OMRON
AUTOMATION & SAFETY

Light Units, Lighting Controllers, and Lenses

Vision Accessory Catalog



- Uniform and Stable Radiant Lights
- Super High Brightness
- Flexible Mounting and Installation

Support for High-precision Inspection and Control

Vision Accessory Lineup

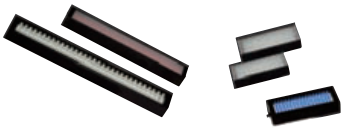
FLV Series - Standard Lighting Models

Light Series Approx. **200 Models**

Direct Ring Light/
Low Angle Ring Light



Bar Light



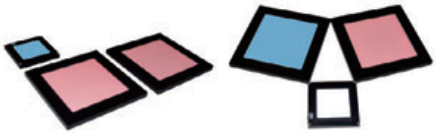
Camera-mount
Lighting Controller



Coaxial Light



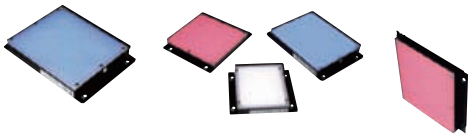
Edge Type Light



Edge Type Coaxial Light



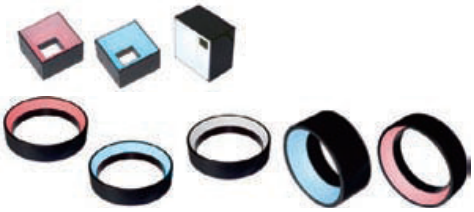
Direct Back Light



Dome Light



Shadowless Light



FL Series - High Brightness Lighting Models

ODR

Direct Ring Light



Bar Light



Camera-mount Lighting
Controller



Digital Lighting
Controller



This catalog is intended as a guide for use in selecting products. Before using any product, always read the instruction sheet that is packaged with the product.

With our complete Light and Lens lineup, solutions knowhow, and advanced Vision Sensors, OMRON provides propriety solutions to maintain the quality of your products and increase the precision of your machines.

Vision Sensors



3Z4S-LE/FZ-LE Series - Lenses

Standard Lens



Vibrations and Shocks Resistant C-mount Lens



High-resolution, Low-distortion Lens



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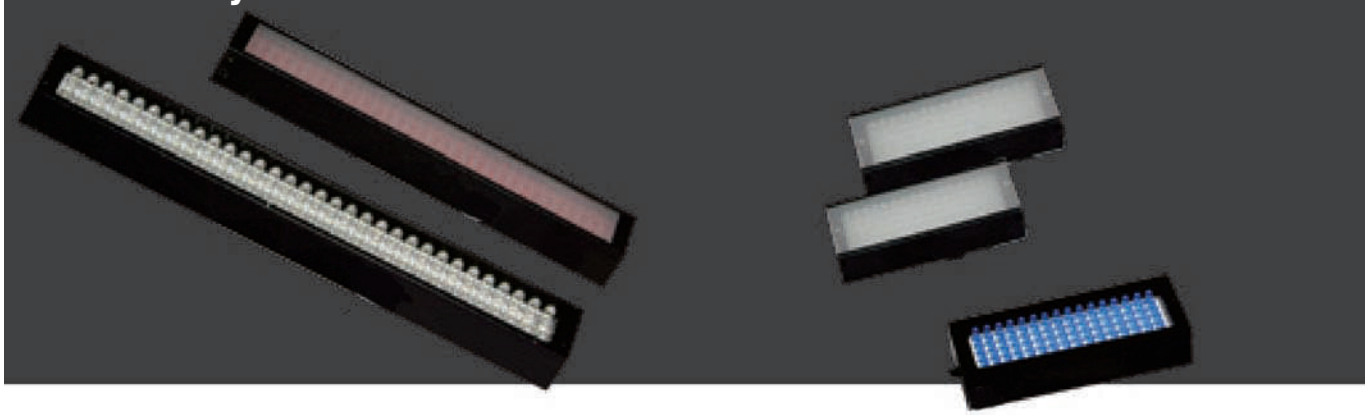
Cable/ Diffusion Plate/ Mounting Braket 42

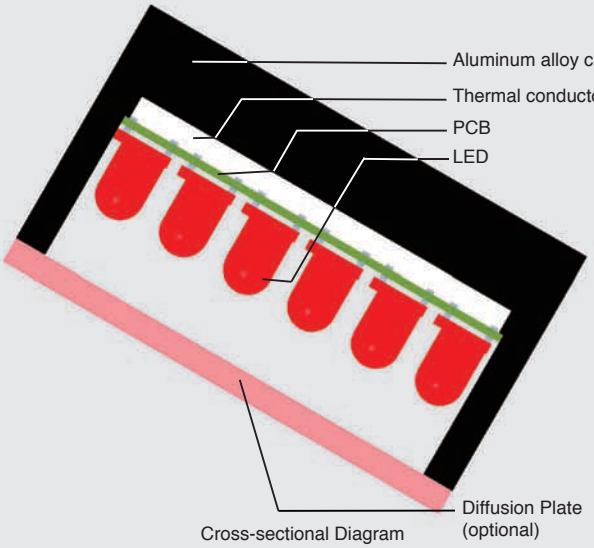
3Z4S-LE/FZ-LE Series - Lenses 44

Bar Light

FLV-BR Series

Many color and size variations are available to uniformly illuminate wide surfaces.





Cross-sectional Diagram

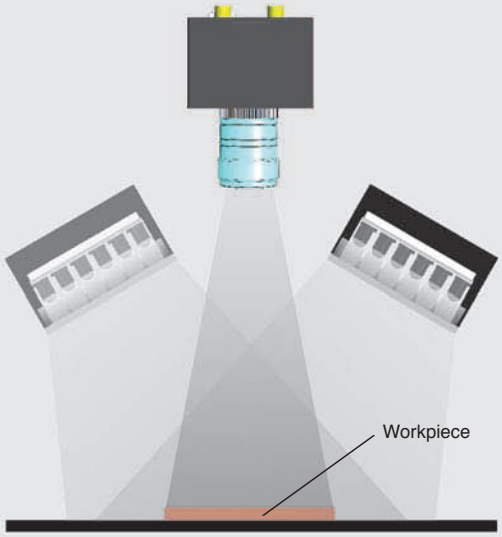


Illustration of Illumination

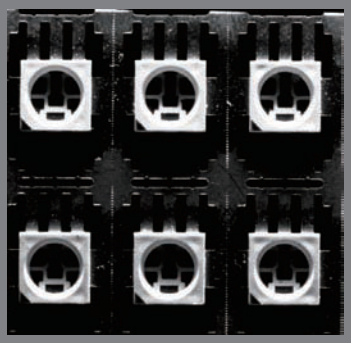
* : This figure is a conceptual illustration and may vary from the actual structure.

Product Features

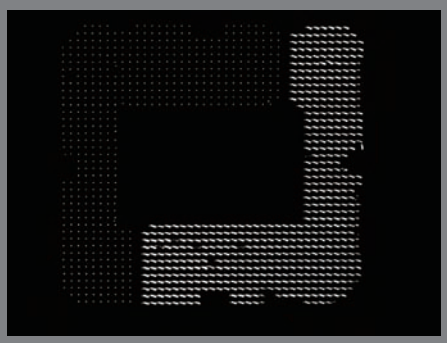
- Ideal for illumination of wide, rectangular surfaces.
- Many color and size variations.

Applications

- Detection of metal surfaces
- Image scanning
- Detection of cracks on surfaces
- Detection of LCD panels



Positioning of LED Packages



Detection of Faulty LGA Electrodes



Detection of Printed Logo Marks and Characters on Long Workpieces

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Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)	Options	
				Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC Series *2 (Camera-mount)		Diffusion Plate	Polarization
Bar Lights	FLV-BR6022W	WHITE	1.4	48 x 18	60 x 22	17	A	◎	60	FLV-BR6022DF	FLV-BR6022-PL-V FLV-BR6022-PL
	FLV-BR6022R	RED	1.3					◎			
	FLV-BR6022B	BLUE	1.4					◎			
	FLV-BR6022IR	IR	0.9					◎			
	FLV-BR6424UV	UV	1.8	53 x 20	64 x 24	17	J	◎	70	FLV-BR6424DF	-
	FLV-BR8532W	WHITE	3.5	73 x 25	85 x 32	20	B	◎	130	FLV-BR8532DF	FLV-BR8532PL-V FLV-BR8532PL
	FLV-BR8532R	RED	3.1					◎			
	FLV-BR8532B	BLUE	3.5					◎			
	FLV-BR11222W	WHITE	4.2	100 x 18	112 x 22	19	C	◎	100	FLV-BR11222DF	FLV-BR11222PL-V FLV-BR11222-PL
	FLV-BR11222R	RED	2.6					◎			
	FLV-BR11222B	BLUE	4.2					◎			
	FLV-BR11222IR	IR	1.8					◎			
	FLV-BR11624UV	UV	3.6	105 x 20	116 x 24	19	K	◎	120	FLV-BR11624DF	-
	FLV-BR14030W	WHITE	6.1	126 x 25	140 x 30	19	D	◎	140	FLV-BR14030DF	FLV-BR14030PL-V FLV-BR14030PL
	FLV-BR14030R	RED	4.8					◎			
	FLV-BR14030B	BLUE	6.1					◎			
	FLV-BR15020W	WHITE	5.5	138 x 16	150 x 20	19	E	◎	120	FLV-BR15020DF	FLV-BR15020PL-V FLV-BR15020PL
	FLV-BR15020R	RED	3.1					◎			
	FLV-BR15020B	BLUE	5.5					◎			
	FLV-BR21222W	WHITE	8.7	198 x 18	212 x 22	16	F	○	140	FLV-BR21222DF	FLV-BR21222PL-V FLV-BR21222PL
	FLV-BR21222R	RED	5.0					◎			
	FLV-BR21222B	BLUE	8.7					○			
	FLV-BR21230W	WHITE	8.8	200 x 25	212 x 30	19	G	○	220	FLV-BR21230DF	FLV-BR21230PL-V FLV-BR21230PL
	FLV-BR21230R	RED	7.0					◎			
	FLV-BR21230B	BLUE	8.8					○			
	FLV-BR21230IR	IR	6.1					◎			
	FLV-BR21230UV	UV	7.8				L	○	230		-
	FLV-BR38037R	RED	11.3	350 x 33.2	380 x 37.2	19	H	○	430	FLV-BR38037DF	FLV-BR38037PL-V FLV-BR38037PL

***1** : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered.
○: Connectable. Light can be powered only while the trigger is input.
×: Not connectable

***2** : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.

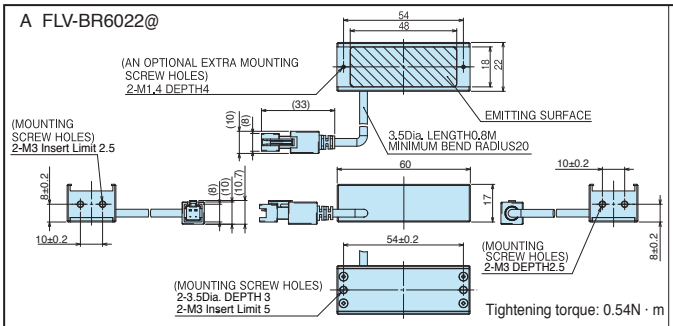
***3** : There are different model numbers for different polarization directions.
Polarization along the short direction: The model numbers have a "-V" suffix. (Example: FLV-BR@@@@@PL-V)
Polarization along the long direction: The model numbers do not have a "-V" suffix. (Example: FLV-BR@@@@@PL)

Note: Refer to page 62 for LED Characteristics.

Bar Light FLV-BR Series

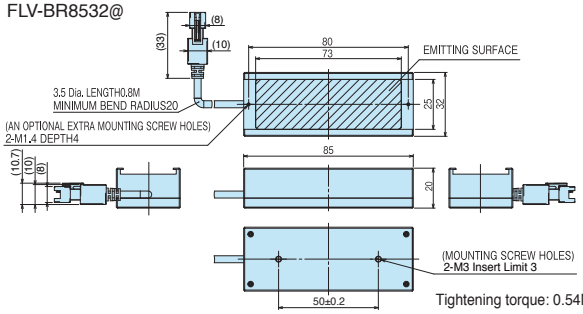
Dimensions (Unit: mm)

A FLV-BR6022@



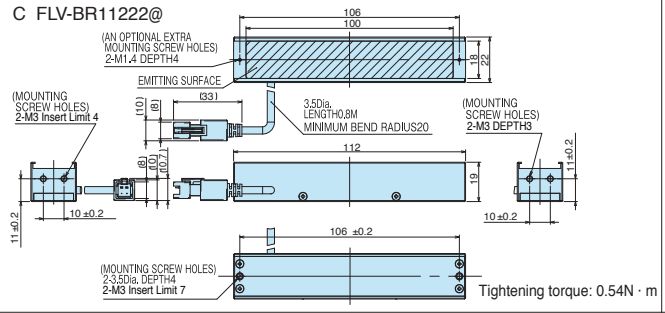
Tightening torque: 0.54N · m

B FLV-BR8532@



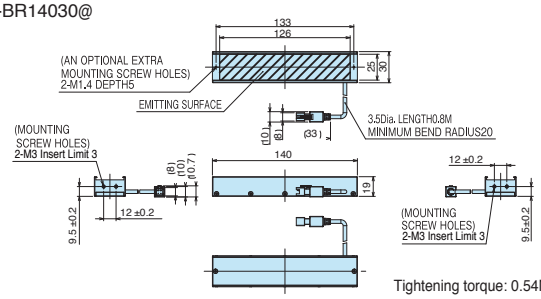
Tightening torque: 0.54N · m

C FLV-BR11222@



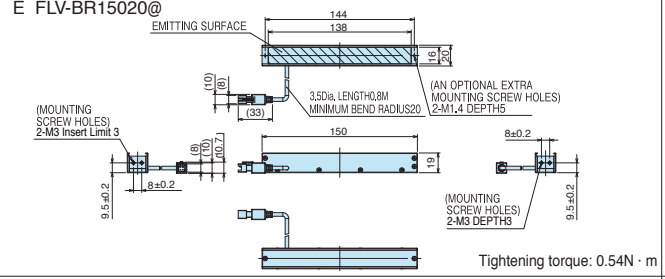
Tightening torque: 0.54N · m

D FLV-BR14030@



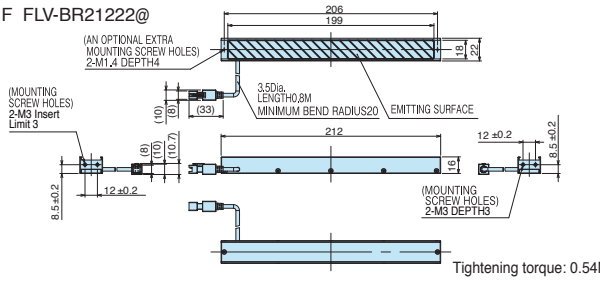
Tightening torque: 0.54N · m

E FLV-BR15020@



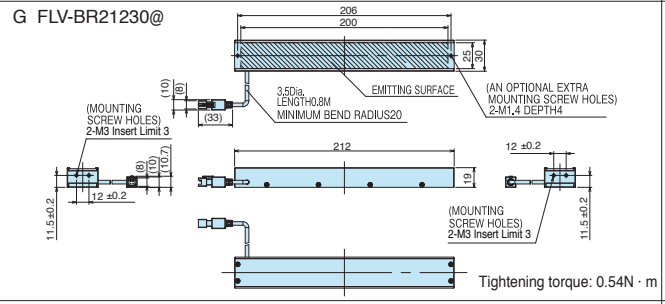
Tightening torque: 0.54N · m

F FLV-BR21222@



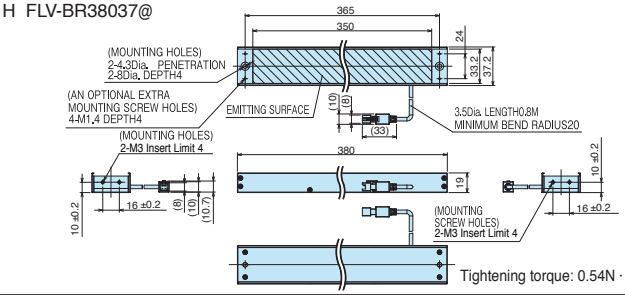
Tightening torque: 0.54N · m

G FLV-BR21230@



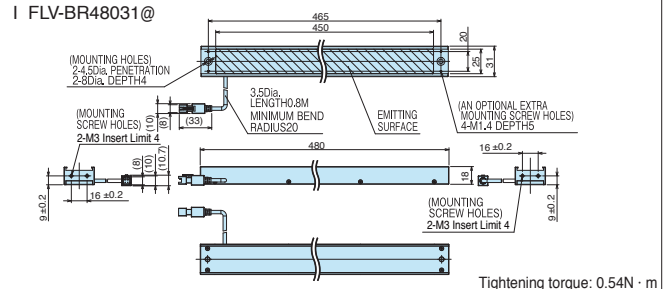
Tightening torque: 0.54N · m

H FLV-BR38037@



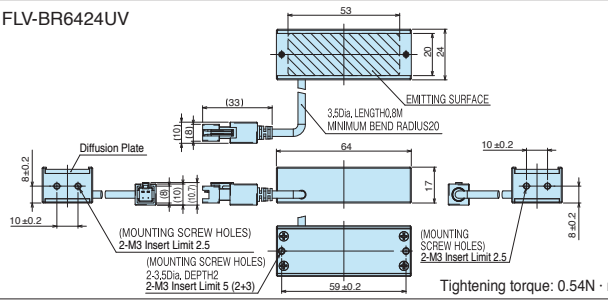
Tightening torque: 0.54N · m

I FLV-BR48031@



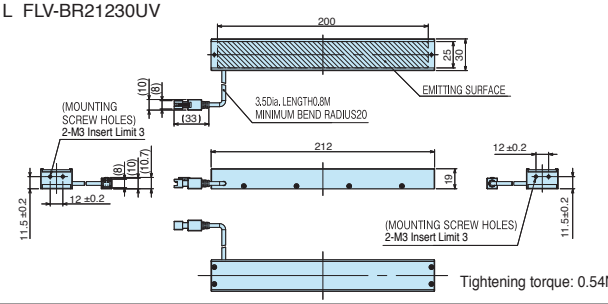
Tightening torque: 0.54N · m

J FLV-BR6424UV



Tightening torque: 0.54N · m

L FLV-BR21230UV

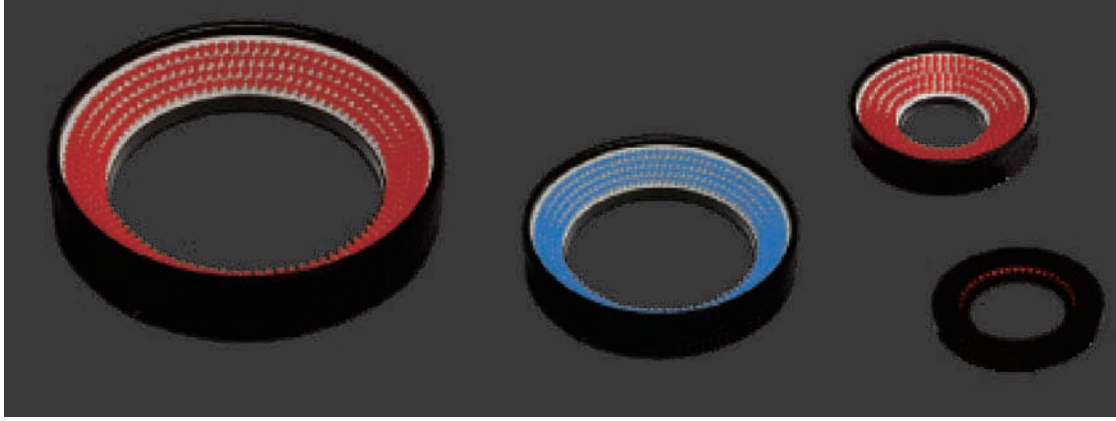


Tightening torque: 0.54N · m

Direct Ring Light/Low Angle Ring Light

FLV-DR Series/-DL Series

Select Lighting that fits your workpieces with a variety of illumination angles.

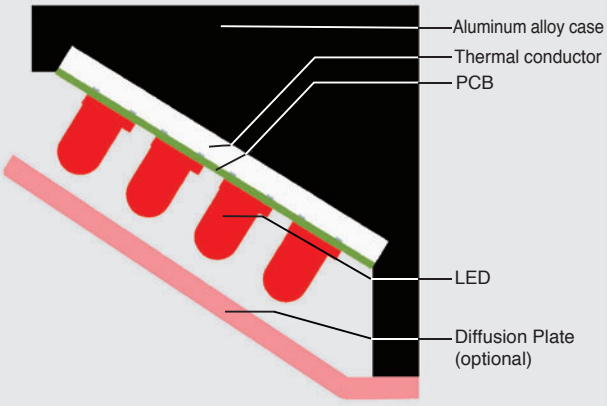


Product Features

- Bright illumination with high-density LED arrays.
- Compact designs that save installation space.
- Optional Diffusion Plates for uniform illumination.

Applications

- Detection of PCBs
- Detection of IC components
- Microscope illumination
- Detection of plastic containers
- Inspection of printing on ICs
- Standard exterior detection, character recognition, and code reading



Cross-sectional Diagram

* : This figure is a conceptual illustration and may vary from the actual structure.

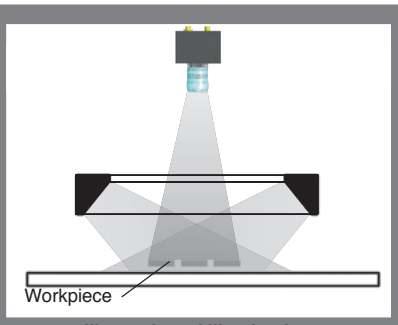
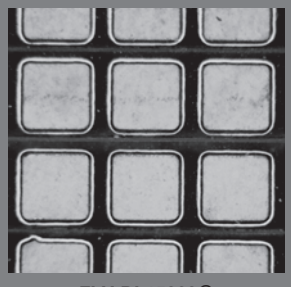
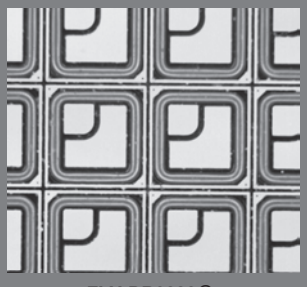


Illustration of Illumination



FLV-DL15060@



FLV-DR9030@

Direct Ring Light FLV-DR Series
Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)	Options	
				External Ring Diameter (mm)	Internal Ring Diameter (mm)	Lighting Angle (Deg)	Drawing	FLV-TCC Series *2 (Camera-mount)		Diffusion Plate	Polarization Plate
Direct Ring Light	FLV-DR3220W	WHITE	1.4	32 dia.	10 dia.	20 deg.	A	◎	60	FLV-DR3220DF	FLV-DR3220PL
	FLV-DR3220R	RED	1.3					◎			
	FLV-DR3220B	BLUE	1.4					◎			
	FLV-DR5030W	WHITE	3.1	50 dia.	26.5 dia.	30 deg.	B	◎	60	FLV-DR5030DF	FLV-DR5030PL
	FLV-DR5030R	RED	1.8					◎			
	FLV-DR5030B	BLUE	3.1					◎			
	FLV-DR5030IR	IR	1.3					◎			
	FLV-DR6030UV	UV	3.2	64 dia.	26.5 dia.	30 deg.	O	◎	90	FLV-DR6030DF	-
	FLV-DR6615W	WHITE	5.0	66 dia.	31 dia.	15 deg.	C	◎	120	FLV-DR6615DF	FLV-DR6615PL
	FLV-DR6615R	RED	3.9					◎			
	FLV-DR6615B	BLUE	5.0					◎			
	FLV-DR7000W	WHITE	5.0	70 dia.	33 dia.	0 deg.	D	◎	110	FLV-DR7000DF	FLV-DR7000PL
	FLV-DR7000R	RED	3.7					◎			
	FLV-DR7000B	BLUE	5.0					◎			
	FLV-DR7030W	WHITE	5.0	70 dia.	30 dia.	30 deg.	E	◎	120	FLV-DR7030DF	FLV-DR7030PL
	FLV-DR7030R	RED	3.7					◎			
	FLV-DR7030B	BLUE	5.0					◎			
	FLV-DR7030IR	IR	2.6					◎			
	FLV-DR7530UV	UV	5.4	79 dia.	30 dia.	30 deg.	P	◎	150	FLV-DR7530DF	-
	FLV-DR9000W	WHITE	8.8	90 dia.	30 dia.	0 deg.	F	○	230	FLV-DR9000DF	FLV-DR9000PL
	FLV-DR9000R	RED	7.0					◎			
	FLV-DR9000B	BLUE	8.8					○			
	FLV-DR9030W	WHITE	8.1	90 dia.	40 dia.	30 deg.	G	○	200	FLV-DR9030DF	FLV-DR9030PL
	FLV-DR9030R	RED	6.6					◎			
	FLV-DR9030B	BLUE	8.1					○			
	FLV-DR9030IR	IR	4.3					◎			
	FLV-DR9030UV	UV	6.8	94 dia.	40 dia.	30 deg.	Q	◎	220		
	FLV-DR9215W	WHITE	7.4	92 dia.	47 dia.	15 deg.	H	◎	200	FLV-DR9215DF	FLV-DR9215PL
	FLV-DR9215R	RED	5.4					◎			
	FLV-DR9215B	BLUE	7.4					◎			
	FLV-DR12030W	WHITE	11.9	120 dia.	60 dia.	30 deg.	I	○	360	FLV-DR12030DF	FLV-DR12030PL
	FLV-DR12030R	RED	9.8					○			
	FLV-DR12030B	BLUE	11.9					○			

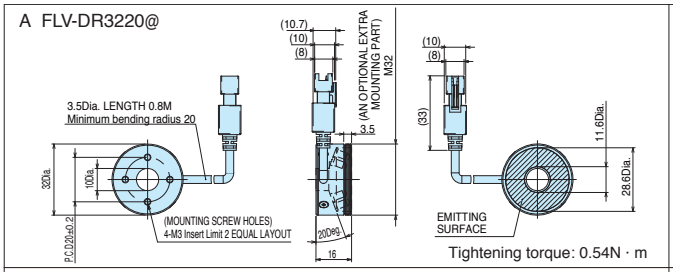
***1** : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered.
○: Connectable. Light can be powered only while the trigger is input.
×: Not connectable

***2** : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.

Note: Refer to page 62 for LED Characteristics.

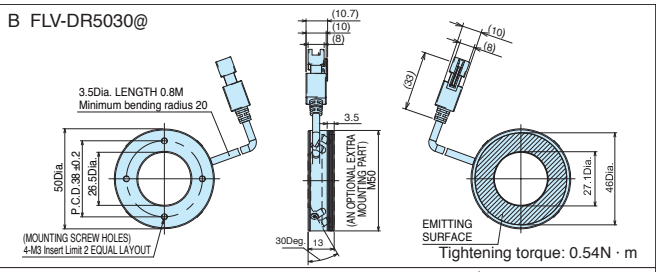
Dimensions (Unit: mm)

A FLV-DR3220@



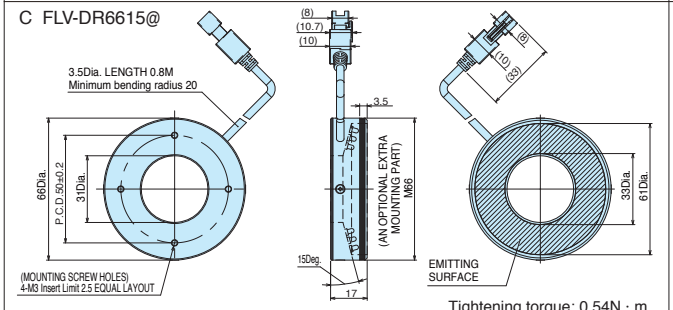
Tightening torque: 0.54N · m

B FLV-DR5030@



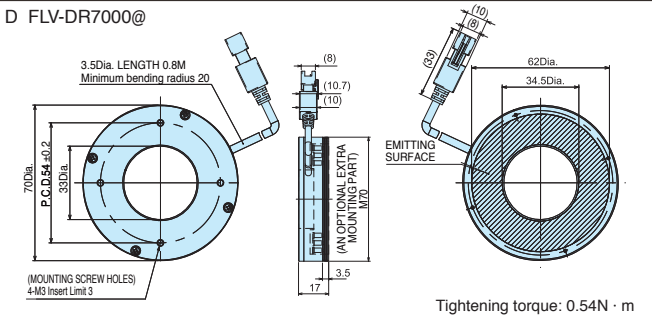
Tightening torque: 0.54N · m

C FLV-DR6615@



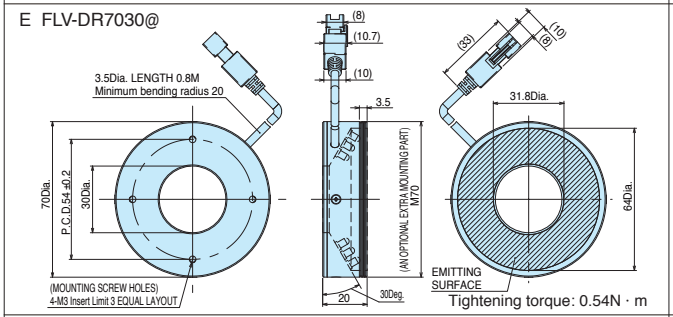
Tightening torque: 0.54N · m

D FLV-DR7000@



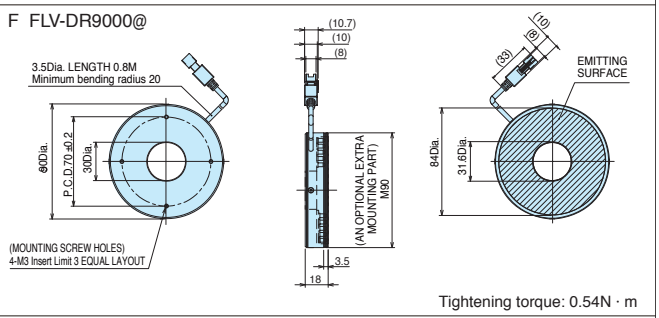
Tightening torque: 0.54N · m

E FLV-DR7030@



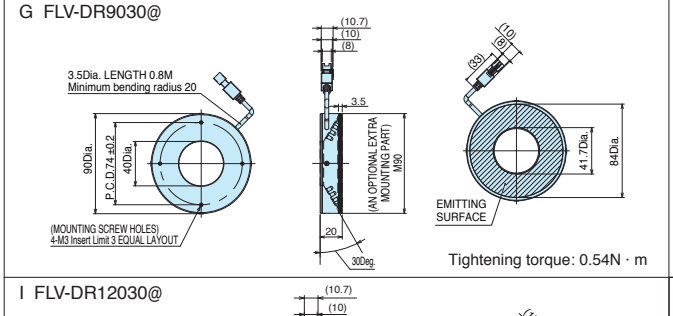
Tightening torque: 0.54N · m

F FLV-DR9000@



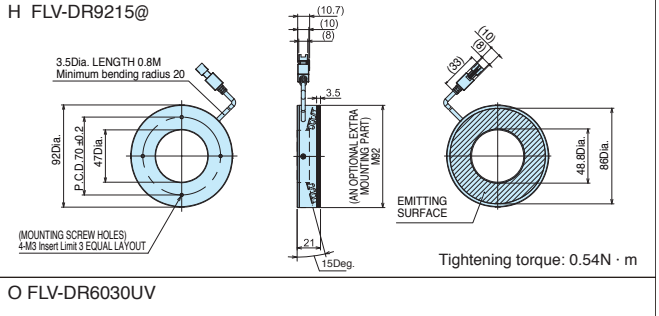
Tightening torque: 0.54N · m

G FLV-DR9030@



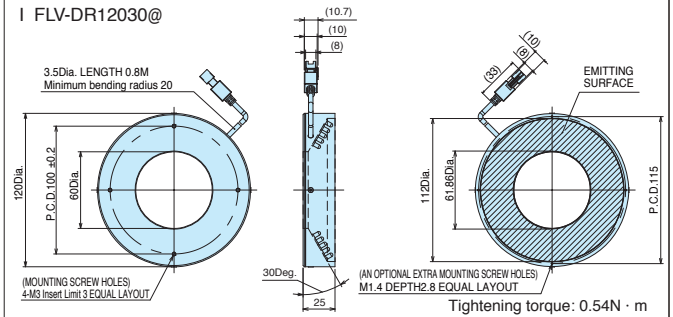
Tightening torque: 0.54N · m

H FLV-DR9215@



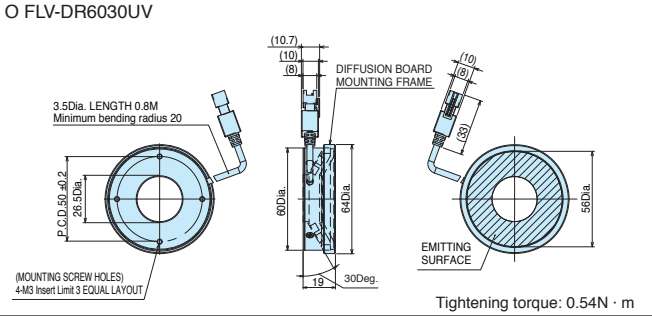
Tightening torque: 0.54N · m

I FLV-DR12030@



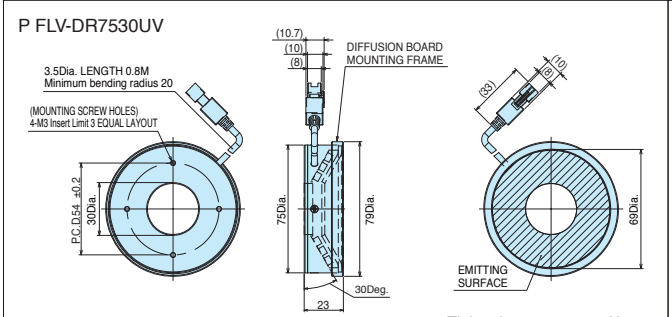
Tightening torque: 0.54N · m

O FLV-DR6030UV



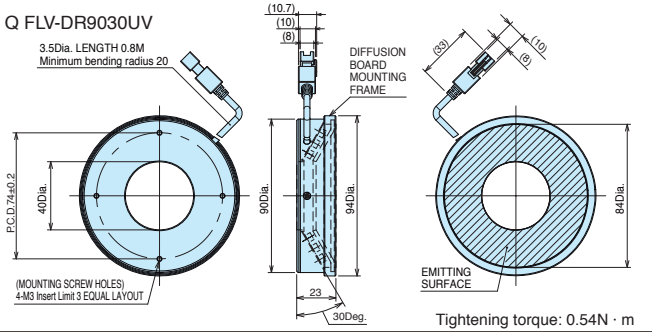
Tightening torque: 0.54N · m

P FLV-DR7530UV



Tightening torque: 0.54N · m

Q FLV-DR9030UV



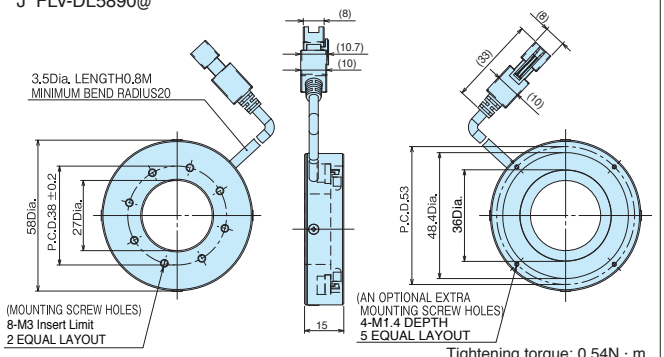
Tightening torque: 0.54N · m

Low Angle Ring Light FLV-DR Series
Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)	Options	
				External Ring Diameter (mm)	Internal Ring Diameter (mm)	Lighting Angle (Deg)	Drawing	FLV-TCC Series *2 (Camera-mount)		Diffusion Plate	Polarization Plate
Low Angle Ring Lights	FLV-DL5890W	WHITE	1.9	58 dia.	27 dia.	90 deg.	J	◎	90	FLV-DL5890DF	–
	FLV-DL5890R	RED	1.3					◎			
	FLV-DL5890B	BLUE	1.9					◎			
	FLV-DL7260W	WHITE	5.7	72 dia.	44 dia.	60 deg.	K	◎	60	FLV-DL7260DF	FLV-DL7260PL
	FLV-DL7260R	RED	2.8					◎			
	FLV-DL7260B	BLUE	5.7					◎			
	FLV-DL9090W	WHITE	2.8	90 dia.	50 dia.	90 deg.	L	◎	100	-	–
	FLV-DL9090R	RED	1.8					◎			
	FLV-DL9090B	BLUE	2.8					◎			
	FLV-DL12060W	WHITE	12.7	120 dia.	60 dia.	60 deg.	M	○	310	FLV-DL12060DF	FLV-DL12060PL
	FLV-DL12060R	RED	10.5					○			
	FLV-DL12060B	BLUE	12.7					○			
	FLV-DL15060W	WHITE	13.6	150 dia.	108 dia.	60 deg.	N	○	260	FLV-DL15060DF	FLV-DL15060PL
	FLV-DL15060R	RED	11.2					○			
	FLV-DL15060B	BLUE	13.6					○			

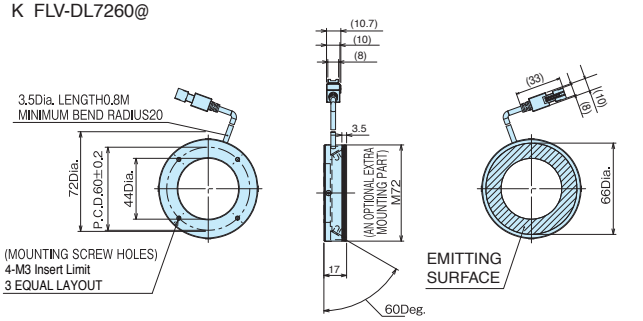
Dimensions (Unit: mm)

J FLV-DL5890@



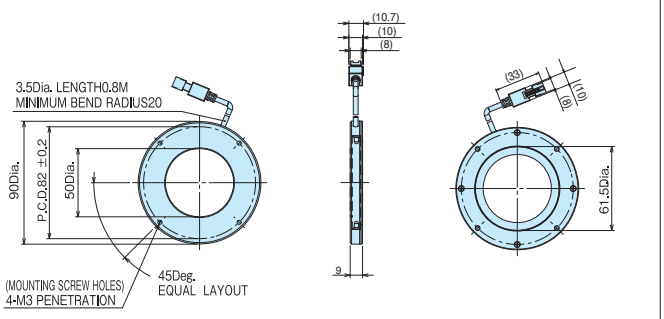
Tightening torque: 0.54N · m

K FLV-DL7260@

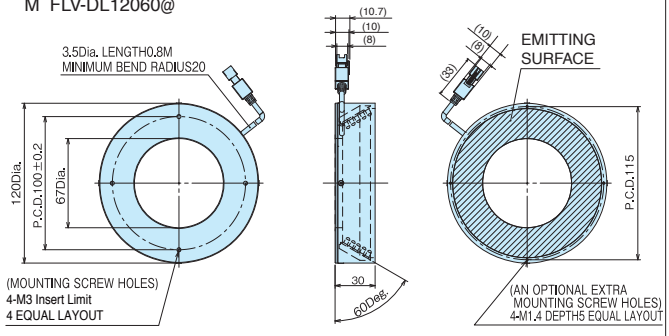


Tightening torque: 0.54N · m

L FLV-DL9090@

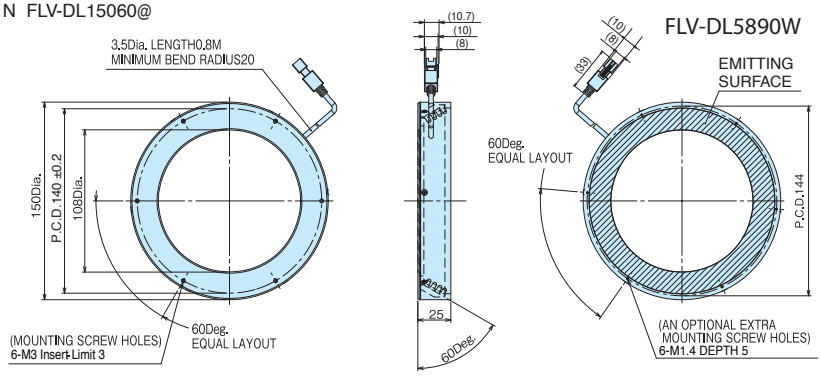


M FLV-DL12060@



Tightening torque: 0.54N · m

N FLV-DL15060@



Tightening torque: 0.54N · m

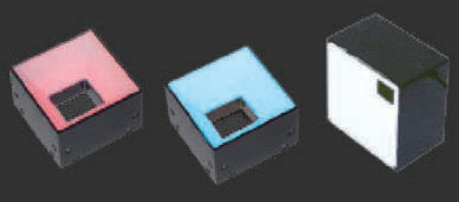
OMRON

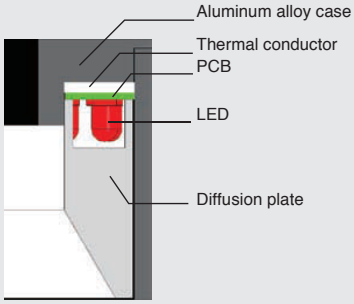
Shadowless Square Light

FLV-FQ Series

Diffused Square Lighting

This series achieves wide highly uniform illumination across a square field of view.





Cross-sectional Diagram

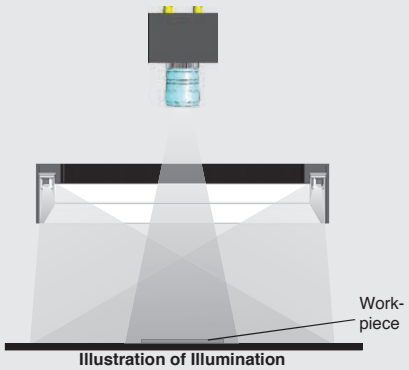


Illustration of Illumination

* : This figure is a conceptual illustration and may vary from the actual structure.

Product Features

- Shadowless Square Lighting
- Achieves highly uniform illumination and obtains different images at different installation distances for a much wider range of applications compared to normal ring lighting.

Applications

- Detection of defects on workpiece surfaces
- Recognition of printed characters and bar codes



Appearance Inspections of Chip Components

Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)
				Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC Series *2 (Camera-mount)	
Shadowless Square Lights	FLV-FQ48W	WHITE	2.0	41 X 41	48 X 48	30	A	◎	100
	FLV-FQ48R	RED	1.2					◎	
	FLV-FQ48B	BLUE	2.0					◎	

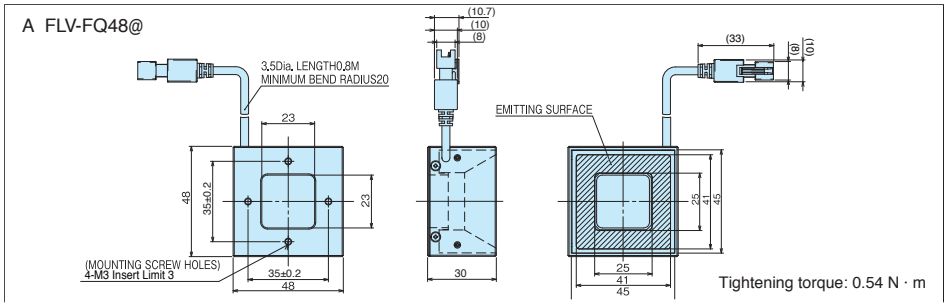
*1 : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make su that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller. ◎: Connectable. Light can be continuously powered. ◯: Connectable. Light can be powered only while the trigger is input. ×: Not connectable

*2 : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required. re

Note: Refer to page 62 for LED Characteristics.

Dimensions (Unit: mm)

A FLV-FQ48@

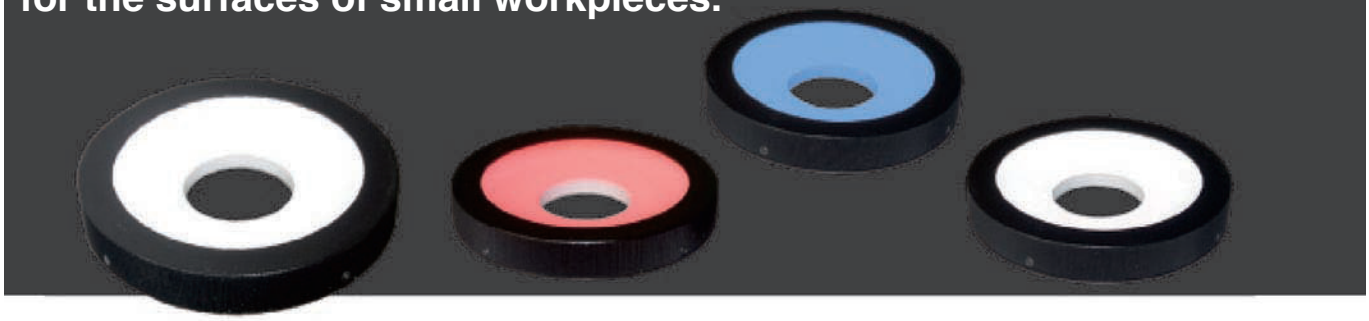


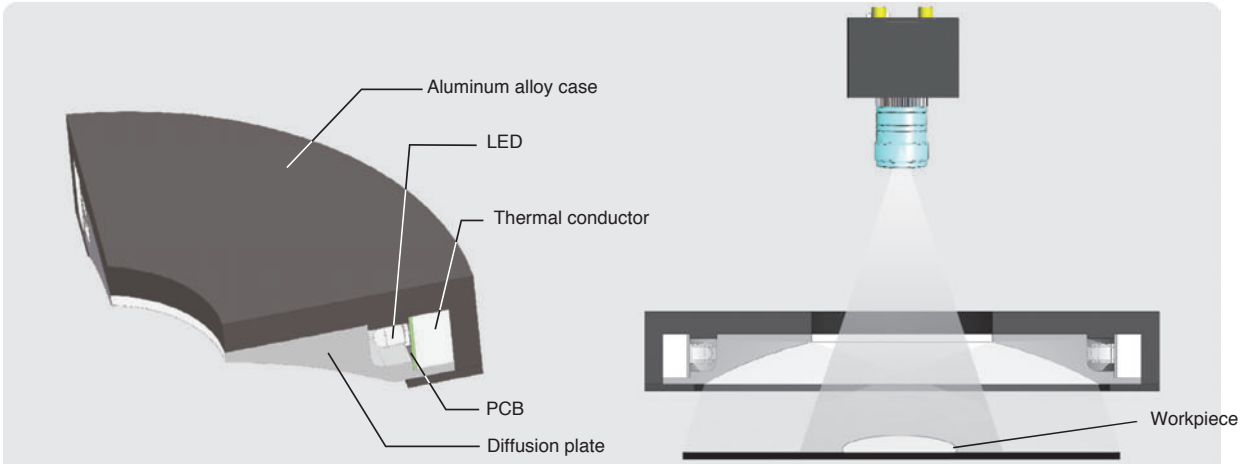
Shadowless Ring Light

FLV-FR Series

Diffused Ring Lighting

This series effectively eliminates the influences of localized reflections for the surfaces of small workpieces.





Cross-sectional Diagram **Illustration of Illumination**

* : This figure is a conceptual illustration and may vary from the actual structure.

Product Features

- Special diffusion plates create greater uniformity in lighting than normal ring lighting.

Applications

- Character inspections on electronic components or formed plastic parts



Image with Normal Ring Lighting **Image with the FLV-FR114R**

Character Detection on Capacitor Surface

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Ordering Information

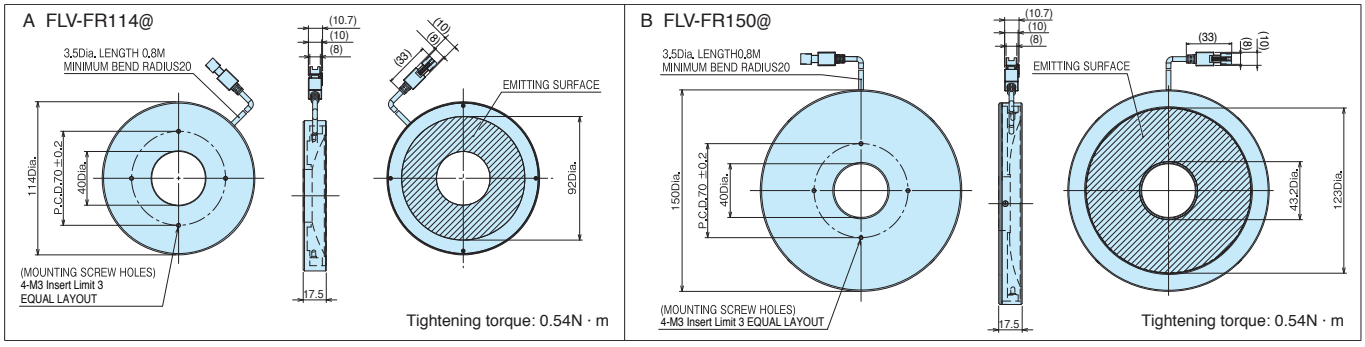
Series	Model	Color	Power consumption (W)	Dimensions				FLV-TCC Series *2 (Camera-mount)	Weight (g)
				External Ring Diameter (mm)	Internal Ring Diameter (mm)	Lighting Angle (Deg)	Drawing		
Shadowless Ring Lights	FLV-FR150W	WHITE	3.9	150 dia.	40 dia.	123 dia.	A	◎	270
	FLV-FR150R	RED	3.1					◎	
	FLV-FR150B	BLUE	3.9					◎	
	FLV-FR114W	WHITE	6.1	114 dia.	20 dia.	92 dia.	B	◎	500
	FLV-FR114R	RED	3.5					◎	
	FLV-FR114B	BLUE	6.1					◎	

***1** : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered.
○: Connectable. Light can be powered only while the trigger is input.
×: Not connectable

***2** : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.

Note: Refer to page 62 for LED Characteristics.

Dimensions (Unit: mm)



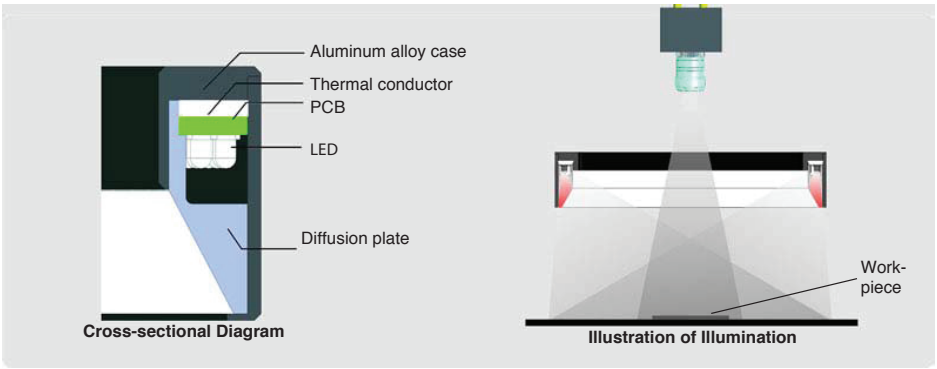
Shadowless Low-Angle Ring Lights

FLV-FP Series

Diffused Low-angle Lighting

This series achieves highly uniform illumination across a wide field of view. Excellent symmetry eliminates diagonal shadows.





Cross-sectional Diagram

Illustration of Illumination

* : This figure is a conceptual illustration and may vary from the actual structure.

Product Features

- Shadowless Ring Lighting
- Achieve highly uniform illumination and obtain different images at different installation distances for a much wider range of application compared to normal ring lighting.



Recognition of Marked Characters

Applications

- Detection of bumps, scratches, and other defects on surfaces
- Recognition of marks
- Recognition of printed characters
- Recognition of barcodes

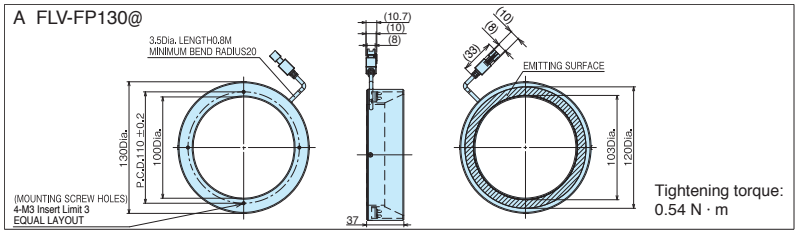
Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				FLV-TCC Series *2 (Camera-mount)	Weight (g)
				External Ring Diameter (mm)	Internal Ring Diameter (mm)	Lighting Angle (Deg)	Drawing		
Shadowless Low-angle Ring Lights	FLV-FP130W	WHITE	8.1	130 dia.	100 dia.	120 dia.	A	○	320
	FLV-FP130W	RED	5.8					◎	
	FLV-FP130W	BLUE	8.1					○	

*1 : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered. ○: Connectable. Light can be powered only while the trigger is input. ×: Not connectable
*2 : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.
Note: Refer to page 62 for LED Characteristics.

Dimensions (Unit: mm)

A FLV-FP130@



Tightening torque:
0.54 N · m

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Shadowless Partial Dome Ring Lights

FLV-FS Series

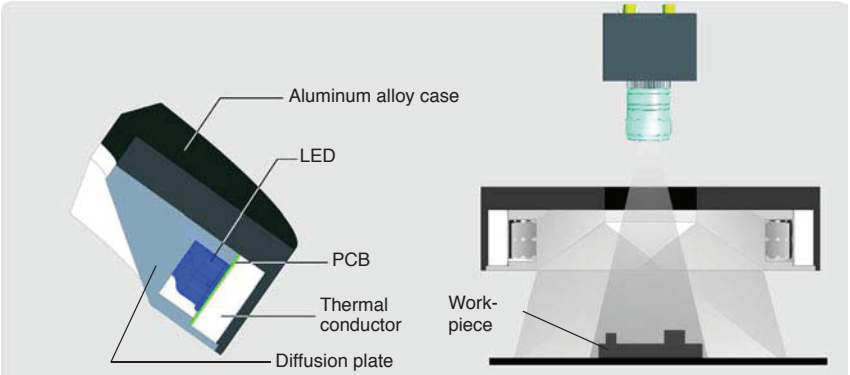
Diffused Dome Lighting

Highly uniform illumination eliminates the influences of small surface irregularities to highlight features through changes in inclination.



Product Features

- Uniquely designed diffusion plate achieve highly uniform illumination through reflection and diffusion.
- Eliminates the influences of small surface irregularities to highlight features through large differences in inclination.
- Saves space for small workpieces while achieving the benefits of dome lighting.



* : This figure is a conceptual illustration and may vary from the actual structure.

Applications

- Edge positioning and size measurement for metal parts
- Detection of bumps in metal parts

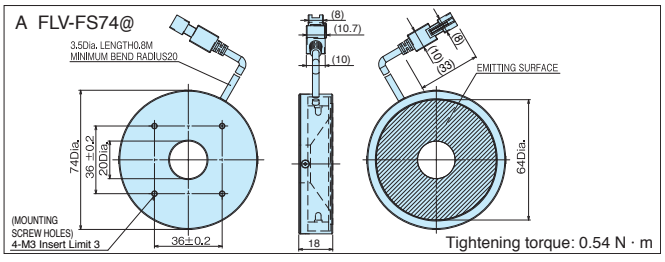

Gap Position Detection on Multilayered Shafts

Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)
				Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC Series *2 (Camera-mount)	
Shadowless Partial Dome Ring Lights	FLV-FS74W	WHITE	3.5	74 dia.	20 dia.	64 dia.	A	◎	140
	FLV-FS74R	RED						◎	
	FLV-FS74B	BLUE	5.2					◎	

*1 : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered. ○: Connectable. Light can be powered only while the trigger is input. ×: Not connectable
*2 : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.
Note: Refer to page 62 for LED Characteristics.

Dimensions (Unit: mm)

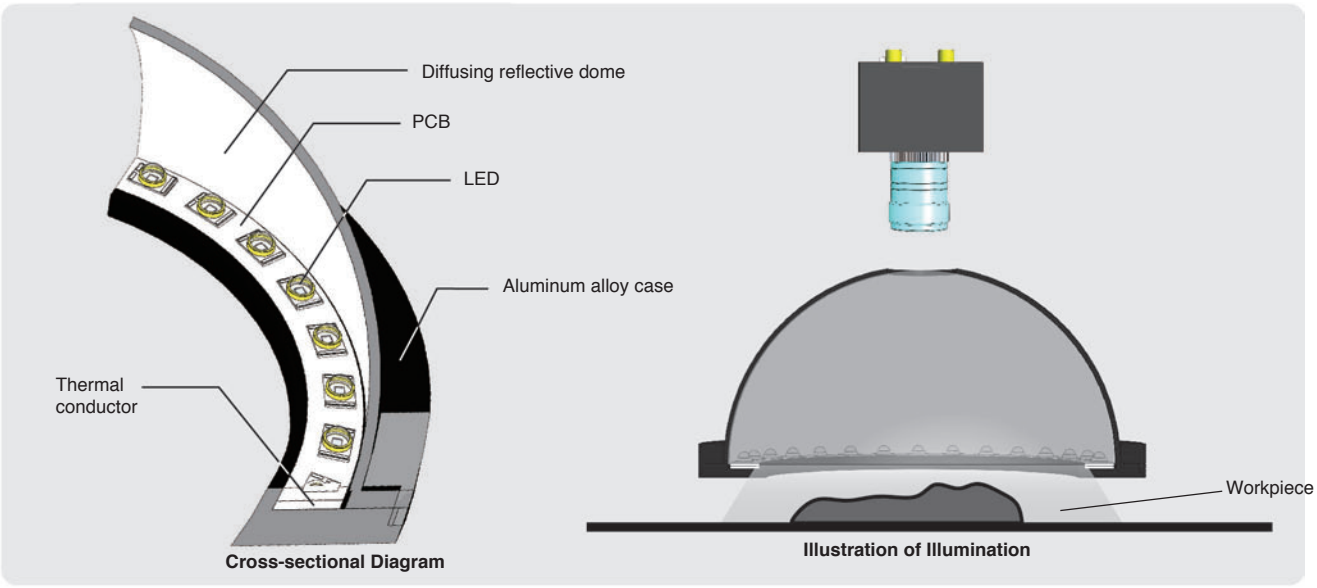


Dome Light

FLV-DD Series

Uniform Illumination from All Directions
This series produces shadowless images of the entire workpiece.





Cross-sectional Diagram

Illustration of Illumination

* : This figure is a conceptual illustration and may vary from the actual structure.

Product Features

- Achieves uniform illumination by reflecting light from a ring-shaped light source through a highly reflective, diffusion dome.

Applications

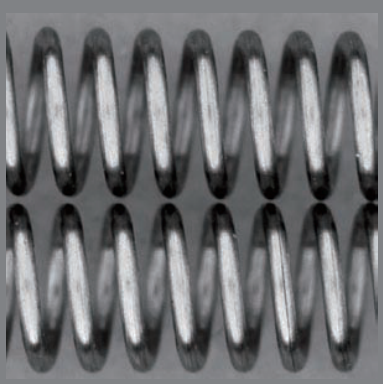
- Detection of characters and marks on curved or uneven surfaces
- Detection of highly reflective surfaces, such as metal or glass
- Shape measurements of curved or uneven workpieces



Inspection of Date Characters on Drink Cans

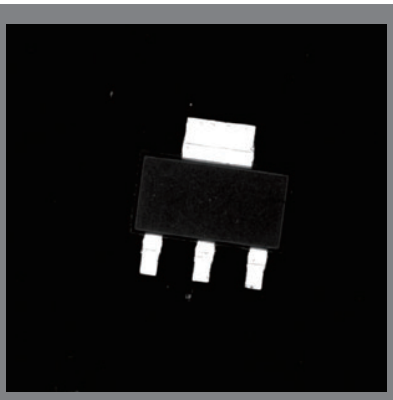


Detection of Characters on Cell Phones

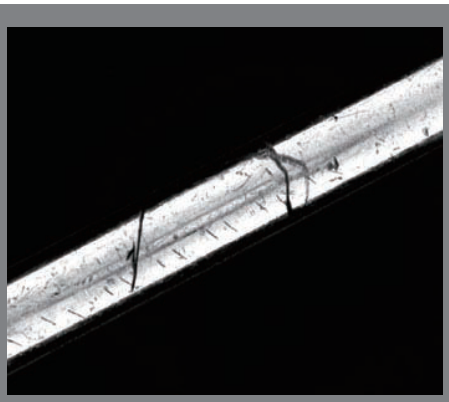


Detection of Cracks on Spring Surfaces

OMRON



Inspection of IC Pins



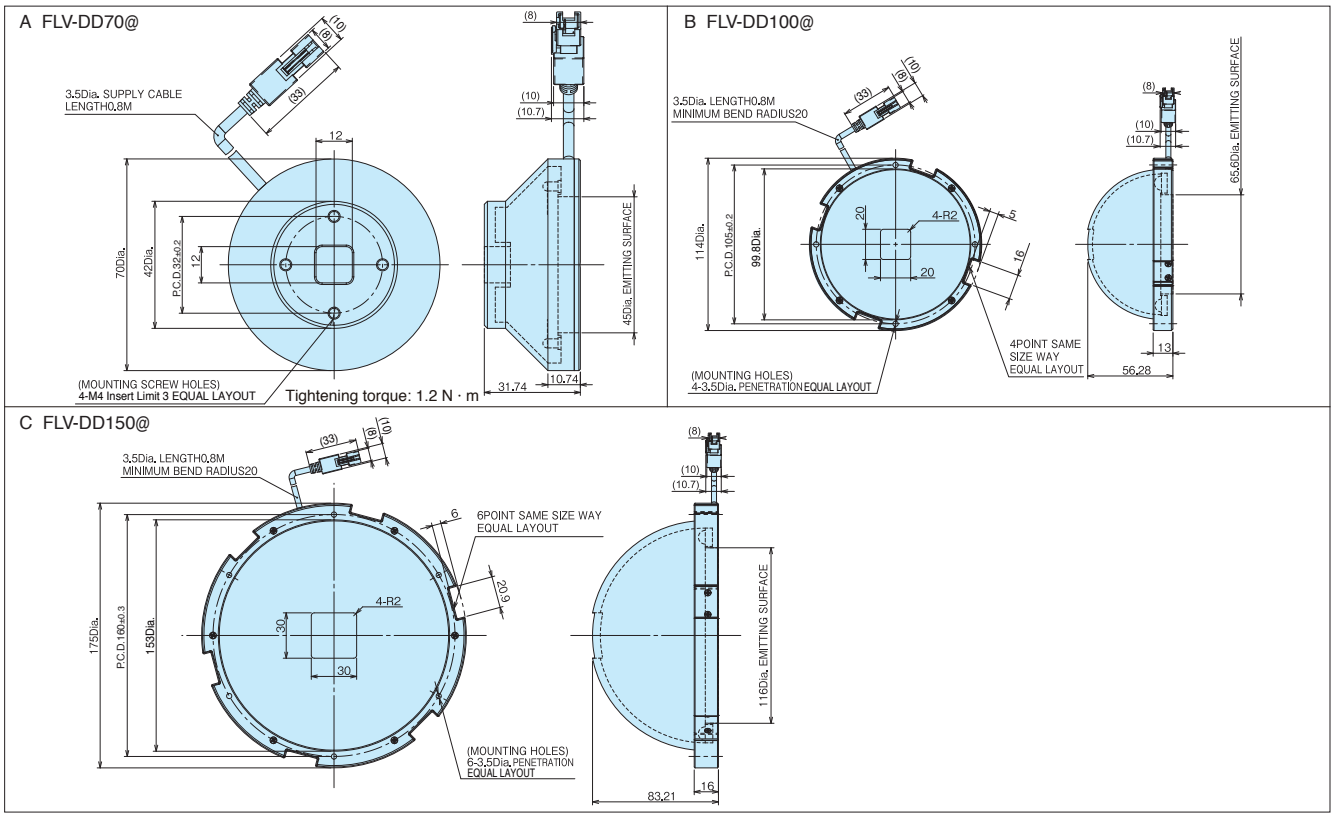
Scratch Detection on Metal Bars

Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)
				Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC Series *2 (Camera-mount)	
Dome Lights	FLV-DD70W	WHITE	2.3	45 dia.	70 dia.	31.74	A	◎	130
	FLV-DD70R	RED	1.4					◎	
	FLV-DD70B	BLUE	2.3					◎	
	FLV-DD100R	RED	11.9	65.6 dia.	114 dia.	56.28	B	○	210
	FLV-DD150R	RED	11.9	116 dia.	175 dia.	83.21	C	○	490

***1** : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered. ○: Connectable. Light can be powered only while the trigger is input. ×: Not connectable
***2** : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.
Note: Refer to page 62 for LED Characteristics.

Dimensions (Unit: mm)

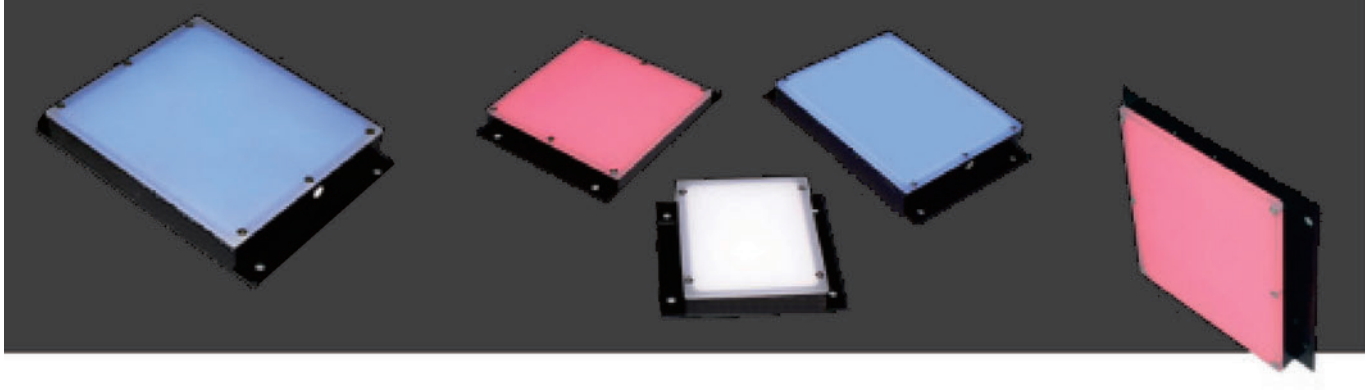


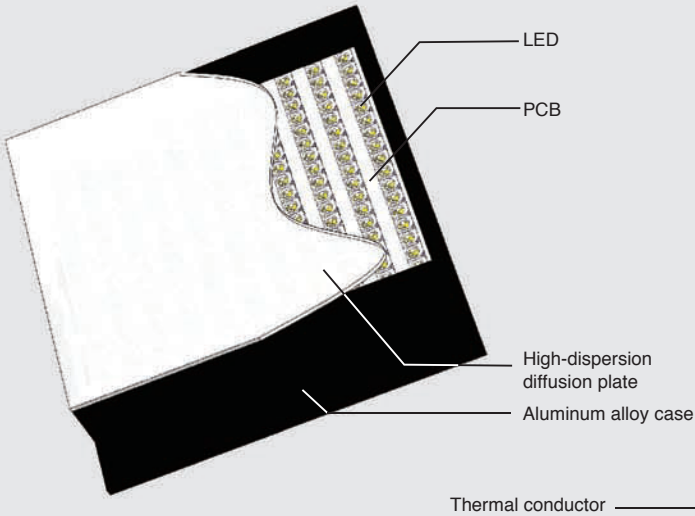
Direct Back Light

FLV-DB Series

Uniform Illumination from a Flat Emitting Surface

Illumination from the back of the workpiece produces a high-contrast silhouette.





Cross-sectional Diagram

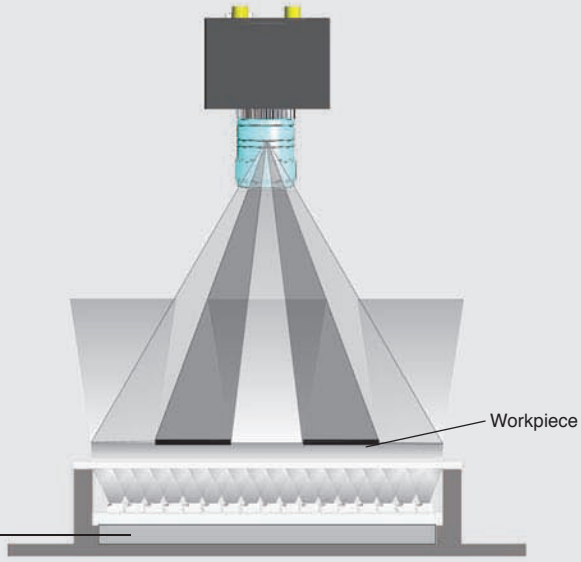


Illustration of Illumination

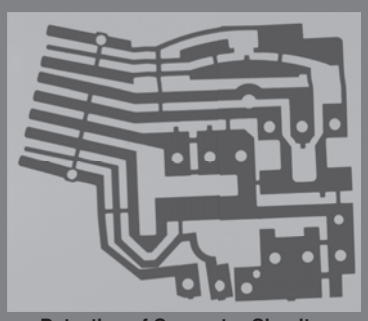
* : This figure is a conceptual illustration and may vary from the actual structure.

Product Features

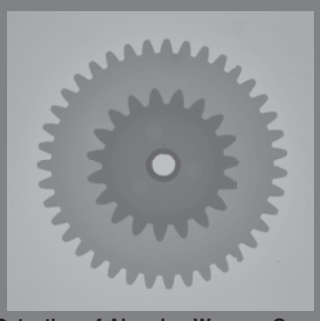
- Highly uniform backlighting with high-density LED arrays. Emphasizes the outline features of workpieces.

Applications

- Size measurements of machine parts
- Shape detections for electronic components and ICs
- Dirt detection on films



Detection of Connector Circuits



Detection of Abrasion Wear on Gears



Inspection of Bottles

OMRON

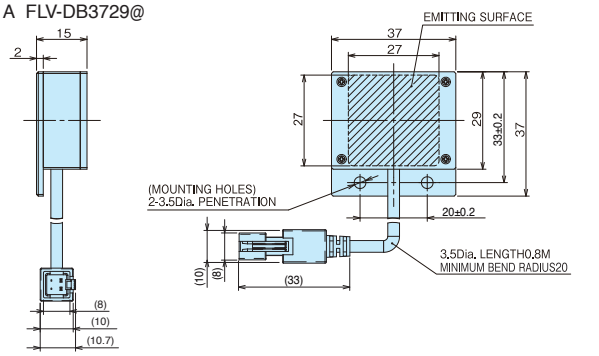
Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)
				Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC Series *2 (Camera-mount)	
Direct Black Lights	FLV-DB3729W	WHITE	0.9	27 X 27	37 X 37	15	A	◎	50
	FLV-DB3729R	RED	0.9					◎	
	FLV-DB3729B	BLUE	0.9					◎	
	FLV-DB10181W	WHITE	8.1	73 X 73	101 X 81	17	B	○	160
	FLV-DB10181R	RED	4.7					◎	
	FLV-DB10181B	BLUE	8.1					○	
	FLV-DB130130W	WHITE	13.0	114 X 120	144 X 126	17	C	○	270
	FLV-DB130130R	RED	11.5					○	
	FLV-DB130130B	BLUE	13.0					○	

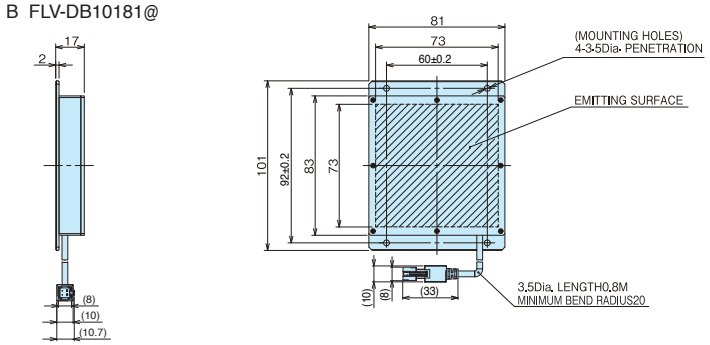
***1** : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered.
○: Connectable. Light can be powered only while the trigger is input.
×: Not connectable
***2** : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.
Note: Refer to page 62 for LED Characteristics.

Dimensions (Unit: mm)

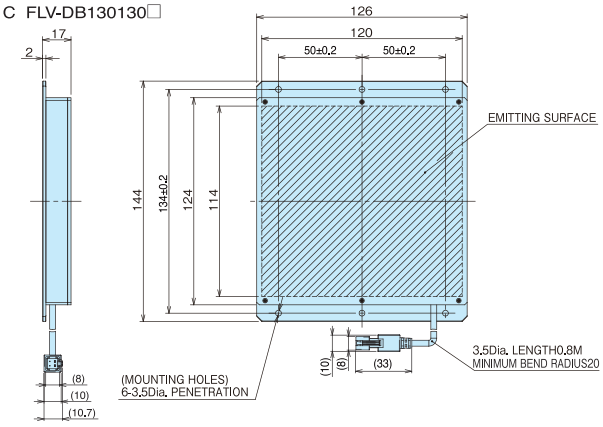
A FLV-DB3729@



B FLV-DB10181@



C FLV-DB130130□

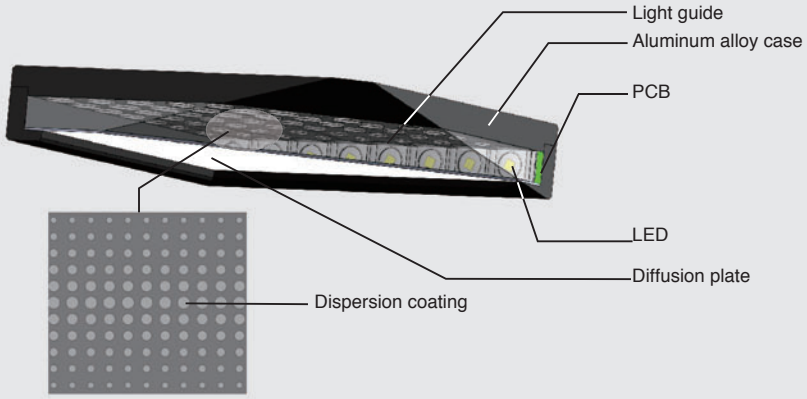


Edge Type Back Light

FLV-FB Series

Ultrathin, Highly Uniform Backlights
Thin enough to conveniently fit into narrow spaces.





Cross-sectional Diagram

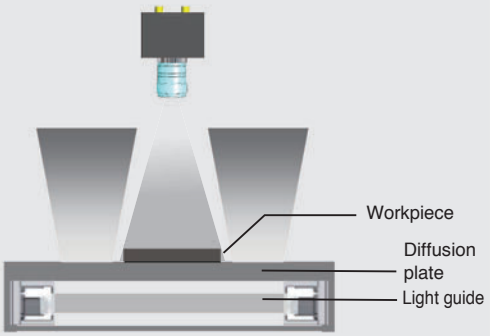


Illustration of Illumination

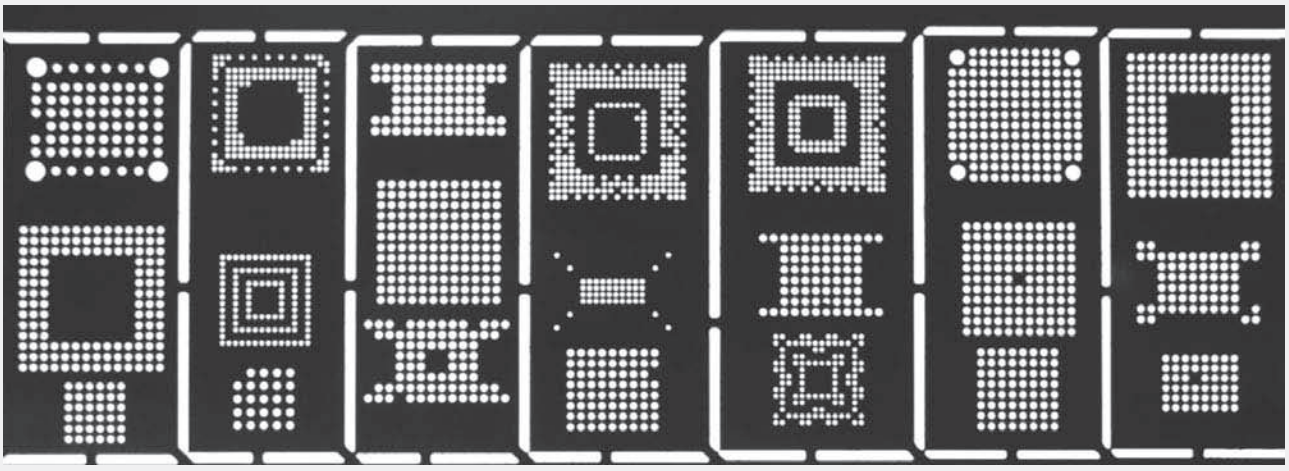
* : This figure is a conceptual illustration and may vary from the actual structure.

Product Features

- Five size variations with emitting surfaces from 35 mm square to 164 mm square.
- As thin as 8 mm (FLV-FB7070).

Applications

- Detection and size measurements of electronic devices
- Detection of LCD dead pixels



Detection of Silkscreen Patterns on Cell Phone PCBs

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Ordering Information

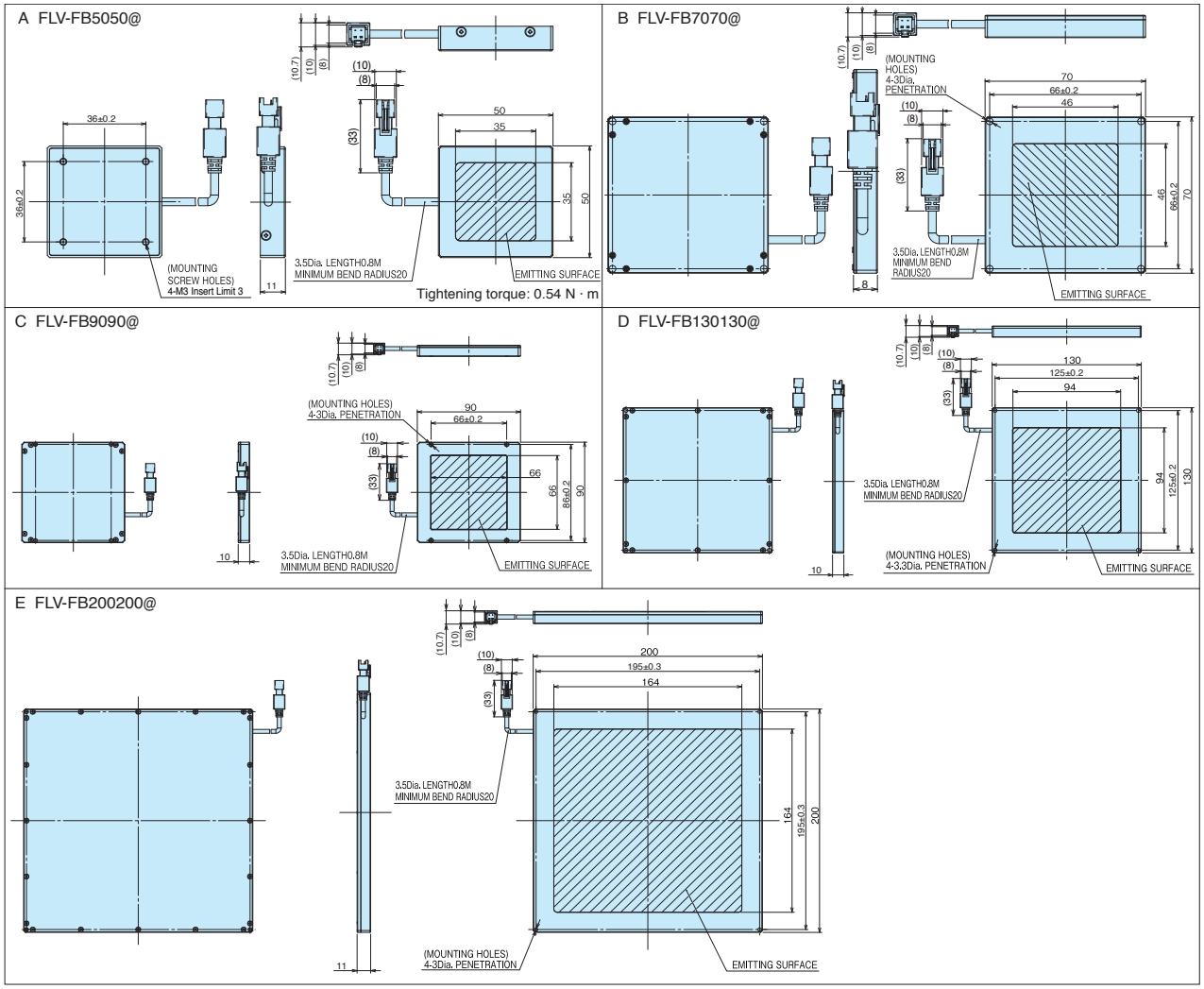
Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)
				Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC Series *2 (Camera-mount)	
Edge Type Back Lights	FLV-FB5050W	WHITE	1.9	35 x 35	50 x 50	11	A	◎	75
	FLV-FB5050R	RED	1.0					◎	
	FLV-FB5050B	BLUE	1.9					◎	
	FLV-FB7070W	WHITE	1.9	46 x 46	70 x 70	8	B	◎	85
	FLV-FB7070R	RED	1.4					◎	
	FLV-FB7070B	BLUE	1.9					◎	
	FLV-FB9090W	WHITE	3.7	66 x 66	90 x 90	10	C	◎	155
	FLV-FB9090R	RED	1.9					◎	
	FLV-FB9090B	BLUE	3.7					◎	
	FLV-FB130130W	WHITE	5.5	94 x 94	130 x 130	10	D	◎	230
	FLV-FB130130R	RED	3.7					◎	
	FLV-FB130130B	BLUE	5.5					◎	
	FLV-FB200200W	WHITE	7.3	164 x 164	200 x 200	11	E	◎	710
	FLV-FB200200R	RED	5.5					◎	
	FLV-FB200200B	BLUE	7.3					◎	

***1** : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered.
○: Connectable. Light can be powered only while the trigger is input.
×: Not connectable

***2** : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.

Note: Refer to page 62 for LED Characteristics.

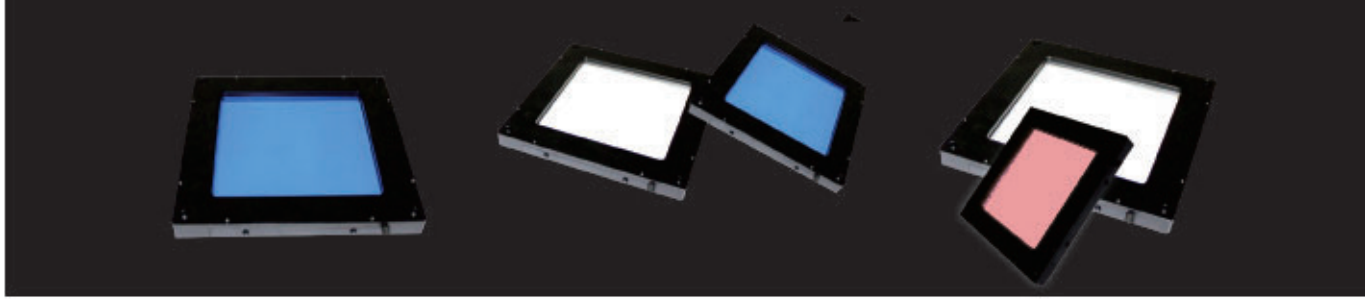
Dimensions (Unit: mm)

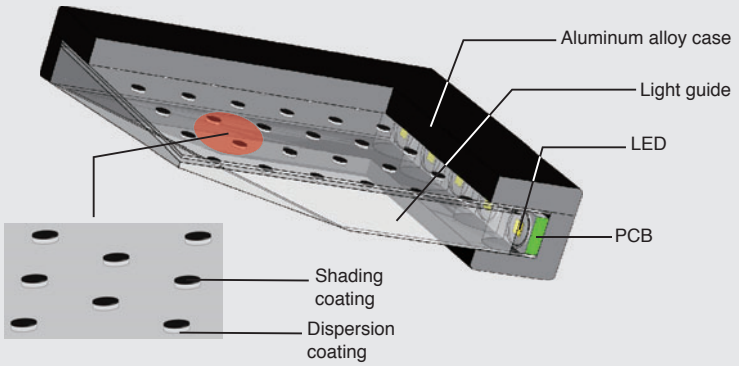


Edge Type Coaxial Light

FLV-FX Series

This series features a wide range of applications with many effects, such as backlighting and coaxial lighting.





Cross-sectional Diagram

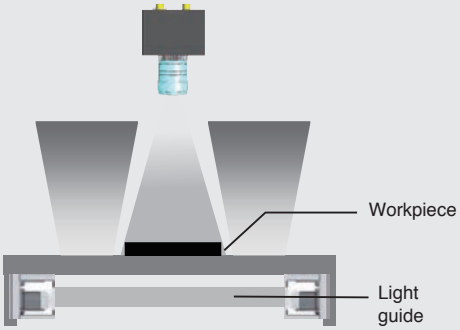


Illustration of Illumination

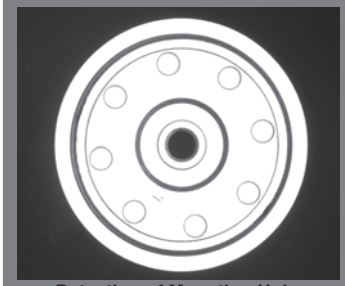
* : This figure is a conceptual illustration and may vary from the actual structure.

Product Features

- High uniformity with diffused illumination.
- Achieves both shadowless and coaxial illumination.
- Lightweight and compact to conveniently fit into narrow spaces.

Applications

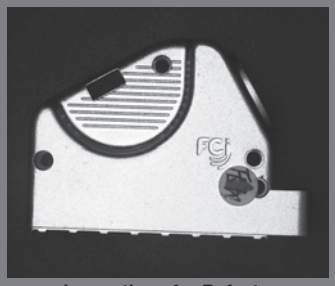
- Package inspections for foodstuffs, cigarettes, and household chemicals
- Appearance inspections of home appliance cases and components
- Detection, measurement, and recognition of characters and figures on highly reflective, uneven surfaces



Detection of Mounting Hole Positions



Inspections for Defects on Metal Parts



Inspections for Defects on Plated Parts



Recognition of Metal Characters and Patterns on Plastic Surfaces

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Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)
				Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC Series *2 (Camera-mount)	
Edge Coaxial Lights	FLV-FX100W	WHITE	3.7	60 x 60	100 x 100	11	A	◎	180
	FLV-FX100R	RED	1.9					◎	
	FLV-FX100B	BLUE	3.7					◎	
	FLV-FX143W	WHITE	5.5	100 x 100	143 x 143	11	B	◎	240
	FLV-FX143R	RED	3.7					◎	
	FLV-FX143B	BLUE	5.5					◎	

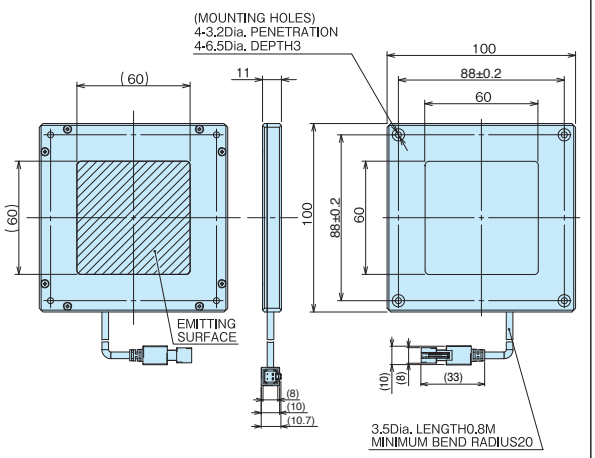
***1** : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered.
○: Connectable. Light can be powered only while the trigger is input.
×: Not connectable

***2** : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.

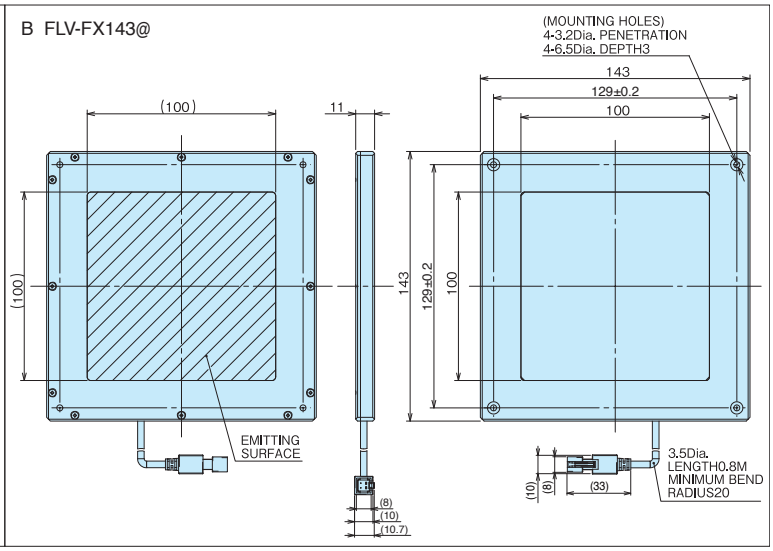
Note: Refer to page 62 for LED Characteristics.

Dimensions (Unit: mm)

A FLV-FX100@



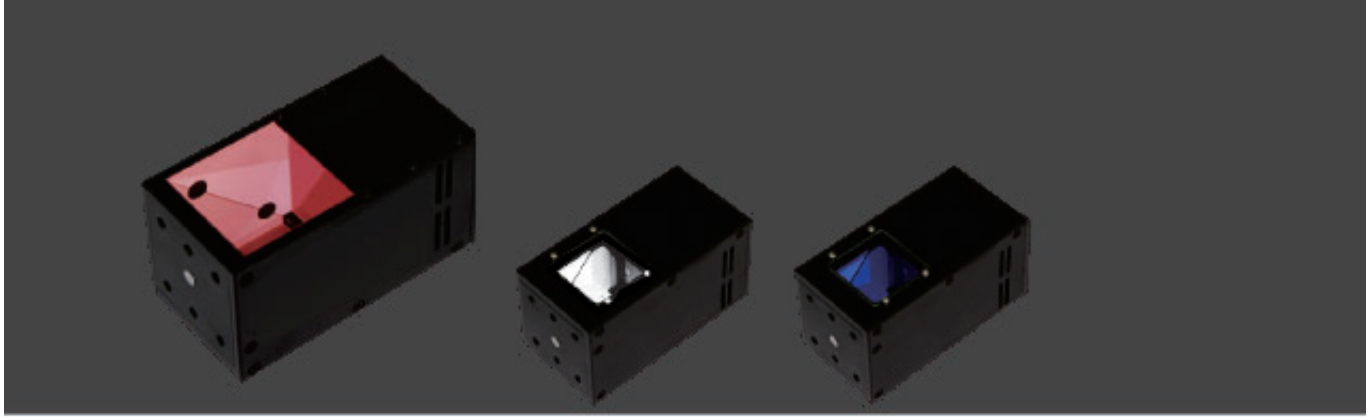
B FLV-FX143@



Coaxial Light

FLV-CL Series

Coaxial illumination with the Lens helps prevent interference from reflected light. This series is ideal for surface damage and character inspections on highly reflective workpieces with mirror-like surfaces.

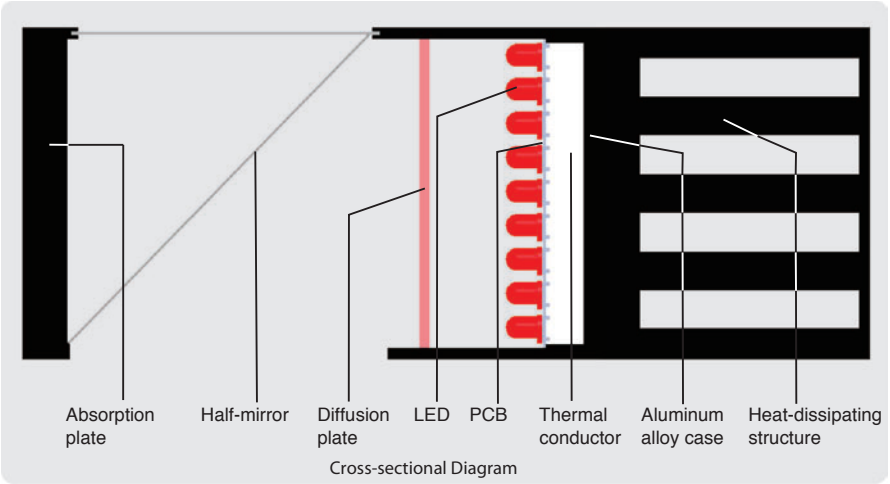


Product Features

- Long life and stability result from a structure with optimum heat dissipation.
- Uniform illumination for clear images.

Applications

- Inspection for scratches on highly reflective surfaces
- Inspection for damages on chips and silicon wafers
- Detection of positioning marks
- Recognition of bar codes on packages
- Recognition of laser-marked characters and 2D DMP codes
- General exterior detection



Cross-sectional Diagram

* : This figure is a conceptual illustration and may vary from the actual structure.

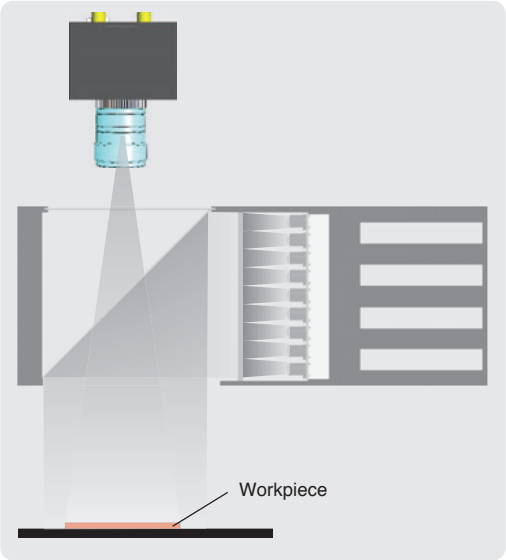
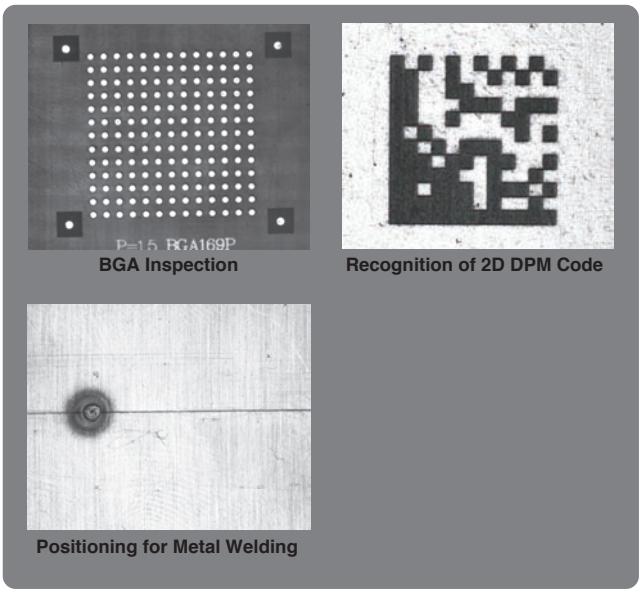


Illustration of Illumination



BGA Inspection

Recognition of 2D DPM Code

Positioning for Metal Welding

OMRON

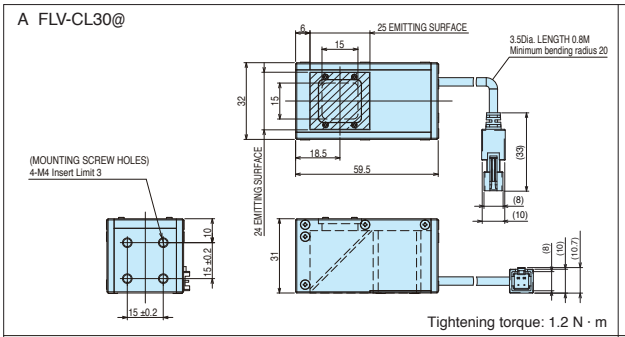
Ordering Information

Series	Model	Color	Power consumption (W)	Dimensions				Controller *1	Weight (g)
				Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC Series *2 (Camera-mount)	
Coaxial Lights	FLV-CL30W	WHITE	2.4	24 x 25	32 x 59.5	31	A	◎	110
	FLV-CL30R	RED	1.4					◎	
	FLV-CL30B	BLUE	2.4					◎	
	FLV-BR8532W	WHITE	3.9	34 x 34	40 x 74	40	B	◎	170
	FLV-BR8532R	RED	2.3					◎	
	FLV-BR8532B	BLUE	3.9					◎	
	FLV-BR11222W	WHITE	4.2	51 x 52	58 x 104	60.5	C	○	380
	FLV-CL60W	RED	10.4					◎	
	FLV-CL60B	BLUE	5.7					○	
	FLV-CL60IR	IR	10.4					◎	
	FLV-CL60BUV	UV	3.0					◎	
	FLV-CL80W	WHITE	10.8	72 x 72	78 x 124	77.5	D	○	580
	FLV-CL80R	RED	7.2					◎	
	FLV-CL80B	BLUE	10.8					○	

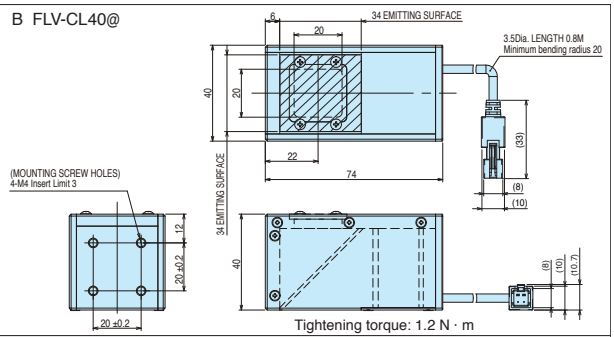
***1** : The table shows whether each Light can be connected to Lighting Controllers. When multiple Lights are connected to a Lighting Controller, make sure that the total power consumption of all connected Lights does not exceed the power consumption of connectable Light of each Lighting Controller.
◎: Connectable. Light can be continuously powered. ○: Connectable. Light can be powered only while the trigger is input. ×: Not connectable
***2** : If the Lighting requires more than 7.5 W of total power, an external power supply to the FLV-TCC is required.
Note: Refer to page 62 for LED Characteristics.

Dimensions (Unit: mm)

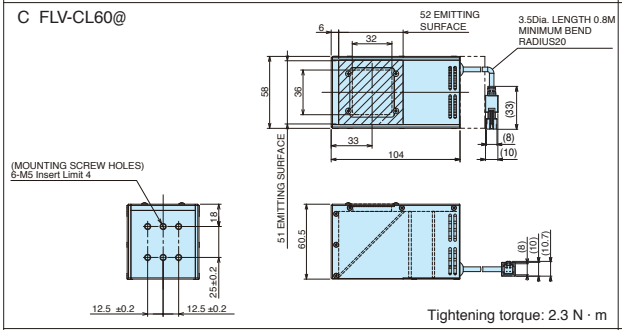
A FLV-CL30@



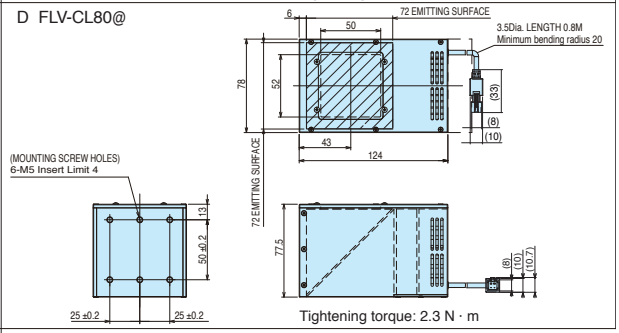
B FLV-CL40@



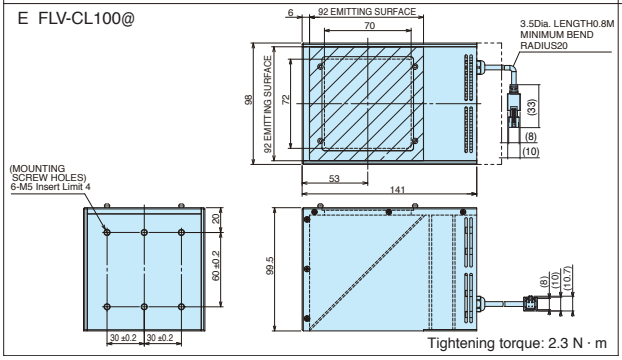
C FLV-CL60@



D FLV-CL80@



E FLV-CL100@



Camera-mount Lighting Controller for FLV Series

FLV-TCC Series

Compact Lighting Controller Mounts directly to OMRON Cameras

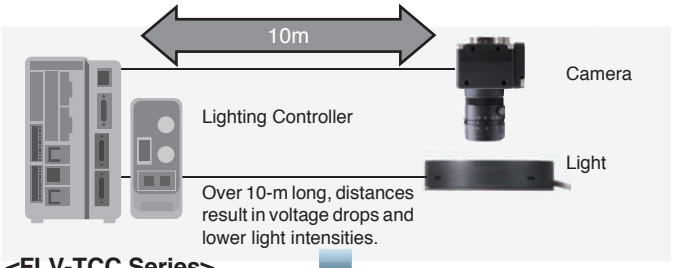
Multistage Control of Lighting on Up to Four Lights can be connected.



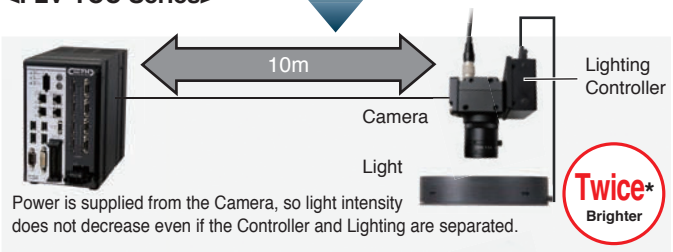
Product Features

- Saves space with a compact design.
  No need for space in control panels for expansion.
- Maintain Lighting intensity even with long wiring distances.
- No complicated wiring from the Vision System Controller.

<Standard Lighting System>



<FLV-TCC Series>



* When the extension cable length is 10 m.

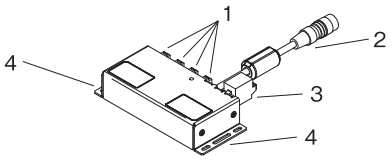
Ordering Information

Model	Number of Channels	Applicable Lighting* 5			Power Supply Voltage	Maximum Lighting power	Luminance Control Method
		Standard Light FLV Series * 1	Spot Light FLV-EP Series	Line Light FLV-LN Series			
FLV-TCC1	1	○	×	×	24 VDC * 2	15 W max. * 3	Digital * 4
FLV-TCC4	4	○	×	×			

* 1. Standard light means all FLV-series Lights excluding the FLV-EP-series Spot Lights and the FLV-LN-series Line Lights.
* 2. If the total power consumption of Lights is 7.5 W or less, an external power supply is not required because the power is supplied from the Camera.
* 3. For triggered lighting, 50% duty.
* 4. Intensity can be controlled by setting from the Vision System Controller.
* 5. ○: Connectable.
×: Not connectable

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Part Names and Functions

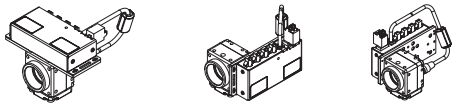


No.	Name	Description
1	Lighting connecting connector	Connects to the LED lighting.
2	Camera connecting cable	Connects to the extension connector of the camera.
3	24 V external power supply input terminal block	Connect a 24-VDC power supply if the total power consumption of the Lightings exceeds 7.5 W.
4	Mounting hole for fixing screw	Holes to mount the screws to secure the Lighting Controller to a mounting plate or device.

Mounting the Controller to the Camera

The Lighting Controller can be mounted to the Camera using the provided camera mount plate. Mounting directions are: (1) Top/Bottom mount, (2) Right side mount, (3) Left side mount.

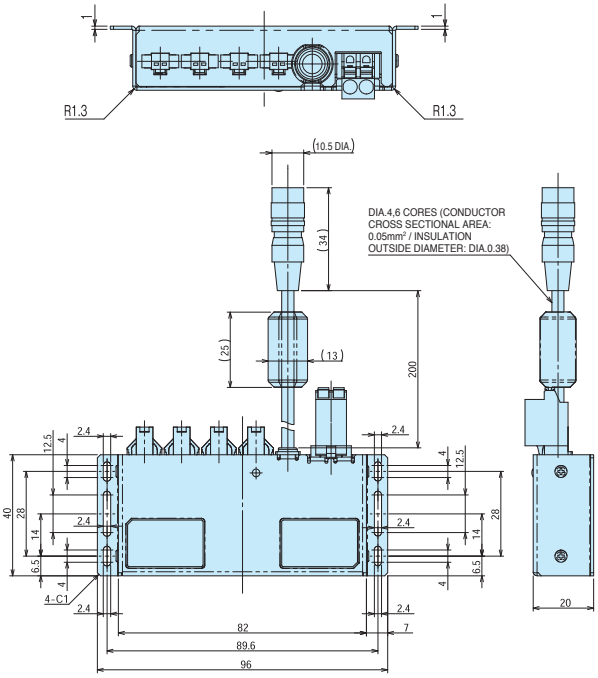
(1) Top/Bottom mount (2) Right side mount (3) Left side mount



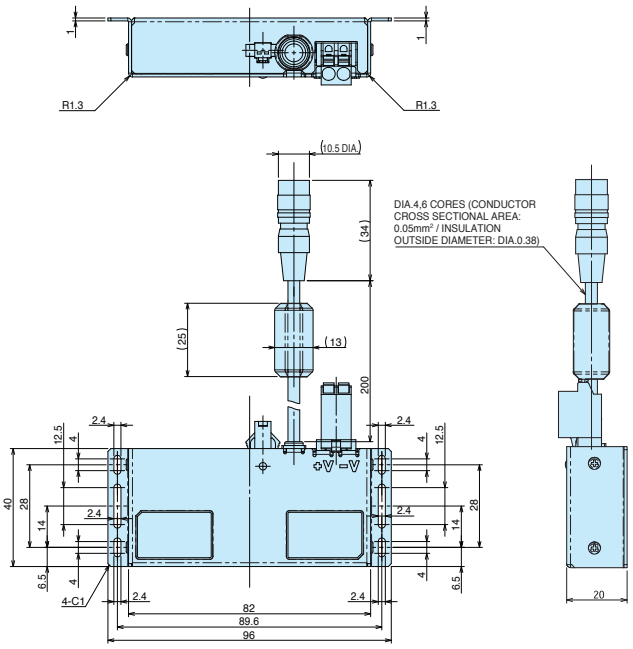
Dimensions (Unit: mm)

●Lighting Controller

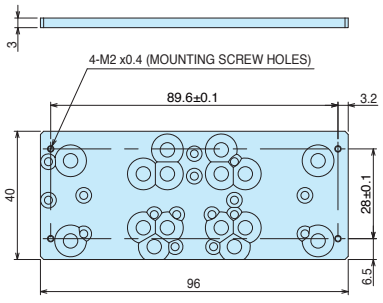
FLV-TCC4



FLV-TCC1



●Camera mount plate (provided)



Camera-mount Lighting Controller for FLV Series FLV-TCC Series

Specifications

Item	Model	FLV-TCC1	FLV-TCC4
Number of connectable lightings		1	4
Applicable light		FLV series (FLV-EP series and FLV-LN series are excluded.)	
Applicable camera		FH-S series, FZ-S series	
Applicable vison system controller		FH series, FZ5 series	
Input voltage		Supplied from applicable camera (13 V) or external power supply (24 V)	
External power supply voltage * 1		24 VDC 10% (including ripple)	
Current consumption		1.5 A max.	
	Recommended power supply	S8VS-06024 (manufactured by OMRON, 24 VDC, 2.5 A, 60 W)	
Power for connectable lighting			
13 VDC supplied through camera			
Continuous lighting		7.5 W max.	4ch total 7.5 W max.
Trigger lighting	Simultaneous lighting	7.5 W max.	4ch total 7.5 W max.
	Individual lighting		7.5 W max. for 1ch
24 VDC external power supply			
Continuous lighting		7.5 W max.	4ch total 7.5 W max.
Trigger lighting	Simultaneous lighting	15 W max. (duty: 50% max.)	4ch total 15 W max. (duty: 50% max.)
	Individual lighting		15 W max. for 1ch (duty: 50% max.)
Drive method		Contrast voltage method	
Lighting method		Trigger lighting, Continuous lighting	
Intensity control method		Duty light adjustment or voltage light adjustment Duty light adjustment: PWM frequency of 100 kHz, light adjustment of 255 levels Voltage light adjustment: Light adjustment of 255 levels (all are set with vision sensor controller)	
Trigger lighting		Lighting in synchronization with trigger input timing from the controller. (auto setting in accordance with shutter speed)	
	Trigger lighting delay time	T_on: 30 s max.	
External interface		Camera connection cable (directly connected with the main unit)	
Insulation resistance		0.5 M (100 VDC)	
Ambient temperature		Operating: 0 to 50 C, Storage: -15 to 60 C (with no icing or condensation)	
Ambient humidity		Operating/storage: 35% to 85% (with no condensation)	
Degree of protection		IP20 (IEC60529)	
Vibration resistance (destructive)		10 to 150 Hz, (0.7 mm double amplitude) 80 min each in X, Y, and Z directions	
Shock resistance (destructive)		150 m/s² 3 times each in 6 directions (up/down, left/right, forward/backward)	
Materials		Case: Aluminum, Cable: PVC, Camera mount plate: Aluminum	
Weight		Approx: 120 g (including the camera mount plate)	Approx. 130 g (including the camera mount plate)
Accessories		Instruction sheet, Camera mount plate, Mounting screws (M2 set screw × 4, M2 flat head screw × 4, M4 flat head screw × 4)	
Applicable standards		EN: EN61326, EMC: No.2004/108/EC	

* 1. When power is supplied from an external input power supply (24 V), turn ON power to the Lighting Controller at the same time as or before supplying power to the Vision System Controller.
If power is supplied to the Vision System Controller first, the Lighting Controller will not recognize the 24-V external power supply input, so Lightings which require more than 7.5 W of power will not turn ON.

FLV Options

For FLV series

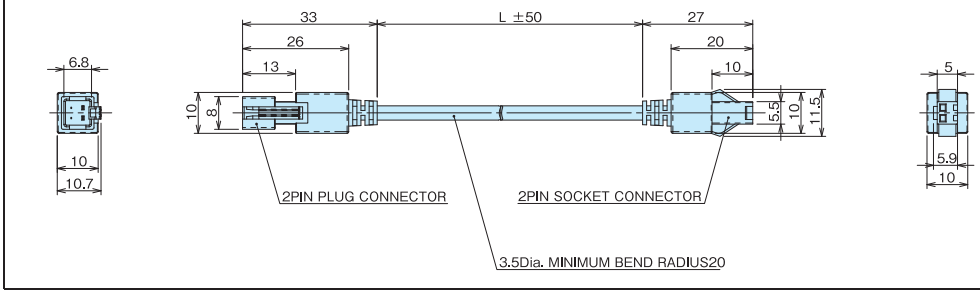
Ordering Information

Type	Model	Cable Length	Weight	Dimension
Extension Cable for Standard Light * 1	**FLV-XC1**	1 m	Approx. 20 g	A
	FLV-XC2	2 m	Approx. 40 g	
	FLV-XC3	3 m	Approx. 50 g	
	FLV-XC5	5 m	Approx. 80 g	
Extension Cable for Spot Light	**FLV-XC1EP**	1 m	Approx. 20 g	B
	FLV-XC2EP	2 m	Approx. 40 g	
	FLV-XC3EP	3 m	Approx. 50 g	
	FLV-XC5EP	5 m	Approx. 80 g	
Branch Cable for Standard Light * 1	**FLV-XC1S2**	1 m	Approx. 30 g	D
	FLV-XC2S2	2 m	Approx. 50 g	
	FLV-XC3S2	3 m	Approx. 80 g	
	FLV-XC5S2	5 m	Approx. 120 g	

***** 1. Standard light means all FLV-series Lights excluding the FLV-EP-series Spot Lights and the FLV-LN-series Line Lights.

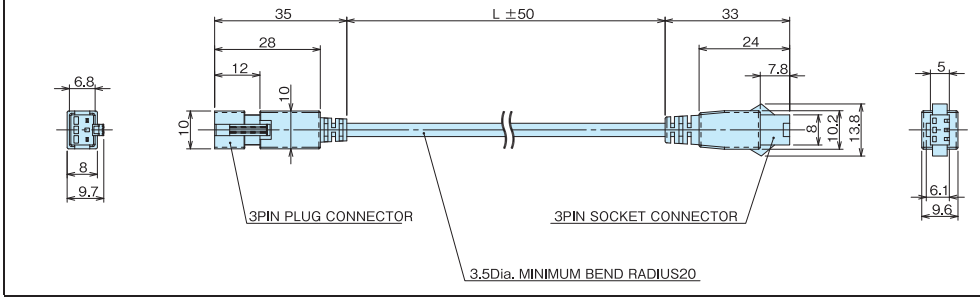
Dimensions (Unit: mm)

A FLV-XC@



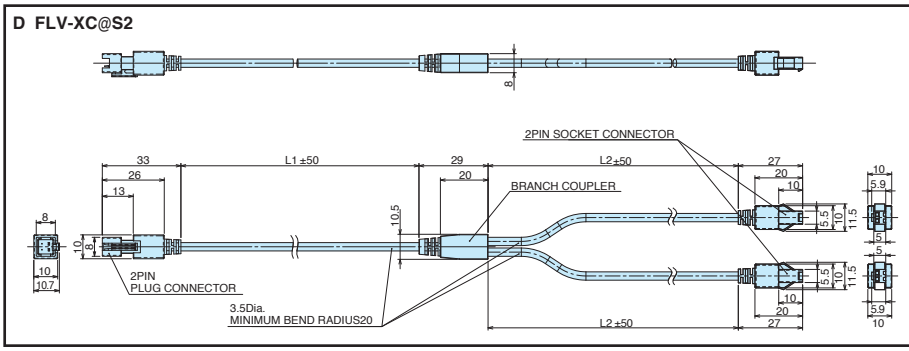
Model	L
FLV-XC1	1000
FLV-XC2	2000
FLV-XC3	3000
FLV-XC5	5000

B FLV-XC@EP



Model	L
FLV-XC1EP	1000
FLV-XC2EP	2000
FLV-XC3EP	3000
FLV-XC5EP	5000

D FLV-XC@S2



Model	L1	L2
FLV-XC1S2	500	500
FLV-XC2S2	1000	1000
FLV-XC3S2	1000	2000
FLV-XC5S2	2000	3000

Diffusion Plate and Polarization Plate

For FLV series

Ordering Information

●Diffusion Plate

Type	Model	Connectable Lighting
For FLV-DR-series Direct Ring Light	FLV-DR3220DF	FLV-DR3220@
	FLV-DR5030DF	FLV-DR5030@
	FLV-DR6030DF	FLV-DR6030UV
	FLV-DR6615DF	FLV-DR6615@
	FLV-DR7000DF	FLV-DR7000@
	FLV-DR7030DF	FLV-DR7030@
	FLV-DR7530DF	FLV-DR7530UV
	FLV-DR9000DF	FLV-DR9000@
	FLV-DR9030DF	FLV-DR9030@
	FLV-DR9215DF	FLV-DR9215@
	FLV-DR12030DF	FLV-DR12030@
For FLV-DL-series Low Angle Ring Light	FLV-DL5890DF	FLV-DL5890@
	FLV-DL7260DF	FLV-DL7260@
	FLV-DL12060DF	FLV-DL12060@
	FLV-DL15060DF	FLV-DL15060@
For FLV-BR-series Bar Light	FLV-BR6022DF	FLV-BR6022@
	FLV-BR6424DF	FLV-BR6424UV
	FLV-BR8532DF	FLV-BR8532@
	FLV-BR11222DF	FLV-BR11222@
	FLV-BR11624DF	FLV-BR11624UV
	FLV-BR14030DF	FLV-BR14030@
	FLV-BR15020DF	FLV-BR15020@
	FLV-BR21222DF	FLV-BR21222@
	FLV-BR21230DF	FLV-BR21230@
	FLV-BR38037DF	FLV-BR38037@
	FLV-BR48031DF	FLV-BR48031@

●Polarization Plate

Type		Model	Connectable Lighting
For FLV-DR-series Direct Ring Light		FLV-DR3220PL	FLV-DR3220@
		FLV-DR5030PL	FLV-DR5030@
		FLV-DR6615PL	FLV-DR6615@
		FLV-DR7000PL	FLV-DR7000@
		FLV-DR7030PL	FLV-DR7030@
		FLV-DR9000PL	FLV-DR9000@
		FLV-DR9030PL	FLV-DR9030@
		FLV-DR9215PL	FLV-DR9215@
		FLV-DR12030PL	FLV-DR12030@
For FLV-DL-series Low Angle Ring Light		FLV-DL7260PL	FLV-DL7260@
		FLV-DL12060PL	FLV-DL12060@
		FLV-DL15060PL	FLV-DL15060@
For FLV-BR-series Bar Light	Polarization direction: Long side 	FLV-BR6022PL	FLV-BR6022@
		FLV-BR8532PL	FLV-BR8532@
		FLV-BR11222PL	FLV-BR11222@
		FLV-BR14030PL	FLV-BR14030@
		FLV-BR15020PL	FLV-BR15020@
		FLV-BR21222PL	FLV-BR21222@
		FLV-BR21230PL	FLV-BR21230@
		FLV-BR38037PL	FLV-BR38037@
		FLV-BR48031PL	FLV-BR48031@
	Polarization direction: Short side 	FLV-BR6022PL-V	FLV-BR6022@
		FLV-BR8532PL-V	FLV-BR8532@
		FLV-BR11222PL-V	FLV-BR1122@
		FLV-BR14030PL-V	FLV-BR14030@
		FLV-BR15020PL-V	FLV-BR15020@
		FLV-BR21222PL-V	FLV-BR21222@
		FLV-BR21230PL-V	FLV-BR21230@
		FLV-BR38037PL-V	FLV-BR38037@
		FLV-BR48031PL-V	FLV-BR48031@

FL-DR Series

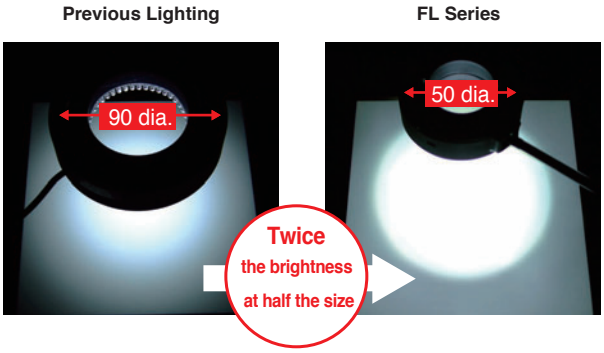
Clear Images with Industry's Best Level* of Brightness and Illumination over a Wide Field of View

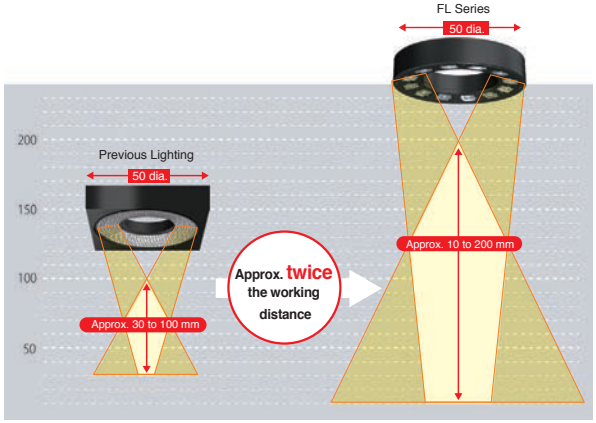


* : Based on OMRON testing in November 2010.

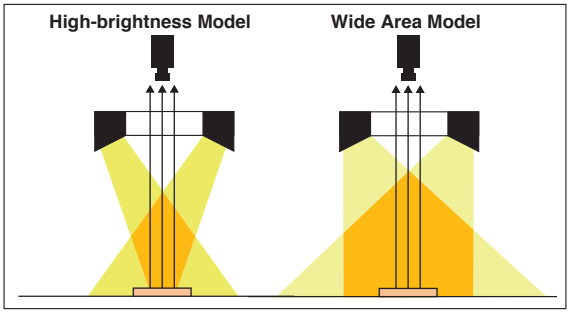
Product Features

- High brightness in a small package.
- Wide range of working distance.



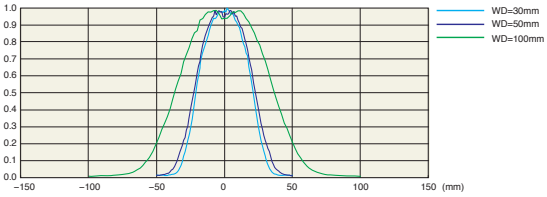


Illumination Structure

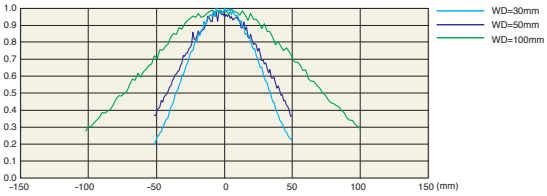


Lighting Intensity Distribution Characteristics

High-brightness Model (FL-DR50W-H)

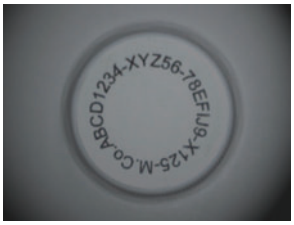


Wide Area Model (FL-DR50W)



Applications

Previous Lighting



Faster lines make it necessary to increase shutter speeds, but then the clarity of workpiece images decreases.

FL-series



More than sufficient brightness is provided for high-speed lines.

Previous Lighting



It was necessary to create different inspection standards for each section.

FL-series



With uniform lighting from corner to corner, it is possible to inspect.

Ordering Information

Type	Model	Light Color
Wide Area Model	**FL-DR32W**	White LEDs
High-brightness Model	**FL-DR32W-H**	
Wide Area Model	**FL-DR50W**	
High-brightness Model	**FL-DR50W-H**	
Wide Area Model	**FL-DR90W**	
High-brightness Model	**FL-DR90W-H**	

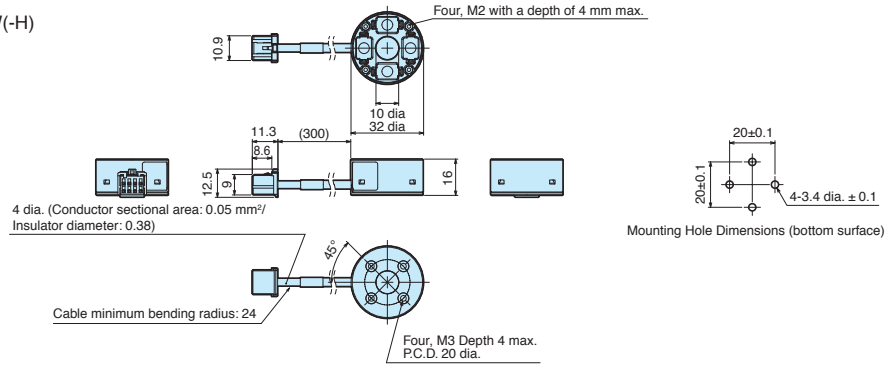
Specifications

Model	Wide Area Model	High-brightness Model	Wide Area Model	High-brightness Model	Wide Area Model	High-brightness Model
	FL-DR32W	**FL-DR32W-H**	**FL-DR50W**	**FL-DR50W-H**	**FL-DR90W**	**FL-DR90W-H**
Light source	White LEDs					
Vibration resistance	10 to 150 Hz (Double amplitude: 0.7 mm), 80 min each in X, Y, and Z directions					
Shock resistance	150 m/s^2 3 times each in 6 directions					
Ambient temperature	Operating: 0 to 40 C, Storage: -15 to 60 C (with no icing or condensation)					
Ambient humidity	Operating/storage: 35% to 85% (with no condensation)					
Ambient atmosphere	No corrosive gases.					
Degree of protection	IEC60259 IP20					
Weight	Approx. 25 g		Approx. 30 g		Approx. 70 g	Approx. 80 g
Materials	Case and Lens :PC, Cable:Heat resistant, Connector:Thermoplastic resin with glass					
LED safety	Risk Group 2 (IEC 62471)					
Accessories	Instruction sheet					

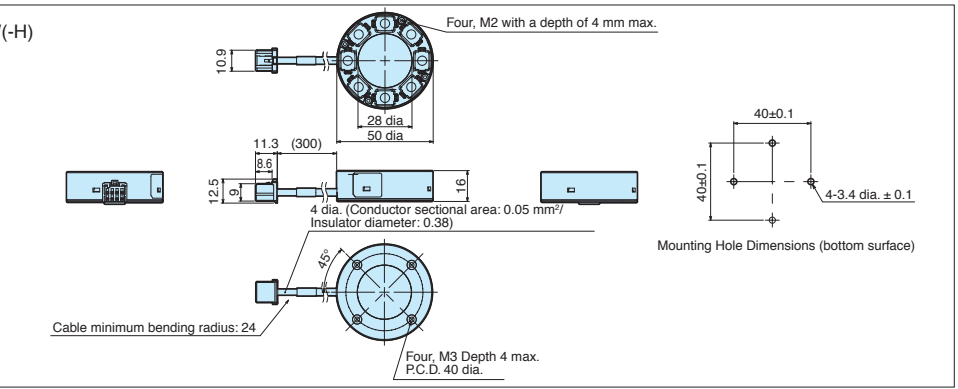
The color of white LEDs can vary due to intrinsic characteristics. Confirm suitability for the application in advance.

Dimensions (Unit: mm)

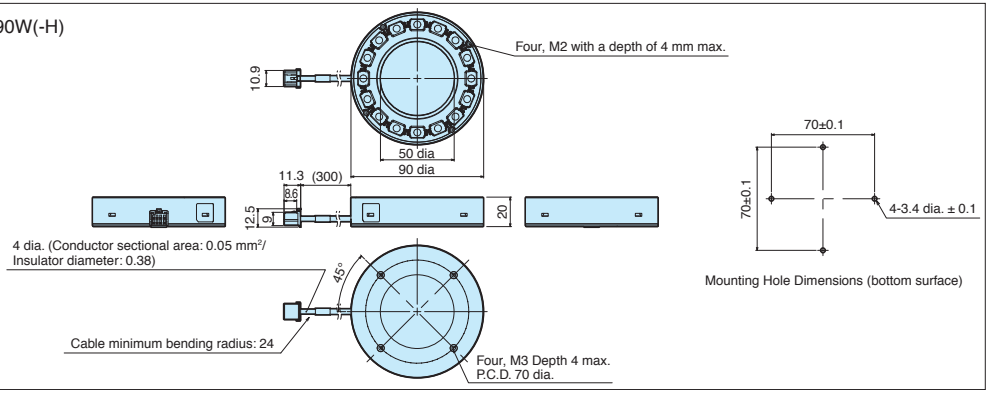
FL-DR32W(-H)



FL-DR50W(-H)



FL-DR90W(-H)



FL-BR Series

The highest level* of brightness in the industry.
This series is structured for adaptable wiring and mounting.



High-brightness Models　　Wide Area Models

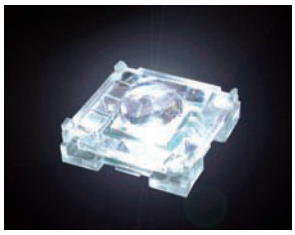
ODR Optical Double Reflection

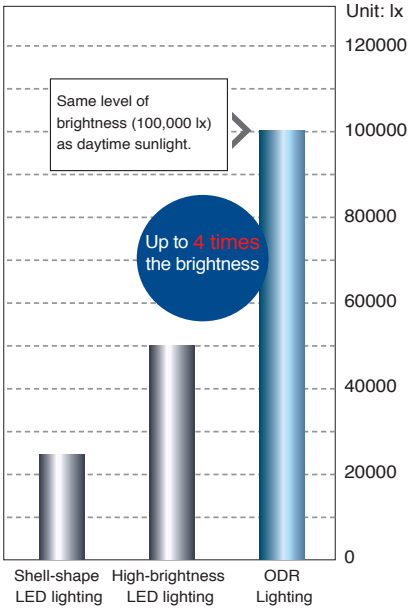
* Based on OMRON testing in November 2010.

Product Features

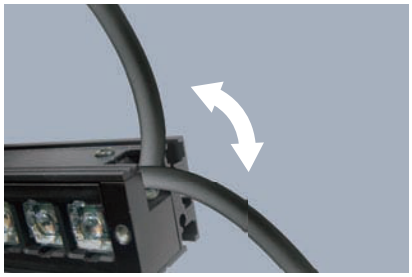
- High-brightness ODR lighting beyond the limitations of LEDs.
- Stable inspection even for high-speed applications.
- Bright even through a polarizing filter.
- Easy wiring, mounting, and adjustment.

ODR Optical Double Reflection



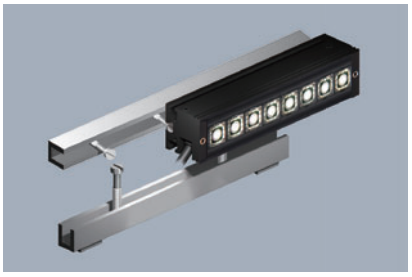


Wiring

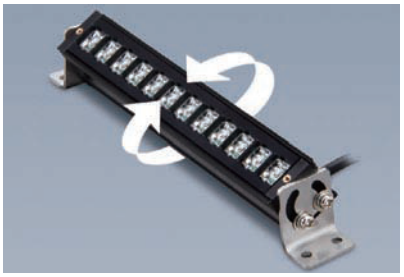


The cable can extend from either direction, allowing for horizontal or vertical wiring layouts on the mounting surface.

Mounting and Adjustment

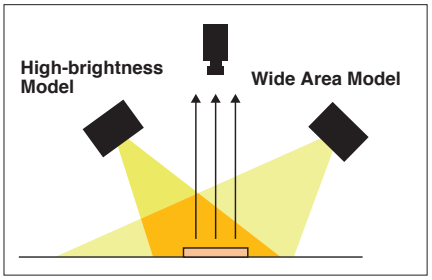


The light is structured for mounting with nuts to an arm on the back or side surfaces.
Minute changes in the position can be achieved by sliding the light.



Specialized mounting brackets enable mounting at a flexible angle.

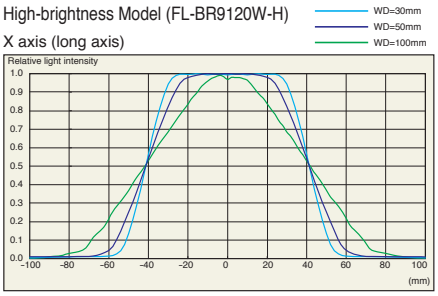
Illumination Structure



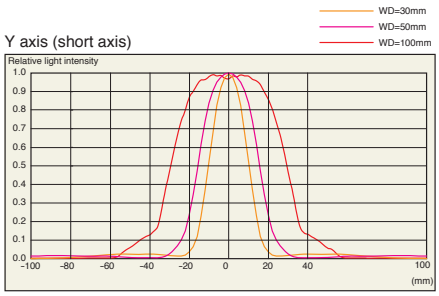
Lighting Intensity Distribution Characteristics

High-brightness Model (FL-BR9120W-H)

X axis (long axis)

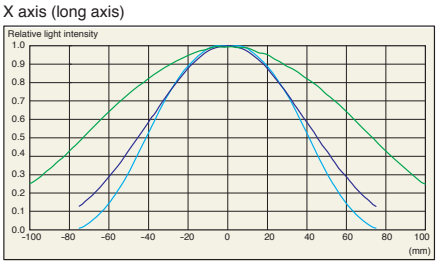


Y axis (short axis)

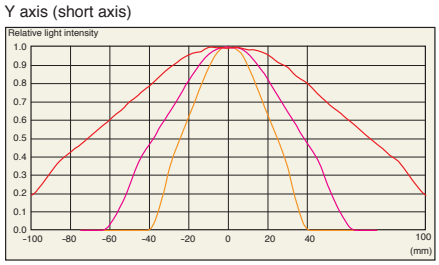


Wide Area Model (FL-BR9120W)

X axis (long axis)



Y axis (short axis)



Applications

Standard Lighitng



It is difficult to read characters with low contrast.

FL Series



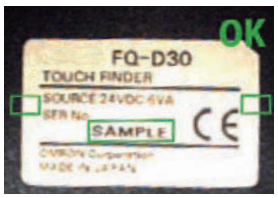
Sharp images are created of both two-dimensional codes and characters.

Standard Lighitng



Inspection is not possible because of workpiece blurring or a lack of brightness.

FL Series



Complete extraction of edges and characters.

Ordering Information

Type	Model	Light Color
Wide Area Model	**FL-BR5020W**	White LEDs
High-brightness Model	**FL-BR5020W-H**	
Wide Area Model	**FL-BR9120W**	
High-brightness Model	**FL-BR9120W-H**	
Wide Area Model	**FL-BR13120W**	
High-brightness Model	**FL-BR13120W-H**	

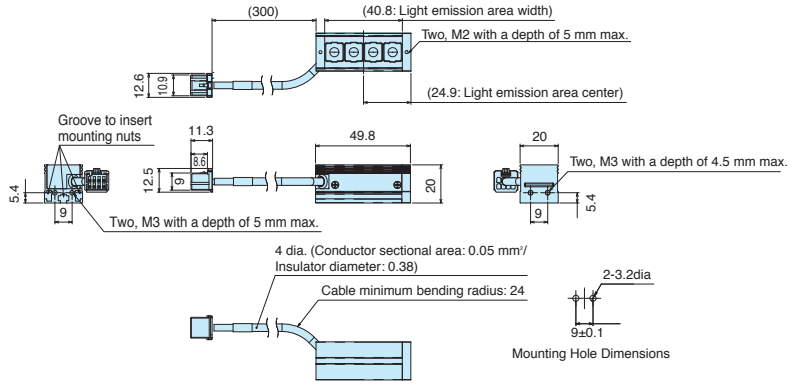
Specifications

Model	Wide Area Model	High-brightness Model	Wide Area Model	High-brightness Model	Wide Area Model	High-brightness Model
	FL-BR5020W	**FL-BR5020W-H**	**FL-BR9120W**	**FL-BR9120W-H**	**FL-BR13120W**	**FL-BR13120W-H**
Light source	White LEDs					
Vibration resistance	10 to 150 Hz (Double amplitude: 0.7 mm), 80 min each in X, Y, and Z directions					
Shock resistance	150 m/s^2 3 times each in 6 directions					
Ambient temperature	Operating: 0 to 40 C, Storage: -15 to 60 C (with no icing or condensation)					
Ambient humidity	Operating/storage: 35% to 85% (with no condensation)					
Ambient atmosphere	No corrosive gases.					
Degree of protection	IEC60259 IP20					
Weight	Approx. 40 g		Approx. 70 g		Approx. 100 g	
Materials	Case and Lens :PC, Cable:Heat resistant, Connector:Thermoplastic resin with glass					
LED safety	Risk Group 2 (IEC 62471)					
Accessories	Instruction sheet					

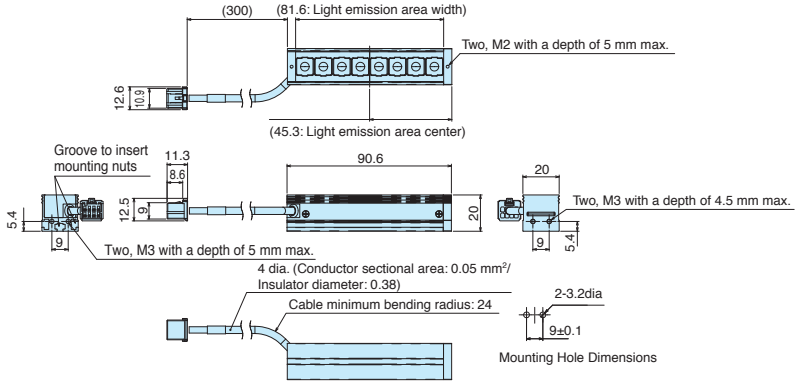
The color of white LEDs can vary due to intrinsic characteristics. Confirm suitability for the application in advance.

Dimensions (Unit: mm)

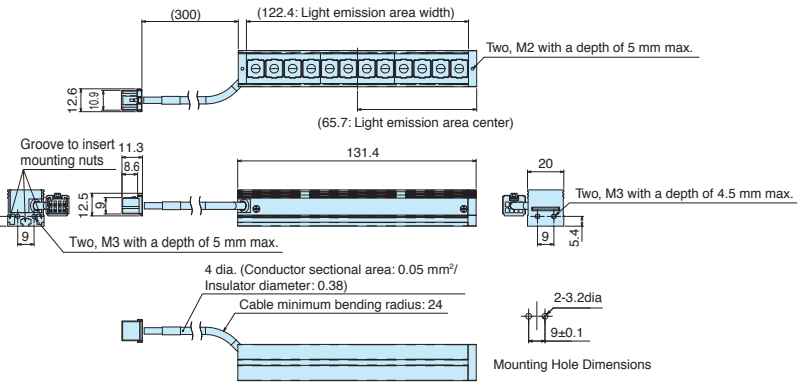
FL-BR5020W(-H)



FL-BR9120W(-H)



FL-BR13120W(-H)



FL-STC Series

Small body is combined with the long cable at 25 m. Install in essentially any location.



Two-channel models

One-channel models

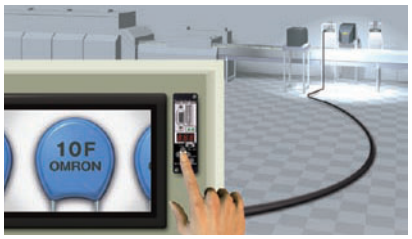
Product Features

●Easy Control and Adjustment of the Lighting

With a compact design small enough to fit in the palm of your hand, the Controller can be built into the control panel or in the gap between production lines.

By using the longest lighting cable in the industry (25 m), the Controller can be installed along with the image processing monitor in a variety of locations. It is possible to adjust the lighting while looking at the screen.

Connect to a Remote Control Panel



Mount to a DIN Rail underneath the Line or in the Gap between Tables



Lighting Control without Programming

This enables light emission synchronized with the camera using essentially any trigger, such as a photoelectric sensor. The Controller can be connected to an image processing device to control lighting without any programming on a PLC.

[Control Output]
- PNP/NPN models
- Power source: 24 V

[Lighting Emission Controls]
- Lighting triggers can be used individually for each channel.
- Lighting delay and lighting time can be controlled.

Intuitive Digital Light Controls

Digital adjustment of light emission makes it easy to reproduce the lighting environment after line switchovers.



The quantity of light is displayed digitally in 400 levels. Adjust the light in fine detail.

▲ Increases brightness

▼ Decreases brightness

Ordering Information

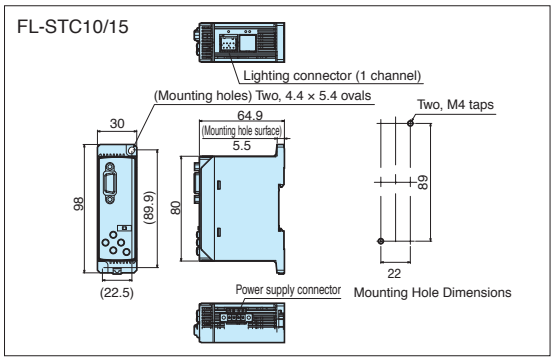
Type	Model	I/O specification	Input voltage
One-channel models	**FL-STC10**	NPN	24 VDC
	FL-STC15	PNP	
Two-channel models	**FL-STC20**	NPN	
	FL-STC25	PNP	

Specifications

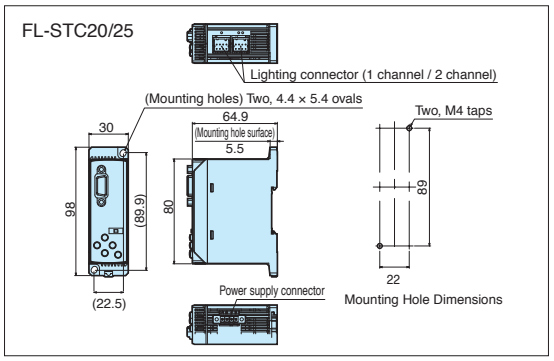
Product type		**One-channel models**		**Two-channel models**	
I/O type		**NPN**	**PNP**	**NPN**	**PNP**
Model		**FL-STC10**	**FL-STC15**	**FL-STC20**	**FL-STC25**
Power supply voltage		24 VDC 10% (including ripple)			
Power consumption		36 W, 1.5 A max. (including the lighting section)		72 W, 3 A max. (including the lighting section)	
Number of output channels		1		2	
Applicable light		FL-@ Series			
Luminance control method	**CONTINUOUS mode**	While the Strobe Controller power source is ON, light is continuously emitted. PWM frequency: 100 kHz, Light adjustment: 400 levels			
	EXTERNAL TRIGGER mode	Lighting in synchronization with an external trigger input. Lighting duration: Continuous while the trigger is input, or 0.1 to 99.9 ms (set in 0.1-ms increments) PWM frequency: 100 kHz, Light adjustment: 400 levels			
	STOROBE mode	Lighting in synchronization with the external trigger input, but twice brighter than EXTERNAL TRIGGER mode. Lighting pulse width: 0.01 to 5 ms (light adjustment: 500 levels equivalent)			
Luminance adjustment	**Key**	Luminance control method and adjustment value: Slide switch and cross key setting			
	I/O	Luminance adjustment value: 9-bit binary input control			
External interface		Parallel I/O connector (D-sub 15-pin), Terminal block (external trigger input with 2 terminals, power source voltage input with 2 terminals)			
Ambient temperature		Operating: 0 to 40 C, Storage: -15 to 60 C (with no icing or condensation)			
Ambient humidity		Operating/storage: 35% to 85% (with no condensation)			
Vibration resistance		10 to 150 Hz (0.7 mm double amplitude), 80 min each in X, Y, and Z directions			
Shock resistance		150 m/s² 3 times each in 6 direction (up/down, left/right, forward/backward)			
Materials		Case: PC			
Degree of protection		IEC60529 IP20			
Weight		Approx. 100 g			
Accessories		Instruction sheet,Terminal block connector			
Applicable standards		EN: 61326, EMC: No.2004/108/EC			

Dimensions (Unit: mm)

FL-STC10/15

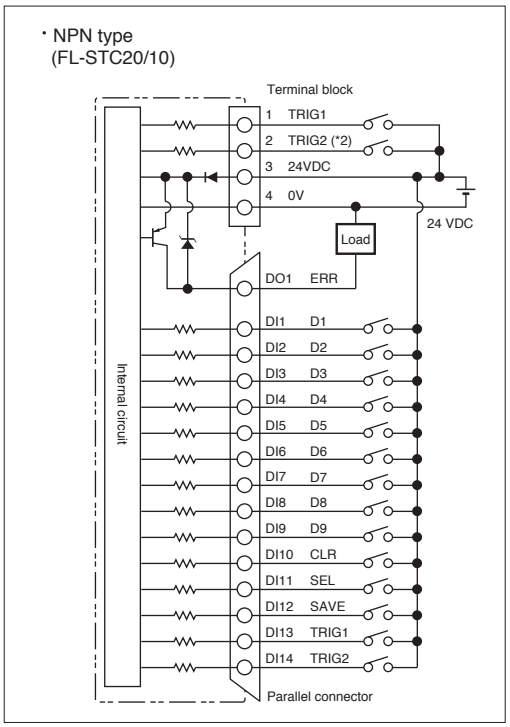


FL-STC20/25



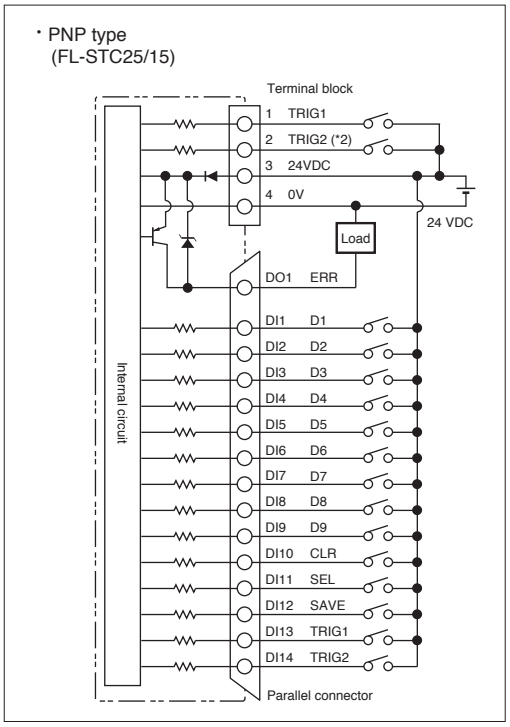
I/O Circuit Diagrams

・NPN type
(FL-STC20/10)



(*2) no use for FL-STC10

・PNP type
(FL-STC25/15)



(*2) no use for FL-STC15

●Electrical Specifications

Output circuit	Input circuit
NPN Open-collector 30 VDC 50 mA max. ON: Residual voltage 1.2 V max. OFF: Leakage current 0.1 mA max.	ON: Short-circuited with 0 V or 1.5 V or less OFF: Open (Leakage current: 0.1 mA max.)

●Electrical Specifications

Output circuit	Input circuit
PNP Open-collector 50 mA max. ON: Residual voltage 1.2 V max. OFF: Leakage current 0.1 mA max.	ON: Supply voltage short-circuited or supply voltage within 1.5 v OFF: Open (Leakage current: 0.1 mA max.)

Wiring Diagram

PIN No.	Signal	I/O	Fanction	
DI1	D1	Input	Data 1bit (low)	1) CONT/TRIG mode Set Luminance value by D9 . D1, 9bit binary data. Range 1 . 400 (binary 000000001 . 110010000) 2) STB mode Set Strobe Lighting time by D9 . D1, 9bit binary data. Range 0.01 . 5.00ms (1 . 500 binary 000000001 . 111110100) Each bit 1=ON, 0=OFF
DI2	D2	Input	Data 2bit	
DI3	D3	Input	Data 3bit	
DI4	D4	Input	Data 4bit	
DI5	D5	Input	Data 5bit	
DI6	D6	Input	Data 6bit	
DI7	D7	Input	Data 7bit	
DI8	D8	Input	Data 8bit	
DI9	D9	Input	Data 9bit (High)	
DI10	CLR	Input	Error clear. (OFF→ON timing)	
DI11	SEL	Input	Select setting CH. OFF=1CH, ON=2CH	
DI12	SAVE	Input	Save data D9 - D1 to memory at the timing of “save” OFF→ON * 3)	
DI13	TRIG1	Input	CH1 Trigger Input (* 1)(* 2)	
DI14	TRIG2	Input	CH2 Trigger Input (* 1)(* 2)	
DO1	ERR	Output	ON at the Error happens	

***1.** 1 and 2pin of terminal block have Lighting trigger. Make sure isolate another trigger terminal when you use one trigger terminal.
***2.** Prevent from chattering, otherwise the lighting timing would be missed.
***3.** Memory function “ON”: The data stored in FLASH memory .
Memory function “OFF” : The data stored in RAM memory .

Camera-mount Lighting Controller for FL Series

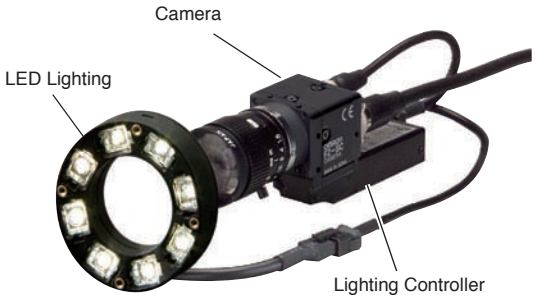
FL-TCC Series

Camera-mount Compact Lighting Controller Which Requires No Power Supply Nor Lighting Control



Product Features

- No separate power supply is required because the power is supplied from the Camera.
- Light is emitted when a trigger signal is received from the Camera.
- Simple connection between the Camera and the Lighting with a single cable



Ordering Information

Item	Model	Weight
Lighting Controller	**FL-TCC1**	Approx. 110 g
Camera Mounting Spacer	**FL-TCC1-XSP**	Approx. 10 g
Camera Mounting Attachment	**FL-TCC1-XAT**	Approx. 20 g

Specifications

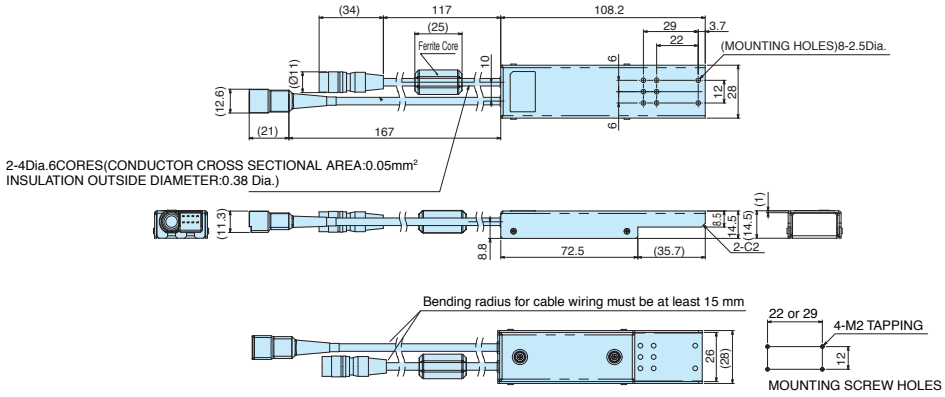
●Lighting Controller

Product type		Lighting Controller
Model		FL-TCC1
Input voltage		Supplied from applicable camera.
Applicable camera		FH-S/SC/S02/SC02/S04/SC04, FZ-S/SC/S2M/SC2M/S5M2/SC5M2/SH/SHC/SF/SFC/SP/SPC, FQ-MS series and others.
Applicable controller		FH series, FZ5 series, FZ4 series and others.
Power consumption		10 W, 0.9 A max. (including the lighting section)
Number of output channels		1
Applicable lighting		FL-@ series
Luminance control method	**Functions**	PWM frequency: 100 kHz, Light adjustment: 255 levels (set with the Controller)
	Trigger lighting	Lighting ON synchronized with trigger input timing from the Controller. (Auto setting in accordance with the shutter speed.)
	Trigger lighting delay time	Ton: 30 s max. (Trigger ready s) Toff: 10 s max.
External interface		Dedicated communication connector
Ambient temperature		Operating: 0 to 50 C, Storage: -15 to 60 C (with no icing or condensation)
Ambient humidity		Operating/storage: 35% to 85% (with no condensation)
Vibration resistance		10 to 55 Hz, (0.7 mm double amplitude) 80 min each in X, Y, and Z directions
Shock resistance		150 m/s² 3 times each in 6 directions (up/down, left/right, forward/backward)
Materials		Case: SECC, Cable: PVC
Degree of protection		IP20 (IEC60529)
Weight		Approx. 110 g
Accessories		Instruction sheet, Insulation sheet, Mounting screw (M2 × 6 mm) × 4
Applicable standards		EN: EN61326, EMC: No.2004/108/EC

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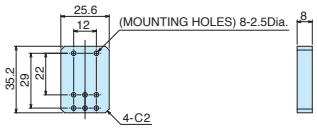
Dimensions (Unit: mm)

●Lighting Controller FL-TCC1

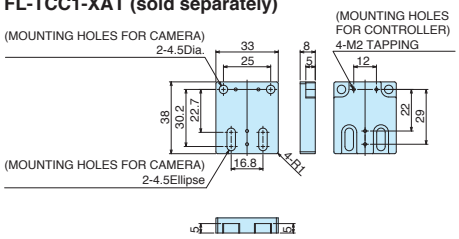


●Options

Camera Mounting Spacer
FL-TCC1-XSP (sold separately)



Camera Mounting Attachment
FL-TCC1-XAT (sold separately)



FL Options

Cable

For FL series

Ordering Information



●Extension Cable, Standard Cable

Model	Cable Length	Weight
FL-XC1	1 m	Approx. 50 g
FL-XC2	2 m	Approx. 80 g
FL-XC3	3 m	Approx. 120 g
FL-XC5	5 m	Approx. 190 g
FL-XC10	10 m	Approx. 400 g
FL-XC25	25 m	Approx. 1000 g

●Extension Cable, Bend resistant Cable

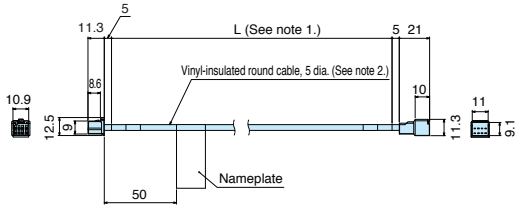
Model	Cable Length	Weight
FL-XC1R	1 m	Approx. 60 g
FL-XC2R	2 m	Approx. 100 g
FL-XC3R	3 m	Approx. 150 g
FL-XC5R	5 m	Approx. 240 g
FL-XC10R	10 m	Approx. 500 g
FL-XC25R	25 m	Approx. 1200 g

●Parallel Cable

Model	Cable Length	Weight
FL-XCP2	2 m	Approx. 180 g

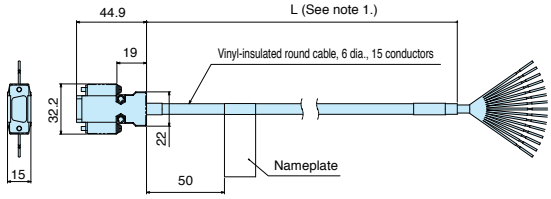
Dimensions (Unit: mm)

●Extension Cable



Note 1. Depends on the cable length.
Note 2. The cable diameter is 6.2 for bend resistant cable.

●Parallel Cable



Note 1. Depends on the cable length.

Diffusion Plate and Polarization Plate

For FL series

Ordering Information



●Diffusion Plate

Type	Model	Dimensions (mm)
Bar Lighting	FL-BR5020DF	49.8×18×4
	FL-BR9120DF	90.6×18×4
	FL-BR13120DF	131.4×18×4

Type	Model	Outer diameter/Inner diameter/Thickness (mm)
Direct Ring Lighting	FL-DR32DF	32 dia./10 dia./4
	FL-DR50DF	50 dia./28 dia./4
	FL-DR90DF	90 dia./50 dia./4

●Polarization Plate

Type	Model	Outer diameter/Inner diameter/Thickness (mm)
Direct Ring Lighting	FL-DR32PL	32 dia./10 dia./2
	FL-DR50PL	50 dia./28 dia./2
	FL-DR90PL	90 dia./50 dia./2

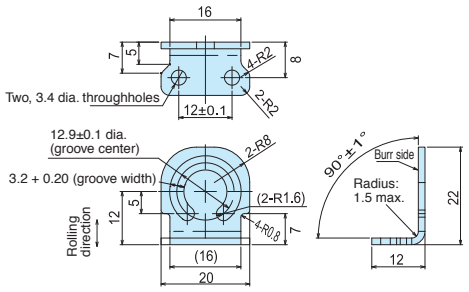
Mounting Bracket

For FL series

Ordering Information

Type	Model
Bar Lighting	FL-XBK1

Dimensions (Unit: mm)



Burrs must extend less than 0.1 mm.

Standard Lens for C-mount cameras

SV-V Series

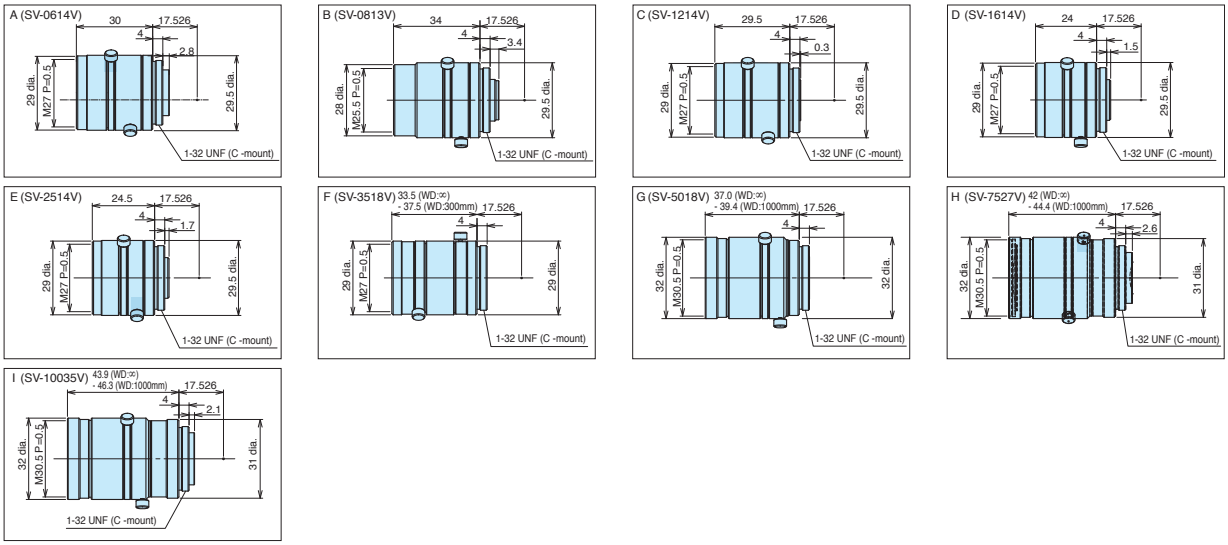
- Standard CCTV lens.
- Lineup of 9 models with focal lengths ranging from 6 to 100 mm.
- Lock screws for focus and iris.
- More robust structure designed for machine vision.
- Lower distortion and higher resolution than previous CCTV lenses.



Ordering Information

Series	Model	Dimension	Focal distance (mm)	Aperture (F No)	Field of view (V × H)	Closest distance (mm)	Filter size	Weight (g)	Total length (mm)	Maximum compatible CCD
C-mount Lens for 1/3-inch image sensor (Recommend: FZ-S@ FZ-SH@ FH-S@)	**3Z4S-LE SV-0614V**	A	6	1.4 to Close	42.3 × 54.6	200	M27.0 P0.5	49	30	1/3 inch
	3Z4S-LE SV-0813V	B	8	1.3 to Close	44.6 × 57.3	200	M25.5 P0.5	55	34	1/3 inch
	3Z4S-LE SV-1214V	C	12	1.4 to Close	21.9 × 38.9	300	M27.0 P0.5	44	29.5	1/3 inch
	3Z4S-LE SV-1614V	D	16	1.4 to Close	22.8 × 30.1	400	M27.0 P0.5	34	24	1/3 inch
	3Z4S-LE SV-2514V	E	25	1.4 to Close	14.9 × 19.8	500	M27.0 P0.5	36	24.5	1/3 inch
	3Z4S-LE SV-3518V	F	35	1.8 to Close	10.8 × 14.4	300	M27.0 P0.5	47	33.5 to 37.5	1/3 inch
	3Z4S-LE SV-5018V	G	50	1.8 to Close	7.9 × 10.5	1000	M30.5 P0.5	67	37.0 to 39.4	1/3 inch
	3Z4S-LE SV-7527V	H	75	2.7 to Close	3.6 × 4.8	1000	M30.5 P0.5	76	42.0 to 44.4	1/3 inch
	3Z4S-LE SV-10035V	I	100	3.5 to Close	2.9 × 3.8	1000	M30.5 P0.5	79	43.9 to 46.3	1/3 inch

Dimensions (Unit: mm)



High-resolution, Low-distortion Lens for C-mount cameras

SV-H/VS-H1 Series

- High-resolution lens for megapixel camera.
- Lineup of 9 models for 2/3-inch cameras, with focal lengths ranging from 6 to 100 mm, and 5 models for 1-inch cameras.
- Lock screws for focus and iris.
- Bright F number of 1.4 for high-speed CMOS camera.
- Compact design but minimized decrease in distortion and brightness.



SV-H Series for 2/3-inch image sensor



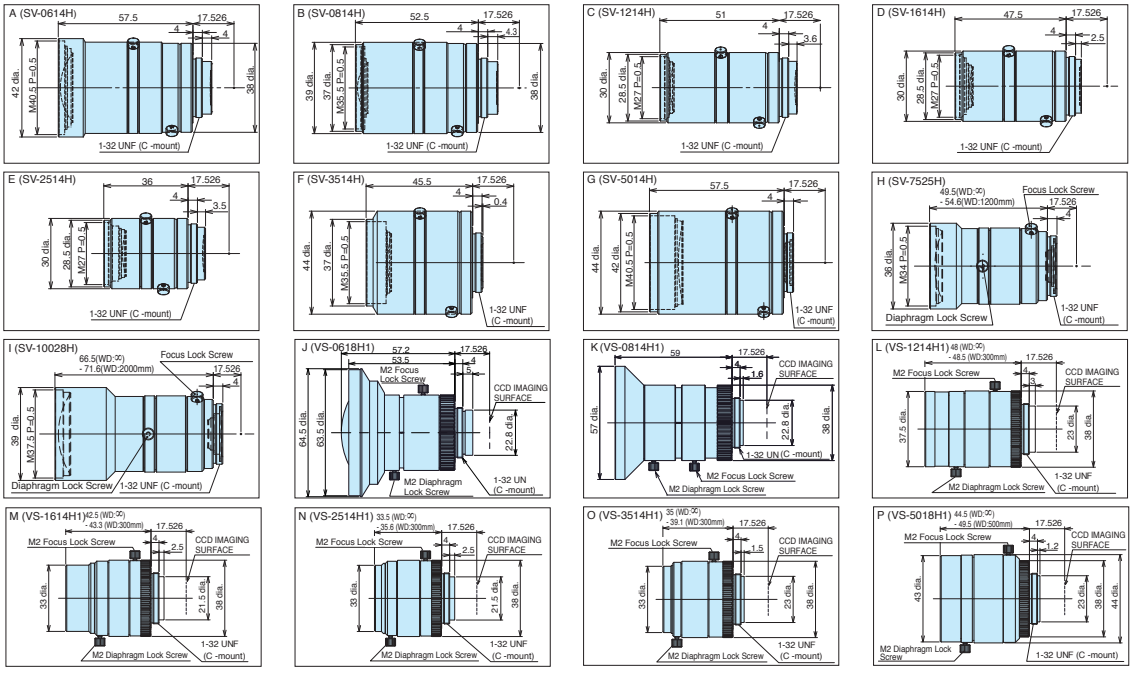
VS-H1 Series for 1-inch image sensor

Ordering Information

Series	Model	Dimension	Focal distance (mm)	Aperture (F No)	Field of view (V × H)	Closest distance (mm)	Filter size	Weight (g)	Total length (mm)	Maximum compatible CCD
C-mount Lens for 2/3-inch image sensor (Recommend: FZ-S@2M FZ-S@5M2)	**3Z4S-LE SV-0614H**	A	6	1.4 to 16	56.8 71.5	100	M40.5 P0.5	145	57.5	2/3 inch
	3Z4S-LE SV-0814H	B	8	1.4 to 16	44.9 57.6	100	M35.5 P0.5	125	52.5	2/3 inch
	3Z4S-LE SV-1214H	C	12	1.4 to 16	30.2 39.6	100	M27 P0.5	85	51	2/3 inch
	3Z4S-LE SV-1614H	D	16	1.4 to 16	23.1 30.6	100	M27 P0.5	85	47.5	2/3 inch
	3Z4S-LE SV-2514H	E	25	1.4 to 16	15.0 20.0	150	M27 P0.5	65	36	2/3 inch
	3Z4S-LE SV-3514H	F	35	1.4 to 16	10.8 14.3	200	M35.5 P0.5	150	45.5	2/3 inch
	3Z4S-LE SV-5014H	G	50	1.4 to 16	7.5 10.0	300	M40.5 P0.5	170	57.5	2/3 inch
	3Z4S-LE SV-7525H	H	75	2.5 to Close	2/3"= 5.0 6.7 1"= 7.3 9.7	1200	M34.0 P0.5	85	49.5 to 54.6	1 inch
	3Z4S-LE SV-10028H	I	100	2.8 to Close	2/3"= 3.9 5.1 1"= 5.6 7.5	2000	M37.5 P0.5	105	66.5 to 71.6	1 inch
C-mount Lens for 1-inch image sensor* (Recommend: FH-S@02 FH-S@04)	**3Z4S-LE VS-0618H1**	J	6	1.8 to 16	77.9 94.8	100	NA	200	57.2	1 inch
	3Z4S-LE VS-0814H1	K	8	1.4 to 16	62.8 79.3	100	M55.0 P0.75	170	59	1 inch
	3Z4S-LE VS-1214H1	L	12	1.4 to 16	44.0 56.9	300	M35.5 P0.5	140	48 to 48.5	1 inch
	3Z4S-LE VS-1614H1	M	16	1.4 to 16	33.7 44.3	300	M30.5 P0.5	110	42.5 to 43.3	1 inch
	3Z4S-LE VS-2514H1	N	25	1.4 to 16	21.5 28.5	300	M30.5 P0.5	90	33.5 to 35.6	1 inch
	3Z4S-LE VS-3514H1	O	35	1.4 to 16	15.6 20.7	300	M30.5 P0.5	100	35 to 39.1	1 inch
	3Z4S-LE VS-5018H1	P	50	1.8 to 16	11.0 14.6	500	M40.5 P0.5	135	44.5 to 49.5	1 inch

* 3Z4S-LE SV-7525H with focal length of 75 mm and 3Z4S-LE SV-10028H with focal length of 100 mm are also available.

Dimensions (Unit: mm)



Lenses

Vibrations and Shocks Resistant for C-mount cameras

VS-MC Series

- Lineup of 7 models with focal lengths ranging from 15 to 75 mm.
- A lock ring locks the surface to increase resistance to vibration in comparison to a point lock with a lock screw. This enables application in environments where the lens is moved or where the affects of ambient vibration are large.
- Install in narrow space without a lock screw.



Ordering Information

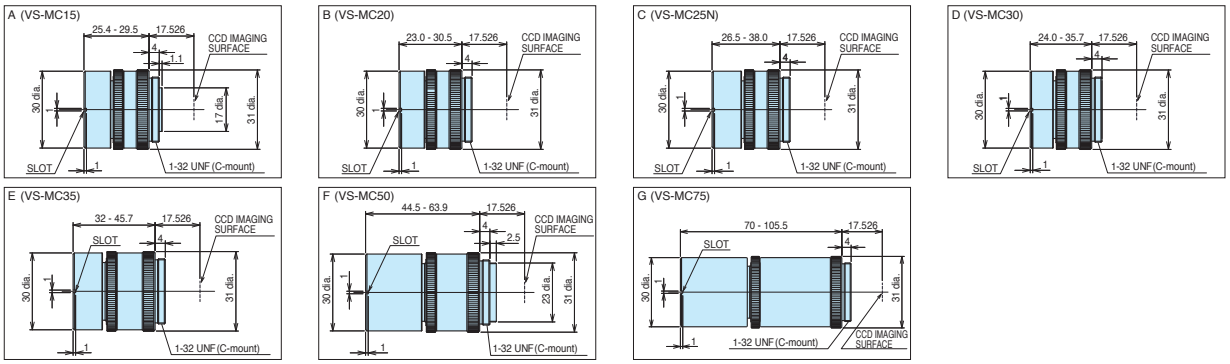
Series	Model	Dimension	Focal distance (mm)	Aperture (fixed F No.)	Maximum outer diameter (mm)	Total length (mm)	Filter size	WD (mm)	Depth of field * 1 (mm)	Maximum compatible CCD
Vibrations and Shocks Resistant C-mount Lens for 2/3-inch image sensor (Recommend: FZ-S@ FZ-SH@ FZ-S@2M FZ-S@5M2 FH-S@)	**3Z4S-LE VS-MC15**	A	15	2	31 dia.	25.4 to 29.5	M27.0 P0.5	492.2	183.1	2/3 inch
								67.3	4.8	
								42.3	2.3	
	3Z4S-LE VS-MC15-FNO56			5.6	31 dia.	25.4 to 29.5	M27.0 P0.5	492.2	512.7	
								67.3	13.4	
								42.3	6.5	
	3Z4S-LE VS-MC15-FNO80			8	31 dia.	25.4 to 29.5	M27.0 P0.5	492.2	732.4	
								67.3	13.4	
								42.3	9.2	
	3Z4S-LE VS-MC20	B	20	2	31 dia.	23.0 to 30.5	M27.0 P0.5	516.5	110.8	2/3 inch
								81.0	3.4	
								49.8	1.5	
	3Z4S-LE VS-MC20-FNO56			5.6	31 dia.	23.0 to 30.5	M27.0 P0.5	516.5	291.2	
								81.0	9.0	
								49.8	3.9	
	3Z4S-LE VS-MC20-FNO80			8	31 dia.	23.0 to 30.5	M27.0 P0.5	516.5	416.0	
								81.0	12.8	
								49.8	5.6	
	3Z4S-LE VS-MC25N	C	25	2	31 dia.	26.5 to 38.0	M27.0 P0.5	513.9	67.2	2/3 inch
								106.0	3.2	
								54.9	1.0	
	3Z4S-LE VS-MC25N-FNO56			5.6	31 dia.	26.5 to 38.0	M27.0 P0.5	513.9	188.2	
								106.0	9.0	
								54.9	2.7	
	3Z4S-LE VS-MC25N-FNO80			8	31 dia.	26.5 to 38.0	M27.0 P0.5	513.9	268.8	
								106.0	12.8	
								54.9	3.8	
	3Z4S-LE VS-MC30	D	30	2	31 dia.	24.0 to 35.7	M27.0 P0.5	514.6	47.1	2/3 inch
								214.5	8.2	
								81.1	1.1	
	3Z4S-LE VS-MC30-FNO56			5.6	31 dia.	24.0 to 35.7	M27.0 P0.5	514.6	131.9	
								214.5	22.9	
								81.1	3.2	
	3Z4S-LE VS-MC30-FNO80			8	31dia.	24.0 to 35.7	M27.0 P0.5	514.6	188.4	
								214.5	32.7	
								81.1	4.6	
	3Z4S-LE VS-MC35	E	35	1.9	31 dia.	32.0 to 45.7	M27.0 P0.5	163.5	2.8	2/3 inch
								145.5	2.2	
								82.7	0.6	
	3Z4S-LE VS-MC35-FNO56			5.6	31 dia.	32.0 to 45.7	M27.0 P0.5	163.5	8.4	
								145.5	6.5	
								82.7	1.7	
	3Z4S-LE VS-MC35-FNO80			8	31 dia.	32.0 to 45.7	M27.0 P0.5	163.5	11.9	
								145.5	9.2	
								82.7	2.5	

Series	Model	Dimension	Focal distance (mm)	Aperture (fixed)	Maximum outer diameter (mm)	Total length (mm)	Filter size	WD (mm)	Depth of field * 1 (mm)	Maximum compatible CCD
Vibrations and Shocks Resistant C-mount Lens for 2/3-inch image sensor (Recommend: FZ-S@ FZ-SH@ FZ-S@2M FZ-S@5M2 FH-S@)	**3Z4S-LE VS-MC50**	F	50	2	31 dia.	44.5 to 63.9	M27.0 P0.5	625.8	33.8	2/3 inch
								262.4	6.0	
								121.1	1.3	
	3Z4S-LE VS-MC50-FNO56			5.6	31 dia.	44.5 to 63.9	M27.0 P0.5	625.8	75.6	
								262.4	13.4	
								121.1	2.9	
	3Z4S-LE VS-MC50-FNO80			8	31 dia.	44.5 to 63.9	M27.0 P0.5	625.8	108.0	
								262.4	19.2	
								121.1	4.1	
	3Z4S-LE VS-MC75	G	75	3.8	31 dia.	70.0 to 105.5	M27.0 P0.5	563.0	17.7	2/3 inch
								404.4	9.1	
								153.8	1.3	
	3Z4S-LE VS-MC75-FNO56			5.6	31 dia.	70.0 to 105.5	M27.0 P0.5	563.0	26.1	
								404.4	13.4	
								153.8	1.9	
	3Z4S-LE VS-MC75-FNO80			8	31 dia.	70.0 to 105.5	M27.0 P0.5	563.0	37.2	
								404.4	19.2	
								153.8	2.7	

Note: Vibrations and Shocks Resistant Lenses for 1-inch image sensors are also available. Ask your OMRON representative for details.

***1** : Calculated using a permissible circle of confusion diameter of 0.04 mm.

Dimensions (Unit: mm)



VS-L/M42-10 Series

- Wide variety of lenses with focal lengths ranging from 18 to 100 mm.
- Focus and aperture screws can be tightened using a hexagonal wrench, tighter than finger tight.



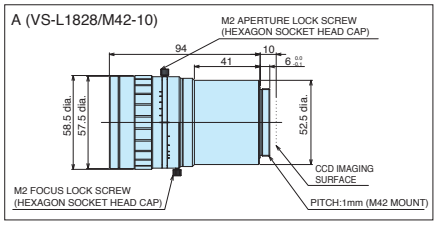
Ordering Information

Series	Model	Dimension	Focal distance (mm)	Aperture (F No)	Optical magnification	Closest distance (mm)	Filter size	Weight (g)	Total length (mm)	Maximum compatible CCD
Standard lens for large image sensor (Recommend: FH-S@12)	3Z4S-LE VS-L1828/M42-10	A	18	2.8 to 16	0.025x to 0.12x	137.9	M55.0 P0.75	330	94	1.8 inch
	3Z4S-LE VS-L2526/M42-10	B	25	2.6 to 16	0.025x to 0.12x	198.1	M55.0 P0.75	240	80	1.8 inch
	3Z4S-LE VS-L3528/M42-10	C	35	2.8 to 16	0.05x to 0.3x	112.8	M62.0 P0.75	345	108	1.8 inch
	3Z4S-LE VS-L5028/M42-10	D	50	2.8 to 16	0.05x to 0.3x	181.4	M62.0 P0.75	285	94.5	1.8 inch
	3Z4S-LE VS-L8540/M42-10	E	85	4.0 to 16	0.1x to 0.35x	285.0	M52.0 P0.75	340	129.5	1.8 inch
	3Z4S-LE VS-L10028/M42-10	F	100	2.8 to 16	0.05x to 0.3x	409.0	M52.0 P0.75	350	134.5	1.8 inch

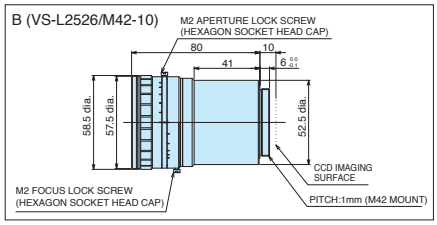
Note: Vibrations and Shocks Resistant Lenses for M42-mount cameras are also available. Ask your OMRON representative for details.

Dimensions (Unit: mm)

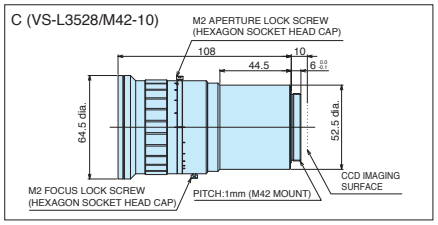
A (VS-L1828/M42-10)



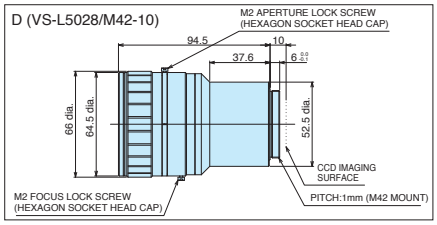
B (VS-L2526/M42-10)



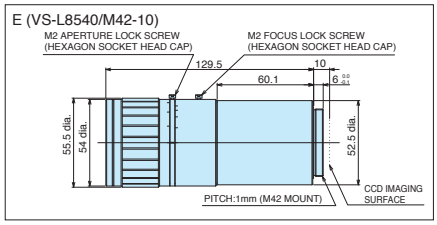
C (VS-L3528/M42-10)



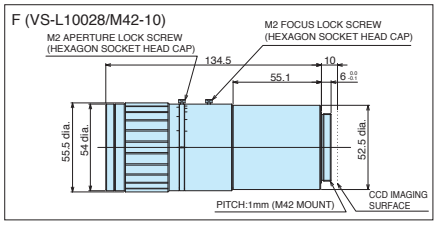
D (VS-L5028/M42-10)



E (VS-L8540/M42-10)



F (VS-L10028/M42-10)



FZ-LES Series

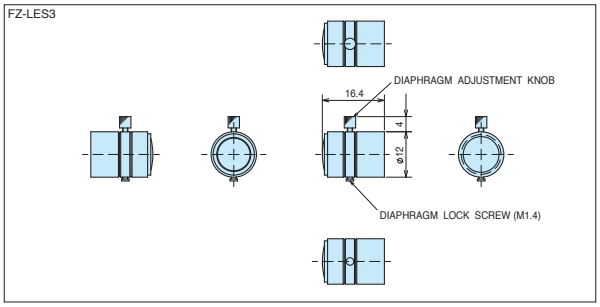
- Product lineup includes two types of small camera lenses, a pen type with a 12-mm diameter and a flat type with a 17-mm thickness.

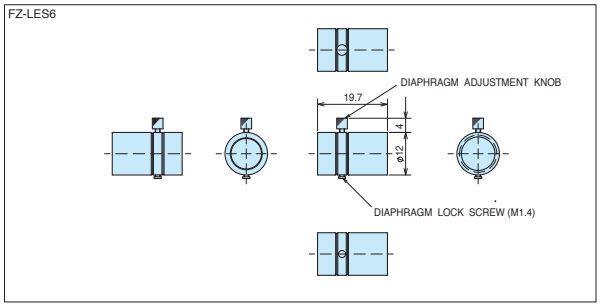


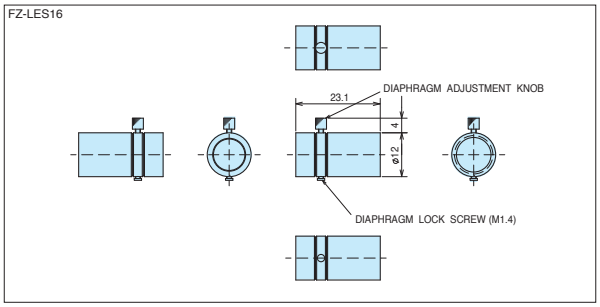
Ordering Information

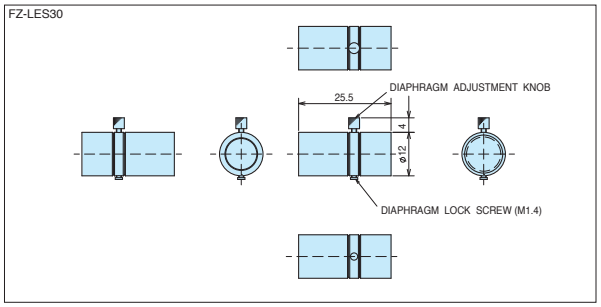
Recommended cameras	Model	Focal length (mm)	Aperture (F No.)
FZ-SF@ FZ-SP@	**FZ-LES3**	3	2.0 to 16
	FZ-LES6	6	2.0 to 16
	FZ-LES16	16	3.4 to 16
	FZ-LES30	30	3.4 to 16

Dimensions (Unit: mm)









VS-MC Series

- Lineup of 4 models with magnifications ranging from 0.1 to 1.0 and WD ranging from 82.4 to 325.5 mm.
- 16-mm-dia. simple mechanism with high resistance to vibration.

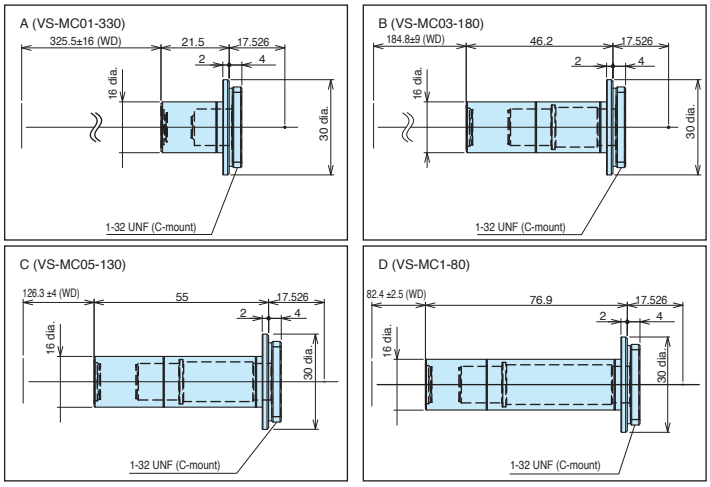


Ordering Information

Recommend camera	Model	Dimension	Magnification	Field of vision * 1 (V × H) mm	Dimension Effective FNO	O/I (mm)	WD (mm)	Depth of field * 2 (mm)	Resolution * 3 (μm)	TV distortion
FZ-S@ FZ-SH@ FZ-S@2M FZ-S@5M2 FH-S@	**3Z4S-LE VS-MC01-330**	A	0.1	66.0 × 88.0	4.43	364.5	325.5	35.4	30.5	0.01% max.
	3Z4S-LE VS-MC03-180	B	0.3	22.0 × 29.3	5.29	248.5	184.8	4.7	11.6	0.00% max.
	3Z4S-LE VS-MC05-130	C	0.5	13.2 × 17.6	6.10	198.8	126.3	2.0	8.2	0.00% max.
	3Z4S-LE VS-MC1-80	D	1.0	6.6 × 8.8	8.14	176.8	82.4	0.7	5.5	0.00% max.

***** 1 Calculated using the size of an image element (2/3 inch = 6.6 × 8.8 mm).
***** 2 Calculated using a permissible circle of confusion diameter of 0.04 mm.
***** 3 Calculated using a wavelength of 550 nm.

Dimensions (Unit: mm)



Lens Option

Ordering Information

Polarizing Filter

Model	Size
3Z4S-LE SV-PL255	M25.5 P0.5
3Z4S-LE SV-PL270	M27.0 P0.5
3Z4S-LE SV-PL305	M30.5 P0.5



Extension Tubes

Lenses	Model	Contents
For C-mount Lens	**3Z4S-LE SV-EXR**	7-piece set *1,*2 (40 mm, 20 mm,10 mm, 5 mm, 2mm, 1 mm, 0.5 mm) Maximum outer diameter: 30 mm dia.
For M42-mount Cameras	**3Z4S-LE VS-EXR/M42**	Set of 5 tubes *1 (20 mm, 10 mm, 8 mm, 2 mm, and 1 mm) Maximum outer diameter: 47.5 mm dia.
For Small Digital CCD Cameras	**FZ-LESR**	Set of 3 tubes (15 mm, 10 mm, 5 mm) Maximum outer diameter: 12 mm dia.



***1** Do not use the 0.5-mm, 1.0-mm, and 2.0-mm Extension Tubes attached to each other. Since these Extension Tubes are placed over the threaded section of the Lens or other Extension Tube, the connection may loosen when more than one 0.5-mm, 1.0-mm or 2.0-mm Extension Tube are used together. Reinforcement is required to protect against vibration when Extension Tubes exceeding 30 mm are used. When using the Extension Tube, check it on the actual device before using it.

***2** These Extension Tubes are also available individually. Order using the following model number, replacing the box with the desired length: 3Z4S-LE SV-EXR@. (0.5, 1, 2, 5, 10, 15, 20, 25, 30, 40, 50 mm)

Extension Tubes for Small Digital CCD Cameras

Model	Contents
FZ-LESR	Set of 3 tubes (15 mm, 10 mm, 5 mm) Maximum outer diameter: 12 mm dia.

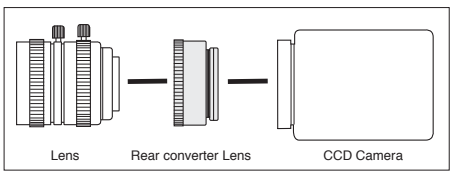
Rear Converter Lens

Model
3Z4S-LE SV-1.5X * 1
3Z4S-LE SV-2.0X * 2

***** 1 In the following lenses, it is necessary to use it together with the extension tubes of 5 mm or more.
SV-0614H, SV-0814H, SV-1214H, SV-2514H, SV-0614V, SV-0813V

***** 2 In the following lenses, it is necessary to use it together with the extension tubes of 5 mm or more.
SV-0614H, SV-0814H, SV-1214H, SV-2514H, SV-0813V

●Configuration





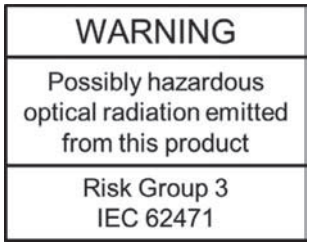
LED Characteristics

Safty of LED

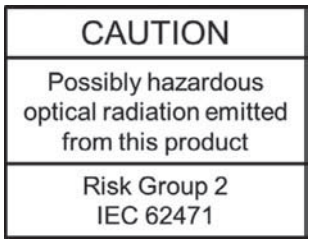
The LEDs that are used in the Light are classified as follows according to IEC 62471.

Series	Shape	Model	Color	Safety of LED	Indication
FLV Series	Direct Ring Light	FLV-DR@	White, Blue	Risk Group 2	B
	Direct Ring Light	FLV-DR@	Red, Ultraviolet	Risk Group 1	D
	Direct Ring Light	FLV-DR@IR	Infrared	Risk Group 1	C
	Low Angle Ring Light	FLV-DL@	White, Red, Blue	Risk Group 1	D
	Bar Light	FLV-BR@	White, Blue	Risk Group 2	B
	Bar Light	FLV-BR@	Red, Ultraviolet	Risk Group 1	D
	Bar Light	FLV-BR@IR	Infrared	Risk Group 1	C
	Coaxial Light	FLV-CL@	White, Red, Blue, Ultraviolet	Risk Group 1	D
	Coaxial Light	FLV-CL@IR	Infrared	Risk Group 1	C
	Shadowless Light	FLV-FS@	White, Red, Blue	Risk Group 1	D
	Shadowless Light	FLV-FR@	White, Red, Blue	Risk Group 1	D
	Shadowless Light	FLV-FP@	White, Red, Blue	Risk Group 1	D
	Shadowless Light	FLV-FQ@	White, Red, Blue	Risk Group 1	D
	Direct Back Light	FLV-DB@	White, Red, Blue	Risk Group 1	D
	Edge Type Light	FLV-FB@	White, Red, Blue	Risk Group 1	D
	Edge Type Coaxial Light	FLV-FX@	White, Red, Blue	Risk Group 1	D
	Dome Light	FLV-DD@	White, Red, Blue	Risk Group 1	D
	High-power Spot Light	FLV-EP08@	White, Red	Risk Group 1	D
	Spot Light	FLV-EP50@	White, Red, Blue	Risk Group 1	D
	Line Light	FLV-LN@W	White	Risk Group 3	A
	Line Light	FLV-LN@R	Red	Risk Group 1	D
	Line Light	FLV-LN@B	Blue	Risk Group 2	B
FL Series	Direct Ring Light	FL-DR@	White	Risk Group 2	B
	Bar Light	FL-BR@	White	Risk Group 2	B

A



B



C

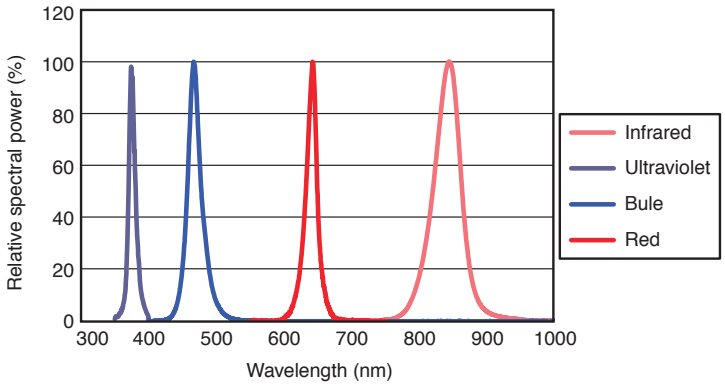


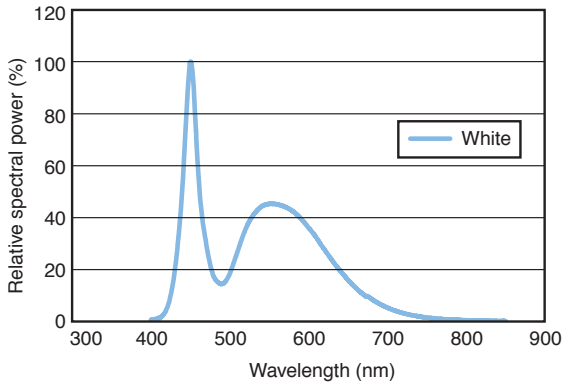
D



Typical LED Spectral Distributions

Typical spectral distributions and peak wavelengths of each LED color are shown in the diagrams below.





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