Flat Dome Lights
LFX3 Series

Triple the Brightness of Conventional White Lights
* Comparison with the conventional 100X100 model.

Expanded Product Lineup: 28 Models in Total

Applications
- Reading characters on electronic components
- Visual inspection of food containers
- Detecting shrink films
- Visual inspection of cans

LFX3

LIGHTING SOLUTION
CCS Inc.
**Approx. 3x the Brightness for White**

For inspections in fast-moving production lines

Increased brightness with strobe lighting and overdriving.

![亮度比較](image)

**Total of 28 Models**

New sizes and blue color now supported.

<table>
<thead>
<tr>
<th>Emitting surface size (mm)</th>
<th>LED color</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 x 25</td>
<td>Red/White/IR</td>
</tr>
<tr>
<td>50 x 50</td>
<td>Red/White/IR</td>
</tr>
<tr>
<td>75 x 75</td>
<td>Red/White/IR</td>
</tr>
<tr>
<td>100 x 100</td>
<td>Red/White/IR</td>
</tr>
<tr>
<td>150 x 150</td>
<td>Red/White/IR</td>
</tr>
<tr>
<td>200 x 200</td>
<td>Red/White/IR</td>
</tr>
</tbody>
</table>

**Line Pattern Lights Are Also Available**

We altered the dot printings on the light-guiding diffusion plate surface to a line pattern.

- **Line Pattern Lights LFX3-PT-A/B Series**
  - **Application**: Inspection for bumps on a reflective surface
  - **LED color**: Red (RD), White (SW), Blue (BL), Infrared (IR)
  - **Emitting surface size (mm)**: 50 x 50, 75 x 75, 100 x 100, 150 x 150, 200 x 200
  - **Dimensions and other specs**: The same as those of the standard products.

**Imaging example using Line Pattern Lights**

- **Inspection object**: Metal plate
- **Detecting bumps on a metal surface**
- **Coaxial Light**: Coaxial Lights illuminate the whole surface evenly, making it difficult to detect the bumps.
- **Line Pattern Lights**: Line Pattern Lights highlight the bumps as curved lines.
Light-weight Compact Design, Space-saving Installation, and Wide Field of View

Operating Instructions - For obtaining a perfect image -

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

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.

Note: Not applicable for the LFX3-25-series Light Unit.

Light projection side
- Insert M3 nuts for nut slots.

Camera side
- Cover screws are used on this surface.

Conventional product
- Nut slots

LFX3-series Light Unit
- Installation holes
- Cover screws are not used:

Imaging example:
Printed characters

Workpiece: Medicine
(Individual packaging)

Dome Light (HPD2-250) + Coaxial Light (LFV3-70)

Flat Dome Light (LFX3-200)

Field of view
- Weight: 910g
- Field of view: Wide
- Total weight: 1,800g including bracket

Recreating the effect of Dome Lights with a thin case design

Workpiece: Pharmaceutical product
(Blister pack)

Light unit: HPD2-250BL
Coaxial Light: LFV3-70BL

1,800 g
Total weight
Including bracket
Field of view
Narrow
Wide
13.1 mm
131.5 mm
78 mm
13.6 mm

910 g
Weight
Field of view
Narrow
Wide
13.1 mm
131.5 mm
78 mm
13.6 mm
Introducing various examples using unique characteristics of the Flat Dome Lights

### Electronic Components Industry

#### Imaging Characters on a Textured Metal Surface

- **Workpiece:** Capacitor
- **Conventional product:** Ring Light (Red)
- **New product:** LFX3-25RD (Red)

The surface texture makes it difficult to read the characters clearly. Effects from the surface texture are suppressed so that the characters stand out clearly.

#### Imaging Characters on Button Batteries

- **Workpiece:** Button battery in a retail package
- **Conventional product:** Dome Light (Red)
- **New product:** LFX3-100RD (Red)

The textured surface makes it impossible to read the printed characters. Effects from the textured surface are suppressed so that the characters stand out clearly.

### Food Industry

#### Imaging the External Appearance of Containers

- **Workpiece:** Food (Yogurt container)
- **Conventional product:** Ring Light (White)
- **New product:** LFX3-100SW (White)

It is difficult to image the surface evenly. The printed patterns on the surface are clearly captured.

#### Imaging the Inner Surface of Cans

- **Workpiece:** Can (Inner surface)
- **Conventional product:** Dome Light (Red)
- **New product:** LFX3-200RD (Red)

Inner surface of the can is not evenly illuminated. Inner surface including the bottom of the can is evenly illuminated.
Packaging Industry

Imaging Characters on Packages

- Use a soft, finely woven cloth to wipe away any marks, such as fingerprints.
- Remove dirt and dust by blowing air rather than touching by hand.
- Use a soft, finely woven cloth soaked with diluted neutral detergent to remove any heavy dirt.

- Handle the emitting surface with care. Make sure no dirt, dust, or fingerprints get on the Light Unit.
  - Remove dirt and dust by blowing air rather than touching by hand.
  - Use a soft, finely woven cloth to wipe away any marks, such as fingerprints.
  - Use a soft, finely woven cloth soaked with diluted neutral detergent to remove any heavy dirt.

Effects from the bumps on the sealed part are suppressed so that the characters stand out clearly.

Packaging Industry

Imaging Shrink Film of Containers

- The shrink film is poorly imaged.
- The shrink film is clearly imaged.

Can Industry

Imaging the External Appearance of Cans

- It is difficult to image the texture of the top surface.
- The printed ink transmits an infrared light so that the texture of the top surface is evenly imaged.
### Product Lineup

<table>
<thead>
<tr>
<th>Model</th>
<th>LED color</th>
<th>Emitting surface size</th>
<th>Power consumption (max.)</th>
<th>Peak wavelength/Correlated color temperature (typ.)</th>
<th>Weight (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFX3-25RD</td>
<td>Red</td>
<td>25 mm x 25 mm</td>
<td>1.6 W</td>
<td>632 nm</td>
<td>80 g</td>
</tr>
<tr>
<td>LFX3-25SW</td>
<td>White</td>
<td>25 mm x 25 mm</td>
<td>1.5 W</td>
<td>6,800 K</td>
<td>230 g</td>
</tr>
<tr>
<td>LFX3-25BL</td>
<td>Blue</td>
<td>25 mm x 25 mm</td>
<td>0.8 W</td>
<td>469 nm</td>
<td>320 g</td>
</tr>
<tr>
<td>LFX3-25IR860</td>
<td>Infrared</td>
<td>25 mm x 25 mm</td>
<td>1.4 W</td>
<td>857 nm</td>
<td>400 g</td>
</tr>
<tr>
<td>LFX3-50RD</td>
<td>Red</td>
<td>50 mm x 50 mm</td>
<td>13 W</td>
<td>632 nm</td>
<td>620 g</td>
</tr>
<tr>
<td>LFX3-50SW</td>
<td>White</td>
<td>50 mm x 50 mm</td>
<td>12 W</td>
<td>6,800 K</td>
<td>910 g</td>
</tr>
<tr>
<td>LFX3-50BL</td>
<td>Blue</td>
<td>50 mm x 50 mm</td>
<td>6.1 W</td>
<td>469 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-50IR860</td>
<td>Infrared</td>
<td>50 mm x 50 mm</td>
<td>6.6 W</td>
<td>857 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-75RD</td>
<td>Red</td>
<td>75 mm x 75 mm</td>
<td>13 W</td>
<td>632 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-75SW</td>
<td>White</td>
<td>75 mm x 75 mm</td>
<td>18 W</td>
<td>6,800 K</td>
<td></td>
</tr>
<tr>
<td>LFX3-75BL</td>
<td>Blue</td>
<td>75 mm x 75 mm</td>
<td>9.1 W</td>
<td>469 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-75IR860</td>
<td>Infrared</td>
<td>75 mm x 75 mm</td>
<td>14 W</td>
<td>857 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-100RD</td>
<td>Red</td>
<td>100 mm x 100 mm</td>
<td>19 W</td>
<td>632 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-100SW</td>
<td>White</td>
<td>100 mm x 100 mm</td>
<td>23 W</td>
<td>6,800 K</td>
<td></td>
</tr>
<tr>
<td>LFX3-100BL</td>
<td>Blue</td>
<td>100 mm x 100 mm</td>
<td>13 W</td>
<td>469 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-100IR860</td>
<td>Infrared</td>
<td>100 mm x 100 mm</td>
<td>14 W</td>
<td>857 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-150RD</td>
<td>Red</td>
<td>150 mm x 150 mm</td>
<td>25 W</td>
<td>632 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-150SW</td>
<td>White</td>
<td>150 mm x 150 mm</td>
<td>35 W</td>
<td>6,800 K</td>
<td></td>
</tr>
<tr>
<td>LFX3-150BL</td>
<td>Blue</td>
<td>150 mm x 150 mm</td>
<td>19 W</td>
<td>469 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-150IR860</td>
<td>Infrared</td>
<td>150 mm x 150 mm</td>
<td>20 W</td>
<td>857 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-200X100RD</td>
<td>Red</td>
<td>200 mm x 100 mm</td>
<td>28 W</td>
<td>632 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-200X100SW</td>
<td>White</td>
<td>200 mm x 100 mm</td>
<td>35 W</td>
<td>6,800 K</td>
<td></td>
</tr>
<tr>
<td>LFX3-200X100BL</td>
<td>Blue</td>
<td>200 mm x 100 mm</td>
<td>19 W</td>
<td>469 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-200X100IR860</td>
<td>Infrared</td>
<td>200 mm x 100 mm</td>
<td>20 W</td>
<td>857 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-200RD</td>
<td>Red</td>
<td>200 mm x 200 mm</td>
<td>37 W</td>
<td>632 nm</td>
<td></td>
</tr>
<tr>
<td>LFX3-200SW</td>
<td>White</td>
<td>200 mm x 200 mm</td>
<td>46 W</td>
<td>6,800 K</td>
<td></td>
</tr>
<tr>
<td>LFX3-200BL</td>
<td>Blue</td>
<td>200 mm x 200 mm</td>
<td>25 W</td>
<td>469 nm</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Dimensions (mm)

LFX3-25RD/SW/BL/IR860

LFX3-75RD/SW/BL/IR860

LFX3-150RD/SW/BL/IR860

LFX3-200RD/SW/BL/IR860

LFX3-50RD/SW/BL/IR860

LFX3-100RD/SW/BL/IR860

LFX3-200X100RD/SW/BL/IR860

Note: These detail diagrams are not applicable for the LFX3-25-series Light Units.
Optional Accessories

Band-pass Filters

Camera lens filters to transmit light in a specific wavelength range

- Transmission of 90% or more
- Hard-coated filters with superior durability
- Each filter available in 23 sizes
- Total of 230 models

For Blue LED Light Units

For Red LED Light Units

For IR LED Light Units

Protective filter for Camera Lens

The product lineup also includes the following:

- F-BP324 (UV: 290 to 365 nm)
- F-BP590 (Orange: 560 to 600 nm)
- F-BP505 (Cyan: 485 to 550 nm)
- F-BP660 (Dark red: 640 to 680 nm)
- F-BP525 (Light green: 500 to 555 nm)
- F-BP600 (IR: 820 to 910 nm)
- F-LP920 (IR: 930 to 1,100 nm)

When you see the LEDs of the product, you may find some LEDs lit and others do not. This is because irradiation from the LEDs sometimes include visible light. The LED emits infrared radiation even when it seems not to light, so that do not look at the radiating surface of the product directly by the naked eye. To check out the lighting failure of the LED, use a camera to do it by indirect means. You can also check it out through an LCD display of the general-purpose digital camera or mobile phone.

Sharp-cut Filters

Blocks light in a specific wavelength range

- Each filter available in 7 sizes
- Total of 14 models

R60 series

R64 series

Blocks wavelengths of 600 nm and shorter.

Blocks wavelengths of 640 nm and shorter.

We accept custom orders for filter wavelength. Please feel free to ask your CCS sales representative for more details.

For using infrared products

CAUTION

- Do not expose human eyes to infrared radiation. Also, make known to all personnel concerned the risk of infrared radiation.
- When you see the LEDs of the product, you may find some LEDs lit and others do not. This is because irradiation from the LEDs sometimes include visible light. The LED emits infrared radiation even when it seems not to light, so that do not look at the radiating surface of the product directly by the naked eye. To check out the lighting failure of the LED, use a camera to do it by indirect means. You can also check it out through an LCD display of the general-purpose digital camera or mobile phone.

CCS Inc.

Headquarters
Shimodachiuri-agaru, karasuma-dori, kamiygo-ku, Kyoto 602-8011 JAPAN
TEL : +81-75-415-8284 / FAX : +81-75-415-8278
URL : http://www.ccs-grp.com/
E-mail : sales@ccs-inc.co.jp

CCS America, Inc
5 Burlington Woods Suite 204, Burlington, MA 01803 USA
URL : http://www.ccsamerica.com
Email : info@ccsamerica.com

CCS Europe NV/SA
Bergenesisleenweg 423, Bus 13, 1600 Sint-Pieters-Leuwe, Belgium
TEL : +32-(0)2-333-0080 / FAX : +32-(0)2-333-0081
Email : info@ccseu.com

CCS Asia PTE LTD
63 Hillview Avenue #07-10, Lam Soon Industrial Building, Singapore 669569
URL : http://www.ccs-asia.com.sg/
Email : sales@ccs-asia.com.sg

CCS Inc. Shanghai Office
Room 308B-309, CIMIC Tower No.1090 Century Avenue, Pu Dong New Area, Shanghai 200120, P.R. China
TEL : +86-21-5833-8928 / FAX : +86-21-5833-8928
Email : ccschina@ccs-inc.co.jp

CCS Inc. Shanghai offices
17F,China Economic Trade Building, 7RD Zulu, Zhuzlin, Futian District, Shenzhen 518040 P.R.China
Email : ccschina@ccs-inc.co.jp

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