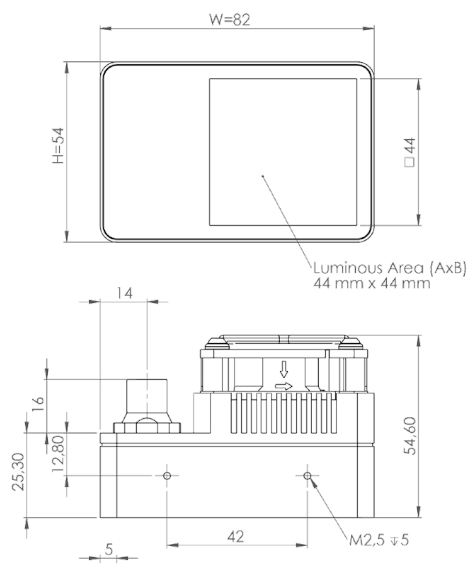


Mechanical Integration

The light is equipped with 2x M4 threaded holes and 1x ¼" threaded hole for various mounting options. They can be used to fix the lighting to the specified position.

Example: Model Cooled Power Spotlight SL-0404

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



Specification	Cooled Power Spotlight
Operating temperature	10°C to 30°C / 45°C ¹⁾
Certifications	CE, RoHS
Degree of protection	IP20
Humidity	30% to 70 %

1) Maximum of 30°C is recommended for steady light operation w/o additional heat transfer measurements. For max. 45°C a good 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.

Have the illuminators commissioned only in compliance with the specified protective measures. It is essential that you comply with the permissible ambient conditions.



- The device is designed for indoor use only.**
- 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.
- 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 get hot. Do not touch the product during operation or immediately after it is turned off. Keep off flammable materials at any time and allow for sufficient heat dissipation.
- 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.
- Usage** – Please prevent mechanical stress to the light surface during operation. This will lead to an inhomogeneous light emission.
- 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.
- Installation** – The service life of the LED can be maximized by avoiding heat build-up. To achieve this, the lighting should be installed with a good thermal connection. Allow for sufficient air circulation for the active cooling system.

04360.00 Manual MBJ Cooled Power Spotlight, July 2024

MBJ Imaging GmbH

Jochim-Klindt-Straße 7 +49 4102 778 90 - 31
22926 Ahrensburg, Germany sales@mbj-imaging.com
www.mbj-imaging.com



Operating Manual
Technical Data

Cooled Power Spotlight Series



Models and Sizes in Series

The light is available in the following models and sizes¹⁾

Cooled Power Spotlight SL-0404

1) Size definition: Cooled Power Spotlight SL-0404 refers to a spotlight with a luminous area of 44 mm x 44 mm.

Possible LED Colors

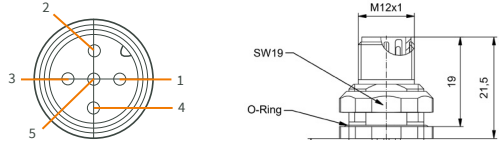
LED	Abbr. ¹⁾	Peak Wavelength ²⁾
White	-WT	5000 K, min. CRI70
Red	-RD	near 634 nm
Infrared	-IR	near 850 nm

1) Color option will be added to the model name after the size information. Cooled Power Spotlight SL-0404-RD refers to a Cooled Power Spotlight 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. For the connection it is recommended to use the MBJ lighting cable with a maximum length of 10m.
- 2) Connection to 24VDC without external LED controller may destroy the unit

Integrated Controller (-s)

Supported operation modes with the integrated LED controller

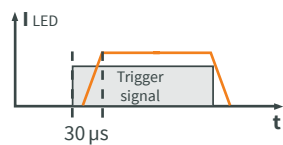
Pin	Steady light	Brightness control (Dim)	Triggered Light	Flash light
1	24VDC	24VDC	24VDC	24VDC
2	24VDC	1...10V	24VDC	GND
3	24VDC	24VDC	Trigger	Trigger
4		GND		
5		not used		

1. Steady light



- Current is fixed depending on the respective lighting model.

3. Trigger



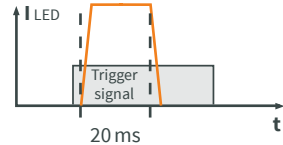
Trigger (Pin 3) it is a high resistance current sink with 0.2 mA for 5 V and 5 mA for 24 V
 High = 5...24 V=ON
 Low = 0...1 V=OFF

2. Brightness control



Dim (Pin 2) is used as brightness control and operation mode switch. It's a high resistance current sink with 0.2 mA for 5 V and 1 mA for 24 V.
 PWM frequency: 3.8 kHz
 Min. exposure time: 5 ms

4. Flash light



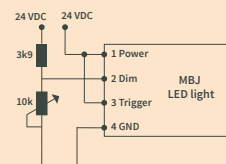
Triggered flash light with overdrive current and time-out for LED protection.
 Max. flash time: 20 ms
 Min. flash time: 100 µs
 Latency (trigger -> LED ON): max. 30 µs
 Trigger: 1 kHz
 Max. duty cycle: 25 %

Specification	Cooled Power Spotlight SL-0404
Optical parameter	
Luminous area (AxB) or (ID - OD)	44 mm x 44 mm
Light emission	Rectangular light field with direct light emission and 20° focussing beam angle.
Recommended use	Actively air cooled Power Spotlight commonly used for applications with need for intense lighting.
Recommended light working distance	200 mm - 1.000 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 %
U _{LED(s)} range for -x version ¹⁾	WT: 13 ... 16 VDC; RD: 9 ... 12 VDC; IR: 12 ... 15 VDC
Typical Power (-s version)	
Steady light operation (white / red / IR)	42 W / 34 W / 40 W
During ON time at flashed light operation ²⁾	76 W
Recommended LED current (-x version)	
Steady light (100 % duty cycle)	3000 mA
Flash light (25% duty cycle, < 50 ms pulse)	6000 mA
Flash light (10% duty cycle, < 10 µs pulse)	8000 mA
General parameter	
Dimension (H x W x D)	54 x 82 x 54 (w/out connector)
Weight	300 g
Material	Anodized aluminum housing with PMMA light cover
Connector	M12x1 socket, 5 pin, male (For pinning details please refer to "electrical connection")
Accessories	For cable and external LED controller: please check www.mbj-imaging.com

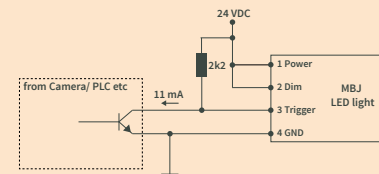
- 1) Lower voltage value refers to steady light, higher voltage value refers to flash light, please see max. allowed current in the rows below.
- 2) Triggered flash light with max. 20ms and up to 100% more light intensity, calculated for white.

Application Samples for (-s) controller

Steady light with brightness control



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



Flashed light with PNP sourcing

