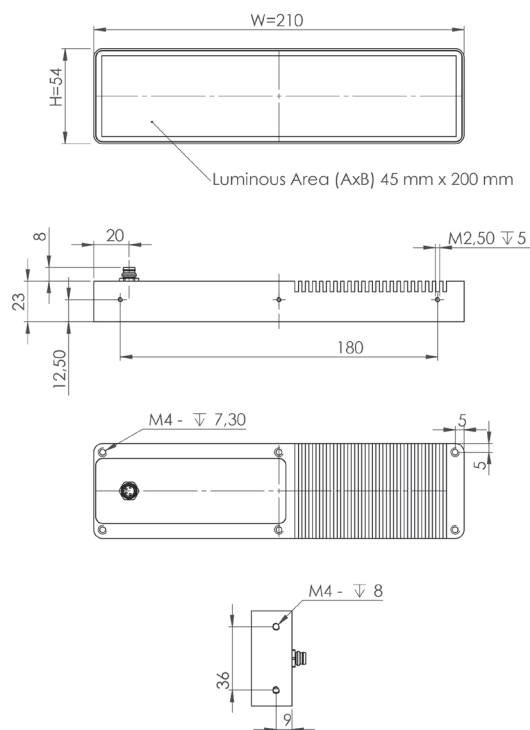


Mechanical Integration

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 live time of the light additional heat transfer measures at the mounting positions are highly recommended.

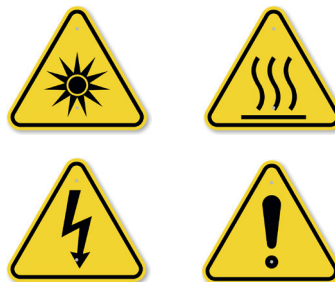
Example: Model WBL-0420



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

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 inhomogenous 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.

Manual WBL BarLight Series: Revision 03 - 28 April 2022

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Operating Manual
Technical Data

Wide Barlight Series



Model Sizes in Series

The illumination is available in the following sizes ¹⁾

WBL-0410	WBL-0420	WBL-0430	WBL-0440
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¹⁾ size definition: WBL-0420 refers to a light field of 45mm x 200mm

Possible LED Colors

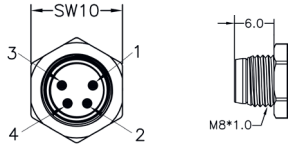
LED	Abbr. ¹⁾	Peak Wavelength ²⁾
White	-WT	5000K, CRI80
Red	-RD	near 625nm
Infrared	-IR	near 850nm
Green	-GN	near 525nm
Blue	-BE	near 465nm
Yellow	-YE	near 580nm

¹⁾ Color option will be added to the model name after the size information. SBL-0120-IR refers to a Barlight with 850nm infrared 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 4 pin M8x1 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 (-)

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 0.2mA for 5V and 5mA for 24V

Pin 2 (DIM) is used as brightness control and operation mode switch, it is a high resistance current sink with 0.2mA for 5V and 1mA for 24V.

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

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. 20ms and up-to 100% more light intensity ³⁾

1) Pin 3 (Trigger) needs permanent 24V to activate steady light mode.

2) PWM with 3.8kHz clock is used, recommended minimal camera exposure is 5ms.

3) Latency between trigger and LED light ON is about 20...30µs, the maximum recommended clock speed is 1 kHz, the maximum recommended duty cycle is 25% and the minimum recommended flash time is 100µs.

Application Samples for (-s) controller

Steady light

Steady light with brightness control

Triggered light with NPN sinking output (inverted strobe signal, open collector)

Flashed light with PNP sourcing

Specification	WBL-0410	WBL-0420	WBL-0430	WBL-0440
Optical parameter				
Luminous area (A x B)	45mm x 100mm	45mm x 200mm	45mm x 300mm	45mm x 400mm
Light emission	Rectangular light field with direct fired LED			
Recommended use	Commonly used as incident light for larger objects with various mounting positions, e.g. for print inspection			
Luminous Flux of white LEDs ³⁾	1380lm	2760lm	4140lm	5520lm
Radiant Power of red LEDs ³⁾	4060mW	8120mW	12180mW	16240mW
Radiant Power of IR LEDs ³⁾	1950mW	3910mW	5860mW	7820mW
Electrical parameter				
Available interfaces	-s with integrated LED Controller and 4 operation modes; -x with direct LED access (external LED control is required)			
Uin for -s Version	24V DC +/- 5%			
ULed(+) range for -x version ²⁾	WT / BE / YE: 17 ... 20 VDC; GN: 20 ... 23 VDC; RD: 12 ... 15 VDC; IR: 9 ... 12 VDC			
Typical Power (-s version)				
Steady light operation (white / red / IR) ³⁾	9W / 7W / 5W	17W / 13W / 9W	26W / 18W / 14W	33W / 27W / 18W
During ON time at flashed light operation ⁴⁾	18W	44W	56W	74W
Recommended LED current (-x version)				
Steady light (100% duty cycle)	450mA (675mA for IR)	900mA (1350mA for IR)	1350mA (2025mA for IR)	1800mA (2700mA for IR)
Flash light (50% duty cycle, 500ms pulse)	900mA	1800mA	2700mA	3600mA
Flash light (25% duty cycle, 50ms pulse)	1350mA	2700mA	4050mA	5400mA
General parameter				
Dimension (H x W x D)	54mm x 110mm x 23mm	54mm x 210mm x 23mm	54mm x 310mm x 23mm	54mm x 410mm x 23mm
Weight	200g	380g	560g	830g
Material	Black anodized aluminum housing with PMMA light cover			
Connector	M8x1 socket, 4 pin, male (for pinning details refer to chart "Electrical Connection")			
Operating temperature	10°C to 30°C			
Certifications	CE, RoHS			
Degree of protection	IP54			
Humidity	30% to 70%			
Recommended light working distance	10mm - 300mm	10mm - 400mm	10mm - 500mm	10mm - 600mm
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 row 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. 20ms and up to 100% more light intensity.

Distribution Partner:



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