CCS
CREATIVE CUSTOMER SATISFACTION

LIGHTING SOLUTION
LED Illuminators for Machine Vision

High-output Flat-Dome Light
The NEW LFX2 Series

Higher output for high-speed inspections.

Infrared light for a wide range of applications.

A Complete Lineup for Ideal Imaging

- Emitting Surface Size
  50×50 mm, 75×75 mm,
  100×100 mm, 150×150 mm,
  200×200 mm
- LED Colors
  Red, white, and infrared

NEW

FLAT DOME LIGHTING LFX2 SERIES

CCS Inc.

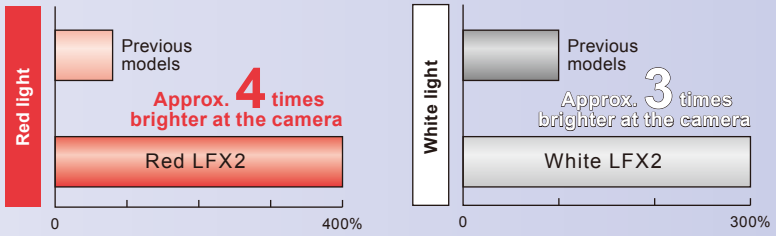
LFX2 Flat-Dome Light Advantages

Higher output for high-speed inspections

Brighter

Compared to previous models, the light is approximately 4 times brighter for red light and approximately 3 times brighter for white light at the camera output.

The LFX2 Series enables bright imaging for applications that could not be handled with the lower output of previous models.

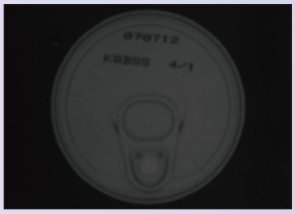


Notes:1) The brightness depends on the spectral sensitivity characteristics of the camera.
2) The graphs provided in this pamphlet are for reference only. They do not guarantee product quality.

● Image Comparison with Previous Models (Red Light)

Object:
Cans

Previous Model



The output of the previous model was too low for some applications.
Shutter speed: 1/4,000

LFX2 Series

With the LFX2, the output is sufficient for proper imaging at a shutter speed of 1/4,000.

Notes:1) The brightness depends on the spectral sensitivity characteristics of the camera.
2) The sample objects that are used were purchased and prepared by CCS, and are not intended to represent actual quality and performance.

Infrared light for a wide range of applications

Infrared Lights

Use these lights for a wide range of applications from visible light to invisible infrared light.

The peak wavelength for Infrared lights is 850 nm.

● Imaging Comparison with Red Light

Object:
Instant Food Package

Red Light

The printed pattern is still visible, making it difficult to see the surface condition.

Infrared Light

The printed pattern is completely eliminated so that the surface condition can be easily inspected.

Note: The sample objects that are used were purchased and prepared by CCS, and are not intended to represent actual quality and performance.

A Complete Lineup for Ideal Imaging

Complete Lineup

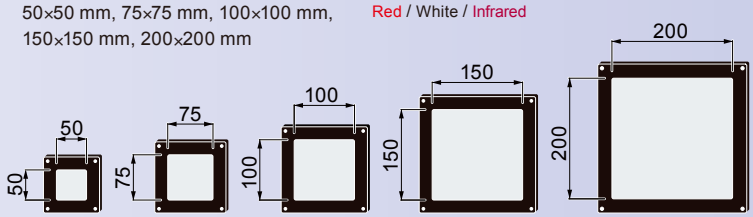
Models are available with five emitting surface sizes: 50, 75, 100, 150, and 200 mm. Select red, white, or infrared light.

●Emitting Surface Size

50×50 mm, 75×75 mm, 100×100 mm, 150×150 mm, 200×200 mm

●LED Colors

Red / White / Infrared



The LFX2 Flat-Dome Light can be used for wide range of applications in many different fields.

High Output to be compatible with High-speed Cameras; New Infrared Lights for Even More Applications

Application Examples in Packaging

Missing part inspections + Foreign object inspections

The products are uniformly lighted without showing the printed pattern on the packages.

Object

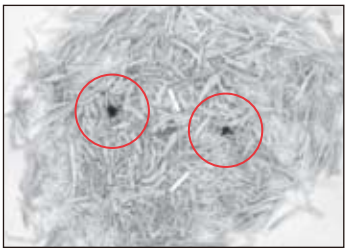
Product packs containing 4 products

Light Used

LFX2-200RD (red)

Application Examples in Food Industry

Foreign object inspections



Light is transmitted though tea leaves to detect only foreign objects.

Object

Tea leaves

Light Used

LFX2-200IR850 (infrared)

Application Examples in Pharmaceuticals

Fault inspections

The surface is uniformly lighted to inspect the edge or overlap of transparent film.

Object

Throat lozenges

Light Used

LFX2-200RD (red)

Note: The sample objects that are used were purchased and prepared by CCS, and are not intended to represent actual quality and performance.

Obtaining the Quality Image

1 The dot pattern in the emitting surface can produce inconsistent images.

Reducing inconsistent images produced by dot patterns

1. Open the lens aperture slightly.
2. Focus on the object precisely.
3. Adjust the height of the Light. (Install it outside the focal depth.)
4. Adjust the light intensity. (Suppress reflections and shining.)
5. If the light is too bright, increase the shutter speed of the camera.

2 Ambient light can reflect from the surface of the Light or object, which can affect the captured image.

Preventing the effects of ambient light

1. Install a hood or otherwise to block the ambient light.
2. For red light, mount a Sharp-cut Filter on the lens.
3. Increase the shutter speed of the camera. (Close the lens aperture slightly.)

Application Precautions

The captured image can be affected by dirt and dust on the surface of the Light.

Preventing the Effects of Dirt and Dust

- Handle the Light carefully to keep it clean from dirt, dust, and fingerprints.
- Do not wipe off dirt or dust with your fingers. Blow them off with air.
- If the Light becomes contaminated with fingerprints, wipe them off with a fine, soft cloth.
- If the Light becomes very dirty, wipe it off lightly with a thin solution of neutral detergent.

Luminescent spots may result from foreign matter in the emitting surface. These are within CCS inspection standards and do not indicate faults in the product.

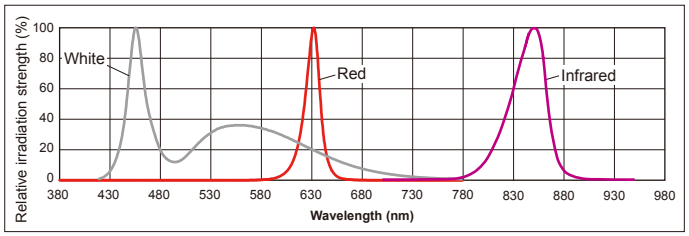
Specifications

Series	LFX2-50 Series			LFX2-75 Series			LFX2-100 Series			LFX2-150 Series			LFX2-200 Series		
Model	LFX2-50RD	LFX2-50SW	LFX2-50IR850	LFX2-75RD	LFX2-75SW	LFX2-75IR850	LFX2-100RD	LFX2-100SW	LFX2-100IR850	LFX2-150RD	LFX2-150SW	LFX2-150IR850	LFX2-200RD	LFX2-200SW	LFX2-200IR850
Direct number	1004156	1004160	1004164	1004157	1004161	1004165	1004158	1004162	1004166	1004159	1004163	1004167	1004115	1004116	1004117
LED color	Red	White	Infrared	Red	White	Infrared	Red	White	Infrared	Red	White	Infrared	Red	White	Infrared
Emitting surface size	50×50 mm			75×75 mm			100×100 mm			150×150 mm			200×200 mm		
Input voltage	24 VDC														
Power consumption	11 W	6.1 W	6.6 W	11 W	9.1 W	14 W	16 W	13 W	14 W	21 W	19 W	20 W	31 W	25 W	27 W
Peak wavelength (typ.) / corresponding color temperature (typ.)	635 nm	6600 K	850 nm	635 nm	6600 K	850 nm	635 nm	6600 K	850 nm	635 nm	6600 K	850 nm	635 nm	6600 K	850 nm
Case materials	Aluminum alloy and PMMA														
Cable	2-conductor cabtyre cable, 0.3 m (+35 mm, −0 mm)														
Connector	SMR-03V-B														
Polarity, signal	1: Anode (+), brown; 2: NC; 3: Cathode (−), blue														
Cooling method	Natural air cooling														
Operating temperature and humidity	Temperature: 0 to 40°C, humidity: 20% to 85%RH (with no condensation)														
Storage temperature and humidity	Temperature: −20 to 60°C, humidity: 20% to 85%RH (with no condensation)														
Weight	Approx. 180 g			Approx. 270 g			Approx. 350 g			Approx. 570 g			Approx. 920 g		

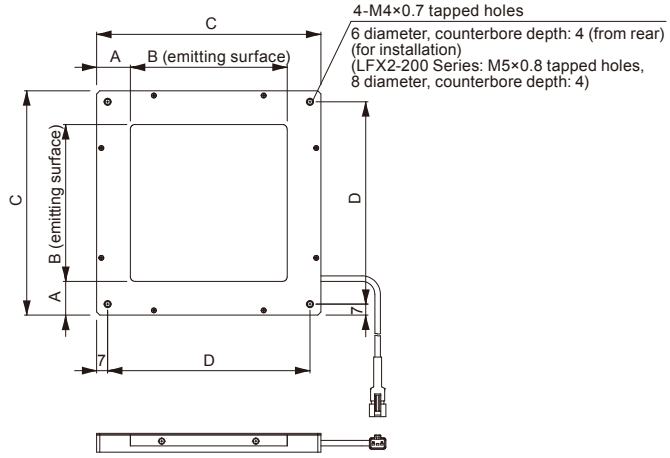
Notes:
1)LFX2 Flat-Dome Lights cannot be used together with a PTU2-3024, BB-V24S30-M, or BB-V24S30-S Strobe Power Supply(over drive) from CCS.
2)ON/OFF lighting control is possible with a PD2-series or BB-series, CC-ST-1024 Constant Lighting Power Supply.
3)The wavelengths are different from the previous models. Refer to the specular distribution diagram at the right.
4)The peak wavelength for Red Lights is 635 nm. If a Sharp-cut Filter is required, use a R60 Filter (optional).

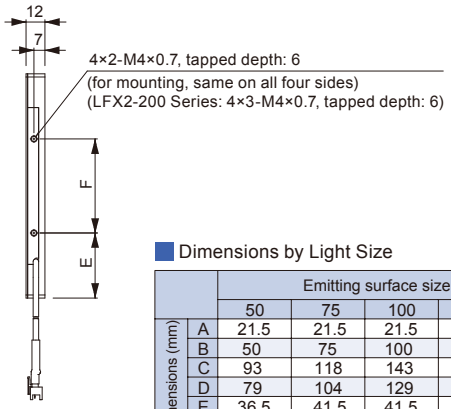
Direct Numbers:
A direct number is a 7-digit number assigned to a CCS product. You can easily access the web page providing information on any desired product by simply entering the direct number in the space provided on the CCS website pages for machine vision.
For details: http://www.ccs-grp.com/s6_common/direct.html

Specular Distribution Diagram



Dimensional Diagrams (mm)





Dimensions by Light Size

		Emitting surface size (mm)				
		50	75	100	150	200
Dimensions (mm)	A	21.5	21.5	21.5	21.5	23.5
	B	50	75	100	150	200
	C	93	118	143	193	247
	D	79	104	129	179	233
	E	36.5	41.5	41.5	46.5	43.5
	F	20	35	60	100	160

Notes:

- Carefully read the product's instruction manual before use to ensure correct operation.
- Product specifications and design are subject to change without notice.
- Examples of workpiece imaging in this catalog are a guide that may be informative for choosing illuminations. Please check the functions of the equipment and requirements when choosing.

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