

Spot lighting

VOS-IL-F238W-26



- 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 26°

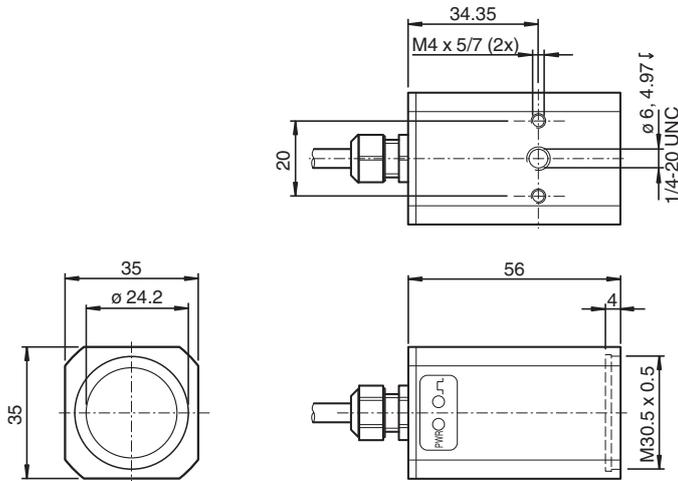
Opening angle of the light beam: 26°, white light, 1 high-power LED, light field size: dia. 24.2 mm, integrated flash controller



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 26° ancillary lenses |
| Irradiance | 80 W/m ² 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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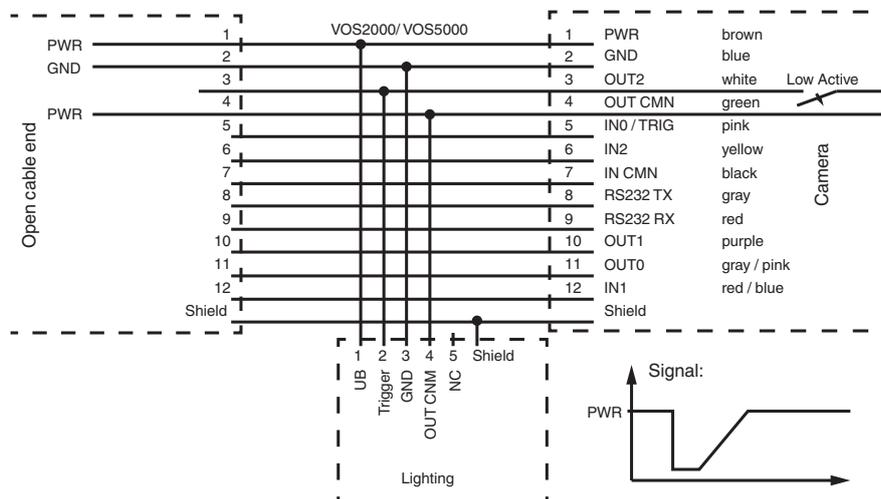
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Technical Data

| | | |
|-----------------------------------|-------|--|
| Operating voltage | U_B | 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 |
| Input/Output | | |
| Input/output type | | Flank-triggered / falling edge |
| 0 Level | | 0 ... 8 V |
| 1 Level | | 10 V ... U_B |
| Conformity | | |
| Photobiological safety | | risk group 2 according IEC 62471 |
| Approvals and certificates | | |
| CE conformity | | CE |
| Ambient conditions | | |
| Ambient temperature | | 5 ... 45 °C (41 ... 113 °F) , no moisture condensation |
| Storage temperature | | -20 ... 85 °C (-4 ... 185 °F) |
| Relative humidity | | 90 % non-condensing |
| Mechanical specifications | | |
| 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 |
| Material | | |
| Housing | | anodized aluminum I PMMA |
| Installation | | Mounting bracket |
| Mass | | approx. 200 g |

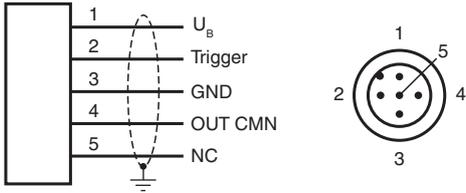
Connection



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

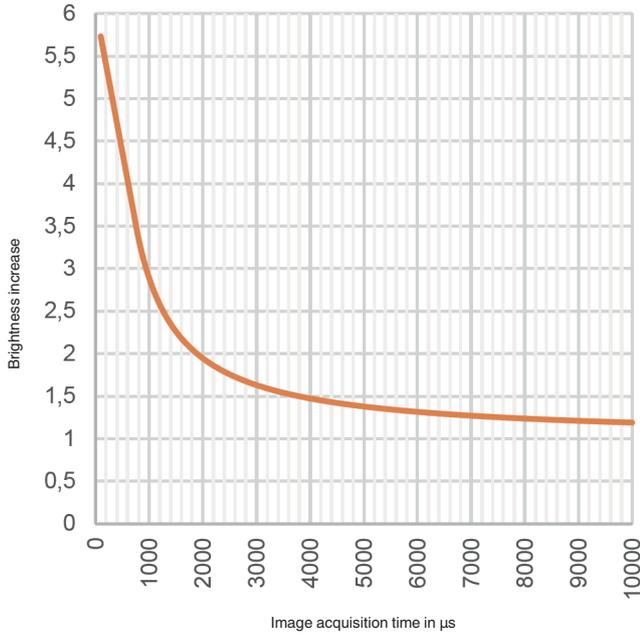


Operation

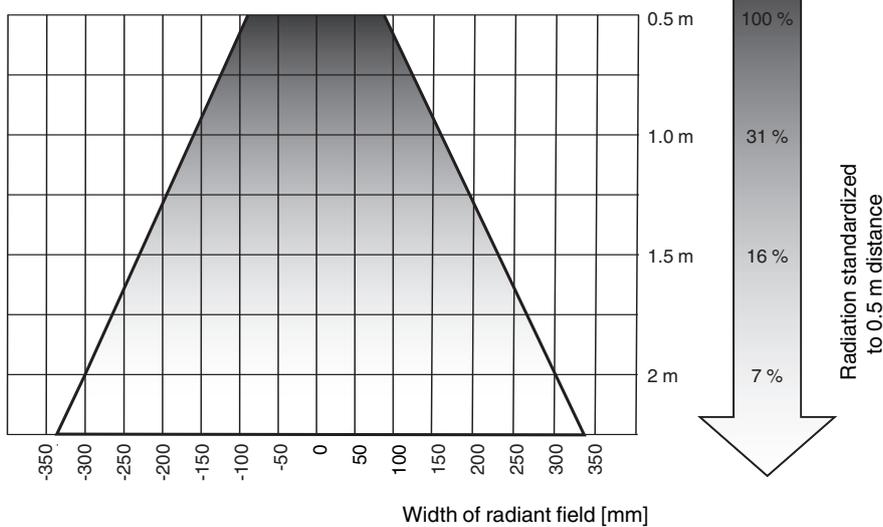
Increase in brightness from continuous operation to flash operation

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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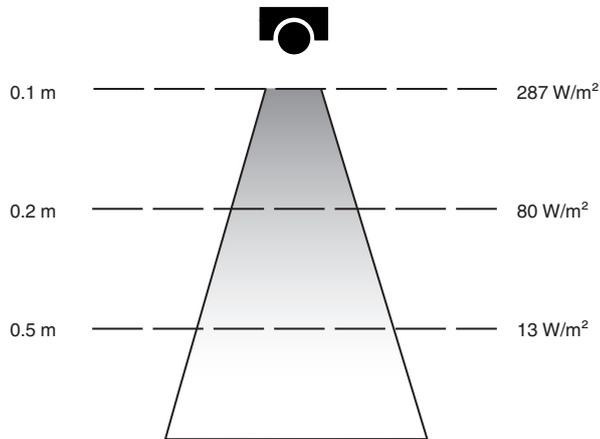
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Characteristic Curve

Irradiance



Accessories

| | | |
|---|-------------------------------------|---|
|  | VOS-IL-MH03 | Mounting bracket for attaching VOS spot lighting to VOS2000 and VOS5000 sensors |
|  | V19S-0,15M-PUR/V15-T-V19-VOS | 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 |
|  | V1-G-BK2M-PUR-U/ABG-V1-G | 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.