

Diffused Lighting

Flat Dome Lights

LFX3 Series

Recreates the effect of a Dome Light with a thin case design

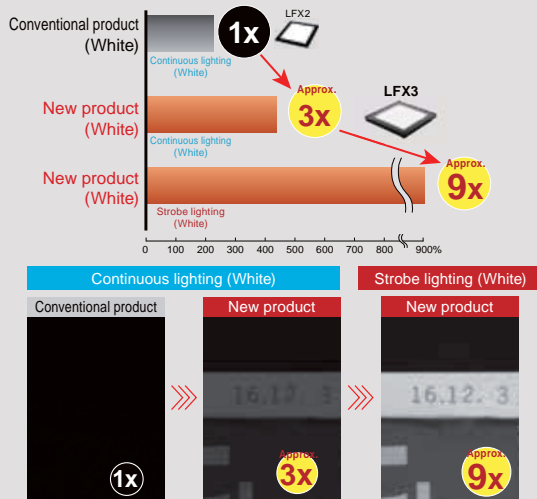


Applications

Appearance or text inspection on metal surfaces, curved surfaces, or uneven surfaces; mixed foreign material inspection of food and medicine; character recognition of packaging; inspection of text on can surfaces; etc.

High Output to Match High-Speed Inspection

The LFX3-series Light Units are high-power Flat Dome Lights perfect for fast-moving production lines. The brightness of the white lights has been tripled.



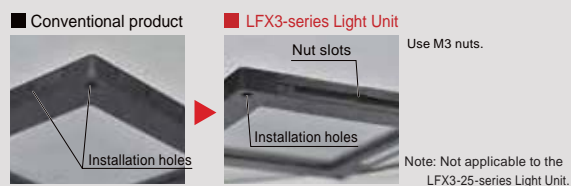
Shutter speed: 1/24,000

Measurement condition Intensity setting: 100%

Brightness comparison between the LFX2-100SW and LFX3-100SW Light Units. The data included is for reference only. Actual values may vary.

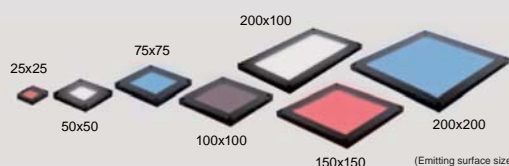
Installation Using Nut Slots

Nut Slots are provided on the sides of the Light Unit for a high degree of freedom in installation to match the environment.



Expanded Product Lineup: 28 Models in Total

The Light Unit is available in 7 sizes and 4 LED colors: red, white, blue, and infrared.



Series	Emitting surface size (mm)	LED color
LFX3-25 series	25 x 25	Red/White/Blue/IR
LFX3-50 series	50 x 50	
LFX3-75 series	75 x 75	
LFX3-100 series	100 x 100	
LFX3-150 series	150 x 150	
LFX3-200X100 series	200 x 100	
LFX3-200 series	200 x 200	

Designed to prevent falling screws

No worries of screws* loosening and falling. Cover screws are not used on the light projection side of the Light Unit.

* The screws that are used to install the Light Unit are not considered.

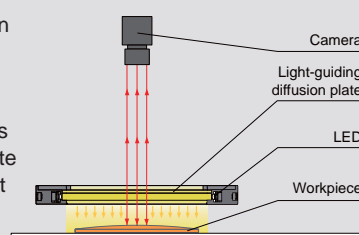
Light projection side



Example Configuration

The dot pattern on the surface of the light-guiding diffusion plate controls the diffusion and transmission of the illuminated light. This product can illuminate uniform diffused light onto the workpiece.

LFX3-100



Light-Weight Compact Design, Space-Saving Installation, and Wide Field of View

Comparison of images of printed text
Workpiece: Medicine
(Individual packaging)



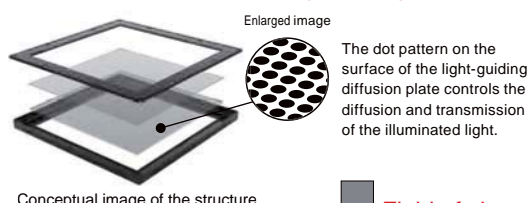
Flat Dome Light
LFX3-200BL



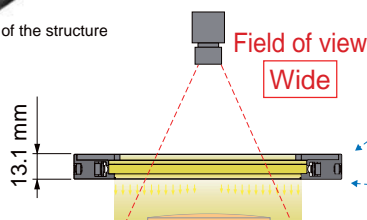
Dome Light + Coaxial Light
HPD2-250BL + LFX3-70BL



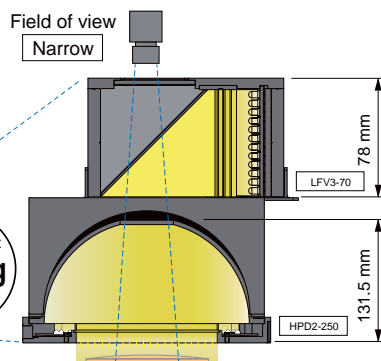
Comparison of structures
Flat Dome Light (LFX3-200)



Weight
910g



Dome Light + Coaxial Light
(HPD2-250) + (LFX3-70)



Total weight
1,800g
Including bracket

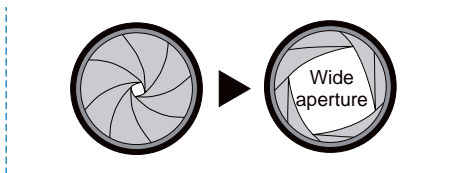
**Recreating the effect of Dome Lights
with a thin case design**

How to Use the LFX3 to Capture a Perfect Image

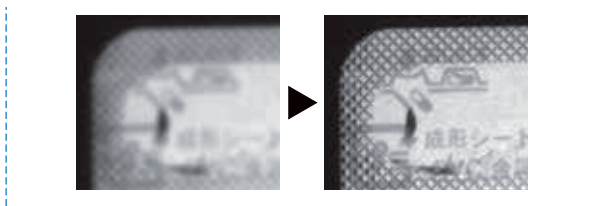
Uneven imaging may occur due to the dot pattern on the emitting surface

Reducing image unevenness caused by the dot pattern

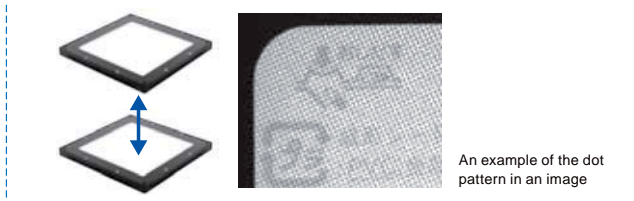
1. Widen the lens aperture slightly more than usual.



2. Focus the lens on the target workpiece.



3. If the dot pattern is visible, adjust the position of the Light Unit.



4. Finely adjust the light intensity.



Ambient light may reflect off the Light Unit surface or workpiece surface, affecting the imaging

To prevent effects from ambient light:

- Equip a lens filter to the lens.
- Prevent ambient light from entering with a hood or cover.
- Increase the shutter speed, or slightly increase the light intensity.

Direct Lighting	LDR2
	LDR2-LA
	LDR-LA1
	SQR
Diffused Lighting	SQR-TP
	HPR2
	LFR
	LKR
Direct Lighting	FPR
	FPQ2
	LDL2
	LDLB
Diffused Lighting	HDL2
	HL
	TH2 (5 types)
	TH
Diffused Lighting	LFL
	HPD2
	LDM2
	LAV
Diffused Lighting	PDM
	LFX3
	LFX3-PT
	LFV3
Coaxial Lighting	MSU
	MFU
	PF
	HLDR-IP/
Strobe Lighting	HSL-PCL
	UV2
	UV
	LNSP-UV-FN
Water-proof Lighting	IR2
	IU
	HLV3
	HLV2
Spot Lighting, Etc.	LV
	LSP
	HFS/HFR
	HLV3-NR
Spot Lighting, Etc.	HLV3-3M-RGB-4
	HLV2-NR
	HLV2-3M-RGB-3W
	PFBR
Convergent Lighting	PFB3
	PFB2
	LNLP
	LNSP2
Convergent Lighting	LNLP
	Coaxial Units
	LNLP-FN
	LN/LN-HK
Diffused Lighting	LNLD
	LND2
	HLND
	LT
Oblique-Angled Lighting	LNLD
	LNLD2
	LNLD
	LNLD
Lenses	LNLD
	LNLD2
	LNLD
	LNLD

LFX3 Series



Supports a Wide Variety of Applications from Low Angles to High Angles

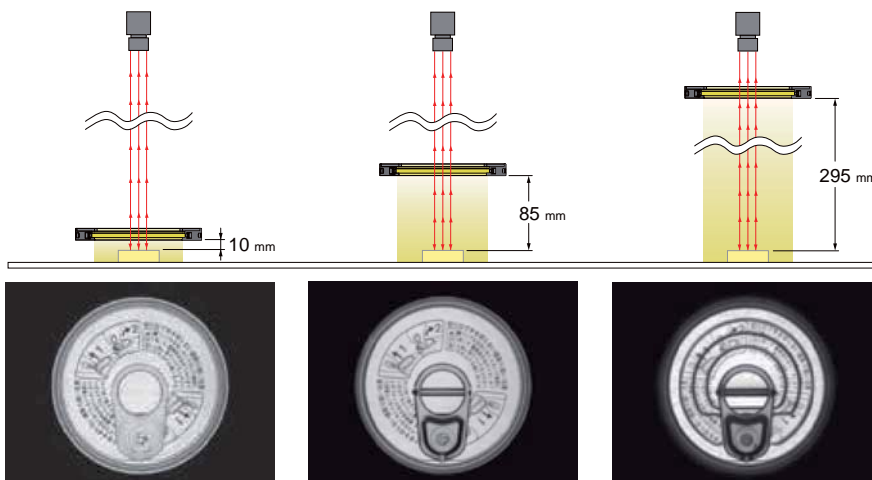
Imaging comparison: top of a can

Changing the distance between the Light Unit and the workpiece (LWD) allows for imaging to fit your purpose.

Workpiece image



Canned food



With illumination from LWD 10 mm, the whole surface of the workpiece can be illuminated evenly and the bumps are erased from the image.

With illumination from LWD 85 mm, the bumps of the pull tab alone can be emphasized in the image.

With illumination from LWD 295 mm, all of the bumps on the workpiece surface can be emphasized in the image.

Imaging environment: LFX3-100RD, f25 lens, WD 365 mm, field of view: 69 mm

Imaging Example: Imaging Characters on Button Cell Batteries



Description	Character recognition
Workpiece	Button cell batteries
Conventional lighting	LED Dome Light
New lighting	LFX3-100RD
Result	Emphasizes the characters

Workpiece image



Button cell batteries

LED Dome Light



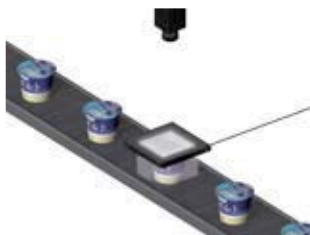
The textured surface makes it impossible to read the printed characters.

LFX3-100RD



Effects from the textured surface are suppressed so that the characters stand out clearly.

Imaging Example: Imaging the Appearance of Containers



Description	Visual inspection
Workpiece	Food (Yogurt containers)
Conventional lighting	LED Ring Light
New lighting	LFX3-100SW
Result	Improves the uniformity

Workpiece image



Food containers

LED Ring Light



It is difficult to image the surface evenly.

LFX3-100SW



The printed patterns on the surface are clearly captured.

Imaging Example: Imaging the Appearance of Cans (Top Surface)

Workpiece image



Cans (Top surface)

LED Flat Dome Light (Blue)



It is difficult to capture the texture of the top surface.

LFX3-100IR860 (Infrared)



The printed ink transmits infrared light so that the texture of the top surface is evenly captured.

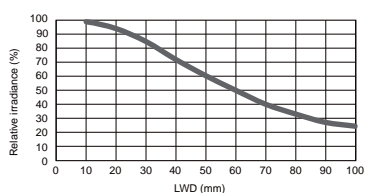
Data: Relative Irradiance Graph and Uniformity (Representative Example)

LFX3-100SW

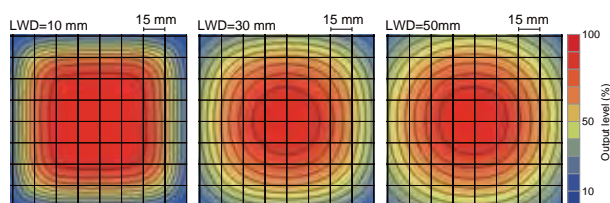
Relative irradiance graph
(LWD characteristics)^{*2}

^{*1} Irradiance on the optical axis

^{*2} Illuminating distance from the Light Unit to the workpiece



Uniformity (Relative irradiance)



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

Direct Lighting	LDR2 LDR2-LA LDR-LA1 SQR SQR-TP
Diffused Lighting	HPR2 LFR LKR FPR FPQ2
Direct Lighting	LDL2 LDLB HLDL2 HL
Diffused Lighting	TH2 (5 types) TH LFL HPD2 LDM2 LAV PDM LFX3 LFX3-PT LFX3
Coaxial Lighting	MSU MFU
Strobe Lighting	PF
Water-proof Lighting	HLDR-IP/ HSL-PCL
Ultraviolet Lighting	UV2 UV LNSP-UV-FN
Infrared Lighting	IR2
Intensity Control Lighting	IU
Spot Lighting, Etc.	HLV3 HLV2 LV LSP HFS/HFR HLV3-NR HLV3-3M-RGB-4 HLV2-NR HLV2-3M-RGB-3W PFB3 PFB2
Convergent Lighting	LNLP LNSP2 LNSP Coaxial Units LNSP-FN LN/LN-HK
Diffused Lighting	LNLD LND2 HLND LT LNV
Oblique Angled Lighting	LNDG LNIS2 LNIS LNIS-FN
Lenses	Telecentric Lens Macro Lens



Lineup

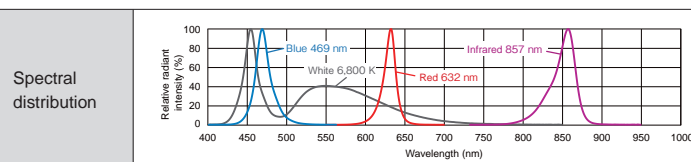
Model name	LED color	Power consumption	Peak wavelength / correlated color temperature	Options	Extension cables	Recommended Control Units	Weight																									
LFX3-25RD	Red	24 V / 1.6 W	632 nm	-	<div>FCB*⁶ Straight Cable</div> <div>FCB-W*⁷ 2-branch Cable</div> <div>FCB-F 4-branch Cable</div> <div>FRCB Robot Cable</div> <div>⁶The cables with a model name that ends with "-ME7", "-EL2", "-PF", or "-PF-EL9" are not included. ⁷The cables with a model name that ends with "-EL2" are not included.</div>	<div>PD3</div> <div>CC-ST-1024</div> <div>PSB</div> <div>POD*¹</div>	80 g																									
LFX3-25SW	White	24 V / 1.5 W	6,800 K			<div>PD3</div> <div>CC-ST-1024*²</div> <div>PSB</div> <div>POD*¹</div> <div>*2 Can only use blue and infrared.</div>	230 g																									
LFX3-25BL	Blue	24 V / 0.8 W	469 nm				<div>PD3</div> <div>CC-ST-1024*³</div> <div>PSB</div> <div>POD*¹</div> <div>*3 Can only use blue.</div>	320 g																								
LFX3-25IR860	Infrared	24 V / 1.4 W	857 nm					<div>PD3</div> <div>CC-ST-1024*⁴</div> <div>PSB</div> <div>POD*¹</div> <div>*4 Cannot use white.</div>	400 g																							
LFX3-50RD	Red	24 V / 13 W	632 nm						<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g																						
LFX3-50SW	White	24 V / 12 W	6,800 K							<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g																					
LFX3-50BL	Blue	24 V / 6.1 W	469 nm								<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g																				
LFX3-50IR860	Infrared	24 V / 6.6 W	857 nm									<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g																			
LFX3-75RD	Red	24 V / 13 W	632 nm										<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g																		
LFX3-75SW	White	24 V / 18 W	6,800 K											<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g																	
LFX3-75BL	Blue	24 V / 9.1 W	469 nm												<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g																
LFX3-75IR860	Infrared	24 V / 14 W	857 nm													<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g															
LFX3-100RD	Red	24 V / 19 W	632 nm														<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g														
LFX3-100SW	White	24 V / 23 W	6,800 K															<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g													
LFX3-100BL	Blue	24 V / 13 W	469 nm																<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g												
LFX3-100IR860	Infrared	24 V / 14 W	857 nm																	<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g											
LFX3-150RD	Red	24 V / 25 W	632 nm																		<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g										
LFX3-150SW	White	24 V / 35 W	6,800 K																			<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g									
LFX3-150BL	Blue	24 V / 19 W	469 nm																				<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g								
LFX3-150IR860	Infrared	24 V / 20 W	857 nm																					<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g							
LFX3-200X100RD	Red	24 V / 28 W	632 nm																						<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g						
LFX3-200X100SW	White	24 V / 35 W	6,800 K																							<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g					
LFX3-200X100BL	Blue	24 V / 19 W	469 nm																								<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g				
LFX3-200X100IR860	Infrared	24 V / 20 W	857 nm																									<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g			
LFX3-200RD	Red	24 V / 37 W	632 nm																										<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g		
LFX3-200SW	White	24 V / 46 W	6,800 K																											<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g	
LFX3-200BL	Blue	24 V / 25 W	469 nm																												<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>	620 g
LFX3-200IR860	Infrared	24 V / 27 W	857 nm																													<div>PD3</div> <div>CC-ST-1024*⁵</div> <div>PSB*⁵</div> <div>POD*¹</div> <div>*5 Can only use blue and infrared.</div>

Extension Cables ▶ P.308

Control Unit Selection Guide ▶ P.251

List of Control Unit Specifications ▶ P.253

LED Properties



Offers you the most suitable lens filter for each wavelength. For details about the lens filter, refer to P.299.

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.

Precautions for Use

Imaging may be affected by dirt or dust on the Light Unit's surface

Be careful when handling the emitting surface and do not let dirt, dust, or fingerprints get on the Light Unit.

- Do not touch dirt or dust by hand. Remove by blowing air.
- If finger prints get on the Light Unit, wipe them off using a fine soft cloth.
- If the Light Unit is very dirty, use a diluted neutral cleaner and a fine soft cloth to lightly wipe it down.

