

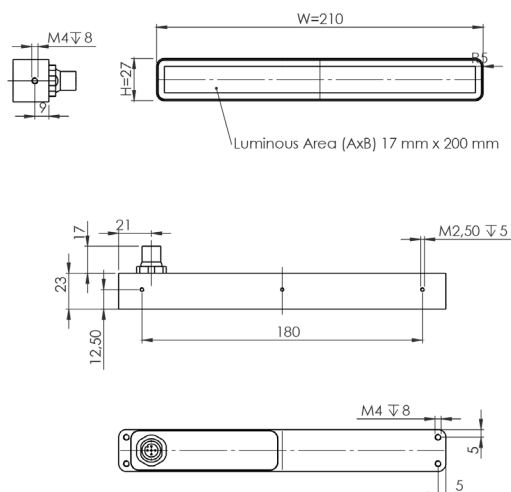
Mechanical Integration

The light is equipped with M4 threaded holes at each end. It can be used to fix the lighting to the specified position. In addition M2.5 threaded holes are provided at the two long sides to mount the foil and filter holder set.

To ensure a long operational lifetime of the light additional heat transfer measures at the mounting positions are highly recommended.

Example: Model High Power MBL-0420

More 2D and 3D drawings can be found online:
www.mbj-imaging.com



Specification	High Power MBL-Series
Operating temperature	10°C to 30°C / 45°C ¹⁾
Certifications	CE, RoHS
Degree of protection	IP54
Humidity	30% to 70%

1) Max. of 30°C is recommended for steady light operation w/o additional heat transfer measurements, for max. 45°C a thermal connection is mandatory. Max. of 45°C is also permissible for flash light operation with a max. 10% duty cycle.

Safety Notes

Before working with this unit, read the warning and application instructions carefully and completely before operating the device.



1. The device is designed for indoor use only.
2. **Light** – Due to the risk of flash burn of the eyes it is not recommended to look directly into the light source. The lighting must be switched off before installation and/or maintenance. The device must not be used when a failure may cause a personal injury.
3. **Heat** – In case of insufficient heat dissipation or when running the light in flash mode with a too high duty cycle, the surface temperature may exceed 60 °C. Keep off flammable materials at any time.
4. **Electricity** – The housing is electrically isolated from the ground of the power supply. Exceeding the permissible input voltage U_{in} or $U_{LED(+)}$ can lead to the destruction of the device or to a significant shortening of the lifetime of the LEDs in the device.
5. **Usage** – Please prevent mechanical stress to the light surface during operation. This will lead to an inhomogeneous light emission.
6. **Cleaning** – The light emission surface has to be cleaned with a standard glass cleaner and a soft cleaning cloth. Do not use other material for cleaning as it will damage the device.

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Operating Manual Technical Data

High Power Barlights



Model Sizes in Series

The light is available in the following sizes ¹⁾

High Power MBL-0210	High Power MBL-0220	High Power MBL-0230
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1) Size definition: High Power MBL-0220 refers to a barlight with a luminous area of 17 mm x 200 mm.

Possible LED Colors

LED	Abbr. ¹⁾	Peak Wavelength ²⁾
White	-WT	5000 K, min. CRI70
Red	-RD	near 634 nm
Infrared	-IR	near 850 nm

1) Color option will be added to the model name after the size information.

High Power WBL-0420-RD refers to a backlight with 634 nm red light.

2) This is an approximated value. The exact value also depends on LED temperature and LED current.

Electrical Connection

The lighting is equipped with an 5 pin M12x1 connector.



Pin	Color ¹⁾	Standard (-s)	Direct (-x) ²⁾
1	brown	24 VDC	LED (+)
2	white	Dim	LED (+)
3	blue	Trigger	LED (-)
4	black	Ground	LED (-)
5	green- yellow	not used	not used

- 1) Wire color of MBJ lighting cable
- 2) Connection to 24VDC without external LED controller may destroy the unit

Additional Information:

Pin 3 (Trigger) is an 'active high' input signal with 5...24V=ON and 0...1V=OFF, it is a high resistance current sink with 0.2 mA for 5V and 5 mA for 24V
Pin 2 (DIM) is used as brightness control and operation mode switch, it is a high resistance current sink with 0.2 mA for 5V and 1 mA for 24V.

For the connection it is recommended to use the MBJ lighting cable with a maximum length of 10 m.

Integrated Controller (-s)

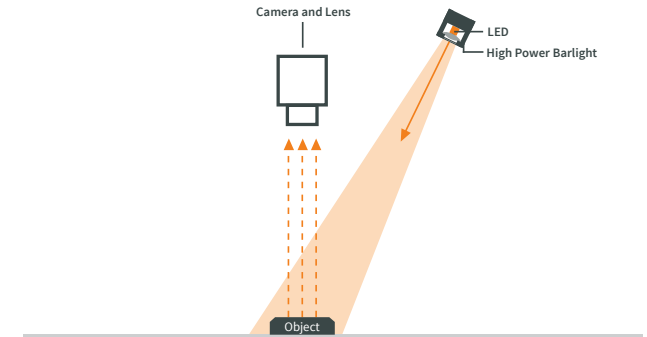
Supported operation modes with the integrated LED controller

Pin 2 (Dim)	Operation mode
24V	steady light ¹⁾
1...10V	steady light with brightness control ²⁾
24V	triggered light
GND	triggered flash light with max. 20 ms and up-to 100% more light intensity ³⁾

- 1) Pin 3 (Trigger) needs permanent 24V to activate steady light mode.
- 2) PWM with 3.8 kHz clock is used, recommended minimal camera exposure is 5 ms.
- 3) Latency between trigger and LED light ON is about max. 30µs, the maximum recommended clock speed is 1 kHz, the maximum recommended duty cycle is 25% and the minimum recommended flash time is 100µs.

Specification	HP MBL-0210	HP MBL-0220	HP MBL-0230
Optical parameter			
Luminous area (AxB) or (ID - OD)	17 mm x 100 mm	17 mm x 200 mm	17 mm x 300 mm
Light emission	Rectangular or ring shaped light field with direct fired LED and 20° focussing beam		
Recommended use	Commonly used as incident light for light intense applications or long distance object inspection, e.g. for barcode reading at narrow spaces		
Recommended light working distance	250 mm - 800 mm	250 mm - 900 mm	250 mm - 1000 mm
Electrical parameter			
Available interfaces	-s with integrated LED Controller and 4 operation modes; -x with direct LED access (external LED control is required)		
U _{in} for -s Version	24 VDC +/- 5%		
ULed(+) range for -x version ²⁾	WT: 17 ... 20 VDC; RD: 12 ... 15 VDC; IR: 9 ... 12 VDC		
Typical Power (-s version)			
Steady light operation (white / red / IR) ³⁾	6 W / 4 W / 3 W	12 W / 9 W / 7 W	18 W / 13 W / 10 W
During ON time at flashed light operation ⁴⁾	16 W / 11 W / 8 W	32 W / 24 W / 19 W	48 W / 35 W / 27 W
Recommended LED current (-x version)			
Steady light (100% duty cycle)	300 mA	600 mA	900 mA
Flash light (50% duty cycle, <500 ms pulse)	600 mA	1200mA	1800mA
Flash light (25% duty cycle, <50 ms pulse)	900 mA	1800mA	2700mA
Flash light (10% duty cycle, <5 ms pulse)	1200 mA	2400 mA	3600mA
General parameter			
Dimension (H x W x D)	27 mm x 110 mm x 23 mm	27 mm x 210 mm x 23 mm	27 mm x 310 mm x 23 mm
Weight	125 g	250 g	375 g
Material	Anodized aluminum housing with PMMA light cover		
Connector	M12x1 socket, 5 pin, male (pinning details on the next page)		
Accessories	For cable, foil holder brackets, light manipulation foils and external LED controller: please check www.mbj-imaging.com		

- 1) Values are approximate with a +/- 7% tolerance
- 2) Lower voltage value refers to steady light, higher voltage value refers to flash light, please see max. allowed current in the rows below.
- 3) Power for Blue / Yellow is comparable to White, Power for Green is approx. 1,2 times higher
- 4) Triggered flash light with max. 20 ms and up to 100% more light intensity, calculated for White.



Application Samples for (-s) controller

