

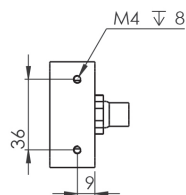
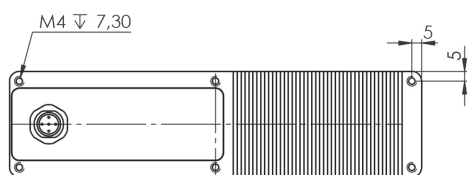
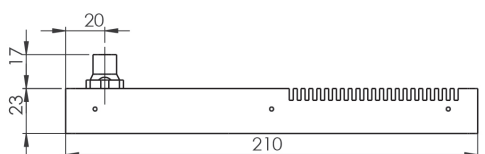
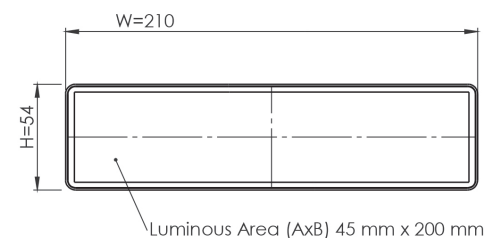
## Mechanical Integration

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.

Spot: The spot is equipped with 1x M8 and 3x M4 threaded holes at one side to fix the lighting to a specified position.

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

### Example: Model High Power WBL-0420



More 2D and 3D drawings can be found online:  
[www.mbj-imaging.com](http://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 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.

Manual HighPower Series: Revision 05 - 28 April 2022

### MBJ Imaging GmbH

Jochim-Klindt-Straße 7  
 22926 Ahrensburg, Germany  
 +49 4102 778 90 31  
 sales@mbj-imaging.com  
[www.mbj-imaging.com](http://www.mbj-imaging.com)

## High Power Series



### Model Sizes in Series

The illumination is available in the following sizes <sup>1)</sup>

High Power WBL-0410	High Power SRL-10	High Power SL-Narrow
High Power WBL-0420	High Power SRL-12	High Power SL-Wide
High Power WBL-0430		

1) Size definition: High Power WBL-0420 refers to a wide bar with a light field of 45mm x 200mm, High Power SRL-12 refers to a ring light with a outside light field diameter of 121mm, Narrow/Wide refers to the light beam opening angle.

### Possible LED Colors

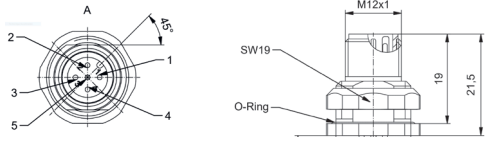
LED	Abbr. <sup>1)</sup>	Peak Wavelength <sup>2)</sup>
White	-WT	5000K, min. CRI70
Red	-RD	near 634nm
Infrared	-IR	near 850nm

1) Color option will be added to the model name after the size information. High Power WBL-0420-RD refers to a backlight with 634nm 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 <sup>1)</sup>	Standard (-s)	Direct (-x) <sup>2)</sup>
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 0.2mA 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 <sup>1)</sup>
1...10V	steady light with brightness control <sup>2)</sup>
24V	triggered light
GND	triggered flash light with max. 20ms and up-to 100% more light intensity <sup>3)</sup>

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.

Specification	HP WBL-0410	HP WBL-0420	HP WBL-0430	HP SRL-10	HP SRL-12	HP SL-Narrow	HP SL-Wide
<b>Optical parameter</b>							
Luminous area (A x B) or (ID <sup>2</sup> /OD)	45mm x 100mm	45mm x 200mm	45mm x 300mm	67mm - 101mm	87mm - 121mm		
Beam Angle FWHM						13°	26°
Light emission	Rectangular or ring shaped light field with direct fired LED and 20° focussing beam					Spot light with direct light emission and different beam angles	
Recommended use	Commonly used as incident light for long distance objects, e.g. for barcode reading at narrow spaces					Used in various applications for bright field with long distance or small FOV size	
Luminous Flux of white LEDs <sup>1)</sup>	1690lm	3390lm	5080lm	1690lm	2260lm	818lm	818lm
Radiant Power of red LEDs <sup>1)</sup>	590mW	1180mW	1760mW	590mW	780mW	348mW	360mW
Radiant Power of IR LEDs <sup>1)</sup>	2810mW	5630mW	8440mW	2810mW	3750mW	2532mW	2622mW
<b>Electrical parameter</b>							
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 <sup>2)</sup>	WT: 17 ... 20 VDC; RD: 12 ... 15 VDC; IR: 9 ... 12 VDC					WT: 12.0... 13.5 VDC; RD: 9.5 ... 11 VDC; IR: 12..13.5 VDC	
<b>Typical Power (-s version)</b>							
Steady light operation (white / red / IR) <sup>3)</sup>	11W / 8W / 6W	23W / 16W / 12W	32W / 26W / 18W	11W / 8W / 6W	16W / 12W / 9W	9W / 6W / 9W	9W / 6W / 9W
During ON time at flashed light operation <sup>4)</sup>	25W	49W	74W	30W	44W	20W	20W
<b>Recommended LED current (-x version)</b>							
Steady light (100% duty cycle)	600mA (900mA for IR)	1200mA (1800mA for IR)	1800mA (2250mA for IR)	600mA (900mA for IR)	900mA (1200mA for IR)	600mA (600mA for IR)	600mA (600mA for IR)
Flash light (50% duty cycle, 500ms pulse)	1200mA	2400mA	3600mA	1200mA	1800mA	900mA	
Flash light (25% duty cycle, 50ms pulse)	1800mA	3600mA	5400mA	1800mA	2700mA	1200mA	1200mA
<b>General parameter</b>							
Dimension (H x W x D)	54mm x 110mm x 23mm	54mm x 210mm x 23mm	54mm x 310mm x 23mm	110mm x 121mm x 14mm	130mm x 141mm x 14mm	56mm x 46mm x 46mm	56mm x 46mm x 46mm
Weight	250g	450g	650g	225g	350g	200g	200g
Material	Anodized aluminum housing with PMMA light cover						
Connector	M12x1 socket, 5 pin, male (pinning details on the next page)						
Operating temperature	10°C to 30°C						
Certifications	CE, RoHS						
Degree of protection	IP54						
Humidity	30% to 70%						
Recommended light working distance	100mm - 700mm	100mm - 900mm	150mm - 1000mm	250mm - 700mm	250mm - 750mm	100mm - 700mm	50mm - 500mm
<b>Accessories</b>	For cable, foil holder brackets, light manipulation foils and external LED controller: please check <a href="http://www.mbj-imaging.com">www.mbj-imaging.com</a>						

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.

## 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