



2015 General Catalog of LED Lighting for Machine Vision Applications

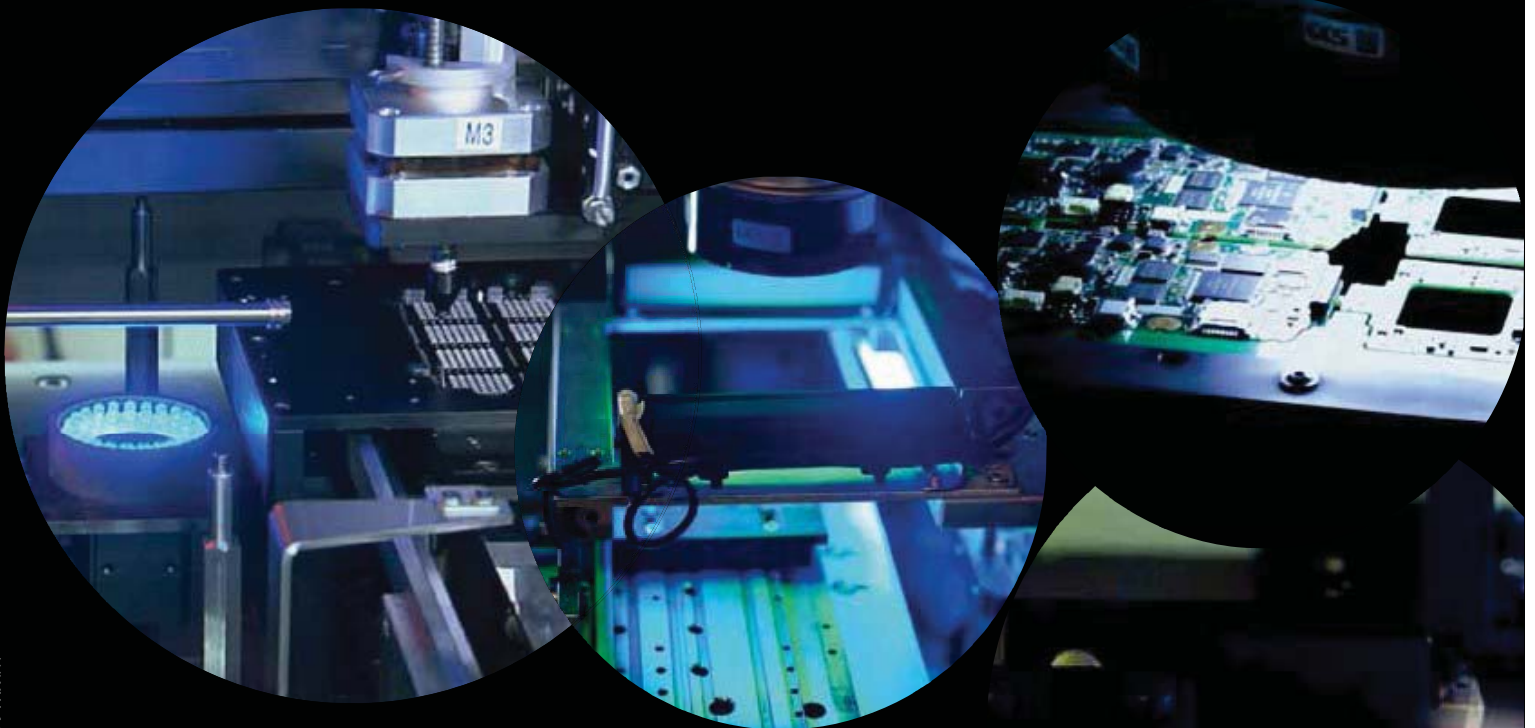
LIGHTING SOLUTION

2015

LIGHTING SOLUTION

LED ILLUMINATOR FOR MACHINE VISION

WORLD CLASS LED LIGHTING TECHNOLOGY
LET OUR EXPERTISE WORK FOR YOU



CCS Inc.

www.ccs-ill.com

Flat-Dome Lights

LFX2 series

Refer to our website for product details.

CCS LFX2

Search



You can also use your smartphone or cell phone.

Use a search engine.

Uses original lighting technology to recreate the effect of a Coaxial and Dome Light



Applications

Inspection for the exterior/text on metal surfaces, curved surfaces, or uneven surfaces, mixed foreign materials inspection for food and medicine, character recognition for packaging, and inspection for text on can surfaces, etc.

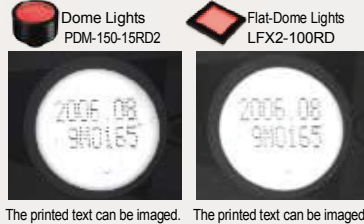
Recreates the effect of Dome Light and Coaxial Light

The Flat-Dome Light can, with one device, recreate the effects of Dome Light and Coaxial Light.

Imaging example: Imaging of packaging film



Imaging example: Imaging of printed text



Illuminates uniform diffused light using original lighting technology

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

Cross-section image of the LFX2-100

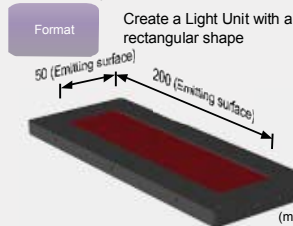


* Bright points may occur due to foreign material contained in the light-guiding diffusion plate. However, this is within our company's inspection standards and is not a product defect.

Custom orders

Please contact your CCS sales representative.

E.g.: Increase the size of a Light Unit in a narrow space

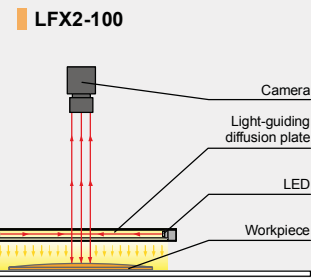


Customizable items

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

Example configuration

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



LDR2	Direct Lighting
LDR2-LA	
LDR-LA1	
SQR	
SQR-TP	
HLDL-IP	Convergent Lighting
HPR2	Diffused Lighting
HPR	
LFR	
LKR	
FPR	
FPQ2	
LDL2	Direct Lighting
LDLB	
HLDL2	Diffused Lighting
TH	
LFL	
HPD2	
HPD	
LDM2	
LAV	
PDM	
LFX2	
LFV3	
LFV2	
MSU	Collimated Lighting
MFU	
UV2	Ultraviolet Lighting
UV	
LN-SP-UV-FN	Infrared Lighting
IR2	
HLV2	Spot Lighting, Etc.
LV	
LSP	
HFS/HFR	
HLV2-NR	
HLV2-3M-RGB-3W	
PFB2	
PFB	
LN-SP	Convergent Lighting
CU-LN-SP	
LN-SP-FN	
LN/LN-HK	Diffused Lighting
LN-SD	
LN-D2	
LN-D	
LN-TP	Divergent Lighting
LN-TP-LN	
LN-TP-FN	
Telecentric Lens	Lenses
Macro Lens	

We have various materials.

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

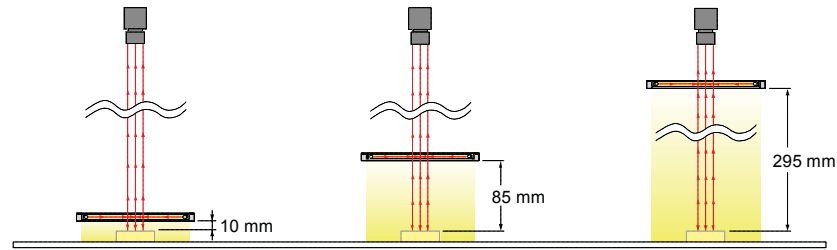
Download here. <http://www.ccs-grp.com/dl/>

Supports a wide variety of applications from low angles to high angles

Comparison of images
of the top of the can

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

Workpiece image



With illumination from LWD
10 mm, flat imaging that evenly
illuminates the whole thing is
possible.



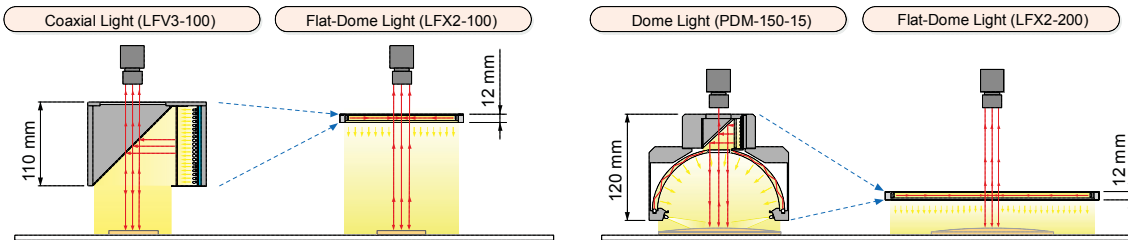
With illumination from LWD
85 mm, imaging that emphasizes
only the unevenness of the pull
tab is possible.



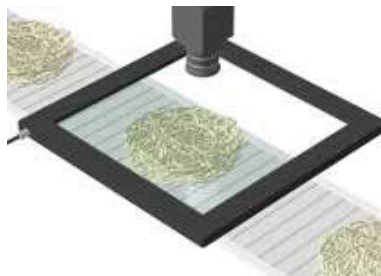
With illumination from LWD
295 mm, imaging that
emphasizes the surface
unevenness is possible.

* Imaging environment: LFX2-100RD, f25 lens, WD 365 mm, field of vision: 69 mm

Light-weight and compact, it achieves a space-saving installation with its thin design



Imaging example : Imaging of foreign materials mixed in instant noodles

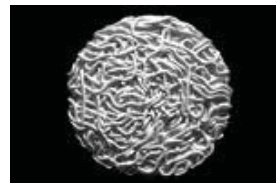


Description	Mixed foreign materials inspection
Workpiece	Instant noodles
Before the proposal	LED Ring Light
After the proposal	LFX2-200IR850: Infrared type
Result	Emphasizes the foreign material

Workpiece image

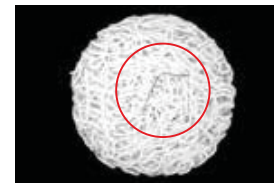


LED Ring Light



Due to effect from the unevenness
and small bumps on the surface,
it is difficult to get an image of the
foreign material.

LFX2-200IR850



Effect from the unevenness and
small bumps on the surface is
reduced, allowing for an image of the
foreign material.

* This workpiece was processed by CCS for
sample imaging.

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	LDR2-LA
	LDR-LA1
	SQR
SQR-TP	
Convergent Lighting	HLDR-IP
	HPR2
Diffused Lighting	HPR
	LFR
	LKR
	FPR
	FPQ2
Direct Lighting	LDL2
	LDLB
Diffused Lighting	HLDL2
	TH
	LFL
	HPD2
	HPD
	LDM2
	LAV
	PDM
	LFX2
	LFV3
	LFV2
Collimated Lighting	MSU
	MFU
	UV2
Ultraviolet Lighting	UV
	LNSP-UV-FN
Infrared Lighting	IR2
	HLV2
Spot Lighting, Etc.	LV
	LSP
	HFS/HFR
	HLV2-NR
	HLV2-3M-RCB-3W
	PFB2
PFBR	
Convergent Lighting	LNSP
	CU-LNSP
	LNSP-FN
	LN/LN-HK
Diffused Lighting	LNSD
	LND2
Other Lighting	HLND
	LT
Lens	LNV/HLDN
	LNIS
	LNIS-FN
Lens	Telecentric Lens
	Macro Lens

LFX2 series



Refer to our website for product details.

CCS LFX2

Use a search engine.

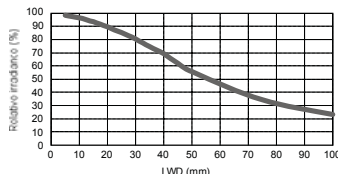


You can also use your smartphone or cell phone.

Data: Relative irradiance graph/Uniformity graph (Representative example)

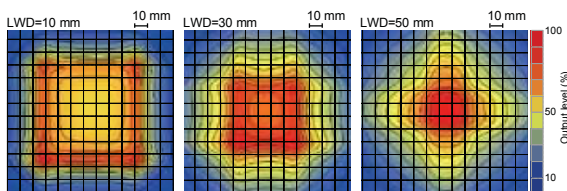
LFX2-100SW Relative irradiance graph (LWD Characteristics)^{1,2}

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



* The graph included is for reference only and does not guarantee the quality of this product.

Uniformity graph (Relative irradiance)

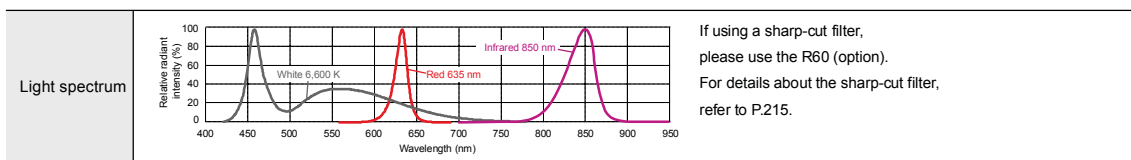


Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LFX2-50RD	Red	24 V / 11 W	635 nm	-	<input type="button" value="PD3"/> <input type="button" value="CC-ST-1024"/>	180 g
LFX2-50SW	White	24 V / 6.1 W	6,600 K		<input type="button" value="PSB"/> <input type="button" value="PTU2"/>	
LFX2-50IR850	Infrared	24 V / 6.6 W	850 nm	-	<input type="button" value="PD3"/> <input type="button" value="CC-ST-1024"/>	270 g
LFX2-75RD	Red	24 V / 11 W	635 nm		<input type="button" value="PSB"/> <input type="button" value="PTU2"/>	
LFX2-75SW	White	24 V / 9.1 W	6,600 K	-	<input type="button" value="PD3"/> <input type="button" value="CC-ST-1024"/>	270 g
LFX2-75IR850	Infrared	24 V / 14 W	850 nm		<input type="button" value="PSB"/> <input type="button" value="PTU2"/>	
LFX2-100RD	Red	24 V / 16 W	635 nm	-	<input type="button" value="PD3"/> <input type="button" value="CC-ST-1024"/>	350 g
LFX2-100SW	White	24 V / 13 W	6,600 K		<input type="button" value="PSB"/> <input type="button" value="PTU2"/>	
LFX2-100IR850	Infrared	24 V / 14 W	850 nm	-	<input type="button" value="PD3"/> <input type="button" value="CC-ST-1024"/>	570 g
LFX2-150RD	Red	24 V / 21 W	635 nm		<input type="button" value="PSB"/> <input type="button" value="PTU2"/>	
LFX2-150SW	White	24 V / 19 W	6,600 K	-	<input type="button" value="PD3"/> <input type="button" value="CC-ST-1024"/>	920 g
LFX2-150IR850	Infrared	24 V / 20 W	850 nm		<input type="button" value="PSB"/> <input type="button" value="PTU2"/>	
LFX2-200RD	Red	24 V / 31 W	635 nm	-	<input type="button" value="PD3"/> <input type="button" value="CC-ST-1024"/>	920 g
LFX2-200SW	White	24 V / 25 W	6,600 K		<input type="button" value="PSB"/> <input type="button" value="PTU2"/>	
LFX2-200IR850	Infrared	24 V / 27 W	850 nm		<input type="button" value="PD3"/> <input type="button" value="CC-ST-1024"/>	

Extension Cables ▶ P.222 Control Unit Selection Guide ▶ P.181 Control Unit Page ▶ P.185

LED properties



If using a sharp-cut filter, please use the R60 (option).
For details about the sharp-cut filter, refer to P.215.

Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only and does not guarantee the quality of this product.

Precautions for use

Imaging may be affected by dirt or dust becoming attached to the Light Unit's surface

Method for preventing effects from dirt and dust

- Be careful when handling the Light Unit 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 to lightly wipe it down.

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LNW/HLDN	
LNIS	
LNIS-FN	Telecentric Lens
Macro Lens	

We have various materials.

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

➤ To achieve a perfect image

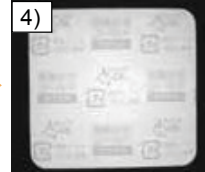
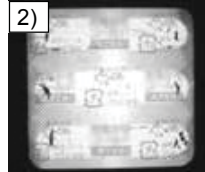
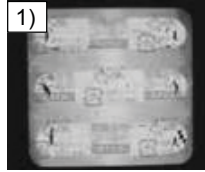
Uneven imaging may occur due to the dot pattern on the emitting surface

Method for reducing the image unevenness caused by the dots

- 1) Open the lens somewhat.
- 2) Match the focus to the target workpiece.
- 3) Adjust the position of the Light Unit (set outside of the depth of field).
- 4) Adjust the Light Unit intensity (prevent reflection and glare).
- 5) If there is too much light, increase the camera's shutter speed.



Workpiece: Medicine
(Blister pack)



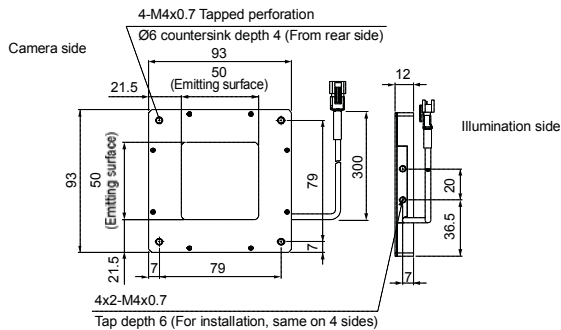
Ambient light may reflect off the Light Unit surface or workpiece surface, affecting the imaging

Method for preventing effects from ambient light

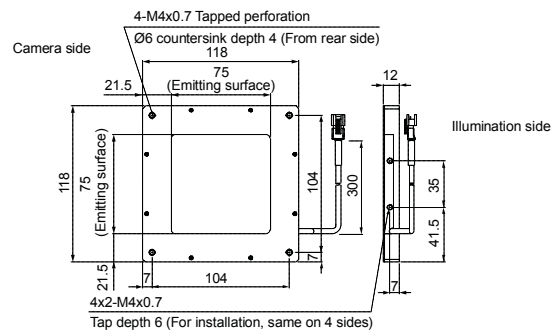
- Prevent ambient light from entering with a hood or the like.
- Increase the camera's shutter speed.
- If using red light, equip a sharp-cut filter to the lens. (Increase the Light Unit intensity somewhat.)

➤ Dimensions (mm)

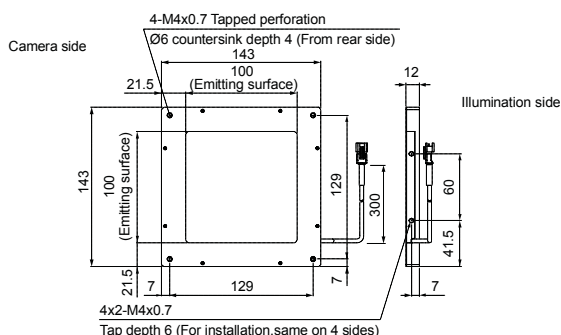
LFX2-50RD/SW/IR850



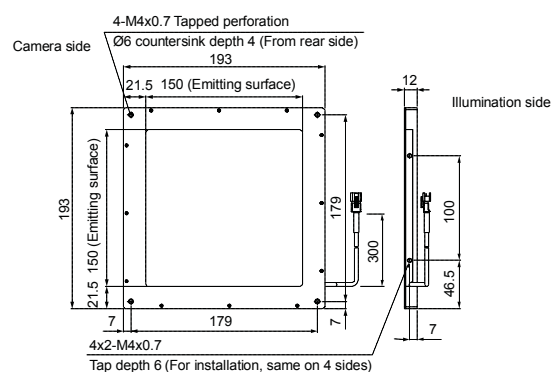
LFX2-75RD/SW/IR850



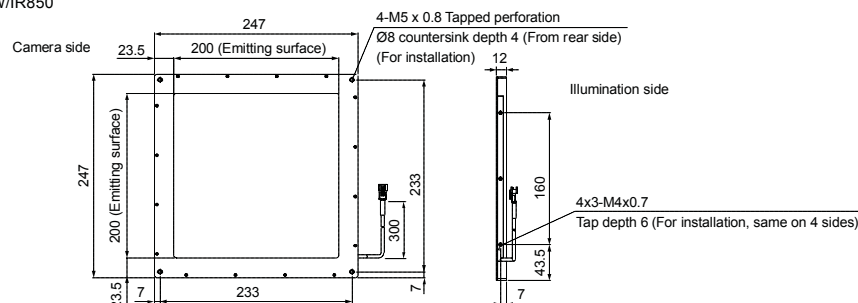
LFX2-100RD/SW/IR850



LFX2-150RD/SW/IR850



LFX2-200RD/SW/IR850



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.125 for details.

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LN/LN-HK
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LNV/HLDN

Special Lighting
LNIS
LNIS-FN

Lenses
Telecentric Lens
Macro Lens