

Spectrum Illumination Lighting

High performance LED lighting
for machine vision

Product brochure



High performance LED lighting and controllers for various applications

Polytec is the Master European distributor for Spectrum Illumination. As a machine vision expert with over 40 years of experience and special expertise in the field of lighting, we know what we are talking about.

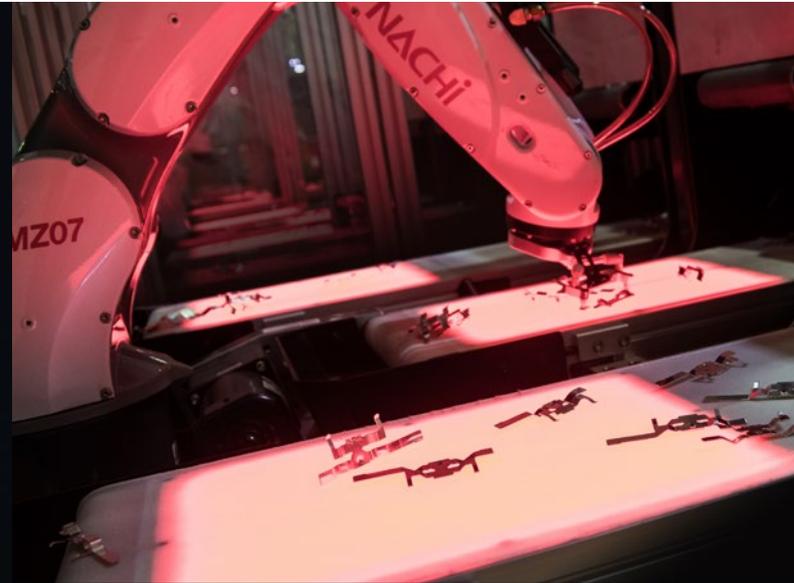


Spectrum Illumination lights are predominantly high-performance LED illuminations. They are used where conventional lighting is no longer sufficient, which is usually suitable for working distances of up to 30 cm.

Different designs cover most applications and are offered in sizes that significantly exceed "normal" dimensions. Dome lights with a diameter of 85 cm or modular line lights with a length of over 4 m speak for themselves. In addition, Spectrum Illumination offers a washdown series of waterproof and food-grade lighting for demanding applications, for example in the food and pharmaceutical sectors.

Customer-specific solutions are a large part of their business. Spectrum commonly works on irregular projects and can often implement them very quickly.

The light heads include versatile LED controllers that allow either pulse or continuous light operation with stepless brightness control. They are intended for cabinet installation. Various models have controllers already integrated in the lighting head.



Pick-and-place robot application in which a very bright custom back light shines through the conveyor belt and thus enables machine vision for the robot.

Spectrum Illumination lights are available in up to 14 different light colors. This provides ideal contrast for every application.

- | | | | | |
|--------------------------|---------------|----------------|----------------|---------------|
| ● White 6500 K | ● A IR 940 nm | ● D Red 660 nm | ● Green 530 nm | ● F UV 395 nm |
| ● N Natural white 5000 K | ● B IR 880 nm | ● E Red 630 nm | ● Cyan 505 nm | ● G UV 365 nm |
| ● W Warm white 3000 K | ● C IR 850 nm | ● Amber 590 nm | ● Blue 470 nm | |

Dome lights

A dome usually generates diffused light for avoiding shadows and to illuminate transparent and reflective objects. Some models can be equipped with up to 4 light colors or channels.



Product	Outer ø	Inner ø	Height	Controller	Light colors*
DLD85	171 mm	87 mm	79 mm	24 V direct	○ (N) (W) (A) (C) (E) (G) (B) 2 color channels max.
DL180	308 mm	180 mm	134 mm	LDM700	○ (N) (W) (A) (C) (E) (G) (B) (F) (G) 4 color channels max.
DLD180	308 mm	180 mm	134 mm	24 V direct	○ (N) (W) (A) (C) (E) (G) (B) (F) (G) 4 color channels max.
MDL7.25	304 mm	184 mm	158 mm	LDM700	○ (N) (W) (A) (C) (E) (G) (B) (F) (G) 1 color channel
MDL12.25	428 mm	311 mm	221 mm	LDM1400	○ (N) (W) (A) (C) (E) (G) (B) (F) (G) 1 color channel
MDLD12.25	428 mm	311 mm	221 mm	24 V direct	○ (N) (W) (A) (C) (E) (G) (B) (F) (G) 1 color channel
MDL18.25	587 mm	467 mm	285 mm	LDM2100	○ (N) (W) (A) (C) (E) (G) (B) (F) (G) 1 color channel
MDL29.25	864 mm	743 mm	435 mm	LDM2800	○ (N) (W) (A) (C) (E) (G) (B) (F) (G) 1 color channel

* explanation of the light color see page 3

Line and spot lights

Line lights

Line lights are used for bright field applications or large working distances and they are preferred for robot applications. The very bright MLL "Monster Light" series consists of a lighting head and a controller with DIN rail adapter for an easy cabinet installation. The E-Series is characterized by a compact design and a built-in-controller.



Product	Length	Controller	Light colors**	Design type	
MLL12	51 mm	LDM350/2	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL14	102 mm	LDM350/2	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL16 MLLD16	152 mm	LDM350/2 bzw. 3 24 V direct	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL111.5 MLLD111.5 HLL111.5	292 mm	LDM700 24 V direct LDM700	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G) MLLD111.5 2 color channels max. ○ (N) (W) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL117.25 MLLD117.25	438 mm	LDM1050 24 V direct	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL123 MLLD123 HLL123*	584 mm	LDM1400 24 V direct LDM1400	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G) ○ (N) (W) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL128.75	730 mm	LDM1750	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL134.5 HLL134.5*	876 mm	LDM2100	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G) ○ (N) (W) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL146*	1168 mm	LDM2800	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL157.5*	1460 mm	LDM3500	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL169*	1753 mm	LDM4200	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL180.5*	2045 mm	LDM4900	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL22	2 rows, 51 mm	LDM700	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL24	2 rows, 152 mm	LDM700	○ (N) (W) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		
MLL26	2 rows, 102 mm	LDM700	○ (N) (W) (A) (C) (E) (G) (B) (R) (Y) (O) (P) (F) (G)		

* also available as back light (HBLL or MBLL), but not as a UV variant
 ** explanation of the light color see page 3



>> MLL44	4 rows, 102 mm	LDM1400	○ (N) (W) (A) (C) (E) (O) (G) (B) (R) (F) (G)	
MLL46	4 rows, 152 mm	LDM2100	○ (N) (W) (A) (C) (E) (O) (G) (B) (R) (F) (G)	
MLL48	4 rows, 204 mm	LDM2800	○ (N) (W) (A) (C) (E) (O) (G) (B) (R) (F) (G)	
EL150	150 mm	24 V direct	○ (A) (C) (E) (O) (G) (B) (R) (F) (G)	
EL300	300 mm	24 V direct	○ (A) (C) (E) (O) (G) (B) (R) (F) (G)	
EL2150	2 rows, 150 mm	24 V direct	○ (A) (C) (E) (O) (G) (B) (R) (F)	
XL300	300 mm	24 V direct	○ (N) (W)	
XL2150	2 rows, 150 mm	24 V direct	○ (N) (W)	

Spot lights

Spot lights are mostly used as direct lights and are suitable for high contrast objects. The bright MSP "Monster Light" series consists of the lighting head and a controller with DIN rail adapter for a simple cabinet installation. The E-Series is characterized by a compact design and the controller integration inside the lighting head. The X-Series spots have the same properties as the E-Series, but they are equipped with even brighter LEDs for white and IR. All spots can be supplied with different lenses and diffusers as required by the individual application.



Product	Ø Lighting area	Controller	Light colors*	Design type
XS40	40 mm	24 V direct	○ (N) (W) (C)	
ES40	40 mm	24 V direct	○ (C) (E) (O) (G) (B) (R) (F) (G)	
MSP1.25	32 mm	LDM350/1	○ (N) (W) (A) (C) (E) (O) (G) (B) (R) (F) (G)	
MSP3.25	83 mm	LDM350/3	○ (C) (E) (O) (G) (B) (R) (F) (G)	
MSP5.5	140 mm	LDM1050	○ (C) (E) (O) (G) (B) (R) (F) (G)	

* explanation of the light color see page 3

Back lights and coaxial lights

Back lights / front lights with camera hole

Images taken with transmitted light are characterized by high contrast and are ideal for determining external dimensions and object contours. Back lights from Spectrum Illumination come in standard sizes from 25 x 100 mm to 305 x 305 mm. Due to the modular structure, individual solutions can be implemented quickly.



Product	Active lighting area	Controller	Light colors**
BL14 EBL14*	25 x 102 mm	24 V direct	○ B E ● ●
BL18 EBL18*	25 x 203 mm	24 V direct	○ B E ● ●
BL22 EBL22* MBL22	51 x 51 mm	24 V direct LDM350/2	○ B E ● ●
BL24 EBL24* MBL24	51 x 102 mm	24 V direct LDM700	○ B E ● ●
BL26 EBL26*	51 x 152 mm	24 V direct	○ B E ● ●
BL210 EBL210*	51 x 254 mm	24 V direct	○ B E ● ●
BL34 EBL34*	76 x 102 mm	24 V direct	○ B E ● ●
BL36 EBL36*	76 x 152 mm	24 V direct	○ B E ● ●
BL38 EBL38*	76 x 203 mm	24 V direct	○ B E ● ●
BL312 EBL312*	76 x 305 mm	24 V direct	○ B E ● ●
BL44 EBL44* MBL44	102 x 102 mm	24 V direct LDM1400	○ B E ● ●
BL46 EBL46* MBL46	102 x 152 mm	24 V direct LDM2100	○ B E ● ●
BL48 EBL48* MBL48	102 x 203 mm	24 V direct LDM2800	○ B E ● ●
BL414 EBL414*	102 x 355 mm	24 V direct	○ B E ● ●



>> BL56 EBL56*	127 x 152 mm	24 V direct	○ B E G D
BL66 EBL66*	152 x 152 mm	24 V direct	○ B E G D
OL66			○ B C E with camera hole
BL68 EBL68*	152 x 203 mm	24 V direct	○ B E G D
BL610 EB610*	152 x 254 mm	24 V direct	○ B E G D
BL612 EB612*	152 x 305 mm	24 V direct	○ B E G D
BL618 EBL618*	152 x 457 mm	24 V direct	○ B E G D
BL88 EBL88*	203 x 203 mm	24 V direct	○ B E G D
BL812 EBL812*	203 x 305 mm	24 V direct	○ B E G D
BL1010 EBL1010*	254 x 254 mm	24 V direct	○ C E G D
EBL1012*	254 x 305 mm	24 V direct	○ C E G D
BL1212 EBL1212*	305 x 305 mm	24 V direct	○ B E G D
OL1212			○ B C E with camera hole
BL824 EBL824	203 x 610 mm	24 V direct	○ B E G D

* EBL very smooth surface without screws and elevations for mounting below conveyors

** explanation of the light color see page 3

Coaxial lights

Diffuse coaxial light ensures uniform lighting on shiny and uneven surfaces. A beam splitter is used to direct the diffuse light onto the field of view. Then, the reflected light is guided through the beam splitter into the camera lens. Since the scattered light is on the same axis as the camera lens, the image of a shiny or uneven surface has no light spots or shadows.



Product	Active lighting area	Controller	Light colors*
MDA2	51 x 51 mm	LDM350/2	○ N W C E O G B D
MDA4	102 x 102 mm	LDM1400	○ N W C E O G B D

* explanation of the light color see page 3

Washdown lights

The Washdown series combines high-performance LED lighting and IP68 protection - both for wet environments and suitable for the food industry. The housing is made of stainless steel and food-safe plastic, the silicone used is FDA-compliant (US-Food and Drug Administration) and the labeling is lasered.



Product	Type	Active lighting area	Controller	Light colors*
WBL28	Area light	51 x 203 mm	24 V direct	○ G D ● ● ● ●
WBL44	Area light	102 x 102 mm	24 V direct	○ G D ● ● ● ●
WBL48	Area light	102 x 203 mm	24 V direct	○ G D ● ● ● ●
WBL812	Area light	203 x 304 mm	24 V direct	○ G D ● ● ● ●
WRL4	Ring light	∅ 102 mm	24 V direct	○ G D ● ● ● ●
WMRL8.5	Ring light	∅ 216 mm	LDM700	○ N W C E ● ● ● ● ● ● ● ●
WMDL7	Dome light	∅ 178 mm	LDM700	○ N W C E ● ● ● ● ● ● ● ●
WMLL16	Line light	152 mm	LDM350/3	○ G E ● ● ● ● ● ● ● ● ● ● ● ●
WMLL111.5	Line light	292 mm	LDM700	○ N C E ● ● ● ● ● ● ● ● ● ● ● ● ● ●
WMLL117.25	Line light	438 mm	LDM1050	○ A C E ● ● ● ● ● ● ● ● ● ● ● ● ● ●
WMLL123	Line light	584 mm	LDM1400	○ N A C E ● ● ● ● ● ● ● ● ● ● ● ● ● ●
WMSP1.25	Spot light	∅ 32 mm	LDM350/1	○ A C E ● ● ● ● ● ● ● ● ● ● ● ● ● ●
WMSP3.25	Spot light	∅ 83 mm	LDM350/3	○ A C E ● ● ● ● ● ● ● ● ● ● ● ● ● ●

* explanation of the light color see page 3

LED controller and accessories

As standard, Spectrum Illumination lights include the lighting head and controller that can be mounted in cabinets using a DIN rail adapter. The supply voltage is 24 V. A switching input allows voltage switching between 5 and 24 V. Controllers with potentiometers, analog and Ethernet control are also available.



Controller series	Features	Output	Measures (W x H x D)
LDM	Standard controller for continuous and switching mode	24 VDC -0.5/+4V	115 x 99 x 23 mm
ALDM	Standard controller for continuous and switching mode, brightness control via 0-10 V DC	24 VDC -0.5/+4V	115 x 99 x 23 mm
VLDM	Standard controller for continuous and switching mode, brightness control by manual potentiometer	24 VDC -0.5/+4V	115 x 99 x 23 mm
RVLDM	Standard controller for continuous and switching mode, ALDM controller with additional 10 V, regulating the brightness via a potentiometer for the 0-10 V input	24 VDC -0.5/+4V	115 x 99 x 23 mm
MBC	Ethernet controller for controlling up to 63 of the above mentioned controllers	24 VDC -0.5/+4V	115 x 99 x 23 mm

Accessories	Features	Types
Lenses	to adapt to different working distances or fields of view	12°, 16°, 23°, 30°, 39°, 50°, wide angle F, R 60°, lines
Diffusors	to adapt to the lighting situation	shower, white, clear, thin film, polarizer
Cables	for adaptation to different installation situations and applications	lengths: 4, 8, 15, 30 m Version: standard, suitable for robots, highly flexible



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