



## Ring lighting

### VOS-IL-F236W-49

- Uniform illumination of flat, matte and reflective surfaces
- Direct mounting of the ring lighting on the sensor
- Intelligent lighting control with integrated flash controller
- Opening angle of the light cone 49°

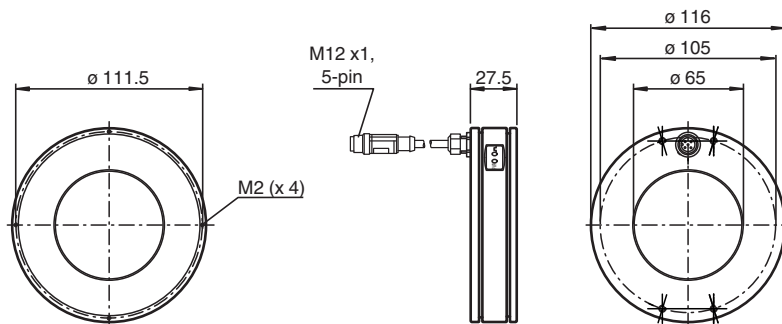
Opening angle of the light beam: 49°, white light, 16 high-power LEDs, light field size: dia. 71 mm x 104 mm, integrated flash controller



## Function

Ring lighting is a ring-shaped lighting design in which the light is concentrated in the center of the lighting system. The lighting around the lens minimizes object shadows. The LEDs provide bright and intense lighting with excellent image contrast. The opening angle of the light cone can be focused or widened by using the integrated lenses. A polarization filter can be mounted as an option.

## Dimensions



## Technical Data

### General specifications

Light area dimensions	Ø 71 mm x 104 mm
Light source	16 high-power LEDs
LED color	White light
Color temperature	5300 K
Light direction	Directed with 49° ancillary lenses
Irradiance	149 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

## Technical Data

### Electrical specifications

Operating voltage	$U_B$	21 ... 30 V DC
Current consumption		0.3 A at 24 V DC (average) / 0.8 A ( max. pulsed )
Power consumption	$P_0$	14 W
Flash duration		VOS2000 0.05 ... 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 1 according IEC 62471
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### Approvals and certificates

CE conformity	CE
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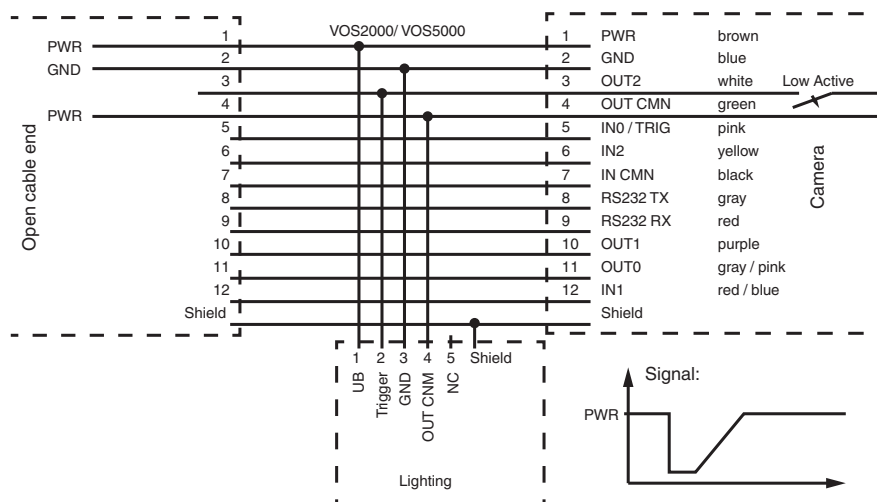
### Ambient conditions

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

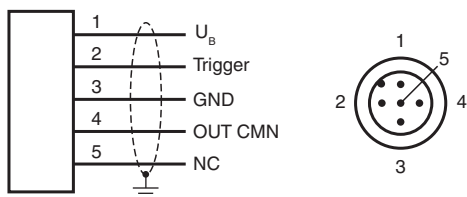
Housing height	27.5 mm
Housing diameter	116 mm
Degree of protection	IP65
Connection	cable PUR , M12 connector, 5 pin , A-coded , 230 mm
Material	
Housing	anodized aluminum I PMMA
Installation	Mounting bracket
Mass	approx. 450 g

## Connection

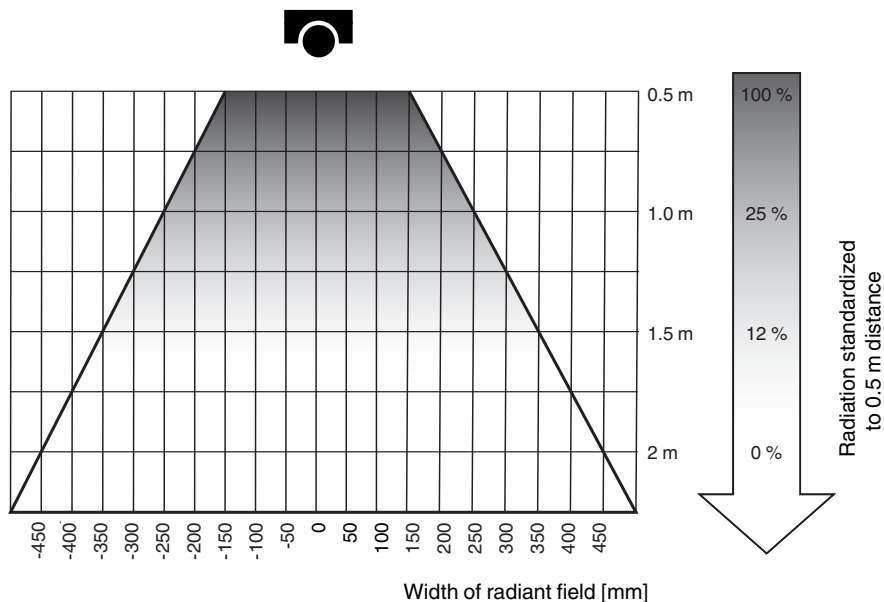


**NOTE:** With trigger parameterization by means of software, the electrical status of the trigger is output to the outside at GPO2 (OUT2). Isolation recommended.

## Connection Assignment



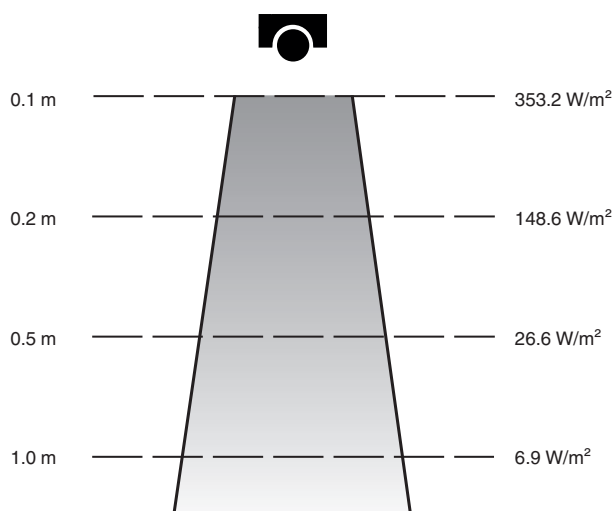
## Characteristic Curve








Radiant field

Radiation < 50 % standardized to center axis

## Irradiance



## Accessories

	<b>VOS-IL-MH01</b>	Mounting bracket for attaching VOS ring lights to VOS2000 sensors
	<b>VOS-IL-MH02</b>	Mounting bracket for attaching VOS ring lights to VOS5000 sensors
	<b>VOS-IL-POL01</b>	Polarization filters are components for lenses in VOS sensors that are used to suppress interfering reflections in the camera image.
	<b>VOS-IL-MH05</b>	Mounting ring for fastening optical accessories to VOS ring lighting
	<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

## 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:

80,000+ h for high-power LED lightings in the visible and infrared 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.