



Sensing Spot Lighting

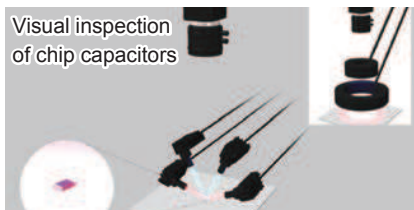
OPS-S Series

Innovative sensing spot lighting

- 5 times the brightness of conventional products! Strobe lighting type for overdrive is 10 times brighter than conventional products!
- High-brightness, high-uniform types for optimization with telecentric lenses
- New “FALUX-it” technology for 12 VDC drivability eliminating the need for a dedicated power supply and resistance box



Applications

Visual inspection
of chip capacitors

Character inspection on transparent containers



Inspection for packing transparent packing tape





Specifications

Controller	Type	Model	Illumination Color	Power Consumption [W]	Weight [g]	Input	Outline Drawing
Sensing support PWM type  	High-brightness type	OPS-S20R	Red	2.5	40	12 VDC	
		OPS-S20□	White, Blue	2.8			
	Highly uniform type	OPS-S20R-U	Red	2.5		18 VDC ^{*1}	
		OPS-S20□-U	White, Blue	2.8			
	High-brightness type dedicated for overdrive strobe lighting	OPS-ST20□	White, Blue	2.8			
Constant current type	High-brightness type	OPS-C20R	Red	2.5	Constant current control 700 mA max. ^{*2}		
		OPS-C20□	White, Blue	2.8			
	Highly uniform type	OPS-C20R-U	Red	2.5			
		OPS-C20□-U	White, Blue	2.8			

● □ = W: White, B: Blue ● See P. 69–70 for spectrum distribution diagrams.

^{*1} Applicable power supply: OPFF Series

^{*2} Applicable power supply: OPPCW Series

Features

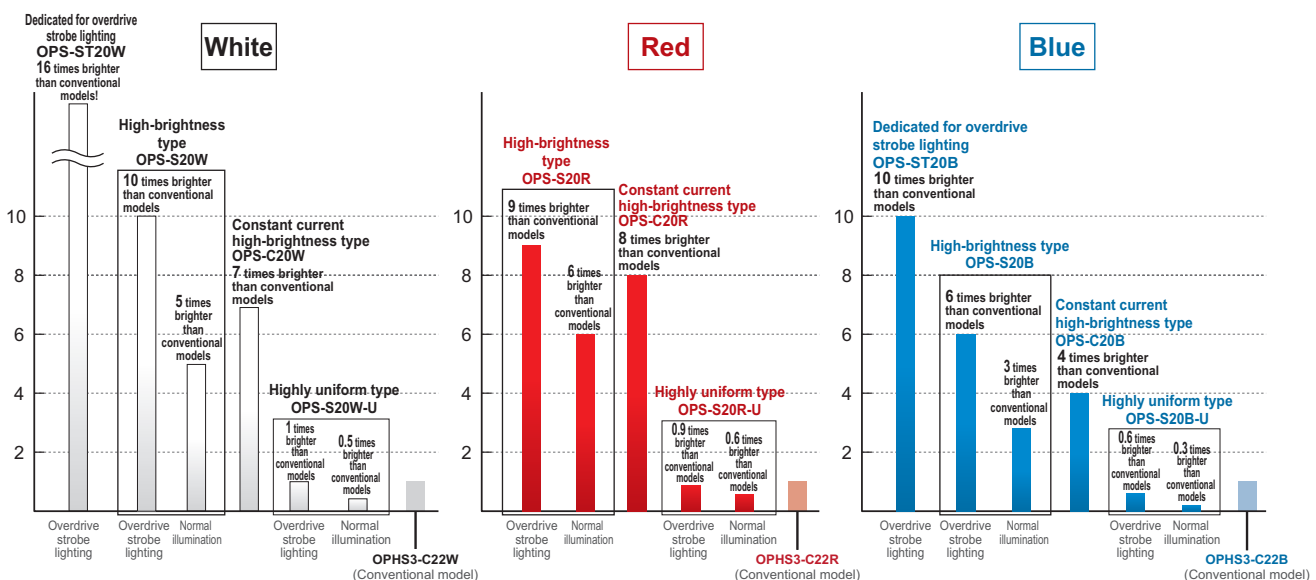
■ High-brightness type with unique lens design for best-in-class brightness

The OPS-S Series offers 6 times the brightness of conventional models under normal illumination and strobe lighting type for overdrive is 10 times the brightness of conventional models*. With conventional spot lighting, constant current driving is the most common, and no strobe power supplies were capable of overdrive. With the OPS-S Series, the power supply is any general-purpose 12 V power, allowing for overdrive functionality with strobe power supplies.

With the highly uniform type, uniformity is improved thanks to a low-magnification lens with a short working distance. In addition, the low brightness requirements of mirror-like workpieces with high reflectance can be met and high dimming resolutions are ensured. Highly uniform types offer about 1/10 the brightness of high-intensity types.

*Applicable power supply: OPFF Series

Brightness magnification (for each color, with conventional model OPHS3 Series considered 1)





High-brightness, high-uniform types for optimization with telecentric lenses

Optimized for the optical system of telecentric lenses, the OPS-S Series offers both high brightness and high uniformity. High-brightness types are available for high-magnification, long-distance lenses, and highly uniform types are available for low-magnification, short-range lenses. With no bright points in the center of illumination (hot spots) even with the high-brightness type, no light axis deviation occurs even with original lenses. Refer to the chart to the right when specifying a type.

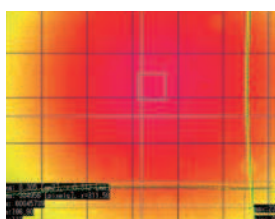
*Brightness and uniformity were evaluated using an actual telecentric lens.

Model selection according to telecentric lens		WD (mm)			
		40	65	110	110 or more
Magnification	0.1× to 0.3×	—	—	—	—
	0.5×	—	③	—	—
	0.8×	—	—	—	—
	1×	②	①	—	—
	1.5×	—	—	—	—
	2×	—	—	—	—
	3×	—	—	—	—
	4×	—	—	—	—
	6×	—	—	—	—
	8×	—	—	—	—

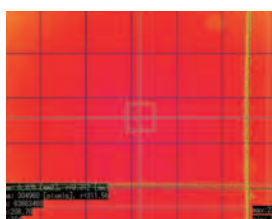
■ Highly uniform type
 ■ High-brightness type
 ■ Available with both highly uniform and high-brightness types

Comparison of uniformity *Camera conditions: 1/3 CCD camera

① Comparison with other manufacturers 1× magnification, 65 mm working distance lens

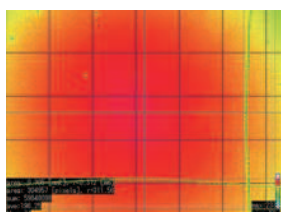


Other manufacturer products or equivalent



High-brightness type: OPS-S20W

② Type comparison 1 1× magnification, 40 mm working distance lens

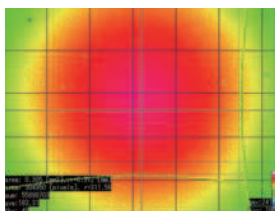


High-brightness type: OPS-S20W

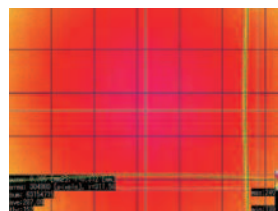


Highly uniform type: OPS-S20W-U

③ Type comparison 2 0.5× magnification, 65 mm working distance lens



High-brightness type: OPS-S20W



Highly uniform type: OPS-S20W-U

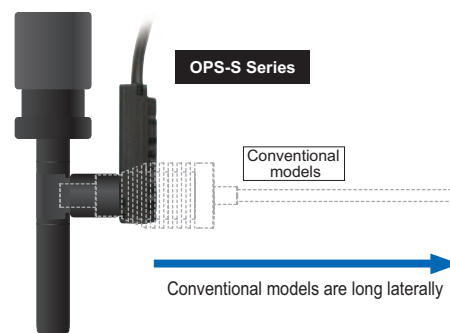
Also usable as oblique lighting for direct illumination

Because of the strong directivity of the high-brightness type, this type can be used as oblique lighting for direct illumination even without a condensing lens.



Space-saving L-shaped body

This model uses an L-shaped housing with the control board placed in parallel to the lens. This construction reduces dead space when mounting.



*With mounting holes in two locations on the back and top, the OPS-S Series can also be mounted to lenses besides telecentric lenses.

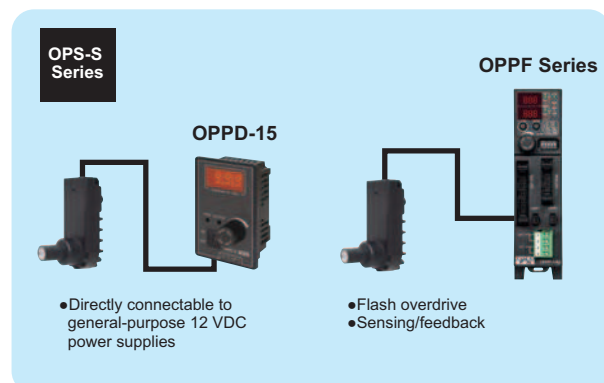
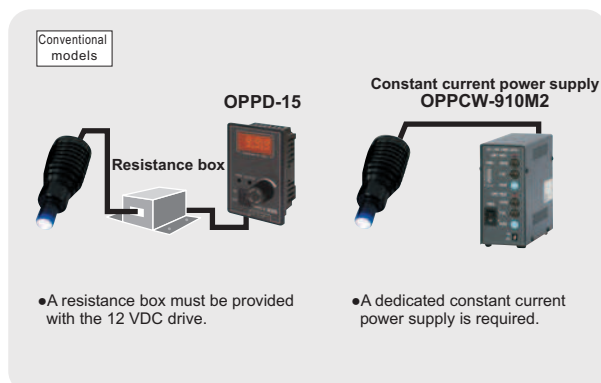
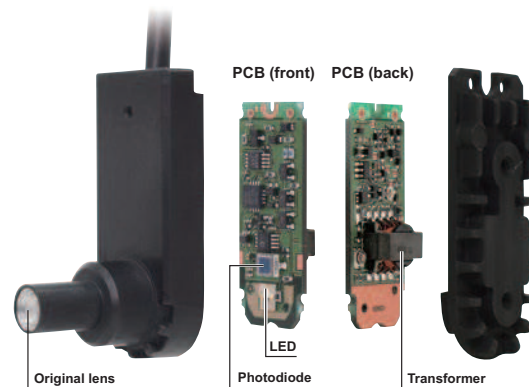


New “FALUX-it” technology for 12 VDC drivability eliminating the need for a dedicated power supply and resistance box

Patent pending

Thanks to the newly developed voltage conversion constant current circuit with a built-in transformer, constant current control according to the voltage is possible for converting to the different forward voltages for each LED color is possible with reduced heat generated by the excess voltage. The temperature of the housing has also been reduced to less than that of conventional models. As a result, OPS-S Series devices can be directly connected to general-purpose 12 VDC power supplies. In addition to eliminating the need for a dedicated constant-current power supply, conventional resistance boxes are no longer necessary, thus reducing costs. Furthermore, even though brightness was reduced under conventional constant current control due to heat generation, the built-in temperature compensation circuit allows brightness to be kept constant even if the temperature increases immediately after lighting or if the ambient temperature changes.

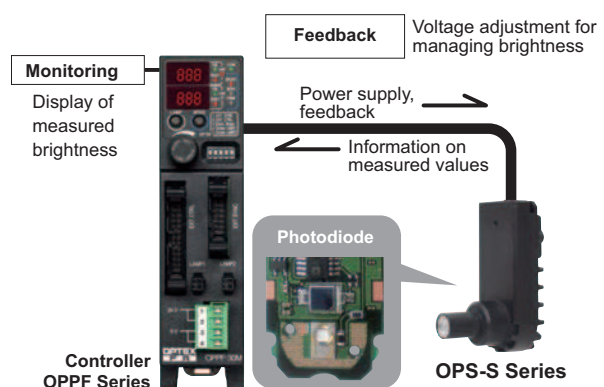
FALUX-it (FALUX integrated transform) technology Voltage conversion constant current circuit + Temperature compensation circuit



Brightness monitoring and feedback with “FALUX sensing”

Patent registered

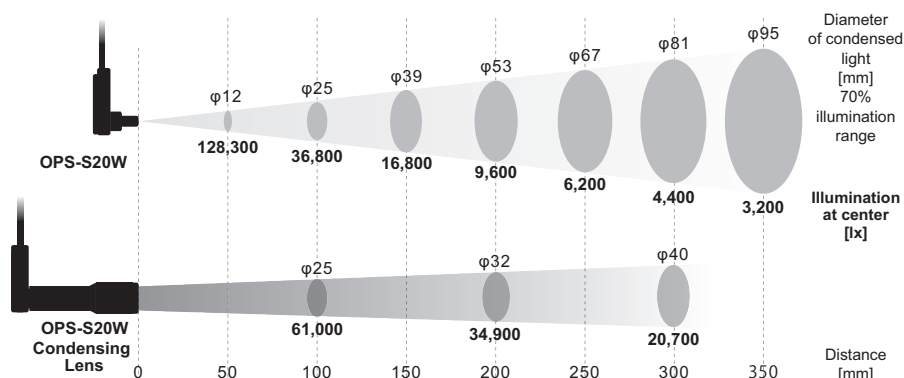
OPS-S Series lighting also includes “FALUX sensing” technology, which features photodiodes that not only monitor brightness but also provide feedback on long-term brightness deterioration, allowing for constant maximum brightness to be maintained for up to around 50,000 hours. This helps reduce maintenance costs during operation.



Ring	OPR
	OPR-SF
Bar	OPB
	OPB-S
Backlight	OPF
Coaxial	OPX
Spot	OPS-S
Controllers / Power Supplies	OPPD
	OPPF
	OPPCW
Options	OP
	MDF



Illumination Area According to Illumination Distance



Specifications

Type	PWM type with sensing support			High-brightness type for strobe lighting		Constant current type		
Model	OPS-S20W (-U)	OPS-S20R (-U)	OPS-S20B (-U)	OPS-ST20W	OPS-ST20B	OPS-C20W (-U)	OPS-C20R (-U)	OPS-C20B (-U)
Illumination color	White	Red	Blue	White	Blue	White	Red	Blue
Color temperature / Peak wavelength	6,300 K	640 nm	470 nm	6,300 K	470 nm	6,300 K	640 nm	470 nm
Input	12 V			18 V ¹		Constant current control: 700 mA max. ²		
Recommended PWM frequency	50 kHz to 150 kHz					-		
Self-oscillation frequency when DC voltage is applied	50 kHz to 60 kHz					-		
Light-emitting surface size	ø7 mm							
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; 8 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							
Classification (IEC62471: 2006)	OPS-S20W / OPS-S20B (-U) / OPS-ST20W / OPS-ST20B / OPS-C20W / OPS-C20B (-U): Risk Group 2 (Moderate-Risk)							
	OPS-S20W-U / OPS-S20R (-U) / OPS-C20W-U / OPS-C20R (-U): Risk Group 1 (Low-Risk)							
Applicable regulations/standards	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)							
Degradation of LED	40,000 h	30,000 h	40,000 h				30,000 h	40,000 h
	For brightness to drop 30% (Dimming value setting = 100%, 25°C) *Typical values							
Protection circuit	Automatic shutoff if internal temperature reaches 100°C					None		
Material	Housing: ADC12, Lens: PC (UV-resistant)							
Options	Condensing lens							

¹ Applicable power supply: OPFF Series (excluding 500 kHz, luminescence width setting: 1 ms or less) ² Applicable power supply: OPCW Series

● See P. 69–70 for spectrum distribution diagrams.

Options/Accessories

Condensing lens

Model	Weight [g]	Outline Drawing
LE-OPS-24	35	②



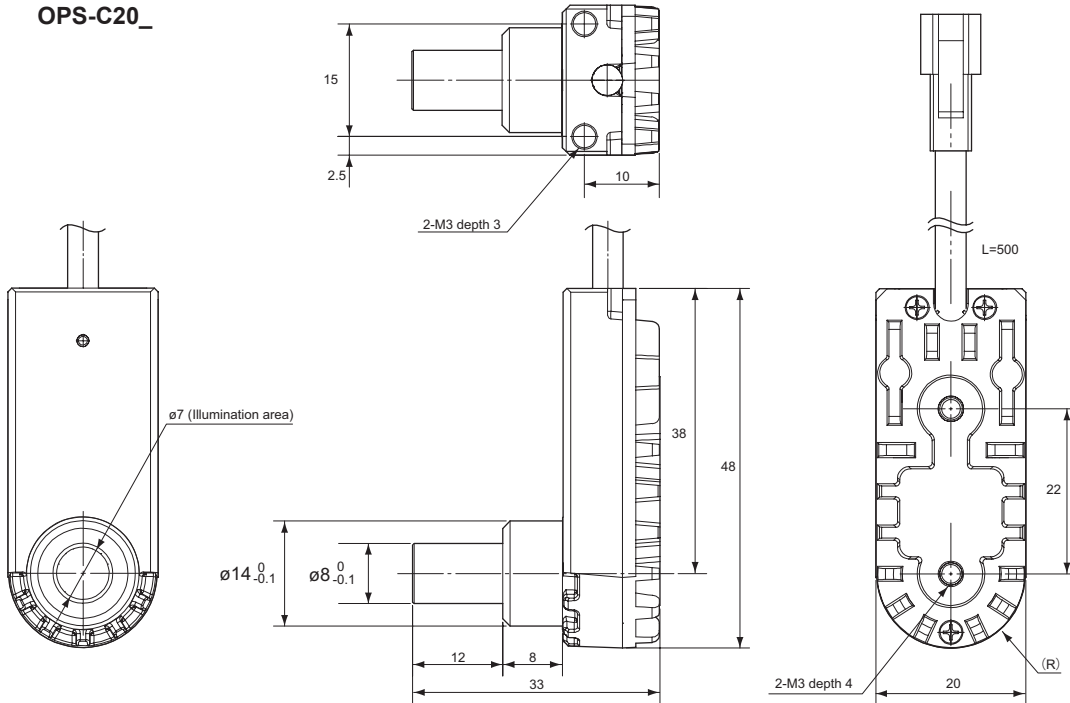
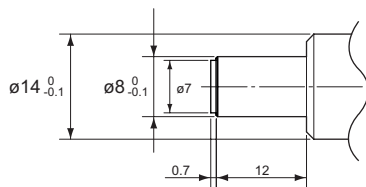
For constant current type

Name	Model	Applicable Lighting	Weight [g]	Outline Drawing
Adapter	RB-R12	OPS-C20_	100	③
Extension cable	OP-CBCH1-*		Cable OP ● P. 63	

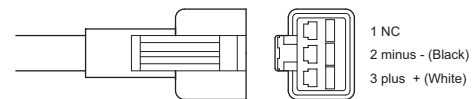
● * will be replaced by the cable length. (2, 3, 5 m)

Dimensions

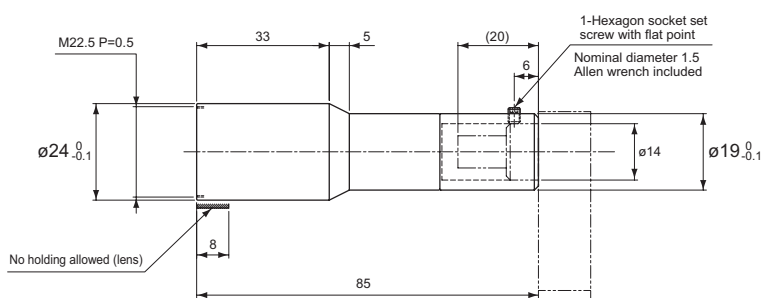
(unit: mm)

① OPS-S20_
OPS-ST20_
OPS-C20_OPS-S20_-U
OPS-C20_-UOPS-S20_-U
OPS-ST20_-U

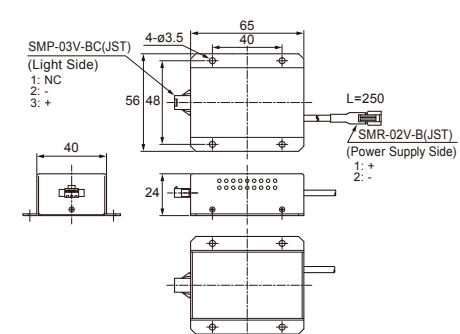
OPS-C20_-U



② LE-OPS-24



③ RB-R12



Ring	OPR
	OPR-SF
Bar	OPB
	OPB-S
Backlight	OPF
Coaxial	OPX
Spot	OPS-S
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