MBJ SBL-0110 LED Bar Light User Manual

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MBJ SBL-0110 LED Bar Light

Product Information

The product is a bright series LED light manufactured by MBJImaging GmbH. The light is equipped with M4

threaded holes at each end that can be used to fix the lighting to the specified position.M2.5 threaded holes are provided at the two long sides to mount the foil and filter holder set. The light is available in six different sizes ranging from SBL-0110 to SBL-0150, each with a different luminous area. The light emits white, red, infrared, green, blue, and yellow colors. For electrical connection, the lighting is equipped with a 4-pin M8x1 connector with pin 1 (brown) being the standard for 24 VDC LED (+), pin 2 (white) being used for dimming and operation mode switch, pin 3 (blue) being the trigger for LED (-), and pin 4 (black) being the ground for LED (-). The light has an operating temperature of 30% to 70% humidity and is protected against the ingress of solids and water in accordance with the selected protection class and applicable standards. The degree of protection is IP54 or IP67 depending on the model chosen. The device is designed for indoor use only.

Product Usage Instructions

1. Read the warning and application instructions carefully and completely before operating the device.
2. Ensure that the light is mounted securely using the M4 threaded holes at each end.
3. If using a foil and filter holder set, mount it on the two long sides using the M2.5 threaded holes.
4. To ensure a long lifespan, additional heat transfer measurements at the holding positions are highly recommended.
5. Use the 4-pin M8x1 connector for electrical connection and connect the pins according to the standard or direct wiring instructions provided in the manual.
6. Use the recommended MBJ lighting cable for the connection and ensure that the cable length does not exceed 10m.
7. Do not exceed the permissible input voltage Uin or ULED(+) as it can lead to the destruction of the device or to a significant shortening of the lifetime of the LEDs in the device.
8. Clean the light-emission surface with a standard glass cleaner and a soft cleaning cloth. Do not use other materials for cleaning as it will damage the device.

Model Sizes in Series

The light is available in the following sizes 1)		
SBL-0110	SBL-0115	SBL-0120
SBL-0130	SBL-0140	SBL-0150

1. Size definition: SBL-0120 refers to a luminous area of 10 mm x 200 mm.

Possible LED Colors

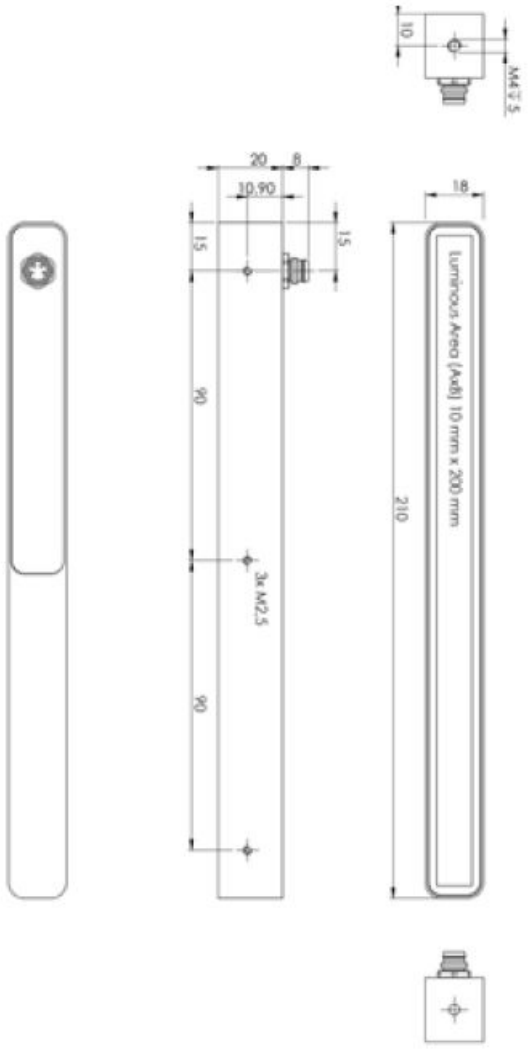
LED	**Abbr.1)**	**Peak Wavelength2)**
White	-WT	5000 K, CRI80
Red	-RD	near 625 nm
Infrared	-IR	near 850 nm
Green	-GN	near 525 nm
Blue	-BE	near 465 nm
Yellow	-YE	near 580 nm

1. Color option will be added to the model name after the size information. SBL-0120-IR refers to a barlight with 850 nm infrared light.
2. This is an approximated value. The exact value also depends on LED temperature and LED current.

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 live time additional heat transfer measurements at the holding positions are highly recommended.

Example: Model SBL-0120 More 2D and 3D drawings can be found online: www.mbj-imaging.com



Specification	Barlight
Operating temperature	10°C to 30°C / 45°C1)
Certifications	CE, RoHS
Degree of protection	IP54 or IP672)
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.

2. MBJ LED lights are protected against the ingress of solids and water in accordance with the selected protection class and applicable standards. Permanent protection against liquids containing solvents, such as cleaning agents, machine emulsions or other lubricants, cannot be guaranteed. IP is only valid with a connected cable (MBJ cable recommended).

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 tempera-ture 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 Uin or ULED(+) 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 a inhomogenious light emission.
6. **Cleaning** – The light emission surface has to be cleaned with a stan-dard glass cleaner and a soft cleaning cloth. Do not use other material for cleaning as it will damage the device.

03198.06 Manual MBJ Barlight SBL-Series, März 2023

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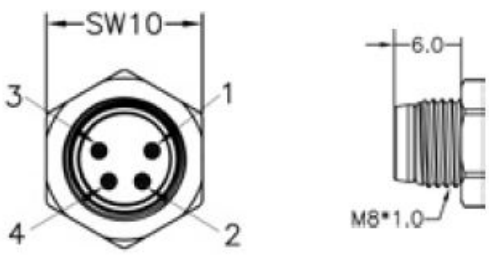
Electrical Connection
The lighting is equipped with an 4 pin M8x1 connector.



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 24 VDC without external LED controller may destroy the unit

Additional Information:
Pin3 (Trigger) is an ‘active high’ input signal with 5…24 V=ON and 0…1 V=OFF, it is a high resistance current sink with 0.2 mA for 5 V and 5 mA for 24 V Pin2 (DIM) is used as brightness control and operation mode switch, it is a high resistance current sink with 0.2 mA for 5 V and 1 mA for 24 V. 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
24 V	steady light 1)
1…10V	steady light with brightness control 2)
24 V	triggered light
GND	triggered flash light with max. 20 ms and up-to 100 % more light intensity 3)

1. Pin 3 (Trigger) needs permanent 24 V 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 20…30 µs, the maximum recommended clock speed is 1 kHz, the maximum recommended duty cycle is 25 % and the minimum recommended flash time is 100 µs

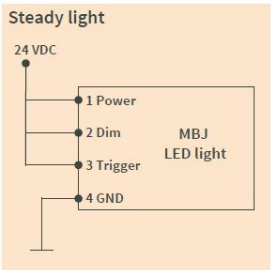
Specification	SBL-0110 / SBL-0110-IP	SBL-0115 / SBL-0115-IP	SBL-0120 / SBL-0120-IP	SBL-0130 / SBL-0130-IP	SBL-0140 / SBL-0140-IP	SBL-0150 / SBL-0150-IP
Optical parameter						
Luminous area (A x B)	10 mm x 100 mm	10 mm x 165 mm	10 mm x 200 mm	10 mm x 300 mm	10 mm x 400 mm	10 mm x 500 mm
Light emission	barlight with direct light emission, additional foils for light polarisation, collimation and diffusion are available as accessories					
Recommended use	used in various applications for bright field as well as dark field lighting					
Recommended light working distance	10 mm – 150 mm	10 mm – 200 mm	10 mm – 200 mm	10 mm – 250 mm	10 mm – 250 mm	10 mm – 300 mm

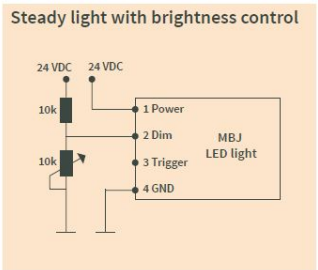
Luminous Flux of white LEDs1)	460 lm	765 lm	920 lm	1380 lm	1840 lm	2300 lm
Radiant Power of red L EDs 1)	1350 mW	2250 mW	2700 mW	4060 mW	5410 mW	6760 mW
Radiant Power of IR L EDs 1)	650 mW	1080 mW	1300 mW	1950 mW	2600 mW	3250 mW
Electrical parameter						
Available interfaces	**-s** with integrated LED Controller and 4 o peration modes;			**-x** with direct LED access (external LED c ontrol is required)		
Uin for -s Version	24 VDC +/- 5 %					
ULed(+) range for -x ve rsion 2)	**WT** / **BE** / **YE**: 17 … 20 VDC; **GN:** 20 … 23 VDC; **RD**: 12 … 15 VDC; **IR**: 9 … 12 VDC					
Typical Power (-s ver sion)						
Steady light operation (white / red / IR)3)	3 W / 3 W / 2 W	6 W / 4 W / 3 W	6 W / 5 W / 4 W	9 W / 7 W / 5 W	11 W / 9 W / 6 W	14 W / 11 W / 8 W
During ON time at flas hed light operation4)	8 W	13 W	15 W	18 W	25 W	31 W
Recommended LED c urrent (-x version)						
Steady light (100 % dut y cycle)	150 mA (225 mA for IR)	250 mA (300 mA for IR)	300 mA (450 mA for IR)	450 mA (600 mA for IR)	600 mA (900 mA for IR)	750 mA (1125 mA fo r IR)
Flash light (50 % duty cycle, < 500 ms pulse)	300 mA (225 mA for IR)	500 mA (300 mA for IR)	600 mA (450 mA for IR)	900 mA (600 mA for IR)	1200 mA (900 mA for IR)	1500 mA (1125 mA fo r IR)
Flash light (25 % duty cycle, < 50 ms pulse)	450 mA (225 mA for IR)	750 mA (300 mA for IR)	900 mA (450 mA for IR)	1350 mA (600 mA for IR)	1800 mA (900 mA for IR)	2250 mA (1125 mA fo r IR)
Flash light (10 % duty cycle, < 5 ms pulse)	600 mA (450 mA for IR)	1000 mA (600 mA for IR)	1200 mA (900 mA for IR)	1800 mA (1200 mA fo r IR)	2400 mA (1800 mA fo r IR)	3000 mA (2250 mA fo r IR)
General parameter						
Dimension (H x W x D)	18 mm x 11 0 mm x 20 mm	18 mm x 17 5 mm x 20 mm	18 mm x 21 0 mm x 20 mm	18 mm x 31 0 mm x 20 mm	18 mm x 41 0 mm x 20 mm	18 mm x 51 0 mm x 20 mm
Weight	90 g	120 g	150 g	230 g	300 g	370 g

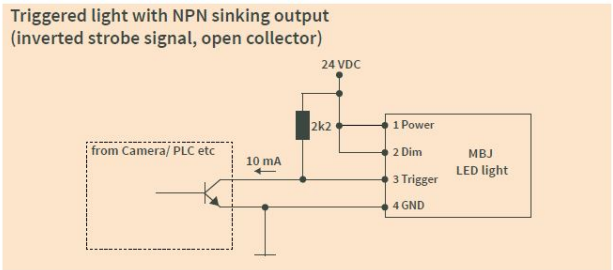
Material	Black anodized aluminum housing with PMMA light cover
Connector	M8x1 socket, 4 pin, male (for pinning details refer to chart “Electrical Connection”)
Accessories	For cable, foil holder brackets, light manipulation foils and external LED controller: ple ase check www.mbj-imaging.com

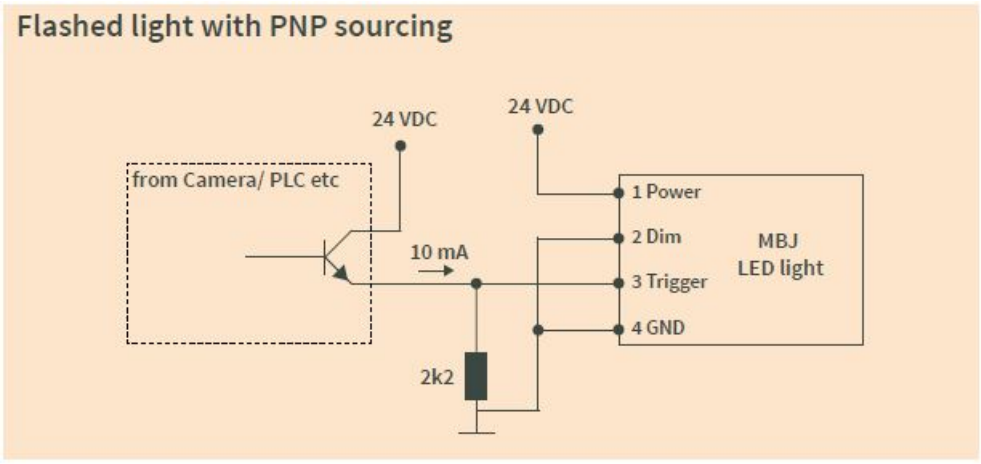
1. Values are approximate with a +/- 7 % tolerance.
2. Lower voltage value refers to steady light, higher voltage value refers to flash light, please see max. allowed current in the rows below.
3. Power for Blue / Yellow is comparable to White, Power for Green is approx. 1,2 times higher.
4. Triggered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

Application Samples for (-s) controller









Documents / Resources

	[MBJ SBL-0110 LED Bar Light](#) [pdf] User Manual SBL-0110, SBL-0115, SBL-0120, SBL-0130, SBL-0140, SBL-0150, SBL-0110 LED Bar Light, SB L-0110, LED Bar Light, Bar Light, Light

References

- imaging.com is for sale | www.brandforce.com
- MBJ - LED Beleuchtungen für industrielle Bildverarbeitung