

# Coaxial Lights

## LFV3 series

Refer to our website for product details.


You can also use your smartphone or cell phone.

For quick access.

Provides diffused light evenly from the same axis as the camera



For information on change in model names, refer to P.113.

### Applications

Inspection for fault, damage, scratches, or dents on glossy surfaces or mirrors; pattern inspection on printed circuit boards; dimension measuring for glass; inspection for damage and dents on resin molded products; etc.

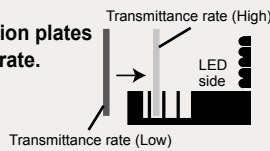
### Freely customize the diffusion

#### Customize the diffusion

Diffusion plate status	Result
Change the transmittance rate from (high) to (low)	Increased uniformity
Change the installation position to the LED side	Emphasized directionality

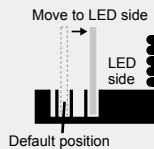
#### 1) Prepared two types of diffusion plates with different transmittance rate.

Replace the diffusion plate to change the transmittance rate.



#### 2) The installation position of the diffusion plate can be adjusted.

Change the position to achieve various imaging effects.



#### LFV3-CP series

Replacing the half-mirror with a beam splitter increased accuracy. It is perfect for tiny workpieces and environments with limited installation space.



LFV3-CP-13SW

### Coaxial Light that supports high-resolution cameras

Highly-accurate optical glass is used for the camera window and the half-mirror. This allows for stable imaging when using high-resolution cameras.

#### LFV3 series, a Coaxial Light with improved quality

##### Uses optical glass

For the camera window and half-mirror, we used optical glass which is also used for interference tests for laser sources. Its optical glass with a profile irregularity of 0.3 μm. \* In our evaluation

##### Expanded area for the camera window

By making the camera window wider, we ensured a larger field of vision.

##### Used an aluminum body

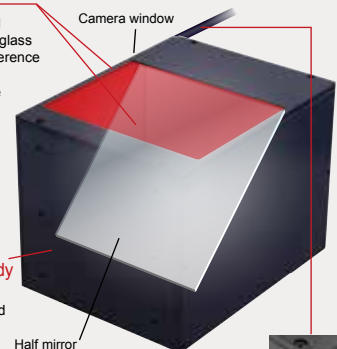
Used aluminum alloy to improve heat dissipation and achieve a durable body.

##### Increased Light Unit installation holes

We increased the number of installation holes for the Light Unit. Various installation directions are supported.

##### Can be installed to the cable surface

The cable can be bent flat in relation to the installation surface.

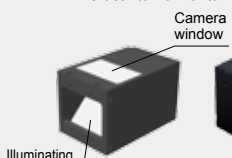


This description excludes the LFV3-CP-13 series and the LFV3-CP-18 series.

### Custom orders

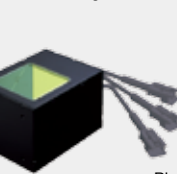
E.g.: Different shape

Created a Light Unit that changed the illuminating port from vertical to horizontal



E.g.: Different color

Creating a full color (RGB) Light Unit



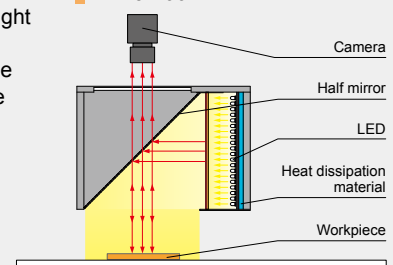
- External/internal diameter
- Wavelength/color
- Increase output
- Cable length
- Illuminating angle
- Format/material
- Connector format
- Installation/mounting
- Etc.

Please contact your CCS sales representative.

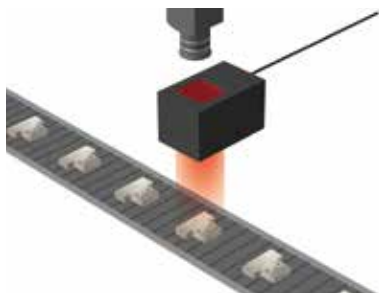
### Example configuration

By using the half mirror, diffused light from the LED is illuminated on the same axis as the camera axis.

#### LFV3-100



## Imaging example : Imaging of engraved text on a metal connector hood



Description	Character recognition
Workpiece	Connector hood
Conventional lighting	LED Bar Light
New lighting	LFV3-50RD(A)
Result	Emphasizes the engraved text

### Workpiece image



Metal connector hood

### LED Bar Light



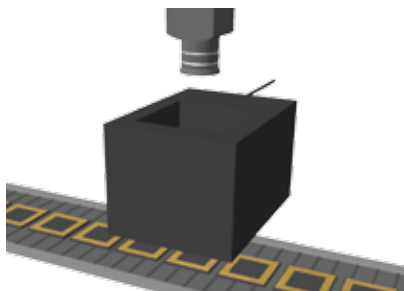
It is difficult to read the text engraved on the surface.

### LFV3-50RD(A)



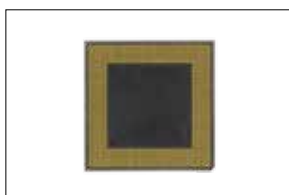
Effect from the surface unevenness is reduced and a clear image of the engraved text can be made.

## Imaging example : Imaging for circuit board through holes



Description	Visual inspection
Workpiece	Circuit board
Conventional lighting	LED Ring Light
New lighting	LFV3-100RD(A)
Result	Improved uniformity

### Workpiece image



Circuit board

### LED Ring Light



With a Ring Light, it is difficult to form an image of the difference between the foundation and the through hole.

### LFV3-100RD(A)



It is possible to form a clear image of the difference between the foundation and the through hole.

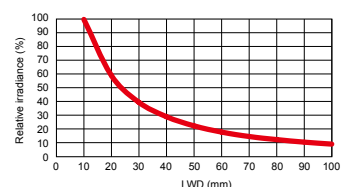
## Data: Relative irradiance graph and uniformity (Representative example)

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

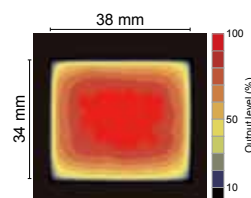
### LFV3-35RD(A)

#### Relative irradiance graph (LWD Characteristics)<sup>\*1</sup>

\*1: Irradiance on the optical axis  
\*2: Illuminating distance from the Light Unit to the workpiece



#### Uniformity (Relative radiance)



# LFV3 series



Refer to our website for product details.

CCS LFV3

Search



You can also use your smartphone or cell phone.

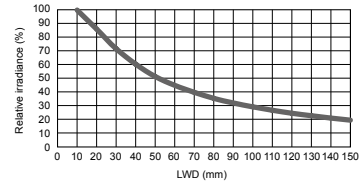
For quick access.

## Data: Relative irradiance graph and uniformity (Representative example)

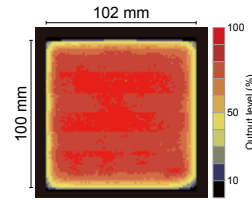
### LFV3-100SW(A)

Relative irradiance graph (LWD Characteristics)<sup>\*1</sup>

\*1: Irradiance on the optical axis  
\*2: Illuminating distance from the Light Unit to the workpiece



### Uniformity (Relative radiance)



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

## Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Extension cables	Recommended Control Units	Weight
LFV3-34RD(A)	Red	24 V / 3.7 W	635 nm	-		<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	80 g
LFV3-34SW(A)	White	24 V / 3.2 W	6,000 K				
LFV3-34BL(A)	Blue		470 nm				
LFV3-35RD(A)	Red	24 V / 3.1 W	630 nm	<input type="checkbox"/> Diffusion plate <input type="checkbox"/> Polarizing plate <input type="checkbox"/> Light control film		<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	175 g
LFV3-35SW(A)	White	24 V / 3.7 W	6,500 K				
LFV3-35BL(A)	Blue	24 V / 3.1 W	460 nm				
LFV3-40RD(A)	Red	24 V / 4.6 W	635 nm	-		<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <sup>2</sup> <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	100 g
LFV3-40SW(A)	White		6,000 K				
LFV3-40BL(A)	Blue		470 nm				
LFV3-50RD(A)	Red	24 V / 8.1 W	630 nm	<input type="checkbox"/> Diffusion plate <input type="checkbox"/> Polarizing plate <input type="checkbox"/> Light control film	<input type="checkbox"/> FCB* <sup>4</sup> Straight Cable <input type="checkbox"/> FCB-W 2-branch Cable <input type="checkbox"/> FCB-F 4-branch Cable <input type="checkbox"/> FRCB Robot Cable	<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <sup>2</sup> <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	335 g
LFV3-50SW(A)	White	24 V / 11 W	6,500 K				
LFV3-50BL(A)	Blue	24 V / 9.1 W	460 nm				
LFV3-50X100RD(A)	Red	24 V / 17 W	630 nm	<input type="checkbox"/> Diffusion plate <input type="checkbox"/> Polarizing plate <input type="checkbox"/> Light control film	<input type="checkbox"/> FCB* <sup>4</sup> Straight Cable <input type="checkbox"/> FCB-W 2-branch Cable <input type="checkbox"/> FCB-F 4-branch Cable <input type="checkbox"/> FRCB Robot Cable	<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <sup>2</sup> <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	530 g
LFV3-50X100SW(A)	White	24 V / 20 W	6,500 K				
LFV3-50X100BL(A)	Blue	24 V / 17 W	460 nm				
LFV3-70RD(A)	Red	24 V / 13 W	630 nm	<input type="checkbox"/> Diffusion plate <input type="checkbox"/> Polarizing plate <input type="checkbox"/> Light control film	<input type="checkbox"/> FCB* <sup>4</sup> Straight Cable <input type="checkbox"/> FCB-W 2-branch Cable <input type="checkbox"/> FCB-F 4-branch Cable <input type="checkbox"/> FRCB Robot Cable	<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <sup>2</sup> <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	620 g
LFV3-70SW(A)	White	24 V / 19 W	6,500 K				
LFV3-70BL(A)	Blue	24 V / 16 W	460 nm				
LFV3-100RD(A)	Red	24 V / 22 W	630 nm	<input type="checkbox"/> Diffusion plate <input type="checkbox"/> Polarizing plate <input type="checkbox"/> Light control film	<input type="checkbox"/> FCB* <sup>4</sup> Straight Cable <input type="checkbox"/> FCB-W 2-branch Cable <input type="checkbox"/> FCB-F 4-branch Cable <input type="checkbox"/> FRCB Robot Cable	<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <sup>2</sup> <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	1,060 g
LFV3-100SW(A)	White	24 V / 27 W	6,500 K				
LFV3-100BL(A)	Blue		460 nm				
LFV3-130RD(A)	Red	24 V / 31 W	630 nm	<input type="checkbox"/> Diffusion plate <input type="checkbox"/> Polarizing plate <input type="checkbox"/> Light control film	<input type="checkbox"/> FCB* <sup>4</sup> Straight Cable <input type="checkbox"/> FCB-W 2-branch Cable <input type="checkbox"/> FCB-F 4-branch Cable <input type="checkbox"/> FRCB Robot Cable	<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <sup>2</sup> <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	1,750 g
LFV3-130SW(A)	White	24 V / 46 W	6,500 K				
LFV3-130BL(A)	Blue	24 V / 38 W	460 nm				
LFV3-200RD(A)	Red	24 V / 43 W	630 nm	<input type="checkbox"/> Diffusion plate <input type="checkbox"/> Polarizing plate <input type="checkbox"/> Light control film	<input type="checkbox"/> FCB* <sup>4</sup> Straight Cable <input type="checkbox"/> FCB-W 2-branch Cable <input type="checkbox"/> FCB-F 4-branch Cable <input type="checkbox"/> FRCB Robot Cable	<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <sup>2</sup> <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	4,350 g
LFV3-200SW(A)	White	24 V / 60 W	6,500 K				
LFV3-200BL(A)	Blue	24 V / 53 W	460 nm				
LFV3-CP-13RD	Red	24 V / 2.1 W	635 nm	-		<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	37 g
LFV3-CP-13SW	White	24 V / 2.3 W	6,000 K				
LFV3-CP-13BL	Blue	24 V / 1.3 W	470 nm				
LFV3-CP-18RD	Red	24 V / 3.3 W	635 nm				
LFV3-CP-18SW	White	24 V / 4.1 W	6,000 K				
LFV3-CP-18BL	Blue	24 V / 3.4 W	470 nm			<input type="checkbox"/> PD3 <input type="checkbox"/> CC-ST-1024 <input type="checkbox"/> PSB <input type="checkbox"/> POD* <sup>1</sup>	70 g

Extension Cables ▶ P.280

Control Unit Selection Guide ▶ P.229

List of Control Unit Specifications ▶ P.231

\*1: For information on the combination of Light Units and POD-series Control Unit, please refer to our website. <http://www.ccs-grp.com/lnk/qr/pod>

### Change in model names

The suffix "(A)" has been added to the end of several model names, e.g. "LFV3-34RD" has been changed to "LFV3-34RD(A)".

Reason	Effect on functions and performance	Relevant models (applicable to all colors)
Due to part manufacturer's circumstances, some optical parts were expected to become difficult to obtain. CCS has changed these parts with those of comparable performance.	The functions and performance of the Light Units have not been affected.	LFV3-34(A)/LFV3-35(A)/LFV3-40(A)/LFV3-50(A)/LFV3-50X100(A)/LFV3-70(A)/LFV3-100(A)/LFV3-130(A)/LFV3-200(A)

Various technical documents available.

- PDF Drawings
- DXF Drawings
- 3D CAD
- Instruction Guides
- Product Filers
- Imaging Samples
- Data Sheets
- Examples of Custom Ordered Products

Download here. <http://www.ccs-grp.com/dl/>

## Options

Diffusion plate (Light color)



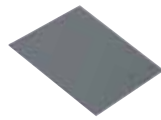
Transmittance rate: High

Diffusion plate (Deep color)

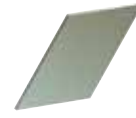
Transmittance rate: Low  
(End of the model name: -UF)

Replace the default diffusion plate to change the transmittance rate.

When selecting, be aware that the default diffusion plate varies based on the emitted color.



Use with a polarizing filter to remove the light's surface reflection.



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

### Diffusion plate

Model name	Applicable Light Unit (Common for all colors)
DF-LFV3-35	LFV3-35(A)
DF-LFV3-50	LFV3-50(A)
DF-LFV3-50X100	LFV3-50X100(A)
DF-LFV3-70	LFV3-70(A)
DF-LFV3-100	LFV3-100(A)
DF-LFV3-130	LFV3-130(A)
DF-LFV3-200	LFV3-200(A)

Model name	Applicable Light Unit (Common for all colors)
DF-LFV3-35-UF	LFV3-35(A)
DF-LFV3-50-UF	LFV3-50(A)
DF-LFV3-50X100-UF	LFV3-50X100(A)
DF-LFV3-70-UF	LFV3-70(A)
DF-LFV3-100-UF	LFV3-100(A)
DF-LFV3-130-UF	LFV3-130(A)
DF-LFV3-200-UF	LFV3-200(A)

### Polarizing plate

Model name	Applicable Light Unit (Common for all colors)
PL-LFV3-35	LFV3-35(A)
PL-LFV3-50	LFV3-50(A)
PL-LFV3-50X100	LFV3-50X100(A)
PL-LFV3-70	LFV3-70(A)
PL-LFV3-100	LFV3-100(A)
PL-LFV3-130	LFV3-130(A)
PL-LFV3-200	LFV3-200(A)

### Light control film

Model name	Applicable Light Unit (Common for all colors)
LC-LFV3-35	LFV3-35(A)
LC-LFV3-50	LFV3-50(A)
LC-LFV3-50X100	LFV3-50X100(A)
LC-LFV3-70	LFV3-70(A)
LC-LFV3-100	LFV3-100(A)
LC-LFV3-130	LFV3-130(A)
LC-LFV3-200	LFV3-200(A)

▶ P.274

▶ P.275

▶ P.276

## Regarding changing the diffusion plate and adjusting the position

### Models that support replacing the diffusion plate

Model (Common for all colors)

LFV3-35/50/50X100/70/100/130/200

The LFV3-34/40/CP-13/CP-18 does not support this feature.

### Models that support adjusting the position of the diffusion plate

Model (Common for all colors)

LFV3-50/50X100/70/100/130/200

The LFV3-34/35/40/CP-13/CP-18 does not support this feature.

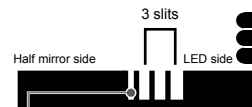
### Regarding the default diffusion plate

LFV3-35/50/50X100/70/100/130/200

Red light, white light	Blue light
Diffusion plate (Light color) is default	Diffusion plate (Deep color) is default
Transmittance rate: High	Transmittance rate: Low (End of the model name: -UF)

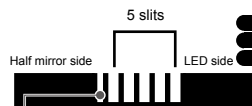
### Position adjustment slit

For the LFV3-50/50X100/70

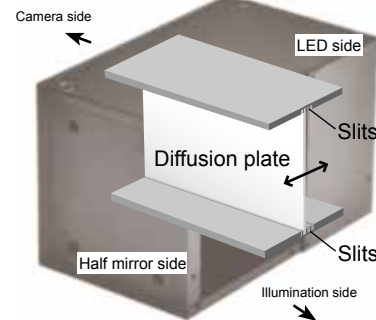


Slit for installing a polarizing plate or light control film

For the LFV3-100/130/200



Slit for installing a polarizing plate or light control film

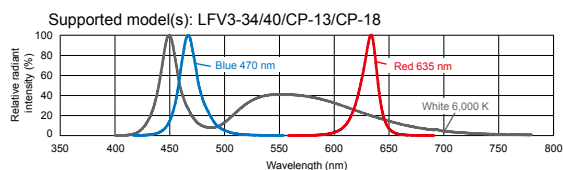
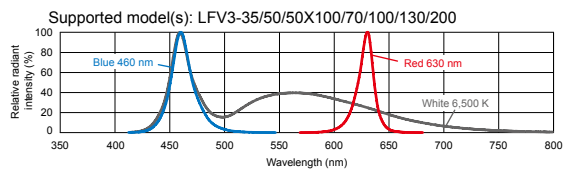


Conceptual image

For details about replacing the diffusion plate or adjusting the position, refer to the "Instruction Guide" included with the product.

## LED properties

### Spectral distribution



CCS offers you the most suitable lens filter for each wavelength. For details about the lens filter, refer to P.271.

Be sure to read the "Instruction Guide" included with the product before use and follow the safety precautions upon use. The data included is for reference only. Actual values may vary.

For details about determining the field of view for the Coaxial Light, refer to "Determining the field of view of coaxial lighting" on P. 287 in the Technical Guide.

You can inquire using our website.

Requests for Light Unit Selection

Requests for Loan Products

Requests for Estimates

Requests for a Catalog

Product Inquiries

Other Inquiries

Inquire on our website here.  
<http://www.ccs-grp.com/contact/>

Direct Lighting	LDR2
	LDR2-LA
	LDR-LA1
	SQR
	SQR-TP
Diffused Lighting	HPR2
	LFR
	LKR
	FPR
	FPQ2
	LDL2
Direct Lighting	LDLB
	HLDL2
	HL
	TH2 (5 types)
	TH
	LFL
Diffused Lighting	HPD2
	LDM2
	LAV
	PDM
	LFX3
	LFX3-PT
	LFX2
	LFV3
Calculated Lighting	MSU
	MFU
Strobe Lighting	PF
Water-proof	HLDR-IP/IO/HSL-PCL
Ultraviolet Lighting	UV2
	UV
	LNSP-UV-FN
Infrared Lighting	IR2
Intensity Control	IU
Spot Lighting, Etc.	HLV2
	LV
	LSP
	HFS/HFR
	HLV2-NR
	HLV2-3M-RGB-3W
	PFBR
	PFB2
Convergent Lighting	LNLP
	LNSP2
	LNSP
	Coaxial Units
	LNSP-FN
	LN/LN-HK
Diffused Lighting	LNSD
	LND2
	HLND
	LT
	LNV/HLDN
Oblique Angled Lighting	LNDG
	LNIS
	LNIS-FN
Lenses	Telecentric Lens
	Macro Lens

LDR2	Direct Lighting
LDR2-LA	Direct Lighting
LDR-LA1	Direct Lighting
SQR	Direct Lighting
SQR-TP	Direct Lighting
HPR2	Direct Lighting
LFR	Diffused Lighting
LKR	Diffused Lighting
FPR	Diffused Lighting
FPQ2	Diffused Lighting
LDL2	Direct Lighting
LDLB	Direct Lighting
HLDL2	Direct Lighting
HL	Direct Lighting
TH2 (5 types)	Diffused Lighting
TH	Diffused Lighting
LFL	Diffused Lighting
HPD2	Diffused Lighting
LDM2	Diffused Lighting
LAV	Diffused Lighting
PDM	Diffused Lighting
LFX3	Diffused Lighting
LFX3-PT	Diffused Lighting
LFX2	Diffused Lighting
LFX3	Diffused Lighting
MSU	Collimated Lighting
MFU	Collimated Lighting
PF	Strobe Lighting
HLDR-IP/IQ/HSL-PCL	Water-proof
UV2	Ultraviolet Lighting
UV	Ultraviolet Lighting
LNSP-UV-FN	Ultraviolet Lighting
IR2	Infrared Lighting
IU	Intensity Control
HLV2	Spot Lighting, Etc.
LV	Spot Lighting, Etc.
LSP	Spot Lighting, Etc.
HFS/HFR	Spot Lighting, Etc.
HLV2-NR	Spot Lighting, Etc.
HLV2-3M-RGB-3W	Spot Lighting, Etc.
PFBR	Spot Lighting, Etc.
PFB2	Spot Lighting, Etc.
LNLP	Convergent Lighting
LNSP2	Convergent Lighting
LNSP	Convergent Lighting
Coaxial Units	Convergent Lighting
LNSP-FN	Convergent Lighting
LN/LN-HK	Convergent Lighting
LNSD	Diffused Lighting
LND2	Diffused Lighting
HLND	Diffused Lighting
LT	Diffused Lighting
LNV/HLND	Diffused Lighting
LNDG	Oblique Angled Lighting
LNIS	Oblique Angled Lighting
LNIS-FN	Oblique Angled Lighting
Telecentric Lens	Lenses
Macro Lens	Lenses

# LFV3 series



Refer to our website for product details.

CCS LFV3

Search

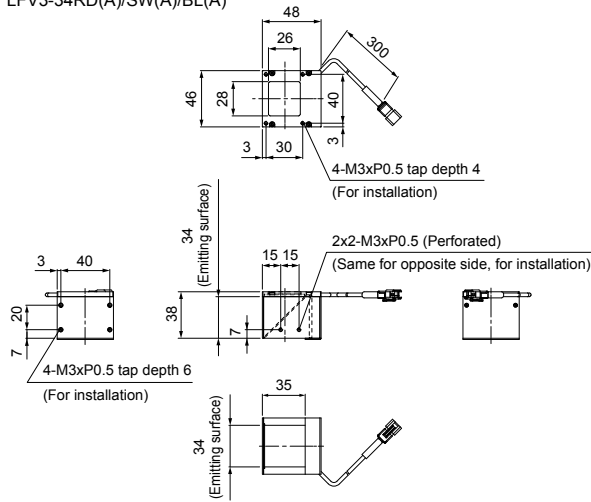


You can also use your smartphone or cell phone.

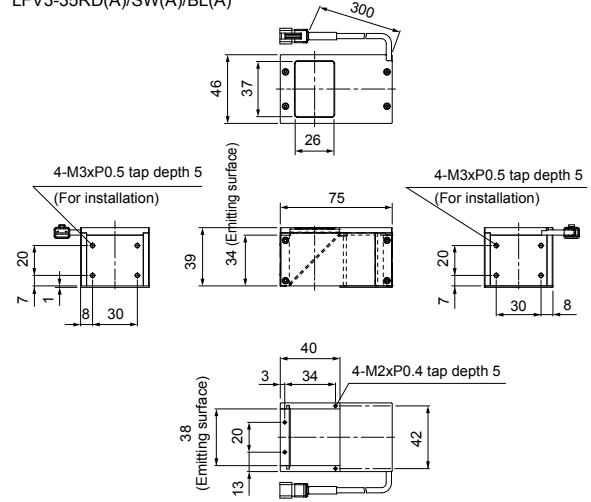
For quick access.

## Dimensions (mm)

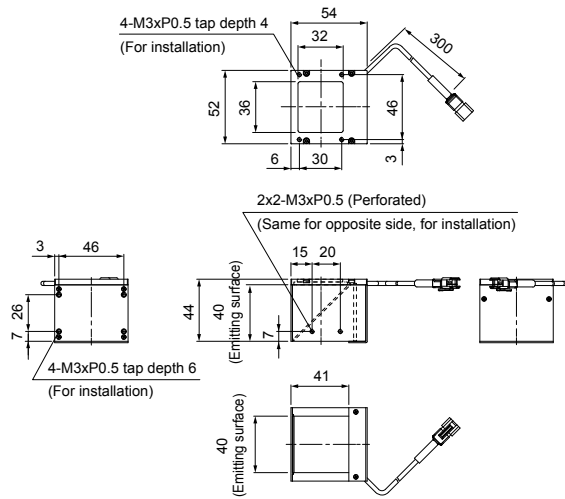
LFV3-34RD(A)/SW(A)/BL(A)



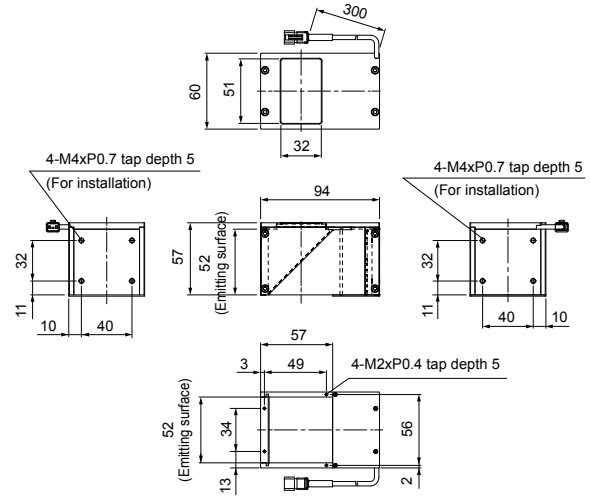
LFV3-35RD(A)/SW(A)/BL(A)



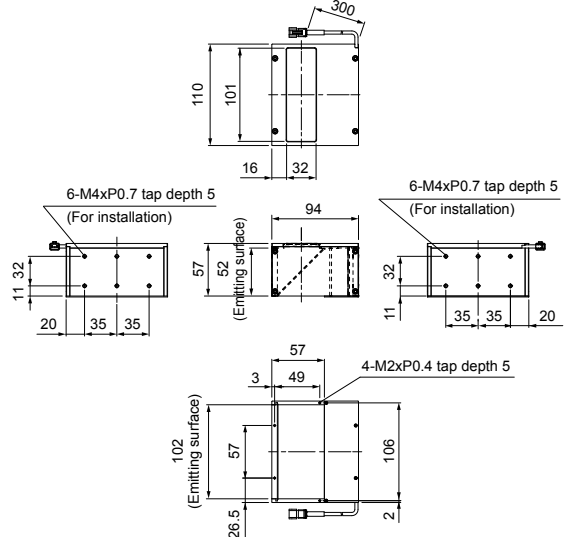
LFV3-40RD(A)/SW(A)/BL(A)



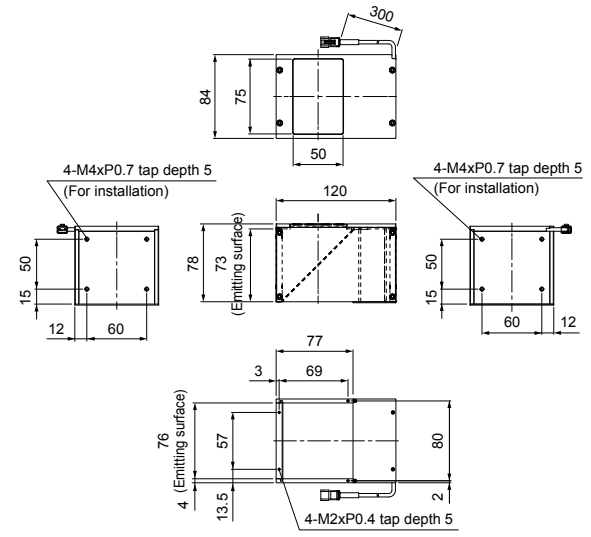
LFV3-50RD(A)/SW(A)/BL(A)



LFV3-50X100RD(A)/SW(A)/BL(A)



LFV3-70RD(A)/SW(A)/BL(A)

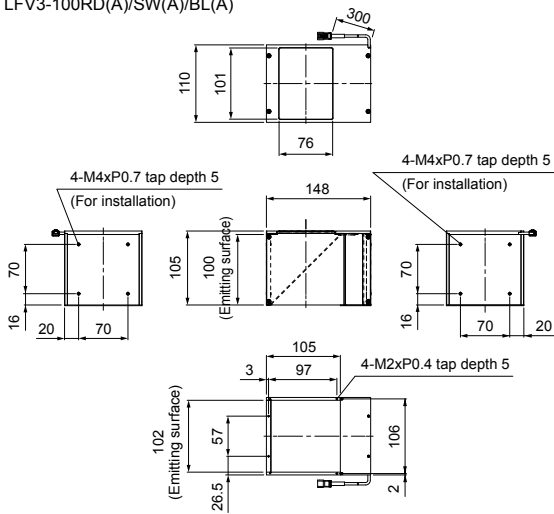


Various technical documents available.

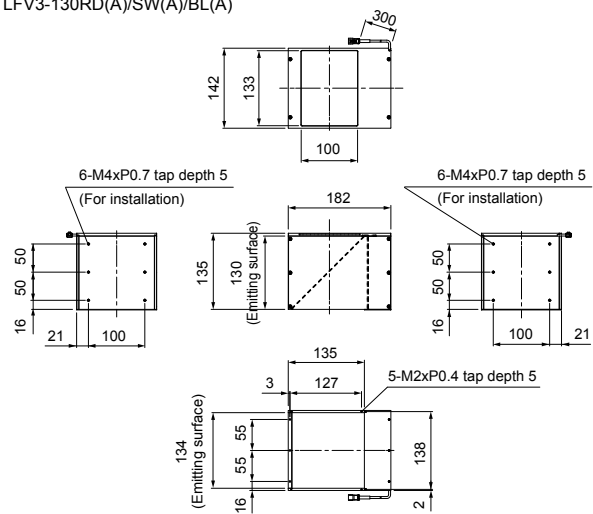
- PDF Drawings
- DXF Drawings
- 3D CAD
- Instruction Guides
- Product Filers
- Imaging Samples
- Data Sheets
- Examples of Custom Ordered Products

Download here. <http://www.ccs-grp.com/dl/>

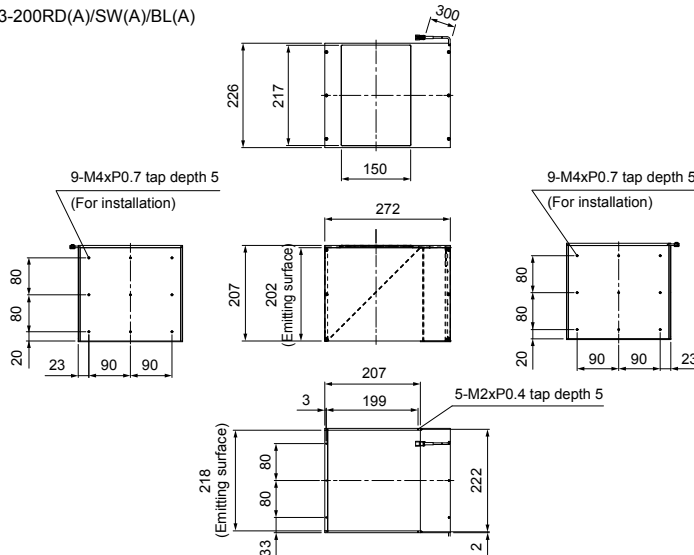
LFV3-100RD(A)/SW(A)/BL(A)



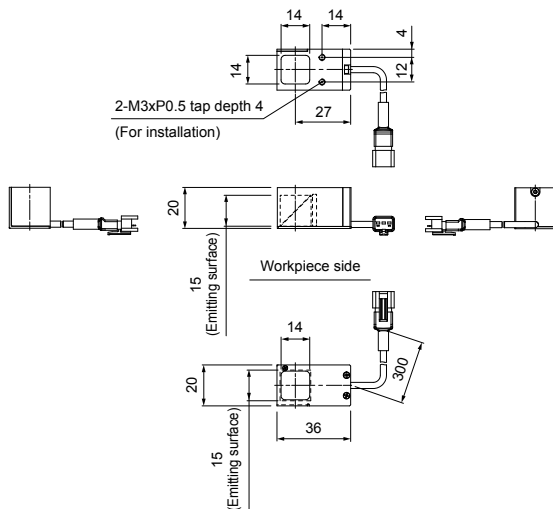
LFV3-130RD(A)/SW(A)/BL(A)



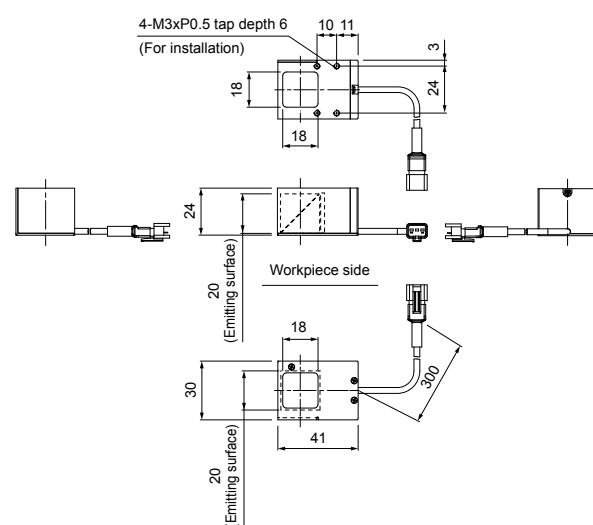
LFV3-200RD(A)/SW(A)/BL(A)



LFV3-CP-13RD/SW/BL



LFV3-CP-18RD/SW/BL



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.5 for details.

Direct Lighting	LDR2
	LDR2-LA
	LDR-LA1
	SQR
	SQR-TP
Diffused Lighting	HPR2
	LFR
	LKR
	FPR
	FPQ2
	LDL2
Direct Lighting	LDLB
	HLDL2
	HL
	TH2 (5 types)
	TH
	LFL
	HPD2
	LDM2
	LAV
	PDM
	LFX3
	LFX3-PT
	LFX2
	LFV3
Colimated Lighting	MSU
	MFU
Strobe Lighting	PF
Water-proof	HLDR-IP/ IQ/HSL-PCL
Ultraviolet Lighting	UV2
	UV
	LNSP-UV-FN
Infrared Lighting	IR2
Intensity Control	IU
Spot Lighting, Etc.	HLV2
	LV
	LSP
	HFS/HFR
	HLV2-NR
	HLV2-3M-RGB-3W
	PFBR
	PFB2
Convergent Lighting	LNLP
	LNSP2
	LNSP
	Coaxial Units
	LNSP-FN
	LN/LN-HK
Diffused Lighting	LNSD
	LND2
	HLND
	LT
	LNV/HLDN
Oblique Angled Lighting	LNDG
	LNIS
	LNIS-FN
Lenses	Telecentric Lens
	Macro Lens