



Sensing Ring Lighting (with Temperature Protection Circuit)

OPR-SF Series

No strobe controller required! Ultra-high-brightness ring lighting

- Easy camera and lighting synchronization adjustment with illumination control
- Temperature protection circuit for automatic shutoff with increased temperature



Specifications

Model	^{*1} 	^{*2} Attachment Lens	Illumination Color	Weight [g]	Power Consumption [W]	Outline Drawing
OPR-SF55-28W	Monitoring only	Applicable	White	60	13.8	①
OPR-SF70-43W	Monitoring only	Applicable		75	19.4	②
OPR-SF85-58W	Monitoring only	Applicable		90	24.9	③

*1 For "FALUX sensing," connect only to an OPPF Series LED lighting controller.

*2 A condensing attachment is installed at purchase. The tightening torque for screws during replacement should be 5 cN·m or less.

Features

Ultra-high-brightness ring lighting offering 2.5 times the brightness of OPR Series



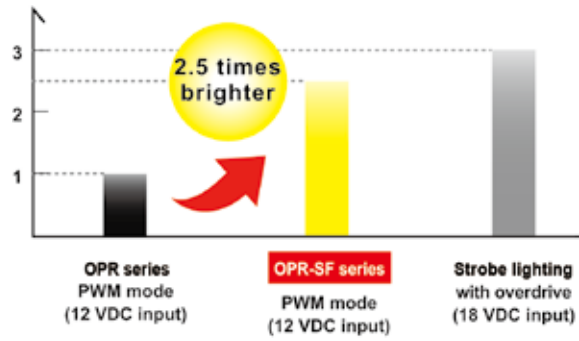
The OPR-SF Series is lighting control-specific ring lighting that offers ultra-high-brightness illumination close to that of strobe lighting with strobe controller even when connected to a 12 V general purpose controller.

Because longer illumination times than strobe lighting can be ensured, severe timing adjustments for the camera shutter and lighting necessary with strobe lighting are not required. In addition, high-brightness illumination is possible for illumination times of 1 ms or longer, allowing for even brighter images to be captured with slow shutter speeds.



2.5 times the brightness of OPR Series

Thanks to the built-in unique circuitry, brightness has been increased to 2.5 times compared with conventional products for continuous lighting no longer than 10 seconds (10% duty). Even when connected to a general-purpose 12 V controller, ultra-high-brightness illumination close to that of strobe lighting with strobe controller is possible.



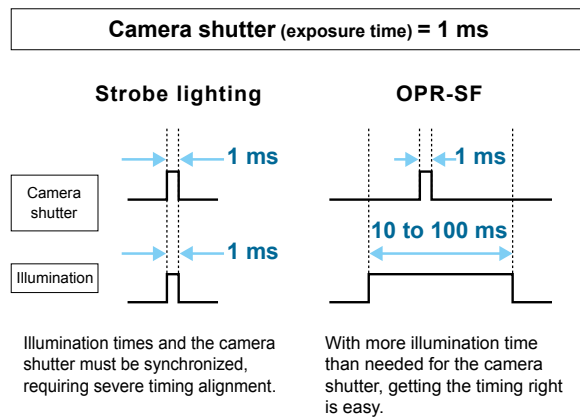
Easy camera and lighting synchronization adjustment with illumination control

With strobe lighting, which limits illumination times to no longer than 1 ms (*1) for three-times the brightness, severe adjustment is required to synchronize the camera shutter and the illumination timing.

The OPR-SF is capable of illumination times of approximately 10 to 100 ms (*2), making it easier to get the timing right with the camera shutter compared with strobe lighting.

*1 CCS FASTUS OPFF Series with strobe-mounted controller

*2 Continuous lighting of 10 sec. or less (Duty 10%)

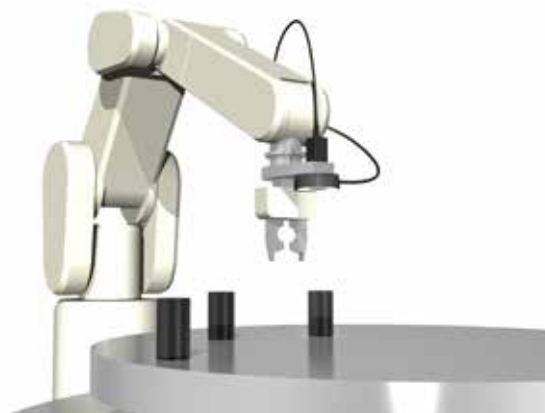


Slow shutter for capturing even brighter images

Strobe lighting, which temporarily increases brightness at illumination times of no longer than 1 ms, cannot be used with slow shutter speeds for obtaining bright images at exposure times exceeding 1 ms.

With the OPR-SF Series, however, the 1 ms time limit is not applicable, allowing for high-brightness illumination with exposure times exceeding 1 ms. This makes the OPR-SF Series suitable for low-reflectivity workpieces such as black rubber and for applications such as robot picking.

For example, with a camera shutter speed (exposure time) of 2 ms, the image obtained with the OPR-SF Series will be five times brighter than OPR Series images.

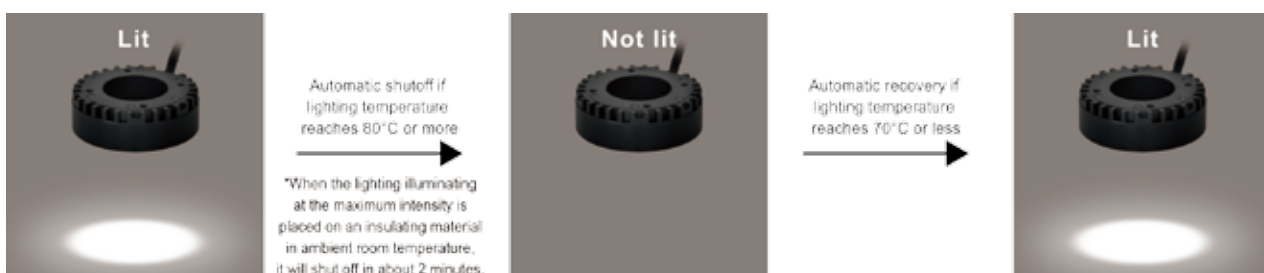


Temperature protection circuit for automatic shutoff with increased temperature

OPR-SF Series devices include a proprietary temperature protection circuit that automatically shuts off lighting if the internal temperature of the illumination part becomes high (80°C or more for OPR-SF55-28W) and turns the lighting back on if the temperature falls (70°C or less for OPR-SF55-28W).

With continuous operation, continuous lighting must be no longer than 10 seconds (10% duty), but illumination exceeding 10 seconds is possible during adjustment and the like.

In such cases, in order to protect the lighting, illumination is shut off automatically if the internal temperature rises.

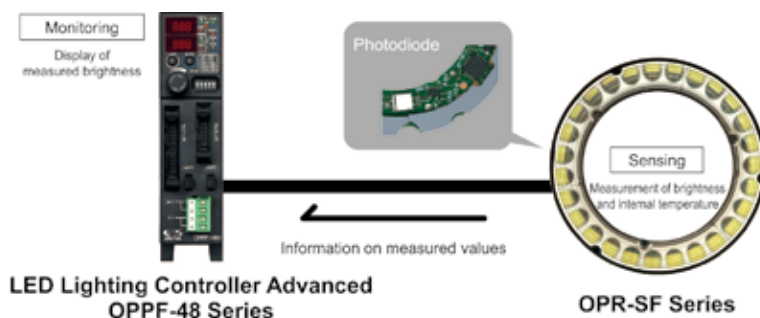


Ring	OPR
	OPR-SF
Bar	OPB-S
Backlight	OPF
Coaxial	OPX
Spot	OPS-S
Controllers	OPPD-15
	OPPD-30
	OPPF
Options	CB/RCB



Equipped with “FALUX sensing” for monitoring brightness and temperature through sensing

Brightness can be monitored using the built-in photodiodes by connecting an OPPF-48 Series LED lighting controller. This allows for accurate measurement of LED brightness even with short period illumination. Monitoring of internal temperatures is also possible.



OPR	Ring
OPR-SF	
OPB-S	Bar
OPF	Backlight
OPX	Coaxial
OPS-S	Spot
OPPD-15	Controllers
OPPD-30	
OPPF	
CB/RCB	Options

Options/Accessories

Low-angle attachment

Model	Weight [g]
LA-OPR-S55-28	10
LA-OPR-S70-43	15
LA-OPR-S85-58	20



Diffusion plate (transmittance: 80%) t2 mm

Model	Weight [g]
DF80-OPR-S55-28	10
DF80-OPR-S70-43	15
DF80-OPR-S85-58	20



Transparent cover t1.8 mm

Model	Weight [g]
TC-OPR-S55-28	10
TC-OPR-S70-43	15
TC-OPR-S85-58	20



Diffusion plate (transmittance: 60%) t2 mm

Model	Weight [g]
DF-OPR-S55-28	10
DF-OPR-S70-43	15
DF-OPR-S85-58	20



Polarizing plate (with transparent cover) t2 mm (0.2 + 1.8)

Model	Weight [g]
PL-OPR-S55-26	10
PL-OPR-S70-40	15
PL-OPR-S85-54	20



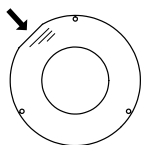
Dual-side scratch-resistant cover t2 mm

Model	Weight [g]
TCSR-OPR-S55-28	20
TCSR-OPR-S70-43	25
TCSR-OPR-S85-58	30



Polarizing Plate

- The polarizing plate has flat edges on the outside.
- The direction of polarization is parallel to these edges.



Use this cover as a protective cover for the LED lighting and the camera lens. The cover is also effective against dust when installed on upward-facing lighting and cameras.

To prevent abrasions when cleaning, both sides feature scratch-resistant surfaces. (Pencil hardness: 6H)



Specifications

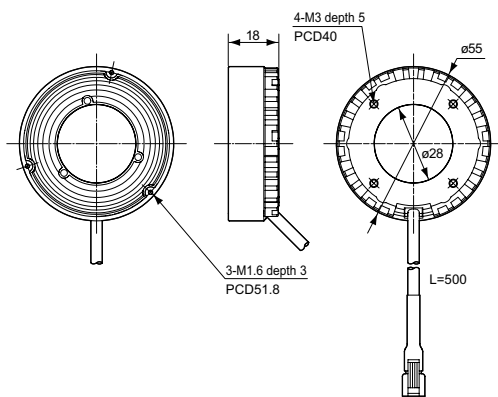
Illumination color	White	
Color temperature	6,000 K	
Input voltage	12 VDC Connect to dedicated controller. OPPF strobe overdrive not supported.	
Illumination conditions	Illumination control duty*: 10% or less, Continuous lighting width: 10 seconds or less	
Temperature protection	OPR-SF55-28W	Built-in temperature protection circuit (automatic shutoff if internal temperature reaches 80°C or more, automatic recovery if internal temperature reaches 70°C or less) Error with OPPF temperature monitor: ±5°C (typical value)
	OPR-SF70-43W OPR-SF85-58W	Built-in temperature protection circuit (automatic shutoff if internal temperature reaches 60°C or more, automatic recovery if internal temperature reaches 55°C or less) Error with OPPF temperature monitor: ±10°C (typical value)
Degradation of LED	The brightness will drop by 10% (typical value) for accumulated time of 7,000 hours. Conditions: Light intensity setting = 100%, ambient environment = 30°C	
Classification (IEC62471: 2006)	Risk group 1 (low risk)	
Regulations/standards	Conforms to EMC (2014/30/EU), RoHS (2011/65/EU, MIIT Order No.32) / EN 61326-1:2013	
Protection rating	IP40 (IEC 60529: 1989/A1: 1999 + A2: 2013)	
Ambient temperature/humidity	0 to 40°C / 35 to 85% RH (no condensation)	
Storage temperature/humidity	-20 to 70°C / 35 to 95% RH (no condensation)	
Vibration resistance	10 to 55 Hz; amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions	
Shock resistance	10 G, 3 times in each of the X, Y, and Z directions	
Material	Housing: ADC12 and PC, Lens: PC (UV-resistant) and PMMA	
Options	Low-angle attachment, diffusion plate (60% or 80%), transparent cover, polarizing plate, dual-side scratch-resistant cover	

* The illumination control duty is the illumination time percentage for a strobe cycle. ● See p. 69 for spectrum distribution diagrams.

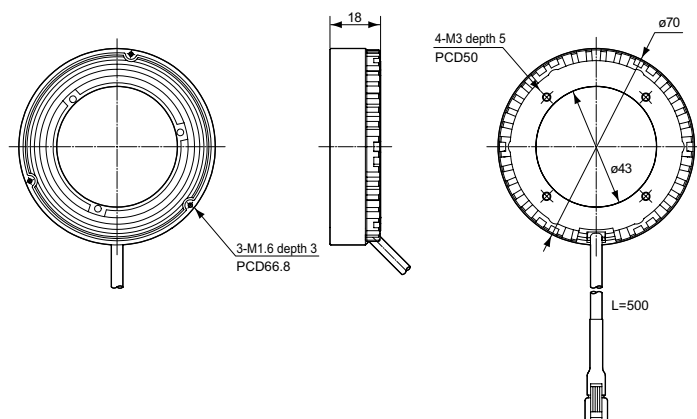
Dimensions

(unit: mm)

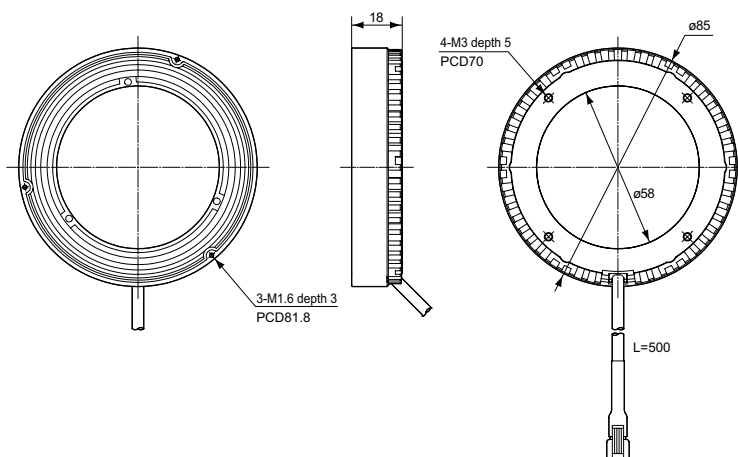
① OPR-SF55-28W



② OPR-SF70-43W



③ OPR-SF85-58W



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