OMRON

Vision Accessory Catalog

realizing

Best Solutions for Quality Inspection and Control

With a complete line-up of Lights and Lenses, advanced Vision Sensors, and 30 years of vision solutions knowhow, OMRON provides solutions to maintain your quality, increase the precision of your machines, and reduce your implementation costs.

OMRON's unique Camera-mount Lighting Controller helps reduce your implementation costs by reducing wiring work, saving space in the control panel, and easily setting luminance control without programming.
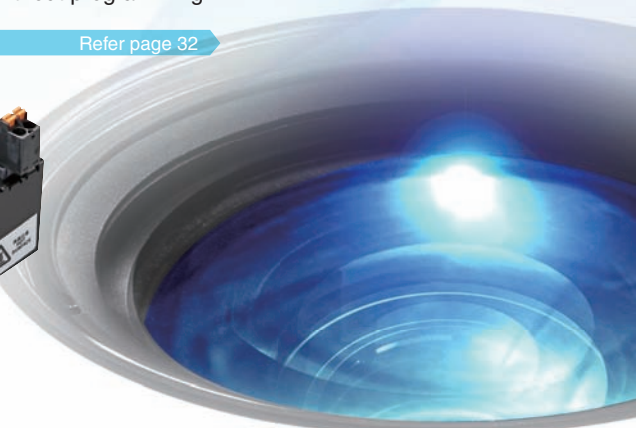
High-brightness LED Lights

	Type	Application point	
Bar Light	FL-BR	Provides the industry's best level of brightness suitable for high-speed lines	p48
Direct Ring Light	FL-DR	Provides the most powerful level of brightness suitable for high-speed lines	p51
Camera-mount Lighting Controller for FL Series	FL-TCC	Camera-mount controller to save space and simplify wiring	p54
Digital Lighting Controller for FL series	FL-STC	Small body with digital light control to fit in any location	p56
FL Series Options			p59

Lens

■ For C-mount cameras

	Type		
• Standard Lens	SV-V	Standard CCTV lenses with a wide range of focal lengths from 3.5 to 100 mm	p62
• High-resolution, Low-distortion Lens	SV-H/VS-H1	High-resolution lenses for megapixel cameras	p63
• High-resolution Telecentric Lens	VS-TCH	High-resolution telecentric lenses for megapixel cameras	p64
• Vibrations and Shocks Resistant Lens	VS-MC	Increased vibration resistance by means of locking ring instead of set screws ring	p67
• Non-telecentric Macro Lens	VS-MC	16-mm-dia. macro lenses with simple mechanism and fixed focal length	p69
• High-resolution, Vibrations and Shocks Resistant Lens	VS-MCH	A lock ring locking the surface and the improved design of internal structure increase resistance to vibration	p70

■ For M42-mount cameras

|			
• Standard Lens	VS-L/M42-10	High-resolution lenses used with Omron's 12-megapixel cameras	p72
• Vibrations and Shocks Resistant Lens	VS-MCL/M42	A lock ring locking the surface and the improved design of internal structure increase resistance to vibration	p73

■ For small cameras

• Lenses for FZ-series small cameras	FZ-LES	Small size and high performance achieved by unique optical design	p75

■ Options

• Polarizing Filter	SV-PL	Filters to prevent diffused reflection	p76
• Protection Cover Filter	SV-GA	Covers to protect lens surfaces from dust	p76
• Extension Tubes For C-mount Cameras	SV-EXR		
For M42-mount Cameras	VS-EXR/M42	Mounted to lenses to change field of view or working distance	p77
For Small Digital CCDCameras	FZ-LESR		
• Rear Converter Lens	SV-1.5X/2.0X	Mounted to lenses to change field of view or working distance	p77
• M42 - F Mount Conversion Adapter	FH-ADF/M42-10	Adapter to connect F mount lenses to M42 cameras	p77
Optical Chart			p78
Safety Precautions			p82

Bar Light

FLV-BR Series

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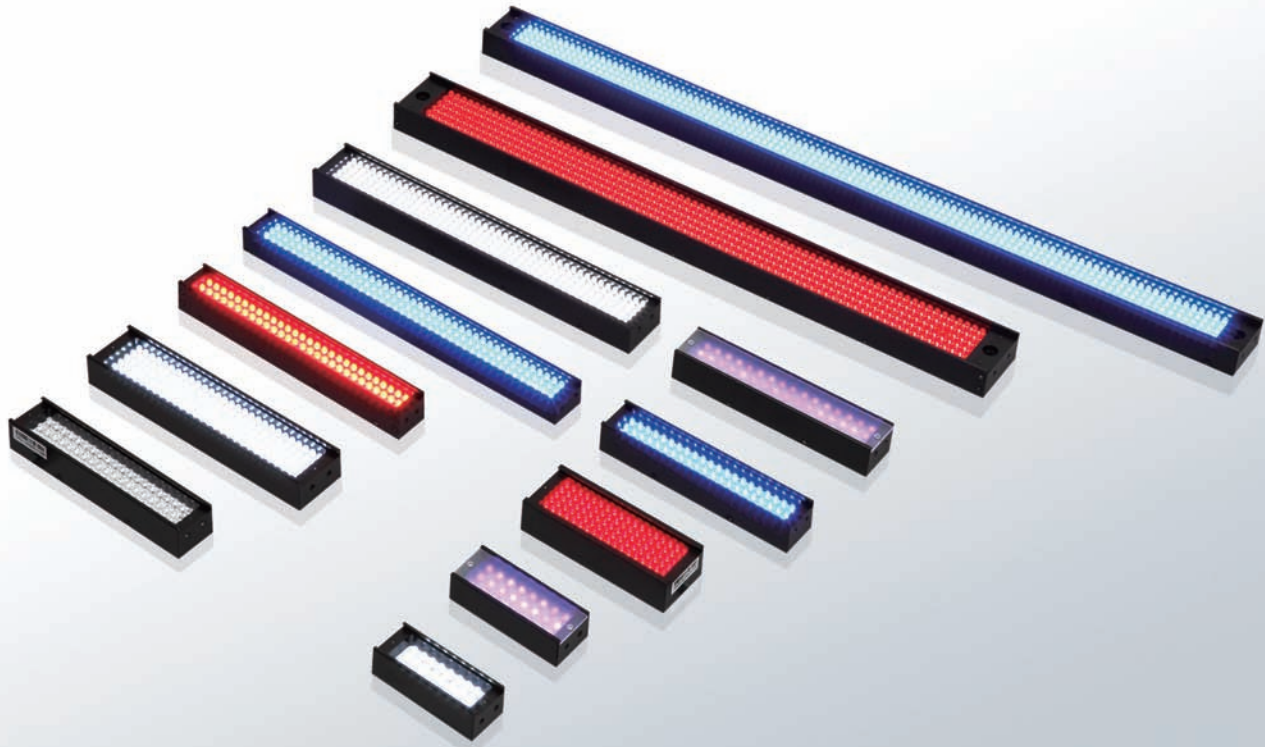
Product Features

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

Cross-sectional Diagram

Thermal conductor
PCB
LED

Aluminum alloy case

Diffusion Plate (optional)

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

Illustration of Illumination
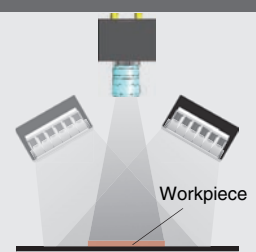
Workpiece

Applications

Detection of metal surfaces

Detection of cracks on surfaces

Detection of LCD panels

Positioning of LED Packages
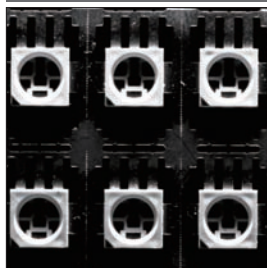
Detection of Faulty LGA Electrodes

Detection of Printed Logo Marks and Characters on Long Workpieces

1.5V×1 LR03 7号电池 ⎓ USB充电5V

Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)	Options	
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC□	FLV-ATC□		Diffusion Plate	Polarization Plate
FLV-BR6022W	WHITE	1.4	48×18	60×22	17	A	○	○	60	○	○
FLV-BR6022R	RED	1.3					○	○			
FLV-BR6022B	BLUE	1.4					○	○			
FLV-BR6022IR	IR	0.9					○	○			
FLV-BR6424UV	UV	1.8	53×20	64×24	17	J	○	○	70	○	×
FLV-BR8532W	WHITE	3.5	73×25	85×32	20	B	○	○	130	○	○
FLV-BR8532R	RED	3.1					○	○			
FLV-BR8532B	BLUE	3.5					○	○			
FLV-BR11222W	WHITE	4.2	100×18	112×22	19	C	○	○	100	○	○
FLV-BR11222R	RED	2.6					○	○			
FLV-BR11222B	BLUE	4.2					○	○			
FLV-BR11222IR	IR	1.8					○	○			
FLV-BR11624UV	UV	3.6	105×20	116×24	19	K	○	○	120	○	−
FLV-BR14030W	WHITE	6.1	126×25	140×30	19	D	○	○	140	○	○
FLV-BR14030R	RED	4.8					○	○			
FLV-BR14030B	BLUE	6.1					○	○			
FLV-BR15020W	WHITE	5.5	138×16	150×20	19	E	○	○	120	○	○
FLV-BR15020R	RED	3.1					○	○			
FLV-BR15020B	BLUE	5.5					○	○			
FLV-BR21222W	WHITE	8.7	199×18	212×22	16	F	○	○	140	○	○
FLV-BR21222R	RED	5.0					○	○			
FLV-BR21222B	BLUE	8.7					○	○			
FLV-BR21230W	WHITE	8.8	200×25	212×30	19	G	○	○	220	○	○
FLV-BR21230R	RED	7.0					○	○			
FLV-BR21230B	BLUE	8.8					○	○			
FLV-BR21230IR	IR	6.1					○	○			
FLV-BR21230UV	UV	7.8	200×25	212×30	19	L	○	○	230	○	×
FLV-BR38037W	WHITE	15.9	350×33.2	380×37.2	19	H	×	○	430	○	○
FLV-BR38037R	RED	11.3					○	○			
FLV-BR38037B	BLUE	15.9					×	○			
FLV-BR48031W	WHITE	21.9	450×25	480×31	18	I	×	○	460	○	○
FLV-BR48031R	RED	18.0					×	○			
FLV-BR48031B	BLUE	21.9					×	○			

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
  FLV-TCC□: page 32
  FLV-ATC□: page 38
Note: Refer to page 61 for LED Characteristics.

Bar Light FLV-BR Series

Dimensions

(Unit: mm)

A FLV-BR6022☐

(AN OPTIONAL EXTRA MOUNTING SCREW HOLES) 2-M1.4
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 2.5
EMITTING SURFACE
LENGTH0.8M
54 / 48 / 18 / 22
60 / 17
8±0.2 / 10±0.2 / 54±0.2 / 10±0.2 / 8±0.2
(MOUNTING SCREW HOLES) 2-M3 DEPTH2.5
(MOUNTING SCREW HOLES) 2-3.5Dia. DEPTH 3 2-M3 Insert Limit 5
Tightening torque: 0.54N · m

B FLV-BR8532☐

EMITTING SURFACE
LENGTH0.8M
(AN OPTIONAL EXTRA MOUNTING SCREW HOLES) 2-M1.4
80 / 73 / 25 / 32
85 / 20
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 3
50±0.2
Tightening torque: 0.54N · m

C FLV-BR11222☐

(AN OPTIONAL EXTRA MOUNTING SCREW HOLES) 2-M1.4
EMITTING SURFACE
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 4
LENGTH0.8M
(MOUNTING SCREW HOLES) 2-M3 DEPTH3
106 / 100 / 18 / 22
112 / 19
11±0.2 / 10±0.2 / 11±0.2
106±0.2 / 10±0.2
(MOUNTING SCREW HOLES) 2-3.5Dia. DEPTH4 2-M3 Insert Limit 7
Tightening torque: 0.54N · m

D FLV-BR14030☐

(AN OPTIONAL EXTRA MOUNTING SCREW HOLES) 2-M1.4
EMITTING SURFACE
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 3
LENGTH0.8M
133 / 126 / 25 / 30
140 / 19
9.5±0.2 / 12±0.2 / 12±0.2 / 9.5±0.2
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 3
Tightening torque: 0.54N · m

E FLV-BR15020☐

EMITTING SURFACE
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 3
(AN OPTIONAL EXTRA MOUNTING SCREW HOLES) 2-M1.4
LENGTH0.8M
144 / 138 / 16 / 20
150 / 19
9.5±0.2 / 8±0.2 / 8±0.2 / 9.5±0.2
(MOUNTING SCREW HOLES) 2-M3 DEPTH3
Tightening torque: 0.54N · m

F FLV-BR21222☐

(AN OPTIONAL EXTRA MOUNTING SCREW HOLES) 2-M1.4
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 3
LENGTH0.8M
EMITTING SURFACE
206 / 199 / 18 / 22
212 / 16
8.5±0.2 / 12±0.2 / 12±0.2 / 8.5±0.2
(MOUNTING SCREW HOLES) 2-M3 DEPTH3
Tightening torque: 0.54N · m

G FLV-BR21230☐

(MOUNTING SCREW HOLES) 2-M3 Insert Limit 3
EMITTING SURFACE
LENGTH0.8M
206 / 200 / 25 / 30
212 / 19
11.5±0.2 / 12±0.2 / 12±0.2 / 11.5±0.2
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 3
Tightening torque: 0.54N · m

H FLV-BR38037☐

(MOUNTING HOLES) 2-4.3Dia. PENETRATION 2-8Dia. DEPTH4
(AN OPTIONAL EXTRA MOUNTING SCREW HOLES) 4-M1.4
EMITTING SURFACE
(MOUNTING HOLES) 2-M3 Insert Limit 4
LENGTH0.8M
365 / 350 / 24 / 33.2 / 37.2
380 / 19
10±0.2 / 16±0.2 / 10±0.2 / 16±0.2
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 4
Tightening torque: 0.54N · m

I FLV-BR48031☐

(MOUNTING HOLES) 2-4.5Dia. PENETRATION 2-8Dia. DEPTH4
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 4
LENGTH0.8M
EMITTING SURFACE
(AN OPTIONAL EXTRA MOUNTING SCREW HOLES) 4-M1.4
465 / 450 / 20 / 25 / 31
480 / 18
9±0.2 / 16±0.2 / 16±0.2 / 9±0.2
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 4
Tightening torque: 0.54N · m

J FLV-BR6424UV

EMITTING SURFACE
LENGTH0.8M
Diffusion Plate
53 / 20 / 24
64 / 17
8±0.2 / 10±0.2 / 10±0.2 / 8±0.2
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 2.5
(MOUNTING SCREW HOLES) 2-3.5Dia. DEPTH2 2-M3 Insert Limit 5 (2+3)
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 2.5
59±0.2
Tightening torque: 0.54N · m

K FLV-BR11624UV

LENGTH0.8M
EMITTING SURFACE
Diffusion Plate
105 / 20 / 24
116 / 19
11±0.2 / 10±0.2 / 10±0.2 / 11±0.2
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 2.5
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 2.5
111±0.2
(MOUNTING SCREW HOLES) 2-3.5dia. DEPTH4 2-M3 Insert Limit 7 (4+3)
Tightening torque: 0.54N · m

L FLV-BR21230UV

(MOUNTING SCREW HOLES) 2-M3 Insert Limit 3
LENGTH0.8M
EMITTING SURFACE
200 / 25 / 30
212 / 19
11.5±0.2 / 12±0.2 / 12±0.2 / 11.5±0.2
(MOUNTING SCREW HOLES) 2-M3 Insert Limit 3
Tightening torque: 0.54N · m

OMRON

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Direct Ring Light
FLV-DR Series

Many shape and size variations are available to detect appearance of various workpieces.

Product Features

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

Cross-sectional Diagram

Aluminum alloy case
Thermal conductor
PCB

LED

Diffusion Plate
(optional)

Illustration of Illumination

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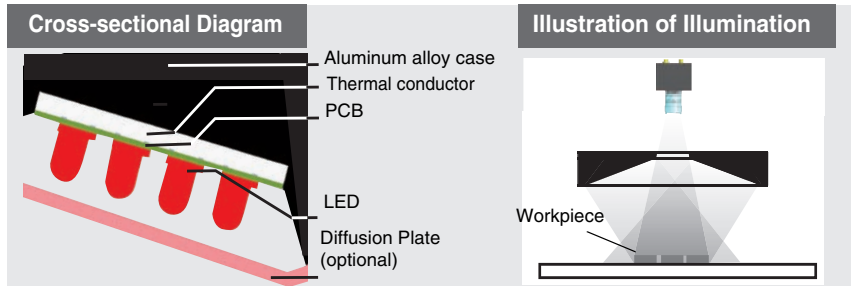
* This figure is a conceptual illustration and may vary from the actual structure.

Applications

Detection of parts on PCBs

Detection of parts and printing on automotive components

Inspection of defects on mouth tops of PET bottles

Standard character recognition and code reading

Detection of parts on PCBs
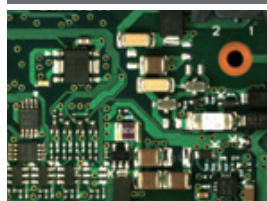
Detection of printing

0187RAE
D2F-L-D

Direct Ring Light FLV-DR Series

Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)	Options	
			External Ring Diameter (mm)	Internal Ring Diameter (mm)	Lighting Angle (Deg)	Drawing	FLV-TCC□	FLV-ATC□		Diffusion Plate	Polarization Plate
FLV-DR3220W	WHITE	1.4	32 dia.	10 dia.	20 deg.	A	○	○	60	○	○
FLV-DR3220R	RED	1.3									
FLV-DR3220B	BLUE	1.4									
FLV-DR4415W	WHITE	2.7	44 dia.	17 dia.	15 deg.	B	○	○	70	○	○
FLV-DR4415R	RED	1.7					○	○			
FLV-DR4415B	BLUE	2.7					○	○			
FLV-DR5030W	WHITE	3.1	50 dia.	26.5 dia.	30 deg.	C	○	○	60	○	○
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-DR6615W	WHITE	5.0	66 dia.	31 dia.	15 deg.	D	○	○	120	○	○
FLV-DR6615R	RED	3.9					○	○			
FLV-DR6615B	BLUE	5.0					○	○			
FLV-DR7000W	WHITE	5.0	70 dia.	33 dia.	0 deg.	E	○	○	110	○	○
FLV-DR7000R	RED	3.7					○	○			
FLV-DR7000B	BLUE	5.0					○	○			
FLV-DR7030W	WHITE	5.0	70 dia.	30 dia.	30 deg.	F	○	○	120	○	○
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-DR9000W	WHITE	8.8	90 dia.	30 dia.	0 deg.	G	○	○	230	○	○
FLV-DR9000R	RED	7.0					○	○			
FLV-DR9000B	BLUE	8.8					○	○			
FLV-DR9030W	WHITE	8.1	90 dia.	40 dia.	30 deg.	H	○	○	200	○	○
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.	I	○	○	200	○	○
FLV-DR9215R	RED	5.4					○	○			
FLV-DR9215B	BLUE	7.4					○	○			
FLV-DR12030W	WHITE	11.9	120 dia.	60 dia.	30 deg.	J	○	○	360	○	○
FLV-DR12030R	RED	9.8					○	○			
FLV-DR12030B	BLUE	11.9					○	○			

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
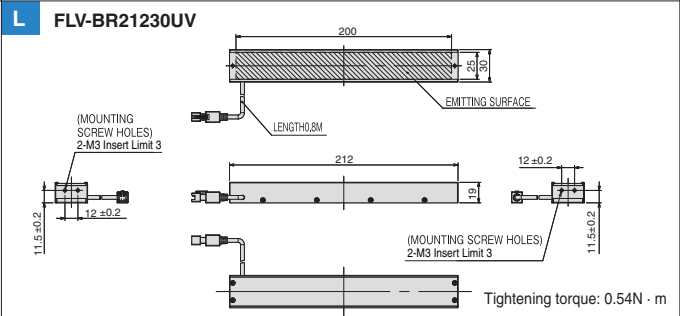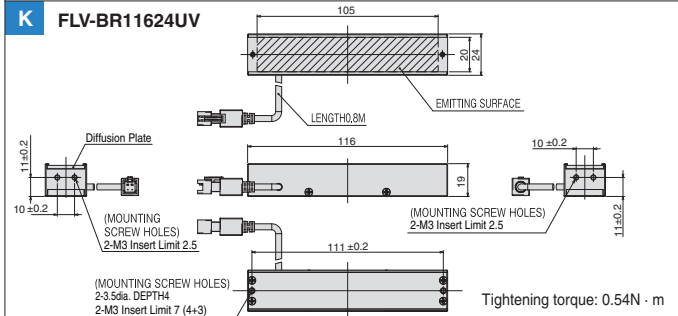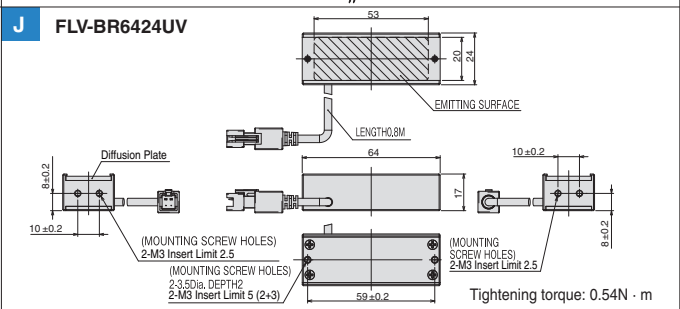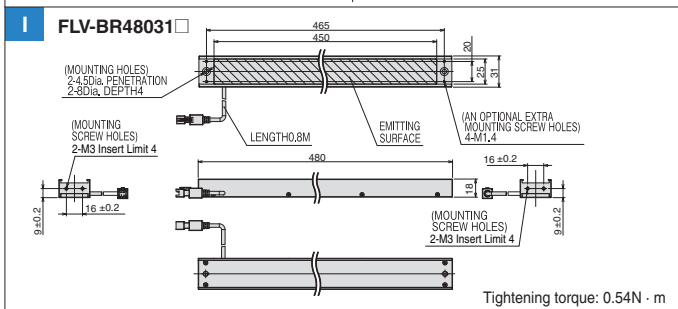FLV-TCC□: page 32
FLV-ATC□: page 38
Note: Refer to page 61 for LED Characteristics.

Dimensions

(Unit: mm)

A FLV-DR3220□

(AN OPTIONAL EXTRA MOUNTING PART) M32
0.8M
32Dia. 10Dia.
P.C.D.20±0.2
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 2
3.5
20Deg. 16
11.6Dia. 28.6Dia.
EMITTING SURFACE
Tightening torque: 0.54N · m

B FLV-DR4415□

P.C.D.24 ±0.2
LENGTH0.8M
44Dia. 17Dia.
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 2
4
(AN OPTIONAL EXTRA MOUNTING PART) M44
15Deg. 20
17Dia. 39Dia.
EMITTING SURFACE
Tightening torque: 0.54N · m

Direct Ring Light FLV-DR Series

Dimensions

(Unit: mm)

C FLV-DR5030□

LENGTH0.8M
50Dia.
P.C.D.38 ±0.2
26.5Dia.
3.5
(AN OPTIONAL EXTRA MOUNTING PART) M50
27.1Dia.
46Dia.
EMITTING SURFACE
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 2
30Deg. 13
Tightening torque: 0.54N · m

D FLV-DR6615□

LENGTH0.8M
66Dia.
P.C.D.50±0.2
31Dia.
3.5
(AN OPTIONAL EXTRA MOUNTING PART) M66
33Dia.
61Dia.
EMITTING SURFACE
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 2.5
15Deg.
17
Tightening torque: 0.54N · m

E FLV-DR7000□

LENGTH0.8M
70Dia.
P.C.D.54 ±0.2
33Dia.
62Dia.
34.5Dia.
EMITTING SURFACE
(AN OPTIONAL EXTRA MOUNTING PART) M70
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 3
3.5
17
Tightening torque: 0.54N · m

F FLV-DR7030□

LENGTH0.8M
70Dia.
P.C.D.54 ±0.2
30Dia.
3.5
(AN OPTIONAL EXTRA MOUNTING PART) M70
31.8Dia.
64Dia.
EMITTING SURFACE
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 3
20
30Deg.
Tightening torque: 0.54N · m

G FLV-DR9000□

LENGTH0.8M
90Dia.
P.C.D.70 ±0.2
30Dia.
EMITTING SURFACE
84Dia.
31.6Dia.
(AN OPTIONAL EXTRA MOUNTING PART) M90
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 3
3.5
18
Tightening torque: 0.54N · m

H FLV-DR9030□

LENGTH0.8M
90Dia.
P.C.D.74 ±0.2
40Dia.
3.5
(AN OPTIONAL EXTRA MOUNTING PART) M90
41.7Dia.
84Dia.
EMITTING SURFACE
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 3 EQUAL LAYOUT
20
30Deg.
Tightening torque: 0.54N · m

I FLV-DR9215□

LENGTH0.8M
92Dia.
P.C.D.70 ±0.2
47Dia.
3.5
(AN OPTIONAL EXTRA MOUNTING PART) M82
48.8Dia.
86Dia.
EMITTING SURFACE
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 3
21
15Deg.
Tightening torque: 0.54N · m

J FLV-DR12030□

LENGTH0.8M
120Dia.
P.C.D.100 ±0.2
60Dia.
EMITTING SURFACE
112Dia.
61.86Dia.
P.C.D.115
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 3
30Deg.
25
(AN OPTIONAL EXTRA MOUNTING SCREW HOLES) 4-M1.4
Tightening torque: 0.54N · m

O FLV-DR6030UV

DIFFUSION BOARD MOUNTING FRAME
LENGTH0.8M
P.C.D.50 ±0.2
26.5Dia.
60Dia.
64Dia.
56Dia.
EMITTING SURFACE
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 3
19
30Deg.
Tightening torque: 0.54N · m

P FLV-DR7530UV

DIFFUSION BOARD MOUNTING FRAME
LENGTH0.8M
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 3
P.C.D.54 ±0.2
30Dia.
75Dia.
79Dia.
69Dia.
EMITTING SURFACE
23
30Deg.
Tightening torque: 0.54N · m

Q FLV-DR9030UV

DIFFUSION BOARD MOUNTING FRAME
LENGTH0.8M
P.C.D.74±0.2
40Dia.
90Dia.
94Dia.
84Dia.
EMITTING SURFACE
(MOUNTING SCREW HOLES) 4-M3 Insert Limit 3
23
30Deg.
Tightening torque: 0.54N · m

Low Angle Ring Light
FLV-DL Series

Angled or horizontal illumination emphasizes defects and profiles of workpieces.

Product Features

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

Cross-sectional Diagram

Aluminum alloy case
Thermal conductor
PCB
LED
Diffusion Plate (optional)
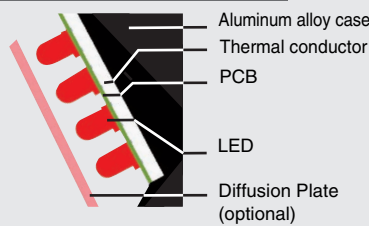
Illustration of Illumination
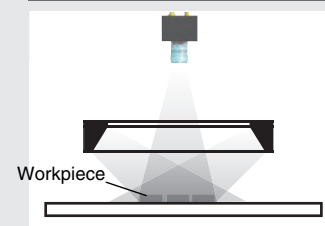
Workpiece

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

Applications

Detection of marking and defects on surfaces of metal workpieces

Detection of foreign matter in medicines

Detection of chips on circumference of O rings

Surface and profile inspection of metal workpieces

Ring Light   Low Angle Ring Light

Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)	Options	
			External Ring Diameter (mm)	Internal Ring Diameter (mm)	Lighting Angle (Deg)	Drawing	FLV-TCC□	FLV-ATC□		Diffusion Plate	Polarization Plate
FLV-DL5890W	WHITE	1.9	58 dia.	27 dia.	90 deg.	J	○	○	90	○	×
FLV-DL5890R	RED	1.3					○	○			
FLV-DL5890B	BLUE	1.9					○	○			
FLV-DL7260W	WHITE	5.7	72 dia.	44 dia.	60 deg.	K	○	○	120	○	○
FLV-DL7260R	RED	3.9					○	○			
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.	67 dia.	60 deg.	M	○	○	310	○	○
FLV-DL12060R	RED	10.5					○	○			
FLV-DL12060B	BLUE	12.7					○	○			
FLV-DL15060W	WHITE	13.6	150 dia.	108 dia.	60 deg.	N	○	○	260	○	○
FLV-DL15060R	RED	11.2					○	○			
FLV-DL15060B	BLUE	13.6					○	○			

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
  FLV-TCC□:page 32
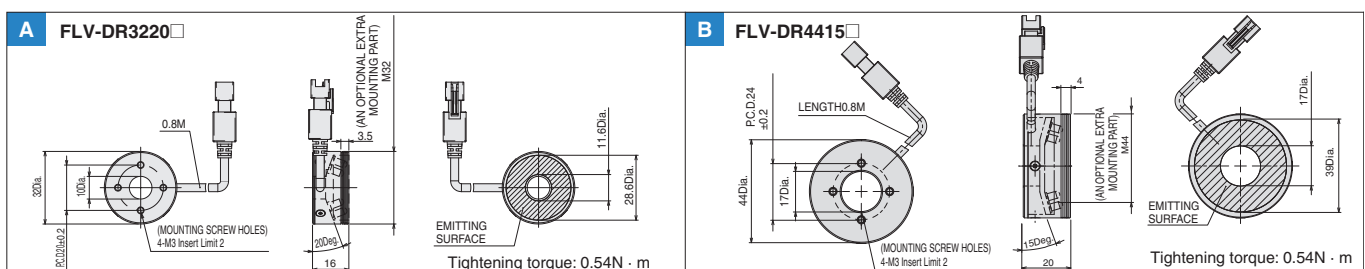 FLV-ATC□: page38
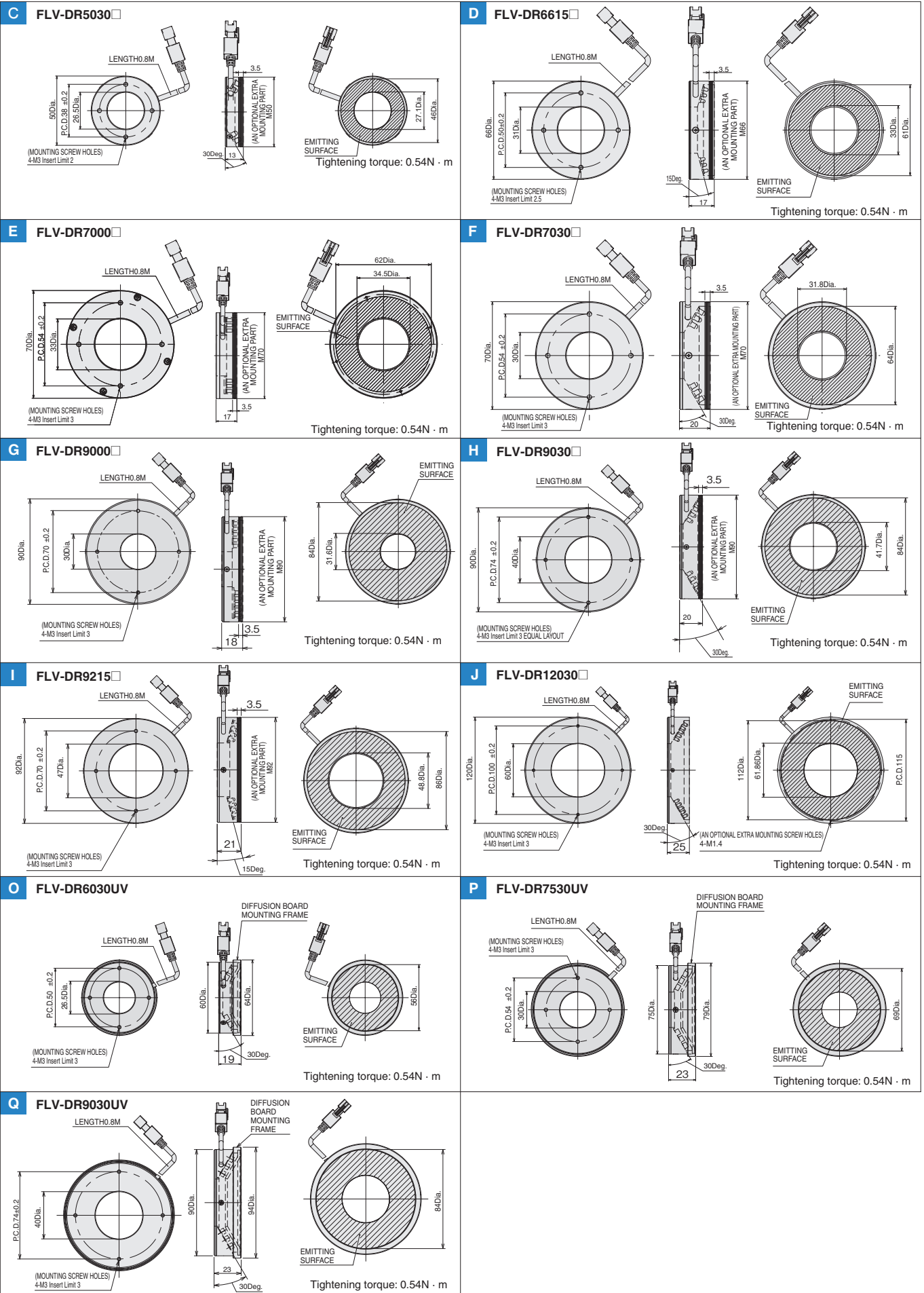Note: Refer to page 61 for LED Characteristics.

Dimensions

(Unit: mm)

J FLV-DL5890□

K FLV-DL7260□

L FLV-DL9090□

M FLV-DL12060□

N FLV-DL15060□

Tightening torque: 0.54N · m

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

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.
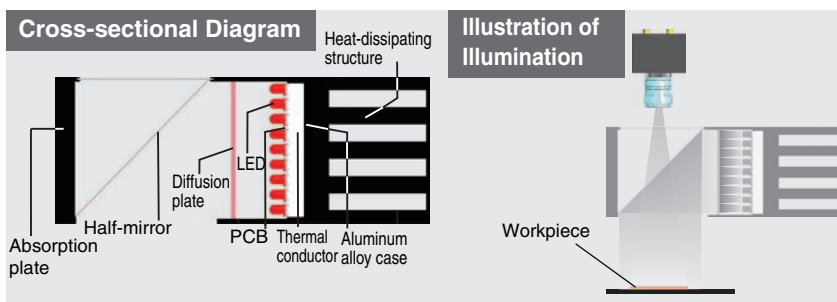
Cross-sectional Diagram

Heat-dissipating structure

LED

Diffusion plate

Half-mirror

Absorption plate

PCB   Thermal conductor   Aluminum alloy case

Illustration of Illumination

Workpiece

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

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

BGA Inspection

P=1.5 BGA169P

Recognition of 2D DPM Code

Positioning for Metal Welding
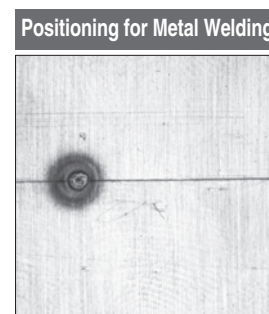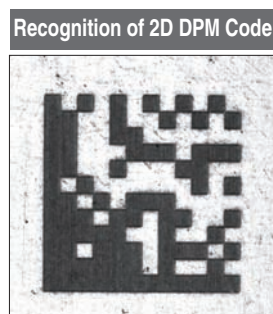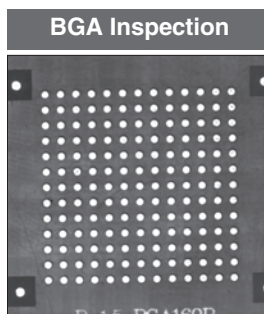
Ordering Information

Model	Color	Power consumption (W)	Dimension				Controller *		Weight (g)
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC□	FLV-ATC□	
FLV-CL30W	WHITE	2.4	24×25	32×59.5	31	A	○	○	110
FLV-CL30R	RED	1.4					○	○	
FLV-CL30B	BLUE	2.4					○	○	
FLV-CL40W	WHITE	3.9	34×34	40×74	40	B	○	○	170
FLV-CL40R	RED'	2.3					○	○	
FLV-CL40B	BLUE	3.9					○	○	
FLV-CL60W	WHITE	10.4	51×52	58×104	60.5	C	○	○	380
FLV-CL60R	RED	5.7					○	○	
FLV-CL60B	BLUE	10.4					○	○	
FLV-CL60IR	IR	3.9					○	○	
FLV-CL60UV	UV	3.0					○	○	
FLV-CL80W	WHITE	10.8	72×72	78×124	77.5	D	○	○	580
FLV-CL80R	RED	7.2					○	○	
FLV-CL80B	BLUE	10.8					○	○	
FLV-CL100W	WHITE	22.7	92×92	98×141	99.5	E	×	○	820
FLV-CL100R	RED'	15.2					×	○	
FLV-CL100B	BLUE	22.7					×	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
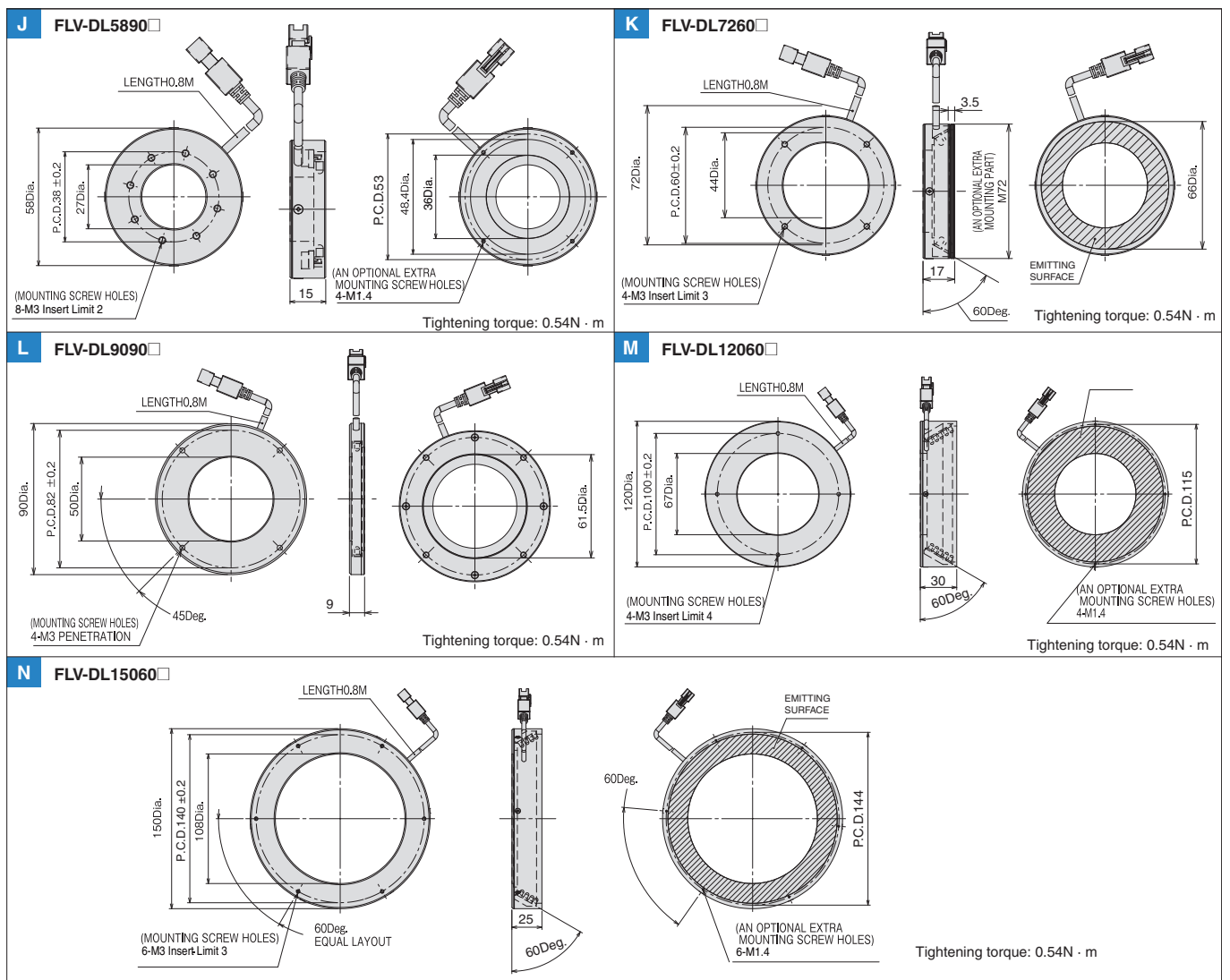FLV-TCC□: page 32 FLV-ATC□: page 38
Note: Refer to page 61 for LED Characteristics.

Dimensions

(Unit: mm)

13

OMRON
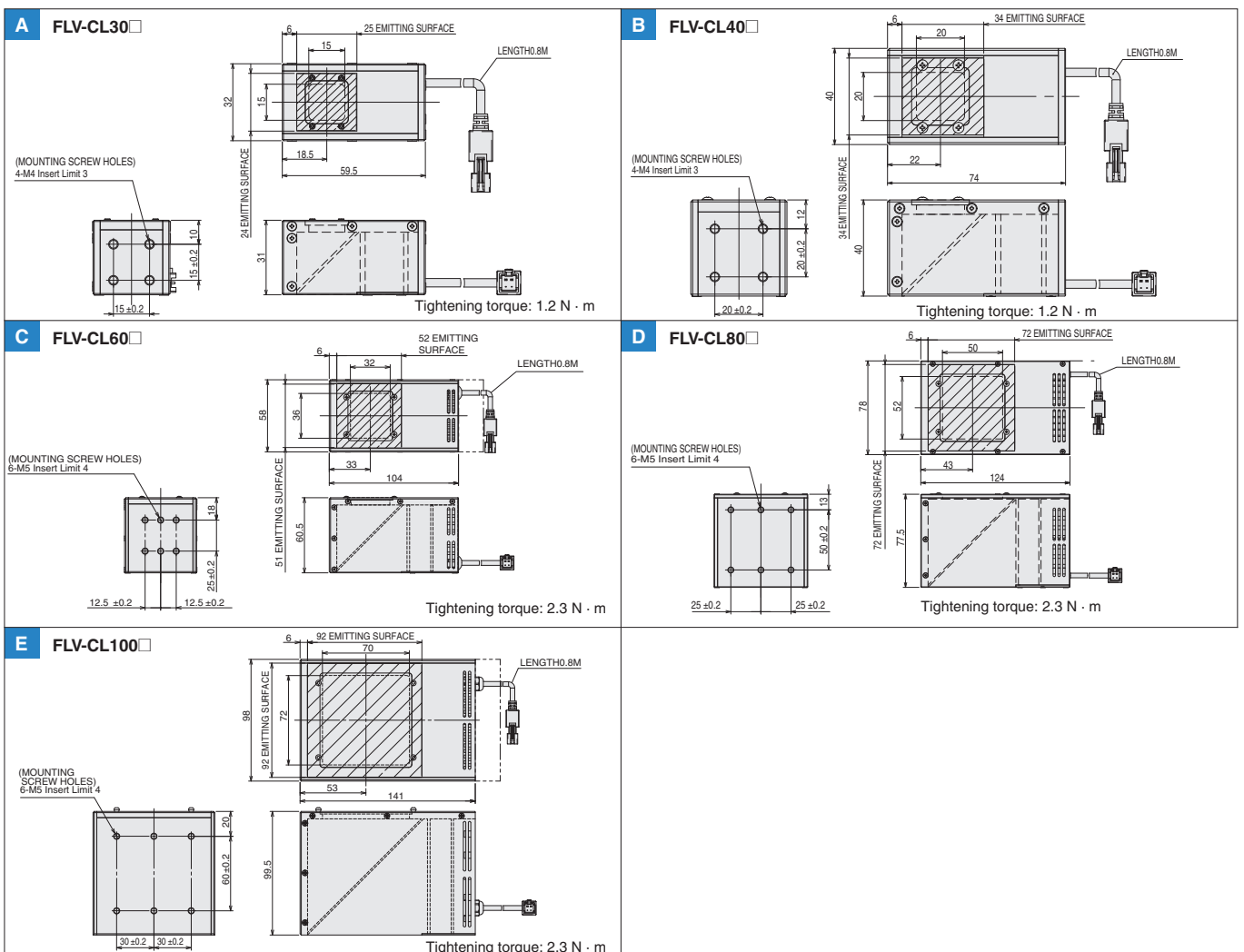
Shadowless Ring Light
FLV-FR Series

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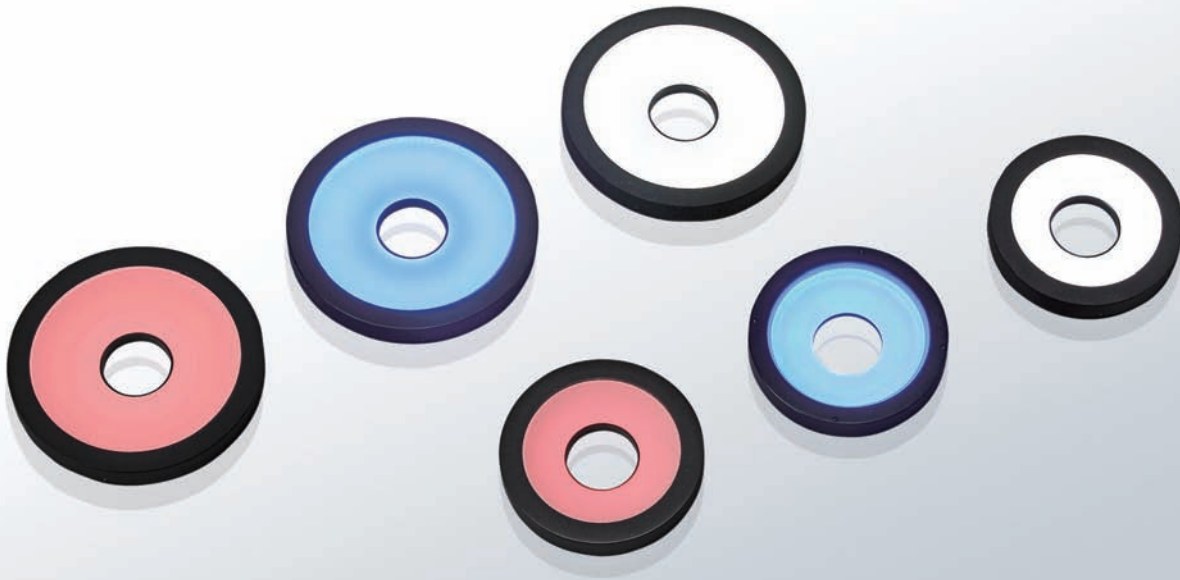
Product Features

• Special diffusion plates create greater uniformity in lighting than normal ring lighting.
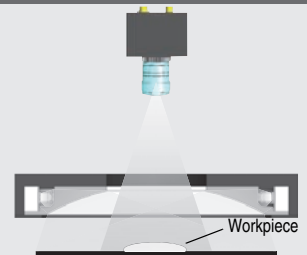
Cross-sectional Diagram

- Aluminum alloy case
- LED
- Thermal conductor
- PCB
- Diffusion plate

Illustration of Illumination

Workpiece

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

Applications

Character inspections on electronic components or formed plastic parts

Character Detection on Capacitor Surface

Image with Normal Ring Lighting   Image with the FLV-FR114R
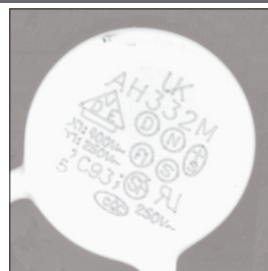
Shadowless Ring Light FLV-FR Series

Ordering Information

Model	Color	Power consumption (W)	External Ring Diameter (mm)	Internal Ring Diameter (mm)	Lighting Angle (Deg)	Drawing	FLV-TCC□	FLV-ATC□	Weight (g)
FLV-FR114W	WHITE	3.9	114 dia.	40 dia.	92 dia.	A	○	○	270
FLV-FR114R	RED	3.1					○	○	
FLV-FR114B	BLUE	3.9					○	○	
FLV-FR150W	WHITE	6.1	150 dia.	40 dia.	123 dia.	B	○	○	500
FLV-FR150R	RED'	3.5					○	○	
FLV-FR150B	BLUE	6.1					○	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
   FLV-TCC□: page 32
   FLV-ATC□: page 38
Note: Refer to page 61 for LED Characteristics.

Dimensions

(Unit: mm)

A FLV-FR114□

Tightening torque: 0.54N · m

B FLV-FR150□

Tightening torque: 0.54N · m
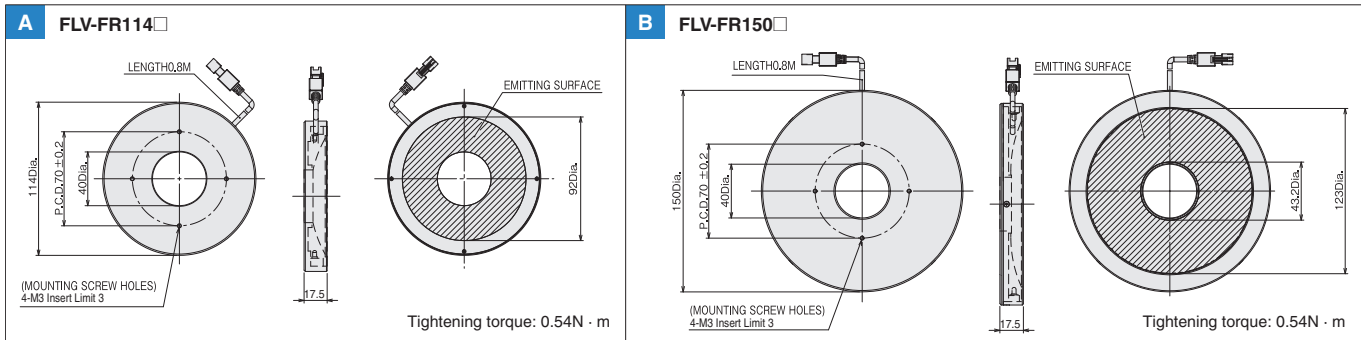
Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Shadowless Low Angle Ring Light
FLV-FP Series

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

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.
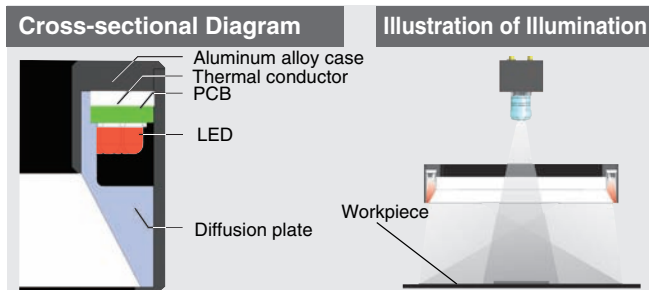
Cross-sectional Diagram

Aluminum alloy case
Thermal conductor
PCB
LED
Diffusion plate

Illustration of Illumination

Workpiece

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

Ordering Information

Model	Light Color	Power consumption (W)	Dimensions				Controller *		Weight (g)
			External Ring Diameter (mm)	Internal Ring Diameter (mm)	Lighting Angle (Deg)	Drawing	FLV-TCC□	FLV-ATC□	
FLV-FP130W	WHITE	8.1	130 dia.	100 dia.	120 dia.	A	○	○	320
FLV-FP130R	RED	5.8					○	○	
FLV-FP130B	BLUE	8.1					○	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
FLV-TCC□: page 32 FLV-ATC□: page 38
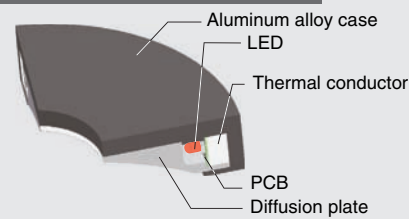Note: Refer to page 61 for LED Characteristics.

Applications

Detection of bumps, scratches, and other defects on surfaces

Recognition of marks

Recognition of printed characters

Recognition of barcodes

Recognition of Marked Characters

Dimensions

(Unit: mm)

A FLV-FP130□

LENGTH0.8M
130Dia.
P.C.D.110 ±0.2
100Dia.
(MOUNTING SCREW HOLES)
4-M3 Insert Limit 3
37
EMITTING SURFACE
103Dia.
120Dia.
Tightening torque: 0.54 N · m

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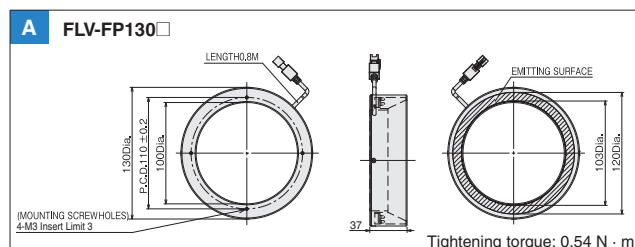
Shadowless Dome Ring Light
FLV-FS Series

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.
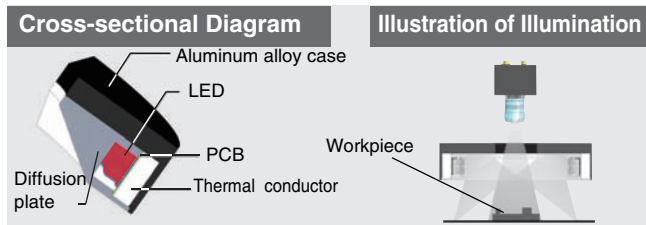
Cross-sectional Diagram	Illustration of Illumination

Aluminum alloy case
LED
PCB
Diffusion plate
Thermal conductor
Workpiece

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

Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC□	FLV-ATC□	
FLV-FS74W	WHITE	5.2	74 dia.	20 dia.	64 dia.	A`	○	○	140
FLV-FS74R	RED	3.5					○	○	
FLV-FS74B	BLUE	5.2					○	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
  FLV-TCC□: page 32 FLV-ATC□: page 38
Note: Refer to page 61 for LED Characteristics.

Applications

Edge positioning and size measurement for metal parts	Gap Position Detection on Multilayered Shafts
Detection of bumps in metal parts	

Dimensions

(Unit: mm)

A FLV-FS74□

LENGTH0.8M
EMITTING SURFACE
74 Dia.
36 ±0.2
20 Dia.
(MOUNTING SCREW HOLES)
4-M3 Insert Limit 3
36±0.2
18
64 Dia.

Tightening torque: 0.54 N · m

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Shadowless Square Light
FLV-FQ Series

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

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.
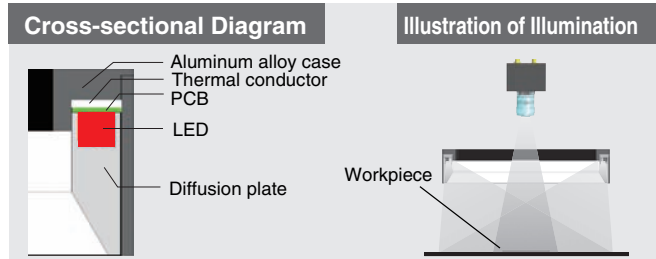
Cross-sectional Diagram

Aluminum alloy case
Thermal conductor
PCB
LED
Diffusion plate

Illustration of Illumination

Workpiece

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

Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC□	FLV-ATC□	
FLV-FQ48W	WHITE	2.0	41×41	48 × 48	30	A	○	○	100
FLV-FQ48R	RED	1.2					○	○	
FLV-FQ48B	BLUE	2.0					○	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
Note: Refer to page 61 for LED Characteristics.

Applications

Detection of defects on workpiece surfaces

Recognition of printed characters and bar codes

Appearance Inspections of Chip Components

Dimensions

(Unit: mm)

A FLV-FQ48□

LENGTH0.8M

EMITTING SURFACE

48
35±0.2
(MOUNTING SCREW HOLES)
4-M3 Insert Limit 3
35±0.2
48
23
23
30
25
41
45
25
41
45

Tightening torque: 0.54 N · m
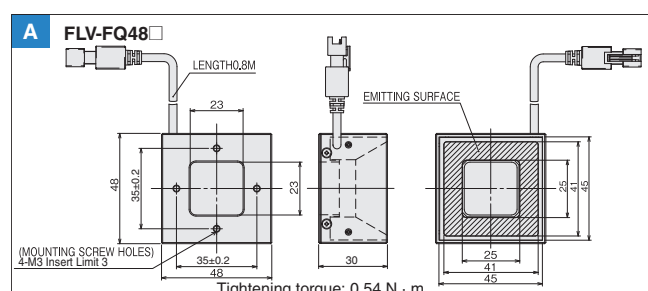
Spot Light
FLV-EP50 Series

Long-distance Spot Lighting
This series achieves uniform, parallel light.

Product Features

• Superior directional characteristic, essentially parallel light, and long-distance illumination.

Cross-sectional Diagram
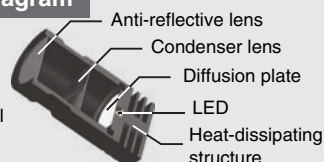
*This figure is a conceptual illustration and may vary from the actual structure.

Anti-reflective lens
Condenser lens
Diffusion plate
LED
Heat-dissipating structure

Illustration of Illumination
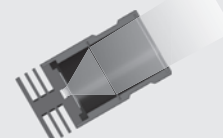
Ordering Information

| Model | Color | Power consumption (W) | Dimensions | | | | Controller * | | Weight (g) |
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC☐	FLV-ATC☐	
FLV-EP50W	WHITE	1.6	40 dia.	50 dia.	94.5	A	○	○	200
FLV-EP50R	RED	1.1					○	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
FLV-TCC☐: page 32 FLV-ATC☐: page 38
Note: Refer to page 61 for LED Characteristics.
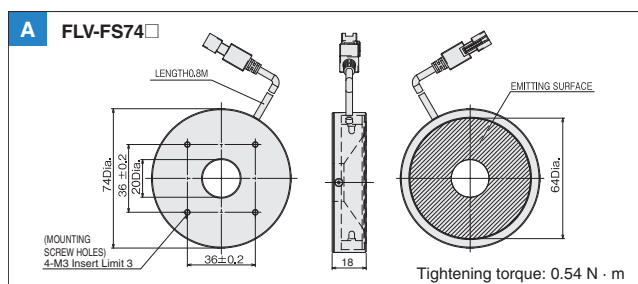
Applications

Size measurements of small workpieces

Detection of defects on surfaces

Detection of Gaps in Small Parts

Detection of Scratches on Card Surfaces

Dimensions

(Unit: mm)

A FLV-EP50☐

(MOUNTING SCREW HOLES)
4-M2 Insert Limit 6
EMITTING SURFACE
94.5
45DIa.
50Dia.
40Dia.
P.C.D 28 ±0.2
LENGTH0.8M

Tightening torque: 0.15 N · m

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Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses
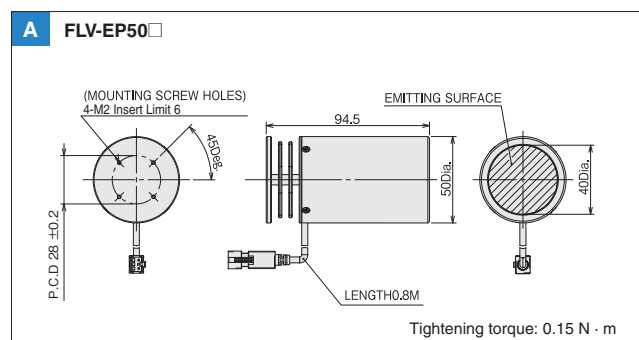
High-power Spot Light
FLV-EP08 Series

High-power, Compact Spot Light Sources

Product Features

- High-power LEDs generate strong light with a compact design.
- Ideal for applications in combination with a Coaxial Lens.
- Highly efficient heat-dissipating structure ensures a long life.

Cross-sectional Diagram
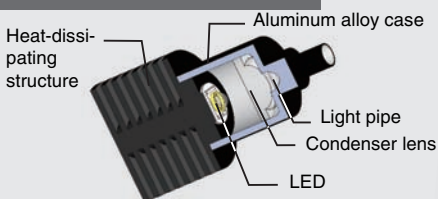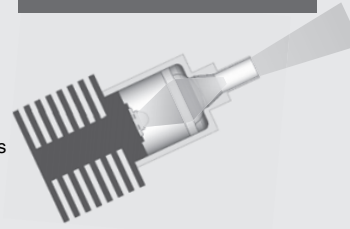
Heat-dissi-pating structure

Aluminum alloy case

Light pipe

Condenser lens

LED

Illustration of Illumination

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

Applications

Detection of alignment marks

Detection of chips

Detection of defects on workpiece surfaces

Illustration of Illumination in Combination with a Coaxial Lens

Lighting Controller

Camera

Spot Light

Coaxial Lens

Workpiece
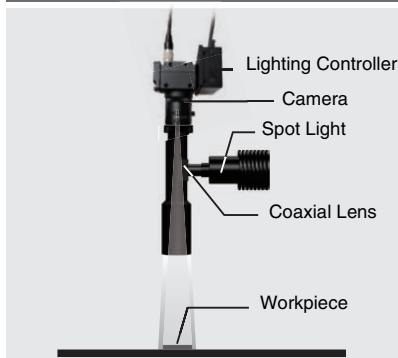
Simplified Illustration of Detection of Bubbles in Transparent Material
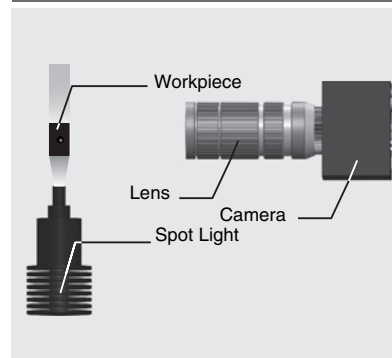
Workpiece

Lens

Camera

Spot Light

OMRON

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Recognition of Alignment Marks

Inspection for Defects

Detection of Air Bubbles and Impurities
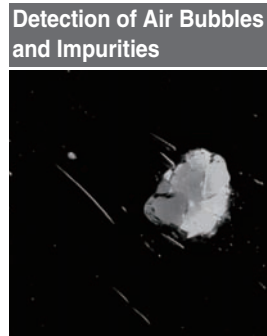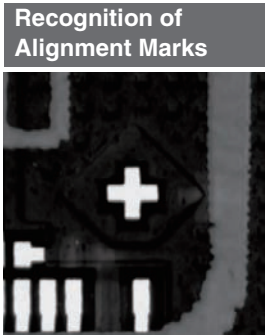
Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC☐	FLV-ATC☐	
FLV-EP0803W	WHITE	1.6	6.8 dia.	28 dia.	60	A	○	○	80
FLV-EP0803R	RED	1.1					○	○	
FLV-EP0803B	BLUE	1.6					○	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
 FLV-TCC☐: page 32
 FLV-ATC☐: page 38
Note: Refer to page 61 for LED Characteristics.

Dimensions

(Unit: mm)

A **FLV-EP0803☐**

(MOUNTING SCREW HOLES)
2-M2 Insert Limit 6

60

8 12

EMITTING SURFACE

18±0.2

28Dia.

8Dia.

14Dia.

6.8Dia.

LENGTH0.8M

Tightening torque: 0.15 N · m

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses
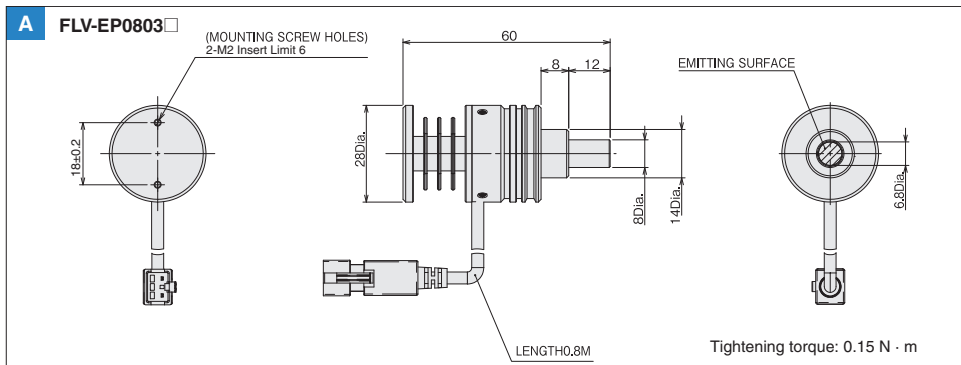
Direct Back Light
FLV-DB Series

Uniform Illumination from a Flat Emitting Surface
Illumination from the back of the workpiece produces
a high-contrast silhouette.
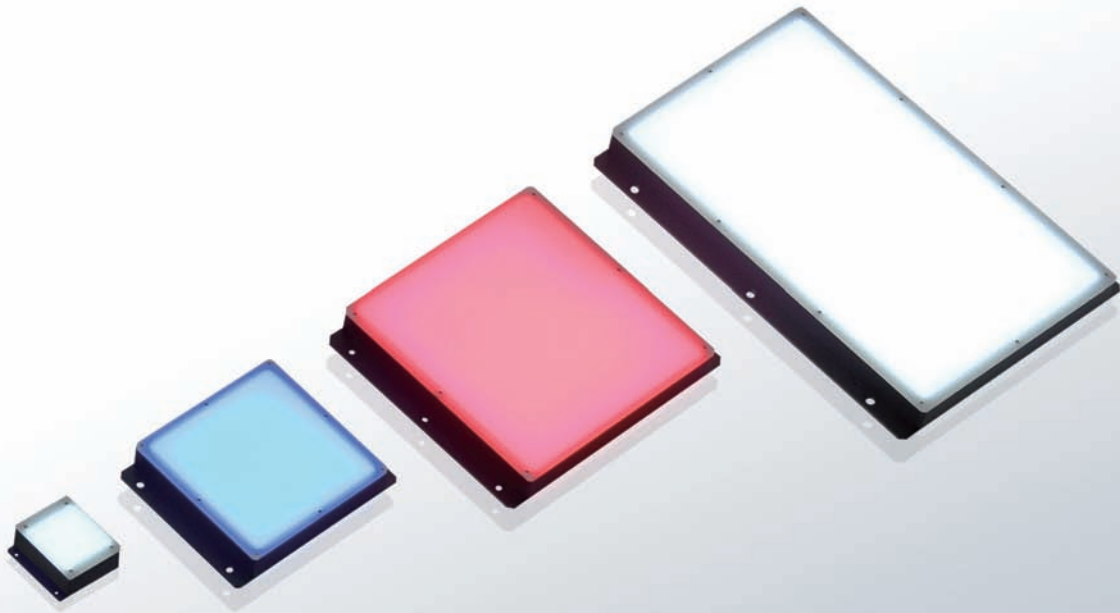
Product Features

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

Cross-sectional Diagram

LED
PCB

High-dispersion diffusion plate
Aluminum alloy case

Cross-sectional Diagram

Workpiece

Thermal conductor

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

Applications

Size measurements of machine parts

Shape detections for electronic components and ICs

Dirt detection on films
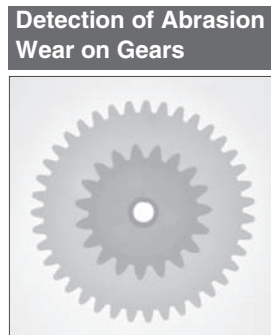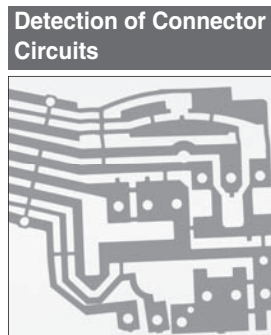
Detection of Connector Circuits

Detection of Abrasion Wear on Gears

Inspection of Bottles

Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC□	FLV-ATC□	
FLV-DB3729W	WHITE	0.9	27×27	37×37	15	A	◯	◯	50
FLV-DB3729R	RED	0.9					◯	◯	
FLV-DB3729B	BLUE	0.9					◯	◯	
FLV-DB10181W	WHITE	8.1	73×73	101×81	17	B	◯	◯	160
FLV-DB10181R	RED	4.7					◯	◯	
FLV-DB10181B	BLUE	8.1					◯	◯	
FLV-DB130130W	WHITE	13.0	114×120	144×126	17	C	◯	◯	270
FLV-DB130130R	RED	11.5					◯	◯	
FLV-DB130130B	BLUE	13.0					◯	◯	
FLV-DB212152W	WHITE	29.4	200×120	212×152	17	D	✕	◯	510
FLV-DB212152R	RED	20.2					✕	◯	
FLV-DB212152B	BLUE	29.4					✕	◯	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller
  FLV-TCC□: page 32
  FLV-ATC□: page 38
Note: Refer to page 61 for LED Characteristics.

Dimensions

(Unit: mm)

A **FLV-DB3729□**

B **FLV-DB10181□**

C **FLV-DB130130□**

D **FLV-DB212152□**

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Edge Type Light
FLV-FB Series

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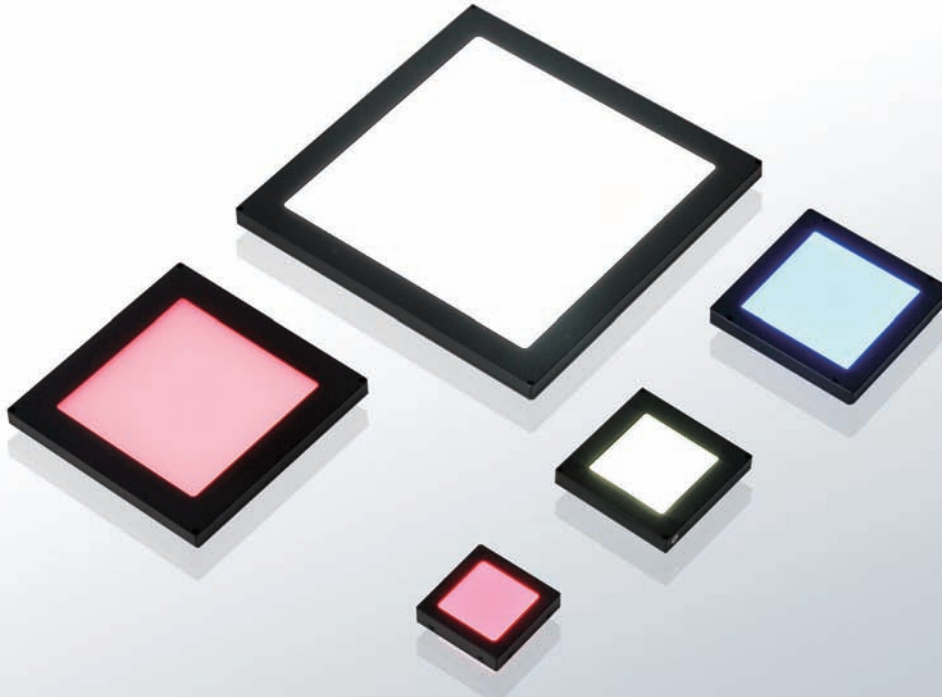
Product Features

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

Cross-sectional Diagram	Illustration of Illumination
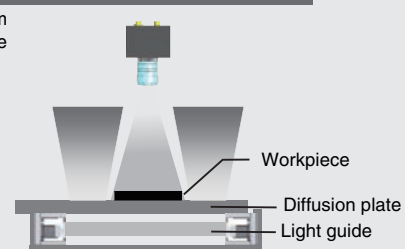
Light guide — Aluminum alloy case — PCB
Diffusion plate — LED
Dispersion coating

Workpiece
Diffusion plate
Light guide

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

Applications

Detection and size measurements of electronic devices

Detection of LCD dead pixels

Detection of Silkscreen Patterns on Cell Phone PCBs
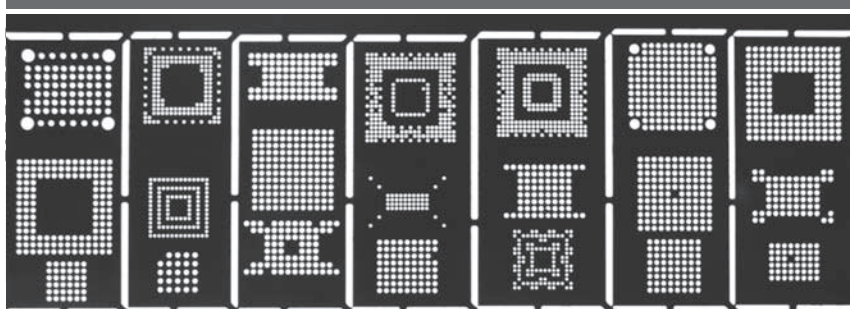
Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC□	FLV-ATC□	
FLV-FB5050W	WHITE	1.9	35×35	50×50	11	A	○	○	75
FLV-FB5050R	RED	0.9					○	○	
FLV-FB5050B	BLUE	1.9					○	○	
FLV-FB7070W	WHITE	1.9	46×46	70×70	8	B	○	○	85
FLV-FB7070R	RED	1.4					○	○	
FLV-FB7070B	BLUE	1.9					○	○	
FLV-FB9090W	WHITE	3.7	66×66	90×90	10	C	○	○	155
FLV-FB9090R	RED	1.9					○	○	
FLV-FB9090B	BLUE	3.7					○	○	
FLV-FB130130W	WHITE	5.5	94×94	130×130	10	D	○	○	230
FLV-FB130130R	RED	3.7					○	○	
FLV-FB130130B	BLUE	5.5					○	○	
FLV-FB200200W	WHITE	7.3	164×164	200×200	11	E	○	○	710
FLV-FB200200R	RED	5.5					○	○	
FLV-FB200200B	BLUE	7.3					○	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
  FLV-TCC□: page 32
  FLV-ATC□: page 38
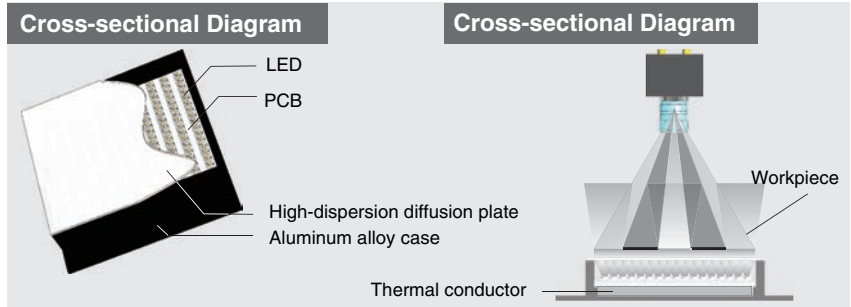Note: Refer to page 61 for LED Characteristics.

Dimensions

(Unit: mm)

A FLV-FB5050□

B FLV-FB7070□

C FLV-FB9090□

D FLV-FB130130□

E FLV-FB200200□

Edge Type Coaxial Light
FLV-FX Series

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

Product Features

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

Cross-sectional Diagram
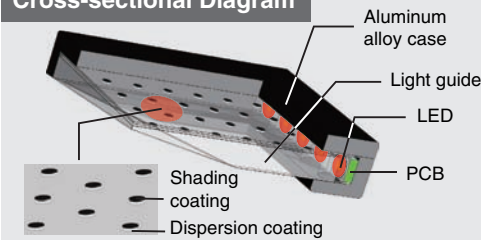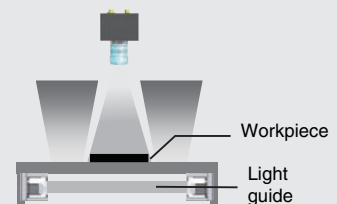
Aluminum alloy case

Light guide

LED

PCB

Shading coating

Dispersion coating

Illustration of Illumination

Workpiece

Light guide

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

Applications

Package inspections for foodstuffs, cigarettes, and household chemicals

Appearance inspections of home appliance cases and com ponents

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
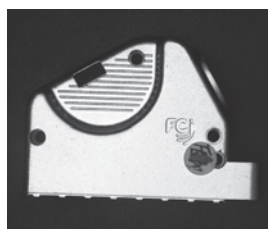
Recognition of Metal Characters and Patterns on Plastic Surfaces

OMRON

Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC□	FLV-ATC□	
FLV-FX100W	WHITE	3.7	60×60	100×100	11	A	○	○	180
FLV-FX100R	RED	1.9					○	○	
FLV-FX100B	BLUE	3.7					○	○	
FLV-FX143W	WHITE	5.5	100×100	143×143	11	B	○	○	240
FLV-FX143R	RED	3.7					○	○	
FLV-FX143B	BLUE	5.5					○	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
FLV-TCC□: page 32
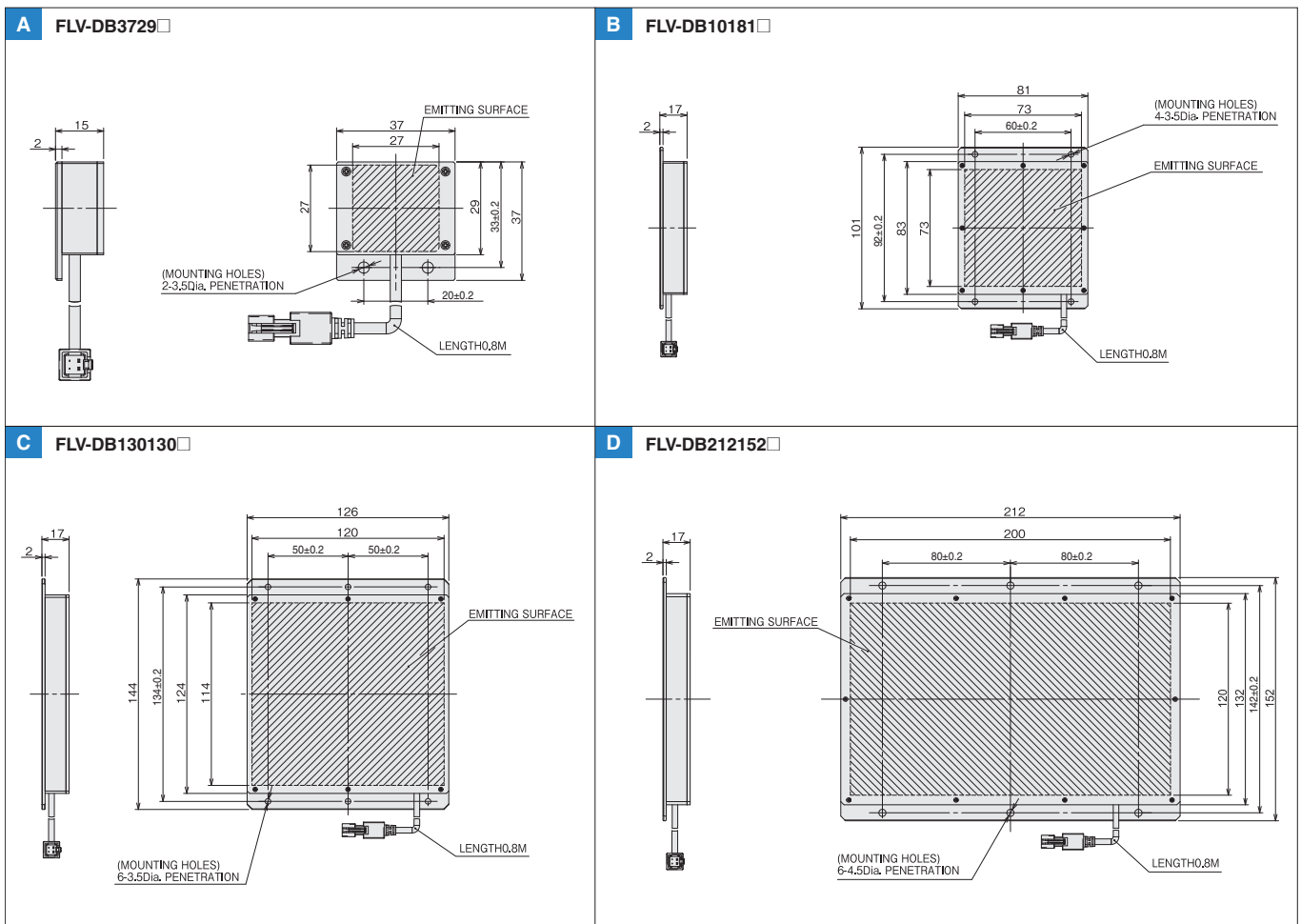FLV-ATC□: page 38
Note: Refer to page 61 for LED Characteristics.
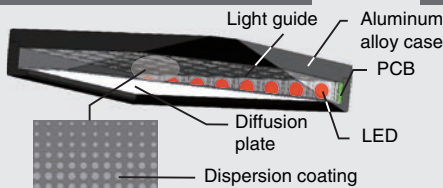
Dimensions

(Unit: mm)

A FLV-FX100□

(MOUNTING HOLES)
4-3.2Dia. PENETRATION
4-6.5Dia. DEPTH3

(60)
11
100
88±0.2
60
(60)
100
88±0.2
60
EMITTING SURFACE
LENGTH0.8M

B FLV-FX143□

(MOUNTING HOLES)
4-3.2Dia. PENETRATION
4-6.5Dia. DEPTH3

(100)
11
143
129±0.2
100
(100)
143
129±0.2
100
EMITTING SURFACE
LENGTH0.8M

Standard Models FLV Series

High-brightness Models FL Series

LED Characteristics

Lenses

Dome Light
FLV-DD Series

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

Product Features

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

Cross-sectional Diagram
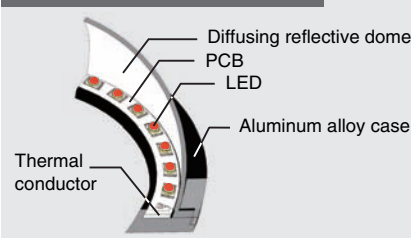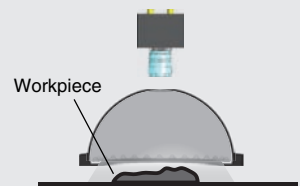
Diffusing reflective dome
PCB
LED
Aluminum alloy case
Thermal conductor

Illustration of Illumination

Workpiece

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

Applications

Detection of characters and marks on curved or uneven surfaces

Detection of highly reflective surfaces, such as metal or glass

Shape measurements of curvedor uneven workpieces

Inspection of Date Characters on Drink Cans

2007 08 22
011A1 03:58

Detection of Characters on Cell Phones
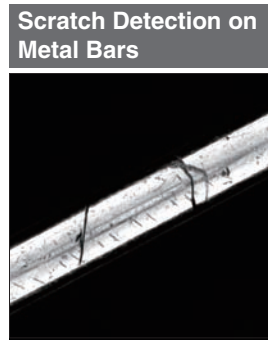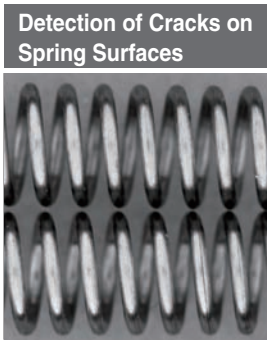
OMRON

Dome Light FLV-DD Series

Detection of Cracks on Spring Surfaces	Inspection of IC Pins	Scratch Detection on Metal Bars

Ordering Information

Model	Color	Power consumption (W)	Dimensions				Controller *		Weight (g)
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC□	FLV-ATC□	
FLV-DD70W	WHITE	2.3	45 dia.	70 dia.	31.74	A	○	○	130
FLV-DD70R	RED	1.4					○	○	
FLV-DD70B	BLUE	2.3					○	○	
FLV-DD100W	WHITE	17.9	65.6 dia.	114 dia.	56.28	B	✕	○	210
FLV-DD100R	RED	11.9					○	○	
FLV-DD100B	BLUE	17.9					✕	○	
FLV-DD150W	WHITE	17.9	116 dia.	175 dia.	83.21	C	✕	○	490
FLV-DD150R	RED	11.9					○	○	
FLV-DD150B	BLUE	17.9					✕	○	

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
　FLV-TCC□: page 32
　FLV-ATC□: page 38
Note: Refer to page 61 for LED Characteristics.

Dimensions

(Unit: mm)

A FLV-DD70□

LENGTH0.8M
12
70Dia.
42Dia.
P.C.D.32±0.2
12
45Dia. EMITTING SURFACE
(MOUNTING SCREW HOLES)
4-M4 Insert Limit 3
31.74
10.74
Tightening torque: 1.2 N · m

B FLV-DD100□

LENGTH0.8M
114Dia.
P.C.D.105±0.2
99.8Dia.
20
4-R2
5
20
16
65.6Dia. EMITTING SURFACE
4POINT SAME SIZE WAY EQUAL LAYOUT
(MOUNTING HOLES)
4-3.5Dia. PENETRATION
56.28
13

C FLV-DD150□

LENGTH0.8M
6
6POINT SAME SIZE WAY EQUAL LAYOUT
175Dia.
P.C.D.160±0.3
153Dia.
30
4-R2
20.9
30
116Dia. EMITTING SURFACE
(MOUNTING HOLES)
6-3.5Dia. PENETRATION
83.21
16
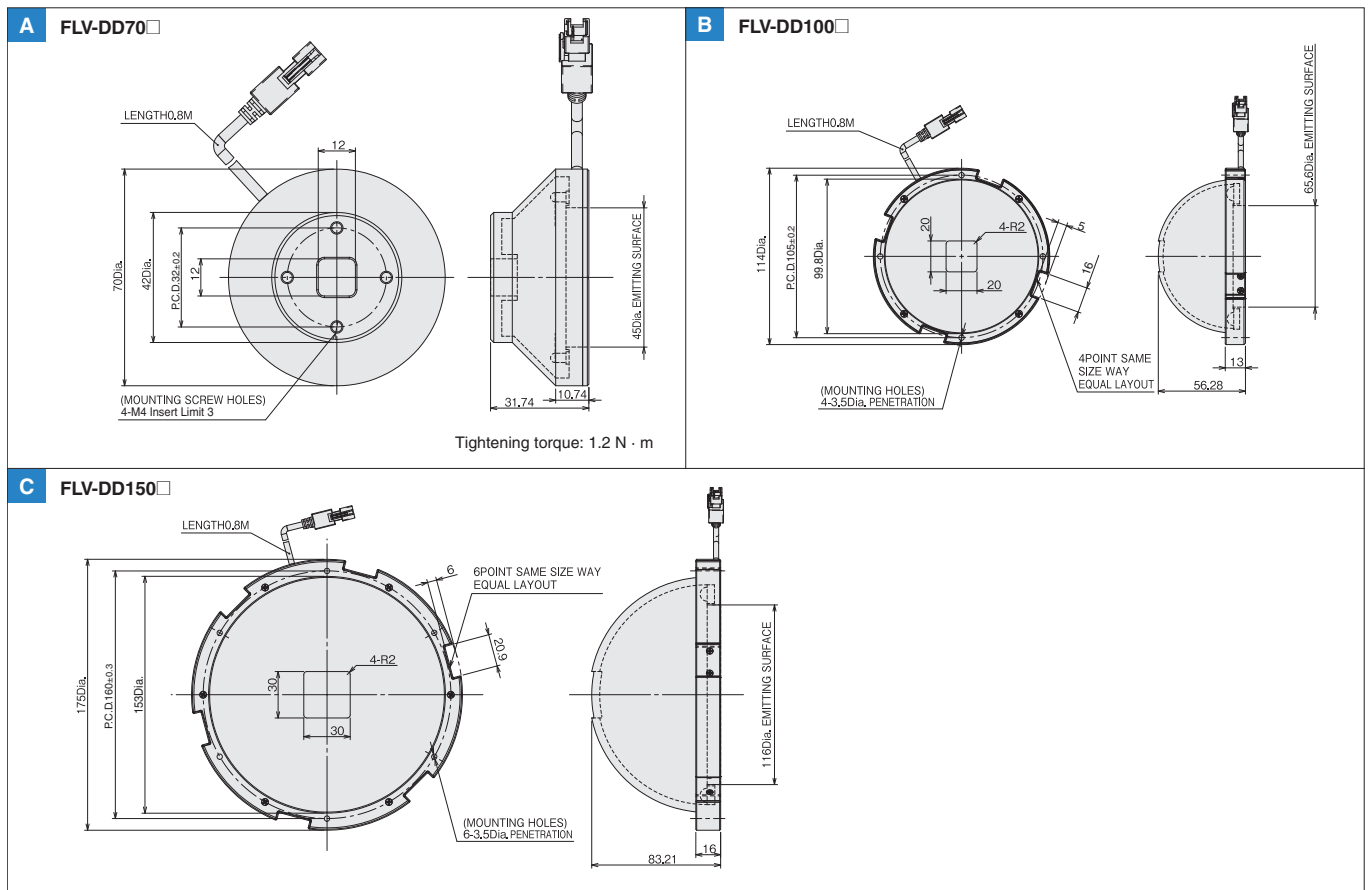
Line Light
FLV-LN Series

Exceptionally Bright, Highly Uniform Line Lighting
This series is ideal for high-speed processing with line cameras.

Product Features

- Extremely high brightness
- Achieves highly effective line illumination with a condenser lens.
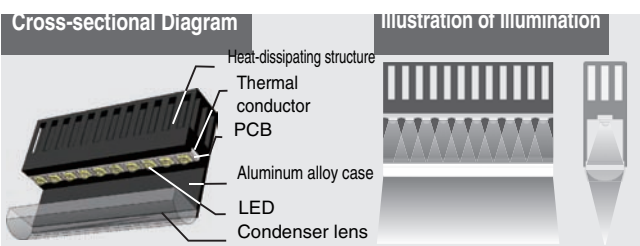
Cross-sectional Diagram

Heat-dissipating structure
Thermal conductor
PCB
Aluminum alloy case
LED
Condenser lens

Illustration of Illumination

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

Applications

Printing inspections   Sheet inspections

Detection of film and glass surface damage and internal impurities

Ordering Information

Model	Color	Power consumption (W)	Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FLV-TCC□	FLV-ATC□	Weight (g)
FLV-LN82W	WHITE	9.2	62×16	82×83.5	50	A	✕	◯	640
FLV-LN82B	BLUE	9.2					✕	◯	
FLV-LN122R	RED	10.4	102×16	122×83.5	50	E	✕	◯	800
FLV-LN142W	WHITE	18.4	122×16	142×83.5	50	B	✕	◯	890
FLV-LN142B	BLUE	18.4					✕	◯	
FLV-LN222R	RED	20.7	202×16	222×83.5	50	F	✕	◯	1320
FLV-LN322W	WHITE	45.9	302×16	322×83.5	50	C	✕	◯	1950
FLV-LN322	BLUE	45.9					✕	◯	
FLV-LN322R	RED	31.1	302×16	322×83.5	50	G	✕	◯	
FLV-LN442W	WHITE	64.3	442×16	442×83.5	50	D	✕	◯	2450
FLV-LN442B	BLUE	64.3					✕	◯	
FLV-LN422R	RED	41.4	402×16	422×83.5	50	H	✕	◯	2400

* For the connectable Lighting Controller models and conditions, refer to the Specifications pages of each Lighting Controller.
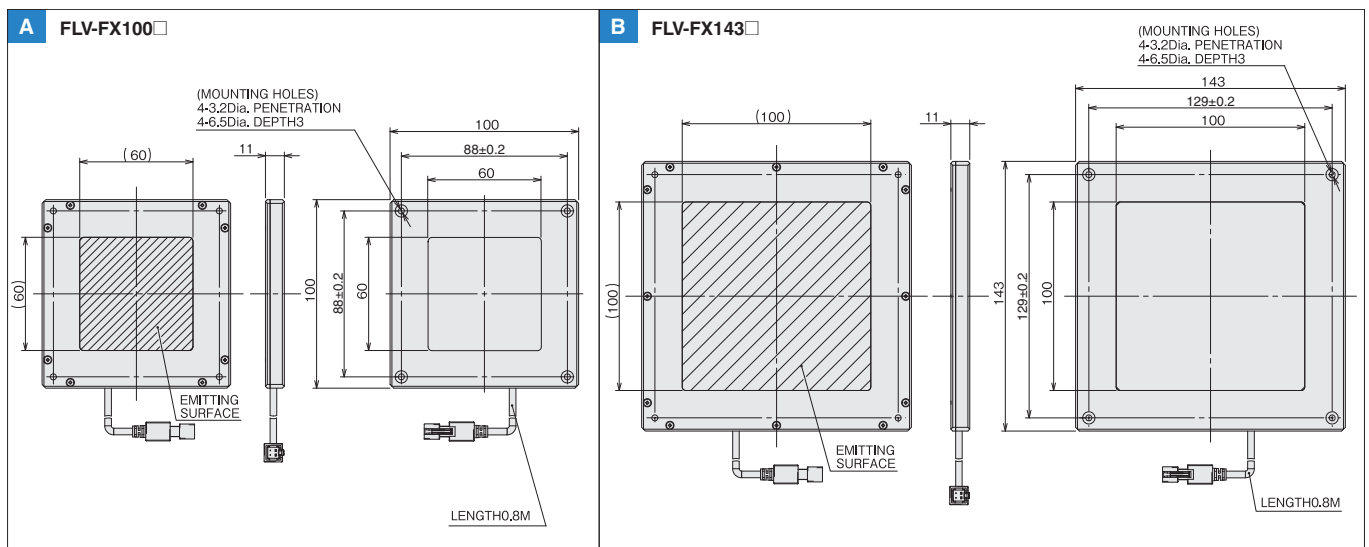 FLV-TCC□: page 32 FLV-ATC□: page 38
Note: Refer to page 61 for LED Characteristics.

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Dimensions

(Unit: mm)

A FLV-LN82W/B

Tightening torque: 4.30 N · m

B FLV-LN142W/B

Tightening torque: 4.30 N · m

C FLV-LN322W/B

Tightening torque: 4.30 N · m

D FLV-LN442W/B

Tightening torque: 4.30 N · m

E FLV-LN122R

Tightening torque: 4.30 N · m

F FLV-LN222R

Tightening torque: 4.30 N · m

G FLV-LN322R

Tightening torque: 4.30 N · m

H FLV-LN422R

Tightening torque: 4.30 N · m

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

**Compact Lighting Controller
Mounts directly onto the FH/FZ
OMRON Cameras
Multistage Control of Lighting on
Up to Four Lights can be connected.**

Product Features

- Saves space with its compact design.
- No need for space in control panels for expansion.
- Maintains Lighting intensity even when located at long distances.
- Light intensity and luminance control are set through the Vision System.

● **Simple wiring and space saving**

Wiring from the control panel to remote Cameras and Lights is simplified.
The more Cameras and Lights are connected to the Vision System Controller, the more effective in simplifying wiring and saving space.

Standard Lighting System	FLV-TCC Series
· Complicated wiring from the control panel to the Lights and Camera is required.	· Power supplied from the Camera eliminates the need for complicated wiring from the control panel to the Lights.
· Space to install the Power Supply for Lights in the control panel is required.	· The compact design that enables mounting onto the Camera saves space in the control panel.

Camera cable

Camera

Light 1

Light 3

Light 2

Vision System   Power Supply for Lights
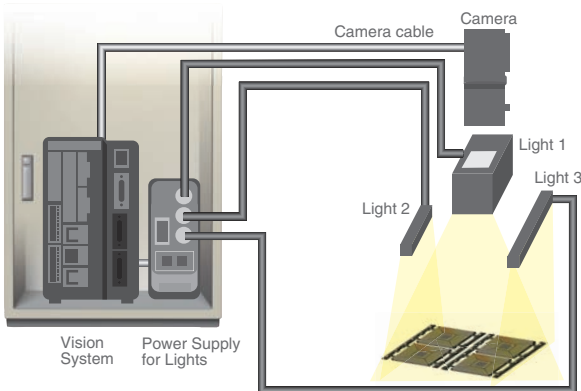
**Camera cable
+
lighting cables are wired from control panel**

Camera cable

Camera   FLV-TCC

Light 1

Lighting cable

Light 3

Light 2

Vision System

Only the camera cable is connected from control panel

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Camera-mount Lighting Controller for FLV Series FLV-TCC Series
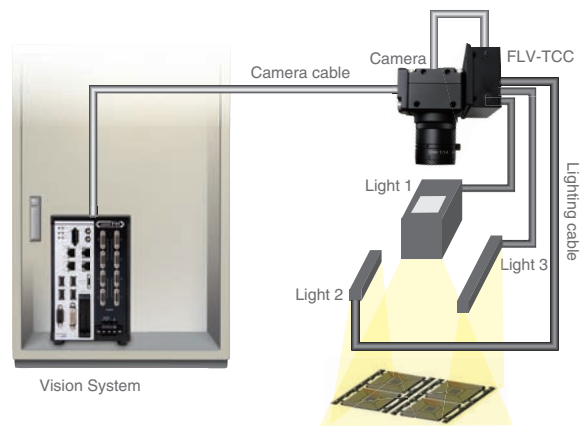
●Easy control setting

Light intensity and luminance control can be set from the flow menu of the Vision System Controller. No need of ladder programming to create light sequence or communications settings.

Standard Lighting System	FLV-TCC Series
Setting through ladder programming	Setting from Vision System
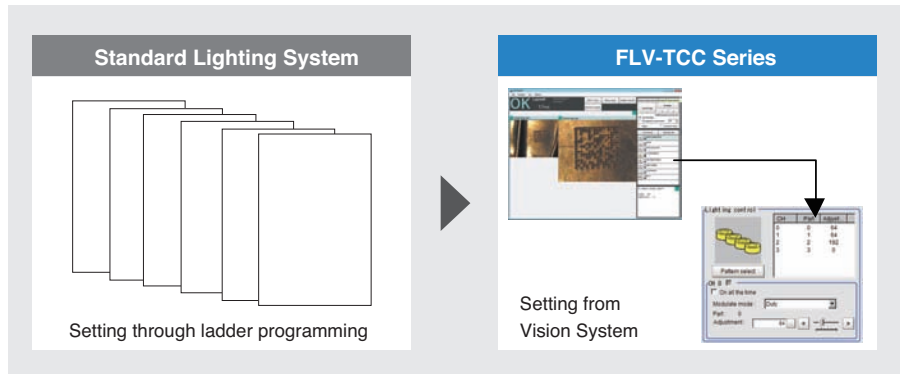
●Maintaining light intensity even with long wiring distances

Even if the Vision System Controller and Light are separated by a long distance, the light intensity is maintained due to power being supplied through the Camera. This means that it is not required to increase light intensity and power consumption for high-speed production lines.

Standard Lighting System	FLV-TCC Series
10 m — Camera, Power Supply for Light, Light. 10-m long, distances result in voltage drops and lower light intensity.	10 m — FLV-TCC, Camera, Twice Brighter, Light. Power is supplied through the Camera, so light intensity does not decrease even if there's a long distance between the Vision System Controller and Light. * When the extension cable length is 10 m.

●Connecting Spot Light

The new FLV-TCC☐EP can be connected with a Spot Light, and the hybrid type FLV-TCC☐HB can be connected with up to two Standard Lights and a Spot Light. Applications such as alignment and cosmetic inspection of small electronic parts, e.g. connectors and IC's, require these kind of Lighting Controllers using Spot Lights.

Camera
FLV-TCC
Spot Light
Coaxial Lens
Low Angle Ring Light
Workpiece
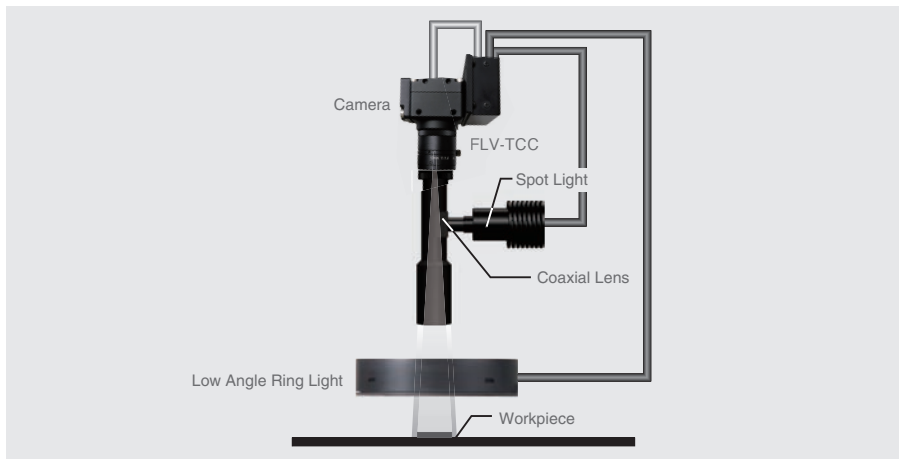
Ordering Information

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-TCC4	4 standard lights	○	×	×	24 VDC *2	15 W max.*3	Digital *4
FLV-TCC1	1 standard light	○	×	×			
FLV-TCC3HB	1 Spot Light and 2 standard lights	○	○	×			
FLV-TCC1EP	1 Spot Light	×	○	×	—	Any FLV-EP-series Spot Light can be connected	

*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. Refer to the Specifications on page 34 for the details of "power for connectable lighting".
*4. Intensity is controlled through the settings of the Vision System Controller.
*5. ○:Connectable ×:Not connectable

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

Specifications

Item	Model		FLV-TCC4	FLV-TCC1	FLV-TCC3HB	FLV-TCC1EP
Number of connectable lightings			4 of standard lighting	1 of standard lighting	1 of spot lighting, 2 of standard lighting	1 of spot lighting
Applicable Lighting *1			FLV series (However, FLV-EP series and FLV-LN series are excluded.)		FLV series (However, FLV-LN series are excluded.)	FLV-EP series
Applicable Cameras *2			FH-S series, FZ-S series			
Applicable Image Sensor Controller			FH series, FZ5 series			
Input Voltage			Supplied from applicable camera (12 V) or external power supply (24 V) *3			Supplied from applicable camera (12 V)
External power supply voltage			24 VDC 10% (including ripple)			—
Current consumption			1.5A max.			1.0A max.
		Recommended power supply	Model S8VS-06024 (manufactured by OMRON, 24 VDC, 2.5 A, 60 W)			—
Connectable lighting	12 VDC for camera supply	Continuous lighting	4ch total 7.5 W max.	7.5 W max.	0ch connection: 1,2ch total 5.5 W max. 0ch non-connection: 1,2ch total 7.5 W max.	All FLV-EP series can be connected.
		Trigger lighting — Simultaneous lighting	4ch total 7.5 W max.	7.5 W max.	0ch connection: 1,2ch total 5.5 W max. 0ch non-connection: 1,2ch total 7.5 W max.	
		Trigger lighting — Individual lighting	7.5 W max. for 1ch		7.5 W max. for 1ch	
	24 VDC for external supply	Continuous lighting	4ch total 7.5 W max.	7.5 W max.	0ch connection: 1,2ch total 5.5 W max. 0ch non-connection: 1,2ch total 7.5 W max.	—
		Trigger lighting — Simultaneous lighting	4ch total 15 W max.	15 W max.	0ch connection: 1,2ch total 14 W max. 0ch non-connection: 1,2ch total 15 W max.	
		Trigger lighting — Individual lighting	15 W max. for 1ch		15 W max. for 1ch	
Drive method			Constant voltage method		0ch Constant current method 1ch/2ch: Constant voltage method	Constant current method
Lighting method			Trigger lighting, Continuous lighting			
Luminance 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 image sensor controller)		0ch Duty light adjustment or current light adjustment 1ch/2ch Duty light adjustment or voltage light adjustment Duty light adjustment: PWM frequency of 100 kHz, light adjustment of 255 levels current light adjustment/ Voltage light adjustment: Light adjustment of 255 levels (all are set with image sensor controller)	Duty light adjustment or current light adjustment Duty light adjustment: PWM frequency of 100 kHz, light adjustment of 255 levels current light adjustment: Light adjustment of 255 levels (all are set with image sensor controller)
Trigger lighting			Lighting in synchronization with trigger input timing from the controller.			
Trigger lighting delay time			Ton: 30µs max.			
Lighting duration setting			Auto setting in accordance with shutter speed.			
External Interface			Camera connection cable (directly connected with the main unit)			
Insulation Resistance			0.5 MΩ (100VDC)			
Ambient Temperature			Operating: 0 to +50°C, Storage: -15 to +60°C (with no icing or condensation)			
Ambient Humidity			Operating and storage: 35% to 85% (with no condensation)			
Degree of Protection			IP20 (IEC60529)			
Vibration Resistance(destructive)			10 to 150 Hz, (0.7mm 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,Camera mount plate: Aluminum, Cable: FPVC			
Weight			Approx. 130g (including the camera mount plate)	Approx. 120g (including the camera mount plate)	Approx. 130g (including the camera mount plate)	Approx. 120g (including the camera mount plate)
Accessories			Instruction manual(this manual), Lighting connection table, Camera Mount plate, Mounting screws (M2 set screw x 4, M2 flat head screw x 4, M4 flat head screw x 4)			
Applicable standards			EN61326-1 *4			

*1. Check the lighting connection table of accessory.
*2. When mounting on model FH-S□12, use model FH-SM12-XLC (separate sale).
*3. When supplying the power to this product from an external input power supply (24V), make sure to turn ON the power to this product first or at the same time with the image sensor controller. If you reverse this order, this product will not recognize the 24V external input, so lighting greater than 7.5W will not be possible.
*4. Electromagnetic environment: Industrial electromagnetic environment (EN/IEC 61326-1 Table 2)
Also, the following condition is applied to the immunity test of this product.
There are case that Lighting brightness fluctuate Max 10%.

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

FLV Lighting connection table

Lighting controllers that can be connected to lighting equipment are shown below.

◎: Connectable, constant lighting possible   ○: Connectable, only trigger lighting possible   ×: Not connectable

The following table shows connection availability when connecting one piece of applicable lighting equipment to each lighting controller. When connecting lighting equipment to multiple channels, check that the specifications of lighting electricity allowed for each lighting controller is satisfied.

Direct Ring Light

Model	Electricity	FLV-TCC4□ FLV-TCC1□	FLV-TCC3HB□ *1	
			0ch non-connection	0ch connection
FLV-DR3220W	1.4W	◎	◎	◎
FLV-DR3220R	1.3W	◎	◎	◎
FLV-DR3220B	1.4W	◎	◎	◎
FLV-DR4415W	2.7W	◎	◎	◎
FLV-DR4415R	1.7W	◎	◎	◎
FLV-DR4415B	2.7W	◎	◎	◎
FLV-DR5030W	3.1W	◎	◎	◎
FLV-DR5030R	1.8W	◎	◎	◎
FLV-DR5030B	3.1W	◎	◎	◎
FLV-DR5030IR	1.3W	◎	◎	◎
FLV-DR6030UV	3.2W	◎	◎	◎
FLV-DR6615W	5.0W	◎	◎	◎
FLV-DR6615R	3.9W	◎	◎	◎
FLV-DR6615B	5.0W	◎	◎	◎
FLV-DR7000W	5.0W	◎	◎	◎
FLV-DR7000R	3.7W	◎	◎	◎
FLV-DR7000B	5.0W	◎	◎	◎
FLV-DR7030W	5.0W	◎	◎	◎
FLV-DR7030R	3.7W	◎	◎	◎
FLV-DR7030B	5.0W	◎	◎	◎
FLV-DR7030IR	2.6W	◎	◎	◎
FLV-DR7530UV	5.4W	◎	◎	◎
FLV-DR9000W	8.8W	○	◎	○
FLV-DR9000R	7.0W	◎	◎	◎
FLV-DR9000B	8.8W	○	◎	○
FLV-DR9030W	8.1W	○	◎	○
FLV-DR9030R	6.6W	◎	◎	◎
FLV-DR9030B	8.1W	○	◎	○
FLV-DR9030IR	4.3W	◎	◎	◎
FLV-DR9030UV	6.8W	◎	◎	○
FLV-DR9215W	7.4W	◎	◎	○
FLV-DR9215R	5.4W	◎	◎	◎
FLV-DR9215B	7.4W	◎	◎	○
FLV-DR12030W	11.9W	○	○	○
FLV-DR12030R	9.8W	○	○	○
FLV-DR12030B	11.9W	○	○	○

*1. 0ch is only for Spot Light.

Low Angle Ring Light

Model	Electricity	FLV-TCC4□ FLV-TCC1□	FLV-TCC3HB□	
			0ch non-connection	0ch connection
FLV-DL5890W	1.9W	◎	◎	◎
FLV-DL5890R	1.3W	◎	◎	◎
FLV-DL5890B	1.9W	◎	◎	◎
FLV-DL7260W	5.7W	◎	◎	○
FLV-DL7260R	3.9W	◎	◎	◎
FLV-DL7260B	5.7W	◎	◎	○
FLV-DL9090W	2.8W	◎	◎	◎
FLV-DL9090R	1.8W	◎	◎	◎
FLV-DL9090B	2.8W	◎	◎	◎
FLV-DL12060W	12.7W	○	○	○
FLV-DL12060R	10.5W	○	○	○
FLV-DL12060B	12.7W	○	○	○
FLV-DL15060W	13.6W	○	○	○
FLV-DL15060R	11.2W	○	○	○
FLV-DL15060B	13.6W	○	○	○

Bar Light

Model	Electricity	FLV-TCC4□ FLV-TCC1□	FLV-TCC3HB□	
			0ch non-connection	0ch connection
FLV-BR6022W	1.4W	◎	◎	◎
FLV-BR6022R	1.3W	◎	◎	◎
FLV-BR6022B	1.4W	◎	◎	◎
FLV-BR6022IR	0.9W	◎	◎	◎
FLV-BR6424UV	1.8W	◎	◎	◎
FLV-BR8532W	3.5W	◎	◎	◎
FLV-BR8532R	3.1W	◎	◎	◎
FLV-BR8532B	3.5W	◎	◎	◎
FLV-BR11222W	4.2W	◎	◎	◎
FLV-BR11222R	2.6W	◎	◎	◎
FLV-BR11222B	4.2W	◎	◎	◎
FLV-BR11222IR	1.8W	◎	◎	◎
FLV-BR11624UV	3.6W	◎	◎	◎
FLV-BR14030W	6.1W	◎	◎	○
FLV-BR14030R	4.8W	◎	◎	◎
FLV-BR14030B	6.1W	◎	◎	○
FLV-BR15020W	5.5W	◎	◎	◎
FLV-BR15020R	3.1W	◎	◎	◎
FLV-BR15020B	5.5W	◎	◎	◎
FLV-BR21222W	8.7W	○	○	○
FLV-BR21222R	5.0W	◎	◎	◎
FLV-BR21222B	8.7W	○	○	○
FLV-BR21230W	8.8W	○	○	○
FLV-BR21230R	7.0W	◎	◎	◎
FLV-BR21230B	8.8W	○	○	○
FLV-BR21230IR	6.1W	◎	◎	○
FLV-BR21230UV	7.8W	○	○	○
FLV-BR38037W	15.9W	×	×	×
FLV-BR38037R	11.3W	○	○	○
FLV-BR38037B	15.9W	×	×	×
FLV-BR48031W	21.9W	×	×	×
FLV-BR48031R	18.0W	×	×	×
FLV-BR48031B	21.9W	×	×	×

Coaxial Light

Model	Electricity	FLV-TCC4□ FLV-TCC1□	FLV-TCC3HB□	
			0ch non-connection	0ch connection
FLV-CL30W	2.4W	◎	◎	◎
FLV-CL30R	1.4W	◎	◎	◎
FLV-CL30B	2.4W	◎	◎	◎
FLV-CL40W	3.9W	◎	◎	◎
FLV-CL40R	2.3W	◎	◎	◎
FLV-CL40B	3.9W	◎	◎	◎
FLV-CL60W	10.4W	○	○	○
FLV-CL60R	5.7W	◎	◎	○
FLV-CL60B	10.4W	○	○	○
FLV-CL60IR	3.9W	◎	◎	◎
FLV-CL60UV	3.0W	◎	◎	◎
FLV-CL80W	10.8W	○	○	○
FLV-CL80R	7.2W	◎	◎	○
FLV-CL80B	10.8W	○	○	○
FLV-CL100W	22.7W	×	×	×
FLV-CL100R	15.2W	×	×	×
FLV-CL100B	22.7W	×	×	×

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

Shadowless Light

Model	Electricity	FLV-TCC4□ FLV-TCC1□	FLV-TCC3HB□ 0ch non-connection	FLV-TCC3HB□ 0ch connection
FLV-FR114W	3.9W	◎	◎	◎
FLV-FR114R	3.1W	◎	◎	◎
FLV-FR114B	3.9W	◎	◎	◎
FLV-FR150W	6.1W	◎	◎	○
FLV-FR150R	3.5W	◎	◎	◎
FLV-FR150B	6.1W	◎	◎	○
FLV-FP130W	8.1W	○	○	○
FLV-FP130R	5.8W	◎	◎	○
FLV-FP130B	8.1W	○	○	○
FLV-FS74W	5.2W	◎	◎	◎
FLV-FS74R	3.5W	◎	◎	◎
FLV-FS74B	5.2W	◎	◎	◎
FLV-FQ48W	2.0W	◎	◎	◎
FLV-FQ48R	1.2W	◎	◎	◎
FLV-FQ48B	2.0W	◎	◎	◎

Direct Back Light

Model	Electricity	FLV-TCC4□ FLV-TCC1□	FLV-TCC3HB□ 0ch non-connection	FLV-TCC3HB□ 0ch connection
FLV-DB3729W	0.9W	◎	◎	◎
FLV-DB3729R	0.9W	◎	◎	◎
FLV-DB3729B	0.9W	◎	◎	◎
FLV-DB10181W	8.1W	○	○	○
FLV-DB10181R	4.7W	◎	◎	◎
FLV-DB10181B	8.1W	○	○	○
FLV-DB130130W	13.0W	○	○	○
FLV-DB130130R	11.5W	○	○	○
FLV-DB130130B	13.0W	○	○	○
FLV-DB212152W	29.4W	×	×	×
FLV-DB212152R	20.2W	×	×	×
FLV-DB212152B	29.4W	×	×	×

Edge Type Light

Model	Electricity	FLV-TCC4□ FLV-TCC1□	FLV-TCC3HB□ 0ch non-connection	FLV-TCC3HB□ 0ch connection
FLV-FB5050W	1.9W	◎	◎	◎
FLV-FB5050R	1.0W	◎	◎	◎
FLV-FB5050B	1.9W	◎	◎	◎
FLV-FB7070W	1.9W	◎	◎	◎
FLV-FB7070R	1.4W	◎	◎	◎
FLV-FB7070B	1.9W	◎	◎	◎
FLV-FB9090W	3.7W	◎	◎	◎
FLV-FB9090R	1.9W	◎	◎	◎
FLV-FB9090B	3.7W	◎	◎	◎
FLV-FB130130W	5.5W	◎	◎	◎
FLV-FB130130R	3.7W	◎	◎	◎
FLV-FB130130B	5.5W	◎	◎	◎
FLV-FB200200W	7.3W	◎	◎	○
FLV-FB200200R	5.5W	◎	◎	◎
FLV-FB200200B	7.3W	◎	◎	○

Edge Type Coaxial Light

Model	Electricity	FLV-TCC4□ FLV-TCC1□	FLV-TCC3HB□ 0ch non-connection	FLV-TCC3HB□ 0ch connection
FLV-FX100W	3.7W	◎	◎	◎
FLV-FX100R	1.9W	◎	◎	◎
FLV-FX100B	3.7W	◎	◎	◎
FLV-FX143W	5.5W	◎	◎	◎
FLV-FX143R	3.7W	◎	◎	◎
FLV-FX143B	5.5W	◎	◎	◎

Dome Light

Model	Electricity	FLV-TCC4□ FLV-TCC1□	FLV-TCC3HB□ 0ch non-connection	FLV-TCC3HB□ 0ch connection
FLV-DD70W	2.3W	◎	◎	◎
FLV-DD70R	1.4W	◎	◎	◎
FLV-DD70B	2.3W	◎	◎	◎
FLV-DD100W	17.9W	×	×	×
FLV-DD100R	11.9W	○	○	○
FLV-DD100B	17.9W	×	×	×
FLV-DD150W	17.9W	×	×	×
FLV-DD150R	11.9W	○	○	○
FLV-DD150B	17.9W	×	×	×

Spot Light

Model	Electricity	FLV-TCC3HB□ FLV-TCC1EP□
FLV-EP0803W	1.6W	◎
FLV-EP0803R	1.1W	◎
FLV-EP0803B	1.6W	◎
FLV-EP50W	1.6W	◎
FLV-EP50R	1.1W	◎

Line Light

Model	Electricity
FLV-LN82W	9.2W
FLV-LN142W	18.4W
FLV-LN322W	45.9W
FLV-LN442W	64.3W
FLV-LN122R	10.4W
FLV-LN222R	20.7W
FLV-LN322R	31.1W
FLV-LN422R	41.4W
FLV-LN82B	9.2W
FLV-LN142B	18.4W
FLV-LN322B	45.9W
FLV-LN442B	64.3W

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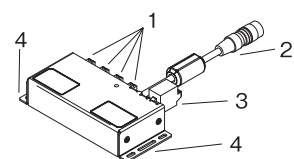
No.	Name	Description
1	Lighting connecting connector	Connects to the LED lighting.
2	Camera connecting cable	Connects to the extension connector of the camera.
3	24 V external power supply input terminal block *	Connect a 24-VDC power supply if the total power consumption of the Lightings exceeds 7.5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

* To wire the terminal block, connect a applicable cord (AWG12-26 with a 10 mm margin for work).
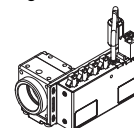
Mounting the Controller to the Camera

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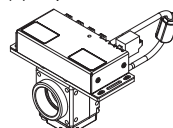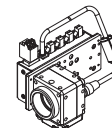
(1) Top/Bottom mount   (2) Right side mount   (3) Left side mount

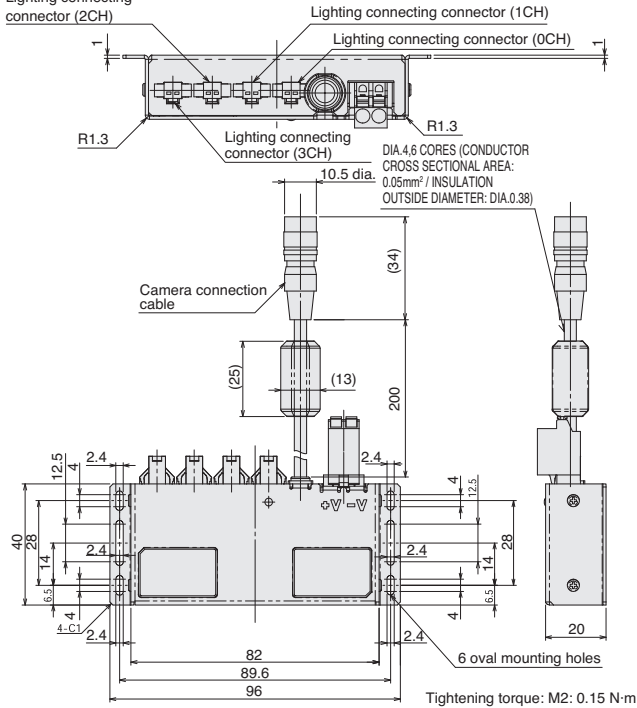# Camera-mount Lighting Controller for FLV Series FLV-TCC Series

Dimensions

(Unit: mm)

●Lighting Controller
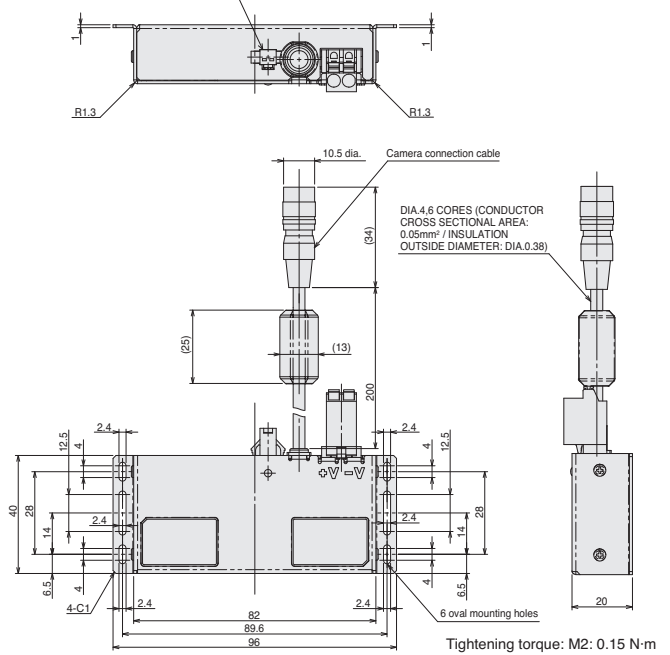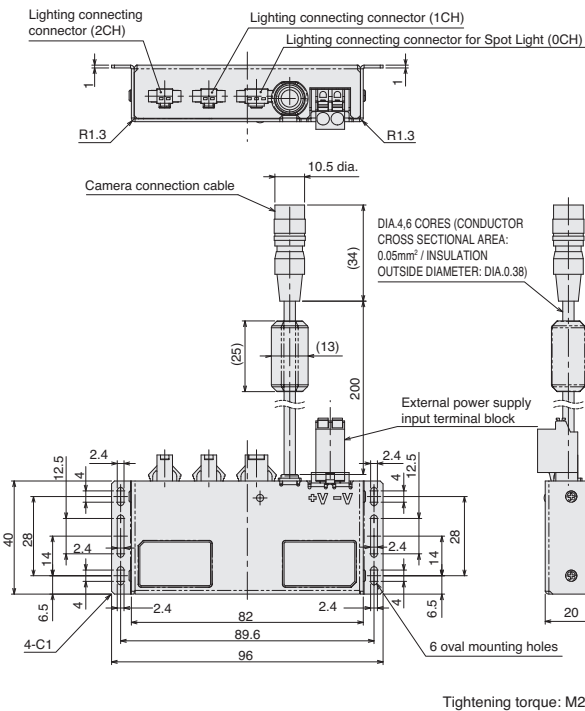
FLV-TCC4

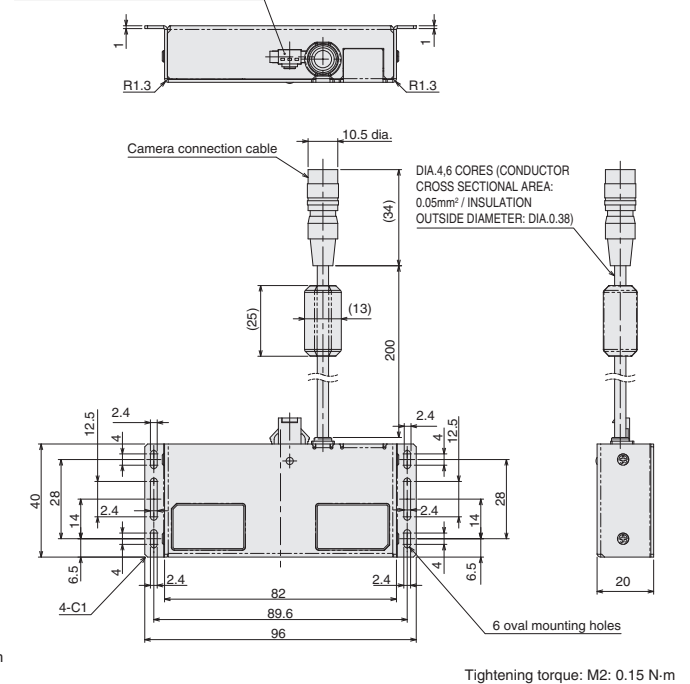Lighting connecting connector (2CH)
Lighting connecting connector (1CH)
Lighting connecting connector (0CH)
Lighting connecting connector (3CH)

R1.3
R1.3

10.5 dia.

DIA.4,6 CORES (CONDUCTOR CROSS SECTIONAL AREA: 0.05mm² / INSULATION OUTSIDE DIAMETER: DIA.0.38)

Camera connection cable

(34)
(25)
(13)
200

12.5
40
28
14
6.5
4
2.4
2.4
2.4
+V −V
4
12.5
28
14
6.5
4
4-C1
2.4
2.4

82
89.6
96

6 oval mounting holes

20

Tightening torque: M2: 0.15 N·m

FLV-TCC1

Lighting connecting connector (0CH)

R1.3
R1.3

10.5 dia.
Camera connection cable

DIA.4,6 CORES (CONDUCTOR CROSS SECTIONAL AREA: 0.05mm² / INSULATION OUTSIDE DIAMETER: DIA.0.38)

(34)
(25)
(13)
200

12.5
40
28
14
6.5
4
2.4
2.4
+V −V
2.4
2.4
12.5
28
14
6.5
4
4-C1

82
89.6
96

6 oval mounting holes

20

Tightening torque: M2: 0.15 N·m

FLV-TCC3HB

Lighting connecting connector (2CH)
Lighting connecting connector (1CH)
Lighting connecting connector for Spot Light (0CH)

R1.3
R1.3

Camera connection cable

10.5 dia.

DIA.4,6 CORES (CONDUCTOR CROSS SECTIONAL AREA: 0.05mm² / INSULATION OUTSIDE DIAMETER: DIA.0.38)

(34)
(25)
(13)
200

External power supply input terminal block

12.5
40
28
14
6.5
4
2.4
2.4
+V −V
2.4
2.4
12.5
28
14
6.5
4
4-C1

82
89.6
96

6 oval mounting holes

20

Tightening torque: M2: 0.15 N·m

FLV-TCC1EP

Lighting connecting connector for Spot Light (0CH)

R1.3
R1.3

Camera connection cable

10.5 dia.

DIA.4,6 CORES (CONDUCTOR CROSS SECTIONAL AREA: 0.05mm² / INSULATION OUTSIDE DIAMETER: DIA.0.38)

(34)
(25)
(13)
200

12.5
40
28
14
6.5
4
2.4
2.4
2.4
2.4
12.5
28
14
6.5
4
4-C1

82
89.6
96

6 oval mounting holes

20

Tightening torque: M2: 0.15 N·m

●Camera mount plate (provided)
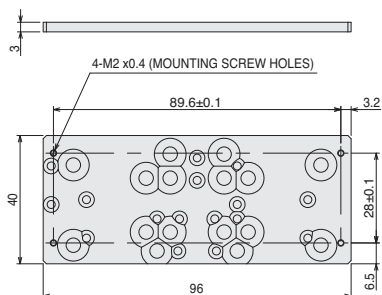
3

4-M2 x0.4 (MOUNTING SCREW HOLES)

89.6±0.1
3.2
40
28±0.1
6.5
96

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Analog Lighting Controller for FLV Series
FLV-ATC Series

Stationary Lighting Controller

Product Features

- Stationary type suitable for separate installation when no space near the Camera.
- Light emission trigger can be input directly even without Vision Sensor.

Ordering Information

Applicable Light	Model	Number of Channels	Power Supply Voltage	Maximun Lighting power	Luminance Control Method
For Standard Light *1	**FLV-ATC21024 *2**	2	100 to 240 VAC, 50/60 Hz	40 W max.	Analog
	FLV-ATC41024 *2	4			
For Spot Light	**FLV-ATC10405 *2**	1		3 W max.	
	FLV-ATC40405 *2	4		12 W max.	
For Line Light	**FLV-ATC26024-100V *2**	2	100 to 120 VAC, 50/60 Hz	240 W max.	
	FLV-ATC26024-200V	2	200 to 240 VAC, 50/60 Hz		

*1. Standard Light means all FLV-series Lights excluding the FLV-EP-series Spot Lights and the FLV-LN-series Line Lights.
*2. For AC power cords: An A-type plug is standard. C-type and O-type plugs are also available. (Add "-C" or "-O" to the end of the model number.)

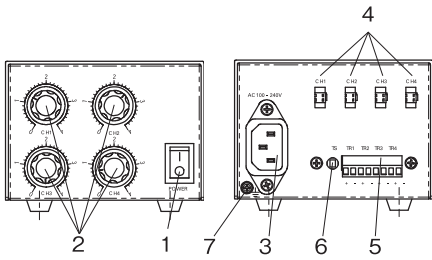| Plug type	A	C	O
Rated voltage	125 V	240 V	240 V
Standard	PSE	CEE	CCC

AC Power Cords with A-type Plugs

⚠ **WARNING**

The cable included in this packege can be applled only to AC 100V commercial power in Japan. You can not use it in the country outside Japan.
Please never use it on the voltage beyond AC100V.
It becomes a cause of ignition, generation of heat, and failure.

🚫

Lighting Controller for Standard Light FLV-ATC21024/-ATC41024

Part Names and Functions

No.	Name	Description
1	Main power supply	Starts up the Controller when it is turned ON.
2	Lighting adjustment volume	Rotating the volume clockwise increases the emission intensity or counterclockwise decreases it.
3	AC power supply input connector	A terminal to supply AC power. Connect the provided AC input cable.
4	Lighting connector	Connects an LED lights.
5	Trigger input terminal block	A terminal block for lighting illumination trigger input from outside to each lighting.
6	Lighting mode switching button	Lighting mode switch button is ON (The button is pushed.): Short-circuiting (+) and (-) of TR1 to TR4 respectively makes the trigger input status ON, turning the light ON. Releasing (+) and (-) makes the status OFF, turning the light OFF. Lighting mode switch button is OFF (The button is not pushed.): Short-circuit (+) and (-) of TR1 to TR4 respectively makes the trigger input status OFF, turning the light OFF. Releasing (+) and (-) makes the status ON, turning the light ON.
7	Frame ground terminal	A terminal for frame ground. Connect the ground line.

Specifications

ItemModel	FLV-ATC21024-□ *1	FLV-ATC41024-□ *1
Number of connectable lightings	1	4
Applicable light	FLV series (FLV-EP series and FLV-LN series are excluded.)	
Power supply voltage *2	100 to 240 VAC, 50/60 Hz	
Current consumption	1 A max.	
Electricity of connectable lighting	2ch total 40 W max. 30 W max. for 1ch	4ch total 40 W max. 30 W max. for 1ch
Drive method	Constant voltage method	
Lighting method	Trigger lighting, Continuous lighting	
Intensity control method	Voltage light adjustment: 14.0 to 24.0 V	
Trigger lighting	Lighting in synchronization with input from the trigger input terminal	
Trigger lighting delay time	T_on: 100 μs max.	
External interface	Trigger input terminal block	
Dielectric strength	1500 VAC 50/60 Hz 1 min	
Insulation resistance	20 MΩ (500 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, (0.2 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	
Weight	Approx. 800 g	
Accessories	Instruction sheet, AC input cable *1	
Applicable standards	EN61326-1 *3	

*1. The suffixed symbol of the model name means the plug type of the accessory cable. A model name with no suffix means type A.
*2. This product is the exclusive use for apparatus inclusion in the industrial machine field.
    This product cannot be used for the connection to electric power equipment, such as a common residence, store, and small establishment, because of nonconformity with to Electrical Appliance and Material Safety Law (PSE).
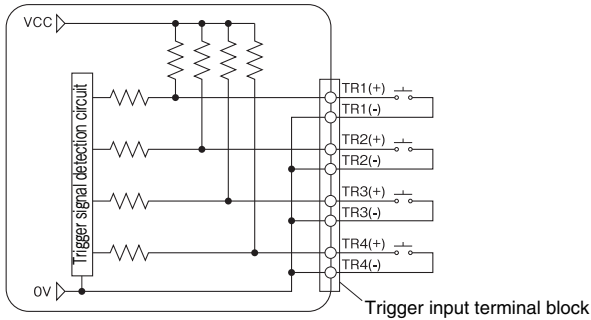*3. Electromagnetic environment: Industrial electromagnetic environment (EN/IEC 61326-1 Table 2)
    Also, the following condition is applied to the immunity test of this product.
    There are case that Lighting brightness fluctuate Max 10%.

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Analog Lighting Controller for FLV Series FLV-ATC Series
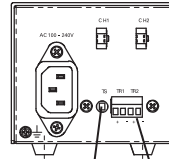
Connecting to External Trigger Input Terminal Block

• Connection of this terminal block is not required if lighting illumination trigger input from outside is not used.

<Connection of trigger input terminal block>

VCC

Trigger signal detection circuit

TR1(+)
TR1(-)
TR2(+)
TR2(-)
TR3(+)
TR3(-)
TR4(+)
TR4(-)

0V

Trigger input terminal block

* Current flowing through the short circuit is less than 2 mA.

●**FLV-ATC21024-□**

AC 100 - 240V

CH1   CH2

TS TR1 TR2

Lighting mode switch
button

Trigger input terminal
block CH1 to CH2

●**FLV-ATC41024-□**

AC 100 - 240V

CH1 CH2 CH3 CH4

TS TR1 TR2 TR3 TR4
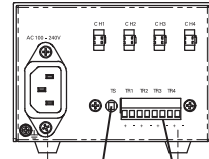
Lighting mode switch button

Trigger input terminal block
CH1 to CH4

Lighting mode switch button is ON (The button is pushed.)

Short-circuiting (+) and (-) of TR1 to TR4 respectively makes the trigger input status ON, turning the light ON.
Releasing (+) and (-) makes the status OFF, turning the light OFF.

Lighting mode switch button is OFF (The button is not pushed.)

Short-circuit (+) and (-) of TR1 to TR4 respectively makes the trigger input status OFF, turning the light OFF.
Releasing (+) and (-) makes the status ON, turning the light ON.

[Important]
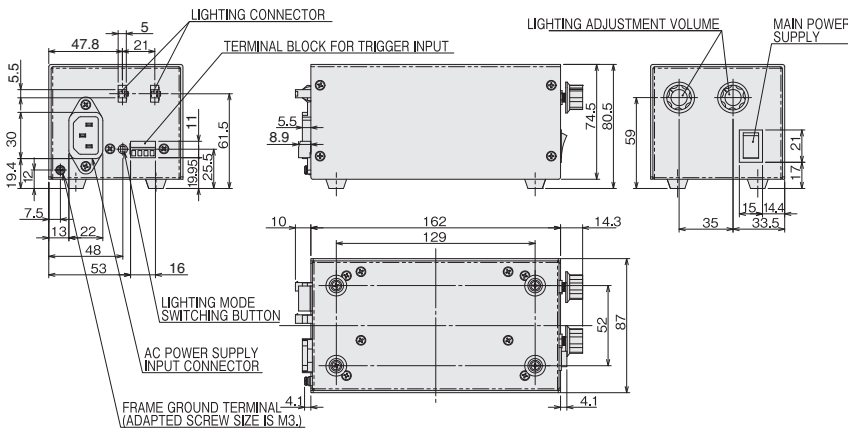Make sure that excessive force is not imposed on the wire and terminal block.
Do not install the product in which loads are constantly applied to the terminal block such as the wire being under tension.
When wiring the terminal block, use an applicable cable (AWG 14 to 24, tip processing length: 7 mm).
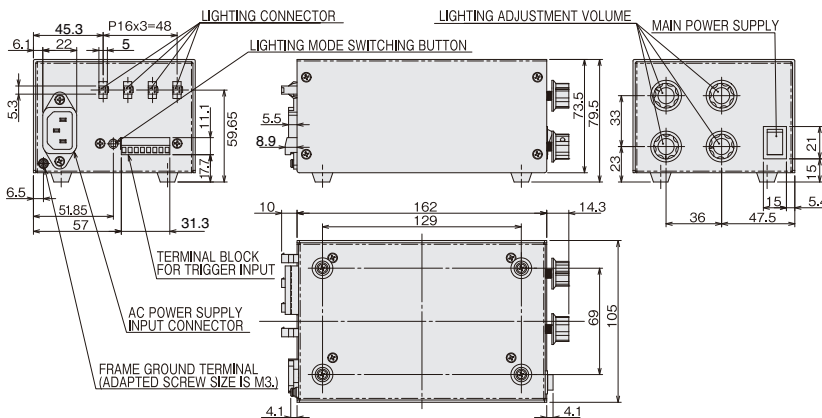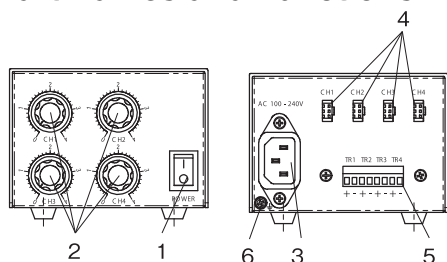
Dimensions

(Unit: mm)

●FLV-ATC21024-□

LIGHTING CONNECTOR
TERMINAL BLOCK FOR TRIGGER INPUT
LIGHTING ADJUSTMENT VOLUME
MAIN POWER SUPPLY

47.8   5   21
5.5
30
19.4
12
7.5
13 22
48
53
11
19.95
25.5
61.5
16

5.5
8.9

74.5 80.5
59

10   162
129   14.3

35   15 14.4
33.5

17 21

52 87

4.1   4.1

LIGHTING MODE
SWITCHING BUTTON

AC POWER SUPPLY
INPUT CONNECTOR

FRAME GROUND TERMINAL
(ADAPTED SCREW SIZE IS M3.)

●FLV-ATC41024-□

LIGHTING CONNECTOR
LIGHTING MODE SWITCHING BUTTON
LIGHTING ADJUSTMENT VOLUME
MAIN POWER SUPPLY

45.3   P16x3=48
6.1 22   5
5.3
6.5
51.85
57   31.3
11.1
17.7
59.65

5.5
8.9

73.5 79.5
33
23

10   162
129   14.3

36   15 5.4
47.5

15 21

69 105

4.1   4.1

TERMINAL BLOCK
FOR TRIGGER INPUT

AC POWER SUPPLY
INPUT CONNECTOR

FRAME GROUND TERMINAL
(ADAPTED SCREW SIZE IS M3.)

Lighting Controller for Spot Light FLV-ATC10405/-ATC40405

Part Names and Functions

No.	Name	Description
1	Main power supply	Starts up the Controller when it is turned ON.
2	Lighting adjustment volume	Rotating the volume clockwise increases the emission intensity or counterclockwise decreases it.
3	AC power supply input connector	A terminal to supply AC power. Connect the provided AC input cable.
4	Lighting connector	Connects an LED lights.
5	Terminal block for trigger input	A terminal block for lighting illumination trigger input from outside to each lighting.
6	Frame ground terminal	A terminal for frame ground. Connect the ground line.

Specifications

Item / Model	FLV-ATC10405-□ *1	FLV-ATC40405-□ *1
Number of connectable lightings	1	4
Applicable light	FLV-EP series	
Power supply voltage *2	100 to 240 VAC, 50/60 Hz	
Current consumption	0.6 A max.	
Electricity of connectable lighting	3 W max.	4ch total 12 W max. 3 W max. for 1ch
Drive method	Constant current method	
Lighting method	Trigger lighting, Continuous lighting	
Luminance control method	Current light adjustment : 0.4 A max.	
Trigger lighting	Turning the light off in synchronization with input from the trigger input terminal	
Trigger lighting delay time	T_on: 1000 μs max.	
External interface	Trigger input terminal block	
Dielectric strength	1500 VAC 50/60 Hz 1 min	
Insulation resistance	20 MΩ (500 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, (0.2 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	
Weight	Approx. 800 g	
Accessories	Instruction sheet, AC input cable *1	
Applicable standards	EN61326-1 *3	

*1. The suffixed symbol of the model name means the plug type of the accessory cable. A model name with no suffix means type A.
*2. This product is the exclusive use for apparatus inclusion in the industrial machine field.
 This product cannot be used for the connection to electric power equipment, such as a common residence, store, and small establishment, because of nonconformity with to Electrical Appliance and Material Safety Law (PSE).
*3. Electromagnetic environment: Industrial electromagnetic environment (EN/IEC 61326-1 Table 2)
 Also, the following condition is applied to the immunity test of this product.
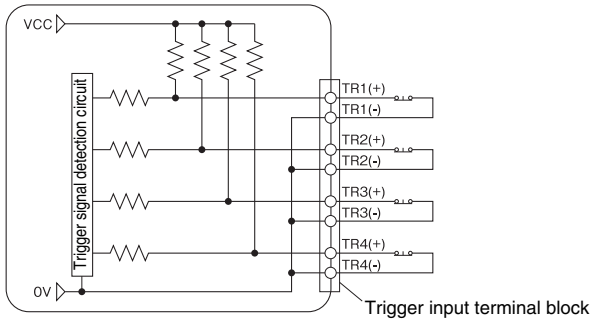 There are case that Lighting brightness fluctuate Max 10%.

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Analog Lighting Controller for FLV Series FLV-ATC Series
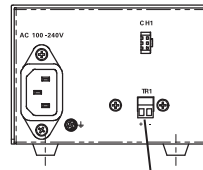
Connecting to External Trigger Input Terminal Block

• Connection of this terminal block is not required if lighting illumination trigger input from outside is not used.
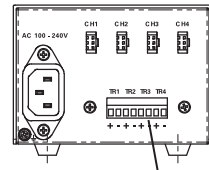
<Connection of trigger input terminal block>

●**FLV-ATC10405-□**

Trigger input terminal block CH1

FLV-ATC40405-□

Trigger input terminal block CH1 to CH4

* Current flowing through the short circuit is less than 1 mA.

Trigger input terminal block

Short-circuiting (+) and (-) of TR1 to TR4 respectively makes the trigger input status OFF, turning the light OFF.
Releasing (+) and (-) makes the status ON, turning the light ON.

[Important]
• Make sure that excessive force is not imposed on the wire and terminal block.
• Do not install the product in which loads are constantly applied to the terminal block such as the wire being under tension.
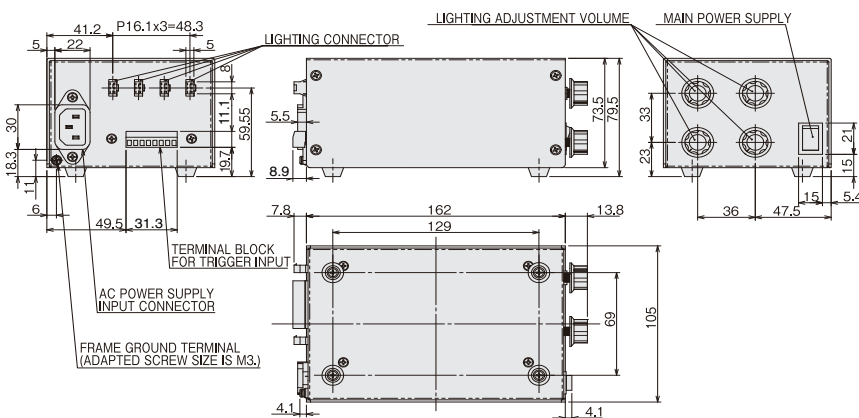When wiring the terminal block, use an applicable cable (AWG 14 to 24, tip processing length: 7 mm).

Dimensions
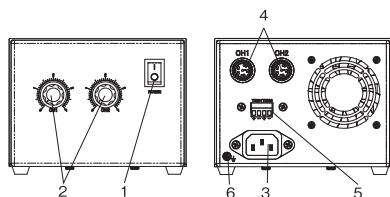
(Unit: mm)

●FLV-ATC10405-□

●FLV-ATC40405-□

Analog Lighting Controller for FLV Series FLV-ATC Series
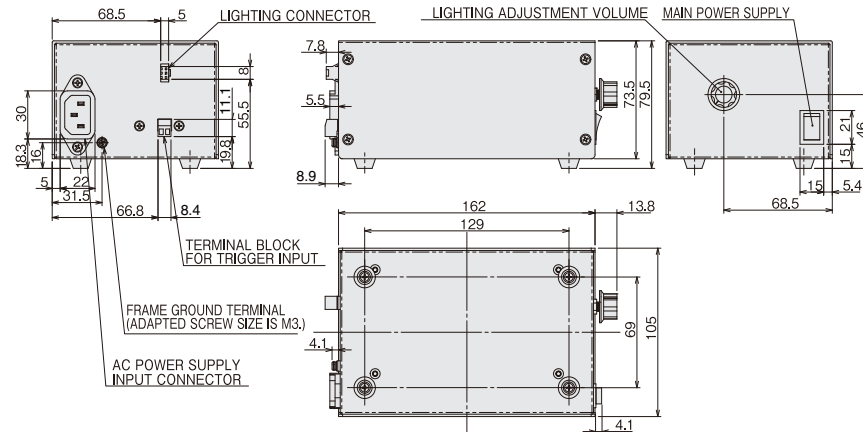
Lighting Controller for Line Light: FLV-ATC26024-100V/-200V

Part Names and Functions

No.	Name	Description
1	Main power supply	Starts up the Controller when it is turned ON.
2	Lighting adjustment volume	Rotating the volume clockwise increases the emission intensity or counterclockwise decreases it.
3	AC power supply input connector	A terminal to supply AC power. Connect the provided AC input cable.
4	Lighting connector	Connects an LED lights.
5	Trigger input terminal block	A terminal block for lighting illumination trigger input from outside to each lighting.
6	Frame ground terminal	A terminal for frame ground. Connect the ground line.

Specifications

Item Model	FLV-ATC26024-100V□ *1	FLV-ATC26024-200V□ *1
Number of connectable lightings	2	
Applicable light	FLV-LN series	
Power supply voltage *2	100 to 120 VAC, 50/60 Hz	200 to 240 VAC, 50/60 Hz
Current consumption	7 A max.	4 A max.
Electricity of connectable lighting	2ch total 240 W max. 120 W max. for 1ch	
Drive method	Constant voltage method	
Lighting method	Trigger lighting, Continuous lighting	
Intensity control method	Current light adjustment : 5 A max.	
Trigger lighting	Turning the light off in synchronization with input from the trigger input terminal	
Trigger lighting delay time	T_on: 500 μs max.	
External interface	Trigger input terminal block	
Dielectric strength	1500 VAC 50/60 Hz 1 min	
Insulation resistance	20 MΩ (500 VDC)	
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)	
Degree of protection	IP20 (IEC60529)	
Vibration resistance (destructive)	10 to 150 Hz, (0.2 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	
Weight	Approx. 2.1 kg	
Accessories	Instruction sheet, AC input cable *1	
Applicable standards	EN61326-1 *3	

*1. The suffixed symbol of the model name means the plug type of the accessory cable. A model name with no suffix means type A.
*2. This product is the exclusive use for apparatus inclusion in the industrial machine field.
This product cannot be used for the connection to electric power equipment, such as a common residence, store, and small establishment, because of nonconformity with to Electrical Appliance and Material Safety Law (PSE).
*3. Electromagnetic environment: Industrial electromagnetic environment (EN/IEC 61326-1 Table 2)
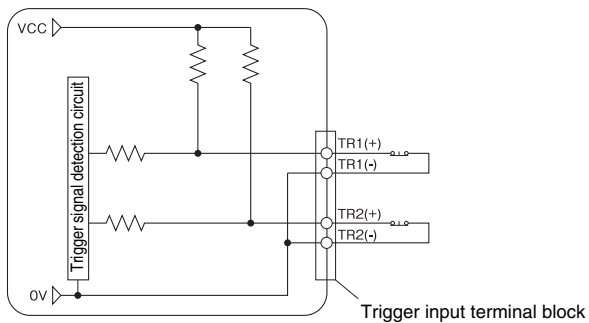Also, the following condition is applied to the immunity test of this product.
There are case that Lighting brightness fluctuate Max 10%.

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Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Analog Lighting Controller for FLV Series FLV-ATC Series

Connecting to External Trigger Input Terminal Block

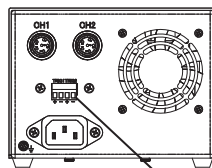• Connection of this terminal block is not required if lighting illumination trigger input from outside is not used.

<Connection of trigger input terminal block>

Trigger signal detection circuit

VCC

TR1(+)
TR1(-)
TR2(+)
TR2(-)

0V

Trigger input terminal block

* Current flowing through the short circuit is less than 2 mA.

●FLV-ATC26024-□

OH1 OH2

Trigger input terminal block CH1 to CH2

Short-circuiting (+) and (-) of TR1 to TR2 respectively makes the trigger input status OFF, turning the light OFF.
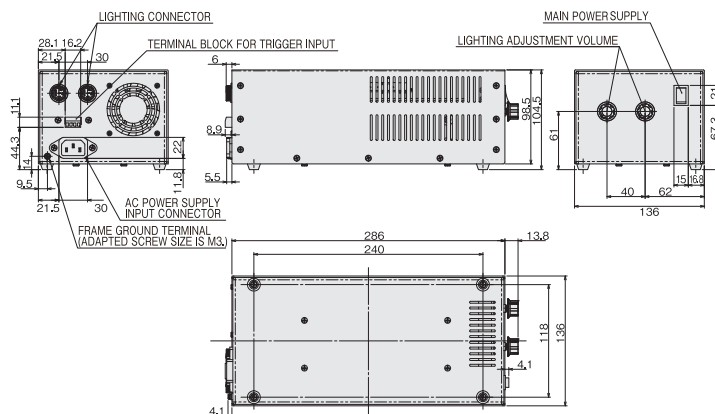Releasing (+) and (-) makes the status ON, turning the light ON.

[Important]
• Make sure that excessive force is not imposed on the wire and terminal block.
• Do not install the product in which loads are constantly applied to the terminal block such as the wire being under tension.
• When wiring the terminal block, use an applicable cable (AWG 14 to 24, tip processing length: 7 mm).

Dimensions

(Unit: mm)

●FLV-ATC26024-□

LIGHTING CONNECTOR
TERMINAL BLOCK FOR TRIGGER INPUT
MAIN POWER SUPPLY
LIGHTING ADJUSTMENT VOLUME
28.1 16.2
21.5   30
6
98.5
104.5
61
8.9
5.5
11.8
22
9.5
44.3
111
21.5   30
AC POWER SUPPLY INPUT CONNECTOR
FRAME GROUND TERMINAL
(ADAPTED SCREW SIZE IS M3)
67.3
21
15 16.8
40   62
136
286
240
13.8
118
136
4.1
4.1

Options for FLV series
Cable/Diffusion Plate

Cable

Ordering Information

Series	Type	Model	Cable Length	Weight	Dimension
Extension Cable for Standard Light *1	Standard Cable	FLV-XC1	1 m	Approx. 30g	A
		FLV-XC2	2 m	Approx. 50g	
		FLV-XC3	3 m	Approx. 70g	
		FLV-XC5	5 m	Approx. 110g	
		FLV-XC10	10 m	Approx. 210g	
	Bend resistant Cable	FLV-XC1R	1 m	Approx. 40g	B
		FLV-XC2R	2 m	Approx. 60g	
		FLV-XC3R	3 m	Approx. 80g	
		FLV-XC5R	5 m	Approx. 130g	
		FLV-XC10R	10 m	Approx. 250g	
Extension Cable for Spot Light	Standard Cable	FLV-XC1EP	1 m	Approx. 30g	C
		FLV-XC2EP	2 m	Approx. 50g	
		FLV-XC3EP	3 m	Approx. 70g	
		FLV-XC5EP	5 m	Approx. 110g	
	Bend resistant Cable	FLV-XC1EPR	1 m	Approx. 40g	D
		FLV-XC2EPR	2 m	Approx. 60g	
		FLV-XC3EPR	3 m	Approx. 80g	
		FLV-XC5EPR	5 m	Approx. 130g	
Extension Cable for Line Light	Standard Cable	FLV-XC1LN	1 m	Approx. 200g	E
		FLV-XC2LN	2 m	Approx. 270g	
		FLV-XC3LN	3 m	Approx. 320g	
		FLV-XC5LN	5 m	Approx. 440g	
Branch Cable for Standard Light *1	Standard Cable	FLV-XC1S2	1 m	Approx. 30g	F
		FLV-XC2S2	2 m	Approx. 50g	
		FLV-XC3S2	3 m	Approx. 80g	
		FLV-XC5S2	5 m	Approx. 120g	

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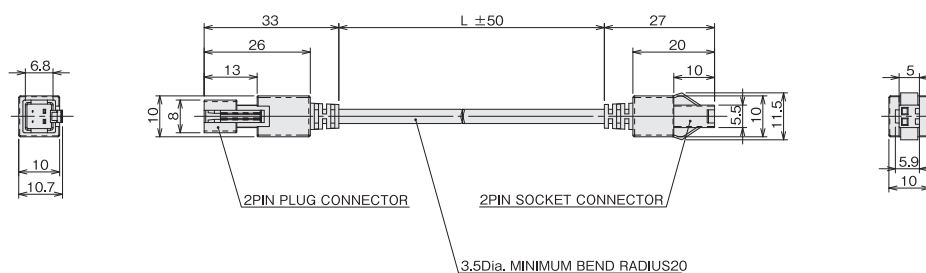
Dimensions

(Unit: mm)

Model	L
FLV-XC1	1,000
FLV-XC2	2,000
FLV-XC3	3,000
FLV-XC5	5,000
FLV-XC10	10,000

Model	L
FLV-XC1R	1,000
FLV-XC2R	2,000
FLV-XC3R	3,000
FLV-XC5R	5,000
FLV-XC10R	10,000
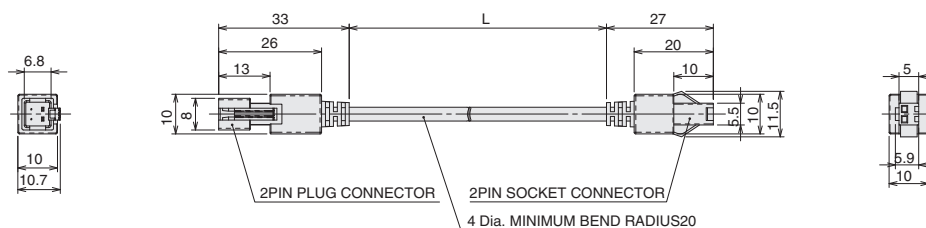
OMRON 45

Options for FLV series Cable/Diffusion Plate

C FLV-XC□EP

3PIN PLUG CONNECTOR
3PIN SOCKET CONNECTOR
3.5Dia. MINIMUM BEND RADIUS20
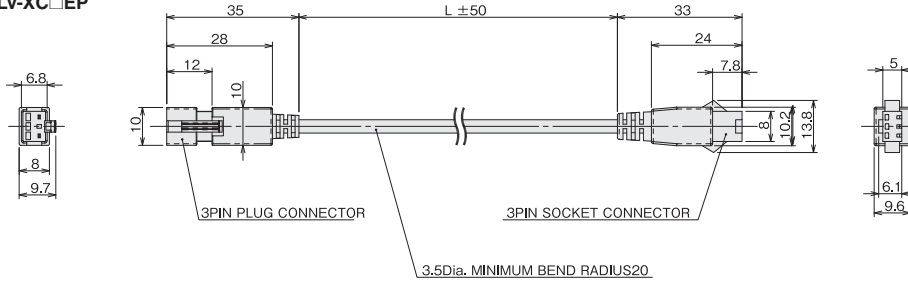
Model	L
FLV-XC1EP	1,000
FLV-XC2EP	2,000
FLV-XC3EP	3,000
FLV-XC5EP	5,000

D FLV-XC□EPR

3PIN PLUG CONNECTOR
3PIN SOCKET CONNECTOR
4Dia. MINIMUM BEND RADIUS20
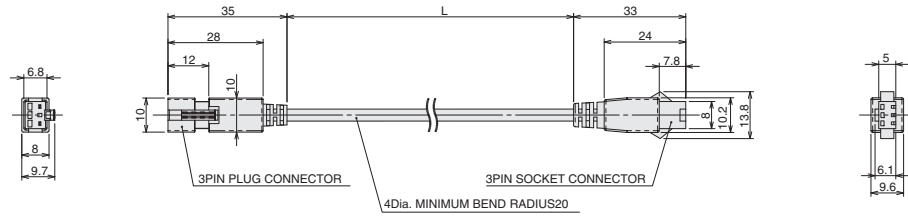
Model	L
FLV-XC1EPR	1,000
FLV-XC2EPR	2,000
FLV-XC3EPR	3,000
FLV-XC5EPR	5,000

E FLV-XC□LN

M16
6PIN PLUG CONNECTOR
6PIN SOCKET CONNECTOR
8Dia. MINIMUM BEND RADIUS40
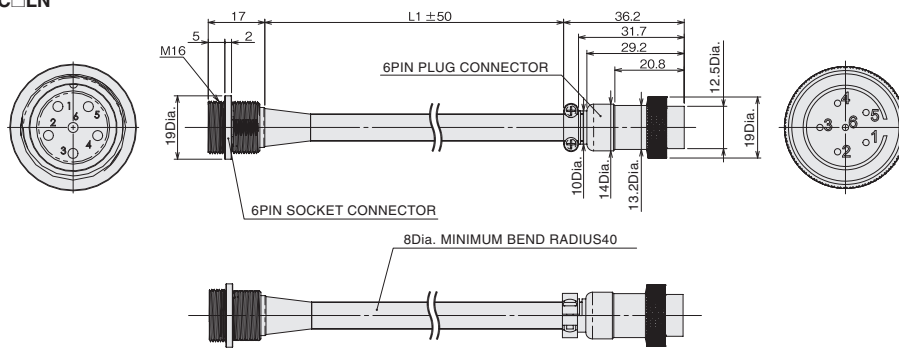
Model	L
FLV-XC1LN	1,000
FLV-XC2LN	2,000
FLV-XC3LN	3,000
FLV-XC5LN	5,000

F FLV-XC□S2

2PIN SOCKET CONNECTOR
BRANCH COUPLER
2PIN PLUG CONNECTOR
3.5Dia. MINIMUM BEND RADIUS20
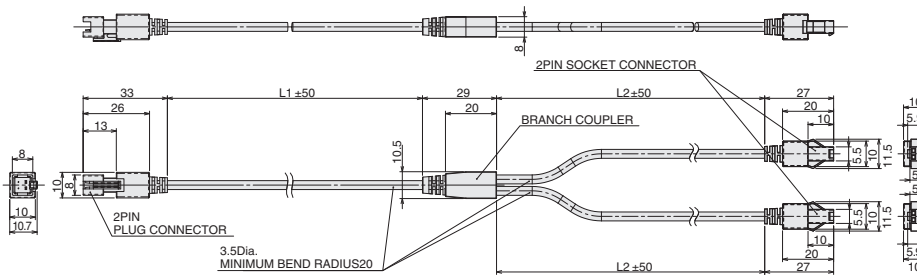
Model	L1	L2
FLV-XC1S2	500	500
FLV-XC2S2	1,000	1,000
FLV-XC3S2	1,000	2,000
FLV-XC5S2	2,000	3,000

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Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Options for FLV series Cable/Diffusion Plate
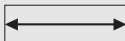
Diffusion Plate

Ordering Information

●Diffusion Plate

Type	Model			Connectable Lighting
Transparency rate	High	Middle	Low	
Diffusivity	Low	Middle	High	
For FLV-DR-series Direct Ring Light	FLV-DR3220DF	FLV-DR3220DF50	FLV-DR3220DF30	FLV-DR3220□
	FLV-DR4415DF	FLV-DR4415DF50	FLV-DR4415DF30	FLV-DR4415□
	FLV-DR5030DF	FLV-DR5030DF50	FLV-DR5030DF30	FLV-DR5030□
	FLV-DR6030DF	---	---	FLV-DR6030UV
	FLV-DR6615DF	FLV-DR6615DF50	FLV-DR6615DF30	FLV-DR6615□
	FLV-DR7000DF	FLV-DR7000DF50	FLV-DR7000DF30	FLV-DR7000□
	FLV-DR7030DF	FLV-DR7030DF50	FLV-DR7030DF30	FLV-DR7030□
	FLV-DR7530DF	---	---	FLV-DR7530UV
	FLV-DR9000DF	FLV-DR9000DF50	FLV-DR9000DF30	FLV-DR9000□
	FLV-DR9030DF	FLV-DR9030DF50	FLV-DR9030DF30	FLV-DR9030□
	FLV-DR9215DF	FLV-DR9215DF50	FLV-DR9215DF30	FLV-DR9215□
	FLV-DR12030DF	FLV-DR12030DF50	FLV-DR12030DF30	FLV-DR12030□
For FLV-DL-series Low Angle Ring Light	FLV-DL5890DF	FLV-DL5890DF50	FLV-DL5890DF30	FLV-DL5890□
	FLV-DL7260DF	FLV-DL7260DF50	FLV-DL7260DF30	FLV-DL7260□
	FLV-DL12060DF	FLV-DL12060DF50	FLV-DL12060DF30	FLV-DL12060□
	FLV-DL15060DF	FLV-DL15060DF50	FLV-DL15060DF30	FLV-DL15060□
For FLV-BR-series Bar Light	FLV-BR6022DF	FLV-BR6022DF50	FLV-BR6022DF30	FLV-BR6022□
	FLV-BR6424DF	---	---	FLV-BR6424UV
	FLV-BR8532DF	FLV-BR8532DF50	FLV-BR8532DF30	FLV-BR8532□
	FLV-BR11222DF	FLV-BR11222DF50	FLV-BR11222DF30	FLV-BR11222□
	FLV-BR11624DF	---	---	FLV-BR11624UV
	FLV-BR14030DF	FLV-BR14030DF50	FLV-BR14030DF30	FLV-BR14030□
	FLV-BR15020DF	FLV-BR15020DF50	FLV-BR15020DF30	FLV-BR15020□
	FLV-BR21222DF	FLV-BR21222DF50	FLV-BR21222DF30	FLV-BR21222□
	FLV-BR21230DF	FLV-BR21230DF50	FLV-BR21230DF30	FLV-BR21230□
	FLV-BR38037DF	FLV-BR38037DF50	FLV-BR38037DF30	FLV-BR38037□
	FLV-BR48031DF	FLV-BR48031DF50	FLV-BR48031DF30	FLV-BR48031□

●Polarization Plate

Type		Model	Connectable Lighting
For FLV-DR-series Direct Ring Light		FLV-DR3220PL	FLV-DR3220□
		FLV-DR4415PL	FLV-DR4415□
		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□

Standard Models
FLV Series

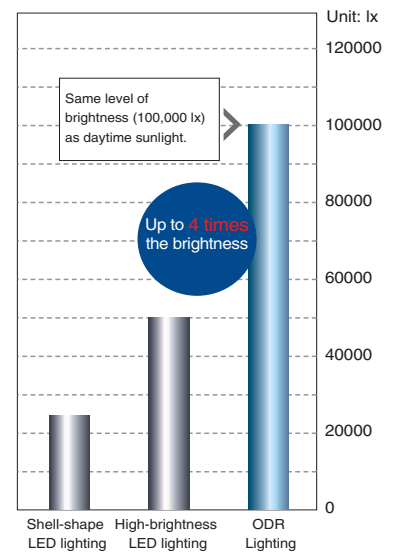High-brightness Models
FL Series

LED Characteristics

Lenses

Bar Light
FL-BR Series

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

ODR
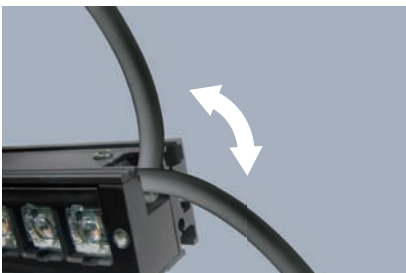Optical Double Reflection

* 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

Unit: lx

Same level of brightness (100,000 lx) as daytime sunlight.

Up to 4 times the brightness

120000
100000
80000
60000
40000
20000
0

Shell-shape LED lighting | High-brightness LED lighting | ODR Lighting

Wiring

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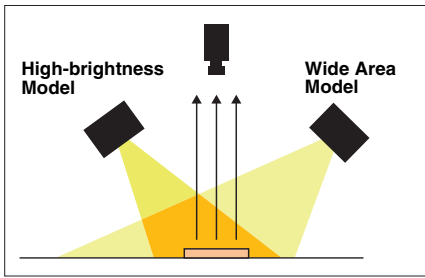
Mounting and Adjustment

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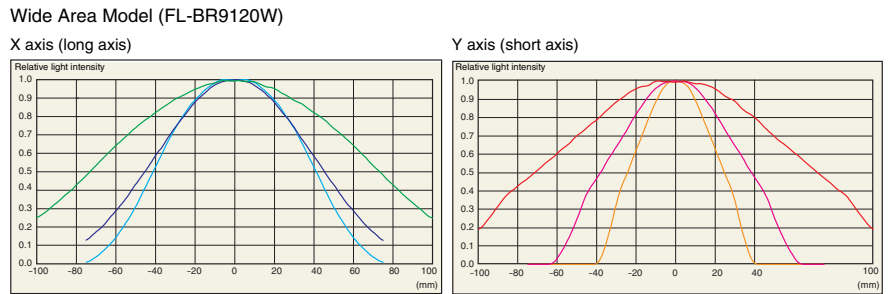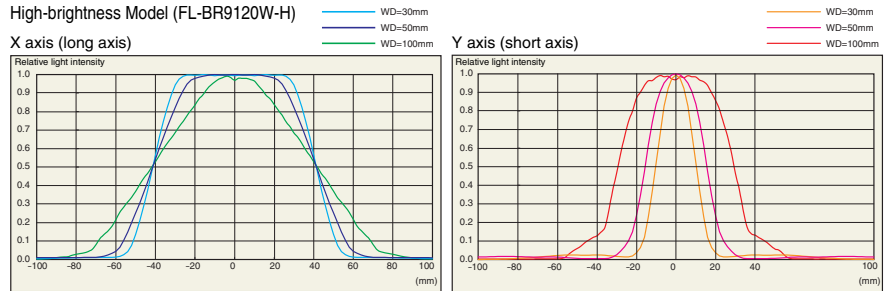Minute changes in the position can be achieved by sliding the light.

Specialized mounting brackets enable mounting at a flexible angle.

OMRON

Bar Light   FL-BR Series

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Illumination Structure

Lighting Intensity Distribution Characteristics

High-brightness Model (FL-BR9120W-H)

	WD=30mm
	WD=50mm
	WD=100mm

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

| Model | Color | Type | Dimensions | | | | Controller | | Weight (g) | Options | |
			Lighting Area Dimension (mm)	Outside Dimension (mm)	Height (mm)	Drawing	FL-STC□	FL-TCC□		Diffusion Plate	Polarization Plate
FL-BR5020W	WHITE	Wide Area Model	40.8x9	49.8x20	20	A	○	○	40	○	×
FL-BR5020W-H	WHITE	High-brightness Model									
FL-BR9120W	WHITE	Wide Area Model	81.6x9	90.6x20	20	B	○	○	70	○	×
FL-BR9120W-H	WHITE	High-brightness Model									
FL-BR13120W	WHITE	Wide Area Model	122.4x9	131.4x20	20	C	○	○	100	○	×
FL-BR13120W-H	WHITE	High-brightness Model									

Note: Refer to page 61 for LED Characteristics.
The color of white LEDs can vary due to intrinsic characteristics. Confirm suitability for the application in advance.
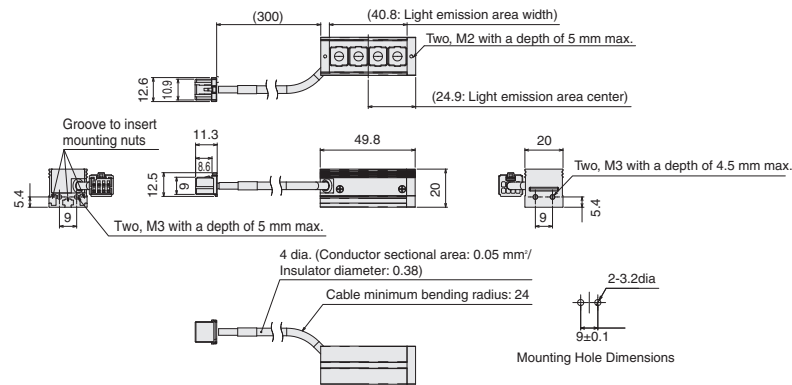
Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Bar Light FL-BR Series

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/s² 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.
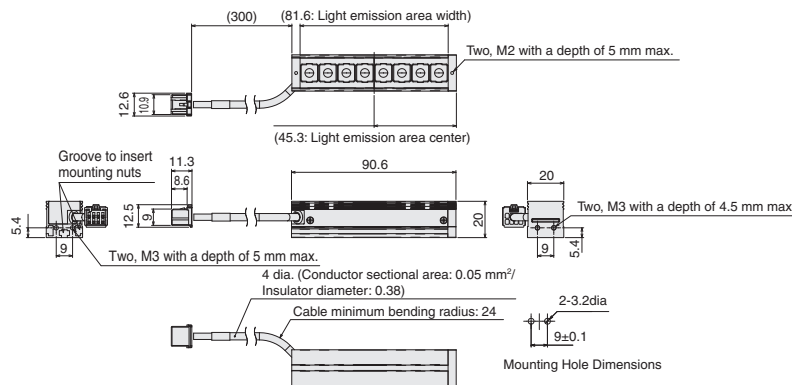Confirm suitability for the application in advance.

Dimensions

(Unit:mm)
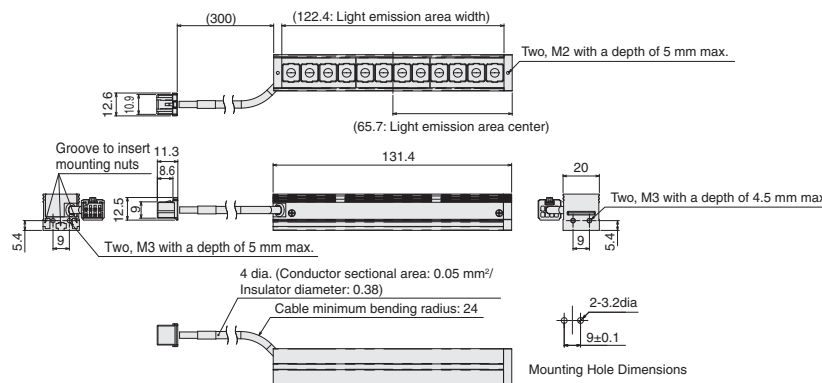
A FL-BR5020W（-H）

B FL-BR9120W（-H）

C FL-BR13120W（-H）

OMRON

Direct Ring Light
FL-DR Series

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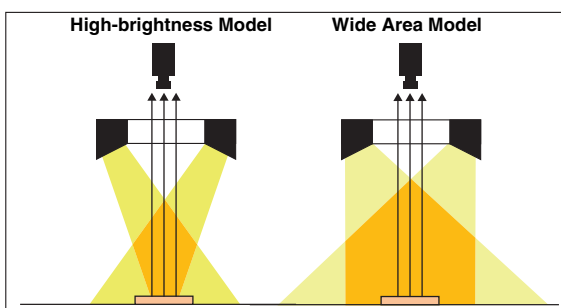
ODR Optical Double Reflection

*Based on OMRON testing in November 2010.

Product Features

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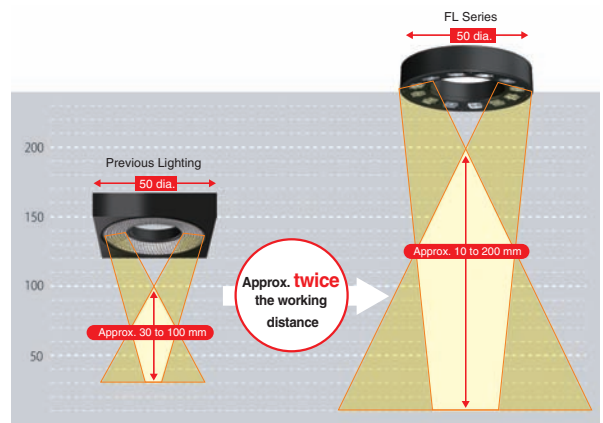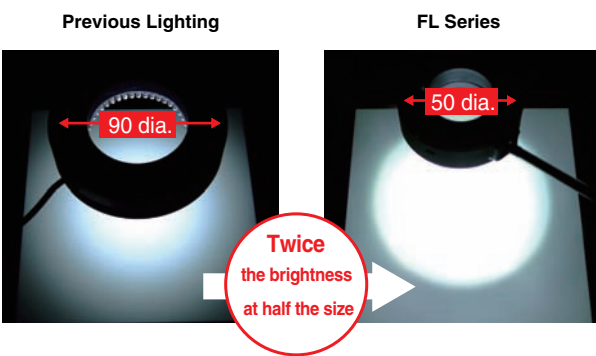
Previous Lighting

90 dia.

FL Series

50 dia.

Twice the brightness at half the size

FL Series
50 dia.

Previous Lighting
50 dia.

Approx. 10 to 200 mm

Approx. twice the working distance

Approx. 30 to 100 mm

Illumination Structure

High-brightness Model

Wide Area Model

Lighting Intensity Distribution Characteristics

High-brightness Model (FL-DR50W-H)
Relative light intensity

WD=30mm
WD=50mm
WD=100mm

Wide Area Model (FL-DR50W)
Relative light intensity

WD=30mm
WD=50mm
WD=100mm

OMRON

Standard Models
FLV Series

High-brightness Models
FL Series
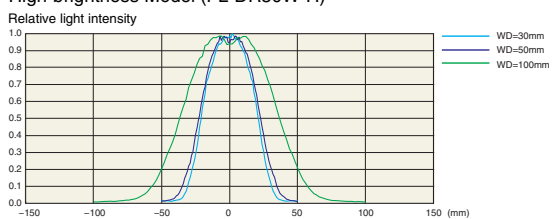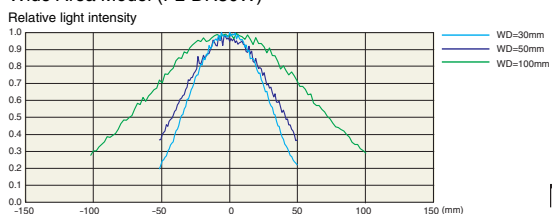
LED Characteristics

Lenses

Direct Ring Light   FL-DR Series

Applications

Previous Lighting	FL-series	Previous Lighting	FL-series

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

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

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

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

Ordering Information

Model	Color	Type	Dimensions				Controller		Weight (g)	Options	
			External Ring Diameter (mm)	Internal Ring Diameter (mm)	Lighting Angle (Deg)	Drawing	FL-STC□	FL-TCC□		Diffusion Plate	Polarization Plate
FL-DR32W	WHITE	Wide Area Model	32 dia.	10 dia.	20 deg.	A	○	○	25	○	○
FL-DR32W-H	WHITE	High-brightness Model									
FL-DR50W	WHITE	Wide Area Model	50 dia.	28 dia.	10 deg.	B	○	○	30	○	○
FL-DR50W-H	WHITE	High-brightness Model									
FL-DR90W	WHITE	Wide Area Model	90 dia.	50 dia.	20 deg.	C	○	○	70	○	○
FL-DR90W-H	WHITE	High-brightness Model							80		

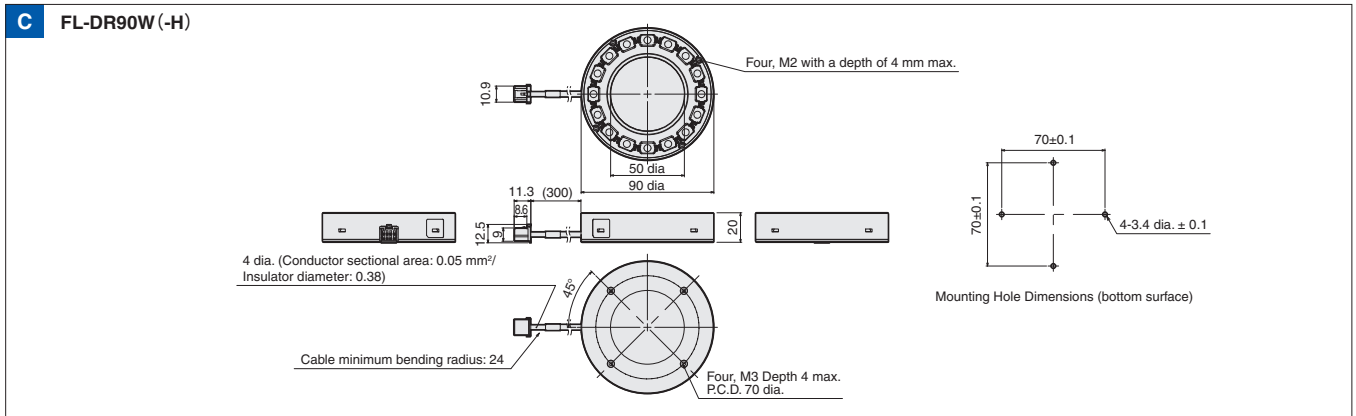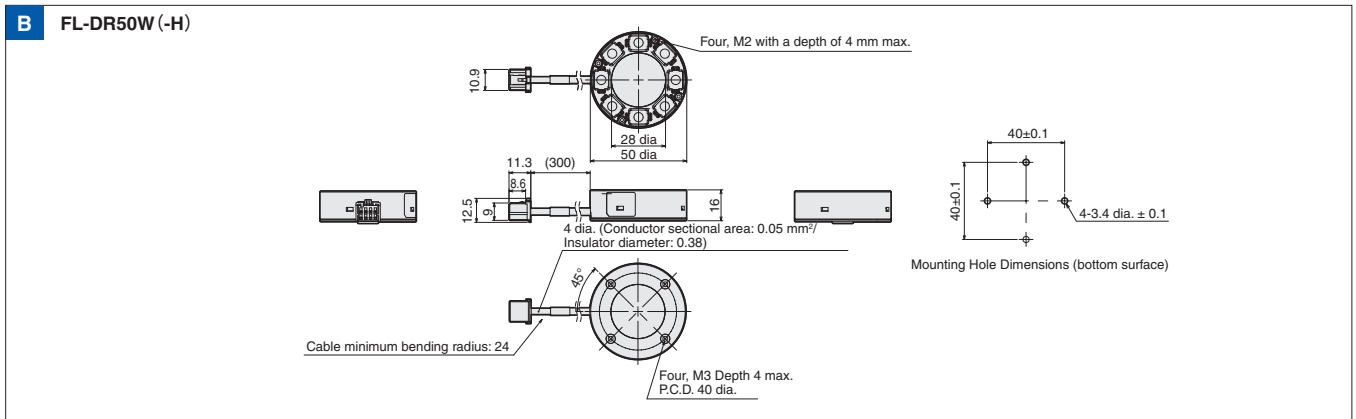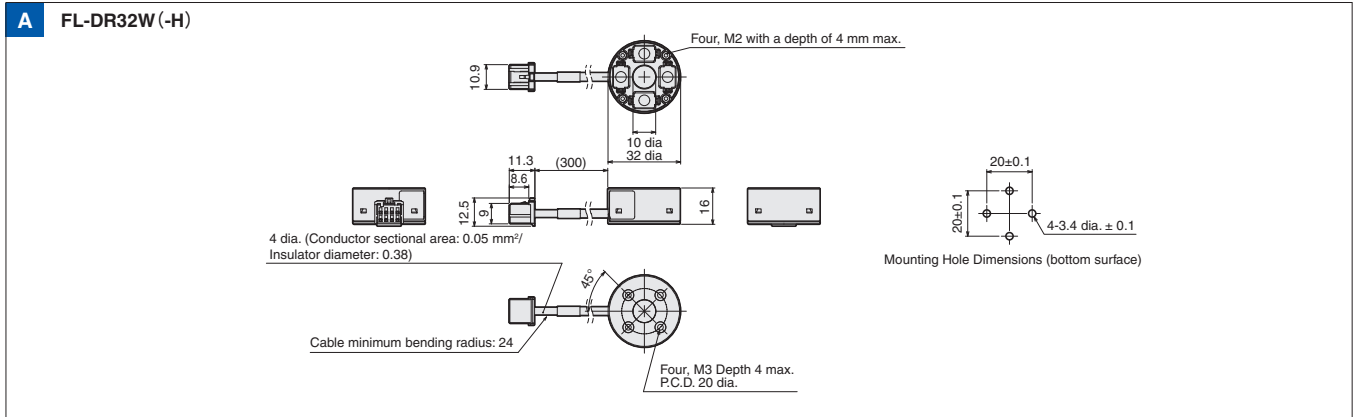Note: Refer to page 61 for LED Characteristics.
The color of white LEDs can vary due to intrinsic characteristics. Confirm suitability for the application in advance.

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.

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Dimensions

(Unit:mm)

A FL-DR32W（-H）

Four, M2 with a depth of 4 mm max.

10.9

10 dia
32 dia

11.3 (300)
8.6
12.5
9
16

4 dia. (Conductor sectional area: 0.05 mm²/
Insulator diameter: 0.38)

45°

Cable minimum bending radius: 24

Four, M3 Depth 4 max.
P.C.D. 20 dia.

20±0.1
20±0.1
4-3.4 dia. ± 0.1

Mounting Hole Dimensions (bottom surface)

B FL-DR50W（-H）

Four, M2 with a depth of 4 mm max.

10.9

28 dia
50 dia

11.3 (300)
8.6
12.5
9
16

4 dia. (Conductor sectional area: 0.05 mm²/
Insulator diameter: 0.38)

45°

Cable minimum bending radius: 24

Four, M3 Depth 4 max.
P.C.D. 40 dia.

40±0.1
40±0.1
4-3.4 dia. ± 0.1

Mounting Hole Dimensions (bottom surface)

C FL-DR90W（-H）

Four, M2 with a depth of 4 mm max.

10.9

50 dia
90 dia

11.3 (300)
8.6
12.5
9
20

4 dia. (Conductor sectional area: 0.05 mm²/
Insulator diameter: 0.38)

45°

Cable minimum bending radius: 24

Four, M3 Depth 4 max.
P.C.D. 70 dia.

70±0.1
70±0.1
4-3.4 dia. ± 0.1

Mounting Hole Dimensions (bottom surface)

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

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

LED Lighting

Camera

Lighting Controller

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

OMRON

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

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 μs max. (Trigger ready μs) Toff: 10 μs 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		EN61326-1 *

*. Electromagnetic environment: Industrial electromagnetic environment (EN/IEC 61326-1 Table 2)
　Also, the following condition is applied to the immunity test of this product.
　There are case that Lighting brightness fluctuate Max 10%.
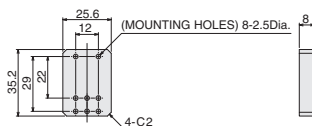
Dimensions
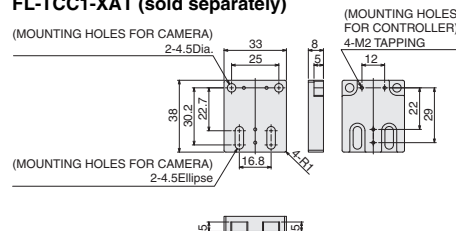
(Unit:mm)

●Lighting Controller FL-TCC1
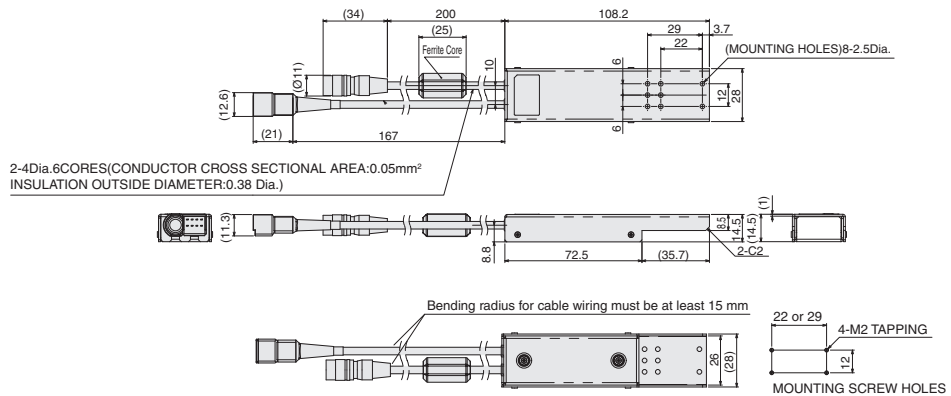
●Options

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

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

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Digital Lighting Controller for FL series
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

Digital Lighting Controller for FL series   FL-STC Series

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

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

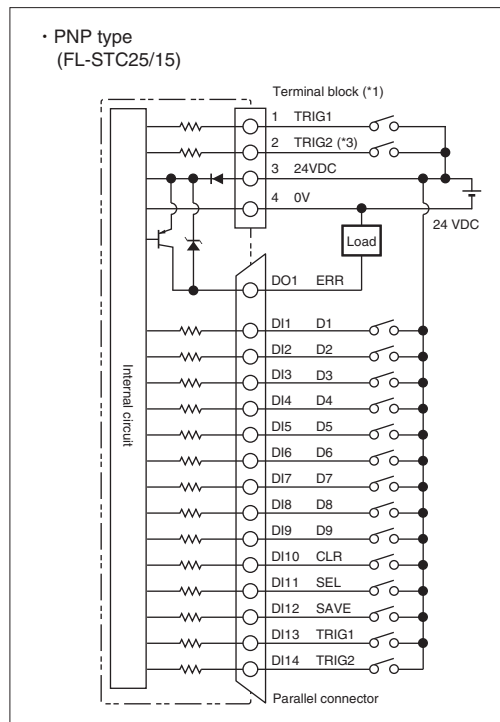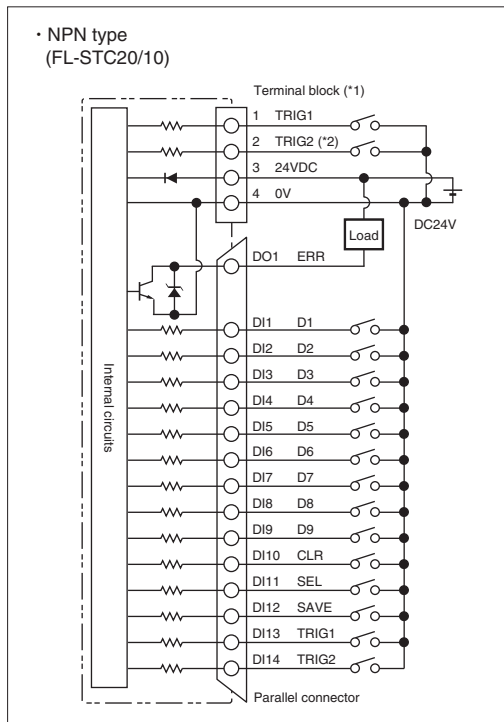| Product type		One-channel models		Two-channel models	
I/O type		NPN	PNP	NPN	PNP
Model		FL-STC10	FL-STC15	FL-STC20	FL-STC25
Power supply voltage		24 VDC±10% (including ripple)			
Power consumption		36 W, 1.5 A max. (including the lighting section)		72 W, 3 A max. (including the lighting section)	
Number 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		EN61326-1 *			

*. Electromagnetic environment: Industrial electromagnetic environment (EN/IEC 61326-1 Table 2)
   Also, the following condition is applied to the immunity test of this product.
   There are case that Lighting brightness fluctuate Max 10%.

Dimensions

(Unit:mm)

FL-STC10/15
Lighting connector (1 channel)
(Mounting holes) Two, 4.4 × 5.4 ovals
Two, M4 taps
30
64.9
(Mounting hole surface)
5.5
98
(89.6)
80
89
(22.5)
22
Power supply connector   Mounting Hole Dimensions

FL-STC20/25
Lighting connector (1 channel / 2 channel)
(Mounting holes) Two, 4.4 × 5.4 ovals
Two, M4 taps
30
64.9
(Mounting hole surface)
5.5
98
(89.6)
80
89
(22.5)
22
Power supply connector   Mounting Hole Dimensions

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Digital Lighting Controller for FL series　FL-STC Series

I/O Circuit Diagrams

· NPN type
(FL-STC20/10)

· PNP type
(FL-STC25/15)

*1. To wire the terminal block, connect a applicable cord (AWG16-22 with a 5 mm margin for work).
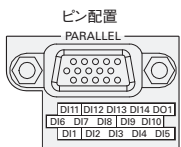*2. No use for FL-STC10
*3. No use for FL-STC15

●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

ピン配置
PARALLEL

PIN No.	Signal	I/O	Fanction	
DI1	D1	Input	Data 1bit (low)	1) CONT/TRIG mode
DI2	D2	Input	Data 2bit	Set Luminance value by D9 . D1, 9bit binary data.
DI3	D3	Input	Data 3bit	Range 1 . 400 (binary 000000001 . 110010000)
DI4	D4	Input	Data 4bit	2) STB mode
DI5	D5	Input	Data 5bit	Set Strobe Lighting time by D9 . D1, 9bit binary data.
DI6	D6	Input	Data 6bit	Range 0.01 . 5.00ms
DI7	D7	Input	Data 7bit	(1 . 500 binary 000000001 . 111110100)
DI8	D8	Input	Data 8bit	Each bit 1=ON, 0=OFF
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.

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Options for FL series
Cable/Diffusion Plate/Mounting Bracket

Cable

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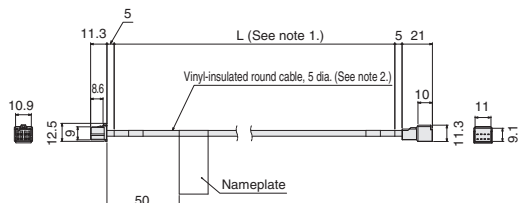
Note 1. Depends on the cable length.
Note 2. The cable diameter is 6.2 for bend resistant cable.

●Parallel Cable
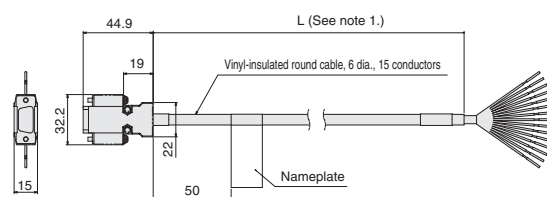
Note 1. Depends on the cable length.

Diffusion Plate

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

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Mounting Bracket

Ordering Information

Type	Model
Bar Lighting	FL-XBK1

Dimensions

16

7

5

8

4-R2

2-R2

Two, 3.4 dia. throughholes

12±0.1

12.9±0.1 dia.
(groove center)

2-R8

3.2 + 0.20 (groove width)

(2-R1.6)

5

12

4-R0.8

7

Rolling
direction

(16)

20

90° ±1°

Burr side

Radius:
1.5 max.

22

12
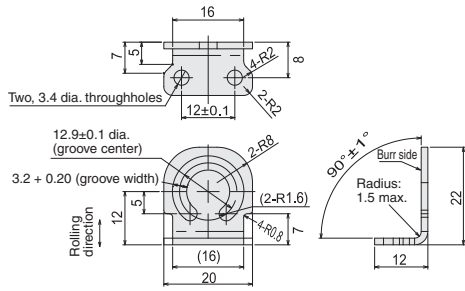
Burrs must extend less than 0.1 mm.

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

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-EP50□**	White, Red	Risk Group 1	D
	Spot Light	**FLV-EP08□**	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
WARNING
Possibly hazardous optical radiation emitted from this product
Risk Group 3 IEC 62471

B
CAUTION
Possibly hazardous optical radiation emitted from this product
Risk Group 2 IEC 62471

C
NOTICE
IR emitted from this product
Risk Group 1 IEC 62471

D
Risk Group 1 IEC 62471

Typical LED Spectral Distributions

Typical spectral distributions and peak wavelengths of each LED color are shown in the diagrams below.
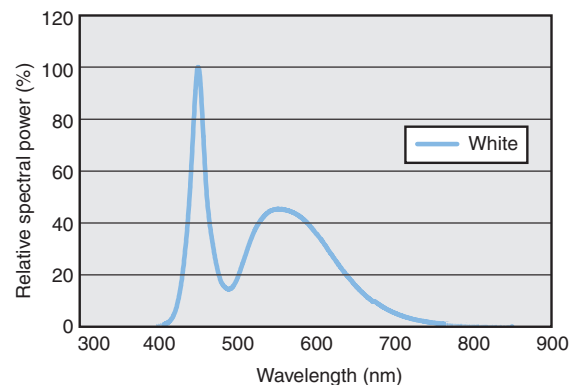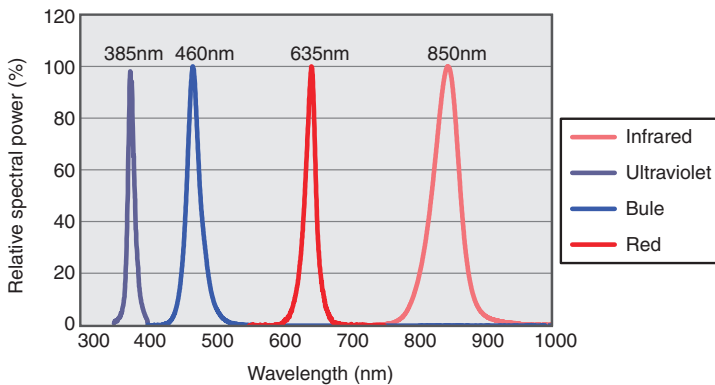
Standard Lens for C-mount cameras
SV-V Series

- Standard CCTV lens.
- Lineup of 11 models with focal lengths ranging from 3.5 to 100 mm.
- Lock screws for focus and iris.
- More robust structure designed for machine vision.
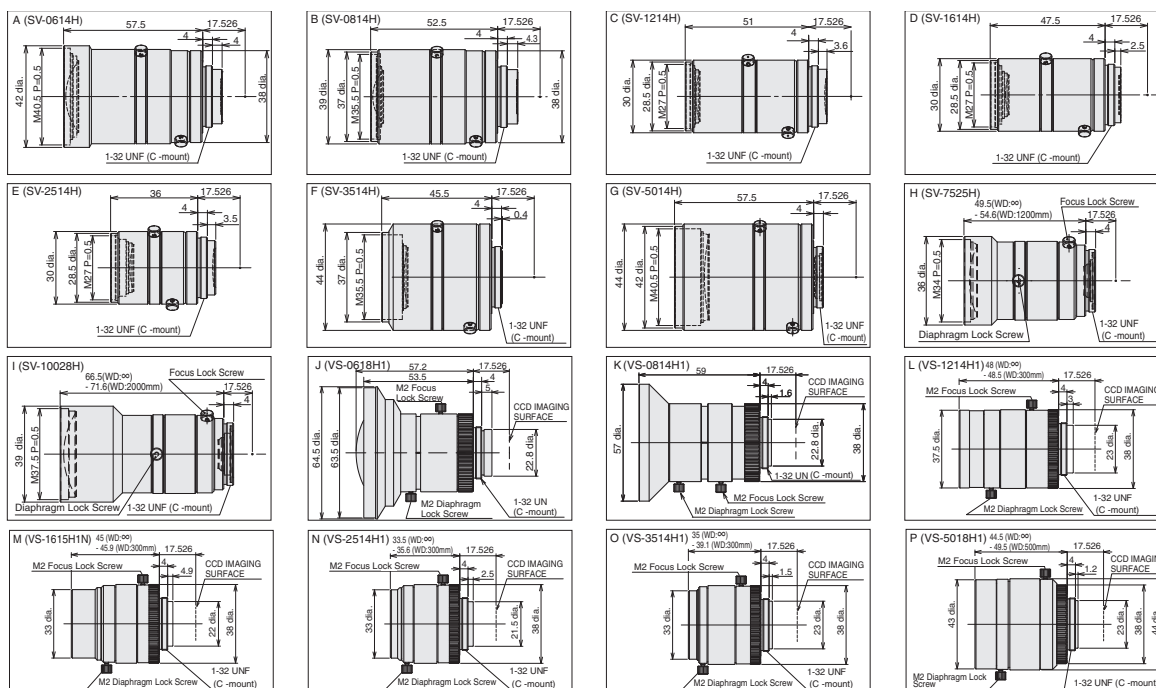- Lower distortion and higher resolution than previous CCTV lenses.

Ordering Information

Recommended camera	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
FZ-S□ FZ-SH□ FH-S□	3Z4S-LE SV-03514V	A	3.5	1.4 to Close	77.8°×105.9°	200	-	53	30.4	1/3 inch
	3Z4S-LE SV-04514V	B	4.5	1.4 to Close	59.7°×79.9°	200	-	53	29.5	1/3 inch
	3Z4S-LE SV-0614V	C	6	1.4 to Close	42.3°×54.6°	200	M27.0 P0.5	49	30	1/3 inch
	3Z4S-LE SV-0813V	D	8	1.3 to Close	44.6°×57.3°	200	M25.5 P0.5	55	34	1/3 inch
	3Z4S-LE SV-1214V	E	12	1.4 to Close	21.9°×38.9°	300	M27.0 P0.5	44	29.5	1/3 inch
	3Z4S-LE SV-1614V	F	16	1.4 to Close	22.8°×30.1°	400	M27.0 P0.5	34	24	1/3 inch
	3Z4S-LE SV-2514V	G	25	1.4 to Close	14.9°×19.8°	500	M27.0 P0.5	36	24.5	1/3 inch
	3Z4S-LE SV-3518V	H	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	I	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	J	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	K	100	3.5 to Close	2.9°×3.8°	1000	M30.5 P0.5	79	43.9 to 6.3	1/3 inch

Dimensions

(Unit:mm)
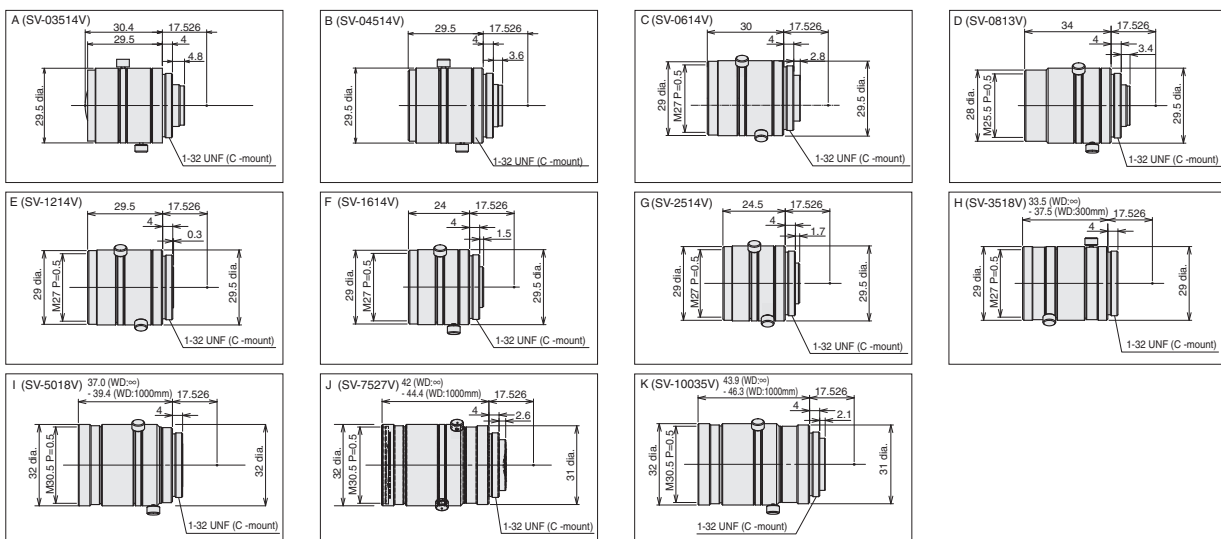
Specifications

Mounting	C mount
Ambient temperature	Operating: 0 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 80%, Storage: 35% to 90% (with no condensation)

Optical Chart

Refer to page 78.

High-resolution, Low-distortion Lens for C-mount cameras
SV-H/VS-H1 Series

- High-resolution lens for megapixel camera.
- Lineup of 7 models for 2/3-inch cameras, with focal lengths ranging from 6 to 100 mm, and 9 models for 1-inch cameras.
- Lock screws for focus and iris.
- Short expose time with bright F number of 1.4 for high-speed CMOS cameras.
- 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

Recommended camera	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
FZ-S☐2M FZ-S☐5M3 FH-S☐05R	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
FH-S☐04 FH-S☐02	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-1614H1N	M	16	1.4 to 16	33.1°×43.6°	300	M30.5 P0.5	120	45.0 to 45.9	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-3514H	O	35	1.4 to 16	15.6°×20.7°	300	M30.5 P0.5	100	35.0 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)

Specifications

Mounting	C mount
Ambient temperature	Operating: 0 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 80%, Storage: 35% to 90% (with no condensation)

Optical Chart

Refer to page 78 and 79.

OMRON

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Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

High-resolution Telecentric Lens for C-mount cameras
VS-TCH Series

- High-resolution telecentric lens for megapixel camera.
- Broad product selection.

  Available in two different working distances, 65 or 110 mm,
  to fit installation spaces.
  Comes in two shapes: straight and coaxial for coaxial lights.
  Five optical magnifications, 0.5x, 1.0x, 1.5x, 2.0x, and 4.0x,
  are available to cover a wide range of applications.

- Low-distortion design.

  High quality images can be obtained from any part of the area.
  Ideal for high-precision alignment.

Ordering Information

Recommended camera	Model	Dimension	Optical magnification (±5%)	WD *1 (mm)	Effective FNO	Depth of field *2 (mm)	Resolution *3 (μm)	TV distortion	Shape	Weight (g)	Maximum compatible CCD
FZ-S☐ FZ-SH☐ FZ-S☐2M FZ-S☐5M3 FH-S☐ FH-S☐05R	3Z4S-LE VS-TCH05-65-O	A	0.5x	75.3	9.42	3	12.43	0.02%	Straight	70	2/3 inch
	3Z4S-LE VS-TCH05-65CO-O	B							Coaxial	80	
	3Z4S-LE VS-TCH05-110-O	C		110.8	9.49	3.04	12.9	0.02%	Straight	100	
	3Z4S-LE VS-TCH05-110CO-O	D							Coaxial	110	
	3Z4S-LE VS-TCH1-65-O	E	1.0x	68.8	9.94	0.8	6.71	0.01%	Straight	70	
	3Z4S-LE VS-TCH1-65CO-O	F							Coaxial	80	
	3Z4S-LE VS-TCH1-110-O	G		110.3	10.49	0.84	6.99	0.02%	Straight	100	
	3Z4S-LE VS-TCH1-110CO-O	H							Coaxial	110	
	3Z4S-LE VS-TCH1.5-65-O	I	1.5x	65	11.8	0.4	5.24	0.01%	Straight	70	
	3Z4S-LE VS-TCH1.5-65CO-O	J							Coaxial	80	
	3Z4S-LE VS-TCH1.5-110-O	K		110.8	11.97	0.43	5.33	0.02%	Straight	90	
	3Z4S-LE VS-TCH1.5-110CO-O	L							Coaxial	105	
	3Z4S-LE VS-TCH2-65-O	M	2.0x	65	13.6	0.3	4.53	0.03%	Straight	70	
	3Z4S-LE VS-TCH2-65CO-O	N							Coaxial	80	
	3Z4S-LE VS-TCH2-110-O	O		110.8	13.5	0.27	4.53	0.03%	Straight	95	
	3Z4S-LE VS-TCH2-110CO-O	P							Coaxial	110	
	3Z4S-LE VS-TCH4-65-O	Q	4.0x	65	17.91	0.09	3	0.02%	Straight	90	
	3Z4S-LE VS-TCH4-65CO-O	R							Coaxial	100	
	3Z4S-LE VS-TCH4-110-O	S		110.8	22.2	0.11	3.73	0.03%	Straight	100	
	3Z4S-LE VS-TCH4-110CO-O	T							Coaxial	110	

*1 The working distance is the distance from the end of the lens to the workpiece.
*2 The depth of field is calculated using a permissible circle of confusion diameter of 0.04 mm.
*3 The resolution is calculated using a wavelength of 550 nm.
Note: 1. Fixing the lens or other reinforcement may be required depending on the installation angle or operating environment (vibration/shock). When fixing the lens, insulate the lens from the fixture.
2. The above specifications are values calculated from the optical design and can vary depending on installation conditions.

Camera and Field of View Table

Camera	Size of image element (inch)		0.5 × (VS-TCH05)	1.0 × (VS-TCH1)	1.5 × (VS-TCH1.5)	2.0 × (VS-TCH2)	4.0 × (VS-TCH4)
FH-S☐	1/3" equivalent	4.8 × 3.6	9.6 × 7.2	4.8 × 3.6	3.2 × 2.4	2.4 × 1.8	1.2 × 0.9
FH-S☐05R	1/2.5" equivalent	5.7 × 4.28	11.4 × 8.56	5.7 × 4.28	3.8 × 2.85	2.85 × 2.14	1.43 × 1.07
FZ-S☐/FZ-SH☐	1/3" equivalent	4.8 × 3.6	9.6 × 7.2	4.8 × 3.6	3.2 × 2.4	2.4 × 1.8	1.2 × 0.9
FZ-S☐2M	1/1.8" equivalent	7.0 × 5.3	14.0 × 10.6	7.1 × 5.4	4.7 × 3.5	3.5 × 2.7	1.8 × 1.3
FZ-S☐5M3	2/3" equivalent	8.4 × 7.1	16.8 × 14.2	8.4 × 7.1	5.6 × 4.7	4.2 × 3.55	2.1 × 1.78

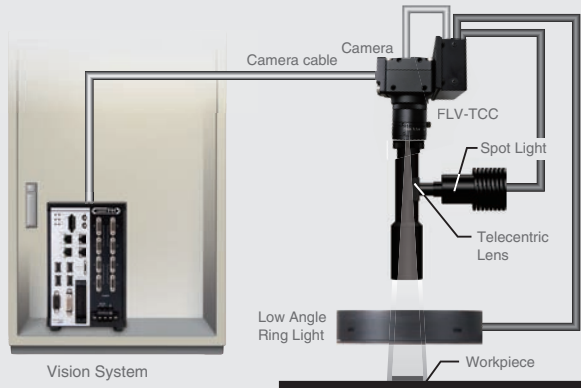Note: The field of view is a calculated value and not a guaranteed value.

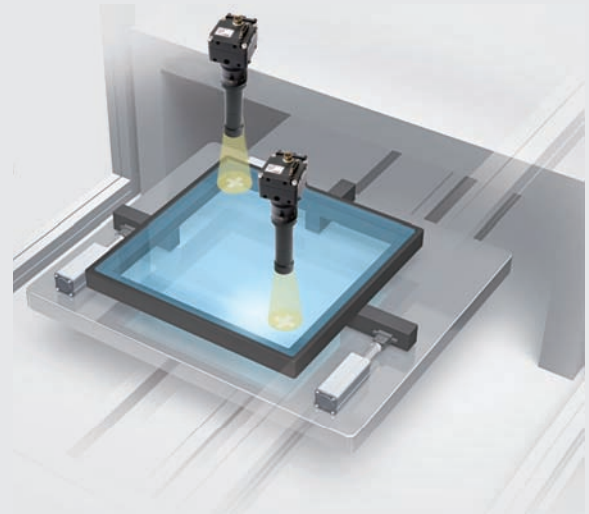## Applications

Detection of alignment marks

Combining the FLV-EP08-series Spot Light and Camera-mount Lighting Controller saves space and simplifies wiring.

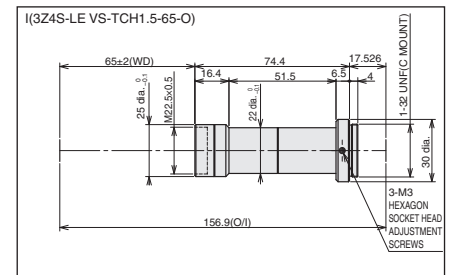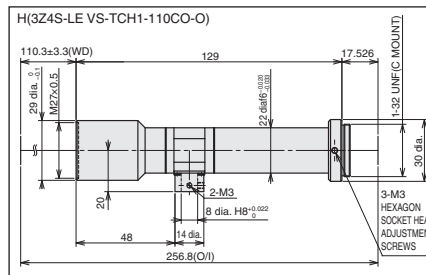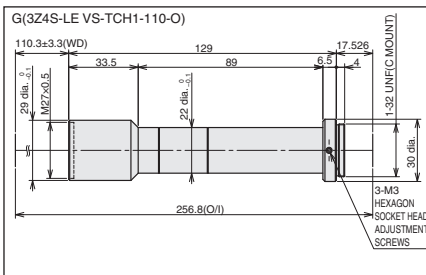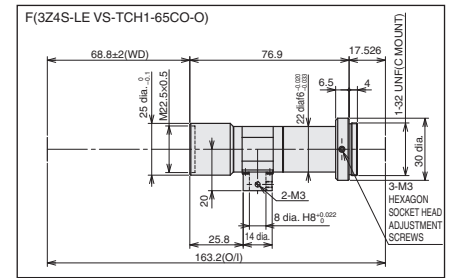| Illustration of Combination of Spot Light and Controller	Illustration of Alignment Mark Detection

Camera
Camera cable
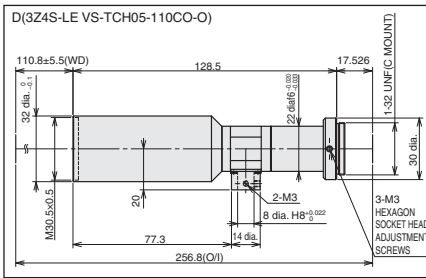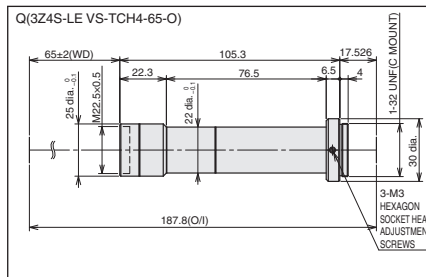FLV-TCC
Spot Light
Telecentric Lens
Low Angle Ring Light
Workpiece
Vision System

Only the camera cable is connected from control panel

Dimensions

(Unit: mm)

A(3Z4S-LE VS-TCH05-65-O)

B(3Z4S-LE VS-TCH05-65CO-O)

C(3Z4S-LE VS-TCH05-110-O)

D(3Z4S-LE VS-TCH05-110CO-O)

E(3Z4S-LE VS-TCH1-65-O)

F(3Z4S-LE VS-TCH1-65CO-O)

G(3Z4S-LE VS-TCH1-110-O)

H(3Z4S-LE VS-TCH1-110CO-O)

I(3Z4S-LE VS-TCH1.5-65-O)

Standard Models FLV Series

High-brightness Models FL Series

LED Characteristics

Lenses

OMRON

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High-resolution Telecentric Lens for C-mount cameras   VS-TCH Series

Dimensions
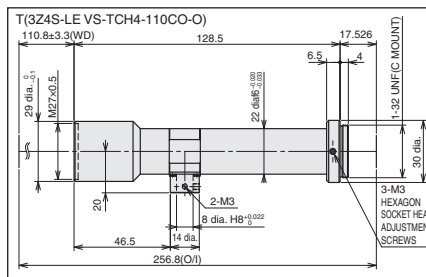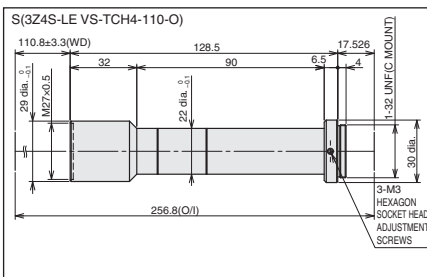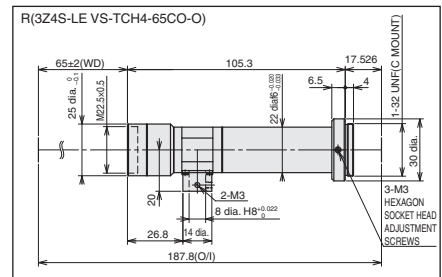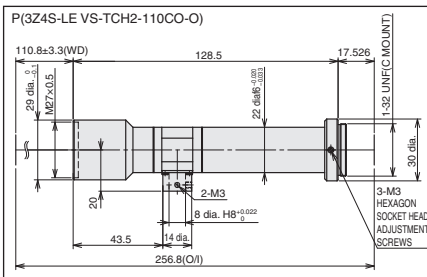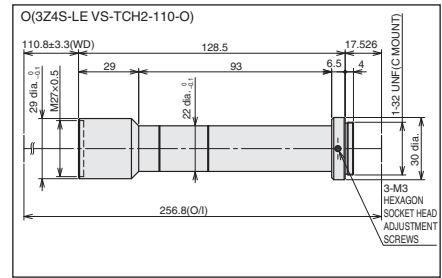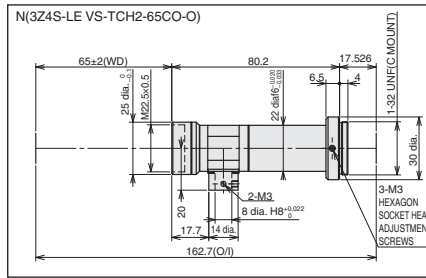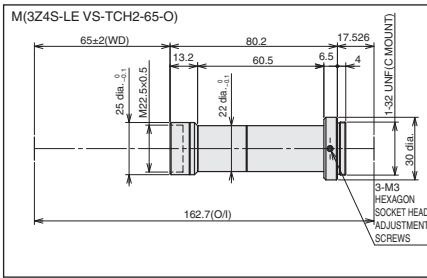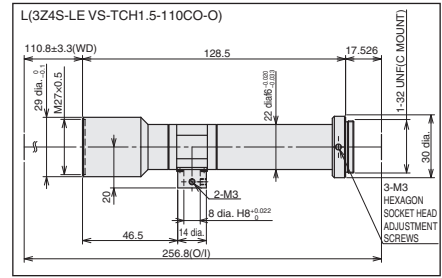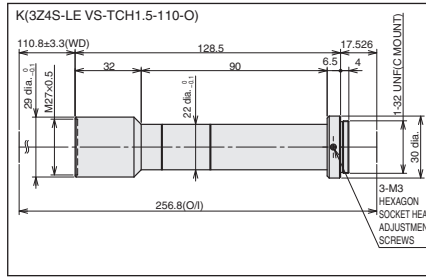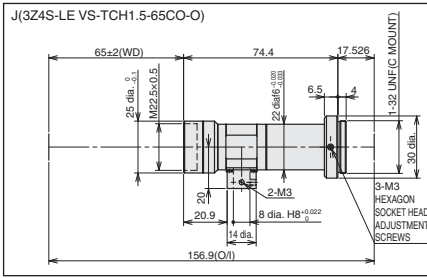
J(3Z4S-LE VS-TCH1.5-65CO-O)

K(3Z4S-LE VS-TCH1.5-110-O)

L(3Z4S-LE VS-TCH1.5-110CO-O)

M(3Z4S-LE VS-TCH2-65-O)

N(3Z4S-LE VS-TCH2-65CO-O)

O(3Z4S-LE VS-TCH2-110-O)

P(3Z4S-LE VS-TCH2-110CO-O)

Q(3Z4S-LE VS-TCH4-65-O)

R(3Z4S-LE VS-TCH4-65CO-O)

S(3Z4S-LE VS-TCH4-110-O)

T(3Z4S-LE VS-TCH4-110CO-O)

Specifications

Ambient temperature	Operating: 0 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 80%, Storage: 35% to 90% (with no condensation)

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 locking the surface and the improved design of internal structure increase resistance to vibration in comparison to the previous model with a lock screw locking a point.
- This enables application in environments where the point-locked lens is moved under the effects of ambient vibration.
- Install in narrow space without a lock screw.

Ordering Information

| Recommended camera	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
FZ-S□ FZ-SH□ FH-S□ FH-S□05R	3Z4S-LE VS-MC4	A	4	x0.01 to x0.04	31 dia.	27.5 to 27.7	M27.0 P0.5	403.8	1680.0	1/2 inch
	3Z4S-LE VS-MC4-FNO56							195.8	424.0	
	3Z4S-LE VS-MC4-FNO80							91.8	108.0	
	3Z4S-LE VS-MC6.5	B	6.5	x0.01 to x0.06	31 dia.	25.1 to 25.4	M30.5 P0.5	631.4	1824.0	1/2 inch
	3Z4S-LE VS-MC6.5-FNO56							197.4	207.1	
	3Z4S-LE VS-MC6.5-FNO80							88.9	53.1	
	3Z4S-LE VS-MC10	C	10	x0.02 to x0.15	31 dia.	22.7 to 24.0	M27.0 P0.5	502.8	448.8	1/2 inch
	3Z4S-LE VS-MC10-FNO56							92.0	19.4	
	3Z4S-LE VS-MC10-FNO80							57.8	9.0	
FZ-S□ FZ-SH□ FZ-S□2M FZ-S□5M3 FH-S□ FH-S□05R	3Z4S-LE VS-MC15	D	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	E	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	F	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	G	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	31 dia.	24.0 to 35.7	M27.0 P0.5	514.6	188.4	
								214.5	32.7	
								81.1	4.6	

Vibrations and Shocks Resistant for C-mount cameras   VS-MC Series

Recommended camera	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
FZ-S□ FZ-SH□ FZ-S□2M FZ-S□5M3 FH-S□ FH-S□05R	3Z4S-LE VS-MC35	H	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	
	3Z4S-LE VS-MC50	I	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	J	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)
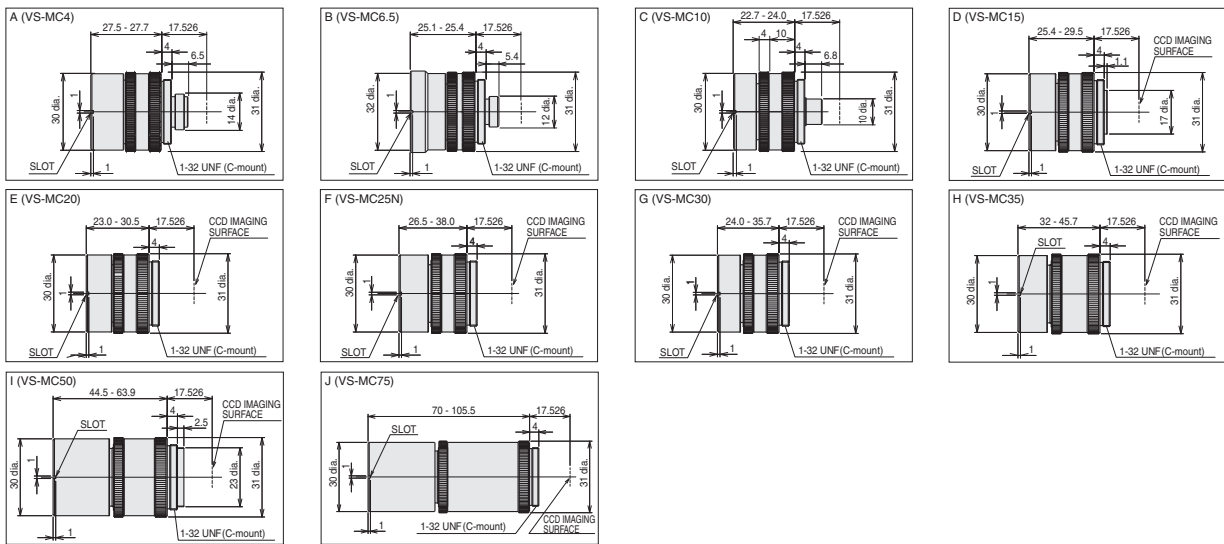
Specifications

Mounting	C mount
Ambient temperature	Operating: 0 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 80%, Storage: 35% to 90% (with no condensation)

Optical Chart

Refer to page 80.

Non-telecentric Macro Lens
VS-MC Series

- Lineup of 4 models with magnifications ranging from 0.1x to 1.0x 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	Effective FNO	O/I (mm)	WD (mm)	Depth of field *1 (mm)	Resolution *2 (μm)	TV distortion
FZ-S□ FZ-SH□ FZ-S□2M FZ-S□5M3 FH-S□ FH-S□05R	3Z4S-LE VS-MC01-330	A	0.1x	4.43	364.5	325.5	35.4	30.5	0.01% max.
	3Z4S-LE VS-MC03-180	B	0.3x	5.29	248.5	184.8	4.7	11.6	0.00% max.
	3Z4S-LE VS-MC05-130	C	0.5x	6.10	198.8	126.3	2.0	8.2	0.00% max.
	3Z4S-LE VS-MC1-80	D	1.0x	8.14	176.8	82.4	0.7	5.5	0.00% max.

*1 Calculated using a permissible circle of confusion diameter of 0.04 mm.
*2 Calculated using a wavelength of 550 nm.

Camera and Field of View Table

Camera	Size of image element (inch)		3Z4S-LE VS-MC01-330	3Z4S-LE VS-MC03-180	3Z4S-LE VS-MC05-130	3Z4S-LE VS-MC1-80
			0.1 ×	0.3 ×	0.5 ×	1.0 ×
FH-S□	1/3" equivalent	4.8 × 3.6	48 × 36	16 × 12	9.6 × 7.2	4.8 × 3.6
FH-S□05R	1/2.5" equivalent	5.7 × 4.28	57 × 42.8	19 × 14.3	11.4 × 8.56	5.7 × 4.28
FZ-S□/FZ-SH□	1/3" equivalent	4.8 × 3.6	48 × 36	16 × 12	9.6 × 7.2	4.8 × 3.6
FZ-S□2M	1/1.8" equivalent	7.0 × 5.3	70 × 53	23.3 × 17.7	14.0 × 10.6	7.1 × 5.4
FZ-S□5M3	2/3" equivalent	8.4 × 7.1	84 × 71	28 × 23.7	16.8 × 14.2	8.4 × 7.1

Note:The field of view is a calculated value and not a guaranteed value.

Dimensions

(Unit:mm)
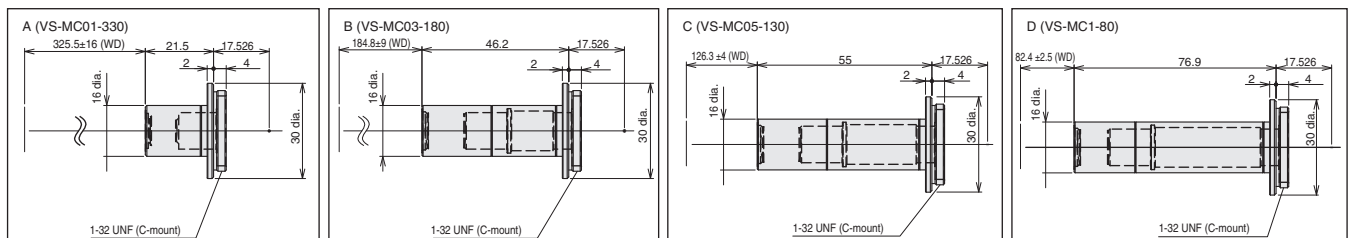
A (VS-MC01-330)   325.5±16 (WD) 21.5 17.526 2 4 16 dia. 30 dia. 1-32 UNF (C-mount)

B (VS-MC03-180)   184.8±9 (WD) 46.2 17.526 2 4 16 dia. 30 dia. 1-32 UNF (C-mount)

C (VS-MC05-130)   126.3 ±4 (WD) 55 17.526 2 4 16 dia. 30 dia. 1-32 UNF (C-mount)

D (VS-MC1-80)   82.4 ±2.5 (WD) 76.9 17.526 2 4 16 dia. 30 dia. 1-32 UNF (C-mount)

Specifications

Mounting	C mount
Ambient temperature	Operating: 0 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 80%, Storage: 35% to 90% (with no condensation)

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

High-resolution, Vibrations and Shocks Resistant Lens for C-mount Cameras
VS-MCH Series

- Vibrations resistant lens for C-mount cameras
- Lineup of 21 models: focal lengths from 12 to 100 mm and F-numbers of maximum aperture, 5.6, and 8.0
- A lock ring locking the surface and the improved design of internal structure increase resistance to vibration in comparison to the previous model. This enables application in environments where the point-locked lens is moved under the effects of ambient vibration
- Install in narrow space without a lock screw

Ordering Information

Recommend camera	Model	Dimension	Focal distance (mm)	Aperture (F No)	Maximum outer diameter (mm)	Total length (mm)	Filter size	WD (mm)	Depth of field (mm)	Maximum compatible CCD
FH-S□02 FH-S□04	3Z4S-LE VS-MCH12	A	12	2	38 dia.	48.0 to 49.8	M35.5 P0.5	465.4	262.0	1 inch
								103.8	17.6	
								63.6	8.2	
	3Z4S-LE VS-MCH12-FNO56			5.6	38 dia.	48.0 to 49.8	M35.5 P0.5	465.4	735.0	
								103.8	49.3	
								63.6	22.9	
	3Z4S-LE VS-MCH12-FNO80			8	38 dia.	48.0 to 49.8	M35.5 P0.5	465.4	1050.0	
								103.8	70.4	
								63.6	32.7	
	3Z4S-LE VS-MCH16N	B	16	2	38 dia.	45.4 to 49.1	M34.0 P0.5	648.1	262.0	1 inch
								176.6	17.6	
								58.1	3.2	
	3Z4S-LE VS-MCH16N-FNO56			5.6	38 dia.	45.4 to 49.1	M34.0 P0.5	648.1	735.0	
								176.6	49.3	
								58.1	9.0	
	3Z4S-LE VS-MCH16N-FNO80			8	38 dia.	45.4 to 49.1	M34.0 P0.5	648.1	1050.0	
								176.6	70.4	
								58.1	12.8	
	3Z4S-LE VS-MCH25	C	25	2	38 dia.	33.5 to 42.4	M34.0 P0.5	1007.9	262.0	1 inch
								245.3	17.6	
								63.7	1.8	
	3Z4S-LE VS-MCH25-FNO56			5.6	38 dia.	33.5 to 42.4	M34.0 P0.5	1007.9	735.0	
								245.3	49.3	
								63.7	4.9	
	3Z4S-LE VS-MCH25-FNO80			8	38 dia.	33.5 to 42.4	M34.0 P0.5	1007.9	1050.0	
								245.3	70.4	
								63.7	7.1	
	3Z4S-LE VS-MCH35	D	35	2	38 dia.	35.0 to 43.8	M34.0 P0.5	1405.7	262.0	1 inch
								352.9	17.6	
								142.3	3.2	
	3Z4S-LE VS-MCH35-FNO56			5.6	38 dia.	35.0 to 43.8	M34.0 P0.5	1405.7	735.0	
								352.9	49.3	
								142.3	9.0	
	3Z4S-LE VS-MCH35-FNO80			8	38 dia.	35.0 to 43.8	M34.0 P0.5	1405.7	1050.0	
								352.9	70.4	
								142.3	12.8	
	3Z4S-LE VS-MCH50	E	50	2	43 dia.	44.5 to 52.0	M40.5 P0.5	2001.9	262.0	1 inch
								504.1	17.6	
								337.7	3.2	
	3Z4S-LE VS-MCH50-FNO56			5.6	43 dia.	44.5 to 52.0	M40.5 P0.5	2001.9	735.0	
								504.1	49.3	
								337.7	22.9	
	3Z4S-LE VS-MCH50-FNO80			8	43 dia.	44.5 to 52.0	M40.5 P0.5	2001.9	1050.0	
								504.1	70.4	
								337.7	32.7	

Recommend camera	Model	Dimension	Focal distance (mm)	Aperture (F No)	Maximum outer diameter (mm)	Total length (mm)	Filter size	WD (mm)	Depth of field (mm)	Maximum compatible CCD
FH-S☐02 FH-S☐04	3Z4S-LE VS-MCH75	F	75	2.5	38 dia.	49.5 to 60.7	M34.0 P0.5	3105.9	262.0	1 inch
								857.4	17.6	
								607.6	8.2	
	3Z4S-LE VS-MCH75-FNO56			5.6	38 dia.	49.5 to 60.7	M34.0 P0.5	3105.9	735.0	
								857.4	49.3	
								607.6	22.9	
	3Z4S-LE VS-MCH75-FNO80			8	38 dia.	49.5 to 60.7	M34.0 P0.5	3105.9	1050.0	
								857.4	70.4	
								607.6	32.7	
	3Z4S-LE VS-MCH100	G	100	2.8	40 dia.	66.5 to 76.3	M37.5 P0.5	4043.7	262.0	1 inch
								2088.1	94.1	
								1110.3	17.6	
	3Z4S-LE VS-MCH100-FNO56			5.6	40 dia.	66.5 to 76.3	M37.5 P0.5	4043.7	735.0	
								2088.1	188.2	
								1110.3	49.3	
	3Z4S-LE VS-MCH100-FNO80			8	40 dia.	66.5 to 76.3	M37.5 P0.5	4043.7	1050.0	
								2088.1	268.8	
								1110.3	70.4	

Dimensions

(Unit:mm)
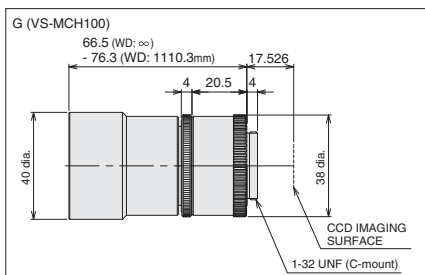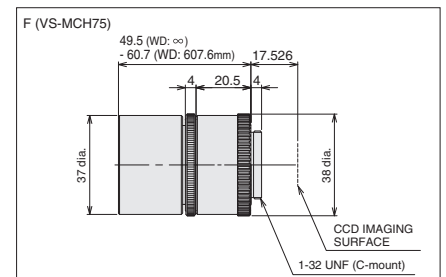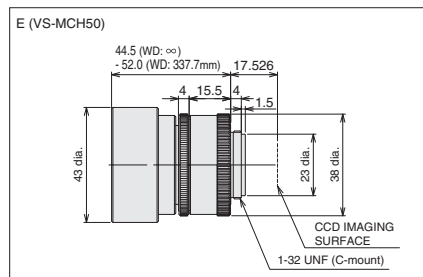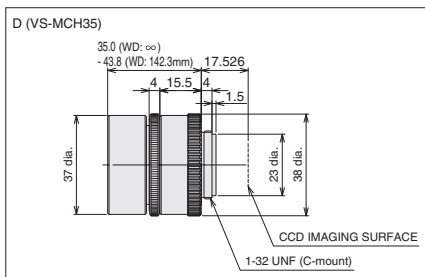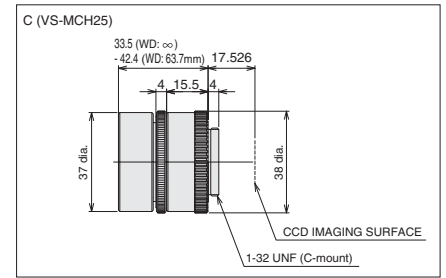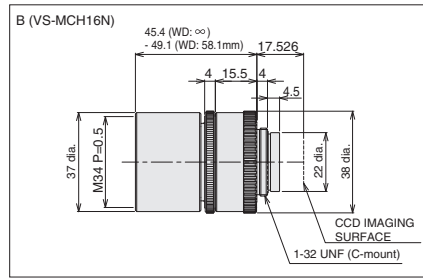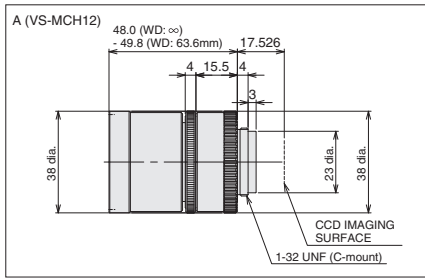
A (VS-MCH12)

B (VS-MCH16N)

C (VS-MCH25)

D (VS-MCH35)

E (VS-MCH50)

F (VS-MCH75)

G (VS-MCH100)

Specifications

Mounting	C mount
Ambient temperature	Operating: −5 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 0% to 80%, Storage: 0% to 90% (with no condensation)

Optical Chart

Refer to page 81.

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Standard Lens for M42-mount cameras
VS-L/M42-10 Series

- Wide variety of lenses with focal lengths ranging from 18 to 100 mm.
- Hexagon socket head cap screws for focus and aperture lock screws can be tightened more than finger tight. The ensures vibration resistance even when large diameter lenses are used.
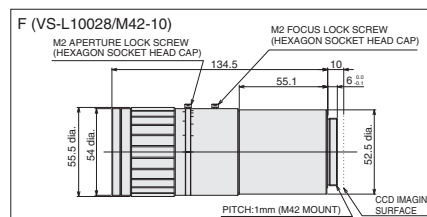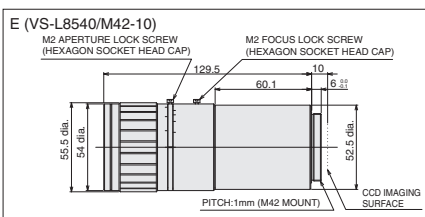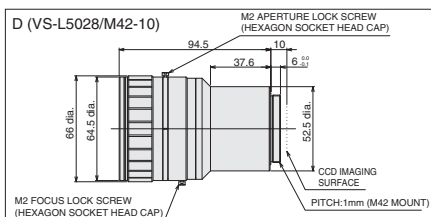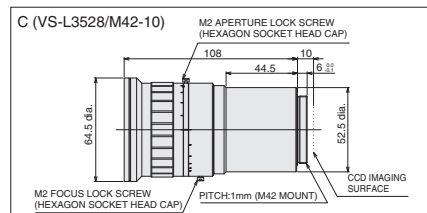
Ordering Information

Recommended camera	Model	Dimension	Focal distance (mm)	Aperture (F No)	Optical magnification	Closest distance (mm)	Filter size	Weight (g)	Total length (mm)	Maximum compatible CCD
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)
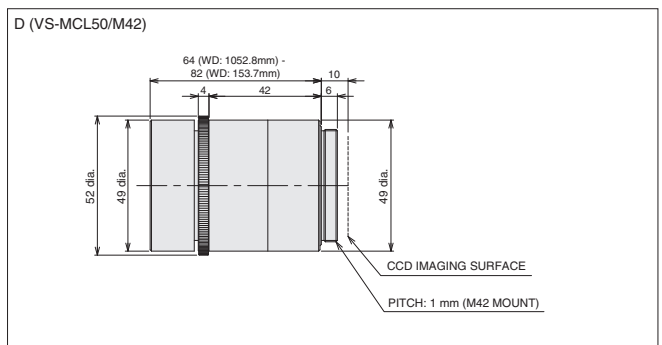C (VS-L3528/M42-10)
D (VS-L5028/M42-10)
E (VS-L8540/M42-10)
F (VS-L10028/M42-10)

Specifications

Mounting	M42 mount
Ambient temperature	Operating: 0 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 80%, Storage: 35% to 90% (with no condensation)

Optical Chart

Refer to page 79.

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses

Vibrations and Shocks Resistant Lens for M42-mount Cameras
VS-MCL/M42 Series

- Vibrations resistant lens for M42-mount cameras
- Lineup of 18 models: focal lengths from 18 to 100 mm and F-numbers of maximum aperture, 5.6, and 8.0
- A lock ring locking the surface and the improved design of internal structure increase resistance to vibration in comparison to the previous model. This enables application in environments where the point-locked lens is moved under the effects of ambient vibration
- Install in narrow space without a lock screw.
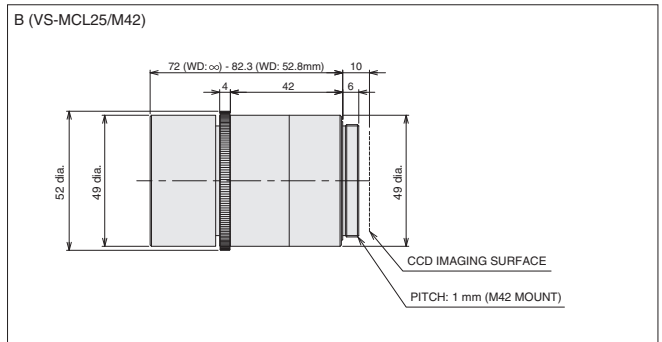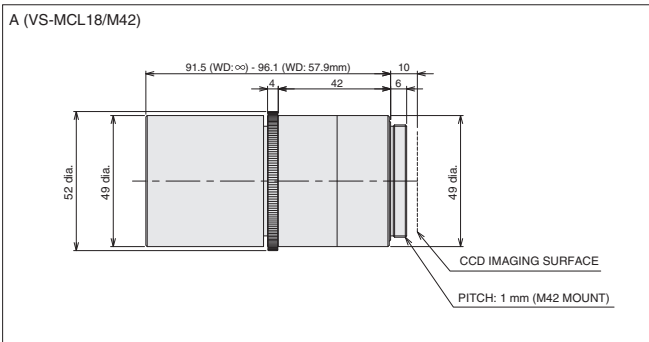
Ordering Information

Recommend camera	Model	Dimension	Focal distance (mm)	Aperture (F No)	Maximum outer diameter (mm)	Total length (mm)	Filter size	WD (mm)	Depth of field (mm)	Maximum compatible CCD
FH-S□12	3Z4S-LE VS-MCL18/M42	A	18	2.8	52 dia.	91.5 to 96.1	M46.0 P0.75	722.9	367.0	1.8 inches
								168.4	24.6	
								57.9	4.5	
	3Z4S-LE VS-MCL18-FNO56/M42			5.6	52 dia.	91.5 to 96.1	M46.0 P0.75	722.9	735.0	
								168.4	188.0	
								57.9	9.0	
	3Z4S-LE VS-MCL18-FNO80/M42			8	52 dia.	91.5 to 96.1	M46.0 P0.75	722.9	1050.0	
								168.4	269.0	
								57.9	12.8	
	3Z4S-LE VS-MCL25/M42	B	25	2.6	52 dia.	72.0 to 82.3	M46.0 P0.75	1010.8	367.0	1.8 inches
								496.6	94.0	
								52.8	1.8	
	3Z4S-LE VS-MCL25-FNO56/M42			5.6	52 dia.	72.0 to 82.3	M46.0 P0.75	1010.8	735.0	
								496.6	188.0	
								52.8	3.9	
	3Z4S-LE VS-MCL25-FNO80/M42			8	52 dia.	72.0 to 82.3	M46.0 P0.75	1010.8	1050.0	
								496.6	269.0	
								52.8	5.6	
	3Z4S-LE VS-MCL35/M42	C	35	2.8	55 dia.	99.5 to 117.6	M52.0 P0.75	1437.4	367.0	1.8 inches
								346.8	24.6	
								62.2	1.3	
	3Z4S-LE VS-MCL35-FNO56/M42			5.6	55 dia.	99.5 to 117.6	M52.0 P0.75	1437.4	735.0	
								346.8	49.3	
								62.2	2.7	
	3Z4S-LE VS-MCL35-FNO80/M42			8	55 dia.	99.5 to 117.6	M52.0 P0.75	1437.4	1050.0	
								346.8	70.4	
								62.2	3.8	
	3Z4S-LE VS-MCL50/M42	D	50	2.8	52 dia.	64.0 to 82.0	M46.0 P0.75	1025.0	97.6	1.8 inches
								513.7	24.6	
								153.7	2.0	
	3Z4S-LE VS-MCL50-FNO56/M42			5.6	52 dia.	64.0 to 82.0	M46.0 P0.75	1025.0	188.0	
								513.7	49.3	
								153.7	3.9	
	3Z4S-LE VS-MCL50-FNO80/M42			8	52 dia.	64.0 to 82.0	M46.0 P0.75	1025.0	269.0	
								513.7	70.4	
								153.7	5.6	
	3Z4S-LE VS-MCL85/M42	E	85	4	52 dia.	105.0 to 130.2	M46.0 P0.75	1724.8	134.0	1.8 inches
								452.5	9.6	
								285.0	3.5	
	3Z4S-LE VS-MCL85-FNO56/M42			5.6	52 dia.	105.0 to 130.2	M46.0 P0.75	1724.8	188.0	
								452.5	13.4	
								285.0	4.9	
	3Z4S-LE VS-MCL85-FNO80/M42			8	52 dia.	105.0 to 130.2	M46.0 P0.75	1724.8	269.0	
								452.5	19.2	
								285.0	7.1	

Vibrations and Shocks Resistant Lens for M42-mount Cameras   VS-MCL/M42 Series

Recommend camera	Model	Dimension	Focal distance (mm)	Aperture (F No)	Maximum outer diameter (mm)	Total length (mm)	Filter size	WD (mm)	Depth of field (mm)	Maximum compatible CCD
FH-S□12	**3Z4S-LE VS-MCL100/M42**	F	100	2.8	52 dia.	110.0 to 135.0	M46.0 P0.75	2050.2	94.1	1.8 inches
								1075.2	24.6	
								408.5	3.2	
	3Z4S-LE VS-MCL100-FNO56/M42			5.6	52 dia.	110.0 to 135.0	M46.0 P0.75	2050.2	188.0	
								1075.2	49.3	
								408.5	6.5	
	3Z4S-LE VS-MCL100-FNO80/M42			8	52 dia.	110.0 to 135.0	M46.0 P0.75	2050.2	269.0	
								1075.2	70.4	
								408.5	9.2	

Dimensions

(Unit:mm)

A (VS-MCL18/M42)

91.5 (WD:∞) - 96.1 (WD: 57.9mm)   10
4   42   6
52 dia.   49 dia.   49 dia.
CCD IMAGING SURFACE
PITCH: 1 mm (M42 MOUNT)

B (VS-MCL25/M42)

72 (WD:∞) - 82.3 (WD: 52.8mm)   10
4   42   6
52 dia.   49 dia.   49 dia.
CCD IMAGING SURFACE
PITCH: 1 mm (M42 MOUNT)

C (VS-MCL35/M42)

99.5 (WD:∞) - 117.6 (WD: 62.2mm)   10
4   71.5   6
55 dia.   49 dia.
CCD IMAGING SURFACE
PITCH: 1 mm (M42 MOUNT)

D (VS-MCL50/M42)

64 (WD: 1052.8mm) - 82 (WD: 153.7mm)   10
4   42   6
52 dia.   49 dia.   49 dia.
CCD IMAGING SURFACE
PITCH: 1 mm (M42 MOUNT)

E (VS-MCL85/M42)

105 (WD: 1724.8mm) - 130.2 (WD: 284.3mm)   10
4   79.5   6
52 dia.   49 dia.   49 dia.
CCD IMAGING SURFACE
PITCH: 1 mm (M42 MOUNT)

F (VS-MCL100/M42)

110 (WD: 2075.2mm) - 135 (WD: 408.5mm)   10
4   79.5   6
52 dia.   49 dia.   49 dia.
CCD IMAGING SURFACE
PITCH: 1 mm (M42 MOUNT)

Specifications

Mounting	M42 mount
Ambient temperature	Operating: −5 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 0% to 80%, Storage: 0% to 90% (with no condensation)

Optical Chart

Refer to page 81.

Lenses for FZ-series small cameras
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.
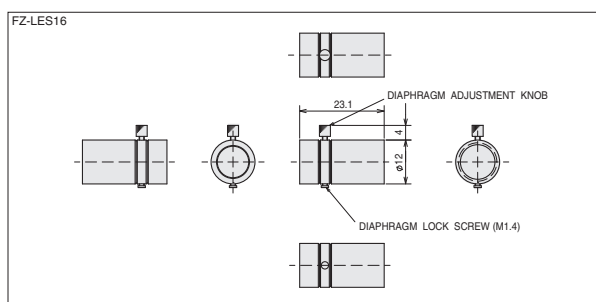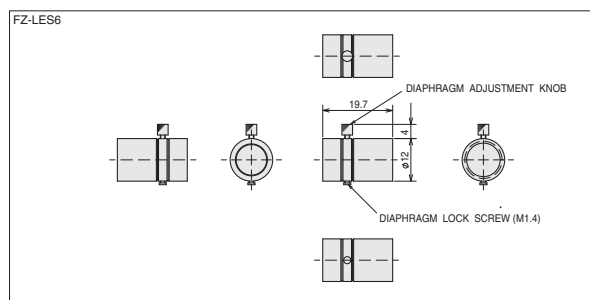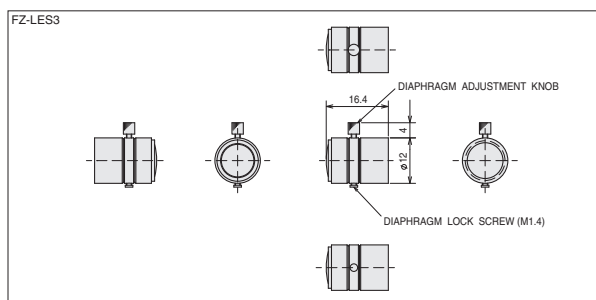
Ordering Information

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)

FZ-LES3

16.4

DIAPHRAGM ADJUSTMENT KNOB

ø12

4

DIAPHRAGM LOCK SCREW (M1.4)

FZ-LES6

19.7

DIAPHRAGM ADJUSTMENT KNOB

ø12

4

DIAPHRAGM LOCK SCREW (M1.4)

FZ-LES16

23.1

DIAPHRAGM ADJUSTMENT KNOB

ø12

4

DIAPHRAGM LOCK SCREW (M1.4)

FZ-LES30

25.5

DIAPHRAGM ADJUSTMENT KNOB

ø12

4

DIAPHRAGM LOCK SCREW (M1.4)
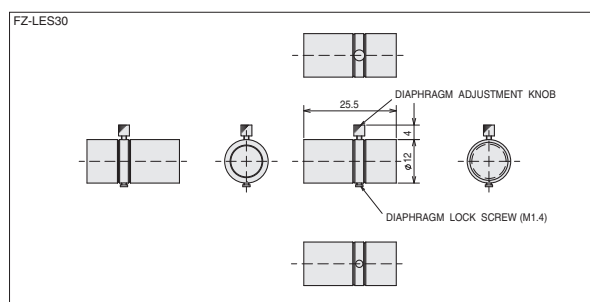
Specifications

Ambient temperature	Operating: −10 to 50°C, Storage: −20 to 70°C (with no icing or condensation)
Ambient humidity	Operating: 0% to 90%, Storage: 0% to 70% (with no condensation)

Optical Chart

Refer to page 79.

OMRON

75

Lens Option

Polarizing Filter SV-PL Series

• Prevents diffused reflection.

• Available for lenses for C-mount cameras.

Ordering Information

Item	Size	Anti-rotation mechanism: Provided		Anti-rotation mechanism: Not provided	
		Model	Weight (g)	Model	Weight (g)
Polarizing Filter	M22.5 P0.5	**3Z4S-LE SV-PL225-SS**	5	–	–
	M25.5 P0.5	**3Z4S-LE SV-PL255-SS**	6	**3Z4S-LE SV-PL255**	5.5
	M27.0 P0.5	**3Z4S-LE SV-PL270-SS**	6.5	**3Z4S-LE SV-PL270**	6
	M30.5 P0.5	**3Z4S-LE SV-PL305-SS**	8	**3Z4S-LE SV-PL305**	7.5
	M34.0 P0.5	**3Z4S-LE SV-PL340-SS**	10	**3Z4S-LE SV-PL340**	9.5
	M35.5 P0.5	**3Z4S-LE SV-PL355-SS**	10	**3Z4S-LE SV-PL355**	9.5
	M37.5 P0.5	**3Z4S-LE SV-PL375-SS**	12	**3Z4S-LE SV-PL375**	11.5
	M40.5 P0.5	**3Z4S-LE SV-PL405-SS**	12.5	**3Z4S-LE SV-PL405**	12
	M52.0 P0.75	**3Z4S-LE SV-PL520-SS**	19	**3Z4S-LE SV-PL520**	18.5
	M55.0 P0.75	**3Z4S-LE SV-PL550-SS**	21	**3Z4S-LE SV-PL550**	20.5
	M62.0 P0.75	**3Z4S-LE SV-PL620-SS**	28.5	**3Z4S-LE SV-PL620**	27.5

Specifications

Ambient temperature	Operating: 0 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 80%, Storage: 35% to 90% (with no condensation)

Protection Cover Filter SV-GA Series

• Used to protect lens surface from dust.

• Available for lenses for C-mount cameras.

Ordering Information

Item	Model	Size	Weight (g)
Protection Cover Filter	**3Z4S-LE SV-GA225**	M22.5 P0.5	4
	3Z4S-LE SV-GA255	M25.5 P0.5	4.5
	3Z4S-LE SV-GA270	M27.0 P0.5	5.5
	3Z4S-LE SV-GA305	M30.5 P0.5	6.5
	3Z4S-LE SV-GA340	M34.0 P0.5	8
	3Z4S-LE SV-GA355	M35.5 P0.5	8.5
	3Z4S-LE SV-GA375	M37.5 P0.5	9
	3Z4S-LE SV-GA405	M40.5 P0.5	10.5
	3Z4S-LE SV-GA520	M52.0 P0.75	15
	3Z4S-LE SV-GA550	M55.0 P0.75	16
	3Z4S-LE SV-GA620	M62.0 P0.75	25

Specifications

Ambient temperature	Operating: 0 to 50°C, Storage: −10 to 60°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 80%, Storage: 35% to 90% (with no condensation)

Extension Tubes

Ordering Information

| 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: 3Z4SLE SV-EXR□. (0.5, 1, 2, 5, 10, 15, 20, 25, 30, 40, 50 mm)

Rear Converter Lens

Ordering Information

Model
3Z4S-LE SV-1.5X *1
3Z4S-LE SV-2.0X *2
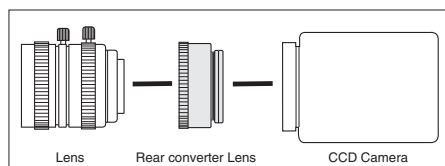
*1 In the following lenses, it is necessary to use it together with the extension tubes of 5 mm or more.
SV-0614H, SV-0814H, SV-1214H, SV-2514H, SV-0614V, SV-0813V
*2 In the following lenses, it is necessary to use it together with the extension tubes of 5 mm or more.
SV-0614H, SV-0814H, SV-1214H, SV-2514H, SV-0813V

●**Configuration**

Lens   Rear converter Lens   CCD Camera

M42 - F Mount Conversion Adapter

Ordering Information

Cameras	Lenses	Model
FH-S□12 (M42 mount)	F mount	**FH-ADF/M42-10**

Optical Chart

Optical Chart

Meaning of Optical Chart

The X axis of the optical chart shows the field of vision (mm) (*1),
and the Y axis of the optical chart shows
the camera installation distance (mm) (*2).

X
Y
Lens
Field of vision (mm)
WD (mm)
Camera distance (mm)
Extension Tube thickness: t □ (mm)
Camera
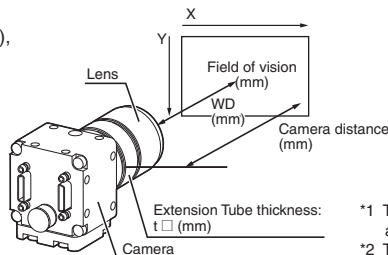
*1 The lengths of the fields of vision given in the optical charts
    are the lengths of the Y axis.
*2 The vertical axis represents WD for small cameras.

Normal Lenses

High-speed Digital CMOS Camera FH-S□, High-speed Digital CCD Camera FZ-SH□, Digital CCD Camera FZ-S□, 300,000-pixel (Using 3Z4S-LE SV-V Series)
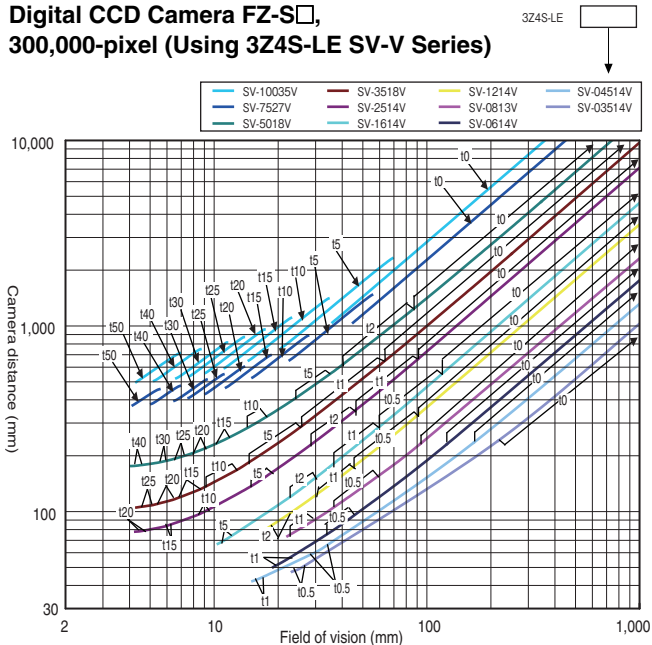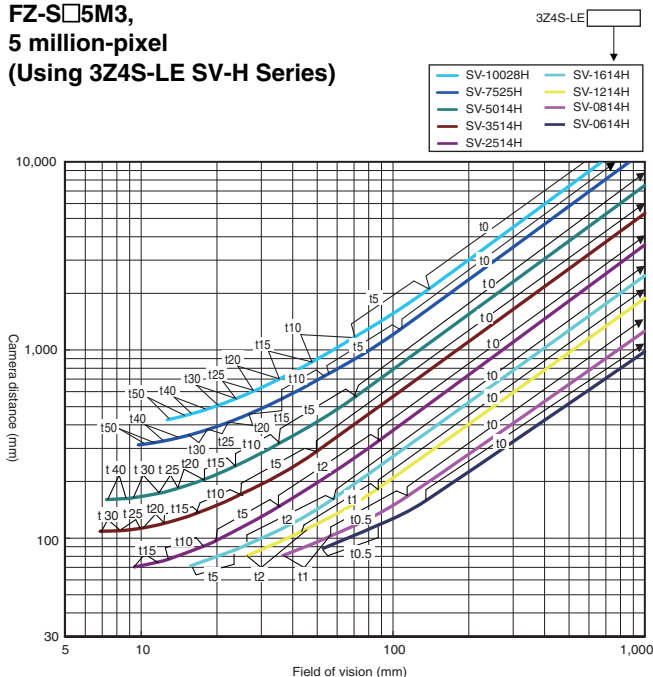
3Z4S-LE

SV-10035V	SV-3518V	SV-1214V	SV-04514V
SV-7527V	SV-2514V	SV-0813V	SV-03514V
SV-5018V	SV-1614V	SV-0614V	

Camera distance (mm)
Field of vision (mm)

Digital CCD Camera FZ-S□5M3, 5 million-pixel (Using 3Z4S-LE SV-H Series)

3Z4S-LE

SV-10028H	SV-1614H
SV-7525H	SV-1214H
SV-5014H	SV-0814H
SV-3514H	SV-0614H
SV-2514H	

Camera distance (mm)
Field of vision (mm)

Digital CCD Camera FZ-S□2M, 2 million-pixel (Using 3Z4S-LE SV-H Series)

3Z4S-LE

SV-10028H	SV-1614H
SV-7525H	SV-1214H
SV-5014H	SV-0814H
SV-3514H	SV-0614H
SV-2514H	

Camera distance (mm)
Field of vision (mm)

Digital CMOS Camera (Standalone): FH-S□05R 5 million-pixel (Using 3Z4S-LE SV-H Series)

3Z4S-LE

SV-10028H	SV-1614H
SV-7525H	SV-1214H
SV-5014H	SV-0814H
SV-3514H	SV-0614H
SV-2514H	
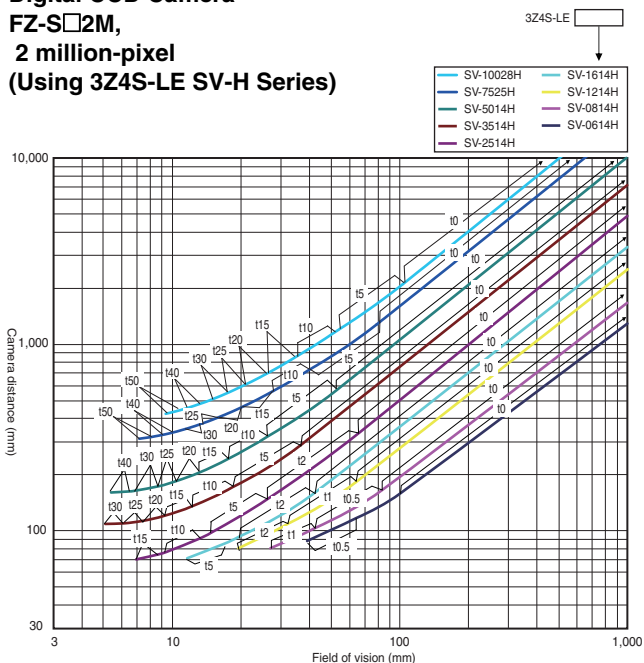
Camera distance (mm)
Field of vision (mm)
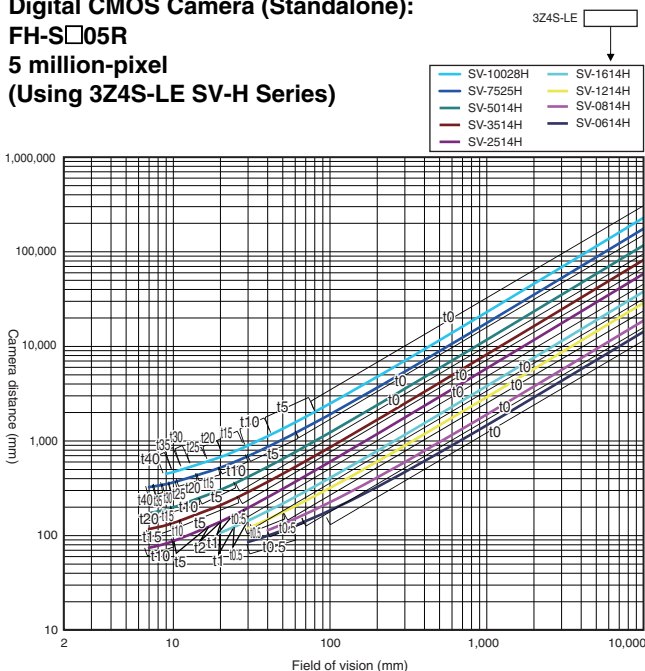
Small Digital CCD Cameras
FZ-SF□,
FZ-SP□,
300,000-pixel
(Using FZ-LES Series)

Legend:
- FZ-LES30
- FZ-LES16
- FZ-LES6
- FZ-LES3
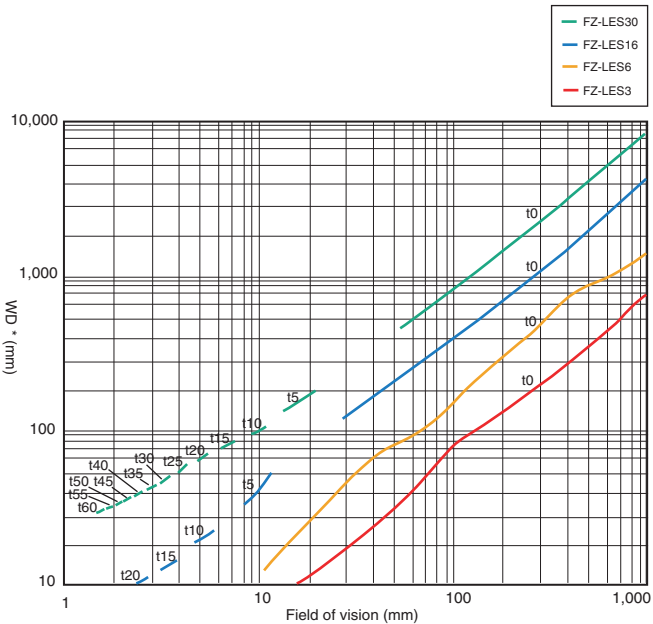
* The vertical axis represents WD, not installation distance.

High-speed Digital CMOS Camera
FH-S□04,
4 million-pixel
(Using 3Z4S-LE VS-H1/SV-H Series)

3Z4S-LE

Legend:
- SV-10028H
- SV-7525H
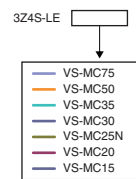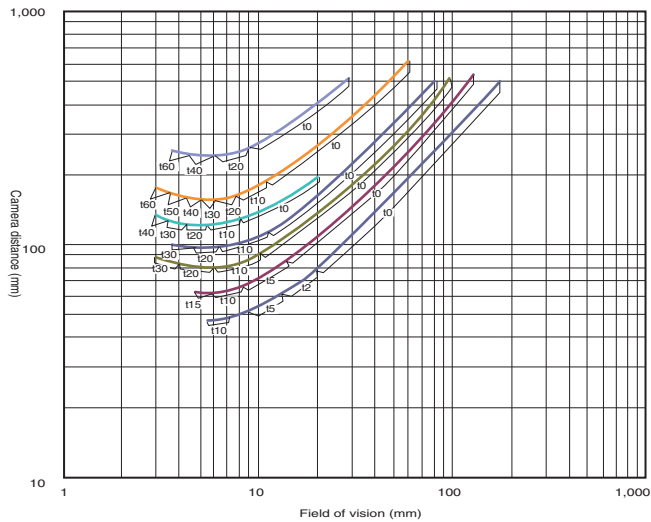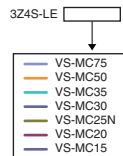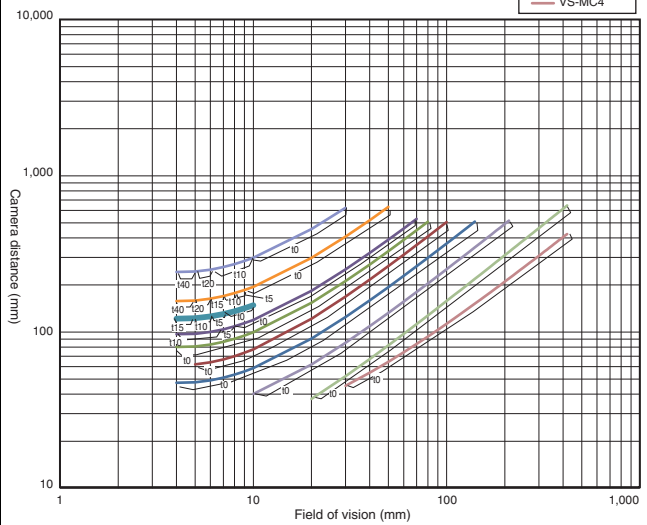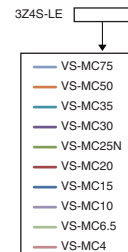- VS-5018H1
- VS-3514H1
- VS-2514H1
- VS-1614H1N
- VS-1214H1
- VS-0814H1
- VS-0618H1
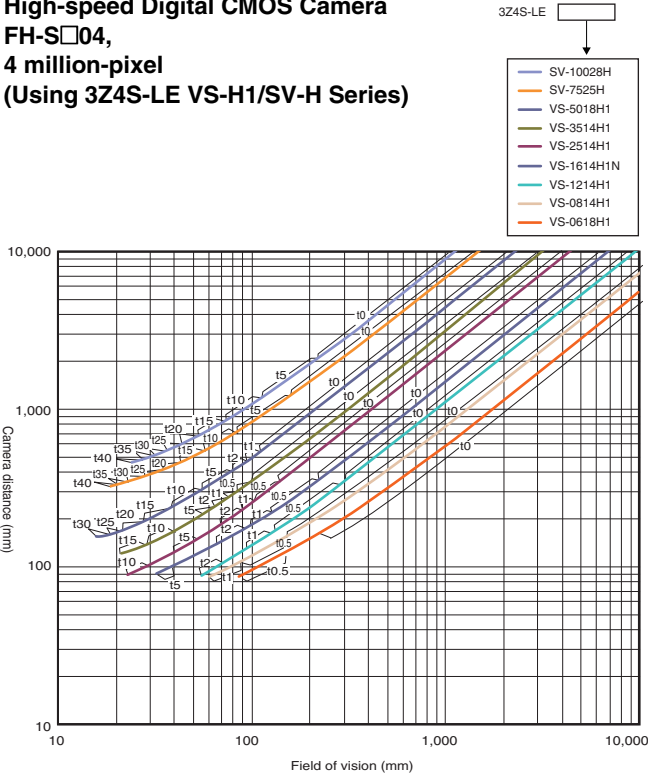
High-speed Digital CMOS Camera
FH-S□02,
2million-pixel
(Using 3Z4S-LE VS-H1/SV-H Series)

3Z4S-LE

Legend:
- SV-10028H
- SV-7525H
- VS-5018H1
- VS-3514H1
- VS-2514H1
- VS-1614H1N
- VS-1214H1
- VS-0814H1
- VS-0618H1
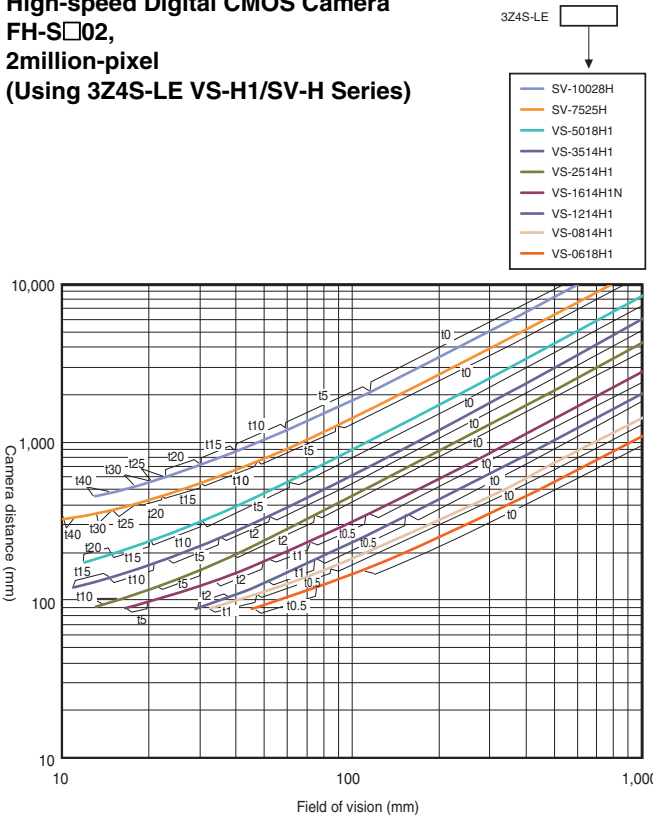
High-speed Digital CMOS Camera
FH-S□12,
12 million-pixel
(Using 3Z4S-LE VS-L/M42-10 Series)

3Z4S-LE

Legend:
- VS-L10028/M42-10
- VS-L8540/M42-10
- VS-L5028/M42-10
- VS-L3528/M42-10
- VS-L2526/M42-10
- VS-L1828/M42-10

Optical Chart
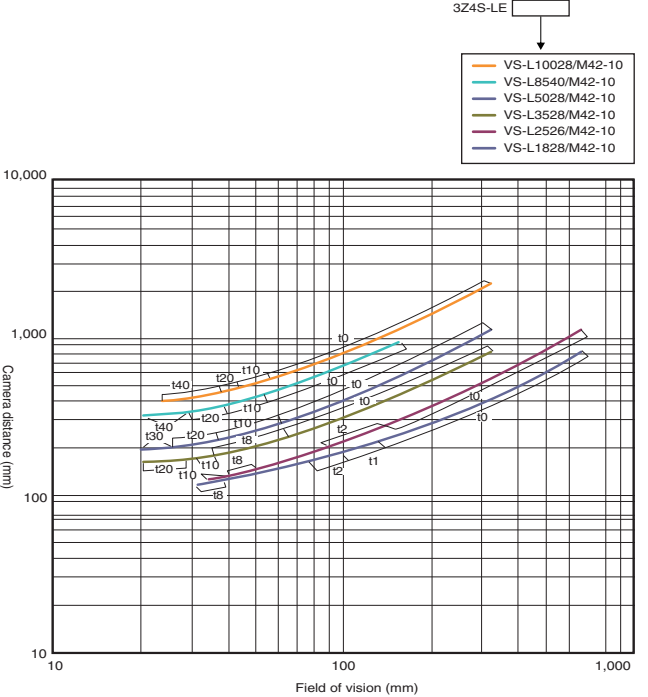
Vibration/Shock-resistance Lens

High-speed Digital CMOS Camera
FH-S□,
High-speed Digital CCD Camera
FZ-SH□,
Digital CCD Camera
FZ-S□,
300,000-pixel
(Using 3Z4S-LE VS-MC Series)

3Z4S-LE ☐

- VS-MC75
- VS-MC50
- VS-MC35
- VS-MC30
- VS-MC25N
- VS-MC20
- VS-MC15

Digital CCD Camera
FZ-S□5M3,
5 million-pixel
(Using 3Z4S-LE VS-MC Series)

3Z4S-LE ☐

- VS-MC75
- VS-MC50
- VS-MC35
- VS-MC30
- VS-MC25N
- VS-MC20
- VS-MC15

Digital CCD Camera
FZ-S□2M,
2 million-pixel
(Using 3Z4S-LE VS-MC Series)

3Z4S-LE ☐

- VS-MC75
- VS-MC50
- VS-MC35
- VS-MC30
- VS-MC25N
- VS-MC20
- VS-MC15

Digital CMOS Camera (Standalone):
FH-S□05R
5 million-pixel
(Using 3Z4S-LE VS-MC Series)

3Z4S-LE ☐

- VS-MC75
- VS-MC50
- VS-MC35
- VS-MC30
- VS-MC25N
- VS-MC20
- VS-MC15
- VS-MC10
- VS-MC6.5
- VS-MC4

Standard Models
FLV Series

High-brightness Models
FL Series

LED Characteristics

Lenses
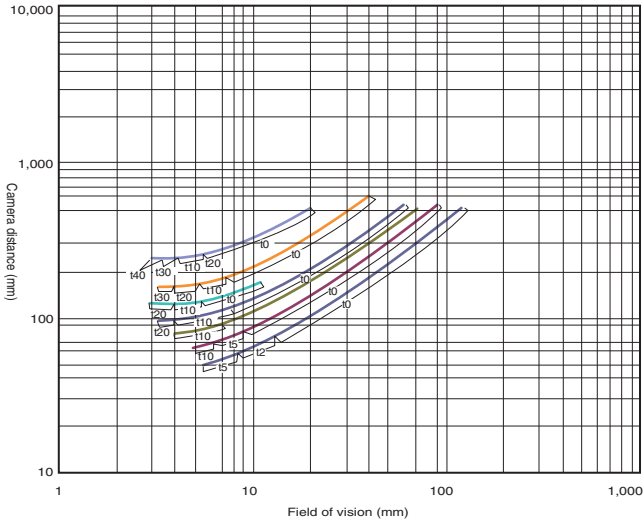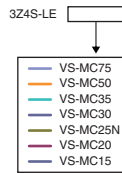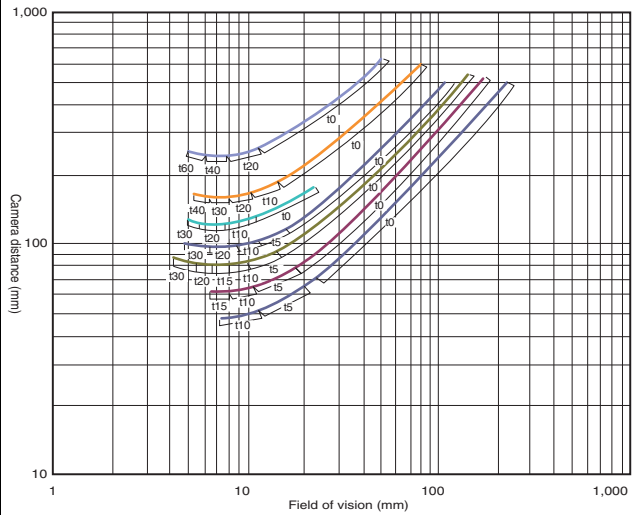
High-speed Digital CMOS Camera (Standalone)
FH-S□02
2 million-pixel
(Using 3Z4S-LE VS-MCH Series)

3Z4S-LE

- VS-MCH100
- VS-MCH75
- VS-MCH50
- VS-MCH35
- VS-MCH25
- VS-MCH16N
- VS-MCH12
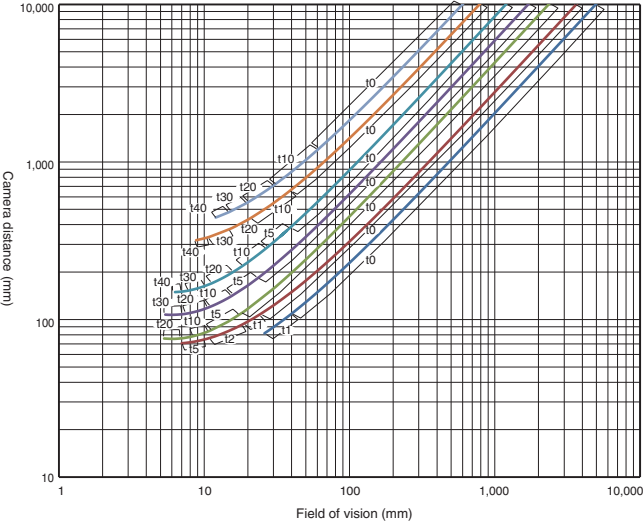
High-speed Digital CMOS Camera (Standalone)
FH-S□04
4 million-pixel
(Using 3Z4S-LE VS-MCH Series)

3Z4S-LE

- VS-MCH100
- VS-MCH75
- VS-MCH50
- VS-MCH35
- VS-MCH25
- VS-MCH16N
- VS-MCH12
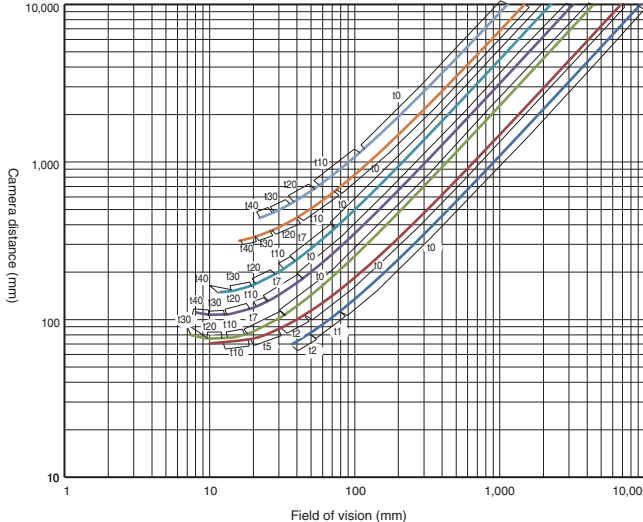
High-speed Digital CMOS Camera (Standalone)
FH-S□12
12 million-pixel
(Using 3Z4S-LE VS-MCL/M42 Series)

3Z4S-LE

- VS-MCL100/M42-10
- VS-MCL85/M42-10
- VS-MCL50/M42-10
- VS-MCL35/M42-10
- VS-MCL25/M42-10
- VS-MCL18/M42-10
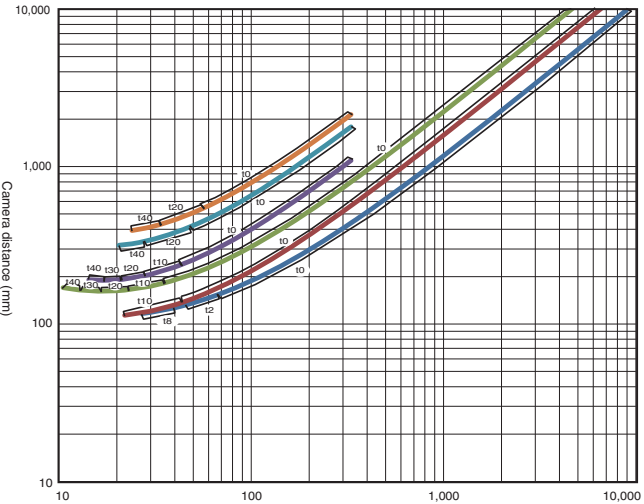
Safety Precautions

Precautions on Safety

●Meaning of Signal Word

In order for the product to be used safely, the following indication is used in this catalog to draw your attention to the cautions. The cautions with the indication describe the important contents for safety.

⚠ **WARNING**	**Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage.**

●Meaning of Alert Symbol

🚫	**Indicates general prohibitions for which there is no specific symbol.**

●Alert Statements

⚠ **WARNING**

This product is not designed or rated for ensuring safety of persons. Do not use it for such purposes.	🚫

It may cause permanent damage to vision. Do not look directly at the sun through the lens.	🚫

Precautions for Safe Use

The following points are important to ensure safety, so make sure that they are strictly observed.

1. Installation and Storage Sites

Do not install and store the product in locations subjected to the following conditions:
- Ambient temperature outside the rating
- Rapid temperature fluctuations (causing condensation)
- Presence of corrosive or flammable gases
- Presence of dust, salt, or iron particles
- Direct vibration or shock
- Strong ambient light (such as other laser beams or light from arc-welding machines)
- Direct sunlight or near heaters
- Water, oil, or chemical fumes or spray
- Near high-voltage equipment or power equipment

2. Installation
- Make sure to tighten all installation screws securely

3. Others
- Do not attempt to dismantle, repair, or modify the product.
- Do not drop, impose excessive vibration or shock on the product.
- If you notice an abnormal condition, immediately stop using the product and consult your OMRON representative.
- Be sure to dispose of the product as industrial waste.

Precautions for Correct Use

Observe the following precautions to prevent failure to operate, malfunctions, or undesirable effects on product performance.

1. Maintenance
- Clean the lens with a lens-cleaning cloth or air brush.
- Avoid blowing off foreign matter with your breath. Do not use thinner, benzene, acetone, or kerosene.

2. Using with Product from Other Manufacturer
- Refer to the manual of the product from other manufacturer for installation and replacement.

3. Others
- After removing the lens from the camera, do not leave it in a place exposed to direct sunlight. Failure to do so may cause a fire.

Terms and Conditions Agreement

Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

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