

# Spot lighting

## VOS-IL-F238W-10



- Uniform illumination of flat, matte and reflective surfaces
- Direct mounting of the spotlighting on the sensor
- Intelligent lighting control with integrated flash controller
- Opening angle of the light cone 10°

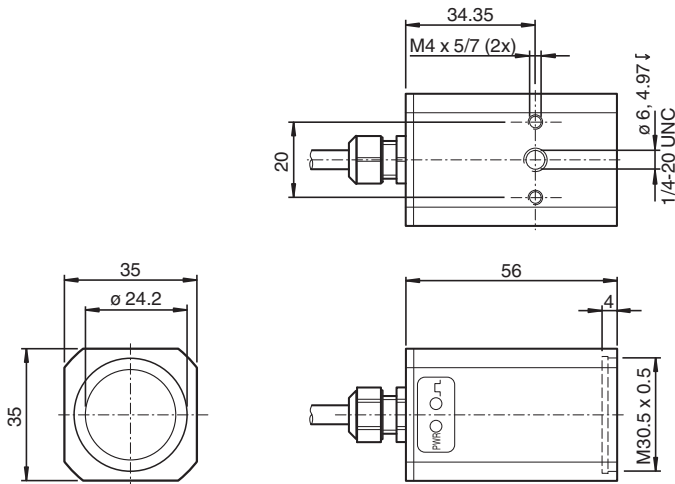
Opening angle of the light beam: 10°, white light, 1 high-power LED, light field size: dia. 24.2 mm, integrated flash controller



### Function

Spot lighting is used to illuminate characteristic properties of test objects with a high level of brightness, evenness, and precision. Spot lighting can be used in flash operation or continuous light operation. The opening angle of the light cone can be focused or widened depending on the mounting distance by using the integrated lenses.

### Dimensions



### Technical Data

General specifications	
Light area dimensions	Ø 24.2 mm
Light source	1 high-power LED
LED color	White light
Color temperature	5300 K
Light direction	Directed with 10° ancillary lenses
Irradiance	206 W/m <sup>2</sup> at 0.2 m operating distance
Operating mode	Pulse / flash mode
Indicators/operating means	
Operation indicator	LED green: supply
Function indicator	LED green: Trigger
Electrical specifications	

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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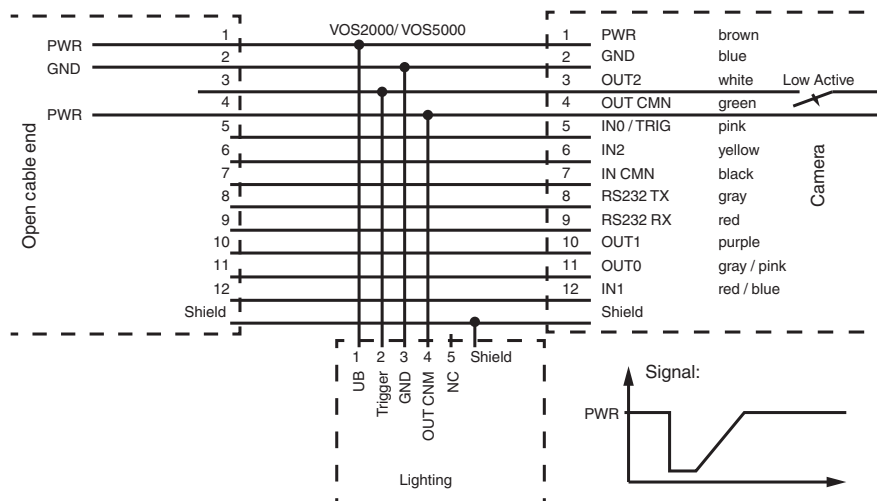
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**Technical Data**

Operating voltage	U <sub>B</sub>	21 ... 30 V DC
Current consumption		0.1 A at 24 V DC (average) / 0.2 A ( max. pulsed )
Flash duration		0.01 ... 10 ms VOS2000 0.08 ... 10 ms VOS5000 0.18 ... 10 ms
<b>Input/Output</b>		
Input/output type		Flank-triggered / falling edge
0 Level		0 ... 8 V
1 Level		10 V ... U <sub>B</sub>
<b>Conformity</b>		
Photobiological safety		risk group 2 according IEC 62471
<b>Approvals and certificates</b>		
CE conformity		CE
<b>Ambient conditions</b>		
Ambient temperature		5 ... 45 °C (41 ... 113 °F) , no moisture condensation
Storage temperature		-20 ... 85 °C (-4 ... 185 °F)
Relative humidity		90 % non-condensing
<b>Mechanical specifications</b>		
Housing length		35 mm
Housing width		35 mm
Housing height		56 mm
Degree of protection		IP65
Connection		cable PUR , M12 connector, 5 pin , A-coded , 230 mm
<b>Material</b>		
Housing		anodized aluminum I PMMA
Installation		Mounting bracket
Mass		approx. 200 g

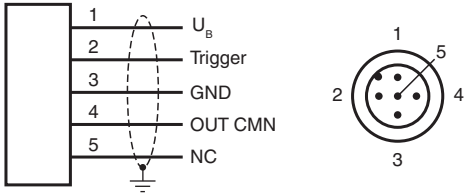
**Connection**



**NOTE:** With trigger parameterization by means of software, the electrical status of the trigger is output to the outside at GPO2 (OUT2). Isolation recommended.

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**Connection Assignment**

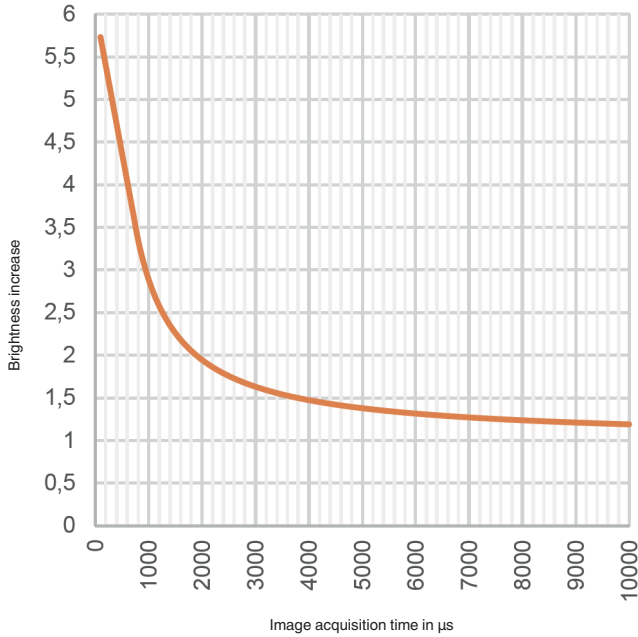


**Operation**

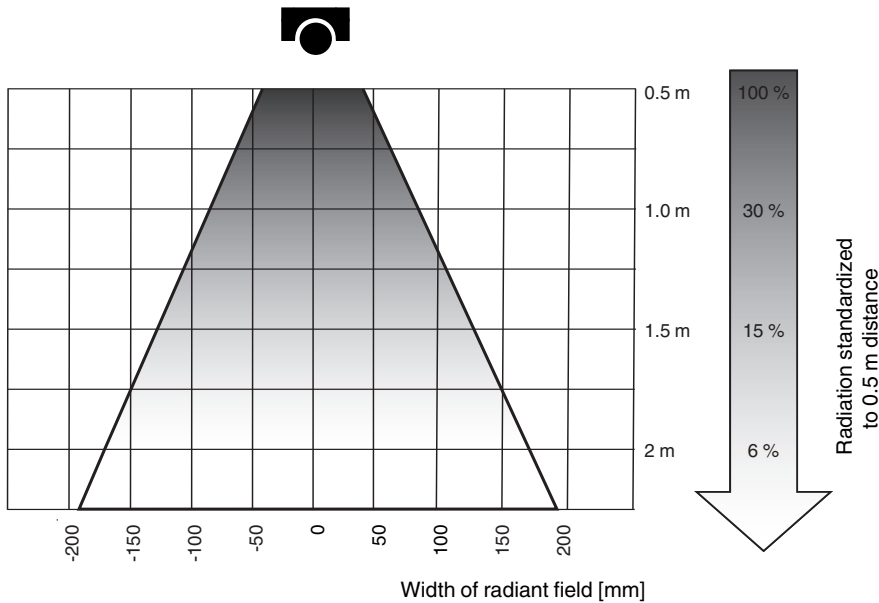
**Increase in brightness from continuous operation to flash operation**

The integrated controller with power electronics enables both flash operation and continuous operation. During flash operation, the brightness can be increased for a defined image capture time.

Brightness increase as a function of image acquisition time



**Characteristic Curve**



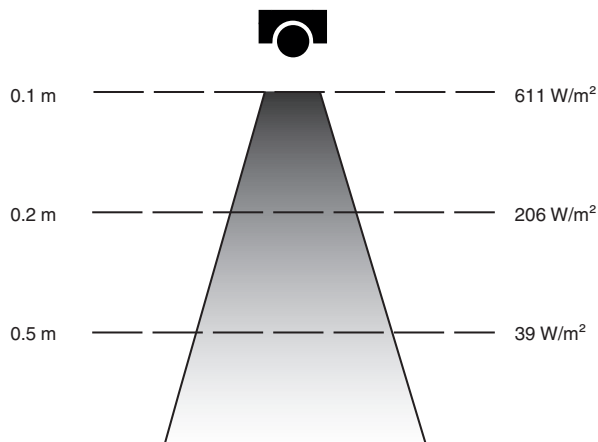
**■ Radiant field**  
Radiation < 50 % standardized to center axis

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

## Characteristic Curve

### Irradiance



## Accessories

	<b>VOS-IL-MH03</b>	Mounting bracket for attaching VOS spot lighting to VOS2000 and VOS5000 sensors
	<b>V19S-0,15M-PUR/V15-T-V19-VOS</b>	Y connection cable M12 socket straight A-coded 12-pin to M12 plug 12-pin / M12 socket 5-pin straight A-coded, PUR cable black, shielded
	<b>V1-G-BK2M-PUR-U/ABG-V1-G</b>	Cordset M12 socket straight to M12 plug straight A-coded, 4-pin, PUR cable black, shielded, UL-approved, drag chain suitable

## Additional Information

### Information on:

- Intended use
- Notes on operation
- Fault repair
- Care and servicing
- Disposal

### CAUTION: Photobiological safety—visible light

The lighting emits optical radiation in the wavelength range between 400 nm and 750 nm, which is visible to the human eye. This can cause irritation, damage, or glare to the eye and skin. Using additional optical accessories (e.g. lenses, interchangeable frames/discs) may change the risk group.

### CAUTION: Hot housing surfaces

High ambient temperatures and insufficient convection make housing surfaces hot. These can cause burns if touched. Do not touch the lighting during operation. Keep at least 20 mm between the lighting and thermally insulating surfaces, or mount the lighting on a thermally conductive surface.

### Intended Use

VOS system lighting are exclusively intended as components for Machine Vision systems, that are used for quality control as well as process control and optimisation in industrial installations.

Use the lighting in enclosed rooms only.

### Notes on Operation

#### Commissioning

- Lightings should be put into operation by trained and qualified personnel only; installation must be in compliance with the specified protective measures. Ensure that the ambient conditions comply with regulations.
- For optimal heat dissipation, mount the lightings over as wide an area as possible on thermally conductive machine elements.
- Keep cooling fins clear to ensure adequate convection.

Software settings of the lighting control sensor:

1. Open the "Setup connections" menu of the sensor. (NOTE: The menu cannot be selected until you have configured a job in the sensor.)
2. In the "Digital I/O setup" operating menu, set output 2 (Out2) of the VOS camera to the "Strobe" output function to generate the trigger signal.  
Setzen Sie im Bedienmenü "Setup der digitalen I/O" Ausgang 2 (Out2) der VOS-Kamera auf die Ausgangsfunktion "Strobe" zur Generierung des Triggersignals.
3. Then configure the duration of the pulse length in the "Sensor setup" operating menu.

### Status LEDs

The lightings have two status LEDs on the side. The lightings only lights up when both status LEDs are lit or flashing.

- The green status LED indicates that the operating voltage is correct.
- The second green status LED flashes when there is a trigger signal on the ring light.

### Decrease in LED brightness due to age

The brightness of LEDs decreases over time due to age. The lightings are designed and manufactured so that, during full load operation under the permissible ambient conditions, the following operating hours are achieved or exceeded without the decreasing intensity of the lighting by more than 30 % compared to the intensity on delivery:

21,000+ h for high-power LED spot lighting in the ultraviolet wavelength range.

Ageing is significantly affected by the installation conditions in the machine, the ambient temperature, and the operating mode of the lighting. Switching or flashing can significantly reduce the decrease in brightness of the LEDs and consequently the brightness of the lighting.

### Fault Repair

Fault	Cause/LED status	Remedy
The lighting does not light up.	Insufficient power supply / PWR status LED (left) does not light up	Check that the lighting is connected as detailed on the datasheet and the corresponding operating voltage is set. If you are using a power supply with current limitation, increase the allowable current.
	Trigger signal status LED (right) does not light up	Please check the electrical connections and the software settings.
	Trigger signal status LED (right) lights up	Please check the software settings.

### Care and Servicing

The lightings do not generally require any maintenance. However, if the outer plastic surfaces or housing parts need cleaning, please observe the following:

- Never use acetone, alcohol, or other solvents to clean glass surfaces.
- Use a soft, lint-free cloth moistened with soapy water or a standard spectacles cleaning cloth to clean the plastic surfaces and housing parts.

### Disposal

Dispose of the lightings at a designated electrical and electronic equipment collection facility.