

# Low-angle Ring Lights

## LDR2-LA series

Provides direct light at a low angle from an angled emitting part



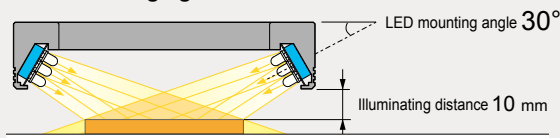
### Applications

Inspection for engraving, damage, or stains on metal surfaces; edge extraction; inspection for foreign material mixed with medicine; inspection for damage to glass edges; visual inspection for O-rings; etc.

### Extraction of uneven damage or engravings

Providing direct light from a low angle to the center section allows for an image that emphasizes the workpiece's characteristic features.

#### Imaging example for the LDR2-100RD2-LA: Exterior imaging of a coin



LDR2-90RD2



Edge extraction is difficult with illumination from a high angle.

LDR2-100RD2-LA

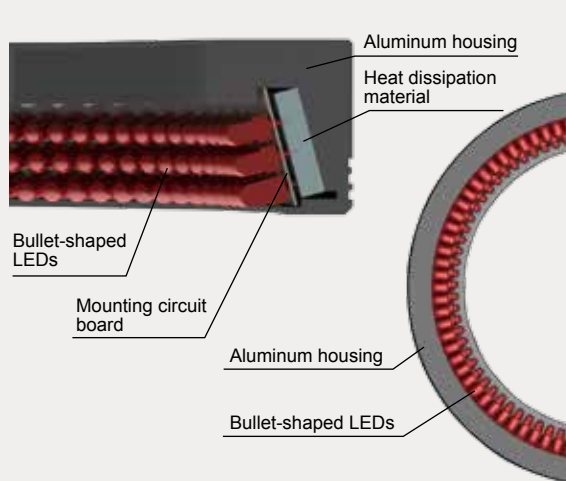


Illuminating from a low angle allows for imaging that emphasizes the edges.

### Illuminates from a low-angle at a steep slope

By mounting LEDs on a flexible circuit board in a steep angle, it becomes possible to converge light in the center section from a low position.

#### Cross-section image of the LDR2-132-LA

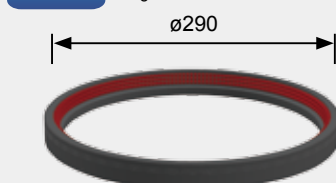


### Custom orders

Please contact your CCS sales representative.

E.g.: Different shape

Create a Light Unit with a large size



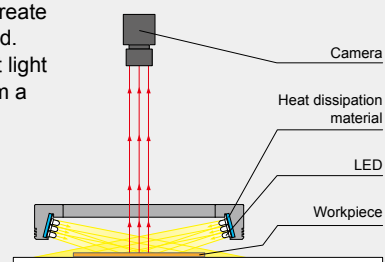
#### Customizable items

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

### Example configuration

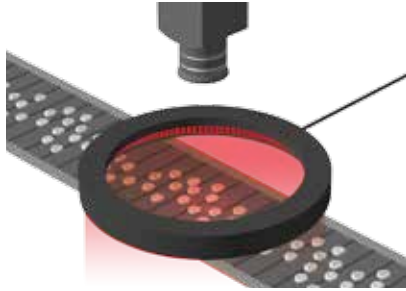
Using a flexible circuit board to create any angle needed. Illuminates direct light to the center from a low angle.

#### LDR2-132-LA



LDR2	Direct Lighting
LDR2-LA	Direct Lighting
LDR-LA1	Direct Lighting
SQR	Direct Lighting
SQR-TP	Direct Lighting
HPR2	Diffused Lighting
LFR	Diffused Lighting
LKR	Diffused Lighting
FPR	Diffused Lighting
FPQ2	Diffused Lighting
LDL2	Diffused Lighting
LDLB	Diffused Lighting
HDL2	Diffused Lighting
HL	Direct Lighting
TH2 (5 types)	Direct Lighting
TH	Direct Lighting
LFL	Direct Lighting
HPD2	Diffused Lighting
LDM2	Diffused Lighting
LAV	Diffused Lighting
PDM	Diffused Lighting
LFX3	Diffused Lighting
LFX3-PT	Diffused Lighting
LFX2	Diffused Lighting
LFV3	Diffused Lighting
MSU	Colimated Lighting
MFU	Colimated Lighting
PF	Strobe Lighting
HLDR-IP/	Water-proof
IQ/HSL-PCL	Water-proof
UV2	Ultraviolet Lighting
UV	Ultraviolet Lighting
LNSP-UV-FN	Ultraviolet Lighting
IR2	Infrared Lighting
IU	Intensity Control
HLV2	Spot Lighting, Etc.
LV	Spot Lighting, Etc.
LSP	Spot Lighting, Etc.
HFS/HFR	Spot Lighting, Etc.
HLV2-NR	Spot Lighting, Etc.
HLV2-3M-RGB-3W	Spot Lighting, Etc.
PFBR	Spot Lighting, Etc.
PFB2	Spot Lighting, Etc.
LNLP	Convergent Lighting
LN2P2	Convergent Lighting
LN2P	Convergent Lighting
Coaxial Units	Convergent Lighting
LN2P-FN	Convergent Lighting
LN/LN-HK	Convergent Lighting
LN2D	Convergent Lighting
LN2D	Convergent Lighting
HLND	Convergent Lighting
LT	Diffused Lighting
LN2V/HL2D	Diffused Lighting
LN2D	Diffused Lighting
LN2S2	Diffused Lighting
LN2S	Diffused Lighting
LN2S-FN	Diffused Lighting
Telecentric Lens	Oblique Angled Lighting
Macro Lens	Oblique Angled Lighting

## ➤ Imaging example : Text on tablets, exterior imaging



Description	Text, visual inspection
Workpiece	Tablet
Conventional lighting	Interior lamp
New lighting	LDR2-170RD2-LA
Result	Emphasizes text and edge of the exterior

Workpiece image



Tablet

Interior lamp



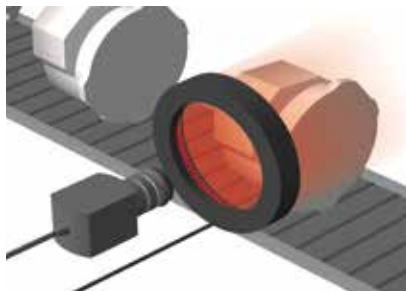
It is difficult to take an image that emphasizes the text or exterior.

LDR2-170RD2-LA



Possible to take an image that emphasizes the text or exterior.

## ➤ Imaging example : Imaging of engraved text on a metal block (stain finishing)



Description	Character recognition
Workpiece	Metal block
Conventional lighting	LED Dome Light
New lighting	LDR2-132RD2-LA
Result	Extracts only the engraved text

Workpiece image



Metal block (stain finishing)

LED Dome Light



The whole thing is illuminated, making it difficult to emphasize only the characters.

LDR2-132RD2-LA



Reduces effects from the stain finishing, making it possible to emphasize the characters.

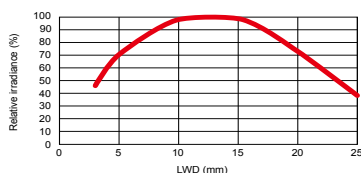
## ➤ Data: Relative irradiance graph and uniformity (Representative example)

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

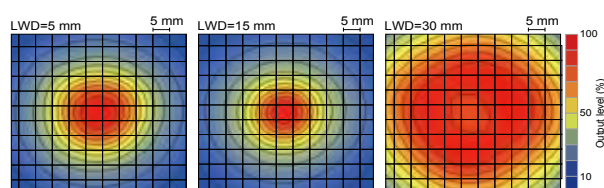
### LDR2-74RD2-LA

Relative irradiance graph<sup>\*1</sup>  
(LWD Characteristics)<sup>\*2</sup>

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



### Uniformity (Relative irradiance)





## Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Extension cables	Recommended Control Units	Weight
LDR2-48RD2-LA	Red	24 V / 2.1 W	630 nm	Diffusion plate	FCB*2 Straight Cable  FCB-W 2-branch Cable  FCB-F 4-branch Cable  FRCB Robot Cable  *2 The cables with a model name that ends with *-ME7* or *-EL2* are not included.	PD3    CC-ST-1024 PSB    POD*1	50 g
LDR2-48SW2-LA	White	24 V / 3.1 W	5,500 K				
LDR2-48BL2-LA	Blue		470 nm				
LDR2-48GR2-LA	Green		525 nm				
LDR2-74RD2-LA	Red	24 V / 4.6 W	630 nm			90 g	
LDR2-74SW2-LA	White	24 V / 5.7 W	5,500 K				
LDR2-74BL2-LA	Blue		470 nm				
LDR2-74GR2-LA	Green		525 nm				
LDR2-100RD2-LA	Red	24 V / 9.1 W	630 nm			170 g	
LDR2-100SW2-LA	White	24 V / 12 W	5,500 K				
LDR2-100BL2-LA	Blue		470 nm				
LDR2-100GR2-LA	Green		525 nm				
LDR2-132RD2-LA	Red		24 V / 13 W			630 nm	270 g
LDR2-132SW2-LA	White	24 V / 16 W	5,500 K				
LDR2-132BL2-LA	Blue		470 nm				
LDR2-132GR2-LA	Green		525 nm				
LDR2-170RD2-LA	Red		24 V / 18 W			630 nm	350 g
LDR2-170SW2-LA	White	24 V / 22 W	5,500 K				
LDR2-170BL2-LA	Blue		470 nm				
LDR2-170GR2-LA	Green		525 nm				
LDR2-208RD2-LA	Red		24 V / 22 W			630 nm	380 g
LDR2-208SW2-LA	White	24 V / 28 W	5,500 K				
LDR2-208BL2-LA	Blue		470 nm				
LDR2-208GR2-LA	Green		525 nm				

[Extension Cables ▶ P.296](#)    [Control Unit Selection Guide ▶ P.243](#)    [List of Control Unit Specifications ▶ P.245](#)

\*1 For information on the combination of Light Units and POD-series Control Unit, please refer to our website. <http://www.ccs-grp.com/lnk/qr/pod>

## LED properties

**Spectral distribution**

CCS offers you the most suitable lens filter for each wavelength. For details about the lens filter, refer to P.287.

**Directional characteristics**

■ Red LED

■ White LED

■ Blue LED

■ Green LED

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.

## Options



Can prevent glare, which is a problem when making images of glossy workpieces.

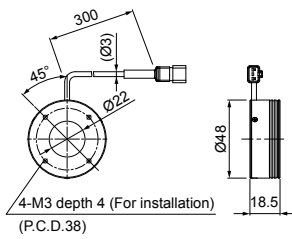
### Diffusion plate

Model name	Applicable Light Unit (Common for all colors)
DF-LDR-48LA	LDR2-48-LA
DF-LDR-74LA	LDR2-74-LA
DF-LDR-100LA	LDR2-100-LA
DF-LDR-132LA	LDR2-132-LA
DF-LDR-170LA	LDR2-170-LA
DF-LDR-208LA	LDR2-208-LA

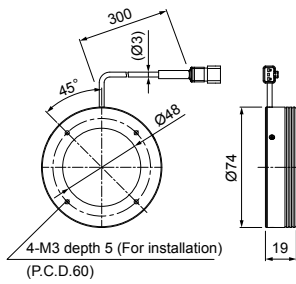
▶ P.290

## Dimensions (mm)

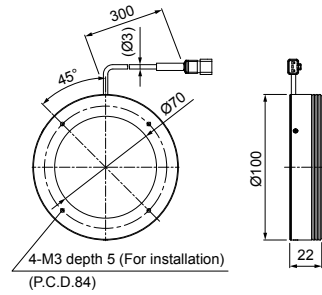
LDR2-48RD2-LA/SW2-LA/BL2-LA/GR2-LA



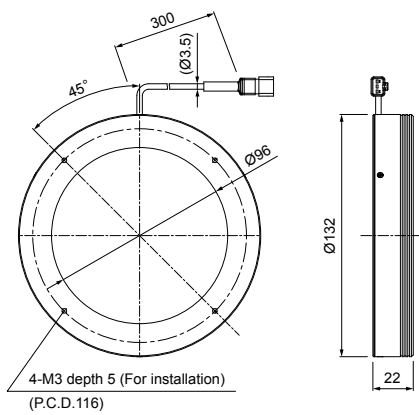
LDR2-74RD2-LA/SW2-LA/BL2-LA/GR2-LA



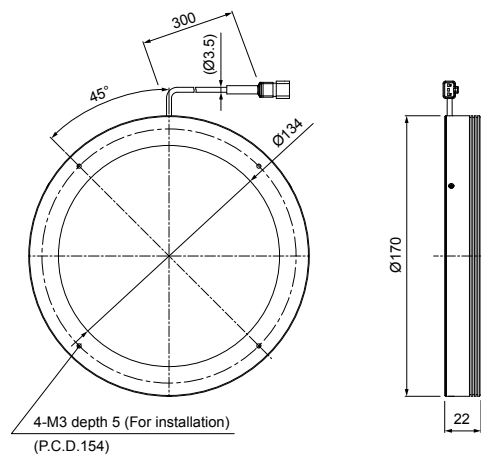
LDR2-100RD2-LA/SW2-LA/BL2-LA/GR2-LA



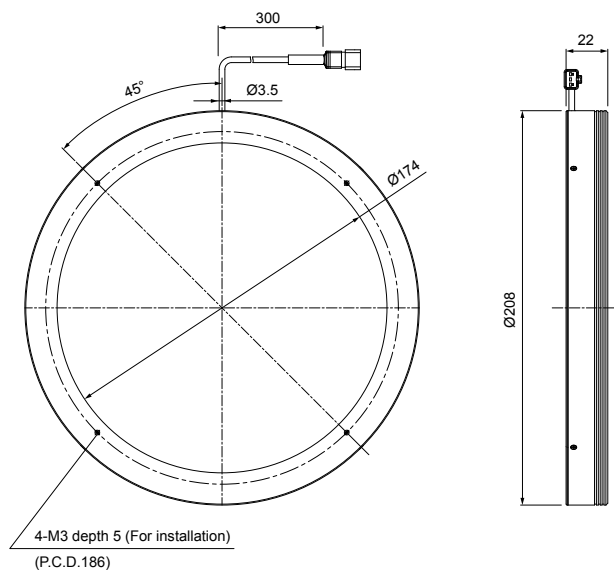
LDR2-132RD2-LA/SW2-LA/BL2-LA/GR2-LA



LDR2-170RD2-LA/SW2-LA/BL2-LA/GR2-LA



LDR2-208RD2-LA/SW2-LA/BL2-LA/GR2-LA



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.5 for details.