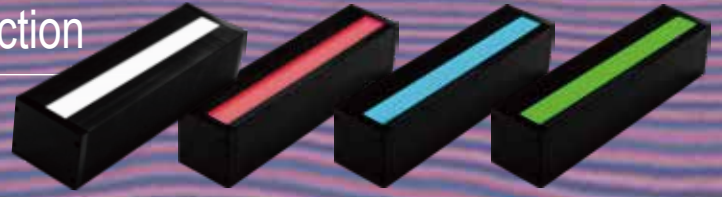


Lights for Interference Fringe Inspection

# LDF-NB Series



Lights that make coating presence or uneven thickness on thin films

# Visible

### ► Features

- Replacement for fluorescent lights and sodium vapor lamps
- CCS unique optical technology enables lower speckle noise\*1
- Four emission colors (red, green, blue, red/green/blue mixed colors) available to suit individual needs

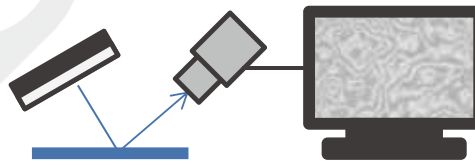
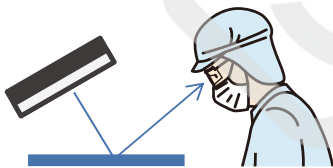
\*1 Speckle noise is a typical phenomenon associated with laser diodes.

\* Interference fringes happen when light is reflected from the top and bottom boundaries of a thin film. Alternating bright and dark bands are observed.

### Applications

■ Visual inspection

■ Camera inspection



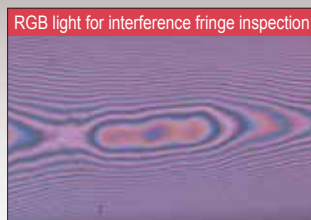
- Inspecting uneven coatings on films and glass
- Inspecting laminated glass for irregularities
- Inspecting wafer coatings for defects

### ► Imaging Example

#### — Glass Lamination Inspection —



Interference fringes and their pattern anomaly are not visible with general white LED

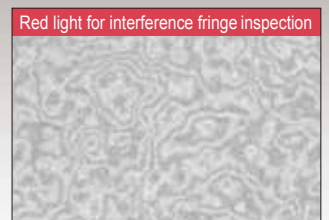


Visualized lamination anomaly with light for interference fringe inspection

#### — Film Coating Presence Inspection\* —



Interference fringes are not visible when there is no coating



Interference fringes are visible with coating

\*Imaged with a monochrome camera

## ▶ Lineup

| Model Name       | Emitting Color | Power Consumption | Peak Wavelength (typ.)   | Extension Cables        | Recommended Control Units*2 | Weight              |
|------------------|----------------|-------------------|--------------------------|-------------------------|-----------------------------|---------------------|
| LDF-200X20RD-NB  | Red            | 3.75 W            | 658 nm                   | FCB*1<br>Straight Cable | PD4 PD3<br>CC-ST-1024*3     | 770 g               |
| LDF-200X20GR-NB  | Green          | 9.60 W            | 520 nm                   |                         |                             |                     |
| LDF-200X20BL-NB  | Blue           | 7.97 W            | 450 nm                   |                         |                             |                     |
| LDF-200X20RGB-NB | Red/Green/Blue | 12.0 W            | 658 nm / 520 nm / 450 nm |                         |                             | FRCB<br>Robot Cable |

\*1 Except for FCB straight cables whose model names end with "-ME7", "-EL2", "-PF", or "-PF-EL9".

\*2 Use three or more power supply channels for LDF-200X20RGB-NB.

**Coaxial types, flat types, and other shapes and sizes are available for custom order.**

## ▶ Common Specifications

|                           |   |
|---------------------------|---|
| Input Voltage             | 24 VDC  |
| Connector                 | SMR-03V-B   |
| Cooling Method            | Natural air cooling   |
| Operating Conditions*1    | Temperature: 0°C to 35°C, Humidity: 20% to 80% RH                         |
| Storage Conditions*1      | Temperature: -20°C to 60°C, Humidity: 20% to 80% RH                       |
| Compatible Standards      | Safety Standards: EN60825-1, BS EN60825-1, GB7247.1, IEC60825-1, IEC62471 |
| Laser Classification      | Class 1   |
| Environmental Regulations | RoHS compliant  |
| Case Material             | Aluminum alloy  |

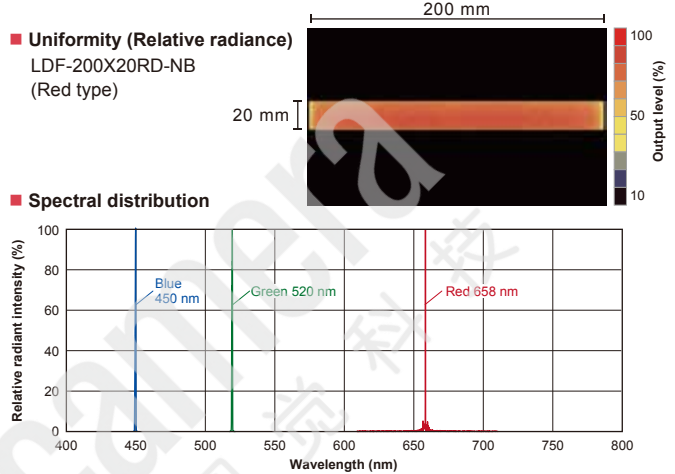
\*1 Light output may vary depending on the ambient temperature.

Do not expose to freezing temperatures, condensation, or sudden temperature changes.

\* The warranty period is for half a year from when the product ships. Emission amounts not guaranteed.

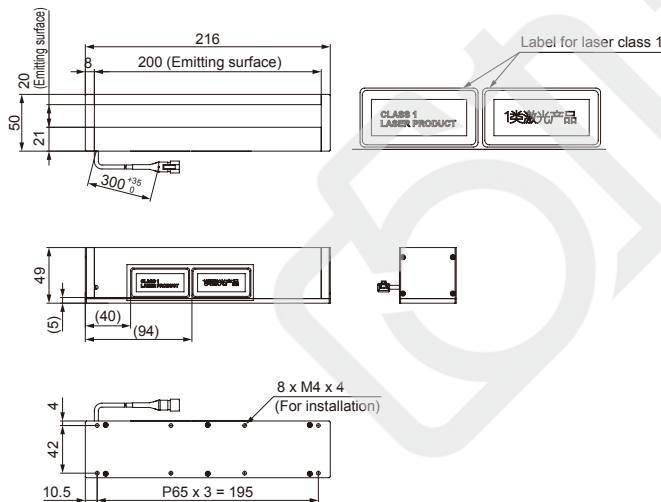
## ▶ Data (Representative Example)

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

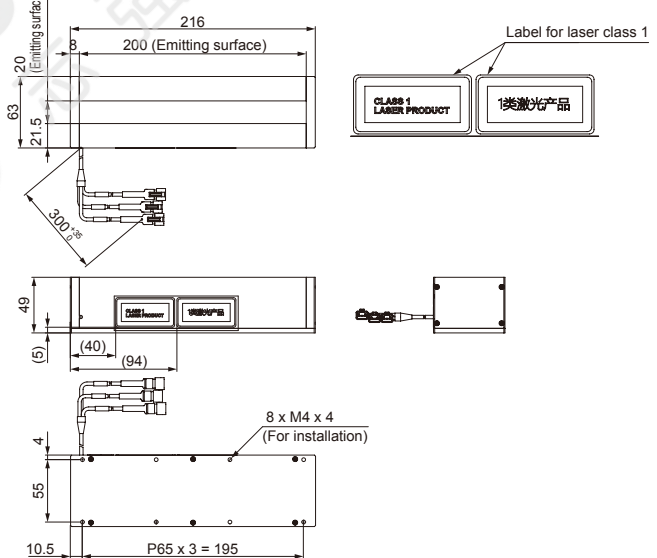


## ▶ Dimensions (mm)

### ■ LDF-200X20RD/GR/BL-NB



### ■ LDF-200X20RGB-NB



■ "CCS" and "LIGHTING SOLUTION" are registered trademarks or trademarks of CCS Inc.

## Notes

- To ensure proper and safe use of the product, please read the Instruction Guide completely before using the product.
- The design and specifications of this product are subject to change without notification for product improvement.

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Creating Customer Satisfaction

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**Warranty** The warranty system for these products is different from that of standard CCS machine vision LED lights. Contact our local sales office for details.

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