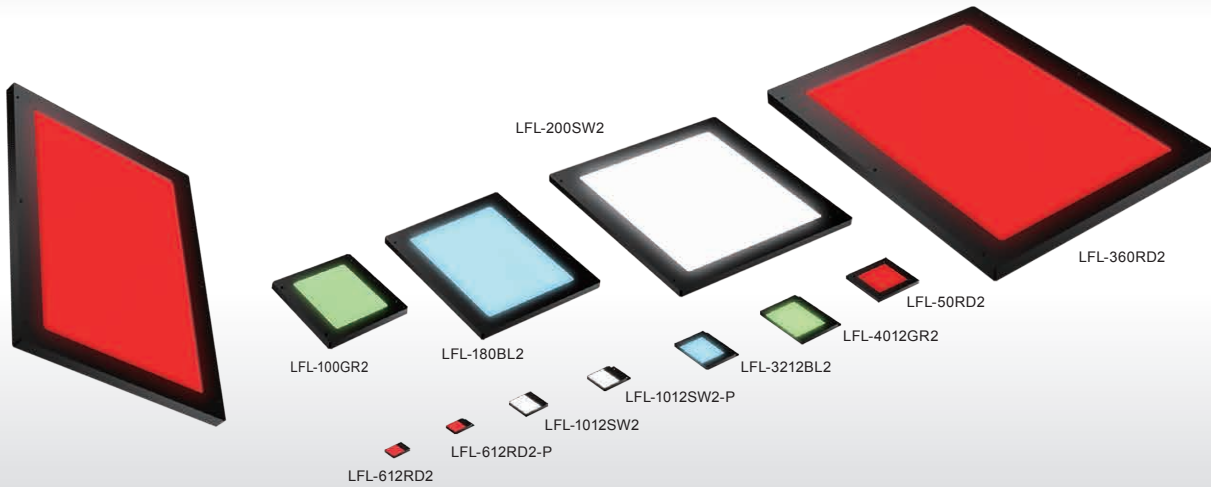




## Diffused illumination from a flat emitting surface



**Applications** Dimension measuring, visual inspection, foreign material inspections, liquid level inspection, burr inspection of metal parts, inspection for tears or stains on packaging, etc.

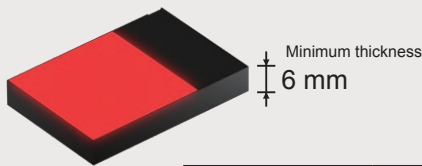
### Rich Lineup with 43 Models

#### Rich lineup

The lineup consists of 35 models, with 9 sizes of emitting surfaces from 25 x 25 mm to 360 x 250 mm in each color. The rich lineup has a total of 43 models, including the LFL-612-P and LFL-1012-P, which add a plate for installation to the housing.

#### Energy-saving type that is light-weight and thin

The light unit's thin design, with a minimum thickness of 6 mm, allows for space-saving installation.

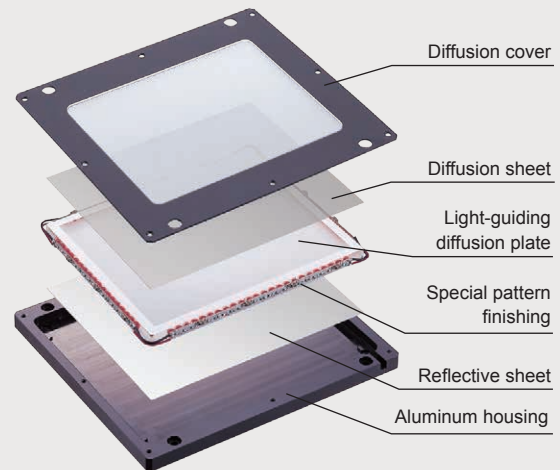


Model Name	LFL-612RD2
Power Consumption	24 V / 0.6 W
Weight	25 g

### Uses a Unique Method of Light Guidance

LEDs are placed around the light-guiding diffusion plate. The special pattern finishing achieves illumination with even greater diffusion.

#### Cross-section image of the LFL-100



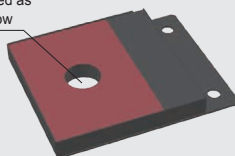
### Custom Order Example

Please contact your CCS sales representative.

E.g.: Different shape

Allows you to create a light unit with a hole in it and pass things through the center

Can also be used as a camera window

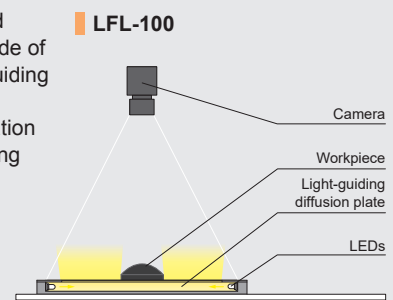


#### Customizable items

- External/internal diameter
  - Wavelength/color
  - Increase output
  - Cable length
  - Illuminating angle
  - Format/material
  - Connector format
  - Installation/mounting
- Etc.

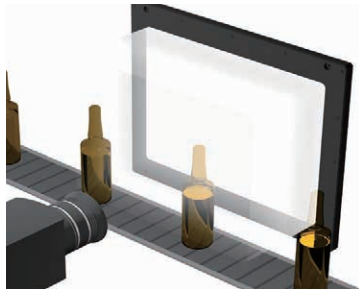
### Example Configuration

LEDs embedded around the outside of a square light-guiding diffusion plate. Diffused illumination from a flat emitting surface.



Ring (Direct)	LDR2 LDR2-LA LDR-LA1 SQR SQR-TP
Ring (Convergent/Diffused)	HLDR3 HPR2 LFR LKR FPR
Square	FPQ3
Bar	LDL2 LDLB HLDL3 LB
Flat	TH2 (5 types) LFL
Dome	HPD2 LDM2 LAV PDM LFXV LFX3 LFX3-PT
Coaxial	LFV3 LFV3-G
Coaxial	MSU MFU
Strobe	PF
Water-proof	HLDR-IP HSL-PCL
COB	Small COB Lights
UV/Violet	UV3/VL3 UV LNSP-UV3-FN
Infrared	IR2 (Under 1000-nm Type) IR (Over 1000-nm Type) CIR
Intensity Control	IU
Spot, Etc.	HLV3 LV LSP HFS/HFR HLV3-22-4-NR HLV3-3M-RGB-4 PFBR-600SW2 PFBR-150 PFBR3
Line (Convergent)	LNLP LNSP2 Coaxial Units LNSP-FN LN/LN-HK
Line (Diffused)	LNSD LND2 LT LNV LFXV (Rectangular Type) TH2 (Rectangular Type)
Line (Oblique Angled)	LNDG LNIS2 LNIS LNIS-FN
Lens	Telecentric Lens Macro Lens

### ➤ Imaging Example: Imaging the Liquid Level in Glass Containers



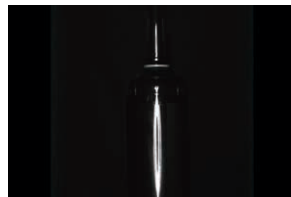
Description	Liquid volume inspection
Workpiece	Glass containers
Conventional lighting	LED Ring Light
New lighting	LFL-180SW2
Result	Emphasizes the level of the liquid

Workpiece image



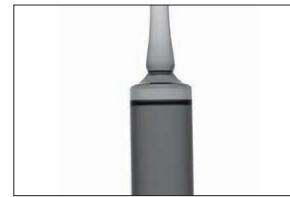
Glass containers

LED Ring Light



It is difficult to form an image of the liquid level due to surface reflection.

LFL-180SW2



It is possible to form an image of the liquid level without surface reflection.

### ➤ Imaging Example: Imaging the Liquid Level in Plastic Containers



Description	Liquid volume inspection
Workpiece	Plastic containers
Conventional lighting	LED Ring Light
New lighting	LFL-180SW2
Result	Emphasizes the level of the liquid

Workpiece image



Plastic containers

LED Ring Light



It is difficult to form an image of the liquid level due to surface reflection.

LFL-180SW2



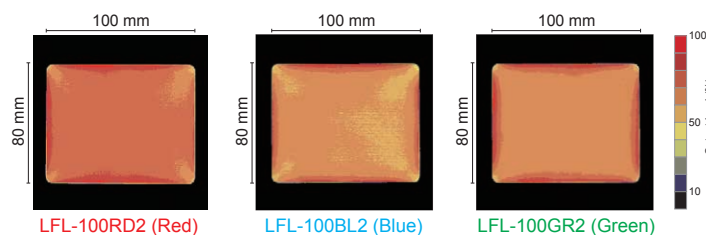
It is possible to form an image of the liquid level without surface reflection.

### ➤ Data: Uniformity (Representative Example)

LFL-100

The data included is for reference only. Actual values may vary.

Uniformity (Relative radiance)



LDR2 LDR2-LA LDR-LA1 SQR SQR-TP	Ring (Direct)
HLDR3 HPR2 LFR LKR FPR	Ring (Convergent/Diffused)
FPQ3	Square
LDL2 LDLB HLDL3 LB	Bar
TH2 (5 types) LFL	Flat
HPD2 LDM2 LAV PDM LFXV LFX3 LFX3-PT	Dome
LFV3 LFV3-G	Coaxial
MSU MFU	Coaxial
PF	Strobe
HLDR-IP HSL-PCL	Water-proof
Small COB Lights	COB
UV3/VL3 UV LNSP-UV3-FN	UV / Violet
IR2 (Under 1000-nm Type) IF (Over 1000-nm Type) CIR	Infrared
IU	Intensity Control
HLV3 LV LSP HFS/HFR HLV3-22-4-NR HLV3-3M-RGB-4 PFBR-600SW2 PFBR-150 PFBR3	Spot, Etc.
LNLP LNSP2 Coaxial Units LNSP-FN LN/LN-HK	Line (Convergent)
LNSD LND2 LT LNV LFXV (Rectangular Type) TH2 (Rectangular Type)	Line (Diffused)
LNDG LNIS2 LNIS LNIS-FN	Line (Oblique Angled)
Telecentric Lens Macro Lens	Lenses

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- Product Details
- Pricing/Quotation
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# LFL Series



Refer to our website for product details.

CCS LFL

Search



## Lineup

“-P” at the end of the model name: Type with an affixing plate

Model Name*1	Input Voltage	Power Consumption				Options	Extension Cables	Recommended Control Units		Weight
		RD (Red)	SW (White)	BL (Blue)	GR (Green)					
LFL-612□□2*2	24 V	0.6 W	0.4 W	0.4 W	0.4 W	-	FCB*4 Straight Cable	PD4	PD3*2	25 g *SW is 20 g
LFL-612□□2-P*2	24 V	0.6 W	0.4 W	0.4 W	0.4 W			CC-ST-1024	POD*3	25 g
LFL-1012□□2	24 V	0.6 W	0.8 W	0.8 W	0.8 W	-	FCB-W*5 2-Branch Cable	-	-	35 g *SW is 30 g
LFL-1012□□2-P	24 V	0.6 W	0.8 W	0.8 W	0.8 W					35 g *SW is 30 g
LFL-3212□□2	24 V	1.6 W	2.3 W	2.3 W	2.3 W	-	FCB-F 4-Branch Cable	PD4	PD3	80 g
LFL-4012□□2	24 V	2.1 W	2.7 W	2.7 W	2.7 W			CC-ST-1024	POD*3	105 g *SW is 110 g
LFL-50□□2	24 V	2.1 W	3.1 W	3.0 W	3.0 W	-	FRCB Robot Cable	-	-	50 g
LFL-100□□2	24 V	5.1 W	5.3 W	5.3 W	5.3 W					215 g *SW is 220 g
LFL-180□□2	24 V	7.1 W	9.1 W	9.1 W	9.1 W	Light control film	*4 The cables with a model name that ends with "-ME7", "-EL2", "-PF", or "-PF-EL9" are not included. *5 The cables with a model name that ends with "-EL2" are not included.	-	-	375 g *SW is 370 g
LFL-200□□2	24 V	12 W	12 W	12 W	12 W	500 g *BL, GR are 495 g				
LFL-360□□2	24 V	30 W	37 W	38 W	-	-	PD4	PD3	2,320 g *RD is 2,360 g	

LED Properties: Spectral Distribution ▶ P.396

Extension Cables ▶ P.371

Control Unit Selection Guide ▶ P.305

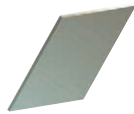
List of Control Unit Specifications ▶ P.307

\*1 □□ in the model name contains the LED color. (RD: Red, SW: White, BL: Blue, GR: Green)

\*2 These red lights cannot be used with the PD3-5024-4-SI or PD3-5024-4-ET control unit.

\*3 For information on the combination of light units and POD Series control unit, please refer to our website. <https://www.ccs-grp.com/lnk/qr/pod>

## Options



In this plastic film are fine louvers with extremely narrow gaps between them. It reduces light diffusion in a particular direction and increases parallelism.

### Light control film

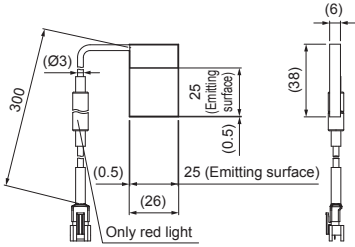
Model Name	Applicable Light Unit (Common for all colors)
LC-LFL-100	LFL-100
LC-LFL-180	LFL-180
LC-LFL-200	LFL-200

▶ P.367

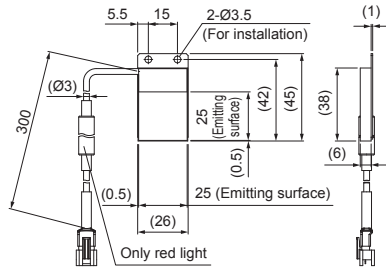
Ring (Direct)	LDR2 LDR2-LA LDR-LA1 SQR SQR-TP
Ring (Convergent / Diffused)	HLDR3 HPR2 LFR LKR FPR
Square	FPQ3
Bar	LDL2 LDLB HLDL3 LB
Flat	TH2 (5 types) LFL
Dome	HPD2 LDM2 LAV PDM LFXV LFX3 LFX3-PT
Coaxial	LFV3 LFV3-G
Strobe	MSU MFU
Water-proof	PF
COB	HLDR-IP HSL-PCL
UV / Violet	Small COB Lights UV3/VL3 UV LNSP-UV3-FN
Infrared	IR2 (Under 1000-nm Type) IR (Over 1000-nm Type) CIR
Intensity Control	IU
Spot, Etc.	HLV3 LV LSP HFS/HFR HLV3-22-4-NR HLV3-3M-RGB-4 PFBR-600SW2 PFBR-150 PFBR3
Line (Convergent)	LNLP LNSP2 Coaxial Units LNSP-FN LN/LN-HK
Line (Diffused)	LNSD LND2 LT LNV LFXV (Rectangular Type) TH2 (Rectangular Type)
Line (Oblique Angled)	LNDG LNIS2 LNIS LNIS-FN
Lenses	Telecentric Lens Macro Lens

➤ **Dimensions (mm)**

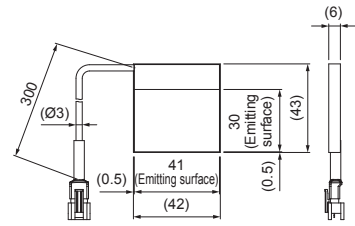
LFL-612RD2/SW2/BL2/GR2



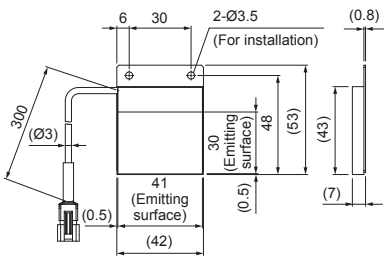
LFL-612RD2-P / SW2-P / BL2-P / GR2-P



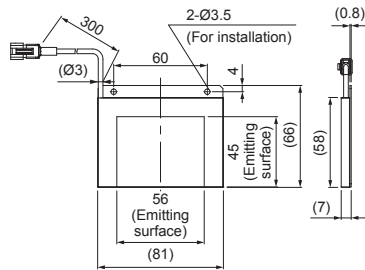
LFL-1012RD2/SW2/BL2/GR2



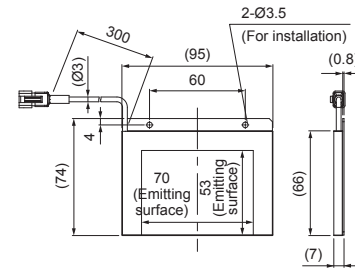
LFL-1012RD2-P / SW2-P / BL2-P / GR2-P



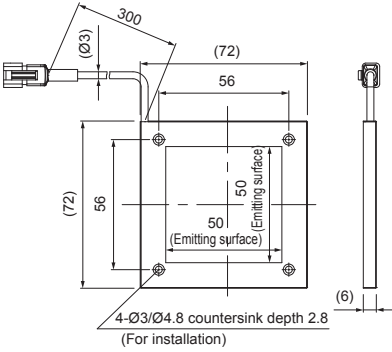
LFL-3212RD2/SW2/BL2/GR2



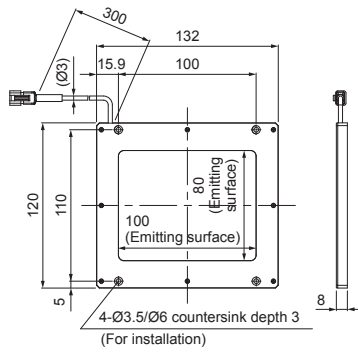
LFL-4012RD2/SW2/BL2/GR2



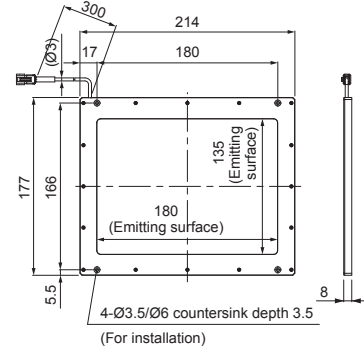
LFL-50RD2/SW2/BL2/GR2



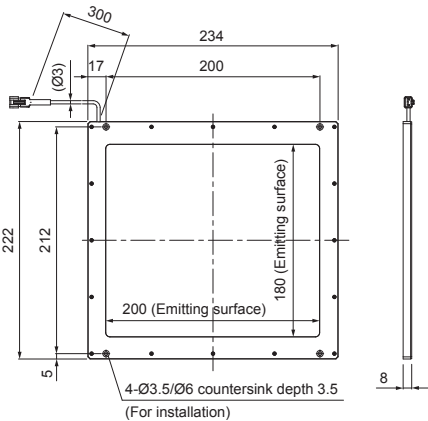
LFL-100RD2/SW2/BL2/GR2



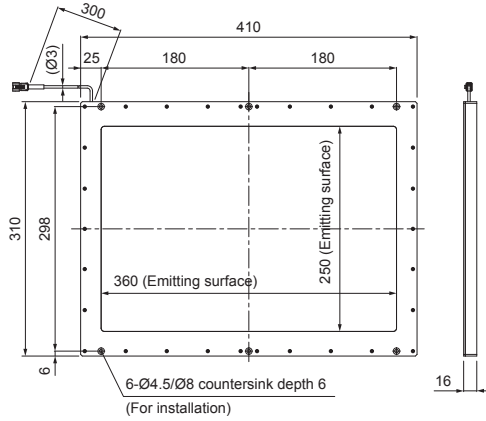
LFL-180RD2/SW2/BL2/GR2



LFL-200RD2/SW2/BL2/GR2



LFL-360RD2/SW2/BL2



LDR2	Ring (Direct)
LDR2-LA	Ring (Direct)
LDR-LA1	Ring (Direct)
SQR	Ring (Direct)
SQR-TP	Ring (Direct)
HLDR3	Ring (Convergent/Diffused)
HPR2	Ring (Convergent/Diffused)
LFR	Ring (Convergent/Diffused)
LKR	Ring (Convergent/Diffused)
FPR	Ring (Convergent/Diffused)
FPQ3	Square
LDL2	Bar
LDLB	Bar
HLDL3	Bar
LB	Bar
TH2 (5 types)	Flat
LFL	Flat
HPD2	Dome
LDM2	Dome
LAV	Dome
PDM	Dome
LFXV	Dome
LFX3	Dome
LFX3-PT	Dome
LFV3	Coaxial
LFV3-G	Coaxial
MSU	Coaxial
MFU	Coaxial
PF	Strobe
HLDR-IP	Water-proof
HSL-PCL	Water-proof
Small COB Lights	COB
UV3/VL3	UV / Violet
UV	UV / Violet
LNSP-UV3-FN	UV / Violet
IR2 (Under 1000-nm Type)	Infrared
IF (Over 1000-nm Type)	Infrared
CIR	Infrared
IU	Intensity Control
HLV3	Spot, Etc.
LV	Spot, Etc.
LSP	Spot, Etc.
HFS/HFR	Spot, Etc.
HLV3-22-4-NR	Spot, Etc.
HLV3-3M-RGB-4	Spot, Etc.
PFBR-600SW2	Spot, Etc.
PFBR-150	Spot, Etc.
PFB3	Spot, Etc.
LNLN	Line (Convergent)
LNSP2	Line (Convergent)
Coaxial Units	Line (Convergent)
LNSP-FN	Line (Convergent)
LN/LN-HK	Line (Convergent)
LNSD	Line (Diffused)
LND2	Line (Diffused)
LT	Line (Diffused)
LNV	Line (Diffused)
LFXV (Rectangular Type)	Line (Diffused)
TH2 (Rectangular Type)	Line (Diffused)
LNDG	Line (Oblique Angled)
LNIS2	Line (Oblique Angled)
LNIS	Line (Oblique Angled)
LNIS-FN	Line (Oblique Angled)
Telecentric Lens	Lenses
Macro Lens	Lenses

You can change the connectors of the light unit cable. Choose between M12 connectors and flying leads. Refer to P.19 for details.

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