

Warranty
10
YEAR

Compliant
IEC
62471

Compliant
CE
RoHS

Rated
IP
50

Connector
5-PIN
M12

PRODUCT HIGHLIGHTS

- ✓ Built-in driver
- ✓ PNP and NPN strobe input
- ✓ 45mm industrial extrusion for mounting
- ✓ 5-pin M12 quick connect

PRODUCT DESCRIPTION

The MOBL Backlight Series is designed for maximum output. The series works in continuous operation mode or can operate with either an NPN or PNP trigger signal when using on/off input mode. The MOBL Backlight runs on an industry-standard 24V DC. The 1–10V DC analog control line gives the user total control over intensity. Proper heat dissipation is achieved using the side extrusion and the heat sink installed on the bottom of the light. The 45 mm extrusion makes mounting the light easy when using drop-in T-nuts. The MOBL Backlight has a built-in driver. No external driver is required.

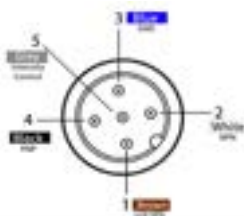
PRODUCT SPECIFICATIONS

Electrical Input	24V DC +/-5%		
On/Off Input	PNP: +4V DC or greater to activate	NPN: GND (<1V DC) to activate	
PNP Line	4 mA @ 4V DC	10 mA @ 12V DC	20 mA @ 24V DC
NPN Line	15 mA @ ground (0V DC)		
Continuous Mode	NPN can be tied to ground OR PNP can be tied to 24 V DC (not both)		
Analog Intensity	The output is adjustable from 10–100% of brightness by a 1–10V DC signal. (Jumpering pin 5 to pin 1 will provide maximum intensity)		
Connection	5-pin M12 connector		
Ambient Temperature	-18°–40° C (0°–104° F)		
IP Rating	IP50		
Compliances	CE, RoHS, IEC 62471		

Standard Light Sizes*	Input Current (Peak)	Input Power (Peak)	Weight
150 mm x 150 mm	1.1 A	26.4 W	~3.08 kg
300 mm x 150 mm	2.2 A	52.8 W	~4.80 kg
300 mm x 300 mm	4.4 A	106 W	-

*Approximate. See website for CAD files with actual dimensions

WIRING CONFIGURATION



Pin layout for light (Male Connector)

Pin	Function	Signal	Wire Color
1	Power In	+24V DC	BROWN
2	NPN	Sinking Signal	WHITE
3	GND	Ground	BLUE
4	PNP	Sourcing Signal	BLACK
5	Intensity Control	1–10V DC	GREY*

*Some cables use green/yellow for pin 5.

For maximum intensity, tie pin 5 to pin 1 at +24 V DC.

For continuous mode, PNP (pin 4) can be tied to +24 V DC (pin 1) **or** NPN (pin 2) can be tied to Ground (pin 3).

OPTIONAL

For maximum intensity, connect pin 5 to pin 1 at +24 V DC.

RESOURCE CORNER

Additional resources, including CAD files, videos, and application examples, are available on our website.

Smart Vision Lights

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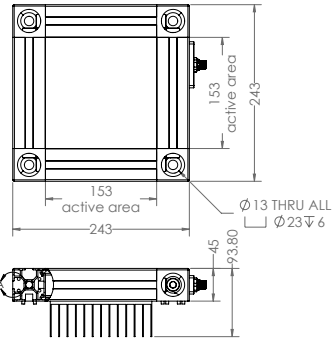
Open: Monday – Friday | 8am–5pm ET



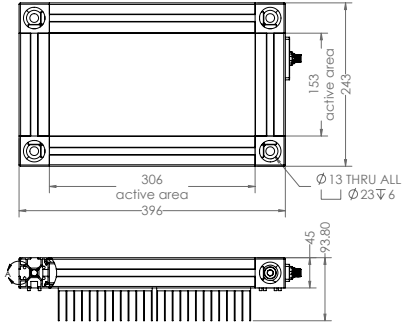
PRODUCT DRAWING

CAD files available on our website.
Dimensions are in mm.

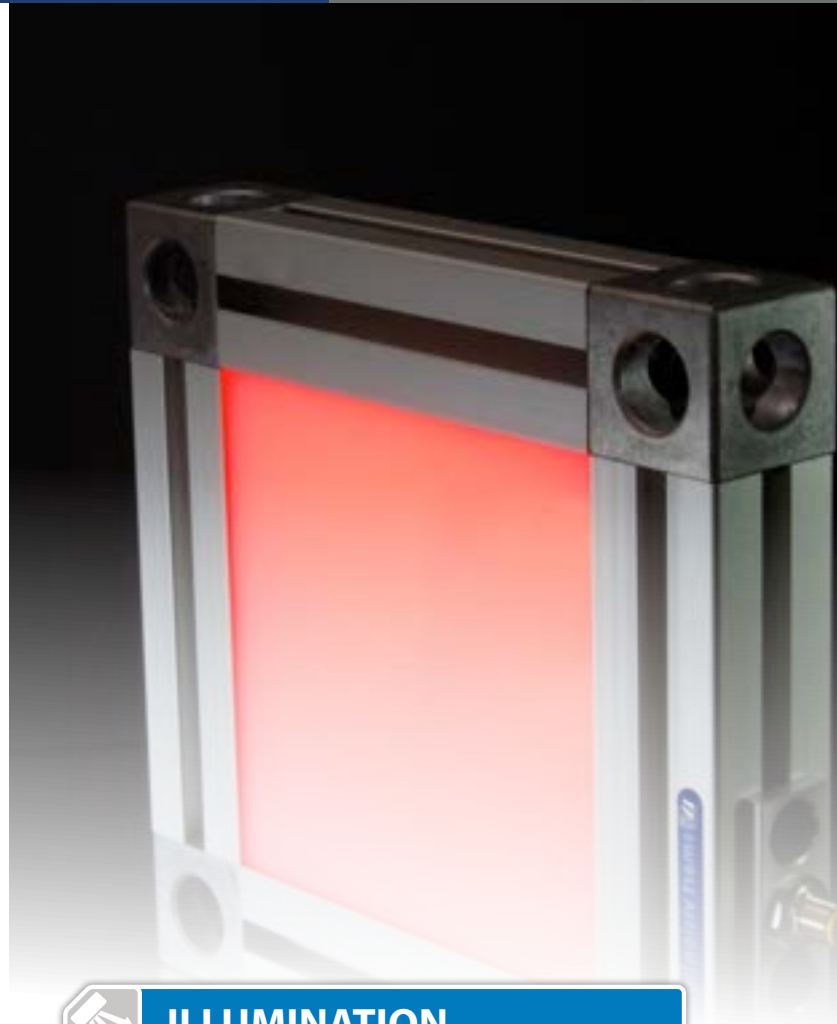
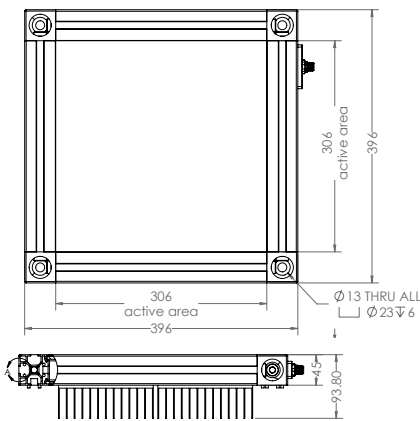
150 mm x 150 mm



300 mm x 150 mm

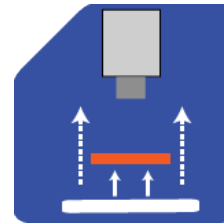


300 mm x 300 mm



ILLUMINATION

MOBL Series of Backlights works best for:



Backlight

EYE SAFETY

According to IEC 62471:2006. Full documentation available upon request.



Notice

Exempt Group: No photobiological hazard to eyes or skin even for continuous, unrestricted use. Applicable for wavelengths 625 and 850.

Caution

Risk Group 1: Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to eyes. Safe for most applications except for prolonged exposure. Applicable for wavelengths 470, 505, 530, and WHI.



PART NUMBER

MOBL – **X** – –

Please contact a representative if ordering Pattern Area Lighting: +1 (231) 722-1199

SIZE (L x W):

150 x 150

300 x 150

450 x 150

Custom sizes upon request

COLOR:



PATTERN AREA LIGHTING™:
Leave blank for no pattern

PATTERN AREA LIGHTING:

TYPE	DARK LINE	LIGHT GAP	GRADIENT
1 - Line	01 - 1 mm	01 - 1 mm	Leave blank for no gradient
2 - Grid	02 - 2 mm	02 - 2 mm	10 - 10%
3 - Checker Board	05 - 5 mm	05 - 5 mm	15 - 15%
4 - Circles	15 - 15 mm	15 - 15 mm	20 - 20%
	20 - 20 mm	20 - 20 mm	25 - 25%
	25 - 25 mm	25 - 25 mm	50 - 50%

Dark Line – Printed dark line size in millimeters
Light Gap – Light gap width in millimeters
Gradient – Percentage of dark line to be gradient

Part Number Examples:

MOBL-150x150-625 MOBL, 150 x 150 mm, 625 nm Red Wavelength

MOBL-150x150-WHI-PAL-LINES MOBL, 150 x 150 mm, White, Pattern Area Light with Gradient Lines

The 5-pin M12 connector is located on the wide side of the light.
Sizes listed are in millimeters.
Additional wavelengths and sizes available upon request.



CUSTOMIZE

Smart Vision Lights can customize a MOBL to the size you need — up to 4800 mm x 1180 mm. When requesting a custom MOBL, include the following: size (length x width) in millimeters, what side the 5-pin M12 connector should be placed on, and desired wavelength (color).

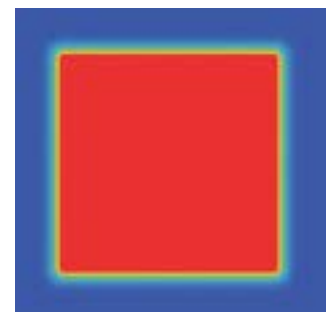
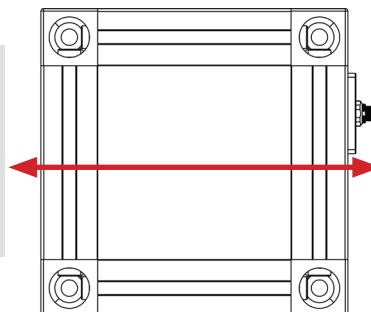


OPTICAL PERFORMANCE

The MOBL offers a very diffuse light pattern.

OPTICAL PERFORMANCE FOR THE MOBL

Rating	Illuminance (Lux)
Average Intensity Rating	70,000
<i>Lux measurement taken at surface of MOBL</i>	

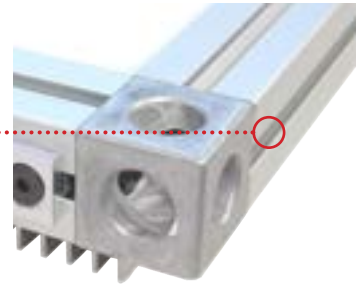


MOUNTING

Smart Vision Lights recommends using **drop-in T-nuts** for mounting a MOBL Backlight. The MOBL extrusion has a Bosch size 10 T-nut channel.

NOTE
Removing cover cubes of light may result in voiding of warranty.

Bosch size 10 T-nut channel

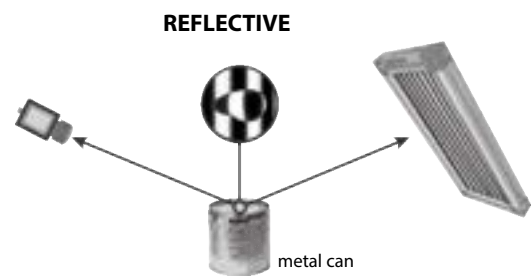
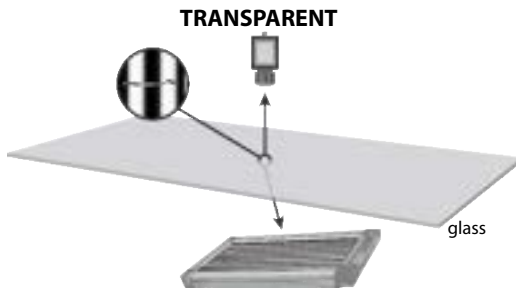


PATTERN AREA LIGHTING

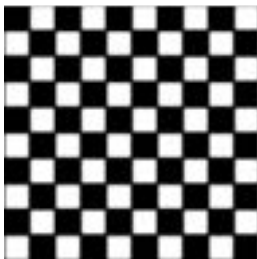
Pattern Area Lighting (PAL) is used for isolating defects on uneven, highly specular, and/or clear surfaces, which can be difficult with standard lighting methods. PAL allows for isolating a defect in a single image acquisition. With PAL, small defects will reflect off the surface at an equal but opposite angle. Distortion of the reflected image can also reveal surface deformations.

How to use PAL

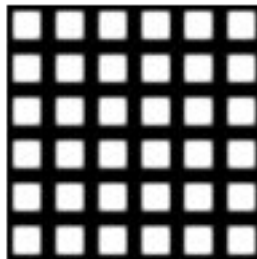
- For backlighting a transparent object, the light is positioned beneath the object.
- For front lighting, position the light where the light pattern will be directed on the surface at an angle.
- A camera is positioned to capture the reflection of the light source.
- The camera lens is adjusted to focus on the surface defect.
- The camera should also image the light source pattern, but the pattern does not need to be in tight focus.
- The depth of field for the lens should be adjusted to include both the light source pattern and the defect in one image.



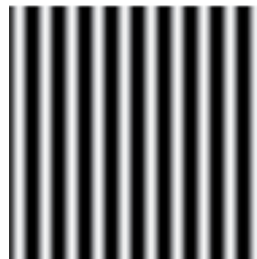
Pattern Area Lighting Examples



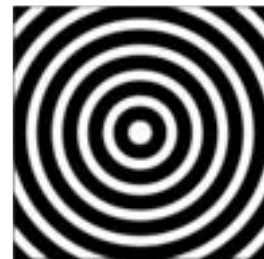
Pattern: Checker Board (PAL-CB)
Part Number:
Size: 50 mm x 50 mm square



Pattern: Grid (PAL-GRID)
Part Number:
Size: 50 mm line width



Pattern: Gradient Lines (PAL-LINES)
Part Number:
Size: 50 mm line width



Pattern: Circles (PAL-CIRC)
Part Number:
Size: 50 mm circle thickness

Customized line and circle sizes available upon request.

NOTE
Smart Vision Lights can customize just about any pattern needed to meet application requirements.



ACCESSORIES

Power Cables



Length	Part Number
5 m	5PM12-5
10 m	5PM12-10
15 m	5PM12-15



GLOSSARY

This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

TERMINOLOGY

OverDrive™ Lights include an integrated high-pulse driver for complete LED light control.

Continuous Operation Lights stay on continuously.

Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.

Built-In Driver The built-in driver allows full function without the need of an external controller.

Camera to Light Connecting the light directly to the camera, without the need for additional controllers or equipment.

Polarizers Filters that reduce reflections on specular surfaces.

Diffuser Used to widen the angle of light emission, reduce reflections, and increase uniformity.

TYPES OF ILLUMINATION



Projector



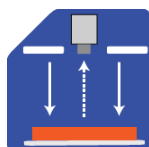
Dark Field



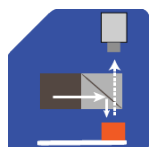
Radial



Bright Field



Direct



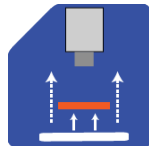
Axial



Line



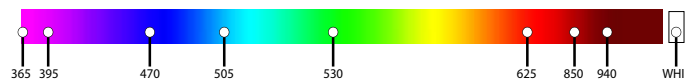
Diffuse Panel



Backlight

COMMON COLOR/WAVELENGTHS LEGEND

Wavelength options range from 365 nm to 1550 nm. Additional wavelengths available for many light families.



See Part Number section for **this light's** available standard wavelengths.



Shortwave infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.

Check Part Number section to see if **this light** is available in SWIR wavelengths.