il prezzo indicato è il prezzo di listino sul quale viene applicato lo sconto a te riservato. Contatta il nostro ufficio commerciale per informazioni e dettagli.

Modelli e accessori

Illuminatore a LED serie DL5 100 x 300

ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-09-84	PL-DL5-010030-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-09-85	PL-DL5-010030-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-09-86	PL-DL5-010030-RD1-A00000	RED	TRANSPARENT	NO
10-09-87	PL-DL5-010030-IN1-A01000	INFRARED 850	TRANSPARENT	NO
10-09-88	PL-DL5-010030-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-09-89	PL-DL5-010030-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-09-90	PL-DL5-010030-RD1-A01000	RED	TRANSPARENT	15°
10-09-91	PL-DL5-010030-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-09-92	PL-DL5-010030-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-09-93	PL-DL5-010030-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-09-94	PL-DL5-010030-RD1-A02000	RED	TRANSPARENT	30°
10-09-95	PL-DL5-010030-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-09-96	PL-DL5-010030-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-09-97	PL-DL5-010030-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-09-98	PL-DL5-010030-RD1-A03000	RED	TRANSPARENT	45°
10-09-99	PL-DL5-010030-IN1-A03000	INFRARED 850	TRANSPARENT	45°

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Illuminatore a LED serie DL5 100 x 400

ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-10-03	PL-DL5-010040-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-10-06	PL-DL5-010040-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-10-07	PL-DL5-010040-RD1-A00000	RED	TRANSPARENT	NO
10-10-16	PL-DL5-010040-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-10-17	PL-DL5-010040-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-10-18	PL-DL5-010040-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-10-19	PL-DL5-010040-RD1-A01000	RED	TRANSPARENT	15°
10-10-20	PL-DL5-010040-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-10-21	PL-DL5-010040-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-10-22	PL-DL5-010040-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-10-23	PL-DL5-010040-RD1-A02000	RED	TRANSPARENT	30°
10-10-24	PL-DL5-010040-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-10-25	PL-DL5-010040-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-10-57	PL-DL5-010040-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-10-58	PL-DL5-010040-RD1-A03000	RED	TRANSPARENT	45°
10-10-59	PL-DL5-010040-IN1-A03000	INFRARED 850	TRANSPARENT	45°

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* La misura massima potrebbe essere teoricamente molto più grande. La precisione ottenibile con il principio di misura per tre punti è influenzato dal rapporto tra diametro misurato e distanza dei tre punti considerati. La dimensione massima consigliata è quella da considerare per un errore massimo di +/- 0.1% di errore sul campo di misura.

Modelli e accessori

Illuminatore a LED serie DL5 100 x 500

ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-10-60	PL-DL5-010050-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-10-61	PL-DL5-010050-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-10-62	PL-DL5-010050-RD1-A00000	RED	TRANSPARENT	NO
10-10-63	PL-DL5-010050-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-10-64	PL-DL5-010050-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-10-65	PL-DL5-010050-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-10-66	PL-DL5-010050-RD1-A01000	RED	TRANSPARENT	15°
10-10-67	PL-DL5-010050-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-10-68	PL-DL5-010050-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-10-69	PL-DL5-010050-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-10-70	PL-DL5-010050-RD1-A02000	RED	TRANSPARENT	30°
10-10-71	PL-DL5-010050-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-10-72	PL-DL5-010050-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-10-73	PL-DL5-010050-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-10-74	PL-DL5-010050-RD1-A03000	RED	TRANSPARENT	45°
10-10-75	PL-DL5-010050-IN1-A03000	INFRARED 850	TRANSPARENT	45°

Illuminatore a LED serie DL5 200 x 200

ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-10-78	PL-DL5-020020-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-10-79	PL-DL5-020020-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-10-80	PL-DL5-020020-RD1-A00000	RED	TRANSPARENT	NO
10-10-81	PL-DL5-020020-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-10-84	PL-DL5-020020-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-10-85	PL-DL5-020020-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-11-02	PL-DL5-020020-RD1-A01000	RED	TRANSPARENT	15°
10-11-03	PL-DL5-020020-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-11-04	PL-DL5-020020-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-11-05	PL-DL5-020020-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-11-60	PL-DL5-020020-RD1-A02000	RED	TRANSPARENT	30°
10-11-61	PL-DL5-020020-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-11-62	PL-DL5-020020-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-11-63	PL-DL5-020020-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-11-64	PL-DL5-020020-RD1-A03000	RED	TRANSPARENT	45°
10-11-65	PL-DL5-020020-IN1-A03000	INFRARED 850	TRANSPARENT	45°

Modelli e accessori

Illuminatore a LED serie DL5 200 x 300

ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-11-66	PL-DL5-020030-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-11-67	PL-DL5-020030-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-11-68	PL-DL5-020030-RD1-A00000	RED	TRANSPARENT	NO
10-11-69	PL-DL5-020030-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-11-70	PL-DL5-020030-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-11-71	PL-DL5-020030-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-11-72	PL-DL5-020030-RD1-A01000	RED	TRANSPARENT	15°
10-11-73	PL-DL5-020030-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-11-74	PL-DL5-020030-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-11-75	PL-DL5-020030-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-11-76	PL-DL5-020030-RD1-A02000	RED	TRANSPARENT	30°
10-11-77	PL-DL5-020030-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-11-78	PL-DL5-020030-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-11-79	PL-DL5-020030-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-11-80	PL-DL5-020030-RD1-A03000	RED	TRANSPARENT	45°
10-11-81	PL-DL5-020030-IN1-A03000	INFRARED 850	TRANSPARENT	45°

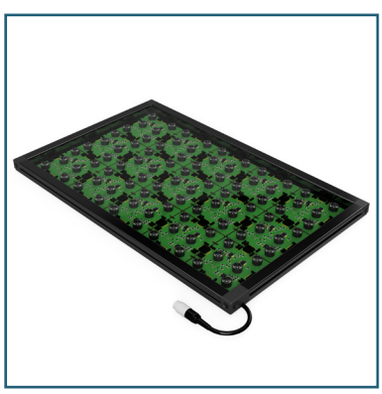
Illuminatore a LED serie DL5 300 x 300

ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-11-82	PL-DL5-030030-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-11-83	PL-DL5-030030-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-11-84	PL-DL5-030030-RD1-A00000	RED	TRANSPARENT	NO
10-11-85	PL-DL5-030030-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-11-86	PL-DL5-030030-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-11-87	PL-DL5-030030-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-11-88	PL-DL5-030030-RD1-A01000	RED	TRANSPARENT	15°
10-11-89	PL-DL5-030030-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-11-90	PL-DL5-030030-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-11-91	PL-DL5-030030-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-11-92	PL-DL5-030030-RD1-A02000	RED	TRANSPARENT	30°
10-11-93	PL-DL5-030030-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-11-94	PL-DL5-030030-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-11-95	PL-DL5-030030-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-11-96	PL-DL5-030030-RD1-A03000	RED	TRANSPARENT	45°
10-11-97	PL-DL5-030030-IN1-A03000	INFRARED 850	TRANSPARENT	45°

Modelli e accessori

Illuminatore a LED serie DL5 300 x 400

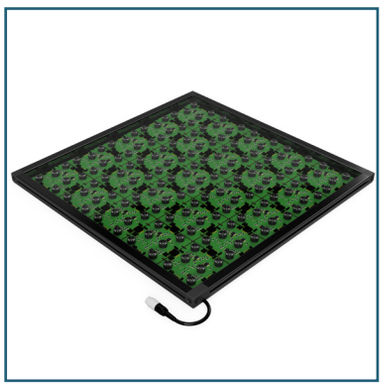
ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-11-98	PL-DL5-030040-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-11-99	PL-DL5-030040-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-12-55	PL-DL5-030040-RD1-A00000	RED	TRANSPARENT	NO
10-12-56	PL-DL5-030040-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-12-57	PL-DL5-030040-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-12-58	PL-DL5-030040-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-12-59	PL-DL5-030040-RD1-A01000	RED	TRANSPARENT	15°
10-12-60	PL-DL5-030040-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-12-61	PL-DL5-030040-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	30°
10-12-62	PL-DL5-030040-BL1-A01000	STANDARD BLU	TRANSPARENT	30°
10-12-63	PL-DL5-030040-RD1-A01000	RED	TRANSPARENT	30°
10-12-64	PL-DL5-030040-IN1-A01000	INFRARED 850	TRANSPARENT	30°
10-12-65	PL-DL5-030040-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	45°
10-12-66	PL-DL5-030040-BL1-A01000	STANDARD BLU	TRANSPARENT	45°
10-12-67	PL-DL5-030040-RD1-A01000	RED	TRANSPARENT	45°
10-12-68	PL-DL5-030040-IN1-A01000	INFRARED 850	TRANSPARENT	45°



Illuminatore a LED serie DL5 300 x 500

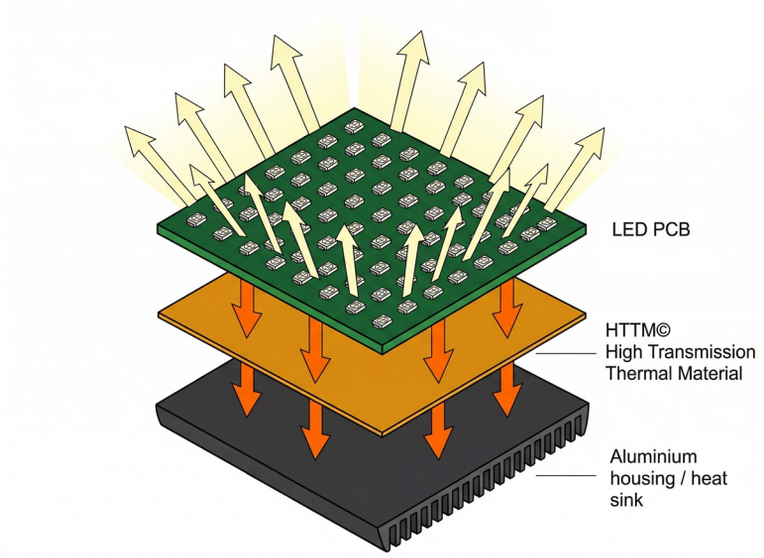
ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-12-69	PL-DL5-030050-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-12-70	PL-DL5-030050-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-12-71	PL-DL5-030050-RD1-A00000	RED	TRANSPARENT	NO
10-12-72	PL-DL5-030050-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-12-73	PL-DL5-030050-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-12-74	PL-DL5-030050-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-12-75	PL-DL5-030050-RD1-A01000	RED	TRANSPARENT	15°
10-12-76	PL-DL5-030050-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-12-77	PL-DL5-030050-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-12-78	PL-DL5-030050-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-12-79	PL-DL5-030050-RD1-A02000	RED	TRANSPARENT	30°
10-12-80	PL-DL5-030050-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-12-81	PL-DL5-030050-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-12-82	PL-DL5-030050-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-12-83	PL-DL5-030050-RD1-A03000	RED	TRANSPARENT	45°
10-12-84	PL-DL5-030050-IN1-A03000	INFRARED 850	TRANSPARENT	45°

Modelli e accessori



Illuminatore a LED serie DL5 500 x 500

ITEM	PRODUCT CODE	COLOR	GLASS	LENTE
10-12-85	PL-DL5-050050-WH1-A00000	NEUTRAL WHITE	TRANSPARENT	NO
10-12-86	PL-DL5-050050-BL1-A00000	STANDARD BLU	TRANSPARENT	NO
10-12-87	PL-DL5-050050-RD1-A00000	RED	TRANSPARENT	NO
10-12-88	PL-DL5-050050-IN1-A00000	INFRARED 850	TRANSPARENT	NO
10-12-89	PL-DL5-050050-WH1-A01000	NEUTRAL WHITE	TRANSPARENT	15°
10-12-90	PL-DL5-050050-BL1-A01000	STANDARD BLU	TRANSPARENT	15°
10-12-91	PL-DL5-050050-RD1-A01000	RED	TRANSPARENT	15°
10-12-92	PL-DL5-050050-IN1-A01000	INFRARED 850	TRANSPARENT	15°
10-12-93	PL-DL5-050050-WH1-A02000	NEUTRAL WHITE	TRANSPARENT	30°
10-12-94	PL-DL5-050050-BL1-A02000	STANDARD BLU	TRANSPARENT	30°
10-12-95	PL-DL5-050050-RD1-A02000	RED	TRANSPARENT	30°
10-12-96	PL-DL5-050050-IN1-A02000	INFRARED 850	TRANSPARENT	30°
10-12-97	PL-DL5-050050-WH1-A03000	NEUTRAL WHITE	TRANSPARENT	45°
10-12-98	PL-DL5-050050-BL1-A03000	STANDARD BLU	TRANSPARENT	45°
10-12-99	PL-DL5-050050-RD1-A03000	RED	TRANSPARENT	45°
10-13-00	PL-DL5-050050-IN1-A03000	INFRARED 850	TRANSPARENT	45°



HTTM© Technology — High Transmission Thermal Material

Thermal management is one of the most critical factors determining the long-term performance of an LED illuminator.

Excessive or uneven junction temperature is the primary cause of luminous flux degradation, chromatic shift, and reduced LED service life in industrial lighting systems.

RODER addresses this challenge with HTTM© technology, a purpose-engineered thermal interface solution integrated into every next-generation illuminator.

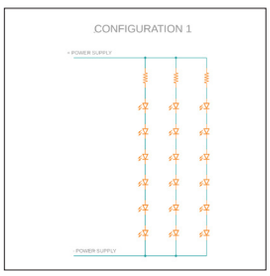
A layer of electrically insulating, high-thermal-conductivity material is precisely interposed between the LED printed circuit board and the aluminium housing.

This material acts as a highly efficient thermal bridge: it prevents any electrical contact between the PCB and the enclosure while channelling the heat generated by both the LED array and the driver electronics directly and uniformly into the aluminium frame, which acts as the primary heat sink.

Compared to conventional air-gap or standard thermal pad solutions, HTTM© achieves a substantially lower and more uniform steady-state LED junction temperature.

The direct consequences are: extended LED service life, stable luminous flux output over tens of thousands of operating hours, and consistent chromatic coordinates throughout the product lifetime — all critical requirements for reliable, long-term photometric calibration in machine vision systems.

Traditional circuit configurations

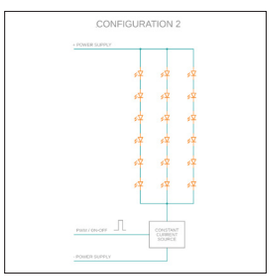


Configuration 1

This basic configuration powers LED columns through current-limiting resistors without active control.

Disadvantages:
- Variations in forward voltage cause visible luminance non-uniformity.
- Lack of thermal compensation leads to temperature-dependent brightness.
- Parasitic capacitance slows switching dynamics.
- No dedicated PWM input; requires external supply modulation.

Machine vision: Low uniformity , current instability and lack of active control prevent reproducible photometric measurements.

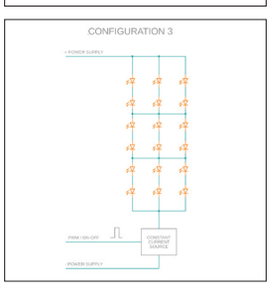


Configuration 2

A single constant current source powers columns in parallel, enabling PWM digital modulation.

Disadvantages:
- Vf variations cause uneven current distribution and lateral luminance gradients.
- Differential aging amplifies Vf mismatch, worsening uniformity over time.
- Lack of per-column balancing limits spatial consistency.

Machine vision: Acceptable for non-critical tasks. Better than Configuration 1 due to PWM and thermal stability, but lacks precision due to non-uniformity.



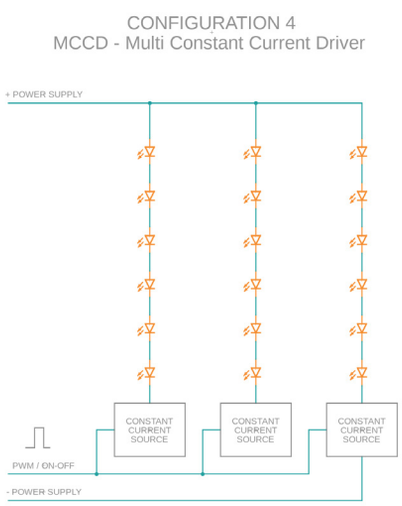
Configuration 3

Configuration 3 is architecturally identical to Configuration 2: a single constant current driver with PWM input feeds the entire matrix with the columns connected in parallel. The same technical considerations apply in their entirety.

In some implementations this variant differs in the number of LEDs per string or the supply voltage, without however resolving the fundamental problem of unbalanced current distribution between columns.

Machine vision assessment: Identical to Configuration 2. Same strengths and same intrinsic limitations of the single-driver architecture.

MCCD - Multi Contant Current Driver by RODER SRL



This is the MCCD architecture implemented by RODER.

Each column of the LED matrix is powered by its own dedicated, independent constant current source. The three sources share a single PWM/ON-OFF input that guarantees simultaneous switching of all columns.

Advantages

- **Independent Column Balancing**: Each driver delivers nominal current regardless of LEDs, eliminating lateral luminance gradients at the source.
- **Spatial Uniformity:** Consistent luminance across the matrix, independent of Vf variability between batches, devices, or over time.
- **Thermal Compensation:** Drivers autonomously offset thermal drift per string, maintaining stable current even under non-uniform heat gradients.
- **Strobe Synchronization:** Shared PWM ensures simultaneous switching, eliminating inter-column jitter—critical for global shutter cameras.
- **Lifetime Stability:** Column-specific compensation for differential LED ageing preserves photometric uniformity throughout the product's life.
- **Calibration Repeatability:** Fixed luminance over temperature and time ensures vision system calibration remains valid without periodic adjustments.

Parameter	Configuration 1 - Resistors	Configuration 2 - Single CC	Configuration 3 -Single CC	Configuration 4 - MCCD RODER
Constant current	No	Yes — global	Yes — global	Yes — per column
Current uniformity	Poor	Moderate	Moderate	Excellent
Spatial uniformity	Low	Good	Good	Excellent
PWM / strobe dynamics	Slow	Excellent	Excellent	Outstanding
Thermal stability	None	Yes — global	Yes — global	Per column
Machine vision suitability	Not suitable	Acceptable	Acceptable	Optimal
Global efficiency	♦ ♢ ♢ ♢ ♢	♦ ♦ ♦ ♢ ♢	♦ ♦ ♦ ♢ ♢	♦ ♦ ♦ ♦ ♦

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